

```
In [1]: import numpy as np
import pandas as pd
import networkx as nx

import seaborn as sns
import matplotlib.pyplot as plt

import scipy.io
import os

import mne
from scipy.signal import coherence, hilbert
```

```
In [2]: colors = [
    'tab:blue',      # azul
    'tab:orange',    # naranja
    'tab:green',      # verde
    'tab:red',        # rojo
    'tab:purple',     # morado
    'tab:brown',      # café
    'tab:pink',        # rosa
    'tab:gray',        # gris
    'tab:olive',      # verde oliva
    'tab:cyan',        # cian
    'gold',           # dorado
    'deepskyblue',    # azul brillante
    'limegreen',       # verde limón
    'magenta',         # magenta
    'black'           # negro
]
```

```
In [25]: def plot_grafos(eeg_graph, df_filtered_):
    from mpl_toolkits.mplot3d.art3d import Line3DCollection

    %matplotlib widget

    fig = plt.figure(figsize=(12, 8))
    # axes = [fig.add_subplot(1, 2, i + 1, projection='3d') for i in range(2)]
    axes = [
        fig.add_subplot(2, 2, 1),          # 2D
        fig.add_subplot(2, 2, 2, projection='3d'), # 3D
        fig.add_subplot(2, 2, 3, projection='3d'), # 3D
        fig.add_subplot(2, 2, 4, projection='3d')  # 3D
    ]

    ##### GRAFO 2D #####
    nx.draw_circular(eeg_graph, with_labels=True, font_size=5, ax=axes[0])
    axes[0].set_title("grafo 2D")

    ##### GRAFO 3D #####
    x, y, z = eeg_coords['x'].values, eeg_coords['y'].values, eeg_coords['z'].value
    # DIBUJAR LOS NODOS
    for idx, (x_, y_, z_) in enumerate(zip(x, y, z)):
        axes[1].text(x_, y_, z_, eeg_coords.index[idx], fontsize=5, ha='center')
```

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        if eeg_coords.index[idx] == hub[0]:
            axes[1].text(x_, y_, z_ - 0.1, 'HUB', color='red', fontweight='bold', fon

# Dibujar aristas (basado en comunidades)
for idx, edge in enumerate(eeg_graph.edges):
    nodo1, nodo2 = edge[0], edge[1]
    x_ = [eeg_coords.loc[nodo1, 'x'], eeg_coords.loc[nodo2, 'x']]
    y_ = [eeg_coords.loc[nodo1, 'y'], eeg_coords.loc[nodo2, 'y']]
    z_ = [eeg_coords.loc[nodo1, 'z'], eeg_coords.loc[nodo2, 'z']]
    axes[1].plot(x_, y_, z_, alpha=0.4, linewidth=3)

axes[1].set_title("grafo 3D")

##### COMUNIDADES #####
nodo_size = [50 if idx != hub[0] else 200 for idx in eeg_coords.index]
# DIBUJAR LOS NODOS
axes[2].scatter(x, y, z, s=nodo_size, alpha=0.5)#, c=degree_dict.values(), cmap
for idx, (x_, y_, z_) in enumerate(zip(x, y, z)):
    axes[2].text(x_, y_, z_, eeg_coords.index[idx], fontsize=5, ha='center')
    if eeg_coords.index[idx] == hub[0]:
        axes[2].text(x_, y_, z_ - 0.1, 'HUB', color='red', fontweight='bold', fon

# Dibujar aristas (basado en comunidades)
for n_comunitie, communitie in enumerate(communities):
    for idx in range(len(communitie)-1):
        nodo1, nodo2 = list(communitie)[idx], list(communitie)[idx+1]
        x_ = [eeg_coords.loc[nodo1, 'x'], eeg_coords.loc[nodo2, 'x']]
        y_ = [eeg_coords.loc[nodo1, 'y'], eeg_coords.loc[nodo2, 'y']]
        z_ = [eeg_coords.loc[nodo1, 'z'], eeg_coords.loc[nodo2, 'z']]
        axes[2].plot(x_, y_, z_, color=colors[n_comunitie], alpha=0.4, linewidth

axes[2].set_xlabel('X')
axes[2].set_ylabel('Y')
axes[2].set_zlabel('Z')
axes[2].set_title("Comunidades")

##### GRADO Y CONEXIONES #####
# DIBUJAR LOS NODOS
# nodo_size = [50 if idx != hub[0] else 200 for idx in eeg_coords.index]
# sc = ax.scatter(x, y, z, s=nodo_size, alpha=0.5)#, c=degree_dict.values(), cm
axes[3].scatter(x, y, z, s=np.array(list(degree_dict.values()))*20, alpha=0.5)#
for idx, (x_, y_, z_) in enumerate(zip(x, y, z)):
    axes[3].text(x_, y_, z_, eeg_coords.index[idx], fontsize=5, ha='center')
    if eeg_coords.index[idx] == hub[0]:
        axes[3].text(x_, y_, z_ - 0.1, 'HUB', color='red', fontweight='bold', fon

# Dibujar aristas (basado en comunidades)
colors_, segments = [], []
for idx, edge in enumerate(eeg_graph.edges):
    nodo1, nodo2 = edge[0], edge[1]
    x_ = [eeg_coords.loc[nodo1, 'x'], eeg_coords.loc[nodo2, 'x']]
    y_ = [eeg_coords.loc[nodo1, 'y'], eeg_coords.loc[nodo2, 'y']]
    z_ = [eeg_coords.loc[nodo1, 'z'], eeg_coords.loc[nodo2, 'z']]
    axes[3].plot(x_, y_, z_, alpha=0.4, linewidth=3)

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        segment = np.column_stack([x_, y_, z_])
        segments.append(segment)
        colors_.append(df_filtered_.loc[nodo1, nodo2])

colors_ = np.array(colors_)
# Crear colección de líneas 3D
lc = Line3DCollection(
    segments,
    linewidths=3, #weights,
    cmap='hot_r',
    norm=plt.Normalize(vmin=colors_.min(), vmax=colors_.max()),
    alpha=0.5
)
lc.set_array(colors_)

# Añadir al eje
axes[3].add_collection3d(lc)

axes[3].set_xlabel('X')
axes[3].set_ylabel('Y')
axes[3].set_zlabel('Z')
axes[3].set_title("Grados y conexiones")

```

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In [4]: def metricas_grafo(G):
# Métricas:
# (a) Clustering promedio (coeficiente de agrupamiento)
clust_coeff = nx.average_clustering(G)
# (b) Longitud de camino promedio (camino más corto)
try:
    path_length = nx.average_shortest_path_length(G)
except nx.NetworkXError:
    path_length = np.nan # red no conexa
# (c) Small-worldness (ejemplo simplificado)
# Comparar con grafo aleatorio de igual N, K
G_rand = nx.gnm_random_graph(n=G.number_of_nodes(), m=G.number_of_edges())
clust_rand = nx.average_clustering(G_rand)
path_rand = nx.average_shortest_path_length(G_rand)
small_world_sigma = (clust_coeff / clust_rand) / (path_length / path_rand)

# (d) Modularidad – usando método de comunidades
from networkx.algorithms import community
communities = community.greedy_modularity_communities(G)
modularity = community.modularity(G, communities)

# (e) Hubs – grado, centralidad de intermediación
degree_dict = dict(G.degree())
betweenness = nx.betweenness_centrality(G)
betweenness = sorted(betweenness.items(), key=lambda x: x[1], reverse=True)

# (f) Eficiencia global y Local
global_eff = nx.global_efficiency(G)
local_eff = nx.local_efficiency(G)

return clust_coeff, path_length, small_world_sigma, communities, modularity, be

```

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In [5]: def crear_matriz(data, ch_names, sfreq_target, fmin, fmax, metodo="coherencia"):
# ===== 1. MATRIZ DE CORRELACIÓN DE PEARSON =====
if metodo == "correlacion":
    corr_matrix = np.corrcoef(data)
    corr_df = pd.DataFrame(corr_matrix, index=ch_names, columns=ch_names)
    return corr_df

# ===== 2. MATRIZ DE COHERENCIA ESPECTRAL =====
elif metodo == "coherencia":
    n_channels = len(ch_names)
    coh_matrix = np.zeros((n_channels, n_channels))
    for i in range(n_channels):
        for j in range(n_channels):
            f, Cxy = coherence(data[i], data[j], fs=sfreq_target, nperseg=sfreq
            mask = (f >= fmin) & (f <= fmax)
            coh_matrix[i, j] = np.mean(Cxy[mask])

    coh_df = pd.DataFrame(coh_matrix, index=ch_names, columns=ch_names)
    return coh_df

# ===== 3. MATRIZ DE PHASE LOCKING VALUE (PLV) =====
elif metodo == 'PLV':
    analytic_signal = hilbert(data)
    phase_data = np.angle(analytic_signal)

    plv_matrix = np.zeros((n_channels, n_channels))
    for i in range(n_channels):
        for j in range(n_channels):
            phase_diff = phase_data[i] - phase_data[j]
            plv_matrix[i, j] = np.abs(np.sum(np.exp(1j * phase_diff)) / phase_d

    plv_df = pd.DataFrame(plv_matrix, index=ch_names, columns=ch_names)
    return plv_df
else:
    return pd.DataFrame()

```

```

In [18]: def print_estadisticos(th25, th50, th75, mean, sigma):
    estadisticas = pd.DataFrame(columns=['perc_25', 'perc_50', 'perc_75', 'mean', '

    estadisticas.loc['min', 'perc_25'] = np.min(th25)
    estadisticas.loc['max', 'perc_25'] = np.max(th25)
    estadisticas.loc['mean', 'perc_25'] = np.mean(th25)
    estadisticas.loc['sigma', 'perc_25'] = np.std(th25)
    estadisticas.loc['min', 'perc_50'] = np.min(th50)
    estadisticas.loc['max', 'perc_50'] = np.max(th50)
    estadisticas.loc['mean', 'perc_50'] = np.mean(th50)
    estadisticas.loc['sigma', 'perc_50'] = np.std(th50)
    estadisticas.loc['min', 'perc_75'] = np.min(th75)
    estadisticas.loc['max', 'perc_75'] = np.max(th75)
    estadisticas.loc['mean', 'perc_75'] = np.mean(th75)
    estadisticas.loc['sigma', 'perc_75'] = np.std(th75)
    estadisticas.loc['min', 'mean'] = np.min(mean)
    estadisticas.loc['max', 'mean'] = np.max(mean)
    estadisticas.loc['mean', 'mean'] = np.mean(mean)
    estadisticas.loc['sigma', 'mean'] = np.std(mean)

```

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estadisticas.loc['min', 'sigma'] = np.min(sigma)
estadisticas.loc['max', 'sigma'] = np.max(sigma)
estadisticas.loc['mean', 'sigma'] = np.mean(sigma)
estadisticas.loc['sigma', 'sigma'] = np.std(sigma)
estadisticas.loc['min', 'mean+sigma'] = np.min(np.array(mean)+np.array(sigma))
estadisticas.loc['max', 'mean+sigma'] = np.max(np.array(mean)+np.array(sigma))
estadisticas.loc['mean', 'mean+sigma'] = np.mean(np.array(mean)+np.array(sigma))
estadisticas.loc['sigma', 'mean+sigma'] = np.std(np.array(mean)+np.array(sigma))

print('\033[1m Estadísticas de los umbrales')
print(estadisticas)

def plot_estadisticos_ensayos(eeg_dfs):
    fig, axes = plt.subplots(2, 2, figsize=(12, 7))

    th25, th50, th75, mean, sigma = [], [], [], [], []

    plt.subplots_adjust(hspace=0.5)
    for eeg_df in eeg_dfs:
        data = eeg_df.stack().values
        sns.histplot(data, ax=axes[0][0], kde=True)
        sns.ecdfplot(data, ax=axes[0][1])

        th25.append(np.percentile(data, 25))
        th50.append(np.percentile(data, 50))
        th75.append(np.percentile(data, 75))
        mean.append(np.mean(data))
        sigma.append(np.std(data))

    axes[1][0].plot(th25, label='Percentil 25%')
    axes[1][0].plot(th50, label='Percentil 50%')
    axes[1][0].plot(th75, label='Percentil 75%')
    axes[1][0].plot(np.array(mean)+np.array(sigma), label='Mean+Sigma')
    axes[1][0].plot(mean, label='Media')
    axes[1][0].plot(sigma, label='Varianza')
    axes[1][0].set_xlabel('Número de ensayo')
    axes[1][0].legend()

    axes[0][0].set_title('Histograma')
    axes[0][1].set_title('Datos acumulados')
    axes[1][0].set_title('Umbrales')

    print_estadisticos(th25, th50, th75, mean, sigma)

    return th25, th50, th75, mean, sigma

```

```

In [21]: def filtrado_ensayos(df_list, threshold, porcentaje):
    # Convierte todos a numpy y apílalos
    stacked = np.stack([df.values for df in df_list])

    above = stacked > threshold

    N = len(df_list)

    # Cuenta cuántos superan el umbral
    count_above = above.sum(axis=0)

```

```

# Condición de porcentaje
min_required = int(np.ceil(porcentaje * N))

# Matriz final booleana
result_bool = count_above >= min_required

# Si quieres un dataframe:
result_df = pd.DataFrame(result_bool, index=df_list[0].index, columns=df_list[0]

return result_df

```

```

In [8]: def carga_y_procesamiento(edf_file_path, fmin=8, fmax=13):
# ===== CARGA Y PREPROCESAMIENTO =====
raw = mne.io.read_raw_edf(edf_file_path, preload=True)
sfreq_target = raw.info['sfreq'] # Frecuencia de muestreo a la que normalizamos
# fmin, fmax = 8, 13           # Banda alfa para la coherencia (puedes ajustar

raw.resample(sfreq_target)
raw.filter(1., 45., fir_design='firwin')
eeg_data = raw.get_data()
ch_names = raw.info['ch_names']
n_channels = len(ch_names)

return eeg_data, ch_names, sfreq_target

```

```

In [9]: def leer_archivos_de_folder(edf_path):
# Leer todos los archivos .edf del folder
edf_files_path = []
for root, dirs, files in os.walk(edf_path):
    for file in files:
        if file.endswith(".edf"):
            edf_files_path.append(os.path.join(root, file))

return edf_files_path

```

```

In [10]: def lee_ensayo_dfs(ensayo_dict):
ensayo_dfs = []
for hoja in ensayo_dict.keys():
    ensayo_dfs.append(ensayo_dict[hoja])

return ensayo_dfs

```

## Path con ensayos y sujetos

```

In [11]: edf_path_ = r"..\\S03_datasets\\eeg-motor-movementimagery"

edf_files_path_ = leer_archivos_de_folder(edf_path_)

```

```

In [12]: # Coordinadas de electrodos
eeg_coords_csv = r"..\\S03_datasets\\eeg-motor-movementimagery\\MI_coordinates.csv"
eeg_coords = pd.read_csv(eeg_coords_csv)

```

```
eeg_coords.set_index("canal", drop=True, inplace=True)
```

## Conjunción de ensayos

```
In [8]: # Creamos estructura para guardar los datasets
edf_sujetos = []
```

```
no_runs = 14
for run in range(no_runs):
    edf_sujetos.append([])
```

```
In [10]: fmin, fmax = 13, 30 # Se escoge la banda beta

for idx, edf_file_path_ in enumerate(edf_files_path_):
    ensayo = idx % no_runs
    sujeto = idx // no_runs
    print(f"Procesando sujeto {idx // no_runs + 1}, ensayo {ensayo + 1}")
    # # edf_file_path_ = edf_files_path_[0]
    data_, ch_names_, sfreq_target_ = carga_y_procesamiento(edf_file_path_, fmin, f

    # Creacion de matriz
    eeg_df = crear_matriz(data_, ch_names_, sfreq_target_, fmin, fmax)
    # Se cambia la diagonal a 0
    np.fill_diagonal(eeg_df.values, 0)

    edf_sujetos[ensayo].append(eeg_df)
```

Procesando sujeto 1, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S001\S001R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 1, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S001\S001R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
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#### FIR filter parameters

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- Filter length: 529 samples (3.306 s)

Procesando sujeto 1, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S001\S001R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters



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Procesando sujeto 1, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S001\S001R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
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- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
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- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 1, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S001\S001R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

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- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
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- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 1, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

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2026-1\S03_datasets\eeg-motor-movementimagery\S001\S001R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

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Designing a one-pass, zero-phase, non-causal bandpass filter:
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- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 1, ensayo 7

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Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S001\S001R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

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- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 1, ensayo 8

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Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S001\S001R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

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Designing a one-pass, zero-phase, non-causal bandpass filter:

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- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 1, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S001\S001R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 1, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S001\S001R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 1, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S001\S001R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 1, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S001\S001R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 1, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S001\S001R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 1, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S001\S001R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S002\S002R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S002\S002R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S002\S002R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S002\S002R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S002\S002R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S002\S002R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S002\S002R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S002\S002R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S002\S002R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)



- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S002\S002R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S002\S002R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S002\S002R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S002\S002R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 2, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S002\S002R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 3, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S003\S003R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 3, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S003\S003R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 3, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S003\S003R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 3, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S003\S003R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 3, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S003\S003R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 3, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S003\S003R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 3, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S003\S003R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 3, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S003\S003R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 3, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S003\S003R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 3, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S003\S003R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 3, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S003\S003R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 3, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S003\S003R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 3, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S003\S003R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 3, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S003\S003R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 4, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S004\S004R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 4, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S004\S004R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...



Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

#### Procesando sujeto 4, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S004\S004R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

#### Procesando sujeto 4, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S004\S004R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 4, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S004\S004R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 4, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S004\S004R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 4, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S004\S004R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 4, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S004\S004R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 4, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S004\S004R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 4, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S004\S004R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 4, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S004\S004R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 4, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S004\S004R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 4, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S004\S004R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 4, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S004\S004R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 5, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S005\S005R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 5, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S005\S005R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 5, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S005\S005R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 5, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S005\S005R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 5, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S005\S005R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 5, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```
2026-1\S03_datasets\eeg-motor-movementimagery\S005\S005R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

#### FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 5, ensayo 7

```
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S005\S005R07.edf...
```

```
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

#### FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 5, ensayo 8

```
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S005\S005R08.edf...
```

```
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

#### FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
```



- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 5, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S005\S005R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 5, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S005\S005R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 5, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S005\S005R11.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 5, ensayo 12

```
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S005\S005R12.edf...
```

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 5, ensayo 13

```
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S005\S005R13.edf...
```

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 5, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S005\S005R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 6, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S006\S006R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)



Procesando sujeto 7, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S007\S007R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 7, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S007\S007R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 7, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S007\S007R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 7, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S007\S007R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 7, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S007\S007R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 7, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S007\S007R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ...  124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 7, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S007\S007R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ...  124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 7, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S007\S007R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ...  124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 7, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S007\S007R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 7, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S007\S007R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 7, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S007\S007R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ...   124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 7, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S007\S007R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ...   124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 7, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S007\S007R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ...   124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 7, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S007\S007R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 8, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 8, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:  
 - Windowed time-domain design (firwin) method  
 - Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation  
 - Lower passband edge: 1.00  
 - Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)  
 - Upper passband edge: 45.00 Hz  
 - Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)  
 - Filter length: 529 samples (3.306 s)

#### Procesando sujeto 8, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:  
 - Windowed time-domain design (firwin) method  
 - Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation  
 - Lower passband edge: 1.00  
 - Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)  
 - Upper passband edge: 45.00 Hz  
 - Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)  
 - Filter length: 529 samples (3.306 s)

#### Procesando sujeto 8, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:  
 - Windowed time-domain design (firwin) method  
 - Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation  
 - Lower passband edge: 1.00  
 - Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 8, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 8, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 8, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.



Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 8, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 8, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 8, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 8, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 8, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 8, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 8, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S008\S008R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 9, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S009\S009R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 9, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S009\S009R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 9, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S009\S009R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 9, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S009\S009R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 9, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S009\S009R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 9, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S009\S009R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 9, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S009\S009R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 9, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S009\S009R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 9, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S009\S009R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 9, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S009\S009R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 9, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S009\S009R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 9, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S009\S009R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 9, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S009\S009R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```



- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 9, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S009\S009R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S010\S010R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S010\S010R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S010\S010R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S010\S010R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S010\S010R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S010\S010R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S010\S010R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S010\S010R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S010\S010R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S010\S010R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S010\S010R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S010\S010R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S010\S010R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 10, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S010\S010R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 11, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S011\S011R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 11, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S011\S011R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 11, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S011\S011R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 11, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S011\S011R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 11, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S011\S011R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 11, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-



```

2026-1\S03_datasets\eeg-motor-movementimagery\S011\S011R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 11, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S011\S011R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 11, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S011\S011R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 11, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S011\S011R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 11, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S011\S011R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 11, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S011\S011R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 11, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S011\S011R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 11, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S011\S011R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 11, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S011\S011R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S012\S012R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S012\S012R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S012\S012R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S012\S012R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S012\S012R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S012\S012R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S012\S012R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S012\S012R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S012\S012R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S012\S012R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S012\S012R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S012\S012R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz



## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S012\S012R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 12, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S012\S012R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 13, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S013\S013R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 13, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S013\S013R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 13, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S013\S013R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 13, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S013\S013R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 13, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S013\S013R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 13, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S013\S013R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 13, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S013\S013R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 13, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S013\S013R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 13, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S013\S013R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 13, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S013\S013R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 13, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S013\S013R11.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 = 0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 13, ensayo 12

```
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S013\S013R12.edf...
```

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 = 0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 13, ensayo 13

```
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S013\S013R13.edf...
```

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 = 0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 13, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S013\S013R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S014\S014R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9599 = 0.000 ... 59.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S014\S014R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S014\S014R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S014\S014R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)



- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S014\S014R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S014\S014R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S014\S014R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S014\S014R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S014\S014R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S014\S014R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S014\S014R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S014\S014R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S014\S014R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 14, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S014\S014R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 15, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S015\S015R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 15, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S015\S015R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 15, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S015\S015R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 15, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S015\S015R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 15, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S015\S015R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 15, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

2026-1\S03\_datasets\ee-motor-movementimagery\S015\S015R06.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 15, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ee-motor-movementimagery\S015\S015R07.edf...

EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 15, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ee-motor-movementimagery\S015\S015R08.edf...

EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 15, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S015\S015R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 15, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S015\S015R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 15, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S015\S015R11.edf...

EDF file detected



```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 = 0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 15, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S015\S015R12.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 = 0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 15, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S015\S015R13.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 = 0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 15, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S015\S015R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S016\S016R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S016\S016R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S016\S016R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S016\S016R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S016\S016R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S016\S016R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S016\S016R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S016\S016R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S016\S016R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S016\S016R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S016\S016R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S016\S016R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S016\S016R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 16, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S016\S016R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 17, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S017\S017R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 17, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S017\S017R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 17, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S017\S017R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters



-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 17, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S017\S017R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 17, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S017\S017R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 17, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S017\S017R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 17, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S017\S017R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 17, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S017\S017R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 17, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S017\S017R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 17, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S017\S017R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 17, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S017\S017R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 17, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S017\S017R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 17, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S017\S017R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 17, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S017\S017R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S018\S018R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S018\S018R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S018\S018R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S018\S018R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S018\S018R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S018\S018R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S018\S018R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S018\S018R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S018\S018R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)



- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S018\S018R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S018\S018R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S018\S018R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S018\S018R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 18, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S018\S018R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 19, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S019\S019R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 19, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S019\S019R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 19, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S019\S019R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 19, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S019\S019R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 19, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S019\S019R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 19, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S019\S019R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 19, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S019\S019R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 19, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S019\S019R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 19, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S019\S019R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 19, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S019\S019R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 19, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S019\S019R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 19, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S019\S019R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 19, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S019\S019R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 19, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S019\S019R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S020\S020R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S020\S020R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...



Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S020\S020R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S020\S020R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S020\S020R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S020\S020R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S020\S020R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S020\S020R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S020\S020R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S020\S020R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S020\S020R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S020\S020R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S020\S020R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 20, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S020\S020R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 21, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S021\S021R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 21, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S021\S021R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 21, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S021\S021R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 21, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S021\S021R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 21, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S021\S021R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 21, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S021\S021R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 21, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S021\S021R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 21, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S021\S021R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```



- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 21, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S021\S021R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 21, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S021\S021R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 21, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S021\S021R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 21, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S021\S021R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 21, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S021\S021R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 21, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S021\S021R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S022\S022R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S022\S022R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S022\S022R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S022\S022R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S022\S022R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S022\S022R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S022\S022R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S022\S022R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S022\S022R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S022\S022R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S022\S022R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S022\S022R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S022\S022R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 22, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S022\S022R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)



Procesando sujeto 23, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S023\S023R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 23, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S023\S023R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 23, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S023\S023R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 23, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S023\S023R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 23, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S023\S023R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 23, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S023\S023R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 23, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S023\S023R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 23, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S023\S023R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 23, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S023\S023R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 23, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S023\S023R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 23, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S023\S023R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 23, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S023\S023R12.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 23, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S023\S023R13.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 23, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S023\S023R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S024\S024R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S024\S024R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S024\S024R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S024\S024R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S024\S024R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S024\S024R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S024\S024R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.



Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S024\S024R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S024\S024R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S024\S024R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S024\S024R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S024\S024R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S024\S024R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 24, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S024\S024R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 25, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S025\S025R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 25, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S025\S025R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 25, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S025\S025R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 25, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S025\S025R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 25, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S025\S025R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 25, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S025\S025R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 25, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S025\S025R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 25, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S025\S025R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 25, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S025\S025R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 25, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S025\S025R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 25, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S025\S025R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 25, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S025\S025R12.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 25, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S025\S025R13.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```



- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 25, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S025\S025R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S026\S026R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S026\S026R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S026\S026R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S026\S026R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S026\S026R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S026\S026R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S026\S026R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S026\S026R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S026\S026R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S026\S026R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S026\S026R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S026\S026R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S026\S026R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 26, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S026\S026R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 27, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S027\S027R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 27, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S027\S027R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 27, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S027\S027R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 27, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S027\S027R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 27, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S027\S027R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 27, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-



```

2026-1\S03_datasets\eeg-motor-movementimagery\S027\S027R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 27, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S027\S027R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 27, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S027\S027R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 27, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S027\S027R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 27, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S027\S027R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 27, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S027\S027R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 27, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S027\S027R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 27, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S027\S027R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 27, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S027\S027R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S028\S028R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S028\S028R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S028\S028R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S028\S028R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S028\S028R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S028\S028R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S028\S028R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S028\S028R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S028\S028R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S028\S028R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S028\S028R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S028\S028R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz



## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S028\S028R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 28, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S028\S028R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 29, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S029\S029R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 29, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S029\S029R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 29, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S029\S029R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19839 = 0.000 ... 123.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 29, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S029\S029R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 29, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S029\S029R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 29, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S029\S029R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19839 =      0.000 ... 123.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 29, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S029\S029R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19839 =      0.000 ... 123.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 29, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S029\S029R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19839 =      0.000 ... 123.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 29, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S029\S029R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 29, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S029\S029R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 29, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S029\S029R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19839 =      0.000 ... 123.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 29, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S029\S029R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19839 =      0.000 ... 123.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 29, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S029\S029R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19839 =      0.000 ... 123.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 29, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S029\S029R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S030\S030R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S030\S030R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S030\S030R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S030\S030R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)



- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S030\S030R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S030\S030R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S030\S030R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S030\S030R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S030\S030R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S030\S030R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S030\S030R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S030\S030R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S030\S030R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 30, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S030\S030R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 31, ensayo 1
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S031\S031R01.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 9759 =      0.000 ...    60.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

```

Procesando sujeto 31, ensayo 2
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S031\S031R02.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 9759 =      0.000 ...    60.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

```

Procesando sujeto 31, ensayo 3
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S031\S031R03.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...   122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 31, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S031\S031R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 31, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S031\S031R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 31, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S031\S031R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 31, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S031\S031R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 31, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S031\S031R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 31, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S031\S031R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 31, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S031\S031R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 31, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S031\S031R11.edf...

EDF file detected



```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 31, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S031\S031R12.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 31, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S031\S031R13.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 31, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S031\S031R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:  
 - Windowed time-domain design (firwin) method  
 - Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation  
 - Lower passband edge: 1.00  
 - Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)  
 - Upper passband edge: 45.00 Hz  
 - Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)  
 - Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:  
 - Windowed time-domain design (firwin) method  
 - Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation  
 - Lower passband edge: 1.00  
 - Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)  
 - Upper passband edge: 45.00 Hz  
 - Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)  
 - Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:  
 - Windowed time-domain design (firwin) method  
 - Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation  
 - Lower passband edge: 1.00  
 - Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 32, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S032\S032R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 33, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S033\S033R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 33, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S033\S033R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 33, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S033\S033R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters



-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 33, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S033\S033R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 33, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S033\S033R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 33, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S033\S033R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 33, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S033\S033R07.edf...

```

```

EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 33, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S033\S033R08.edf...

```

```

EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 33, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S033\S033R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 33, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S033\S033R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 33, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S033\S033R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 33, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S033\S033R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 33, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S033\S033R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 33, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S033\S033R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S034\S034R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S034\S034R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S034\S034R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S034\S034R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S034\S034R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S034\S034R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S034\S034R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S034\S034R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S034\S034R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)



- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S034\S034R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S034\S034R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S034\S034R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S034\S034R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 34, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S034\S034R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 35, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S035\S035R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 35, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S035\S035R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 35, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S035\S035R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 35, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S035\S035R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 35, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S035\S035R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 35, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```
2026-1\S03_datasets\eeg-motor-movementimagery\S035\S035R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

#### FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 35, ensayo 7

```
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S035\S035R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

#### FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 35, ensayo 8

```
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S035\S035R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

#### FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 35, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S035\S035R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 35, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S035\S035R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 35, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S035\S035R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 35, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S035\S035R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 35, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S035\S035R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 35, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S035\S035R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S036\S036R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S036\S036R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...



Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S036\S036R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S036\S036R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S036\S036R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S036\S036R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S036\S036R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S036\S036R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S036\S036R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S036\S036R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S036\S036R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S036\S036R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S036\S036R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 36, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S036\S036R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 37, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S037\S037R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 37, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S037\S037R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 37, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S037\S037R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 37, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S037\S037R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 37, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S037\S037R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 37, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S037\S037R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 37, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S037\S037R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 37, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S037\S037R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```



- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 37, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S037\S037R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 37, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S037\S037R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 37, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S037\S037R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 37, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S037\S037R12.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 37, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S037\S037R13.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 37, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S037\S037R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S038\S038R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S038\S038R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S038\S038R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S038\S038R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S038\S038R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S038\S038R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S038\S038R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S038\S038R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S038\S038R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S038\S038R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S038\S038R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S038\S038R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S038\S038R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 38, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S038\S038R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)



Procesando sujeto 39, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S039\S039R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 39, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S039\S039R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 39, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S039\S039R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 39, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S039\S039R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 39, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S039\S039R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 39, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S039\S039R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 39, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S039\S039R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 39, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S039\S039R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 39, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S039\S039R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 39, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S039\S039R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 39, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S039\S039R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 39, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S039\S039R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 39, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S039\S039R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 39, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S039\S039R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S040\S040R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S040\S040R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S040\S040R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S040\S040R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S040\S040R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S040\S040R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S040\S040R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.



Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S040\S040R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S040\S040R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S040\S040R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S040\S040R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S040\S040R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S040\S040R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 40, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S040\S040R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 41, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S041\S041R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 41, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S041\S041R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 41, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S041\S041R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 41, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S041\S041R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 41, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S041\S041R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 41, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S041\S041R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 41, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S041\S041R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 41, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S041\S041R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 41, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S041\S041R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 41, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S041\S041R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 41, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S041\S041R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 41, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S041\S041R12.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19839 =      0.000 ...  123.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 41, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S041\S041R13.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```



- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 41, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S041\S041R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S042\S042R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S042\S042R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S042\S042R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S042\S042R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S042\S042R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S042\S042R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S042\S042R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S042\S042R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S042\S042R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S042\S042R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S042\S042R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S042\S042R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S042\S042R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 42, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S042\S042R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 43, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S043\S043R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 43, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S043\S043R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 43, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S043\S043R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 43, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S043\S043R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 43, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S043\S043R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 43, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-



```

2026-1\S03_datasets\eeg-motor-movementimagery\S043\S043R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 43, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S043\S043R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 43, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S043\S043R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 43, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S043\S043R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 43, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S043\S043R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 43, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S043\S043R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 43, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S043\S043R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 43, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S043\S043R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 43, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S043\S043R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S044\S044R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S044\S044R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S044\S044R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S044\S044R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S044\S044R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S044\S044R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S044\S044R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S044\S044R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S044\S044R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S044\S044R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S044\S044R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S044\S044R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz



## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S044\S044R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 44, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S044\S044R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 45, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S045\S045R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 45, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S045\S045R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 45, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S045\S045R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 45, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S045\S045R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 45, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S045\S045R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 45, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S045\S045R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 45, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S045\S045R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 45, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S045\S045R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 45, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S045\S045R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 45, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S045\S045R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 45, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S045\S045R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 45, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\ees-motor-movementimagery\S045\S045R12.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 45, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\ees-motor-movementimagery\S045\S045R13.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 45, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S045\S045R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S046\S046R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S046\S046R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S046\S046R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S046\S046R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)



- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S046\S046R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S046\S046R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S046\S046R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S046\S046R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S046\S046R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S046\S046R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S046\S046R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S046\S046R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S046\S046R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 46, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S046\S046R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 47, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S047\S047R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 47, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S047\S047R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 47, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S047\S047R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 47, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S047\S047R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 47, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S047\S047R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 47, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S047\S047R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 47, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S047\S047R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 47, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S047\S047R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 47, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S047\S047R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 47, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S047\S047R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 47, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S047\S047R11.edf...

EDF file detected



```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 47, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S047\S047R12.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 47, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S047\S047R13.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 47, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S047\S047R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S048\S048R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S048\S048R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S048\S048R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S048\S048R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S048\S048R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S048\S048R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S048\S048R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S048\S048R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S048\S048R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S048\S048R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S048\S048R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S048\S048R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S048\S048R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 48, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S048\S048R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 49, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S049\S049R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 49, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S049\S049R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 49, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S049\S049R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters



-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 49, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S049\S049R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 49, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S049\S049R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 49, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S049\S049R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 49, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S049\S049R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 49, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S049\S049R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 49, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S049\S049R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 49, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S049\S049R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 49, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S049\S049R11.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 49, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S049\S049R12.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 49, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S049\S049R13.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 49, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S049\S049R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S050\S050R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S050\S050R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S050\S050R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S050\S050R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S050\S050R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S050\S050R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S050\S050R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S050\S050R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S050\S050R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)



- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S050\S050R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S050\S050R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S050\S050R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S050\S050R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 50, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S050\S050R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 51, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S051\S051R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9599 = 0.000 ... 59.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 51, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S051\S051R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 51, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S051\S051R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 51, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S051\S051R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 51, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S051\S051R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 51, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S051\S051R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19839 =      0.000 ... 123.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 51, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S051\S051R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 51, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S051\S051R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19839 =      0.000 ... 123.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 51, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S051\S051R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 51, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S051\S051R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 51, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S051\S051R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 51, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S051\S051R12.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19839 =      0.000 ...  123.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 51, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S051\S051R13.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 51, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S051\S051R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...



Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 52, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S052\S052R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 53, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S053\S053R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 53, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S053\S053R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 53, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S053\S053R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 53, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S053\S053R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 53, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S053\S053R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 53, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S053\S053R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 53, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S053\S053R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 53, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S053\S053R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```



- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 53, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S053\S053R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 53, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S053\S053R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 53, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S053\S053R11.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 53, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S053\S053R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 53, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S053\S053R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 53, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S053\S053R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S054\S054R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S054\S054R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S054\S054R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S054\S054R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S054\S054R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S054\S054R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S054\S054R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S054\S054R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S054\S054R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S054\S054R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S054\S054R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S054\S054R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S054\S054R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 54, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S054\S054R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)



Procesando sujeto 55, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S055\S055R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 55, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S055\S055R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 55, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S055\S055R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 55, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S055\S055R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 55, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S055\S055R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 55, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S055\S055R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 55, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S055\S055R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 55, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S055\S055R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 55, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S055\S055R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 55, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S055\S055R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 55, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S055\S055R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 55, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S055\S055R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 55, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S055\S055R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 55, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S055\S055R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S056\S056R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S056\S056R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:  
 - Windowed time-domain design (firwin) method  
 - Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation  
 - Lower passband edge: 1.00  
 - Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)  
 - Upper passband edge: 45.00 Hz  
 - Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)  
 - Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S056\S056R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:  
 - Windowed time-domain design (firwin) method  
 - Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation  
 - Lower passband edge: 1.00  
 - Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)  
 - Upper passband edge: 45.00 Hz  
 - Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)  
 - Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S056\S056R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:  
 - Windowed time-domain design (firwin) method  
 - Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation  
 - Lower passband edge: 1.00  
 - Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S056\S056R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S056\S056R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S056\S056R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.



Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S056\S056R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S056\S056R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S056\S056R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S056\S056R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S056\S056R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S056\S056R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 56, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S056\S056R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 57, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S057\S057R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 57, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S057\S057R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 57, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S057\S057R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 57, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S057\S057R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 57, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S057\S057R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 57, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S057\S057R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 57, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S057\S057R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 57, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S057\S057R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 57, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S057\S057R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 57, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S057\S057R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 57, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S057\S057R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 57, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S057\S057R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 57, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S057\S057R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```



- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 57, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S057\S057R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S058\S058R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S058\S058R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S058\S058R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S058\S058R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S058\S058R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S058\S058R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S058\S058R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S058\S058R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S058\S058R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S058\S058R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S058\S058R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S058\S058R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S058\S058R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 58, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S058\S058R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 59, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S059\S059R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 59, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S059\S059R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 59, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S059\S059R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 59, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S059\S059R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 59, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S059\S059R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 59, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-



```

2026-1\S03_datasets\eeg-motor-movementimagery\S059\S059R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 59, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S059\S059R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 59, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S059\S059R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 59, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S059\S059R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 59, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S059\S059R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 59, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S059\S059R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 59, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S059\S059R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 59, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S059\S059R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 59, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S059\S059R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S060\S060R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S060\S060R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S060\S060R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S060\S060R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S060\S060R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S060\S060R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S060\S060R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S060\S060R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S060\S060R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S060\S060R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S060\S060R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S060\S060R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz



## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S060\S060R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 60, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S060\S060R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 61, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S061\S061R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 61, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S061\S061R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 61, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S061\S061R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 61, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S061\S061R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 61, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S061\S061R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 61, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S061\S061R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 61, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S061\S061R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 61, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S061\S061R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 61, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S061\S061R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 61, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S061\S061R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 61, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S061\S061R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 61, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S061\S061R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 61, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S061\S061R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 61, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S061\S061R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S062\S062R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S062\S062R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S062\S062R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S062\S062R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)



- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S062\S062R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S062\S062R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S062\S062R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S062\S062R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S062\S062R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S062\S062R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S062\S062R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S062\S062R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S062\S062R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 62, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S062\S062R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 63, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S063\S063R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 63, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S063\S063R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 63, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S063\S063R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 63, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S063\S063R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 63, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S063\S063R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 63, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S063\S063R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 63, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S063\S063R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 63, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S063\S063R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 63, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S063\S063R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 63, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S063\S063R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 63, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S063\S063R11.edf...

EDF file detected



```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 63, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S063\S063R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 63, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S063\S063R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 63, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S063\S063R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S064\S064R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S064\S064R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S064\S064R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S064\S064R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S064\S064R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S064\S064R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S064\S064R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S064\S064R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S064\S064R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S064\S064R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S064\S064R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S064\S064R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S064\S064R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 64, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S064\S064R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 65, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S065\S065R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 65, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S065\S065R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 65, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S065\S065R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters



-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 65, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S065\S065R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 65, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S065\S065R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 65, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S065\S065R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 65, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S065\S065R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 65, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S065\S065R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 65, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S065\S065R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 65, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S065\S065R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 65, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S065\S065R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 65, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S065\S065R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 65, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S065\S065R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 65, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S065\S065R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S066\S066R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S066\S066R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S066\S066R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S066\S066R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S066\S066R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S066\S066R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S066\S066R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S066\S066R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S066\S066R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)



- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S066\S066R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S066\S066R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S066\S066R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S066\S066R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 66, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S066\S066R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 67, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S067\S067R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 67, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S067\S067R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 67, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S067\S067R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 67, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S067\S067R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 67, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S067\S067R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 67, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S067\S067R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 67, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S067\S067R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 67, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S067\S067R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 67, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S067\S067R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 67, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S067\S067R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 67, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S067\S067R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 67, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S067\S067R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 67, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S067\S067R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 67, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S067\S067R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S068\S068R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S068\S068R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...



Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S068\S068R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S068\S068R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S068\S068R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S068\S068R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S068\S068R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S068\S068R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S068\S068R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S068\S068R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S068\S068R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S068\S068R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S068\S068R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 68, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S068\S068R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 69, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S069\S069R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9599 = 0.000 ... 59.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 69, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S069\S069R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 69, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S069\S069R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 69, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S069\S069R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 69, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S069\S069R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 69, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S069\S069R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 69, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S069\S069R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 69, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S069\S069R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```



- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 69, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S069\S069R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 69, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S069\S069R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 69, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S069\S069R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 69, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S069\S069R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 69, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S069\S069R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 69, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S069\S069R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S070\S070R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S070\S070R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S070\S070R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S070\S070R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S070\S070R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S070\S070R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S070\S070R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S070\S070R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S070\S070R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S070\S070R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S070\S070R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S070\S070R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S070\S070R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 70, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S070\S070R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)



Procesando sujeto 71, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S071\S071R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 71, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S071\S071R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 71, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S071\S071R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 71, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S071\S071R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 71, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S071\S071R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 71, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S071\S071R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 71, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S071\S071R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 71, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S071\S071R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 71, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S071\S071R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 71, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S071\S071R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 71, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S071\S071R11.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 71, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S071\S071R12.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 71, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S071\S071R13.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 71, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S071\S071R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S072\S072R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S072\S072R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S072\S072R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S072\S072R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S072\S072R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S072\S072R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S072\S072R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.



Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S072\S072R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S072\S072R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S072\S072R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S072\S072R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S072\S072R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S072\S072R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 72, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S072\S072R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 73, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S073\S073R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 73, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S073\S073R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 73, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S073\S073R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 73, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S073\S073R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 73, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S073\S073R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 73, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S073\S073R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 73, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S073\S073R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 73, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S073\S073R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 73, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S073\S073R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 73, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S073\S073R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 73, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S073\S073R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 73, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S073\S073R12.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 73, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S073\S073R13.edf...

```

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```



- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 73, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S073\S073R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 74, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S074\S074R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 75, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S075\S075R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 75, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S075\S075R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 75, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S075\S075R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 75, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S075\S075R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 75, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S075\S075R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 75, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-



```

2026-1\S03_datasets\eeg-motor-movementimagery\S075\S075R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 75, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S075\S075R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 75, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S075\S075R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 75, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S075\S075R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 75, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S075\S075R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 75, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S075\S075R11.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 75, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S075\S075R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 75, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S075\S075R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 75, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S075\S075R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S076\S076R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S076\S076R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S076\S076R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S076\S076R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S076\S076R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S076\S076R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S076\S076R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S076\S076R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S076\S076R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S076\S076R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S076\S076R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S076\S076R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz



## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S076\S076R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 76, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S076\S076R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 77, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S077\S077R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 77, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S077\S077R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 77, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S077\S077R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 77, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S077\S077R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 77, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S077\S077R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 77, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S077\S077R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 77, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S077\S077R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 77, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S077\S077R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 77, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S077\S077R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 77, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S077\S077R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 77, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S077\S077R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 77, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S077\S077R12.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 77, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S077\S077R13.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 77, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S077\S077R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S078\S078R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S078\S078R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S078\S078R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S078\S078R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)



- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S078\S078R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S078\S078R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S078\S078R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S078\S078R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S078\S078R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S078\S078R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S078\S078R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S078\S078R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S078\S078R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 78, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S078\S078R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 79, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S079\S079R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 79, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S079\S079R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 79, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S079\S079R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 79, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S079\S079R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 79, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S079\S079R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 79, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S079\S079R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 79, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S079\S079R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 79, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S079\S079R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 79, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S079\S079R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 79, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S079\S079R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 79, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S079\S079R11.edf...

EDF file detected



```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 79, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S079\S079R12.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 79, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S079\S079R13.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 79, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S079\S079R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S080\S080R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S080\S080R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S080\S080R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S080\S080R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S080\S080R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S080\S080R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S080\S080R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S080\S080R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S080\S080R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S080\S080R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S080\S080R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S080\S080R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S080\S080R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 80, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S080\S080R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 81, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S081\S081R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 81, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S081\S081R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 81, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S081\S081R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters



-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 81, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S081\S081R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 81, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S081\S081R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 81, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S081\S081R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 81, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S081\S081R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 81, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S081\S081R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 81, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S081\S081R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 81, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S081\S081R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 81, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S081\S081R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 81, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S081\S081R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 81, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S081\S081R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 81, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S081\S081R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S082\S082R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S082\S082R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S082\S082R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S082\S082R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S082\S082R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S082\S082R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S082\S082R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S082\S082R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S082\S082R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)



- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S082\S082R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S082\S082R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S082\S082R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S082\S082R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 82, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S082\S082R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 83, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S083\S083R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 83, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S083\S083R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 83, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S083\S083R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 83, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S083\S083R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 83, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S083\S083R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 83, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S083\S083R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 83, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S083\S083R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 83, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S083\S083R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 83, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S083\S083R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 83, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S083\S083R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 83, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S083\S083R11.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 83, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S083\S083R12.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 83, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S083\S083R13.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 83, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S083\S083R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S084\S084R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S084\S084R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...



Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S084\S084R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S084\S084R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S084\S084R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S084\S084R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S084\S084R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S084\S084R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S084\S084R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S084\S084R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S084\S084R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S084\S084R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ee-motor-movementimagery\S084\S084R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 84, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ee-motor-movementimagery\S084\S084R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 85, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S085\S085R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 85, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S085\S085R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 85, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S085\S085R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 85, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S085\S085R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 85, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S085\S085R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 85, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S085\S085R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 85, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S085\S085R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 85, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S085\S085R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```



- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 85, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S085\S085R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 85, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S085\S085R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 85, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S085\S085R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 85, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S085\S085R12.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 85, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S085\S085R13.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 85, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S085\S085R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S086\S086R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S086\S086R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S086\S086R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S086\S086R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S086\S086R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S086\S086R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S086\S086R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S086\S086R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S086\S086R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S086\S086R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S086\S086R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S086\S086R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S086\S086R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 86, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S086\S086R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)



Procesando sujeto 87, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S087\S087R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 87, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S087\S087R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 87, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S087\S087R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 87, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S087\S087R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 87, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S087\S087R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 87, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S087\S087R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 87, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S087\S087R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 87, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S087\S087R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 87, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S087\S087R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 87, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S087\S087R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 87, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S087\S087R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 87, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S087\S087R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 87, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S087\S087R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 87, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S087\S087R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 88, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S088\S088R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 88, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S088\S088R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 88, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S088\S088R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 88, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S088\S088R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 88, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S088\S088R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 88, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S088\S088R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 88, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S088\S088R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.



Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 88, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S088\S088R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 88, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S088\S088R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 423 samples (3.305 s)

Procesando sujeto 88, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S088\S088R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 88, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S088\S088R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 88, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S088\S088R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 88, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S088\S088R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 88, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S088\S088R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 89, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S089\S089R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 89, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S089\S089R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 89, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S089\S089R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 28959 = 0.000 ... 180.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 89, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S089\S089R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 89, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S089\S089R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 89, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S089\S089R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 89, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S089\S089R07.edf...

```

```

EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 89, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S089\S089R08.edf...

```

```

EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 89, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S089\S089R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 89, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S089\S089R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 89, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S089\S089R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 89, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S089\S089R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 89, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S089\S089R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```



- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 89, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S089\S089R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S090\S090R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S090\S090R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S090\S090R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S090\S090R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S090\S090R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S090\S090R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S090\S090R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S090\S090R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S090\S090R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S090\S090R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S090\S090R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S090\S090R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S090\S090R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 90, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S090\S090R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 91, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S091\S091R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 91, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S091\S091R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 91, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S091\S091R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 91, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S091\S091R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 91, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S091\S091R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 91, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-



```

2026-1\S03_datasets\eeg-motor-movementimagery\S091\S091R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 91, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S091\S091R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 91, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S091\S091R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 91, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S091\S091R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 91, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S091\S091R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 91, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S091\S091R11.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 91, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S091\S091R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 91, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S091\S091R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 91, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S091\S091R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 92, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S092\S092R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 92, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S092\S092R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 92, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S092\S092R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 92, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S092\S092R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 92, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S092\S092R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 92, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S092\S092R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 92, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S092\S092R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 92, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S092\S092R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 92, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S092\S092R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 423 samples (3.305 s)

Procesando sujeto 92, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S092\S092R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 92, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S092\S092R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 92, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S092\S092R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz



## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 92, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S092\S092R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 92, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S092\S092R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 15871 = 0.000 ... 123.992 secs...

Sampling frequency of the instance is already 128.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

Procesando sujeto 93, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S093\S093R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 93, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S093\S093R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 93, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S093\S093R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 93, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S093\S093R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 93, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S093\S093R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 93, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S093\S093R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 93, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S093\S093R07.edf...

```

```

EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 93, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S093\S093R08.edf...

```

```

EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 93, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S093\S093R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 93, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S093\S093R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 93, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S093\S093R11.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 93, ensayo 12

```
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S093\S093R12.edf...
```

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 93, ensayo 13

```
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S093\S093R13.edf...
```

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 93, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S093\S093R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S094\S094R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S094\S094R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S094\S094R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S094\S094R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)



- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S094\S094R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S094\S094R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S094\S094R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S094\S094R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S094\S094R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S094\S094R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S094\S094R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S094\S094R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S094\S094R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 94, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S094\S094R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 95, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S095\S095R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 95, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S095\S095R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 95, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S095\S095R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 95, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S095\S095R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 95, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S095\S095R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 95, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S095\S095R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 95, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S095\S095R07.edf...

```

```

EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 95, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S095\S095R08.edf...

```

```

EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 95, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S095\S095R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 95, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S095\S095R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 95, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S095\S095R11.edf...

EDF file detected



```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 95, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S095\S095R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 95, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S095\S095R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 95, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S095\S095R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 96, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S096\S096R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 97, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S097\S097R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 97, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S097\S097R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9599 = 0.000 ... 59.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 97, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\ees-motor-movementimagery\S097\S097R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters



-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 97, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S097\S097R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 97, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S097\S097R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 97, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S097\S097R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 97, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S097\S097R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 97, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S097\S097R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 97, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S097\S097R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 97, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S097\S097R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 97, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S097\S097R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 97, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S097\S097R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 97, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S097\S097R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 97, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S097\S097R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S098\S098R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S098\S098R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S098\S098R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S098\S098R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S098\S098R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S098\S098R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S098\S098R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S098\S098R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S098\S098R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)



- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S098\S098R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S098\S098R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S098\S098R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S098\S098R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 98, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S098\S098R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 99, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S099\S099R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 99, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S099\S099R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 99, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S099\S099R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 99, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S099\S099R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 99, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S099\S099R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 99, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S099\S099R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 99, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S099\S099R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 99, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S099\S099R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 99, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S099\S099R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 99, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S099\S099R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 99, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S099\S099R11.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

#### FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 99, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S099\S099R12.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

#### FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)
```

Procesando sujeto 99, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S099\S099R13.edf...

EDF file detected

```
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

#### FIR filter parameters

-----

```
Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 99, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S099\S099R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 100, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S100\S100R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 100, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S100\S100R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...



```

Reading 0 ... 9759 = 0.000 ... 60.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 100, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S100\S100R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

```

Reading 0 ... 15743 = 0.000 ... 122.992 secs...
Sampling frequency of the instance is already 128.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

```

C:\Users\OMEN CI7\AppData\Local\Temp\ipykernel\_28084\2786304425.py:3: RuntimeWarning: Limited 1 annotation(s) that were expanding outside the data range.  
raw = mne.io.read\_raw\_edf(edf\_file\_path, preload=True)

```

Procesando sujeto 100, ensayo 4
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S100\S100R04.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 15743 =      0.000 ... 122.992 secs...
Sampling frequency of the instance is already 128.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

C:\Users\OMEN CI7\AppData\Local\Temp\ipykernel\_28084\2786304425.py:3: RuntimeWarning: Limited 1 annotation(s) that were expanding outside the data range.

```
raw = mne.io.read_raw_edf(edf_file_path, preload=True)
```

```

Procesando sujeto 100, ensayo 5
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S100\S100R05.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 15743 =      0.000 ... 122.992 secs...
Sampling frequency of the instance is already 128.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

C:\Users\OMEN CI7\AppData\Local\Temp\ipykernel\_28084\2786304425.py:3: RuntimeWarning: Limited 1 annotation(s) that were expanding outside the data range.

```
raw = mne.io.read_raw_edf(edf_file_path, preload=True)
```

```

Procesando sujeto 100, ensayo 6
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S100\S100R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 15743 =      0.000 ... 122.992 secs...
Sampling frequency of the instance is already 128.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

C:\Users\OMEN CI7\AppData\Local\Temp\ipykernel\_28084\2786304425.py:3: RuntimeWarning: Limited 1 annotation(s) that were expanding outside the data range.

```
raw = mne.io.read_raw_edf(edf_file_path, preload=True)
```

```

Procesando sujeto 100, ensayo 7
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S100\S100R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 15743 =      0.000 ... 122.992 secs...
Sampling frequency of the instance is already 128.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

C:\Users\OMEN CI7\AppData\Local\Temp\ipykernel\_28084\2786304425.py:3: RuntimeWarning: Limited 1 annotation(s) that were expanding outside the data range.

```
raw = mne.io.read_raw_edf(edf_file_path, preload=True)
```

```

Procesando sujeto 100, ensayo 8
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\ees-motor-movementimagery\S100\S100R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 15743 =      0.000 ...  122.992 secs...
Sampling frequency of the instance is already 128.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

C:\Users\OMEN CI7\AppData\Local\Temp\ipykernel\_28084\2786304425.py:3: RuntimeWarning: Limited 1 annotation(s) that were expanding outside the data range.

```
raw = mne.io.read_raw_edf(edf_file_path, preload=True)
```

```

Procesando sujeto 100, ensayo 9
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\ees-motor-movementimagery\S100\S100R09.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 15743 =      0.000 ...  122.992 secs...
Sampling frequency of the instance is already 128.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

C:\Users\OMEN CI7\AppData\Local\Temp\ipykernel\_28084\2786304425.py:3: RuntimeWarning: Limited 1 annotation(s) that were expanding outside the data range.

```
raw = mne.io.read_raw_edf(edf_file_path, preload=True)
```

```

Procesando sujeto 100, ensayo 10
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S100\S100R10.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 15743 =      0.000 ... 122.992 secs...
Sampling frequency of the instance is already 128.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

C:\Users\OMEN CI7\AppData\Local\Temp\ipykernel\_28084\2786304425.py:3: RuntimeWarning: Limited 1 annotation(s) that were expanding outside the data range.

```
raw = mne.io.read_raw_edf(edf_file_path, preload=True)
```

```

Procesando sujeto 100, ensayo 11
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S100\S100R11.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 15743 =      0.000 ... 122.992 secs...
Sampling frequency of the instance is already 128.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

C:\Users\OMEN CI7\AppData\Local\Temp\ipykernel\_28084\2786304425.py:3: RuntimeWarning: Limited 1 annotation(s) that were expanding outside the data range.

```
raw = mne.io.read_raw_edf(edf_file_path, preload=True)
```

```

Procesando sujeto 100, ensayo 12
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S100\S100R12.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 15743 =      0.000 ... 122.992 secs...
Sampling frequency of the instance is already 128.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

C:\Users\OMEN CI7\AppData\Local\Temp\ipykernel\_28084\2786304425.py:3: RuntimeWarning: Limited 1 annotation(s) that were expanding outside the data range.

```
raw = mne.io.read_raw_edf(edf_file_path, preload=True)
```

```

Procesando sujeto 100, ensayo 13
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S100\S100R13.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 15743 =      0.000 ... 122.992 secs...
Sampling frequency of the instance is already 128.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

C:\Users\OMEN CI7\AppData\Local\Temp\ipykernel\_28084\2786304425.py:3: RuntimeWarning: Limited 1 annotation(s) that were expanding outside the data range.

```
raw = mne.io.read_raw_edf(edf_file_path, preload=True)
```

```
Procesando sujeto 100, ensayo 14
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S100\S100R14.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 15743 = 0.000 ... 122.992 secs...
Sampling frequency of the instance is already 128.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz
```

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 423 samples (3.305 s)

```
C:\Users\OMEN CI7\AppData\Local\Temp\ipykernel_28084\2786304425.py:3: RuntimeWarnin
g: Limited 1 annotation(s) that were expanding outside the data range.
raw = mne.io.read_raw_edf(edf_file_path, preload=True)
```

Procesando sujeto 101, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S101\S101R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 101, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S101\S101R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 101, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S101\S101R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters



-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 101, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S101\S101R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 101, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S101\S101R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 101, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S101\S101R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 101, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S101\S101R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 101, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S101\S101R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 101, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S101\S101R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 101, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S101\S101R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 101, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S101\S101R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 101, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S101\S101R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 101, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S101\S101R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 101, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S101\S101R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S102\S102R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S102\S102R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S102\S102R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S102\S102R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S102\S102R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S102\S102R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S102\S102R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S102\S102R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S102\S102R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)



- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S102\S102R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S102\S102R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S102\S102R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S102\S102R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 102, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S102\S102R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19839 = 0.000 ... 123.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 103, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S103\S103R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 103, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S103\S103R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 103, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S103\S103R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 103, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S103\S103R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 103, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S103\S103R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 103, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S103\S103R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ...  124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 103, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S103\S103R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ...  124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 103, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S103\S103R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ...  124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 103, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S103\S103R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 103, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S103\S103R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 103, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S103\S103R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 103, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S103\S103R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 103, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S103\S103R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 103, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S103\S103R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S104\S104R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S104\S104R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...



Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S104\S104R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S104\S104R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S104\S104R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S104\S104R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S104\S104R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S104\S104R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 16959 = 0.000 ... 105.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S104\S104R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S104\S104R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S104\S104R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S104\S104R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S104\S104R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 104, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S104\S104R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 105, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S105\S105R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 105, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S105\S105R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 105, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S105\S105R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 105, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S105\S105R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 105, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S105\S105R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 105, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S105\S105R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 105, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S105\S105R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 105, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S105\S105R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```



- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 105, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S105\S105R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 105, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S105\S105R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 105, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S105\S105R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 105, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S105\S105R12.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 105, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S105\S105R13.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ... 122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 105, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S105\S105R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S106\S106R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S106\S106R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S106\S106R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeG-motor-movementimagery\S106\S106R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S106\S106R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 5919 = 0.000 ... 36.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S106\S106R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S106\S106R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S106\S106R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S106\S106R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S106\S106R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S106\S106R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S106\S106R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S106\S106R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 106, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S106\S106R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)



Procesando sujeto 107, ensayo 1  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S107\S107R01.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 107, ensayo 2  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S107\S107R02.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 107, ensayo 3  
 Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S107\S107R03.edf...  
 EDF file detected  
 Setting channel info structure...  
 Creating raw.info structure...  
 Reading 0 ... 19999 = 0.000 ... 124.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 107, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S107\S107R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 107, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S107\S107R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 107, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S107\S107R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 107, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S107\S107R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 107, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S107\S107R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 107, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S107\S107R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 107, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S107\S107R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 107, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S107\S107R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 107, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S107\S107R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 107, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S107\S107R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19999 =      0.000 ... 124.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```

- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 107, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S107\S107R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19999 = 0.000 ... 124.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 1

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S108\S108R01.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 2

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S108\S108R02.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
 Sampling frequency of the instance is already 160.0, returning unmodified.  
 Filtering raw data in 1 contiguous segment  
 Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:  
 - Windowed time-domain design (firwin) method  
 - Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation  
 - Lower passband edge: 1.00  
 - Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)  
 - Upper passband edge: 45.00 Hz  
 - Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)  
 - Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 3

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S108\S108R03.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:  
 - Windowed time-domain design (firwin) method  
 - Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation  
 - Lower passband edge: 1.00  
 - Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)  
 - Upper passband edge: 45.00 Hz  
 - Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)  
 - Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S108\S108R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:  
 - Windowed time-domain design (firwin) method  
 - Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation  
 - Lower passband edge: 1.00  
 - Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)

- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S108\S108R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S108\S108R06.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 7

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S108\S108R07.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.



Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 8

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S108\S108R08.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S108\S108R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)

- Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S108\S108R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S108\S108R11.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 12

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S108\S108R12.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 13

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S108\S108R13.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 108, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S108\S108R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

## FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 109, ensayo 1  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S109\S109R01.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9599 = 0.000 ... 59.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 109, ensayo 2  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S109\S109R02.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 9759 = 0.000 ... 60.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 109, ensayo 3  
Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S109\S109R03.edf...  
EDF file detected  
Setting channel info structure...  
Creating raw.info structure...  
Reading 0 ... 19679 = 0.000 ... 122.994 secs...  
Sampling frequency of the instance is already 160.0, returning unmodified.  
Filtering raw data in 1 contiguous segment  
Setting up band-pass filter from 1 - 45 Hz

#### FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 109, ensayo 4

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S109\S109R04.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 109, ensayo 5

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S109\S109R05.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----  
 Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 109, ensayo 6

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-

```

2026-1\S03_datasets\eeg-motor-movementimagery\S109\S109R06.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 109, ensayo 7

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S109\S109R07.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 109, ensayo 8

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeg-motor-movementimagery\S109\S109R08.edf...
EDF file detected
Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

#### FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:

```

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 109, ensayo 9

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S109\S109R09.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 109, ensayo 10

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S109\S109R10.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 109, ensayo 11

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeeg-motor-movementimagery\S109\S109R11.edf...

EDF file detected

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 109, ensayo 12

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S109\S109R12.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```

Procesando sujeto 109, ensayo 13

```

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-
2026-1\S03_datasets\eeeg-motor-movementimagery\S109\S109R13.edf...
EDF file detected

```

```

Setting channel info structure...
Creating raw.info structure...
Reading 0 ... 19679 =      0.000 ...  122.994 secs...
Sampling frequency of the instance is already 160.0, returning unmodified.
Filtering raw data in 1 contiguous segment
Setting up band-pass filter from 1 - 45 Hz

```

FIR filter parameters

-----

```

Designing a one-pass, zero-phase, non-causal bandpass filter:
- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation

```



- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

Procesando sujeto 109, ensayo 14

Extracting EDF parameters from C:\Users\OMEN CI7\Documents\repository\Neurociencias-2026-1\S03\_datasets\eeg-motor-movementimagery\S109\S109R14.edf...

EDF file detected

Setting channel info structure...

Creating raw.info structure...

Reading 0 ... 19679 = 0.000 ... 122.994 secs...

Sampling frequency of the instance is already 160.0, returning unmodified.

Filtering raw data in 1 contiguous segment

Setting up band-pass filter from 1 - 45 Hz

FIR filter parameters

-----

Designing a one-pass, zero-phase, non-causal bandpass filter:

- Windowed time-domain design (firwin) method
- Hamming window with 0.0194 passband ripple and 53 dB stopband attenuation
- Lower passband edge: 1.00
- Lower transition bandwidth: 1.00 Hz (-6 dB cutoff frequency: 0.50 Hz)
- Upper passband edge: 45.00 Hz
- Upper transition bandwidth: 11.25 Hz (-6 dB cutoff frequency: 50.62 Hz)
- Filter length: 529 samples (3.306 s)

```
In [11]: print('Total de sujetos ', len(edf_sujetos))
        for idx, edf_sujeto in enumerate(edf_sujetos):
            print(f'Sujeto {idx+1} tiene {len(edf_sujeto)} ensayos')
```

Total de sujetos 14

Sujeto 1 tiene 109 ensayos

Sujeto 2 tiene 109 ensayos

Sujeto 3 tiene 109 ensayos

Sujeto 4 tiene 109 ensayos

Sujeto 5 tiene 109 ensayos

Sujeto 6 tiene 109 ensayos

Sujeto 7 tiene 109 ensayos

Sujeto 8 tiene 109 ensayos

Sujeto 9 tiene 109 ensayos

Sujeto 10 tiene 109 ensayos

Sujeto 11 tiene 109 ensayos

Sujeto 12 tiene 109 ensayos

Sujeto 13 tiene 109 ensayos

Sujeto 14 tiene 109 ensayos

## Guardar los dataframes en excel files

```
In [12]: for idx_sujeto, sujeto in enumerate(edf_sujetos):
        nombre_archivo = r'..\S03_datasets\eeg-motor-movementimagery_Ensayo_'+str(idx_s
        with pd.ExcelWriter(nombre_archivo) as writer:
```

```
for idx, ensayo in enumerate(sujeto):
    ensayo.to_excel(writer, sheet_name=f'Sujeto{idx+1}', index=True)
```

## Abrir los dataframes de un excel

```
In [13]: ensayo3_dict = pd.read_excel(r'...\S03_datasets\eeg-motor-movementimagery_Ensayo_03.
ensayo4_dict = pd.read_excel(r'...\S03_datasets\eeg-motor-movementimagery_Ensayo_04.
```

```
In [14]: ensayo3_dfs = lee_ensayo_dfs(ensayo3_dict)
ensayo4_dfs = lee_ensayo_dfs(ensayo4_dict)
```

```
In [15]: ensayo3_dfs[0]
```

```
Out[15]:
```

	Fc5.	Fc3.	Fc1.	Fcz.	Fc2.	Fc4.	Fc6.	C5..	C6..
<b>Fc5.</b>	0.000000	0.867923	0.700735	0.525544	0.450264	0.362137	0.259564	0.861015	0.766015
<b>Fc3.</b>	0.867923	0.000000	0.918912	0.731142	0.628317	0.503466	0.353005	0.777415	0.856015
<b>Fc1.</b>	0.700735	0.918912	0.000000	0.897501	0.797551	0.646089	0.452418	0.629695	0.783015
<b>Fcz.</b>	0.525544	0.731142	0.897501	0.000000	0.922947	0.778286	0.551145	0.480637	0.634015
<b>Fc2.</b>	0.450264	0.628317	0.797551	0.922947	0.000000	0.923431	0.696435	0.423512	0.562015
...	...	...	...	...	...	...	...	...	...
<b>Po8.</b>	0.101002	0.112443	0.120838	0.120982	0.140344	0.150086	0.133999	0.154087	0.182015
<b>O1..</b>	0.273973	0.264749	0.245041	0.218634	0.216206	0.196400	0.155667	0.409722	0.433015
<b>Oz..</b>	0.215420	0.217149	0.210811	0.192018	0.198775	0.189580	0.156252	0.318516	0.353015
<b>O2..</b>	0.131835	0.139296	0.143004	0.134798	0.147748	0.147815	0.125630	0.196138	0.226015
<b>Iz..</b>	0.196033	0.179823	0.168671	0.151215	0.156963	0.151460	0.130997	0.265635	0.272015

64 rows × 64 columns



```
In [9]:
```

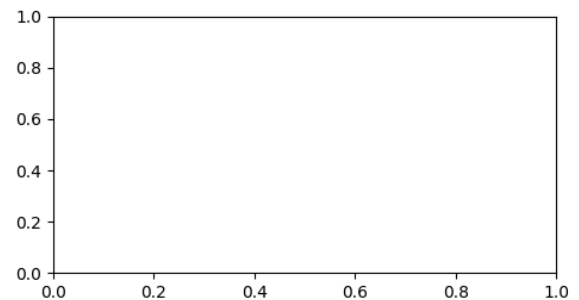
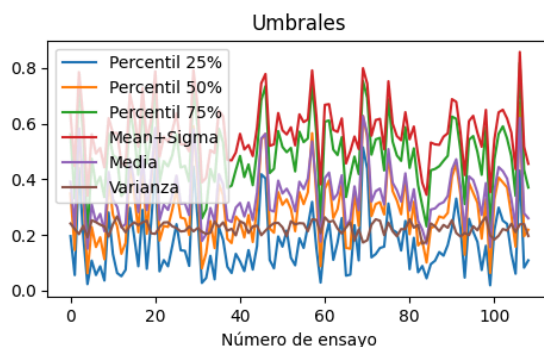
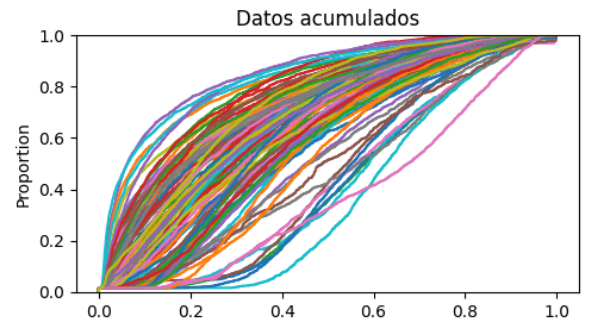
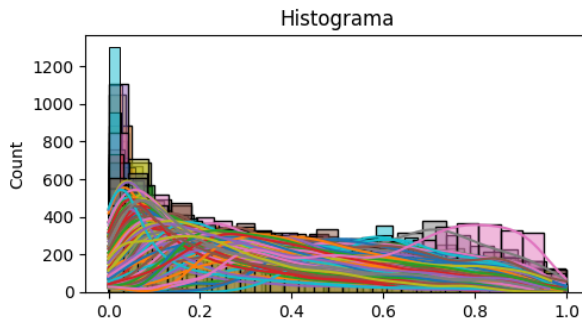
## Task 1 (open and close left or right fist)

```
In [19]: eeg_dfs_ = ensayo3_dfs

# Análisis exploratorio de datos
th25_, th50_, th75_, mean_, sigma_ = plot_estadisticos_ensayos(eeg_dfs_)
```

## Estadísticas de los umbrales

	perc_25	perc_50	perc_75	mean	sigma	mean+sigma
min	0.018413	0.06175	0.196867	0.149821	0.16782	0.340611
max	0.514472	0.674805	0.819681	0.626848	0.266529	0.857561
mean	0.166961	0.295352	0.489628	0.345504	0.224412	0.569916
sigma	0.108282	0.127829	0.122228	0.102222	0.021782	0.103658



## Filtrado de ensayos

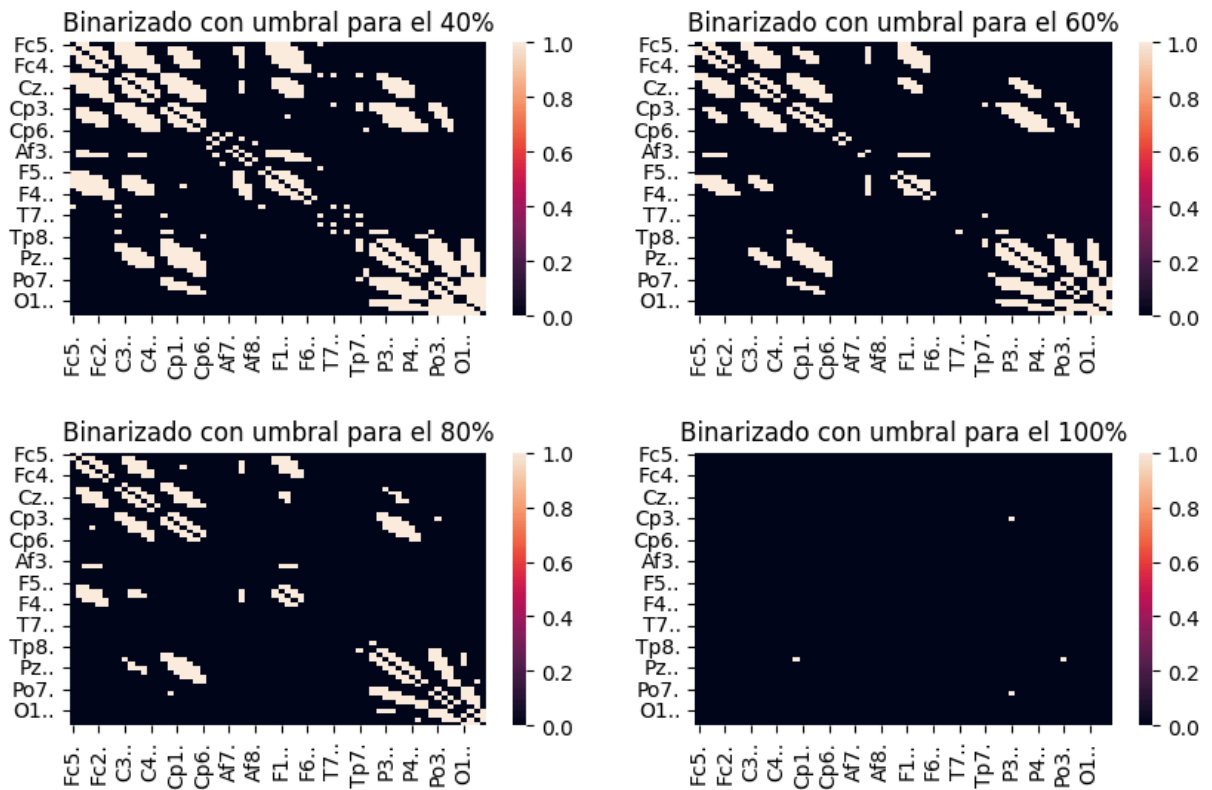
```
In [22]: df_filtered_04 = filtrado_ensayos(eeg_dfs_, threshold=np.mean(np.array(mean_)+np.ar
df_filtered_06 = filtrado_ensayos(eeg_dfs_, threshold=np.mean(np.array(mean_)+np.ar
df_filtered_08 = filtrado_ensayos(eeg_dfs_, threshold=np.mean(np.array(mean_)+np.ar
df_filtered_10 = filtrado_ensayos(eeg_dfs_, threshold=np.mean(np.array(mean_)+np.ar
```

```
In [23]: fig, axes = plt.subplots(2, 2, figsize=(10, 6))

plt.subplots_adjust(hspace=0.5)
sns.heatmap(df_filtered_04, ax=axes[0][0])
sns.heatmap(df_filtered_06, ax=axes[0][1])
sns.heatmap(df_filtered_08, ax=axes[1][0])
sns.heatmap(df_filtered_10, ax=axes[1][1])

axes[0][0].set_title('Binarizado con umbral para el 40%')
axes[0][1].set_title('Binarizado con umbral para el 60%')
axes[1][0].set_title('Binarizado con umbral para el 80%')
axes[1][1].set_title('Binarizado con umbral para el 100%')
```

```
Out[23]: Text(0.5, 1.0, 'Binarizado con umbral para el 100%')
```



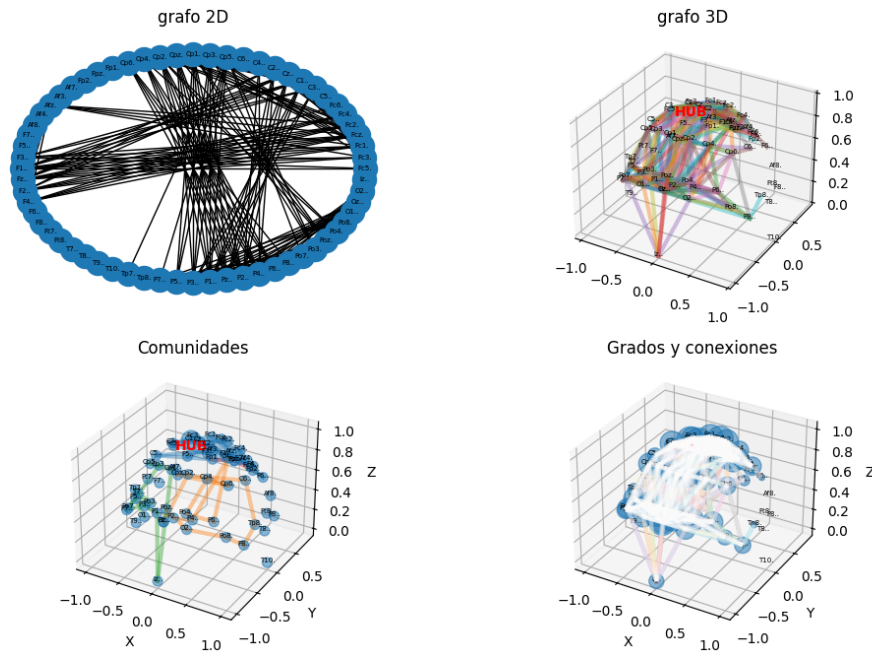
## Análisis de grafos

```
In [26]: # Generar grafo desde matriz
df_filtered = df_filtered_06
eeg_graph_ = nx.from_pandas_adjacency(df_filtered, create_using=nx.Graph())

clust_coeff, path_length, small_world_sigma, communities, modularity, betweenness,
hub = betweenness[0]

plot_grafos(eeg_graph_, df_filtered)
```

Figure



## Task 2 (imagine opening and closing left or right fist)

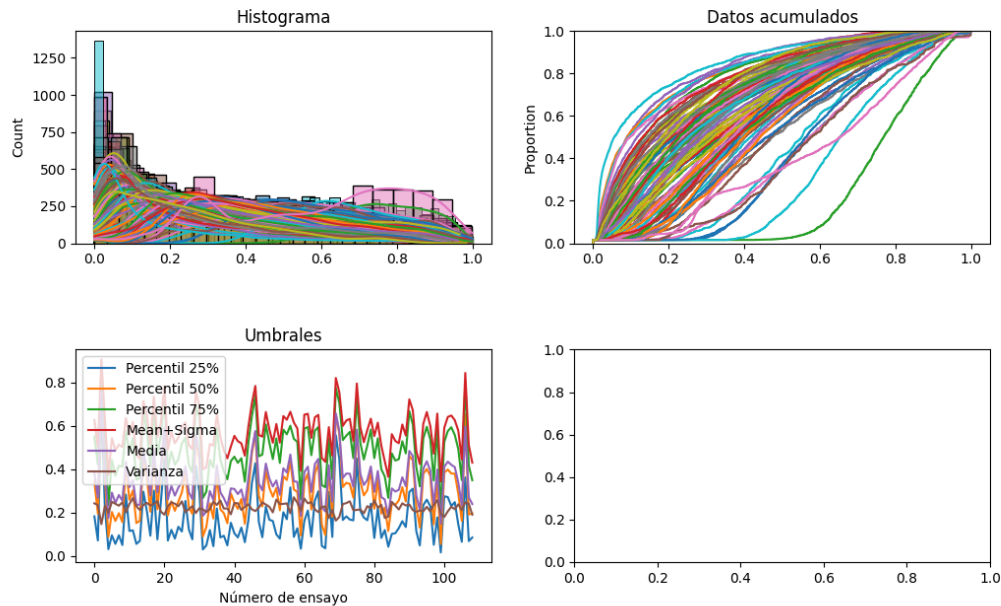
```
In [28]: eeg_dfs_ = ensayo4_dfs

# Análisis exploratorio de datos
th25_, th50_, th75_, mean_, sigma_ = plot_estadisticos_ensayos(eeg_dfs_)
```

### Estadísticas de los umbrales

	perc_25	perc_50	perc_75	mean	sigma	mean+sigma
min	0.016915	0.055561	0.210152	0.148728	0.147097	0.343459
max	0.68082	0.768026	0.859416	0.758803	0.270675	0.9059
mean	0.171176	0.300271	0.495304	0.350497	0.224362	0.574859
sigma	0.11894	0.13275	0.123774	0.108115	0.02315	0.104823

Figure



```
In [29]: df_filtered_04 = filtrado_ensayos(eeg_dfs_, threshold=np.mean(np.array(mean_)+np.ar
df_filtered_06 = filtrado_ensayos(eeg_dfs_, threshold=np.mean(np.array(mean_)+np.ar
df_filtered_08 = filtrado_ensayos(eeg_dfs_, threshold=np.mean(np.array(mean_)+np.ar
df_filtered_10 = filtrado_ensayos(eeg_dfs_, threshold=np.mean(np.array(mean_)+np.ar
```

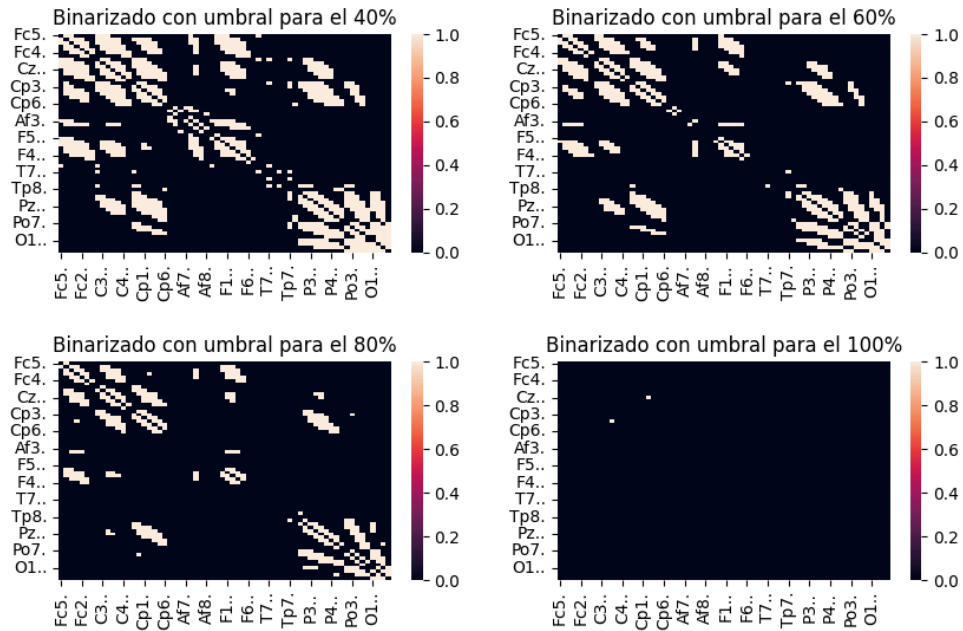
```
In [30]: fig, axes = plt.subplots(2, 2, figsize=(10, 6))

plt.subplots_adjust(hspace=0.5)
sns.heatmap(df_filtered_04, ax=axes[0][0])
sns.heatmap(df_filtered_06, ax=axes[0][1])
sns.heatmap(df_filtered_08, ax=axes[1][0])
sns.heatmap(df_filtered_10, ax=axes[1][1])

axes[0][0].set_title('Binarizado con umbral para el 40%')
axes[0][1].set_title('Binarizado con umbral para el 60%')
axes[1][0].set_title('Binarizado con umbral para el 80%')
axes[1][1].set_title('Binarizado con umbral para el 100%')
```

```
Out[30]: Text(0.5, 1.0, 'Binarizado con umbral para el 100%')
```

Figure

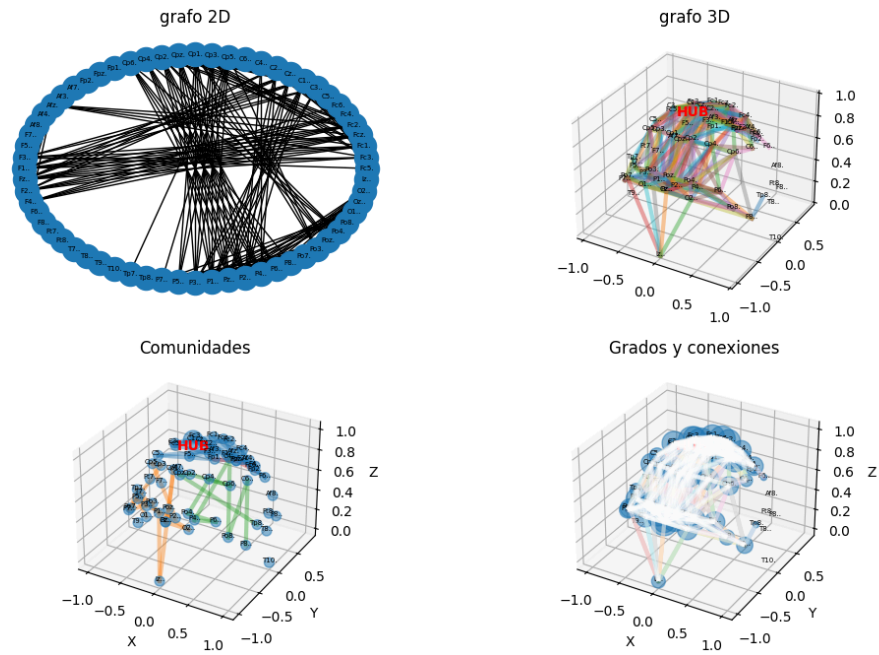


```
In [31]: # Generar grafo desde matriz
df_filtered = df_filtered_06
eeg_graph_ = nx.from_pandas_adjacency(df_filtered, create_using=nx.Graph())

clust_coeff, path_length, small_world_sigma, communities, modularity, betweenness,
hub = betweenness[0]

plot_grafos(eeg_graph_, df_filtered)
```

Figure



In [ ]:

In [ ]:

In [ ]: