

viz_psd_sleep_stage

September 15, 2022

```
[11]: import os  
%load_ext autoreload  
%autoreload 2
```

The autoreload extension is already loaded. To reload it, use:

```
%reload_ext autoreload
```

```
[12]: # May be necessary to add the base path of LittleStarr directory to sys.path  
BASE_PATH = "/home/claysmyth/code/"
```

```
[13]: BASE_PATH
```

```
[13]: '/home/claysmyth/code/'
```

```
[107]: import sys  
sys.path.append("/home/claysmyth/code/")  
import pandas as pd  
import numpy as np  
import glob  
from functools import partial  
from LittleStarr.visualization_functions import rcs_visualization as rv  
import polars as pl  
from multipledispatch import dispatch  
import scipy.signal as signal  
import matplotlib.pyplot as plt  
import scipy.stats as stats  
from LittleStarr.data_processing import data_transforms as dt  
# from LittleStarr.analytics import utils as au  
# Throws error: from LittleStarr.analytics import signal_processing as sp  
import utils  
import csv  
import os  
import datetime  
import sleep_stage_tests as sst
```

1 Notebook Parameters

```
[28]: # Parameters
parent_directories = ['/media/longterm_hdd/Clay/Sleep_10day/RCS02L/OVERNIGHT',
                      '/media/longterm_hdd/Clay/Sleep_10day/RCS02R/OVERNIGHT',
                      '/media/longterm_hdd/Clay/Sleep_10day/RCS03L/OVERNIGHT',
                      '/media/longterm_hdd/Clay/Sleep_10day/RCS03R/OVERNIGHT',
                      '/media/longterm_hdd/Clay/Sleep_10day/RCS16L/OVERNIGHT',
                      '/media/longterm_hdd/Clay/Sleep_10day/RCS16R/OVERNIGHT']
file_paths_csv = '/media/longterm_hdd/Clay/DREEM_data/
                  ↪filepaths_02_03_16_matlab_copy.csv'
desired_columns = ['DerivedTime', 'TD_key0', 'TD_key2', 'TD_key3', 'SleepStage']
```



```
[18]: def get_PSD_as_array(data, sample_rate, epoch_length, window_length, overlap, ↪
    ↪column_format=False):
    """
    Takes time series data of arbitrary complexity, and reshapes the
    ↪time-series portion into a (n x epoch_length) array, then applies the welch
    ↪method of PSD estimation on each row in (n).

    Assumes the last 2 dimensions are (num channels x num time samples). If
    ↪last 2 dimensions are (num time samples x num channels), then column_format
    ↪should be toggled to True.

    :param data: Raw time series data, where last two dimensions should be (num_
    ↪channels x num time samples) or (num samples x num time channels).
    :param sample_rate: sample rate of time series samples [Hz]
    :param epoch_length: number of samples in the resulting row, on which PSD
    ↪is calculated [int]
    :param window_length: number of samples for welch window [int]
    :param overlap: number of samples to overlap welch windows [int]
    :param column_format: Set to true if last 2 dimensions of input data is
    ↪(num time samples x num channels)
    :return:
        f: output array f of the signal.welch
        Pxx_den: an (n x f) array denoting the resulting power spectral
    ↪estimation for each epoch.
    """
    if column_format:
        data = np.transpose(data, np.shape(data)[:-2] + (-1, -2))

        # Ignore tail end of data that does not fit into welch epoch
        num_chunks = (np.shape(data)[-1] - epoch_length) // epoch_length

        # Chunk the time series portion of the data into an (n x epoch_length) ↪
        ↪array.

        # The last dimension will be a continuous section of data of epoch length, ↪
        ↪and second to last will be contiguous epochs.
```

```

    data_epoch_blocked = np.reshape(data[..., :num_chunks*epoch_length], (np.
→shape(data)[:-1]) + (num_chunks, epoch_length))

    # Run PSD calculation on each epoch of data (the last dimension)
    f, Pxx_den = signal.welch(data_epoch_blocked, fs=sample_rate, nperseg=window_length, noverlap=overlap)

    return f, Pxx_den

```

```

[19]: def get_PSD_dict(data_dict, cols, value_type, **kwargs):
    """
        Wrapper function for get_PSD_as_array(...). Processes data values in
→data_dict into PSD_arrays
        :param data_dict: dictionary pairs of key - dataframe [either dask, pandas,
→or polars]
        :param cols: [list of strings] cols to extract from dataframe values. Are
→ultimately transformed into numpy arrays
        :param value_type: [string] indicates what type of dataframe are stored as
→values in data_dict
        :param **kwargs: parameter values for get_PSD_as_array(...)
        :return:
            f: output array f of the signal.welch
            psd_dictionary: keys of data_dict pairs with Pxx_den, as outputted from
→get_PSD_as_array(...)
    """
    if value_type == 'polars':
        psd_dict = {key: get_PSD_as_array(data=value.select(cols).fill_null(0).
→to_numpy().T, **kwargs)
                    for key, value in data_dict.items()}
    elif value_type == 'dask':
        psd_dict = {key: get_PSD_as_array(data=value[cols].fillna(0).compute().
→values.T, **kwargs)
                    for key, value in data_dict.items()}
    elif value_type == 'pandas':
        psd_dict = {key: get_PSD_as_array(data=value[cols].fillna(0).values.T,
→**kwargs)
                    for key, value in data_dict.items()}
    else:
        print('Not a recognized value_type. Allowed types are dask, pandas, or
→polars')
        return
    keys = list(psd_dict.keys())
    f = psd_dict[keys[0]][0]
    return f, {key: value[1] for key, value in psd_dict.items()}

```

```
[20]: def process_PSDs_for_channel(psd_dict, channel):
    """
    Processes PSD arrays for plotting. Processes PSD arrays by taking the log
    of the psd array for each channel, and calculating the average and sem of
    the log(data) for each channel
    :param psd_dict: key-value pairing, where each value is an (num channels x
    n x psd length) array of power spectral density estimates
    :param channel: [tuple, e.g. (1,2) or (1) or just 1] index on which to
    process the psd array
    :return: average [1 x psd length] and standard error measure [1 x psd
    length] of the input psd array
    """
    ave = {}
    sem = {}
    for key, arr in psd_dict.items():
        arr_pruned = arr[channel][np.where(~(arr[channel] == 0).any(axis=-1)),:
        ].squeeze()
        arr_log = np.log10(arr_pruned)
        ave[key] = np.average(arr_log, axis=-2)
        sem[key] = stats.sem(arr_log, axis=-2)
    return ave, sem
```

2 Device Summary Statistics (all 10 nights)

```
[27]: psd_params = {'sample_rate':500, 'epoch_length':1000, 'window_length':500,
                  'overlap':250, 'column_format':False}
labels = {2:'N3', 3:'N2', 4:'N1', 5:'REM', 6:'Awake'}

for dir in parent_directories:
    raw_data_files = glob.glob(dir + '/*.parquet')
    rcs_pl = pl.read_parquet(
        dir+'/*.parquet',
        columns = desired_columns
    )
    device = dir.split('/')[-2]

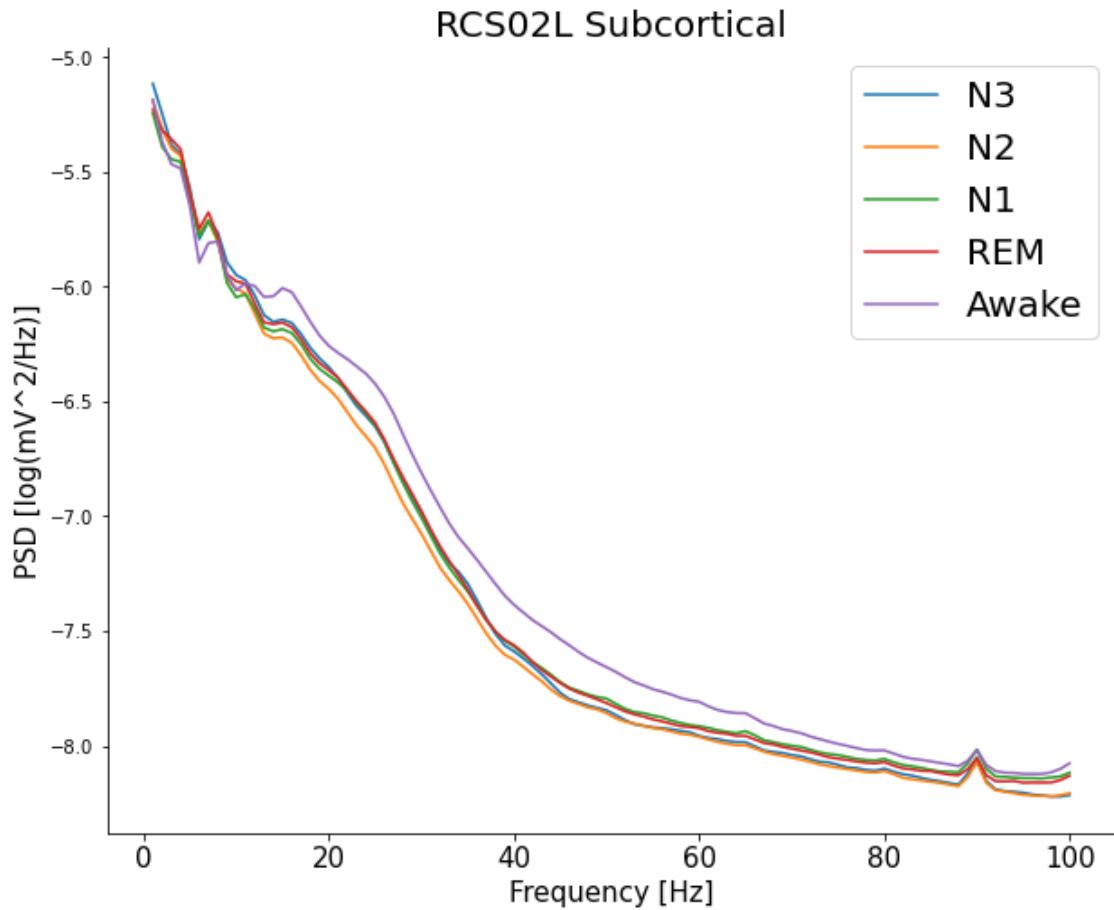
    pl_data_dict = dt.get_sleep_stage_dict(rcs_pl, desired_columns)
    f, psd_dict = get_PSD_dict(pl_data_dict, ['TD_key0', 'TD_key2', 'TD_key3'],
                               **psd_params)

    td_key0_ave, td_key0_sem = au.process_PSDs_for_channel(psd_dict, 0)
    td_key2_ave, td_key2_sem = au.process_PSDs_for_channel(psd_dict, 1)
    td_key3_ave, td_key3_sem = au.process_PSDs_for_channel(psd_dict, 2)
```

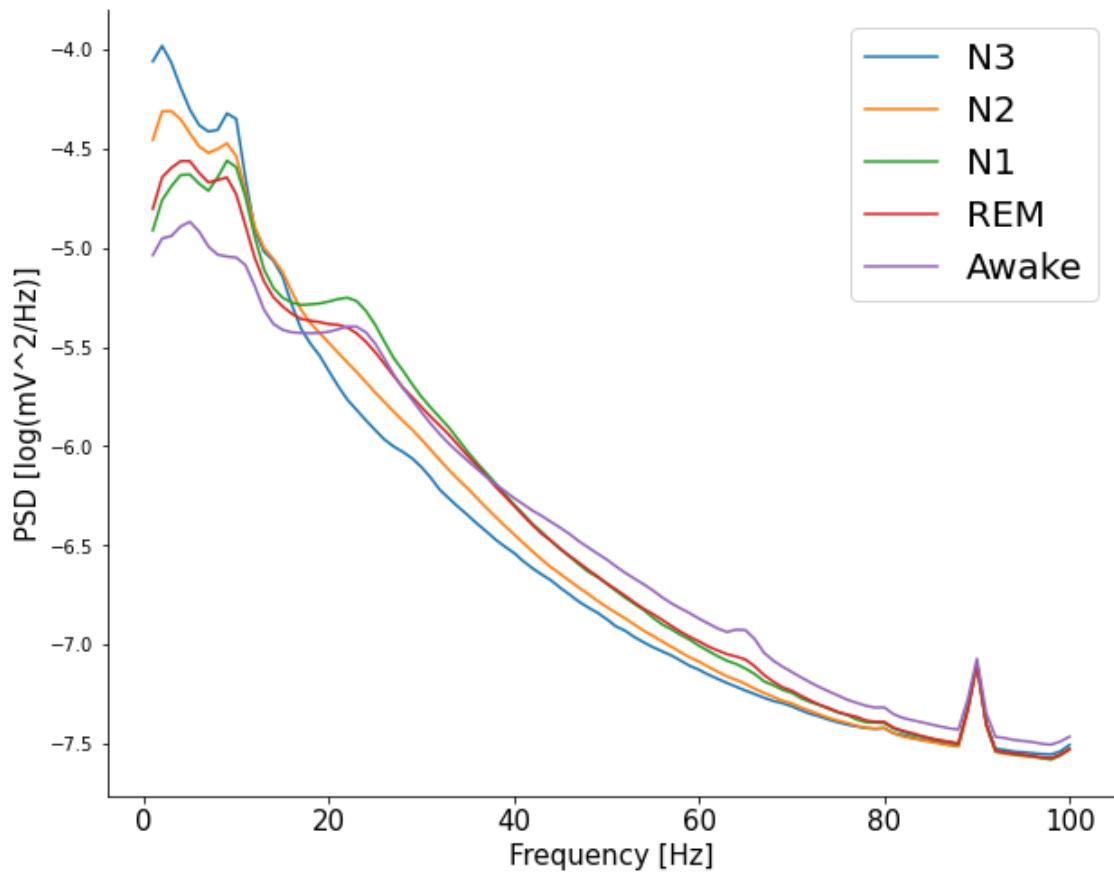
```

rv.plot_PSD(td_key0_ave, labels, device + ' Subcortical', f, plot_SEM=True, u
↪SEM=td_key0_sem)
rv.plot_PSD(td_key2_ave, labels, device + ' +11-8', f, plot_SEM=True, u
↪SEM=td_key2_sem)
rv.plot_PSD(td_key3_ave, labels, device + ' +11-10', f, plot_SEM=True, u
↪SEM=td_key3_sem)

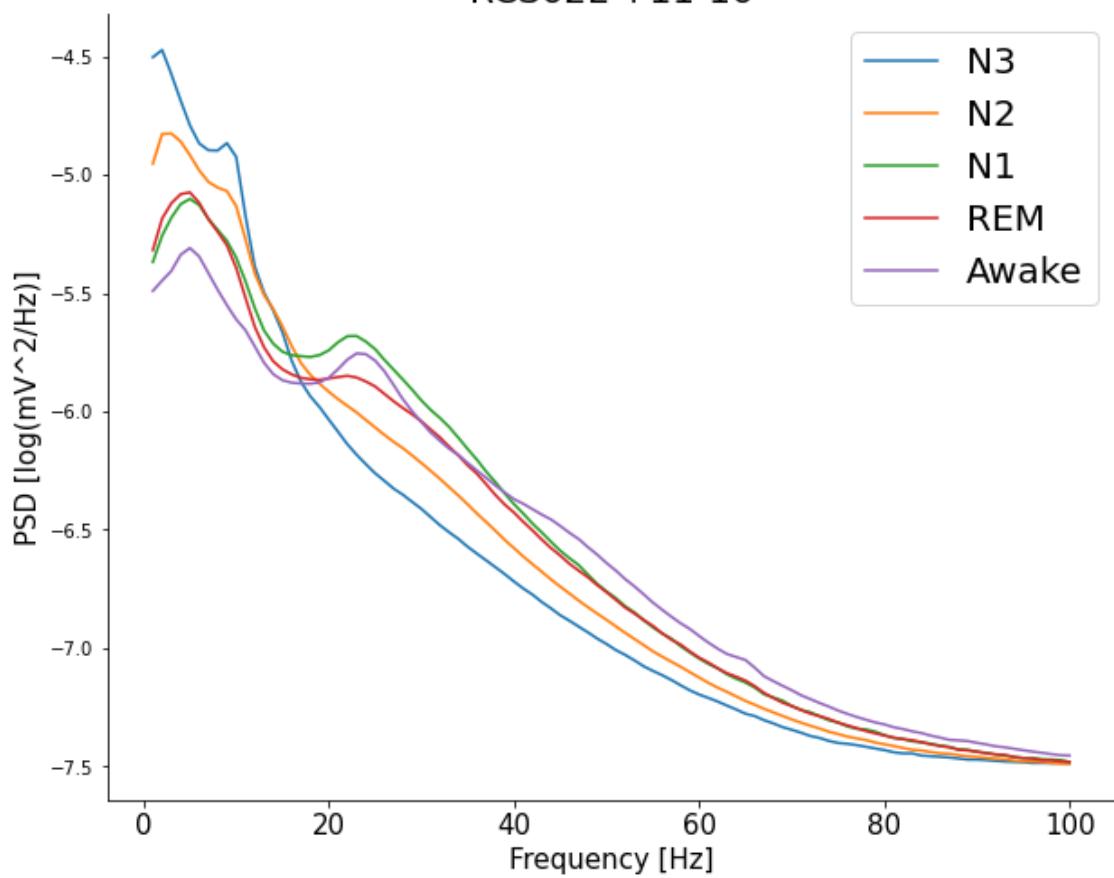
```



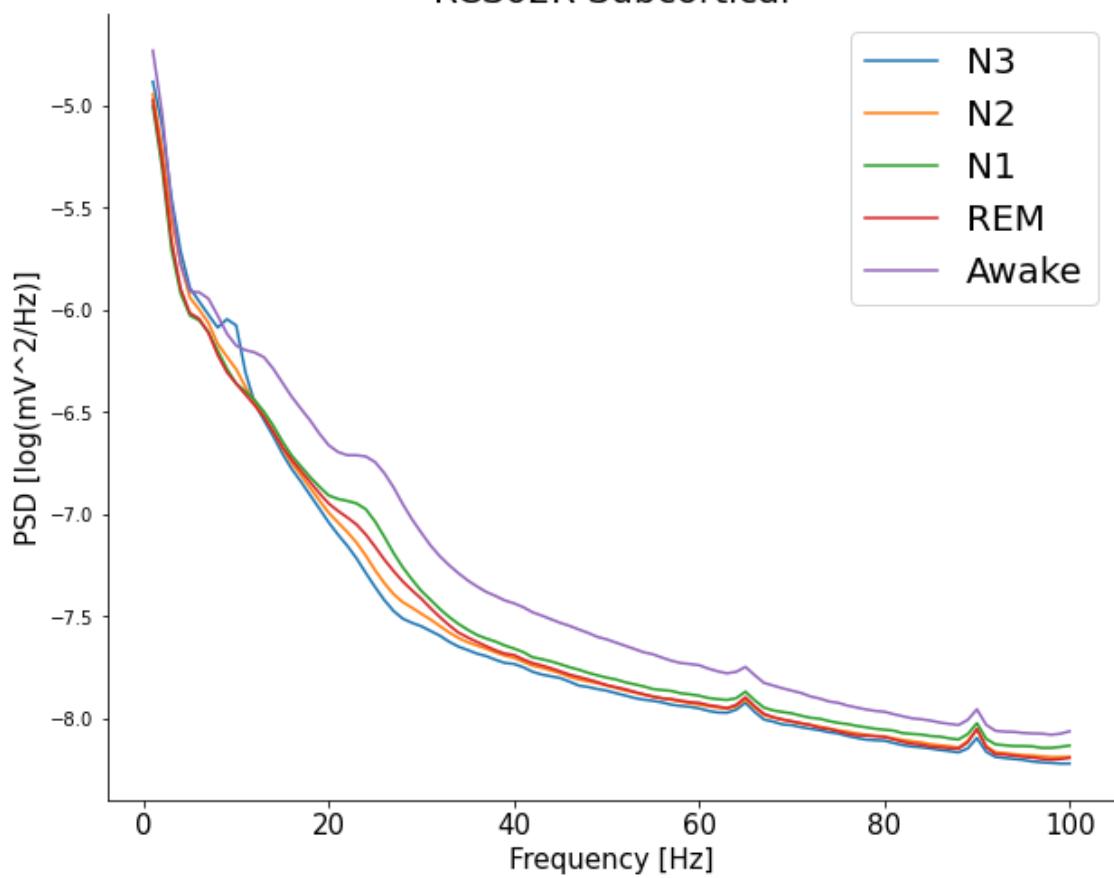
RCS02L +11-8



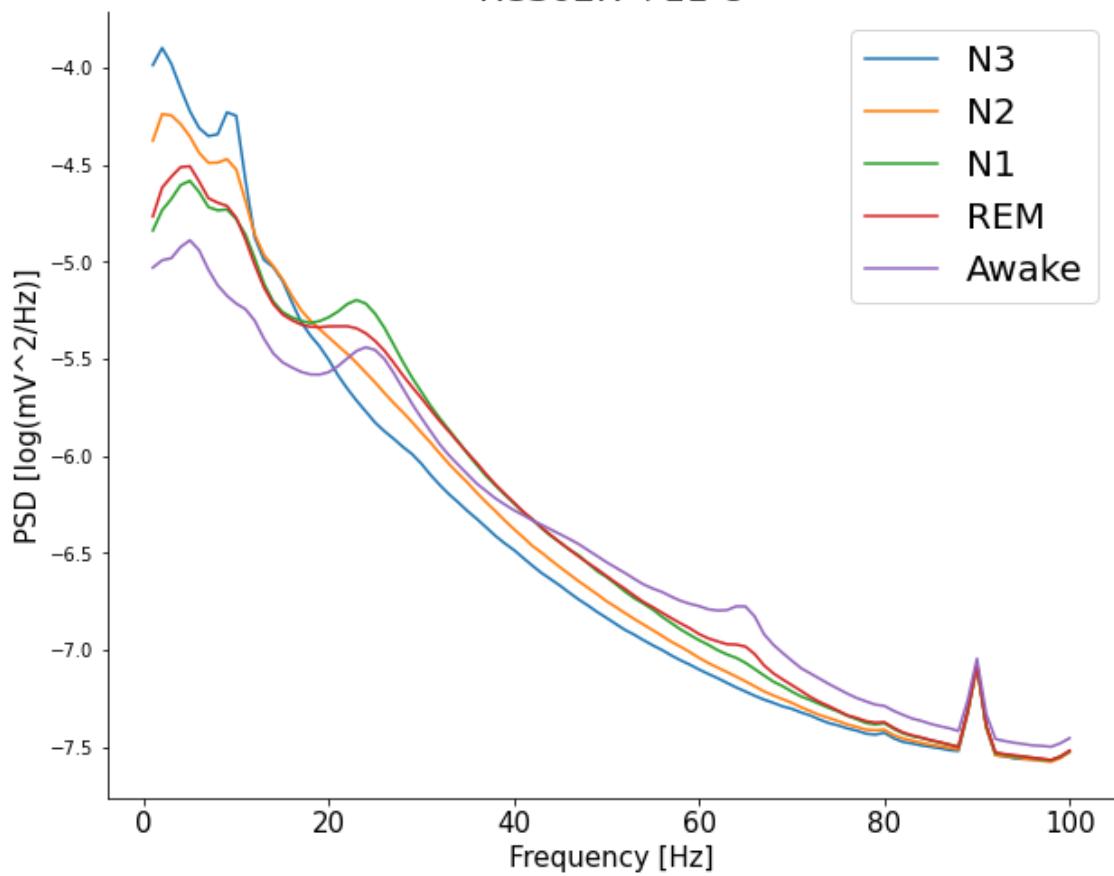
RCS02L +11-10



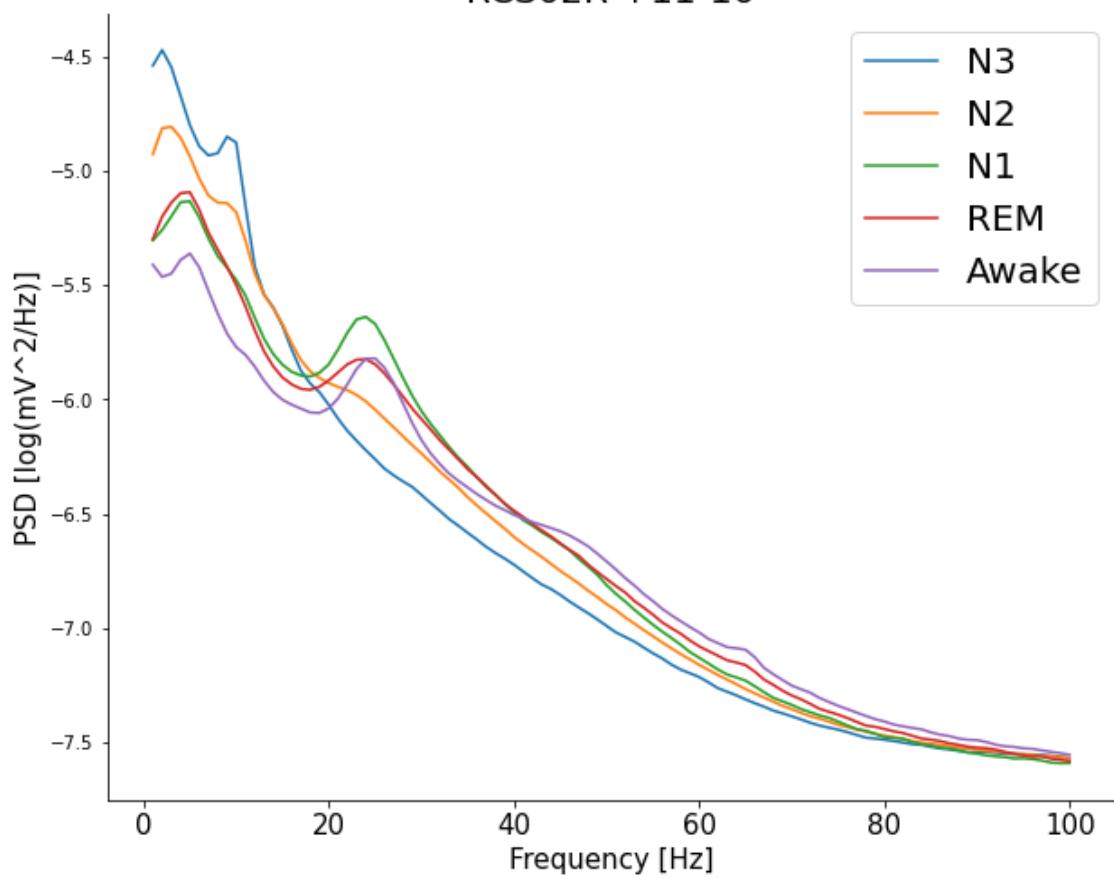
RCS02R Subcortical



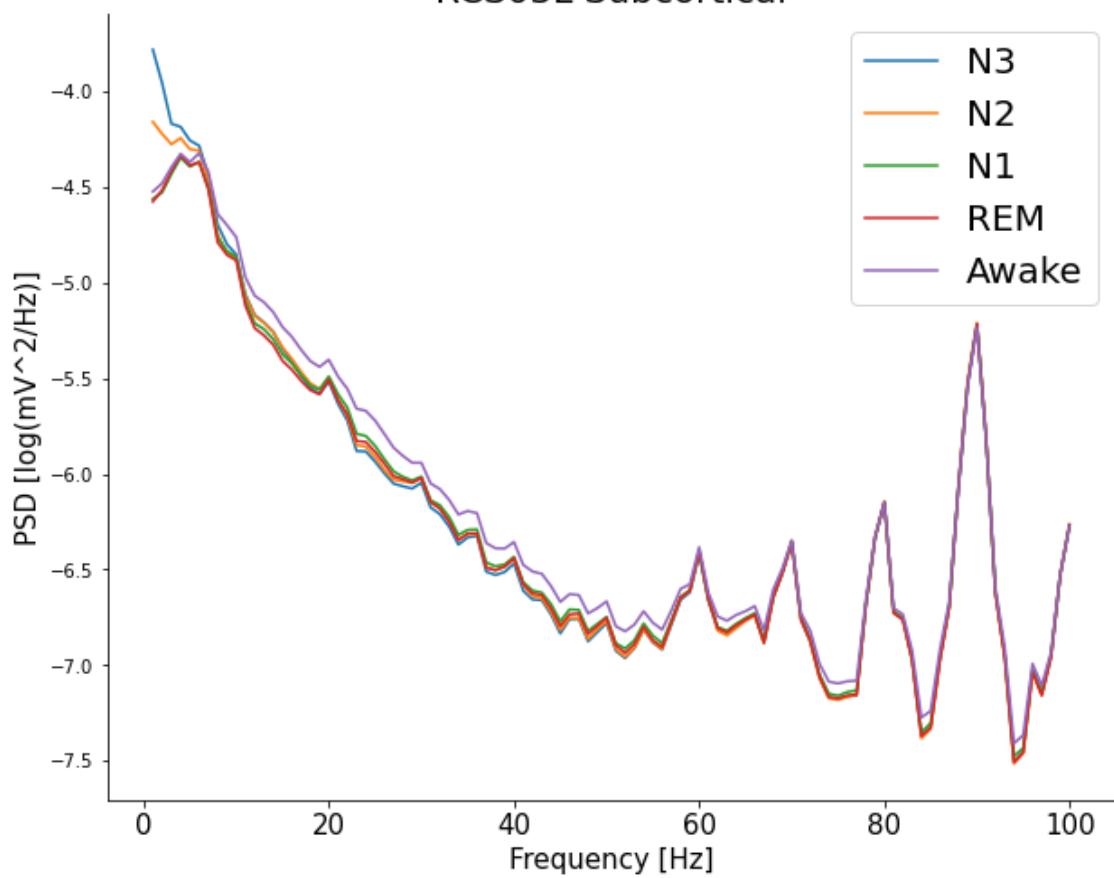
RCS02R +11-8



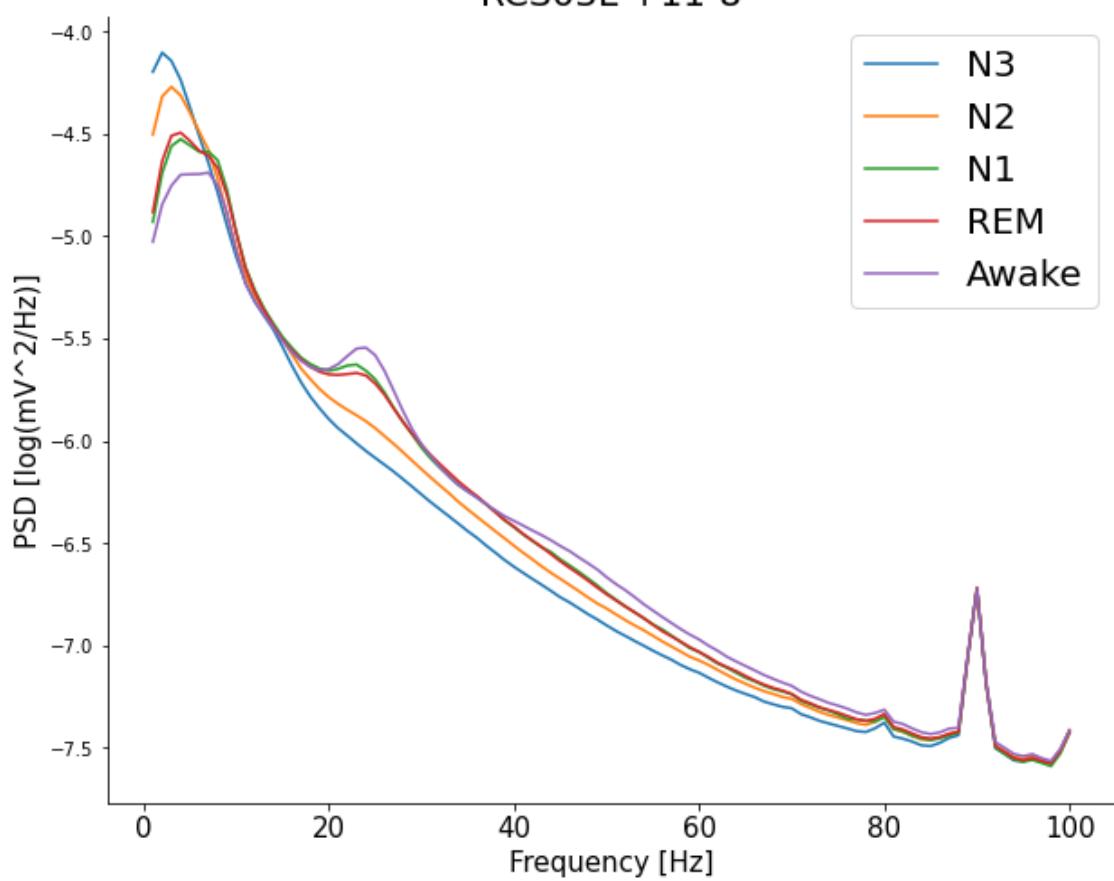
RCS02R +11-10



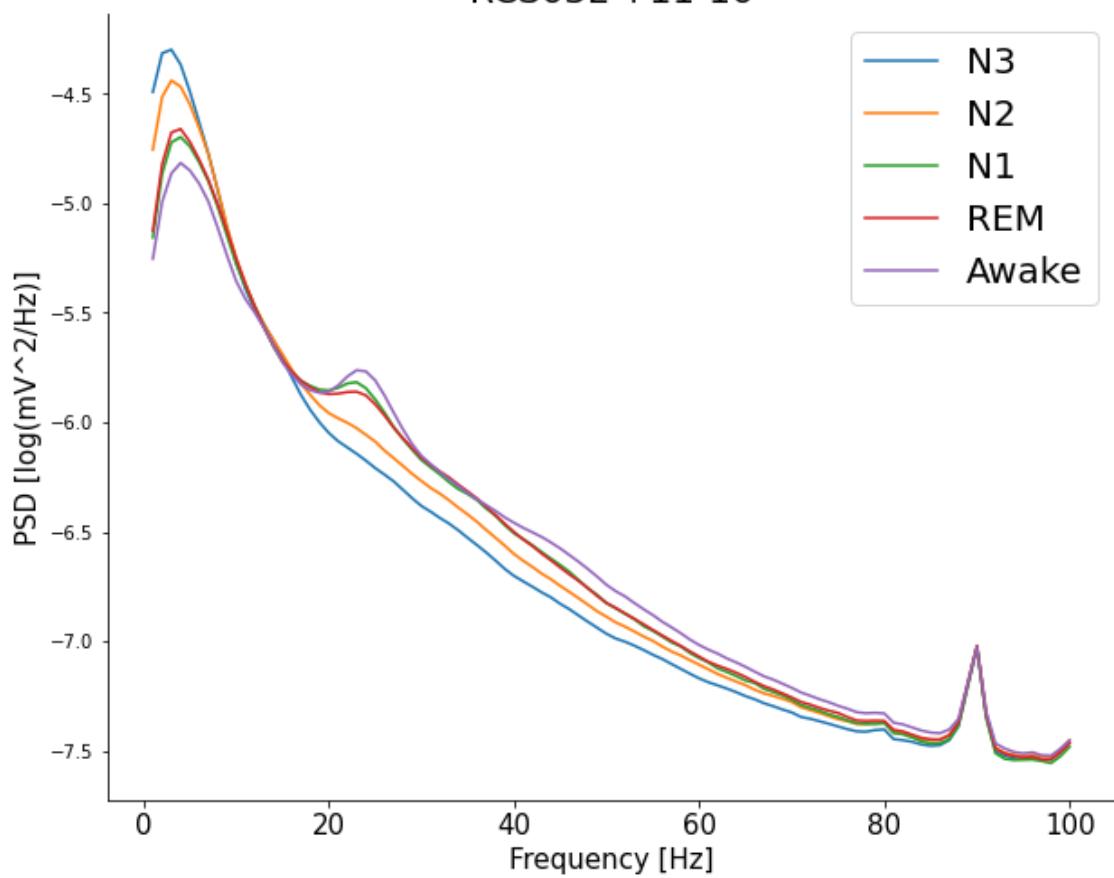
RCS03L Subcortical



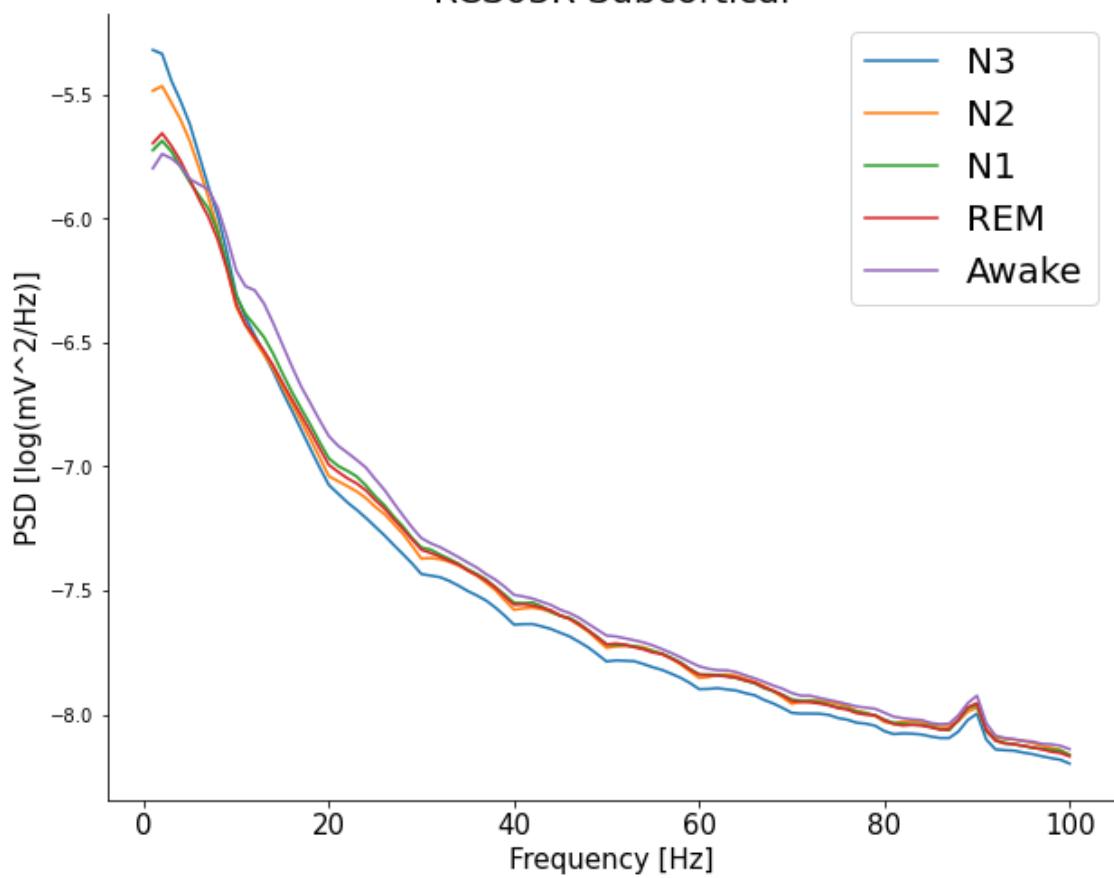
RCS03L +11-8



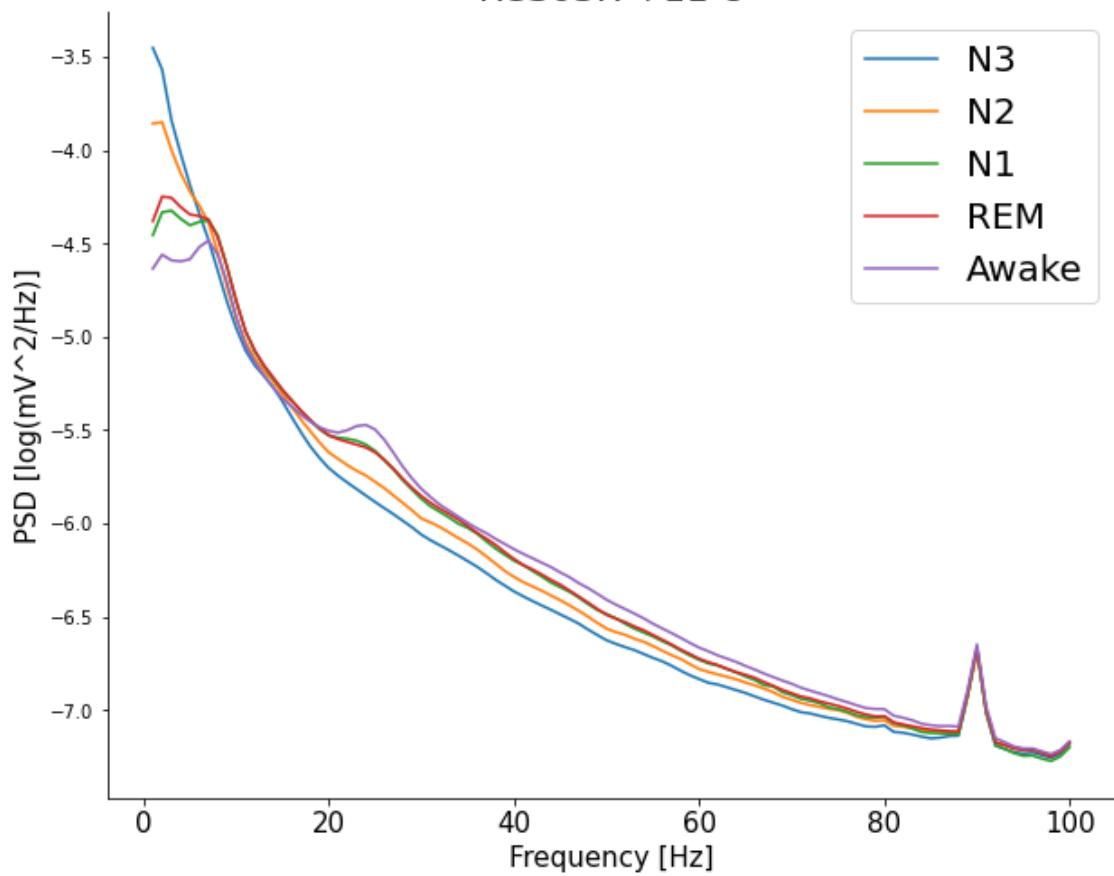
RCS03L +11-10



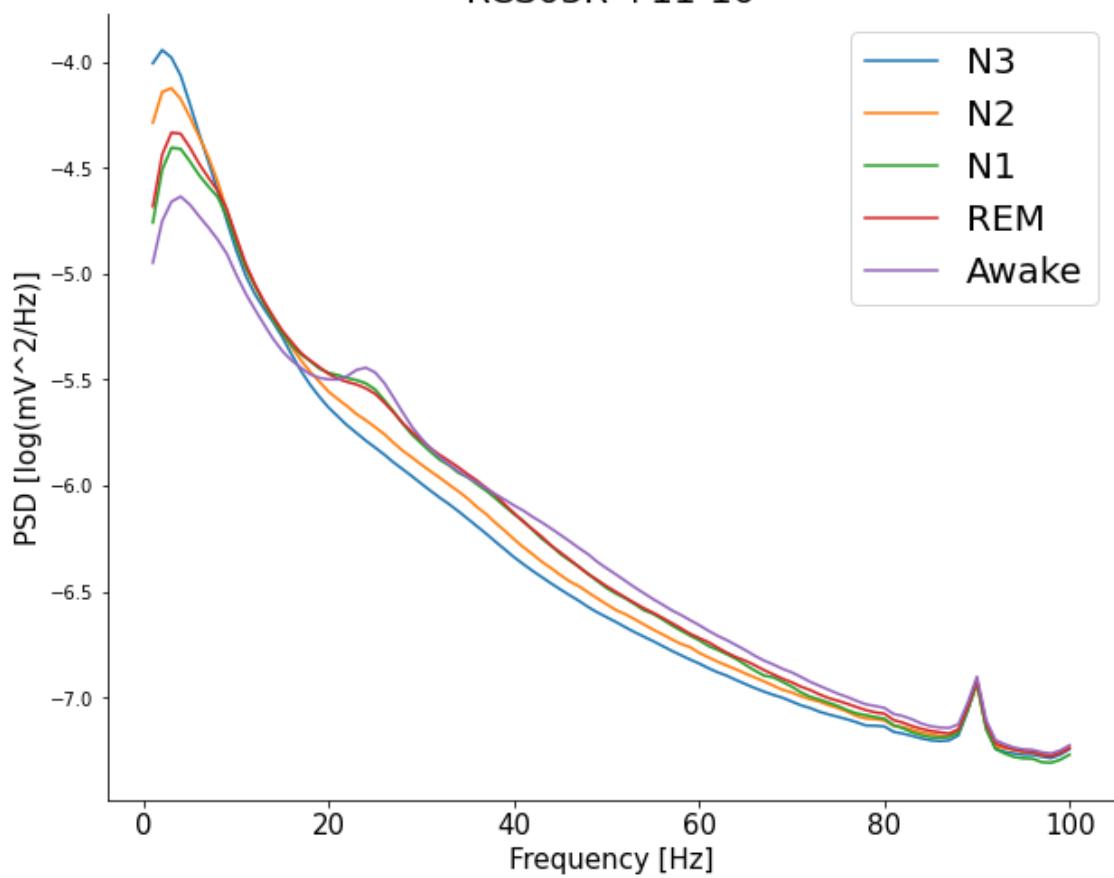
RCS03R Subcortical



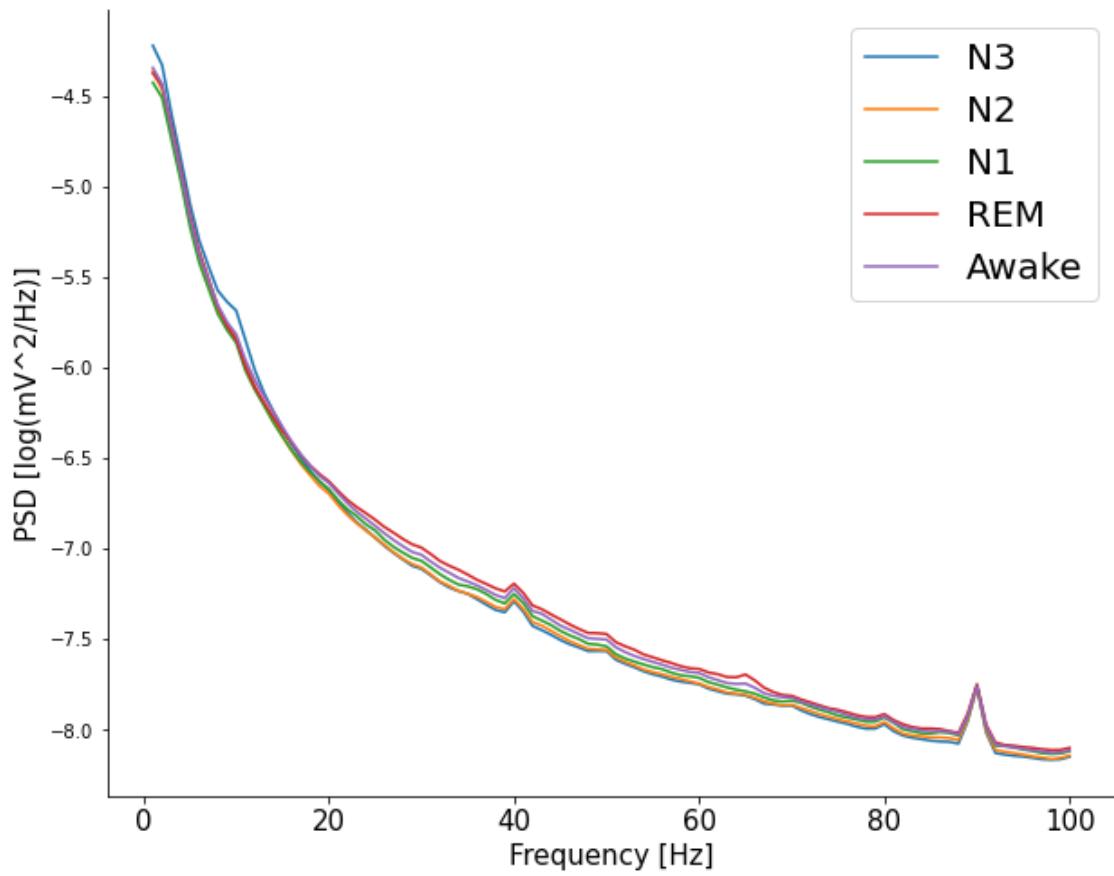
RCS03R +11-8



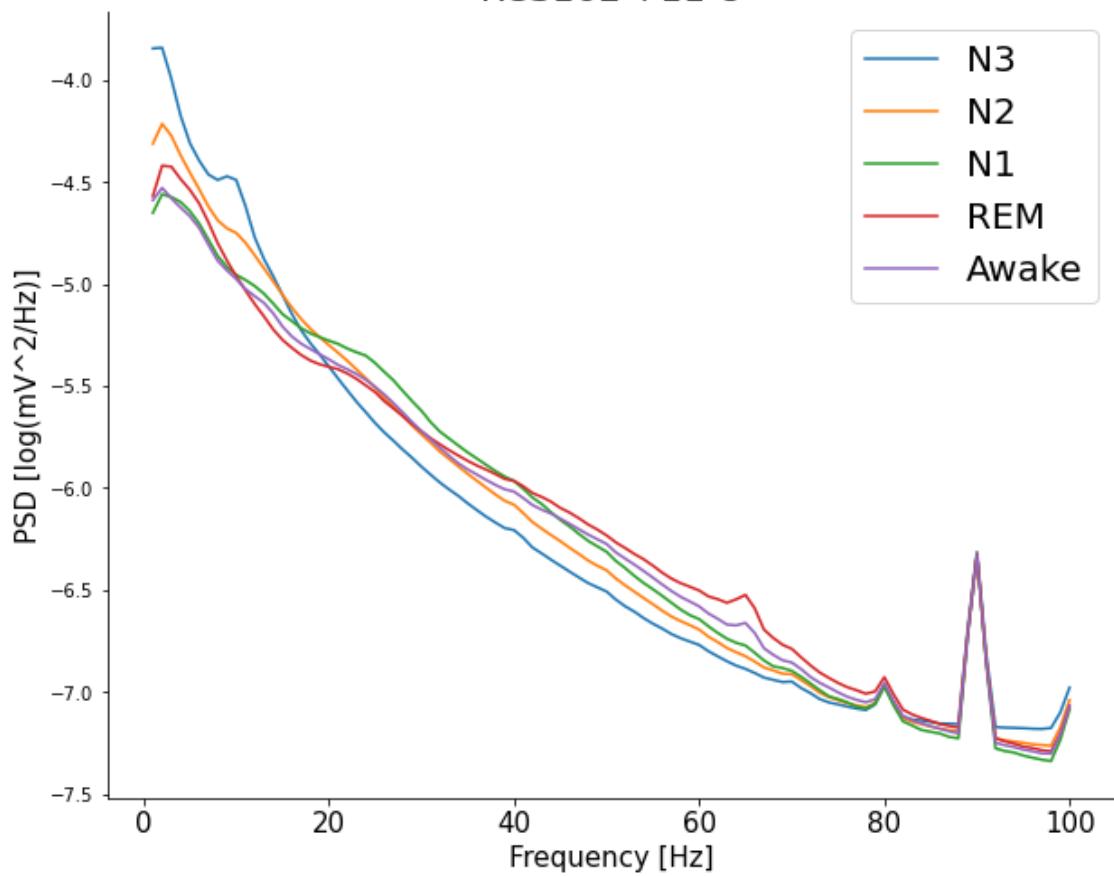
RCS03R +11-10



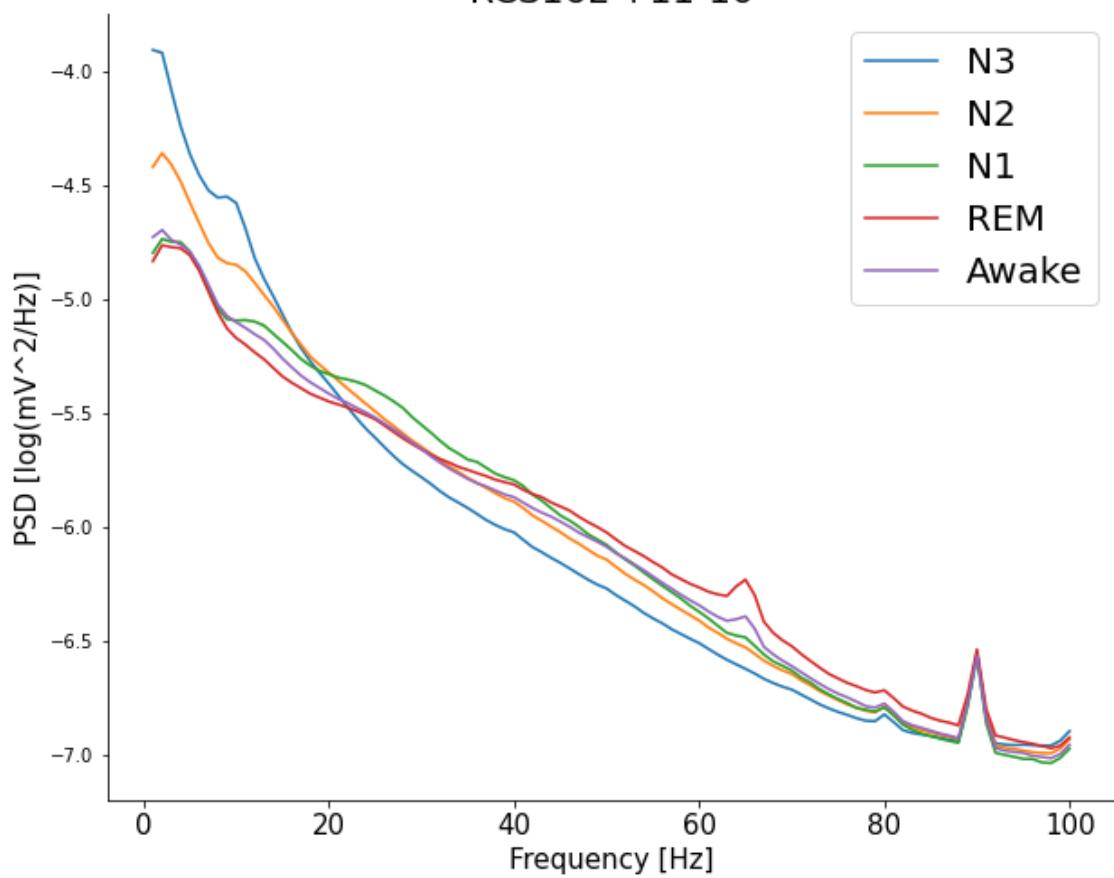
RCS16L Subcortical



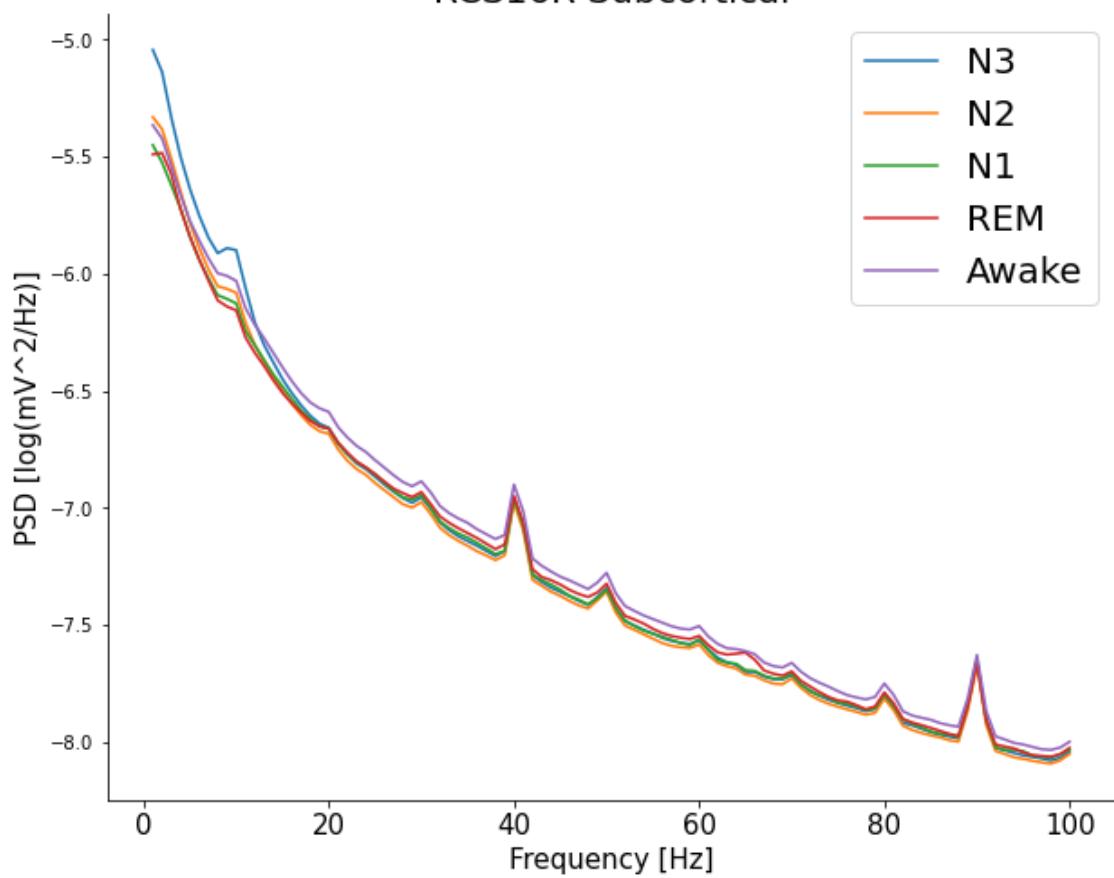
RCS16L +11-8



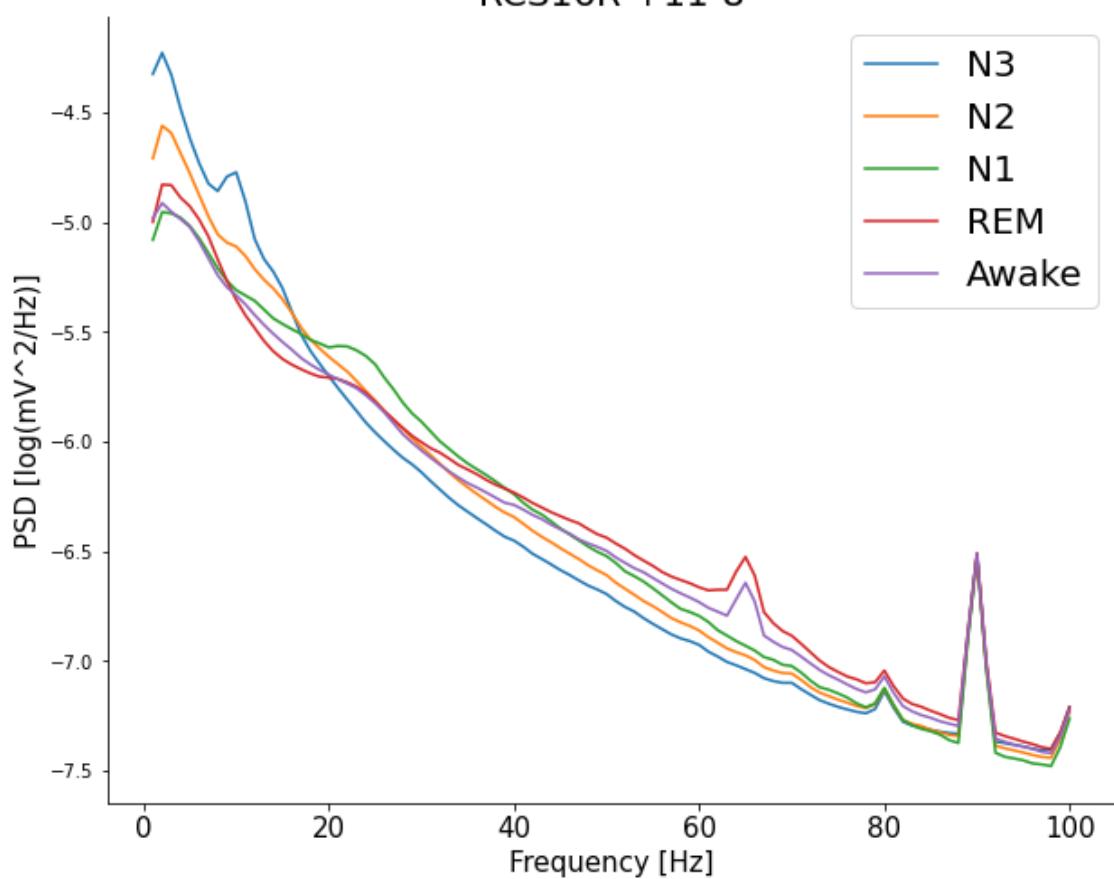
RCS16L +11-10

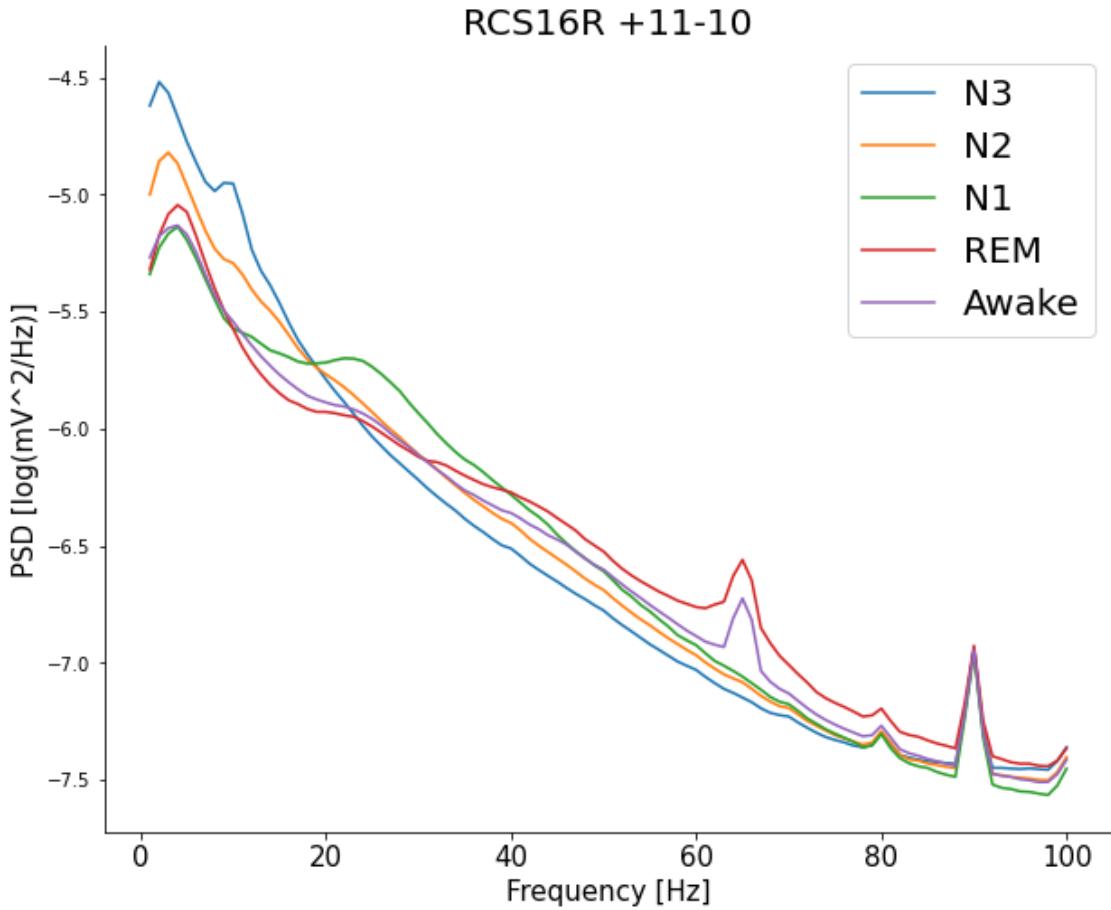


RCS16R Subcortical



RCS16R +11-8





3 Single Session Metadata and Spectrograms

```
[85]: def get_dreem_report_csv_as_dict(report_base_path, date):
    date = datetime.datetime.strptime(date, '%Y-%m-%d')
    report_file = [report for report in os.listdir(report_base_path) if date.
    →strftime("%d-%b-%Y") in report if not report.startswith('.')]
    if not report_file:
        return "", None
    else:
        report_file_path = report_base_path + report_file[0]
        report_df = pd.read_csv(report_file_path)
        report_dict = dict(zip(report_df.iloc[:,0], report_df.iloc[:,1]))
        return report_file_path, report_dict
```



```
[139]: def run_session_tests(overnight, overnight_df, file_paths_df):
    df_ind = file_paths_df.
    →index[file_paths_df['SleepStage_Labeled_RCS_Parquet'] == overnight]
```

```

curr_row = file_paths_df.iloc[df_ind,:]
dreem_reports_base_path = '/'.join(str.split(curr_row['H5'].values[0], '/')[:-2]) + '/Reports/'
report_file, report_dict = get_dreem_report_csv_as_dict(dreem_reports_base_path, curr_row['DateTime'].values[0])
print(f"""Parquet File: {overnight}
Dreem H5 file: {curr_row['H5'].values[0]}
Dreem Txt file: {curr_row['Txt'].values[0]}
RC+S Data Dir: {curr_row['Data_Server_FilePath'].values[0]}
Dreem Report file: {report_file}
""")

test = sst.RcsLabelTests(overnight_df, report_dict, 500)
print("\n")

```

```

[144]: plot_spec = partial(rv.plot_spec_hypno_overlay, sample_rate=500, window_length=1000, overlap=500, freq_range=np.s_[1:201], max=10**-2)
file_paths_df = pd.read_csv(file_paths_csv)

for overnight in raw_data_files:
    df_tmp = pd.read_parquet(overnight)
    run_session_tests(overnight, df_tmp, file_paths_df)
    print(f"\t\tdreem_proportion_Nans (i.e. disconnected): {utils.get_proportion_Nans(df_tmp, 'TD_key0')}")
    plot_spec(df_tmp, 'TD_key0', title=f'TD_key0 {overnight.split("/")[-3]} : {overnight.split('/')[-1]} : Subcortical')

    print(f"\t\tdreem_proportion_Nans (i.e. disconnected): {utils.get_proportion_Nans(df_tmp, 'TD_key2')}")
    plot_spec(df_tmp, 'TD_key2', title=f'TD_key1 {overnight.split("/")[-3]} : {overnight.split('/')[-1]} : +11-8')

    print(f"\t\tdreem_proportion_Nans (i.e. disconnected): {utils.get_proportion_Nans(df_tmp, 'TD_key3')}")
    plot_spec(df_tmp, 'TD_key3', title=f'TD_key3 {overnight.split("/")[-3]} : {overnight.split('/')[-1]} : +11-10')
    print("-----")

```

Parquet File: /media/longterm_hdd/Clay/Sleep_10day/RCS16R/Overnight/Session16526
82767528_16-May-2022.parquet
Dreem H5 file:
/media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/H5/Mor-05@dreem.com
---16-May-2022 07-02-08.h5
Dreem Txt file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/SleepData/Mor-05@dreem.com---16-May-2022 07-02-08.txt
RC+S Data Dir: '/media/dropbox_hdd/Starr Lab Dropbox/RC+S Patient Un-

Synced Data/RCS16 Un-Synced Data/SummitData/SummitContinuousBilateralStreaming/RCS16R/Session1652682767528/DeviceNPC700487H'

Dreem Report file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/Reports/Mor-05@dreem.com---16-May-2022 07-02-08.csv

PASSED: N3 Duration Test

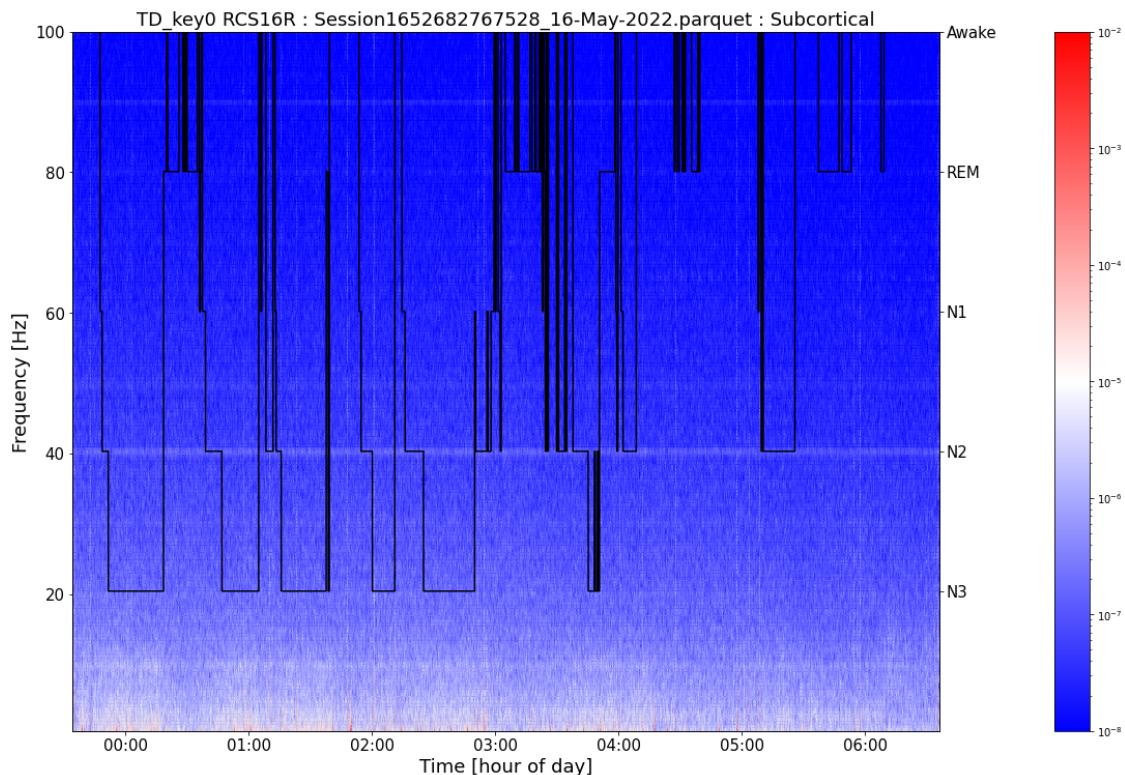
FAILED: N2 Duration Test. Parquet N2 duration (75 min). Dreem N2 duration (76 min)

PASSED: N1 Duration Test

PASSED: REM Duration Test

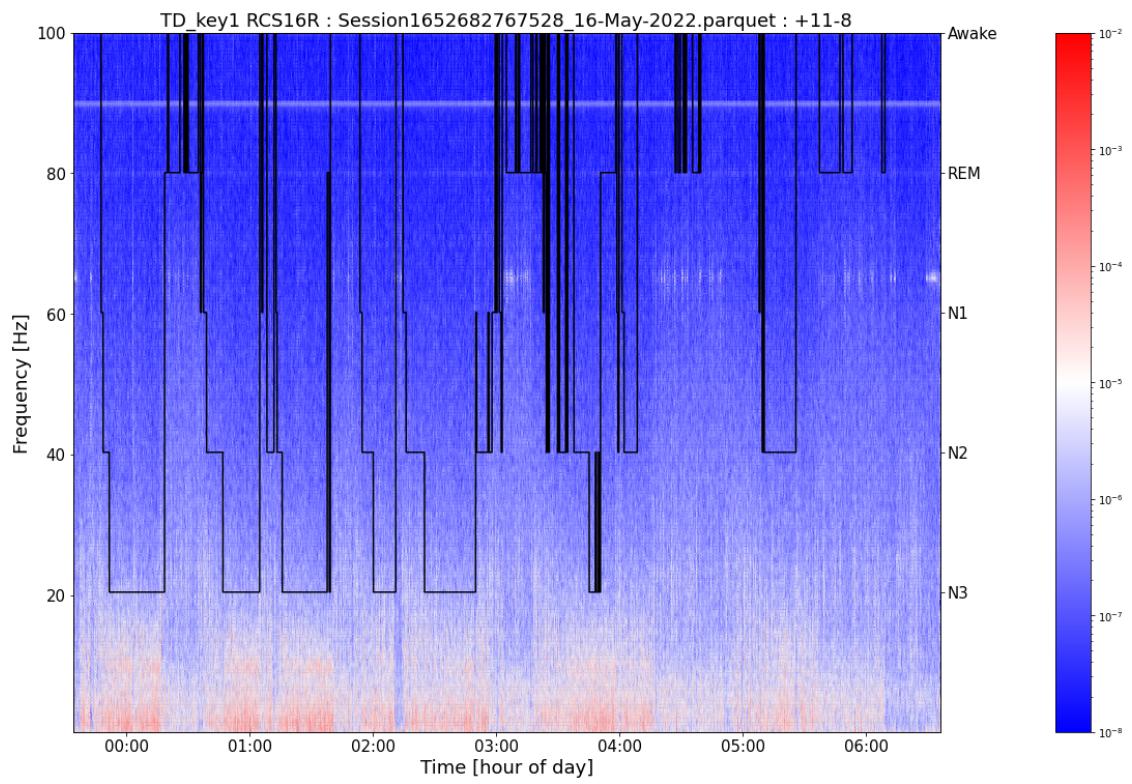
TD_Key0 Proportion Nans (i.e. disconnected):

0.0006203607713041675

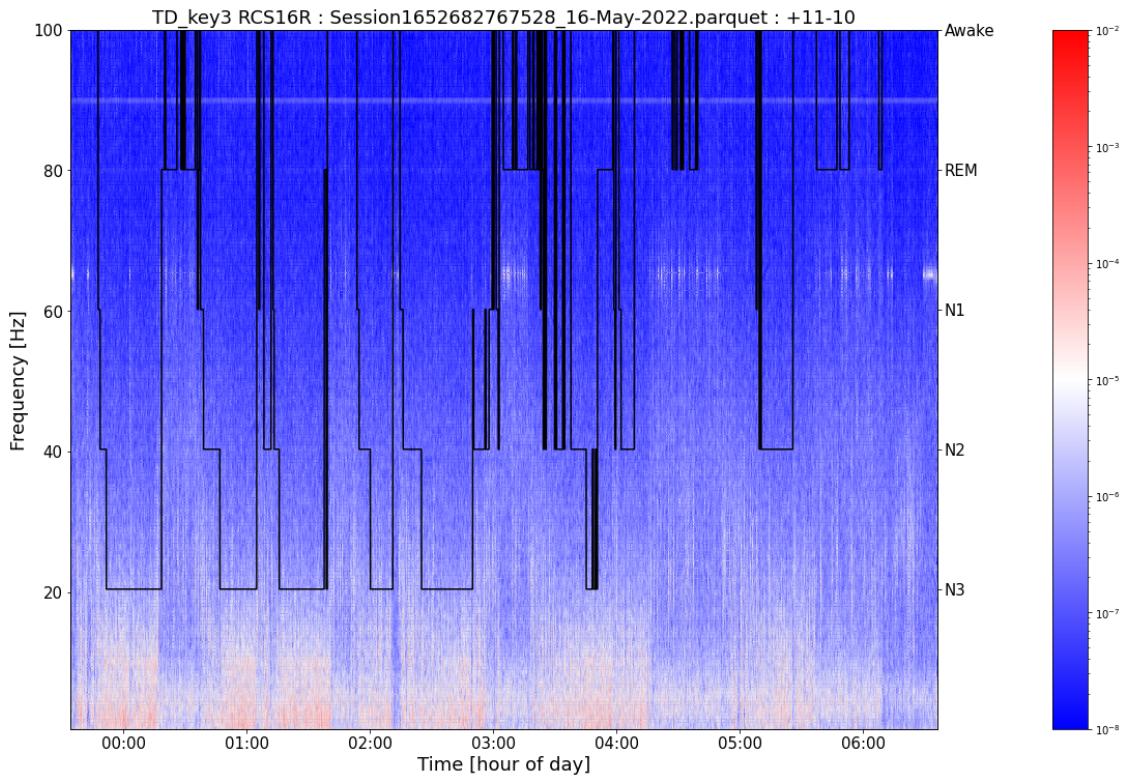


TD_Key2 Proportion Nans (i.e. disconnected):

0.0006203607713041675



TD_Key3 Proportion Nans (i.e. disconnected):
0.0006203607713041675



```

Parquet File: /media/longterm_hdd/Clay/Sleep_10day/RCS16R/Overnight/Session16519
94225088_08-May-2022.parquet
Dreem H5 file:
/media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/H5/Mor-05@dreem.com
---08-May-2022 07-05-21.h5
Dreem Txt file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem
.com/SleepData/Mor-05@dreem.com---08-May-2022 07-05-21.txt
RC+S Data Dir: '/media/dropbox_hdd/Starr Lab Dropbox/RC+S Patient Un-
Synced Data/RCS16 Un-Synced Data/SummitData/SummitContinuousBilateralStreaming/R
CS16R/Session1651994225088/DeviceNPC700487H'
Dreem Report file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dr
eem.com/Reports/Mor-05@dreem.com---08-May-2022 07-05-21.csv

```

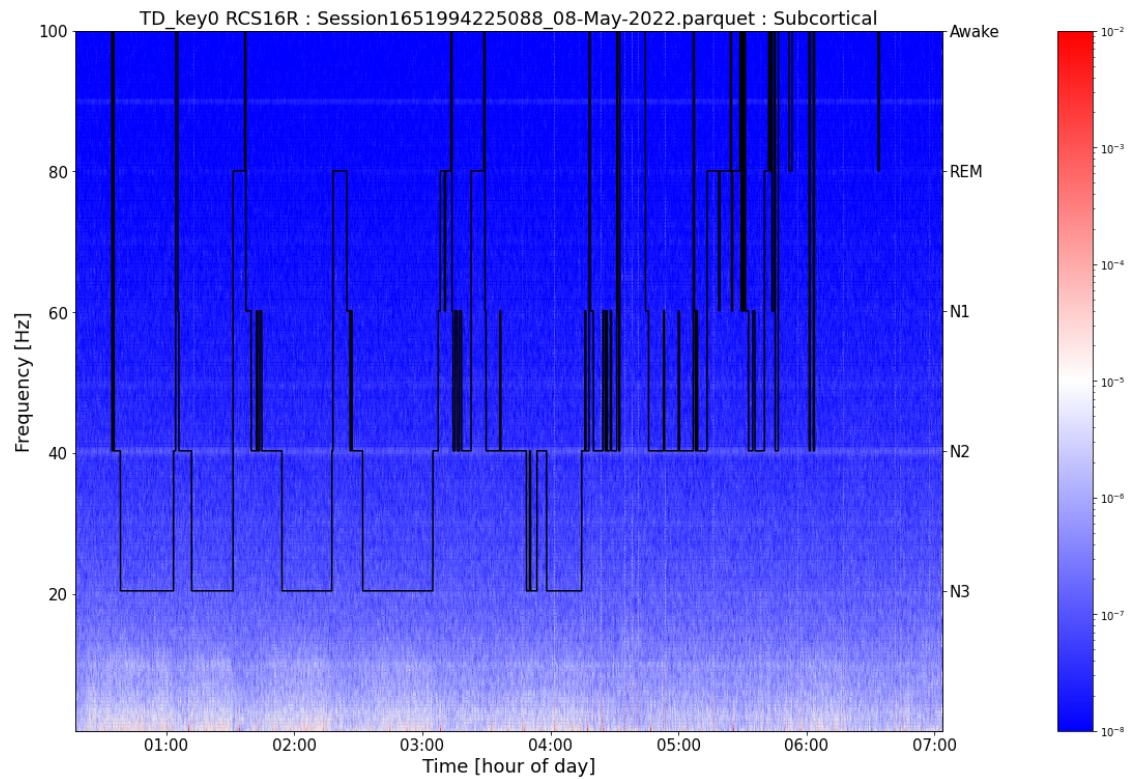
FAILED: N3 Duration Test. Parquet N3 duration (121 min). Dreem N3 duration (122 min)

PASSED: N2 Duration Test

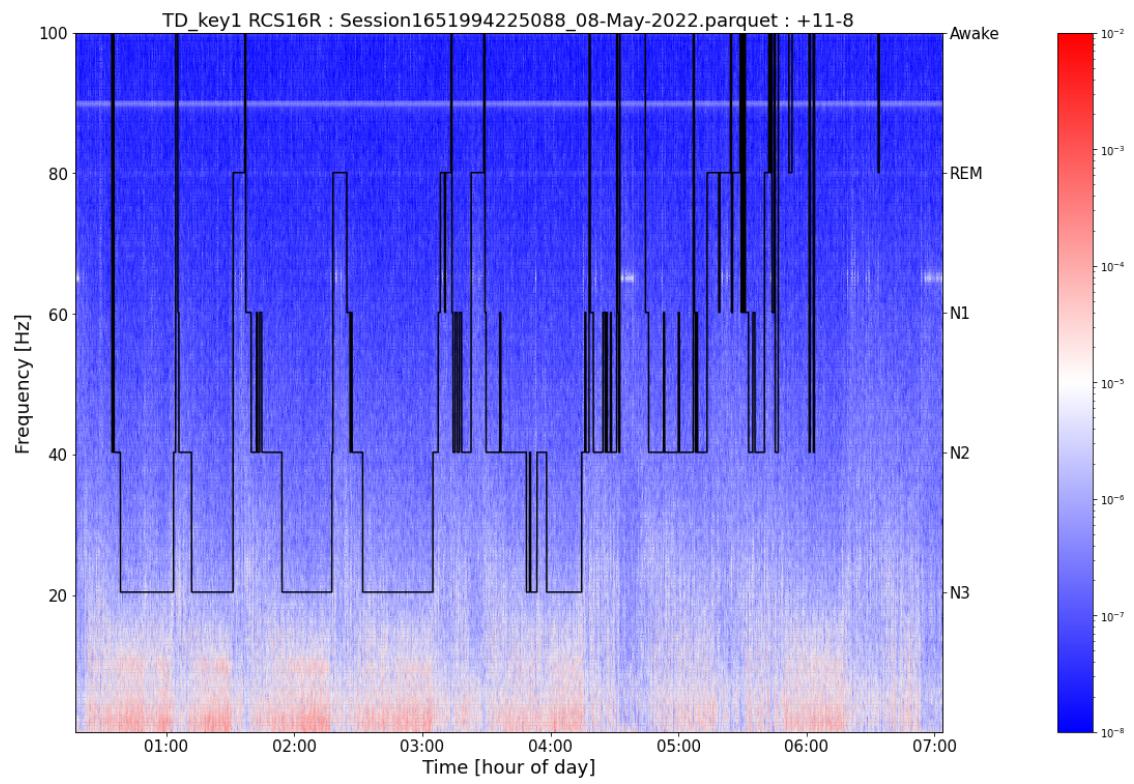
PASSED: N1 Duration Test

PASSED: REM Duration Test

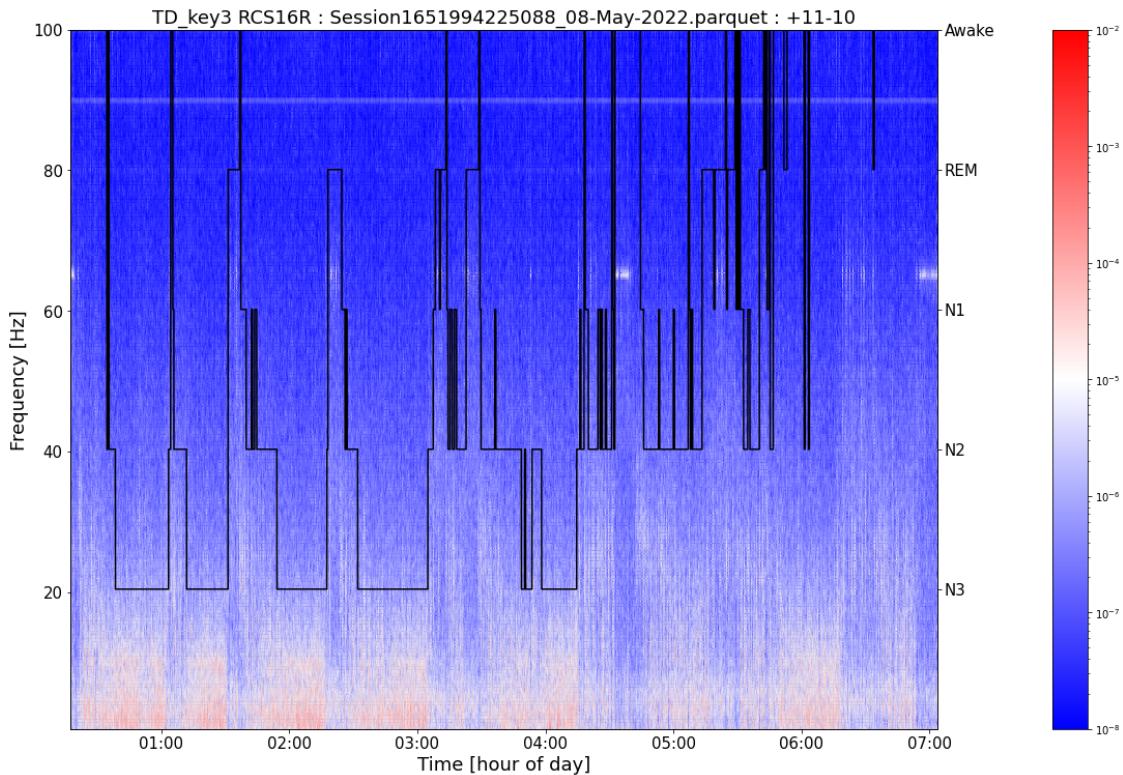
TD_Key0 Proportion Nans (i.e. disconnected):
0.000502515614669418



TD_Key2 Proportion Nans (i.e. disconnected):
0.000502515614669418



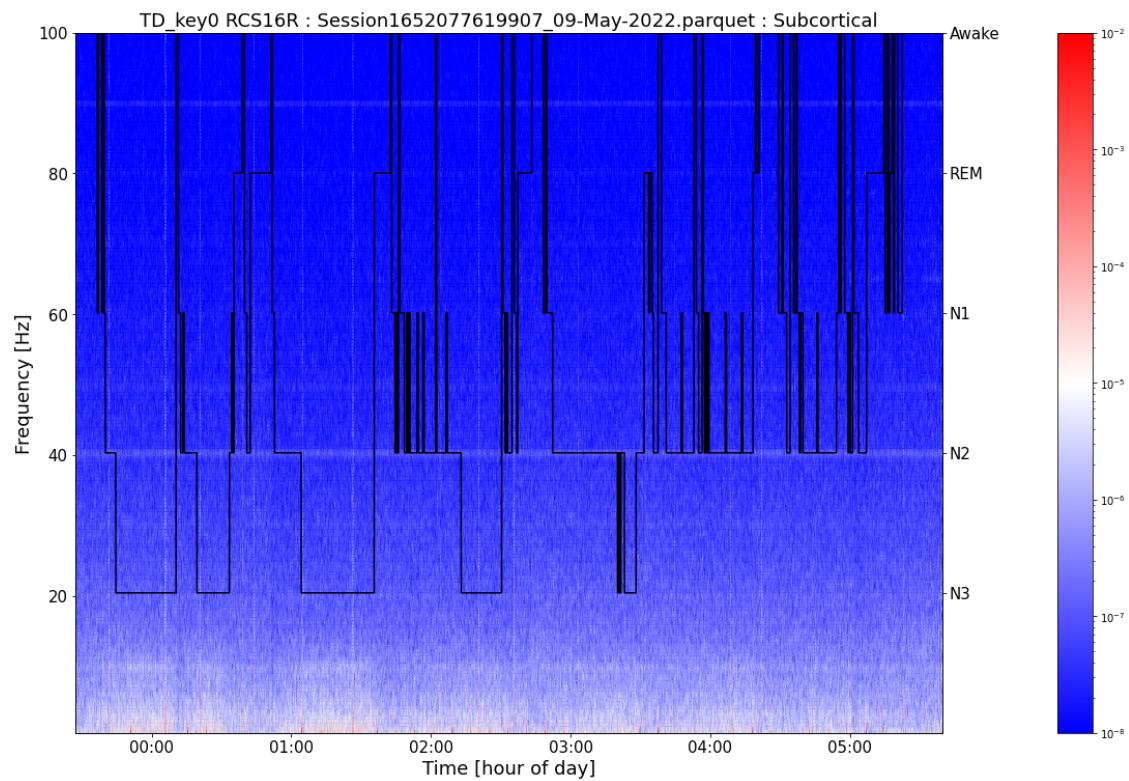
TD_Key3 Proportion Nans (i.e. disconnected):
0.000502515614669418



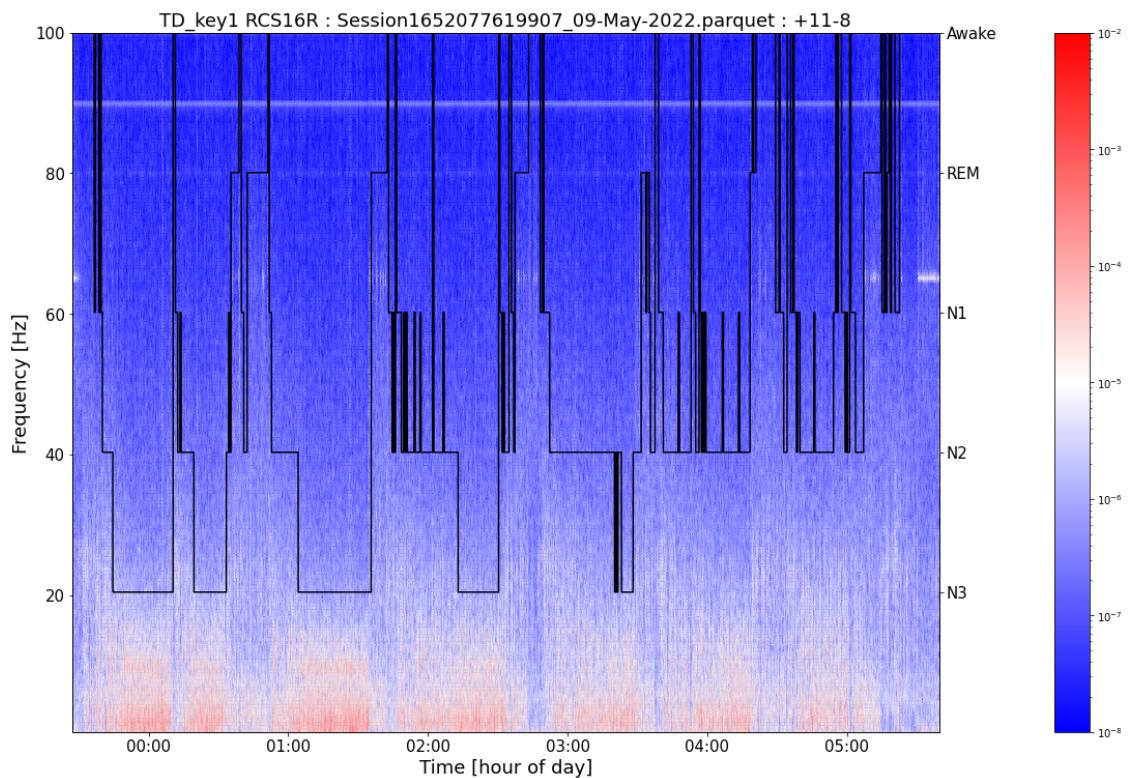
Parquet File: /media/longterm_hdd/Clay/Sleep_10day/RCS16R/Overnight/Session16520
 77619907_09-May-2022.parquet
 Dreem H5 file:
 /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/H5/Mor-05@dreem.com
 ---09-May-2022 06-49-18.h5
 Dreem Txt file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/SleepData/Mor-05@dreem.com---09-May-2022 06-49-18.txt
 RC+S Data Dir: '/media/dropbox_hdd/Starr Lab Dropbox/RC+S Patient Un-Synced Data/RCS16 Un-Synced Data/SummitData/SummitContinuousBilateralStreaming/RCS16R/Session1652077619907/DeviceNPC700487H'
 Dreem Report file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/Reports/Mor-05@dreem.com---09-May-2022 06-49-18.csv

PASSED: N3 Duration Test
 FAILED: N2 Duration Test. Parquet N2 duration (139 min). Dreem N2 duration (140 min)
 PASSED: N1 Duration Test
 PASSED: REM Duration Test

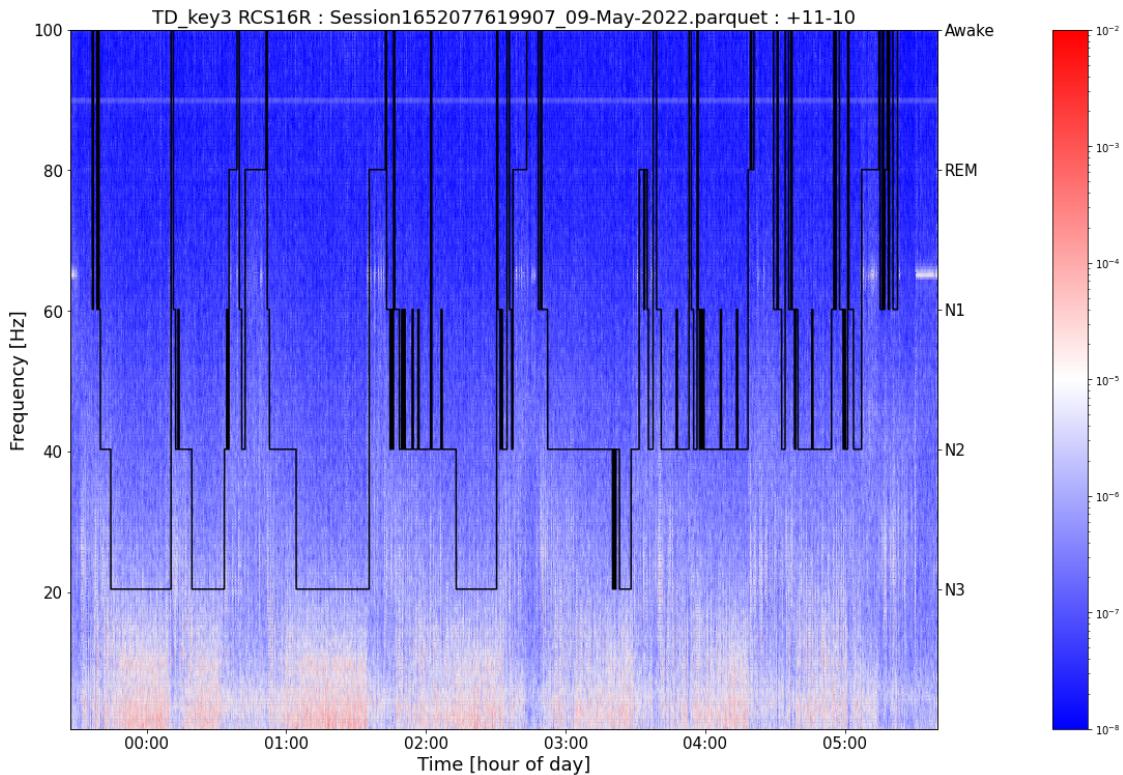
TD_Key0 Proportion Nans (i.e. disconnected):
0.0005137986852445627



TD_Key2 Proportion Nans (i.e. disconnected):
0.0005137986852445627



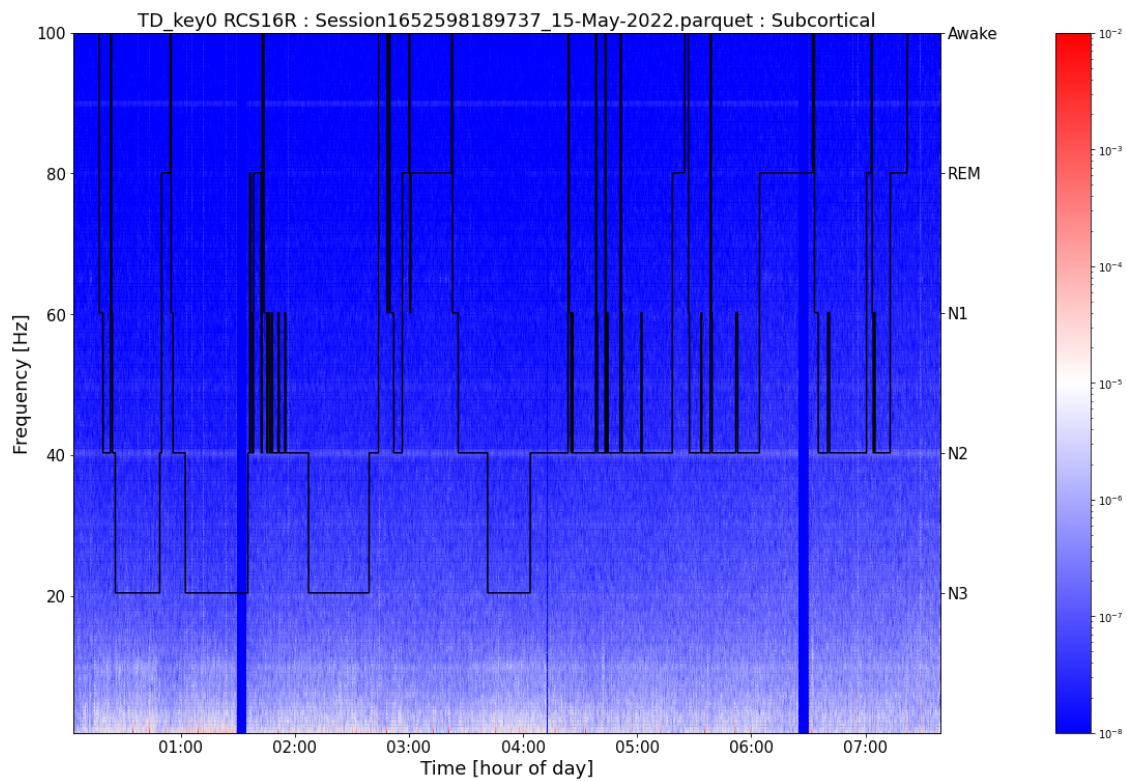
TD_Key3 Proportion Nans (i.e. disconnected):
0.0005137986852445627



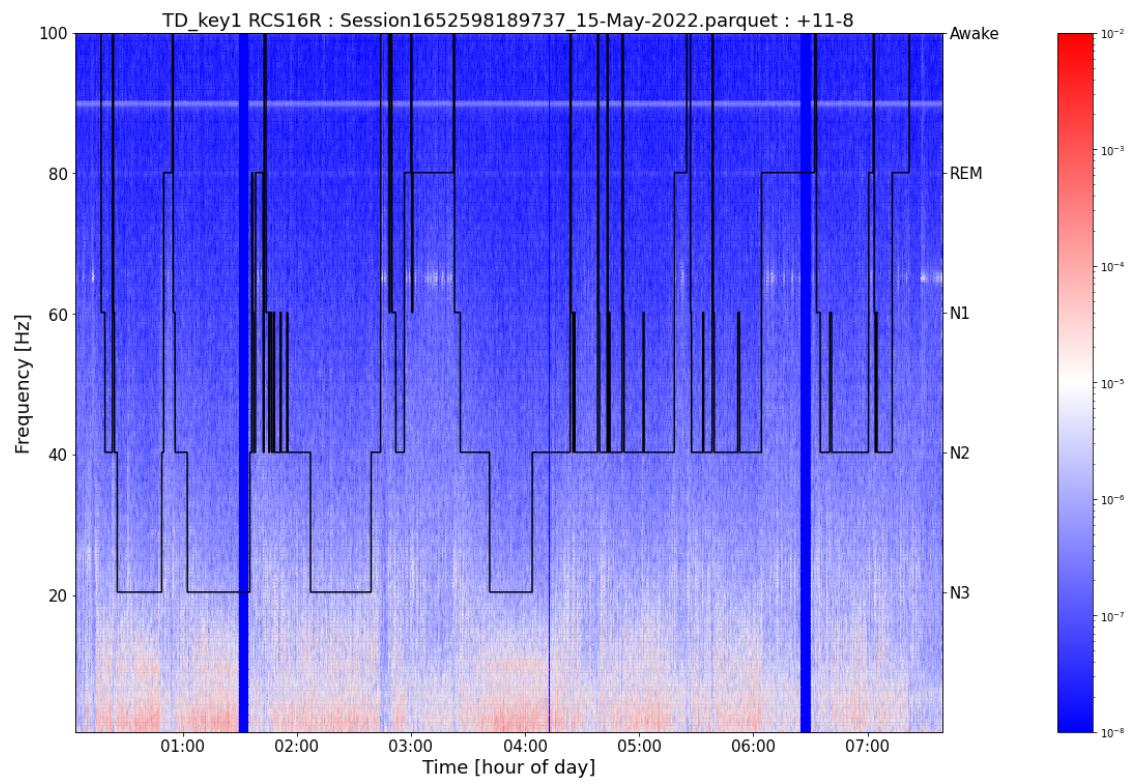
Parquet File: /media/longterm_hdd/Clay/Sleep_10day/RCS16R/Overnight/Session16525
98189737_15-May-2022.parquet
Dreem H5 file:
/media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/H5/Mor-05@dreem.com
---15-May-2022 08-36-39.h5
Dreem Txt file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/SleepData/Mor-05@dreem.com---15-May-2022 08-36-39.txt
RC+S Data Dir: '/media/dropbox_hdd/Starr Lab Dropbox/RC+S Patient Un-Synced Data/RCS16 Un-Synced Data/SummitData/SummitContinuousBilateralStreaming/RCS16R/Session1652598189737/DeviceNPC700487H'
Dreem Report file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/Reports/Mor-05@dreem.com---15-May-2022 08-36-39.csv

PASSED: N3 Duration Test
FAILED: N2 Duration Test. Parquet N2 duration (196 min). Dreem N2 duration (197 min)
PASSED: N1 Duration Test
PASSED: REM Duration Test

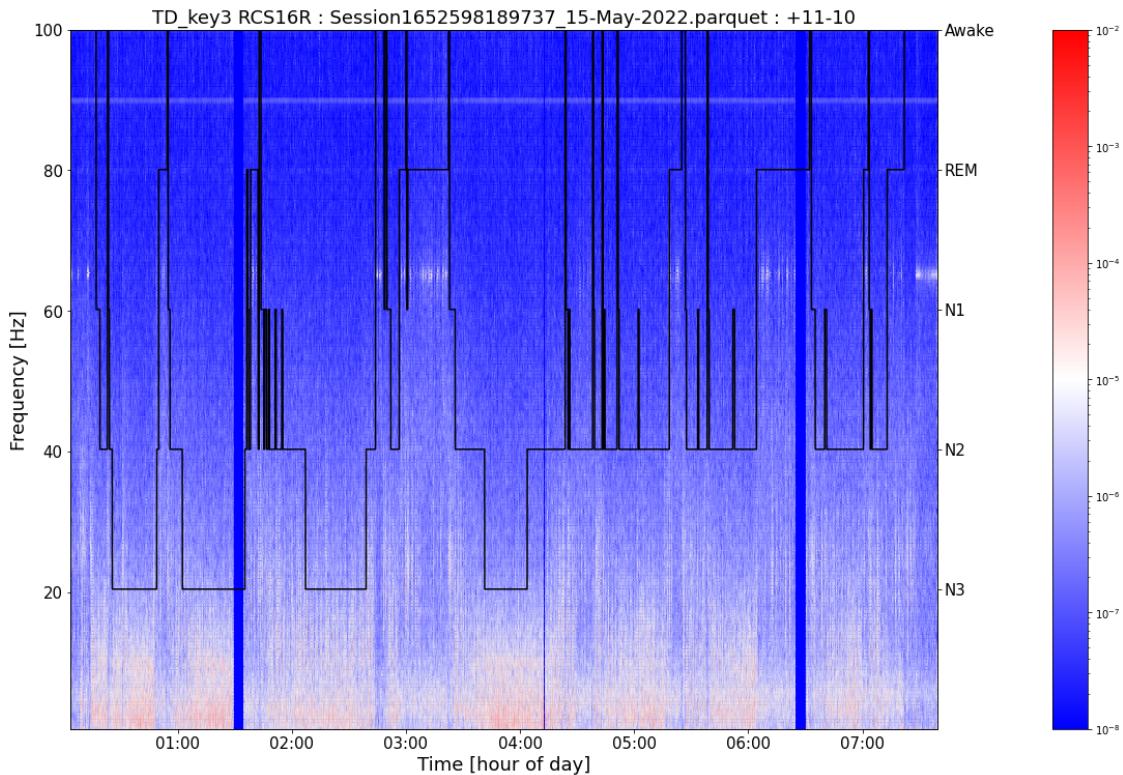
TD_Key0 Proportion Nans (i.e. disconnected): 0.02410805230270598



TD_Key2 Proportion Nans (i.e. disconnected): 0.02410805230270598



TD_Key3 Proportion Nans (i.e. disconnected): 0.02410805230270598



Parquet File: /media/longterm_hdd/Clay/Sleep_10day/RCS16R/Overnight/Session16513
00245537_30-Apr-2022.parquet
 Dreem H5 file:
 /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/H5/Mor-05@dreem.com
 ---30-Apr-2022 07-01-08.h5
 Dreem Txt file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/SleepData/Mor-05@dreem.com---30-Apr-2022 07-01-08.txt
 RC+S Data Dir: '/media/dropbox_hdd/Starr Lab Dropbox/RC+S Patient Un-Synced Data/RCS16 Un-Synced Data/SummitData/SummitContinuousBilateralStreaming/RCS16R/Session1651300245537/DeviceNPC700487H'
 Dreem Report file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/Reports/Mor-05@dreem.com---30-Apr-2022 07-01-08.csv

FAILED: N3 Duration Test. Parquet N3 duration (42 min). Dreem N3 duration (103 min)

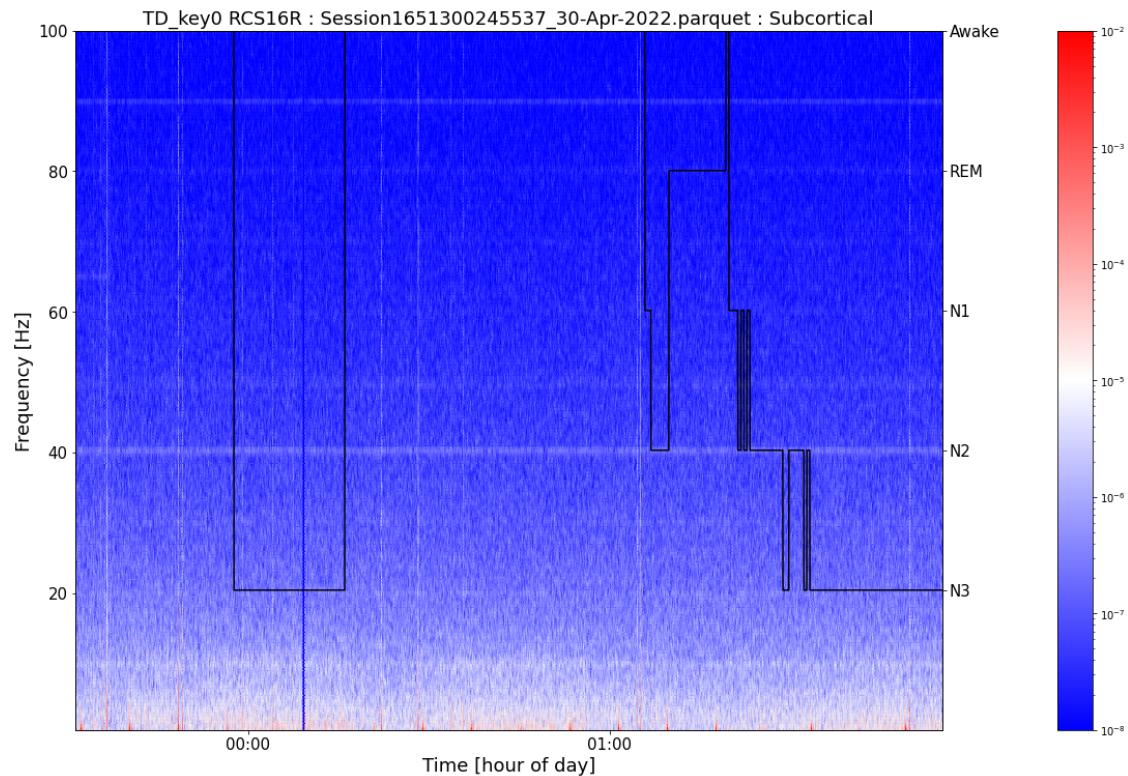
FAILED: N2 Duration Test. Parquet N2 duration (12 min). Dreem N2 duration (131 min)

FAILED: N1 Duration Test. Parquet N1 duration (3 min). Dreem N1 duration (18 min)

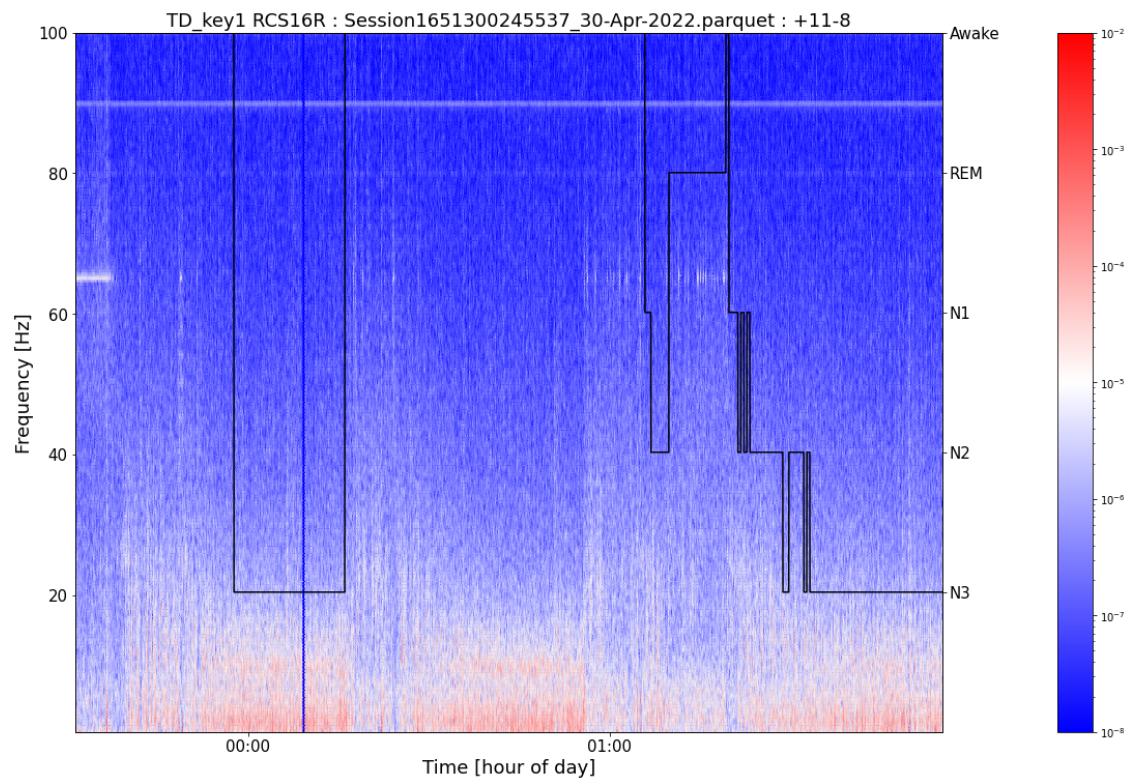
FAILED: REM Duration Test. Parquet REM duration (9 min). Dreem

REM duration (26 min)

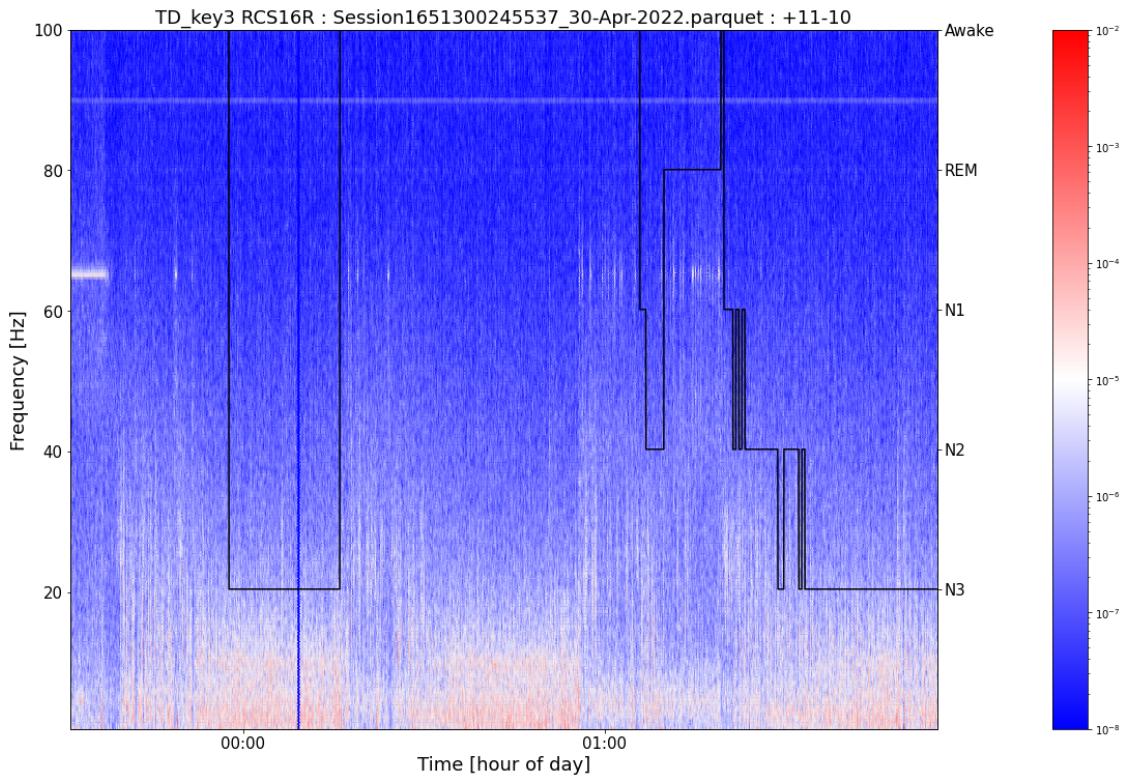
TD_Key0 Proportion Nans (i.e. disconnected):
0.004621227032221463



TD_Key2 Proportion Nans (i.e. disconnected):
0.004621227032221463



TD_Key3 Proportion Nans (i.e. disconnected):
0.004621227032221463



Parquet File: /media/longterm_hdd/Clay/Sleep_10day/RCS16R/Overnight/Session16521
64918202_10-May-2022.parquet
Dreem H5 file:
/media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/H5/Mor-05@dreem.com
---10-May-2022 07-32-55.h5
Dreem Txt file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/SleepData/Mor-05@dreem.com---10-May-2022 07-32-55.txt
RC+S Data Dir: '/media/dropbox_hdd/Starr Lab Dropbox/RC+S Patient Un-Synced Data/RCS16 Un-Synced Data/SummitData/SummitContinuousBilateralStreaming/RCS16R/Session1652164918202/DeviceNPC700487H'
Dreem Report file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/Reports/Mor-05@dreem.com---10-May-2022 07-32-55.csv

FAILED: N3 Duration Test. Parquet N3 duration (66 min). Dreem N3 duration (96 min)

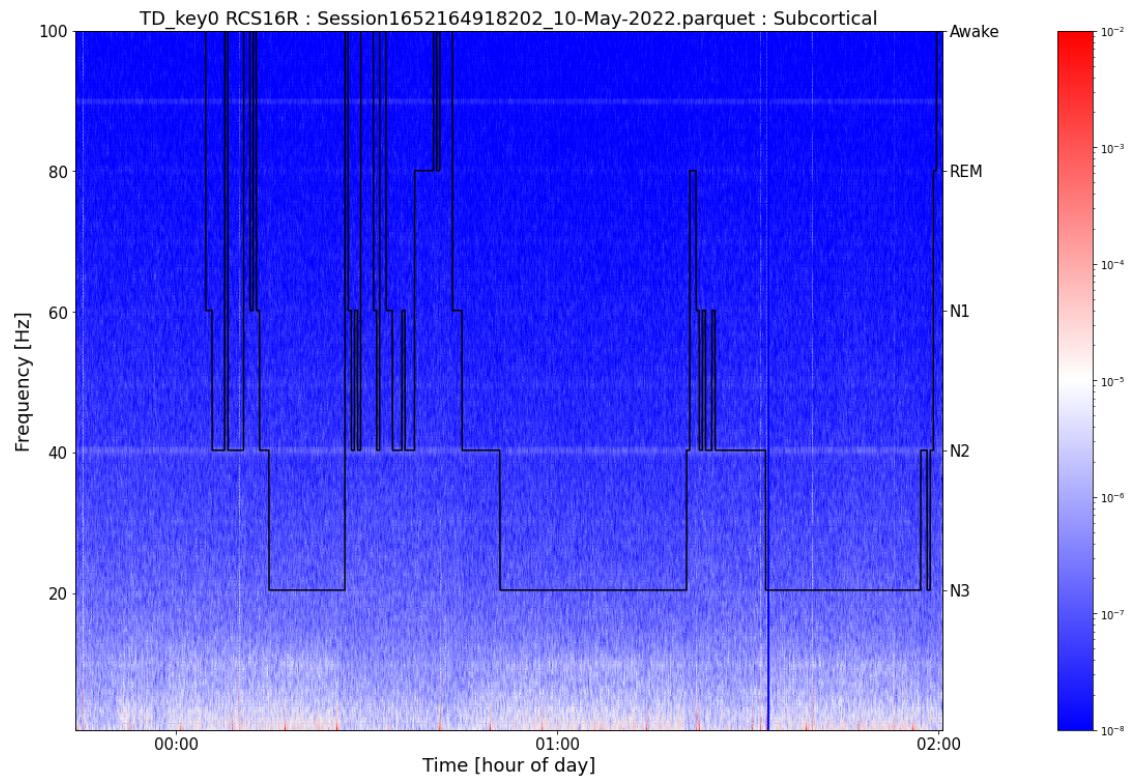
FAILED: N2 Duration Test. Parquet N2 duration (28 min). Dreem N2 duration (146 min)

FAILED: N1 Duration Test. Parquet N1 duration (8 min). Dreem N1 duration (27 min)

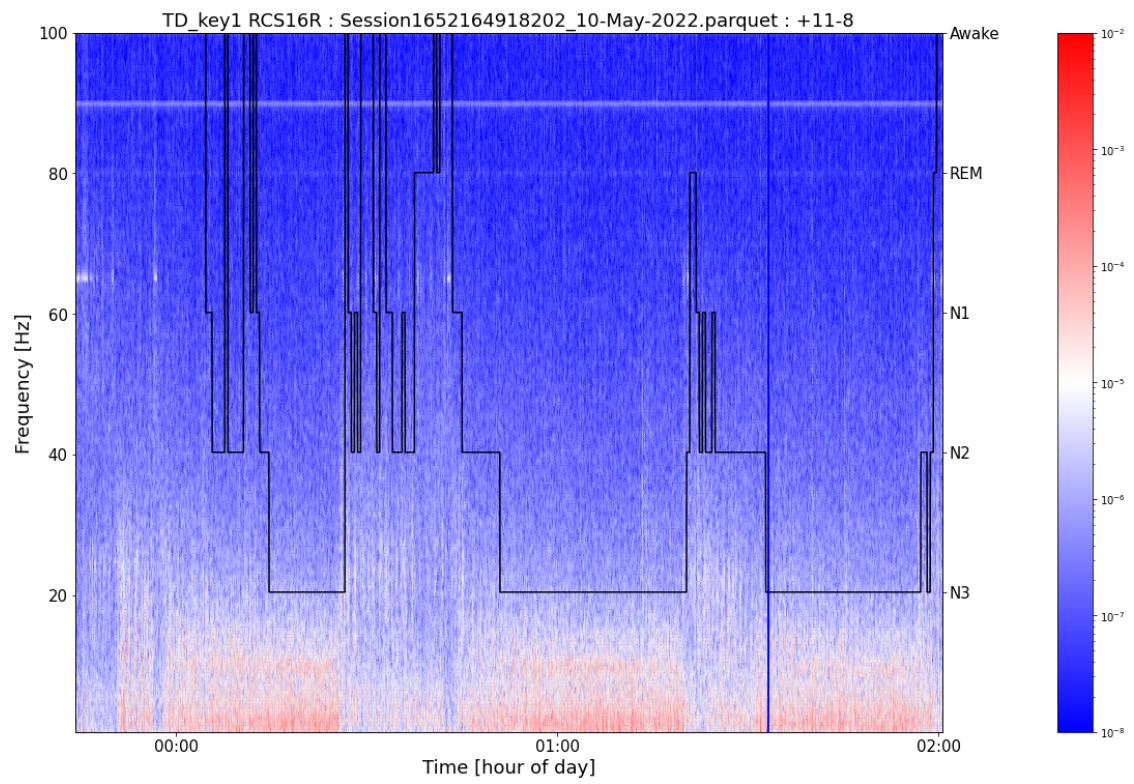
FAILED: REM Duration Test. Parquet REM duration (5 min). Dreem

REM duration (50 min)

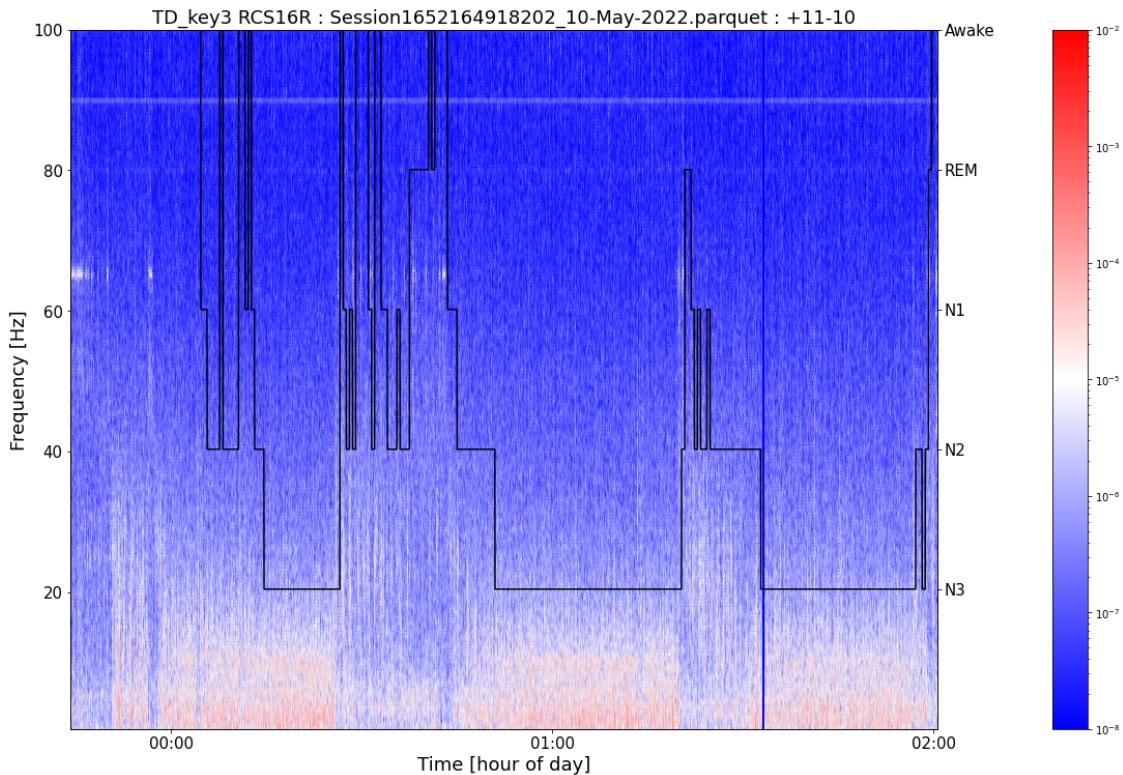
TD_Key0 Proportion Nans (i.e. disconnected):
0.002916839895510641



TD_Key2 Proportion Nans (i.e. disconnected):
0.002916839895510641



TD_Key3 Proportion Nans (i.e. disconnected):
0.002916839895510641



Parquet File: /media/longterm_hdd/Clay/Sleep_10day/RCS16R/Overnight/Session16525
09445406_14-May-2022.parquet

Dreem H5 file:

/media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/H5/Mor-05@dreem.com
---14-May-2022 08-45-16.h5

Dreem Txt file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/SleepData/Mor-05@dreem.com---14-May-2022 08-45-16.txt

RC+S Data Dir: '/media/dropbox_hdd/Starr Lab Dropbox/RC+S Patient Un-Synced Data/RCS16 Un-Synced Data/SummitData/SummitContinuousBilateralStreaming/RCS16R/Session1652509445406/DeviceNPC700487H'

Dreem Report file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/Reports/Mor-05@dreem.com---14-May-2022 08-45-16.csv

FAILED: N3 Duration Test. Parquet N3 duration (107 min). Dreem N3 duration (108 min)

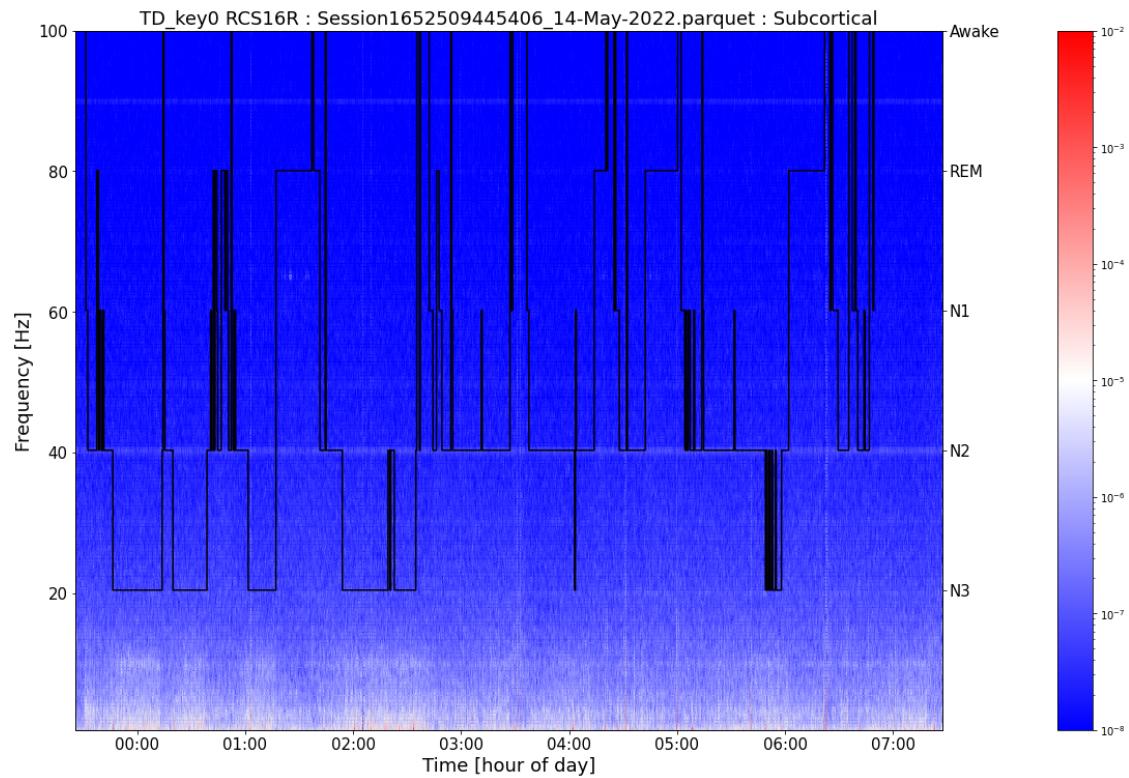
FAILED: N2 Duration Test. Parquet N2 duration (194 min). Dreem N2 duration (195 min)

FAILED: N1 Duration Test. Parquet N1 duration (27 min). Dreem N1 duration (28 min)

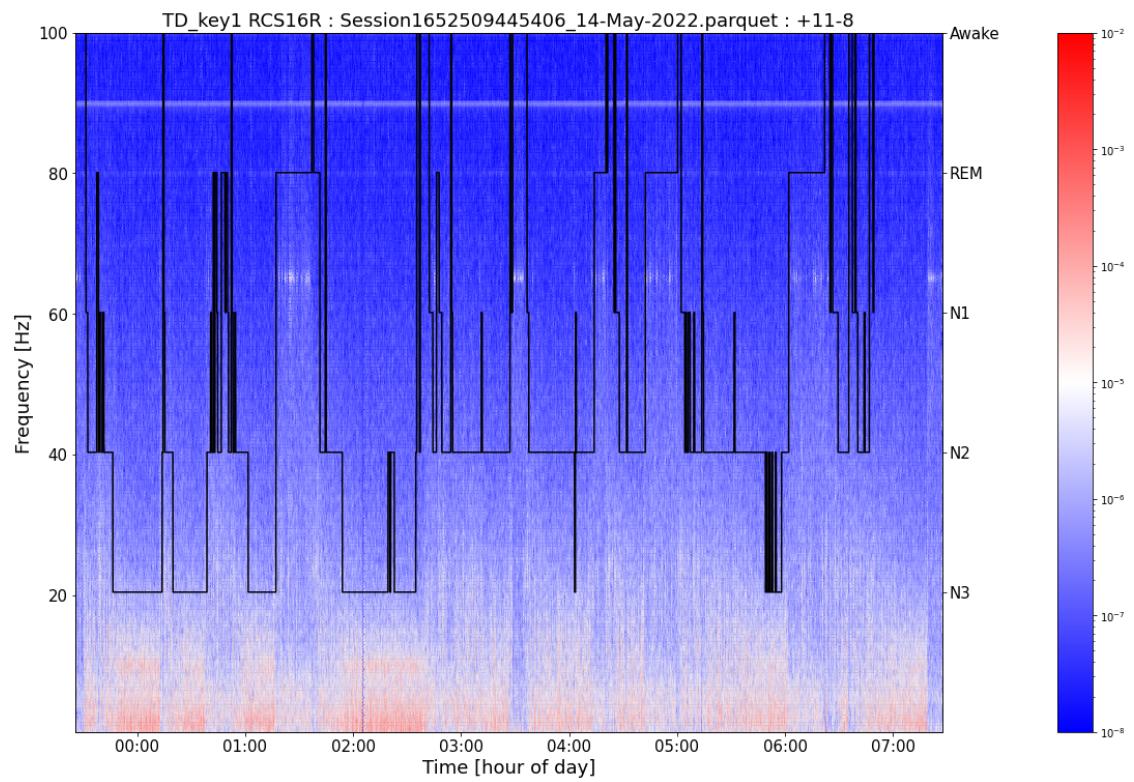
FAILED: REM Duration Test. Parquet REM duration (75 min). Dreem

REM duration (76 min)

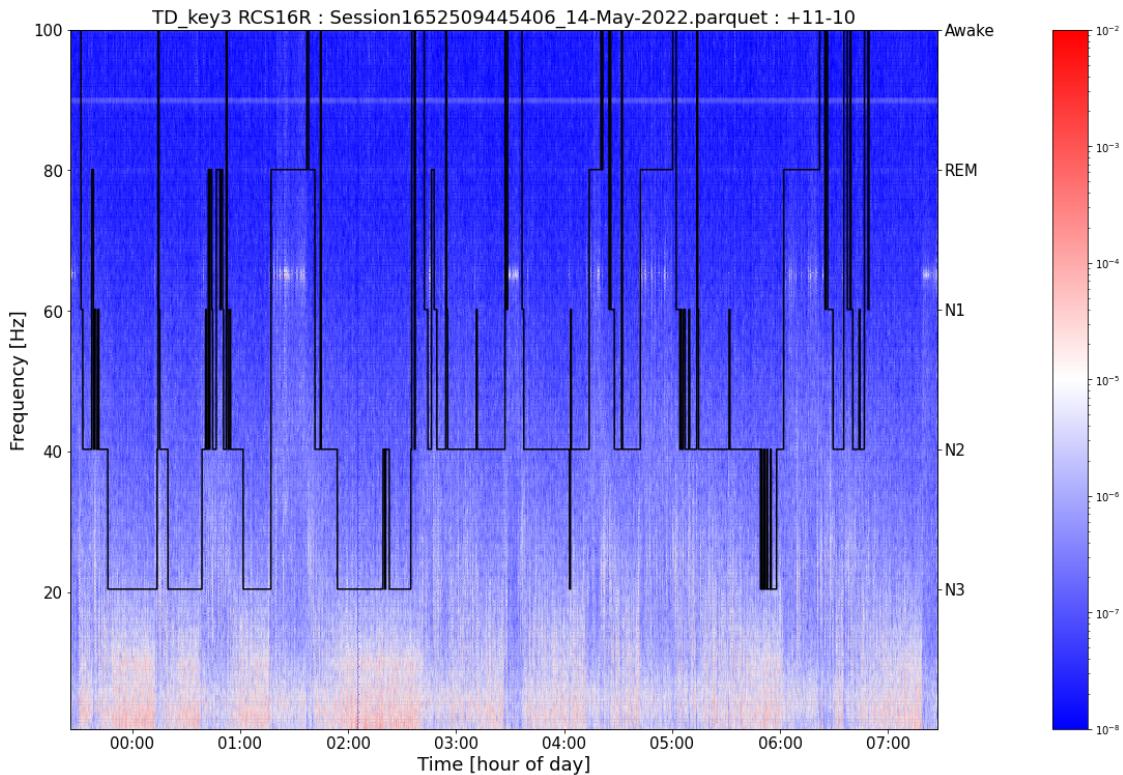
TD_Key0 Proportion Nans (i.e. disconnected):
0.0010520307078635092



TD_Key2 Proportion Nans (i.e. disconnected):
0.0010520307078635092



TD_Key3 Proportion Nans (i.e. disconnected):
0.0010520307078635092



Parquet File: /media/longterm_hdd/Clay/Sleep_10day/RCS16R/Overnight/Session16522
53473436_11-May-2022.parquet

Dreem H5 file:

/media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/H5/Mor-05@dreem.com
---11-May-2022 08-36-19.h5

Dreem Txt file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/SleepData/Mor-05@dreem.com---11-May-2022 08-36-19.txt

RC+S Data Dir: '/media/dropbox_hdd/Starr Lab Dropbox/RC+S Patient Un-Synced Data/RCS16 Un-Synced Data/SummitData/SummitContinuousBilateralStreaming/RCS16R/Session1652253473436/DeviceNPC700487H'

Dreem Report file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/Reports/Mor-05@dreem.com---11-May-2022 08-40-53.csv

FAILED: N3 Duration Test. Parquet N3 duration (56 min). Dreem N3 duration (0 min)

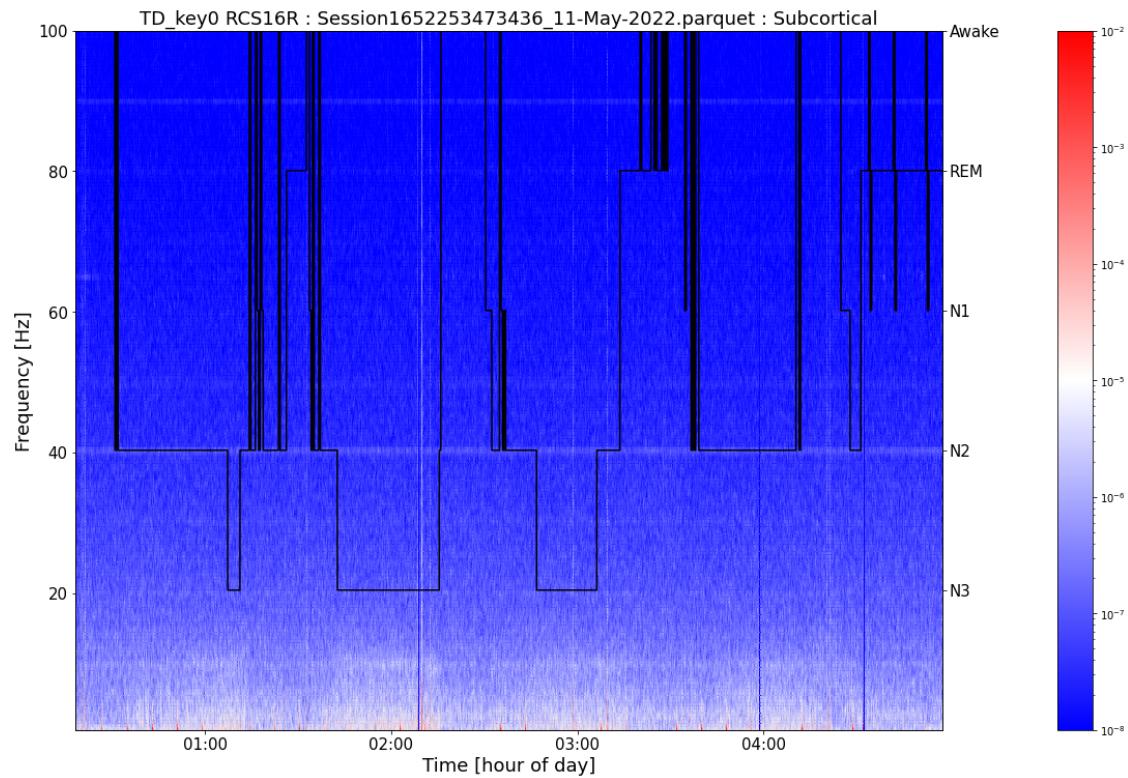
FAILED: N2 Duration Test. Parquet N2 duration (113 min). Dreem N2 duration (0 min)

FAILED: N1 Duration Test. Parquet N1 duration (9 min). Dreem N1 duration (0 min)

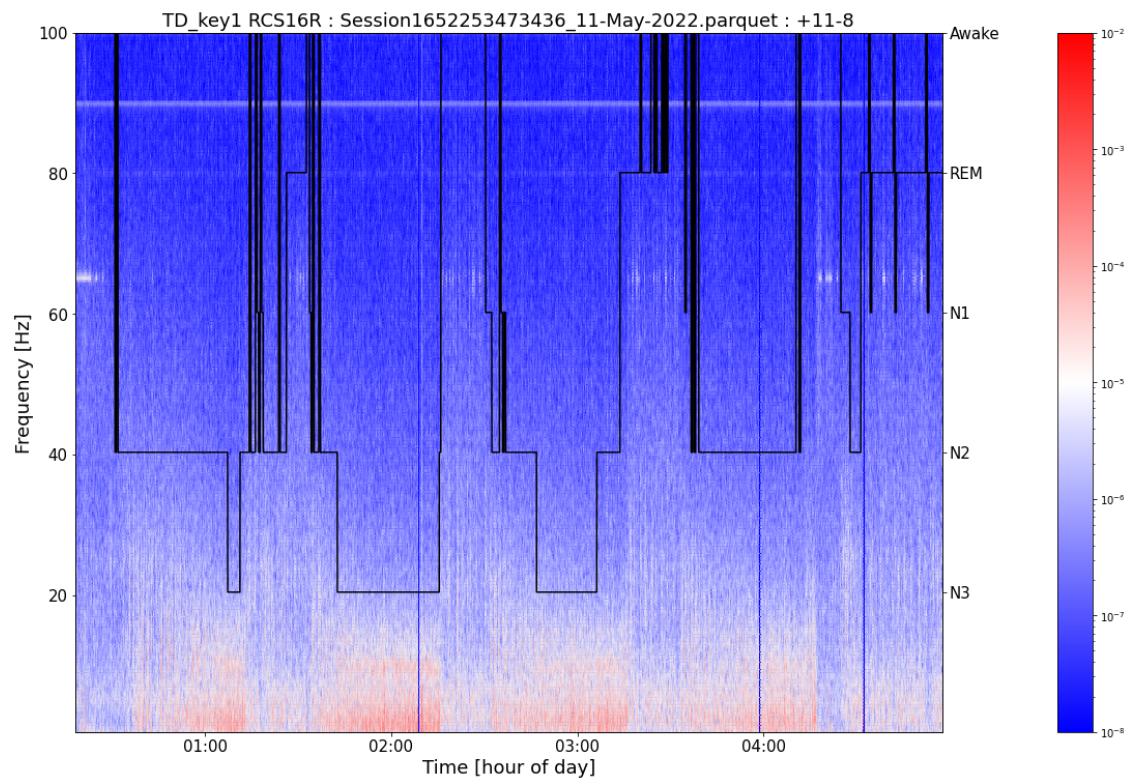
FAILED: REM Duration Test. Parquet REM duration (42 min). Dreem

REM duration (0 min)

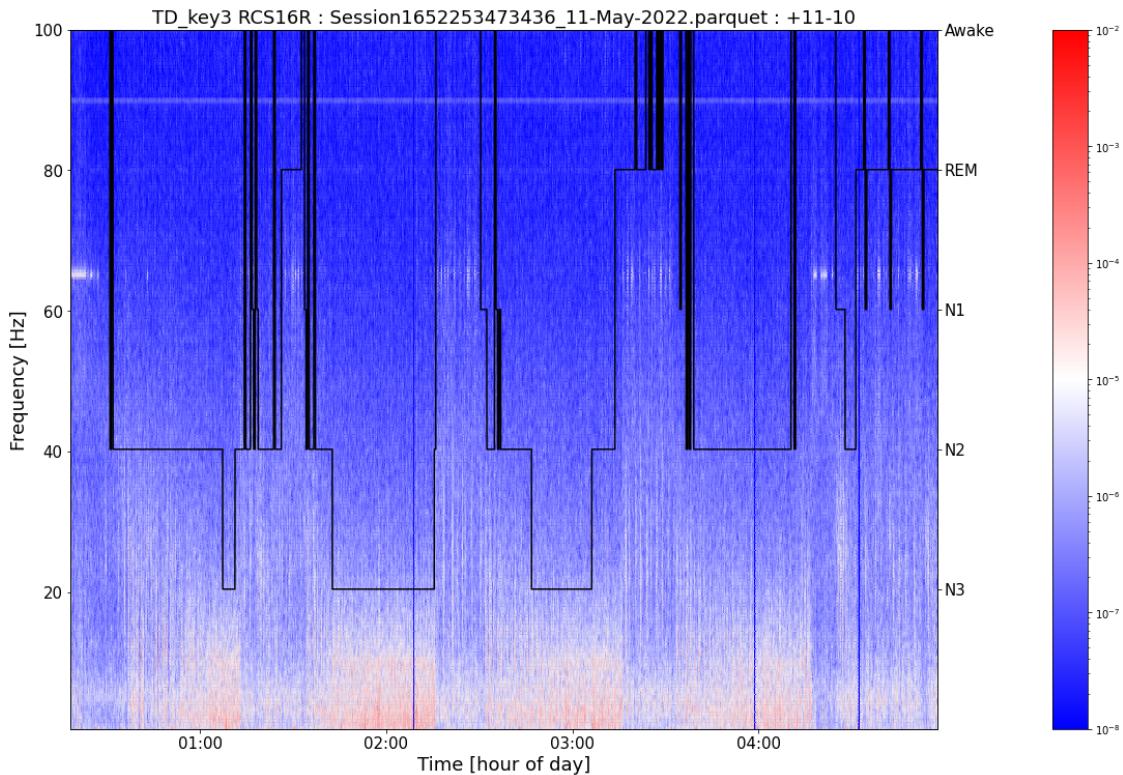
TD_Key0 Proportion Nans (i.e. disconnected):
0.0051285989783826065



TD_Key2 Proportion Nans (i.e. disconnected):
0.0051285989783826065



TD_Key3 Proportion Nans (i.e. disconnected):
0.0051285989783826065



Parquet File: /media/longterm_hdd/Clay/Sleep_10day/RCS16R/Overnight/Session16523
38996033_12-May-2022.parquet

Dreem H5 file:

/media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/H5/Mor-05@dreem.com
---12-May-2022 08-51-03.h5

Dreem Txt file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/SleepData/Mor-05@dreem.com---12-May-2022 08-51-03.txt

RC+S Data Dir: '/media/dropbox_hdd/Starr Lab Dropbox/RC+S Patient Un-Synced Data/RCS16 Un-Synced Data/SummitData/SummitContinuousBilateralStreaming/RCS16R/Session1652338996033/DeviceNPC700487H'

Dreem Report file: /media/longterm_hdd/Clay/DREEM_data/RCS16/Mor-05@dreem.com/Reports/Mor-05@dreem.com---12-May-2022 08-51-03.csv

FAILED: N3 Duration Test. Parquet N3 duration (56 min). Dreem N3 duration (100 min)

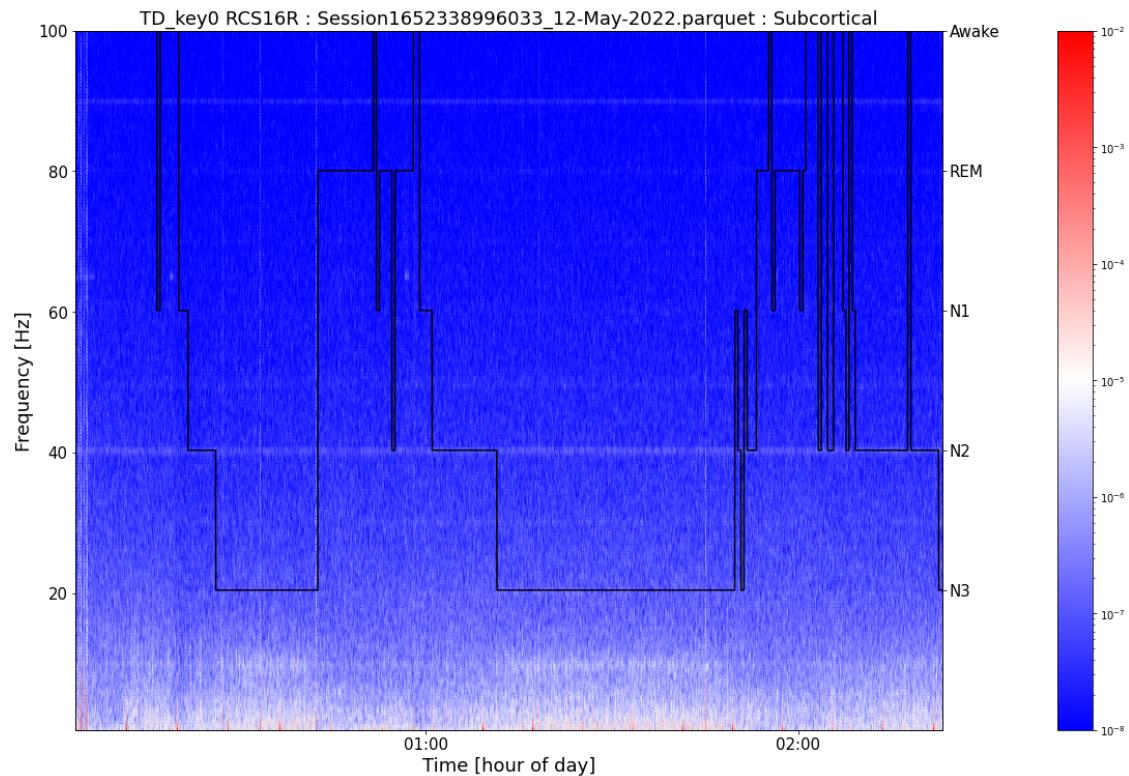
FAILED: N2 Duration Test. Parquet N2 duration (32 min). Dreem N2 duration (132 min)

FAILED: N1 Duration Test. Parquet N1 duration (7 min). Dreem N1 duration (24 min)

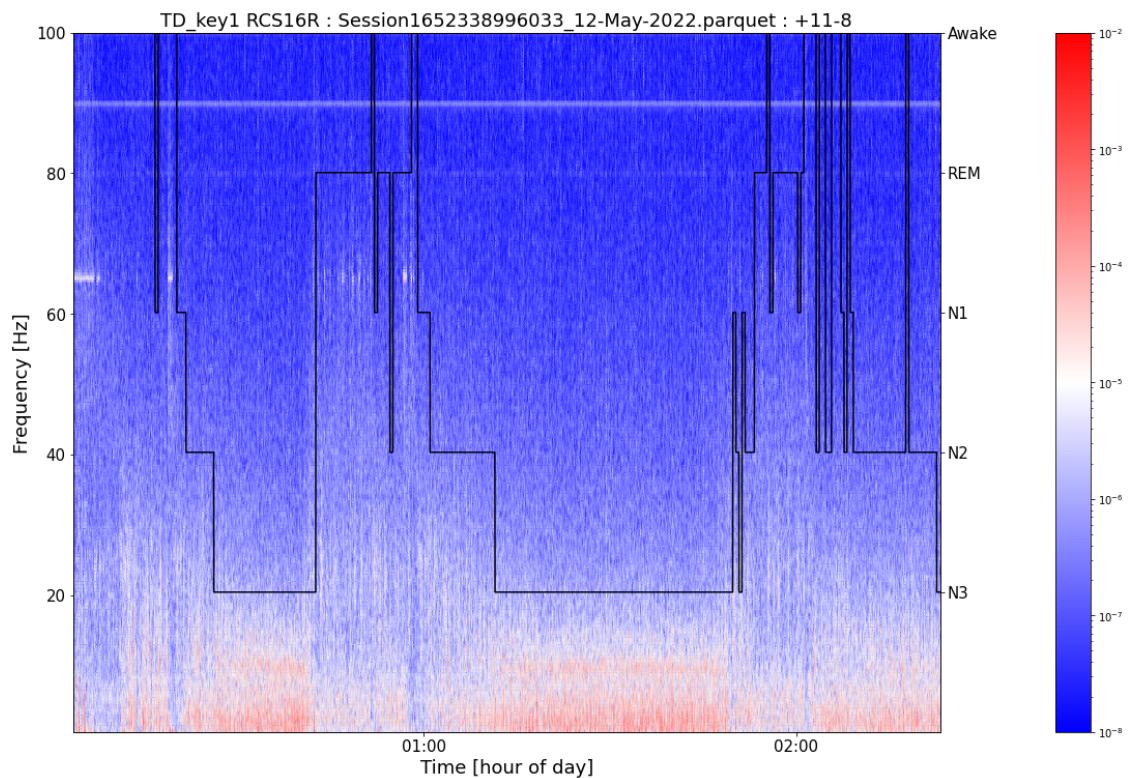
FAILED: REM Duration Test. Parquet REM duration (20 min). Dreem

REM duration (79 min)

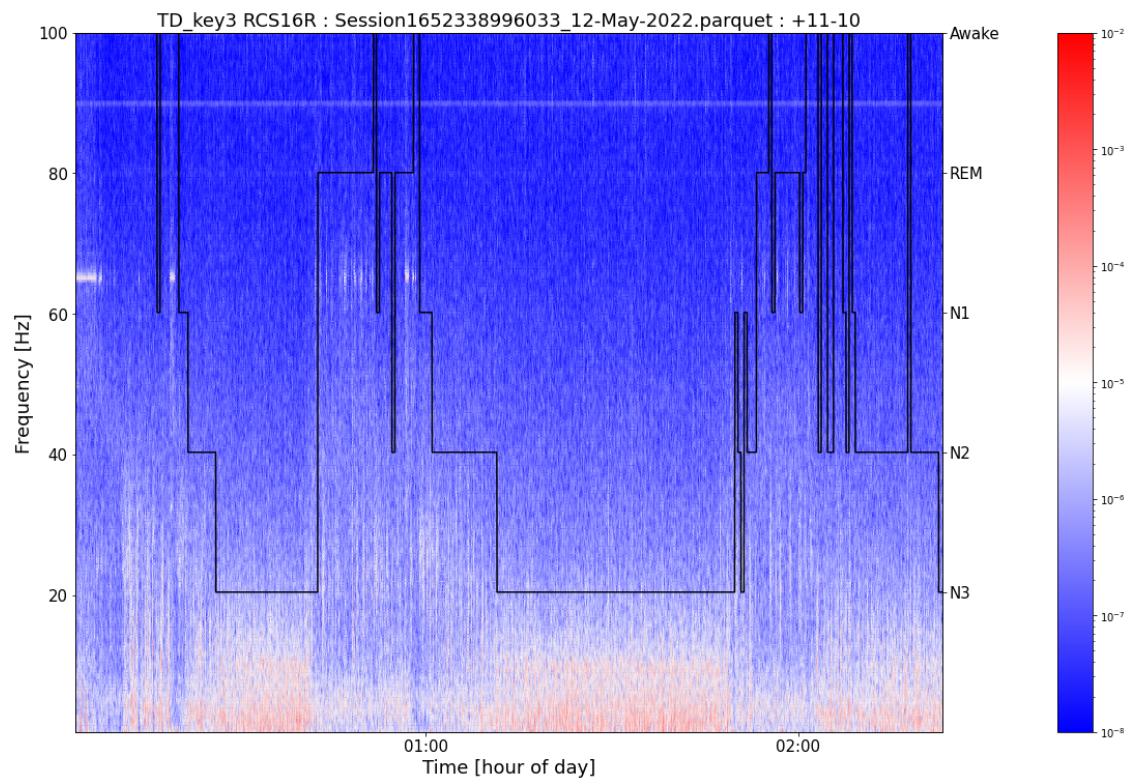
TD_Key0 Proportion Nans (i.e. disconnected):
0.0006172889565860772



TD_Key2 Proportion Nans (i.e. disconnected):
0.0006172889565860772



TD_Key3 Proportion Nans (i.e. disconnected):
0.0006172889565860772



[]: