

Live 2025-11-03

November 6, 2025

## 1 2025-11-03 Live INTEUM War Stories

```
[2]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

```
[17]: filenames = [ "../Labs/Data/4Stu_2022_1117_1219 DataWithToolInfo.csv", "../Labs/
↳Data/4Stu_2023_0118_0127 DataWithToolInfo.csv" ]

X = pd.DataFrame()

for f in filenames:
    Xn = pd.read_csv(f,
                     sep=";",
                     parse_dates = ["timestamp_skv"],
                     dayfirst = True,
                     encoding = None,
                     encoding_errors = 'replace')
    X = pd.concat([X,Xn])
```

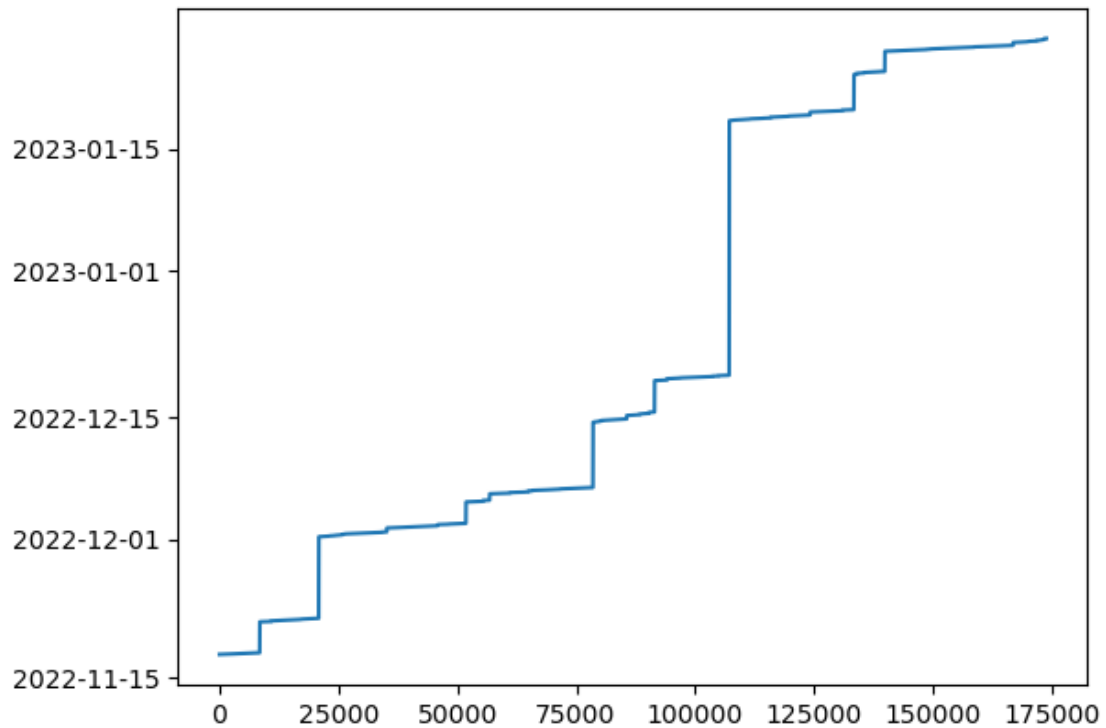
```
[18]: X.index = range(0,X.shape[0])
```

```
[19]: X.shape
```

```
[19]: (173863, 165)
```

```
[20]: plt.plot(X.index,X.timestamp_skv)
```

```
[20]: [<matplotlib.lines.Line2D at 0x7f3c547a97e0>]
```



[25]: *# Write code to make code :-)*

```
print("[")
for c in X.columns:
    print(f"{'{c}', ")
print("]")
```

```
[
'timestamp_skv',
'timediff_skv',
'timestamp_sensor',
'timediff_sensor',
'SynchroDiff',
'ST_CH1_P_F0',
'ST_CH1_P_F1',
'ST_CH1_P_F2',
'ST_CH1_P_F3',
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'timestamp.1',

```

'Beacon INT0028 - BMP280_PRESS',
'timestamp.2',
'Beacon INT0028 - BMP280_TEMP',
'pieces',
'tool io',
]

```

```

[27]: interestingColumns =[
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```

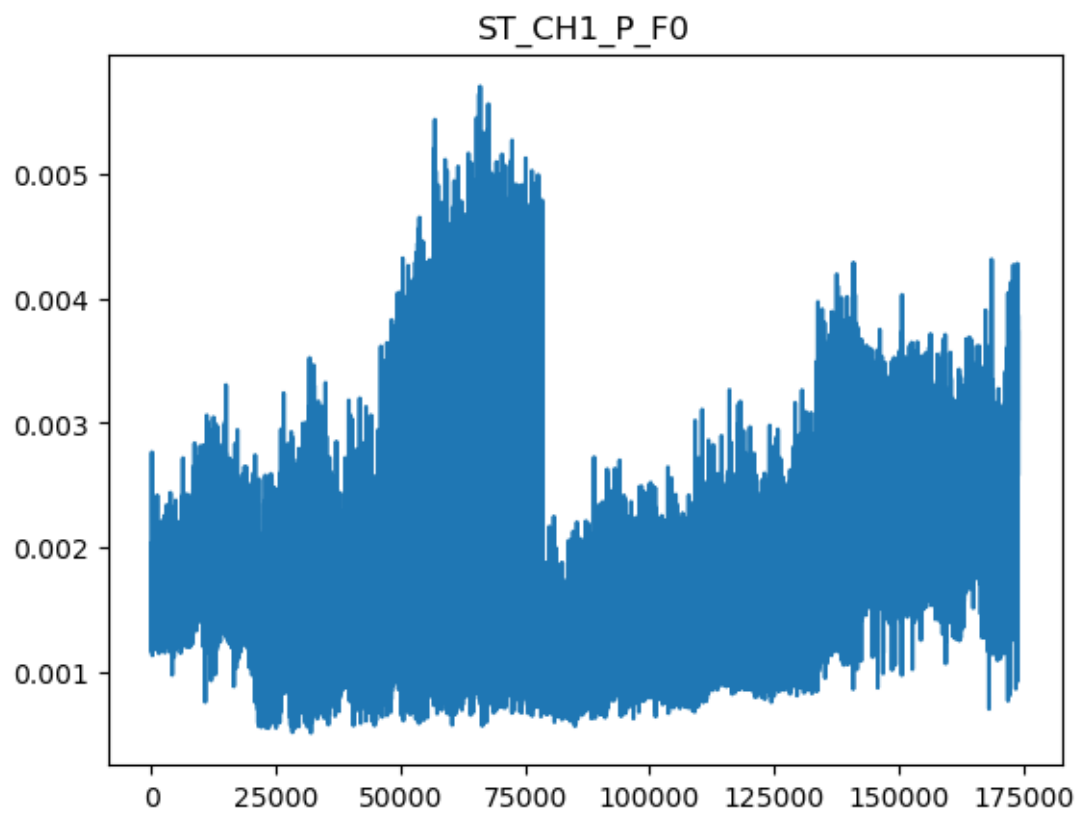
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'4,40 SKV#3',
'5,36 SKV#3',
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'4.713 SKV#4',
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'0.604 max SKV#4',
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'0.74 max SKV#4',
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'5,92 SKV#4',
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# 'timestamp.1',
'Beacon INT0028 - BMP280_PRESS',
# 'timestamp.2',
'Beacon INT0028 - BMP280_TEMP',
# 'pieces',
# 'tool io',
]

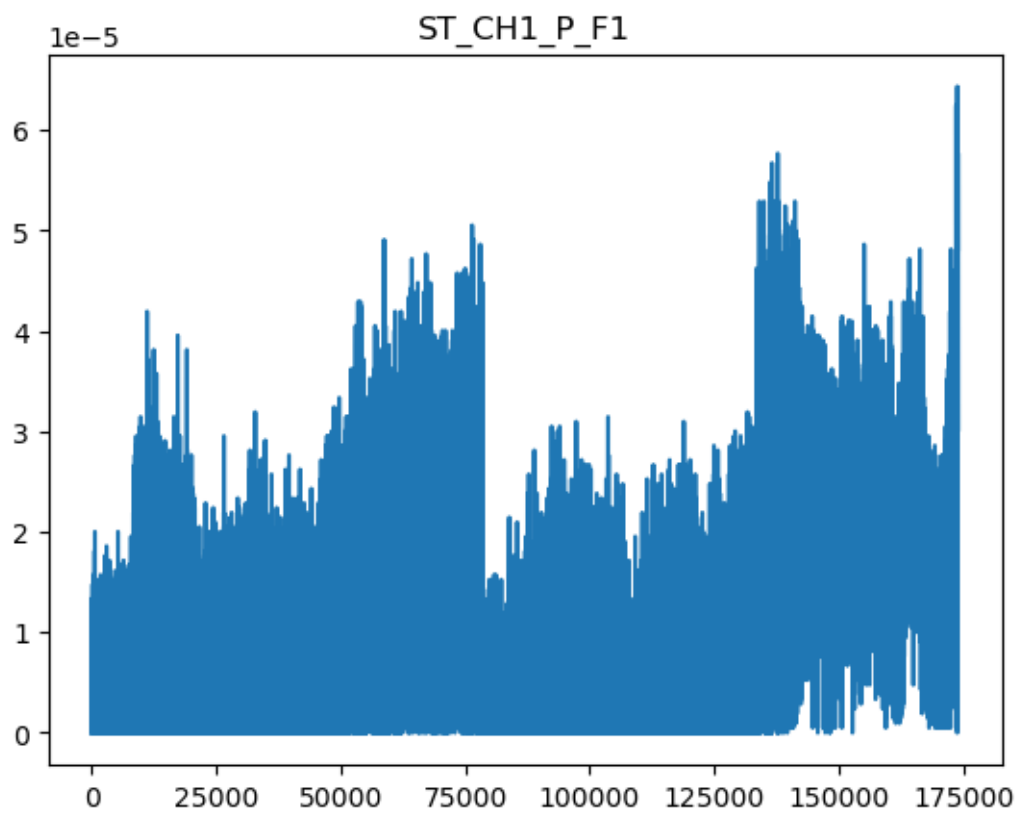
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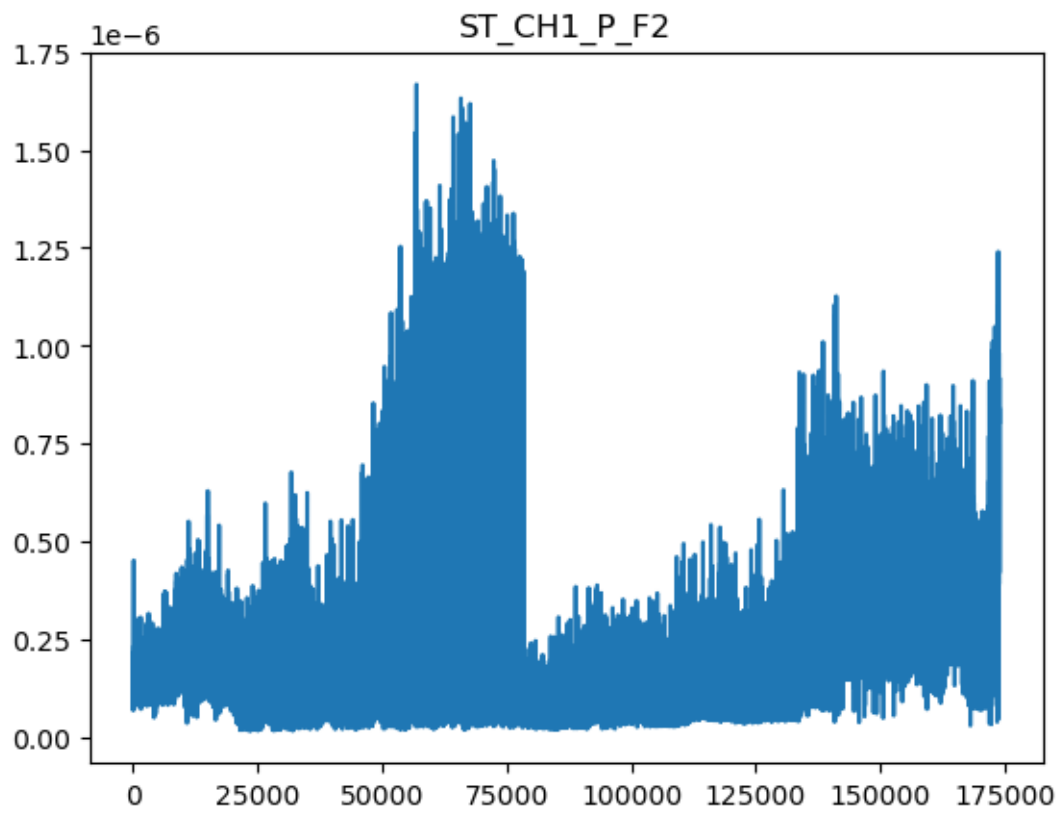
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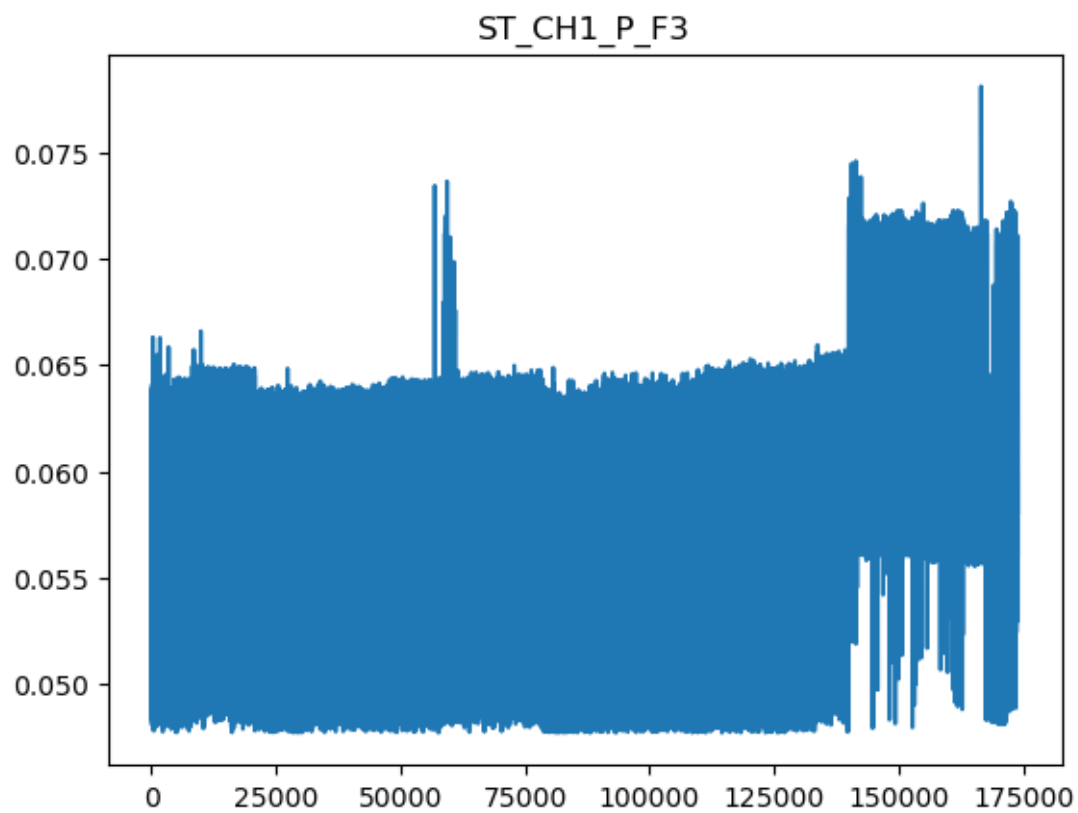
[32]: for f in interestingColumns:
        plt.plot(X.index,X[f])
        plt.title(f)
        plt.show()

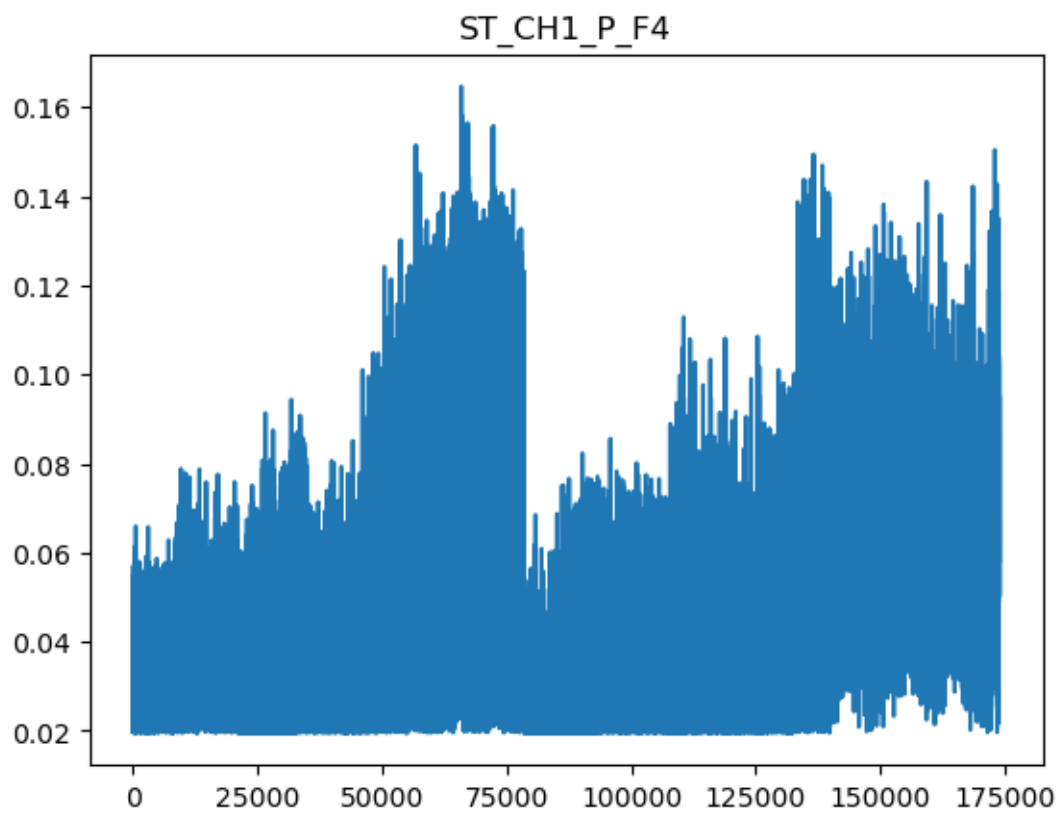
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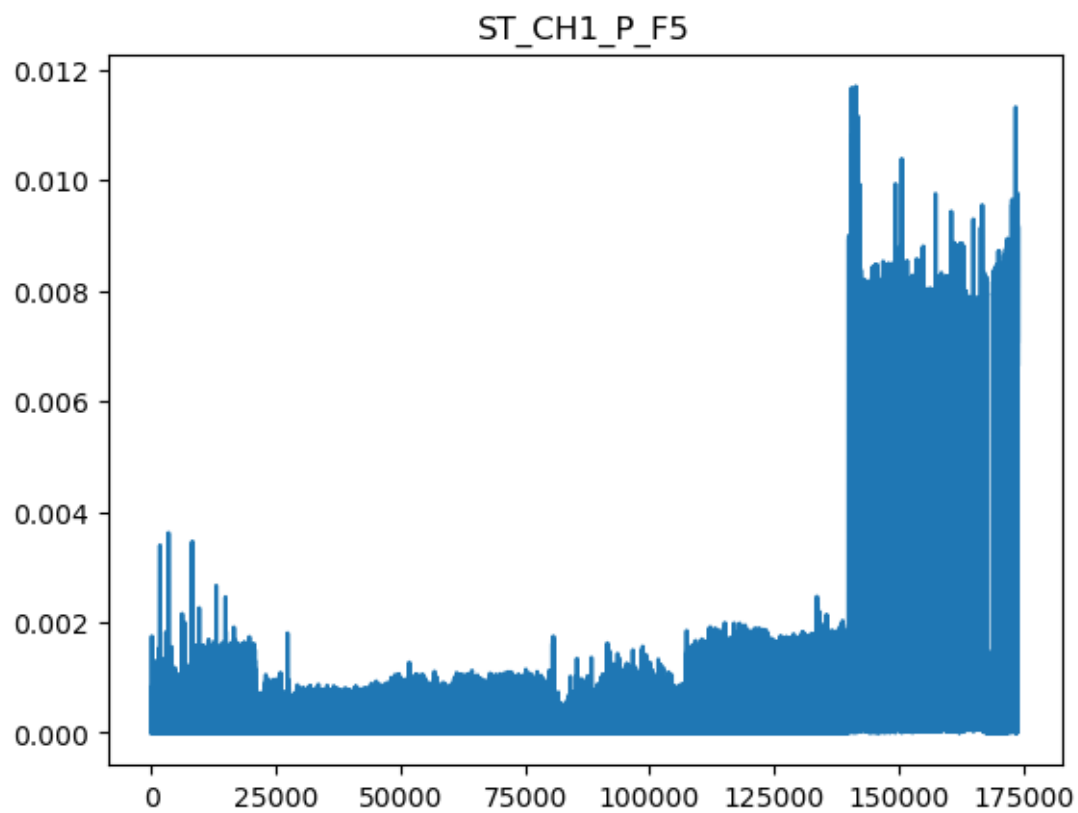


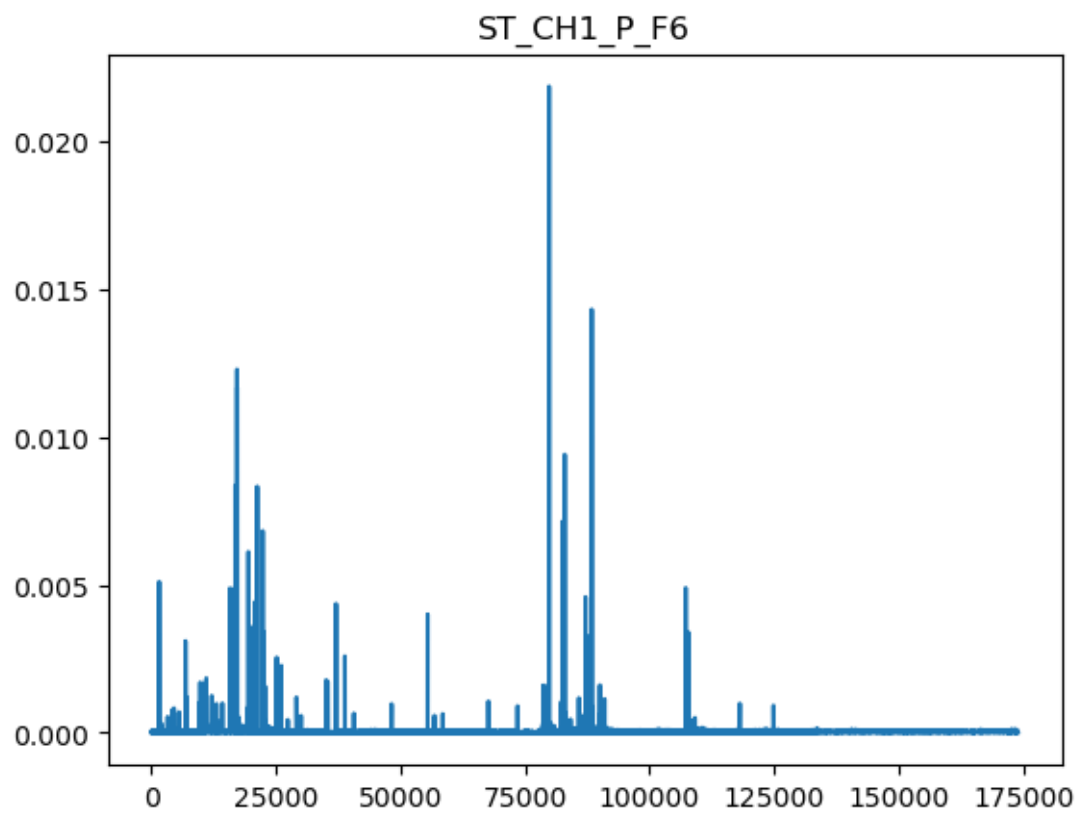




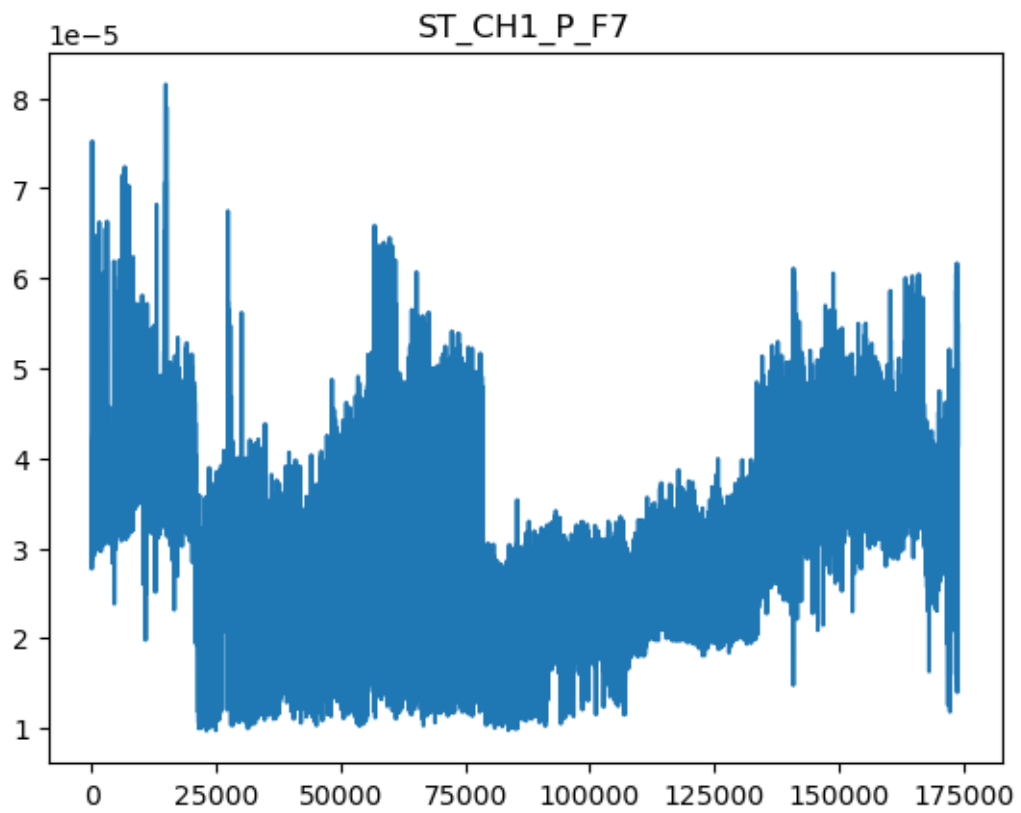


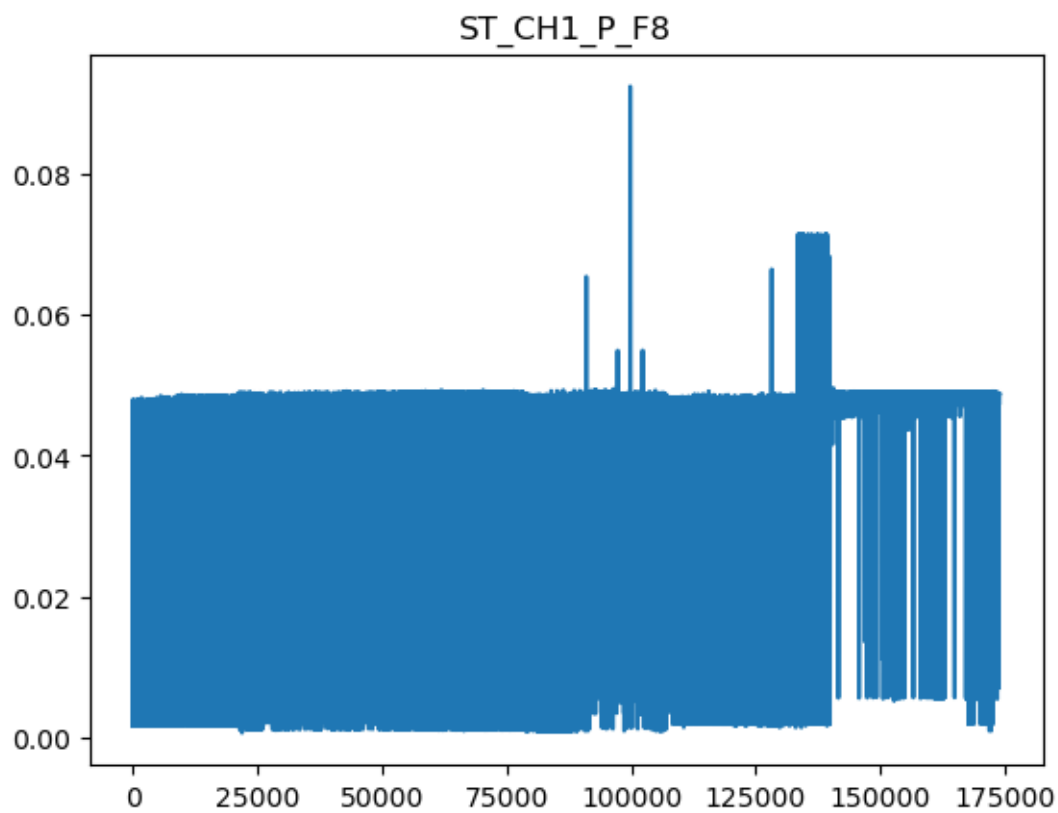


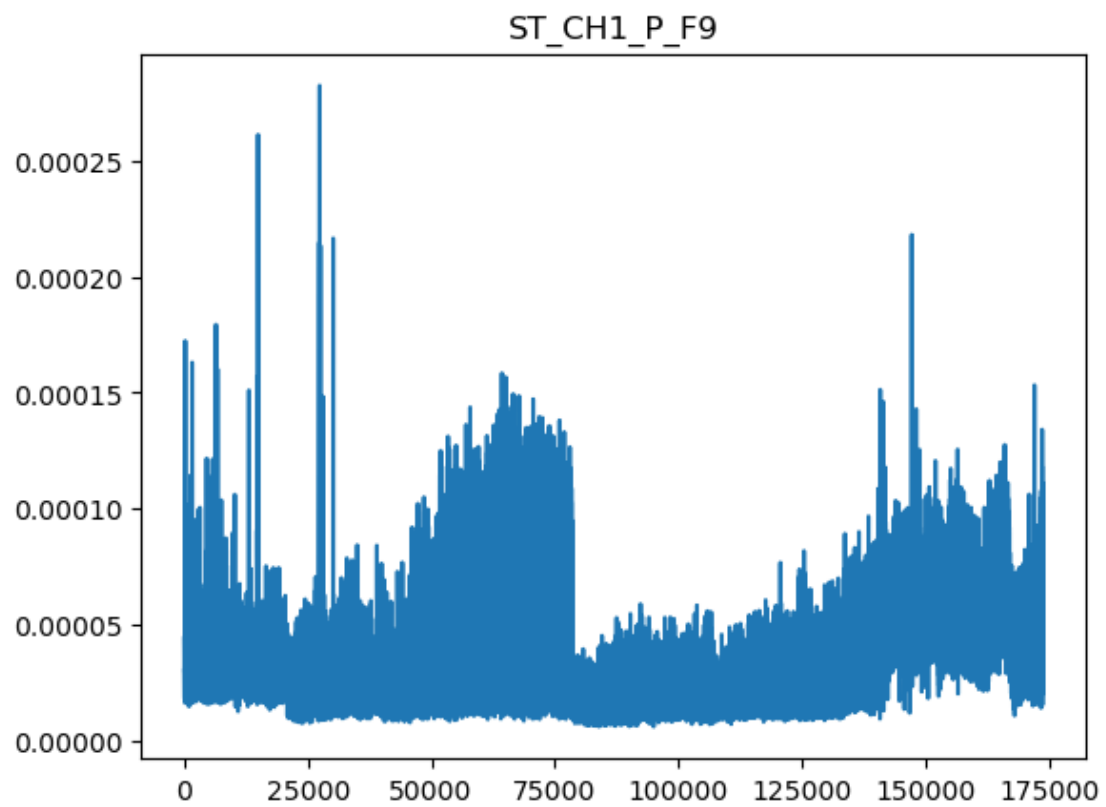


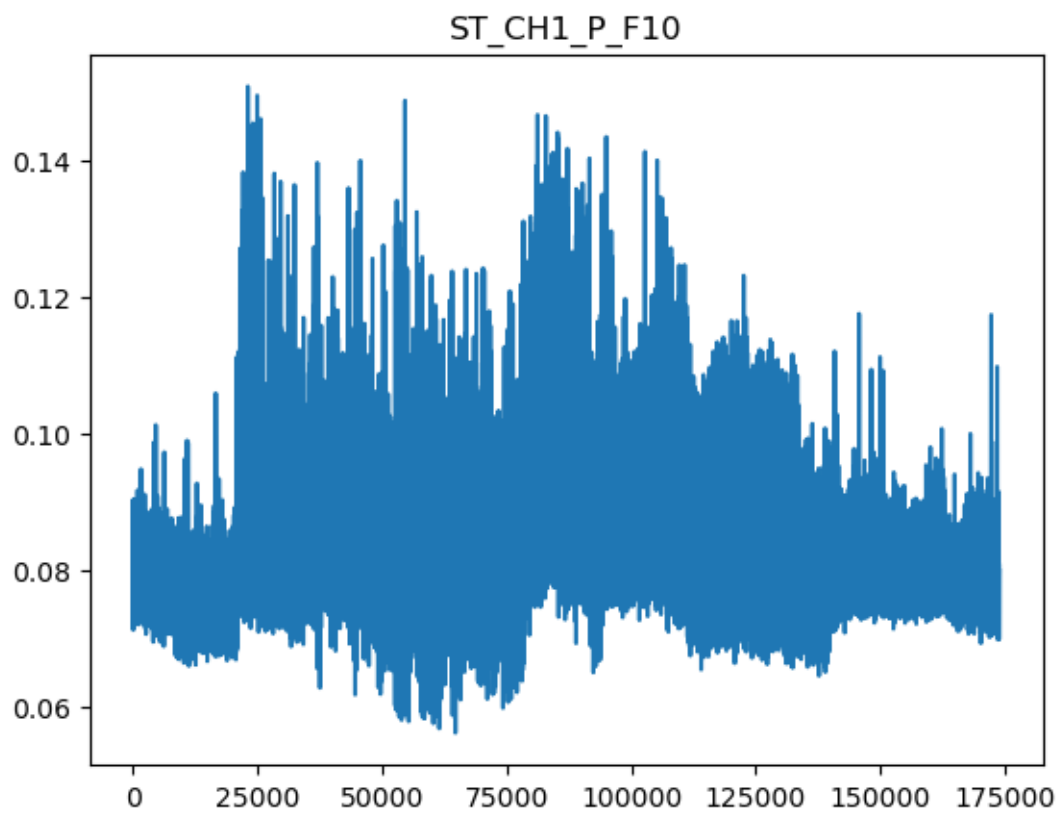


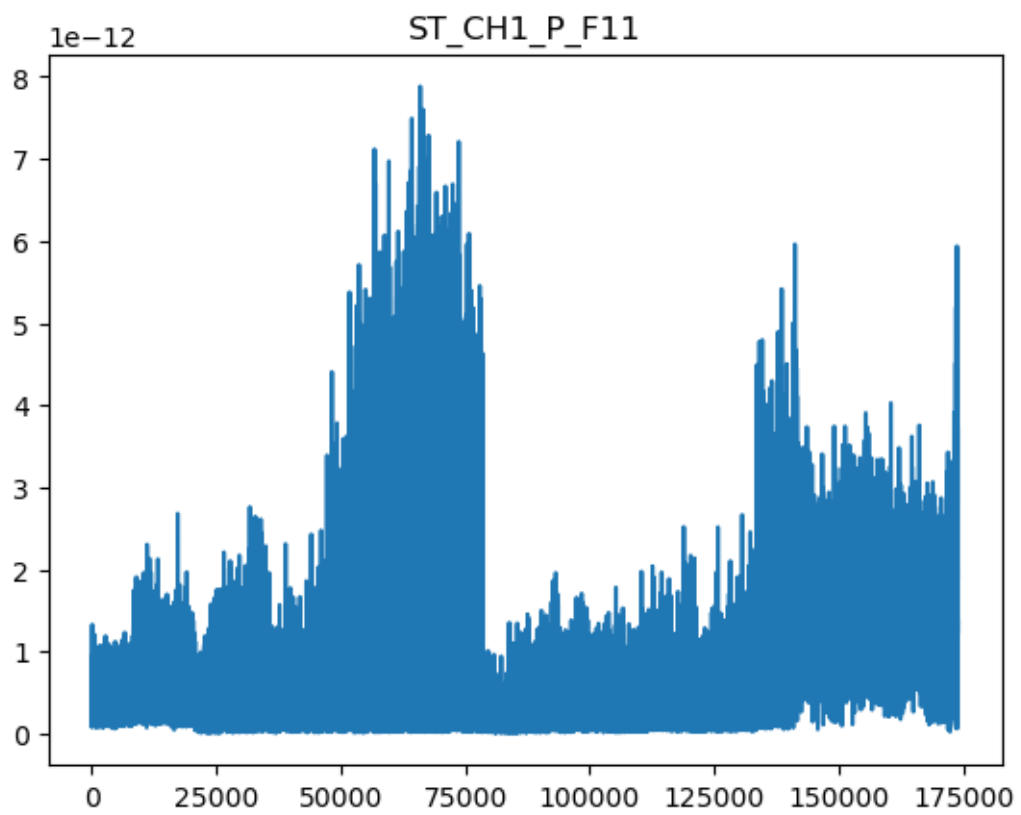


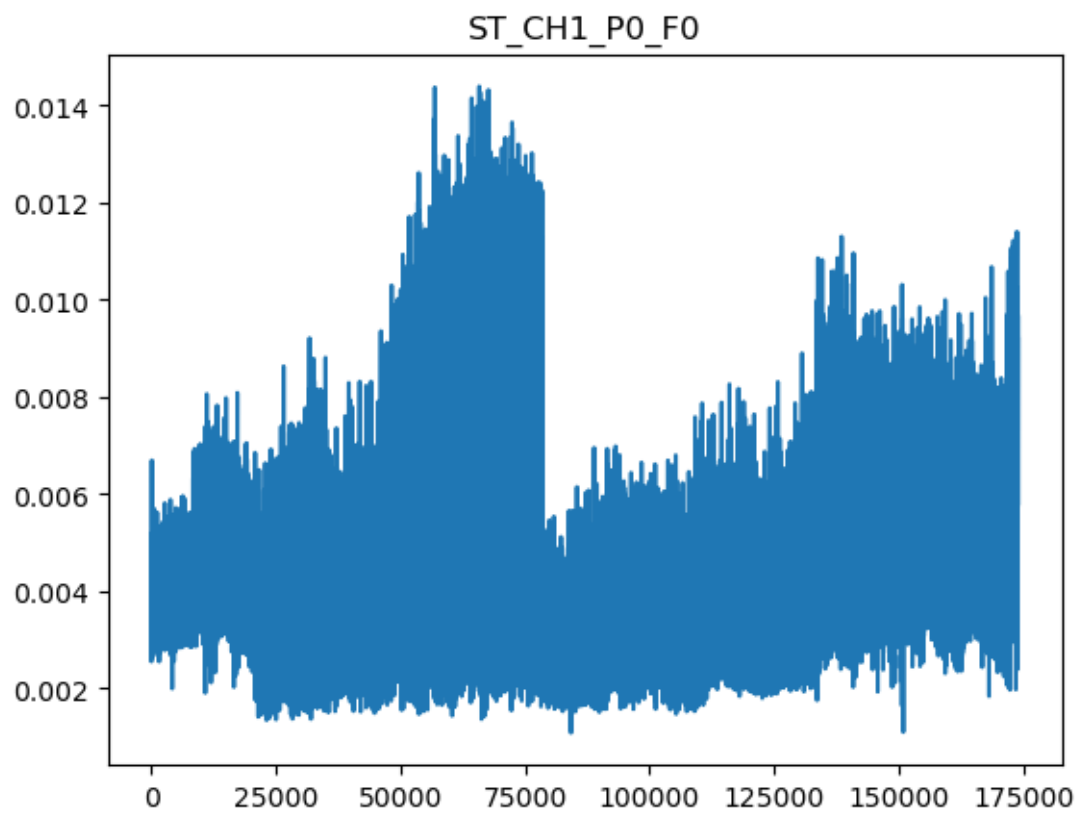


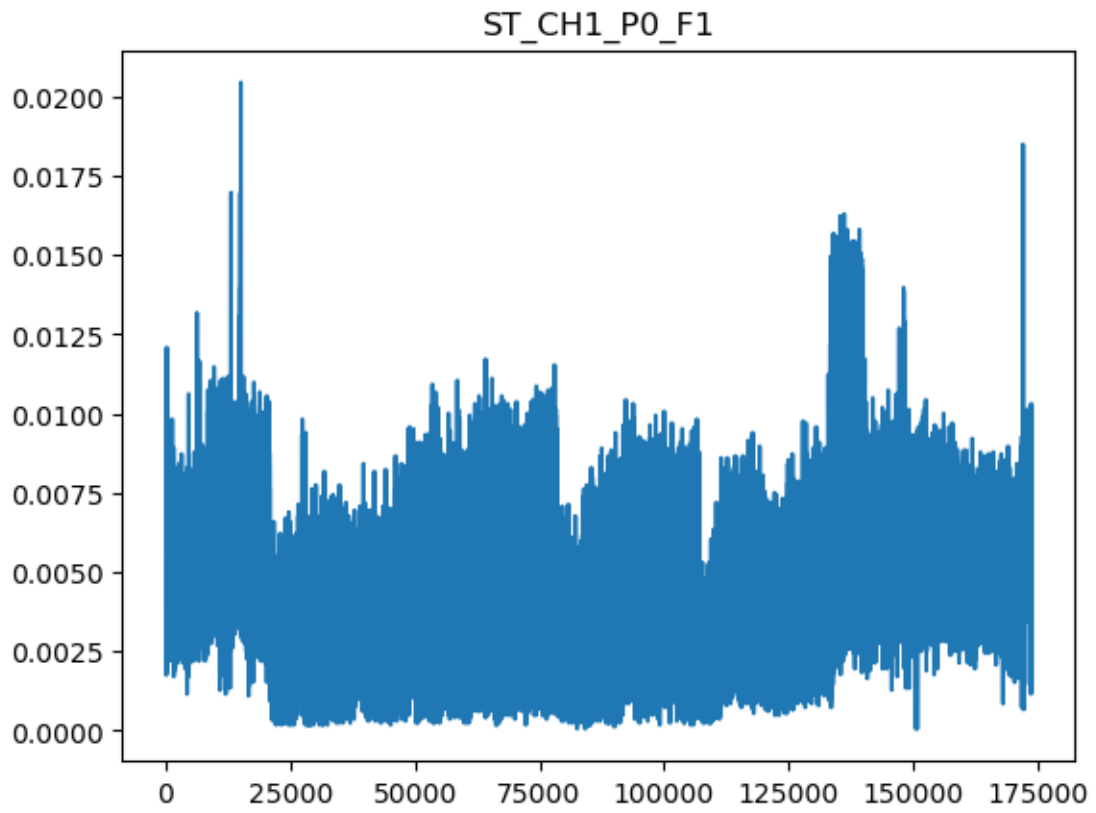


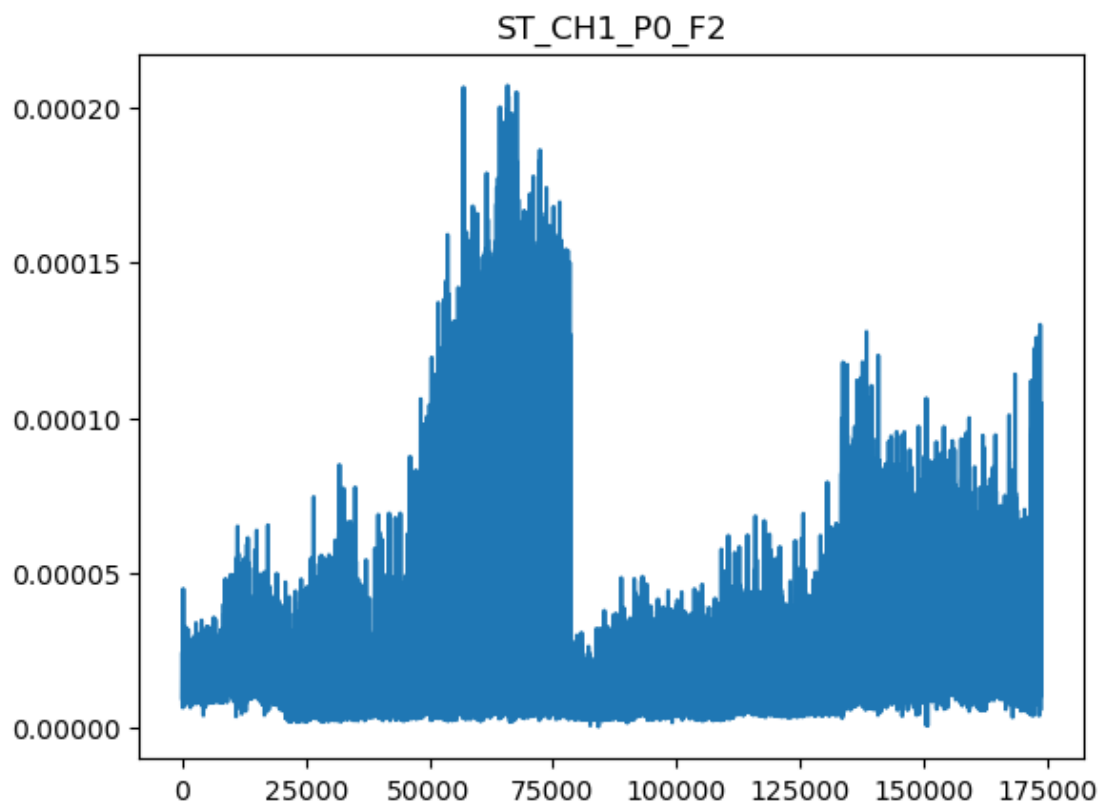




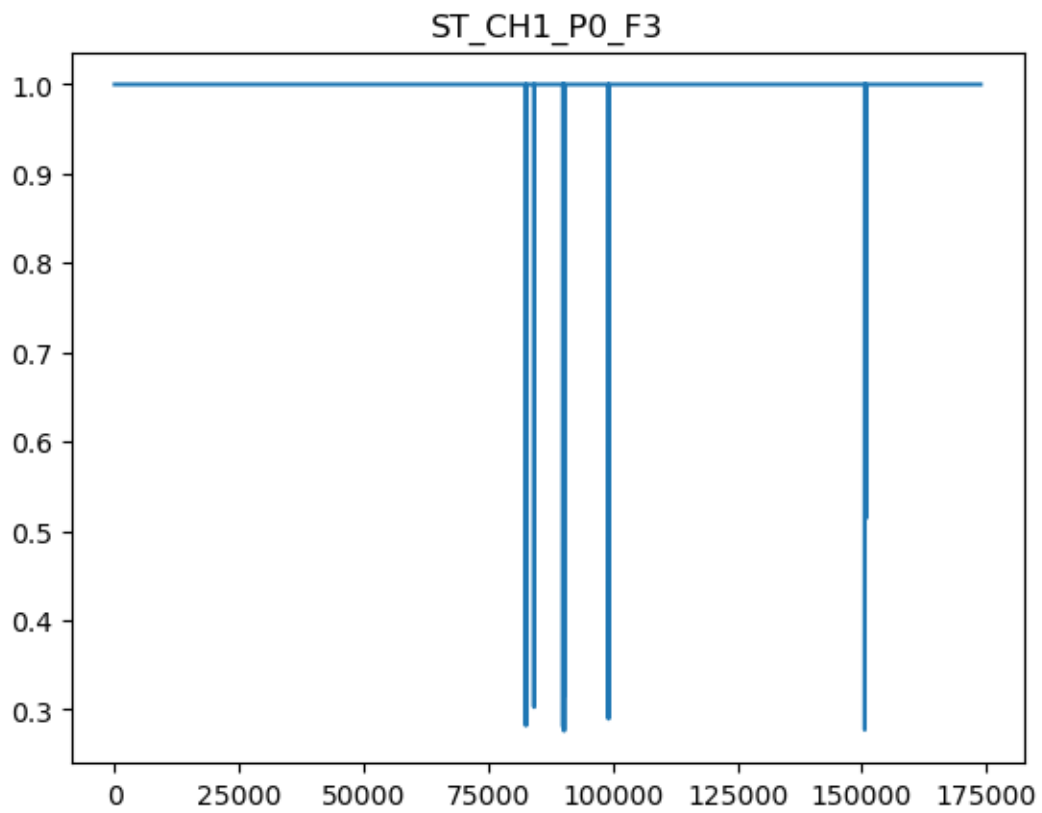


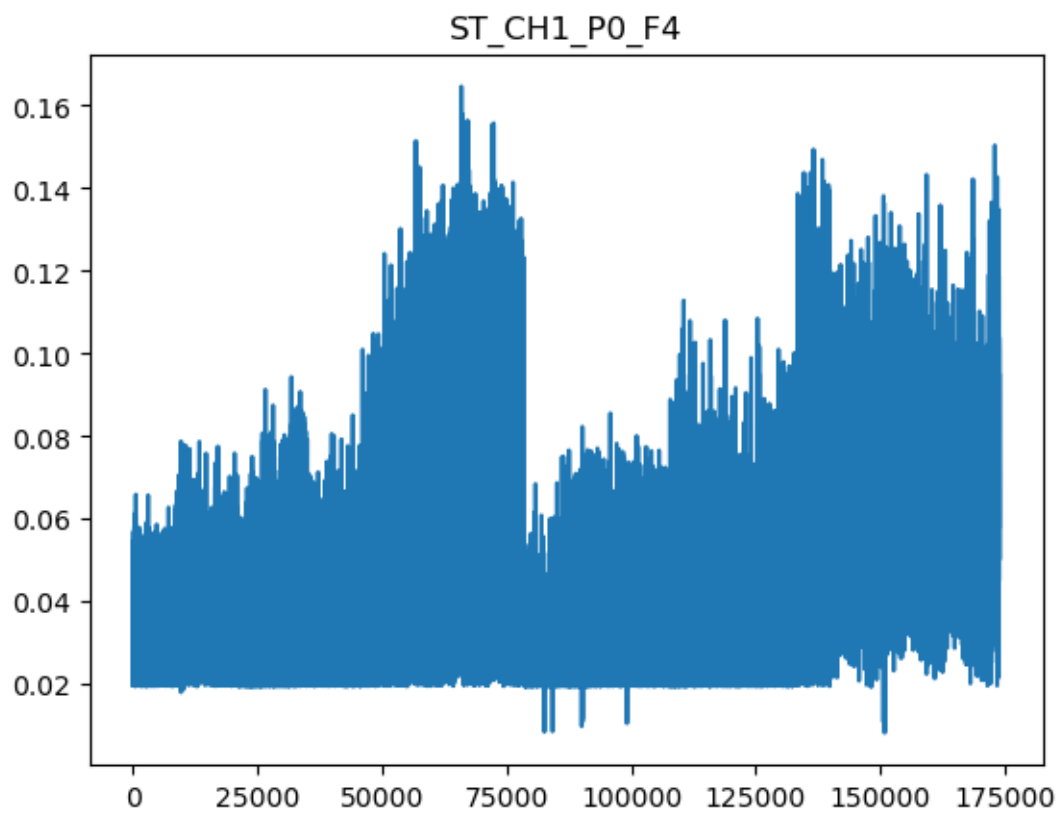


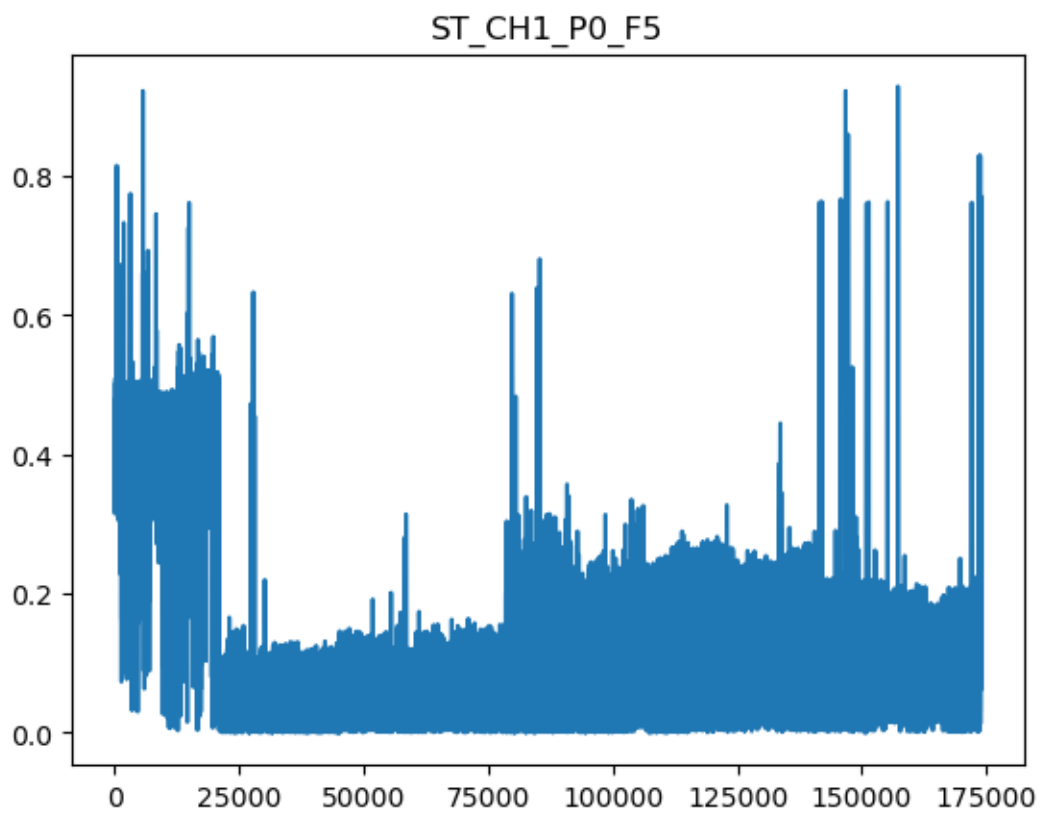


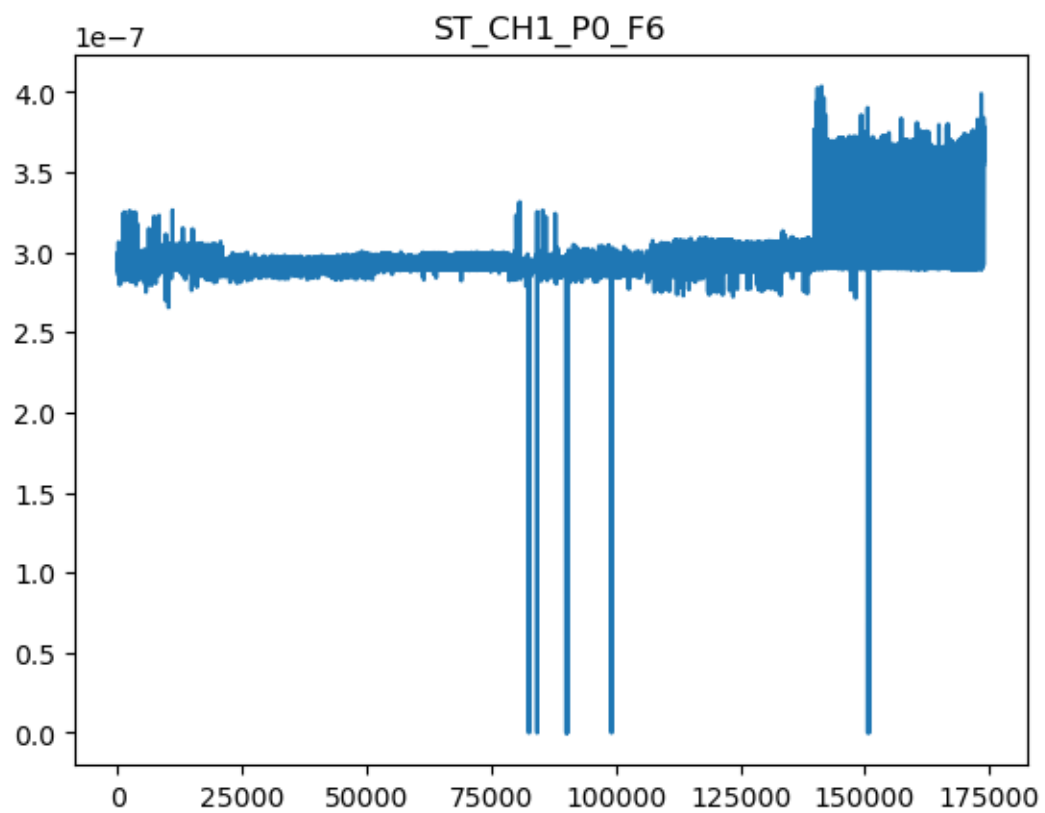


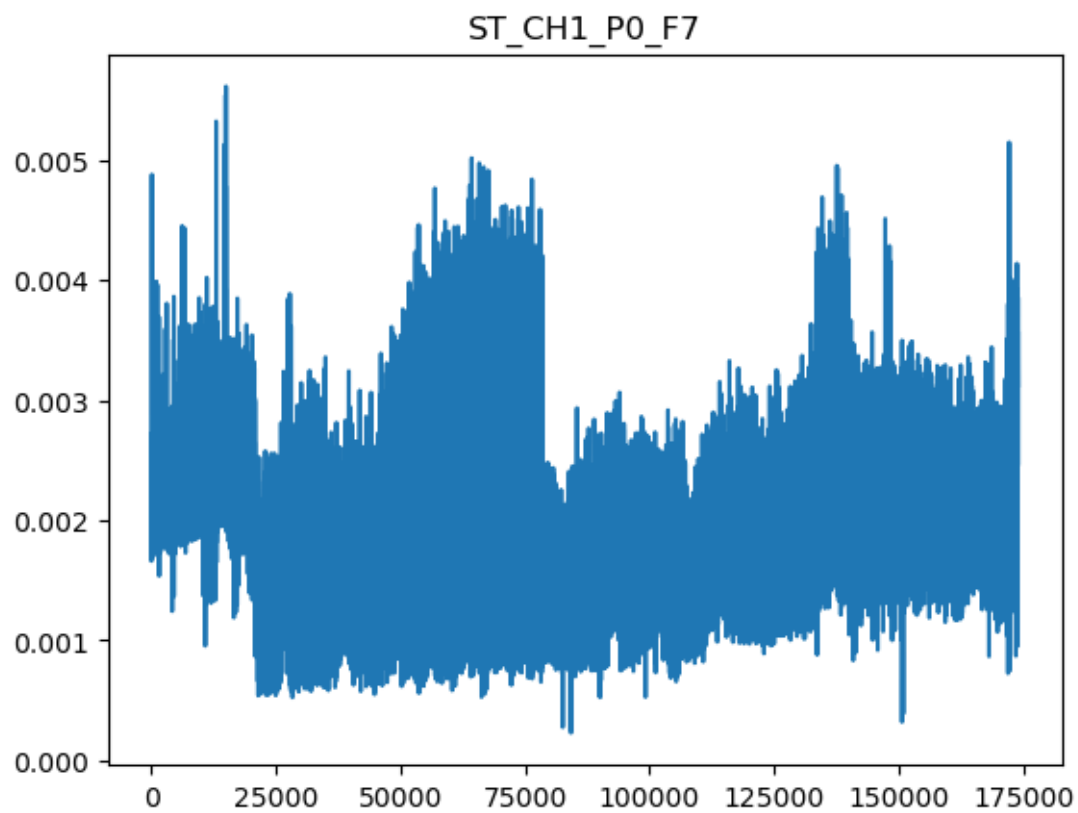


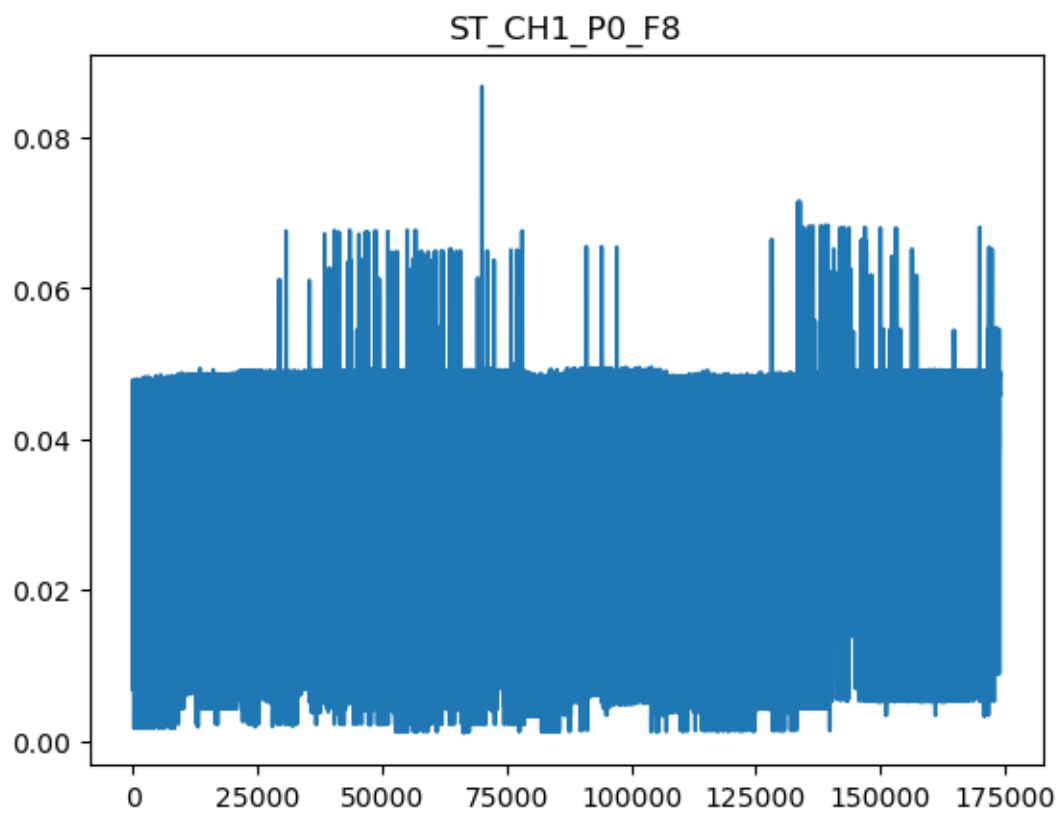


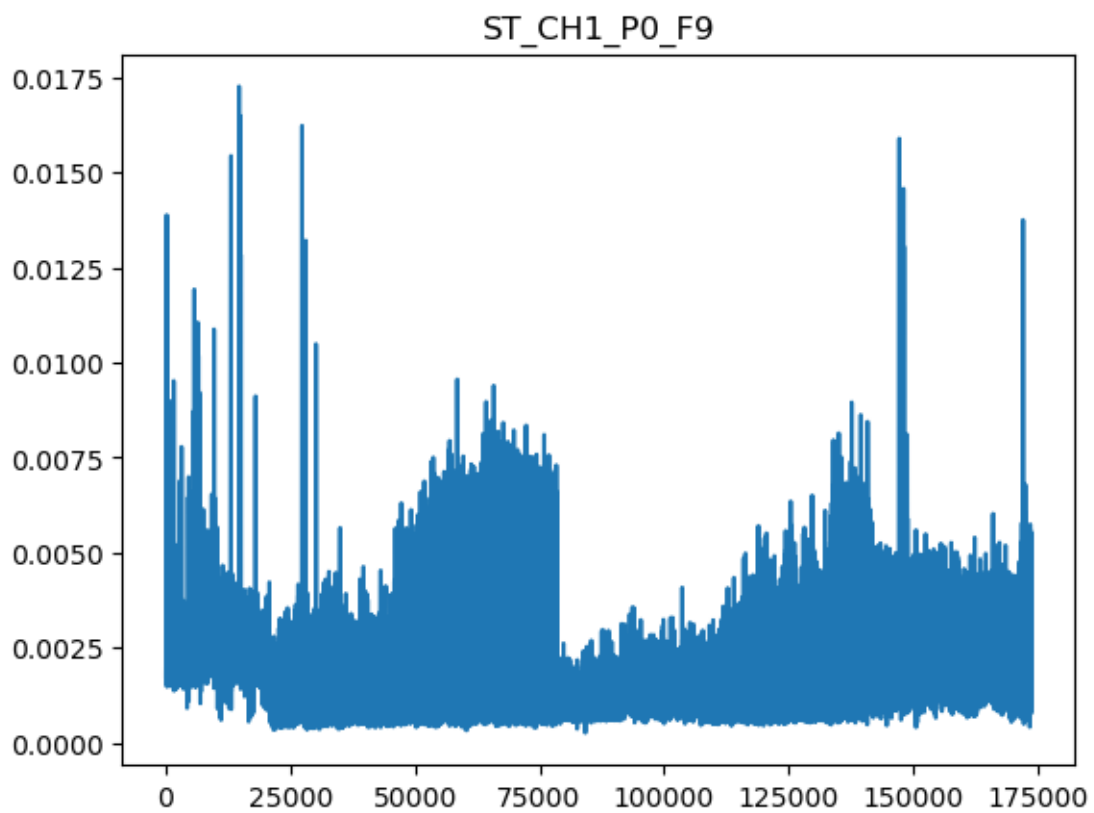


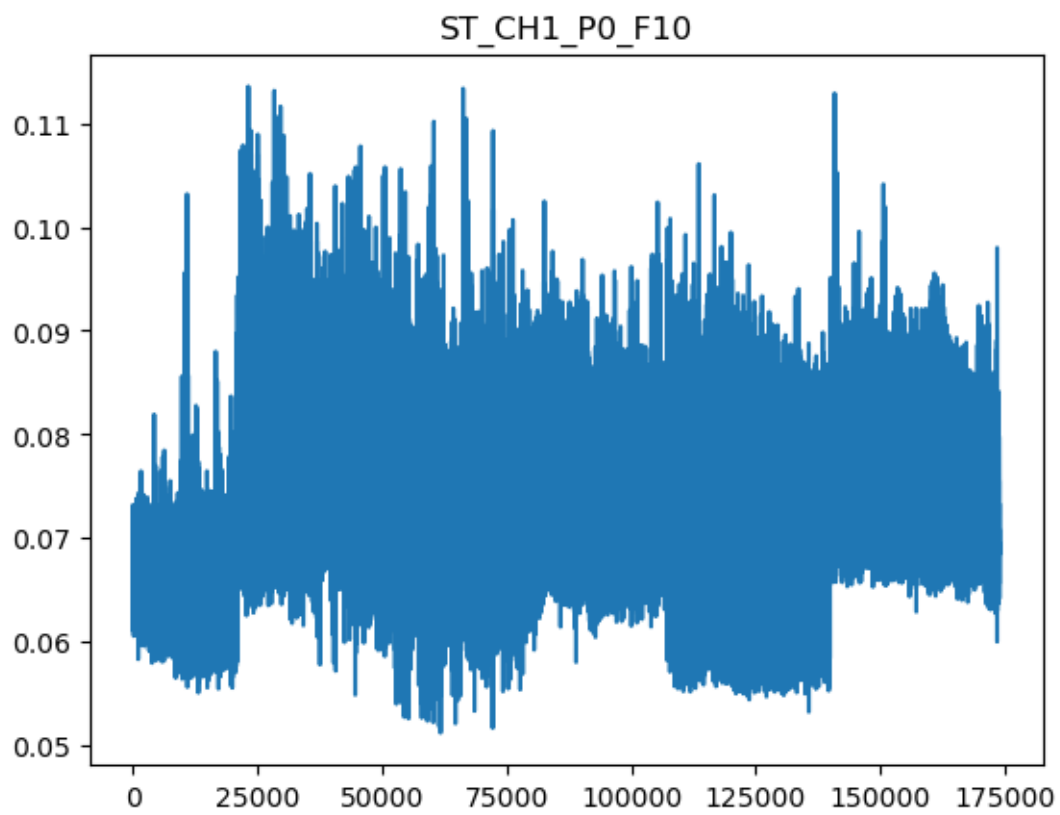




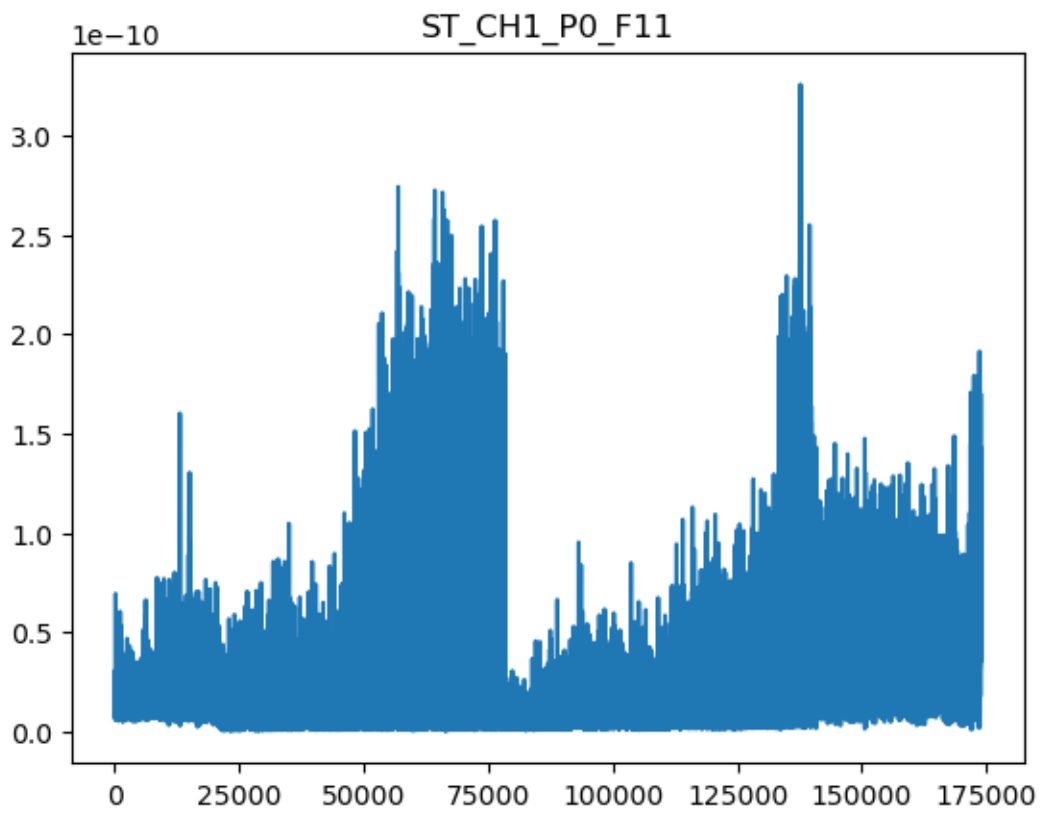


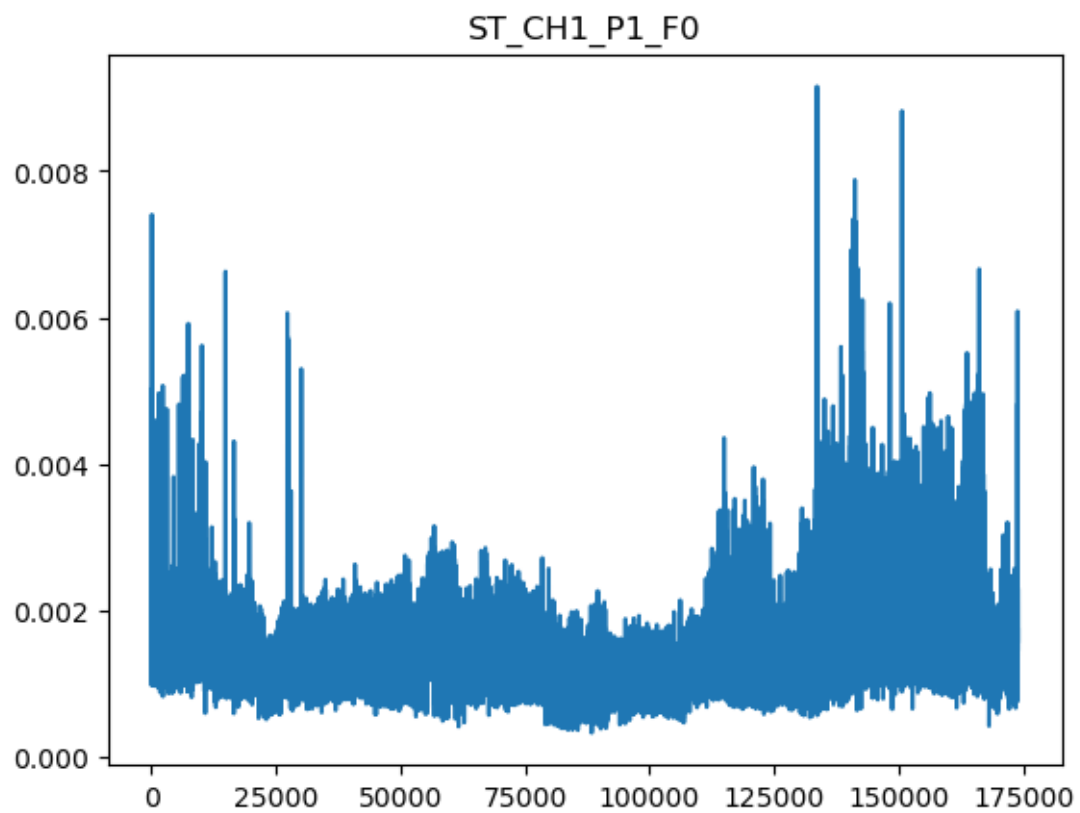


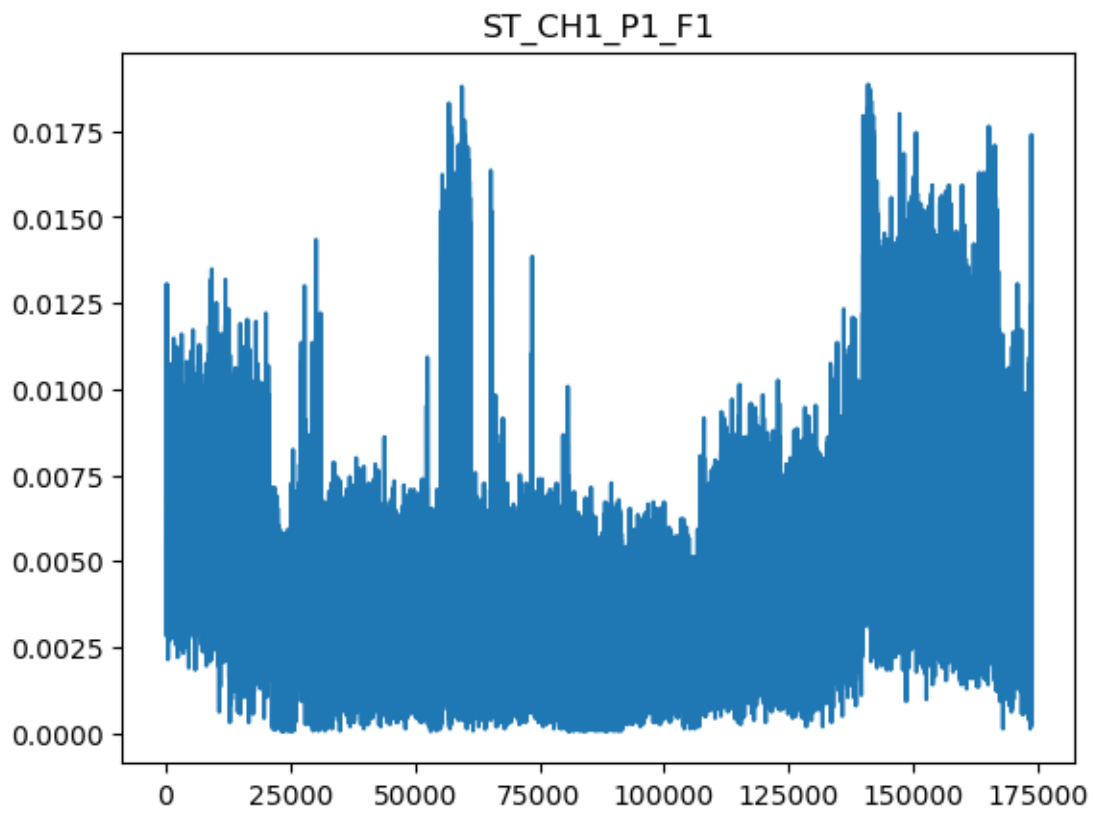


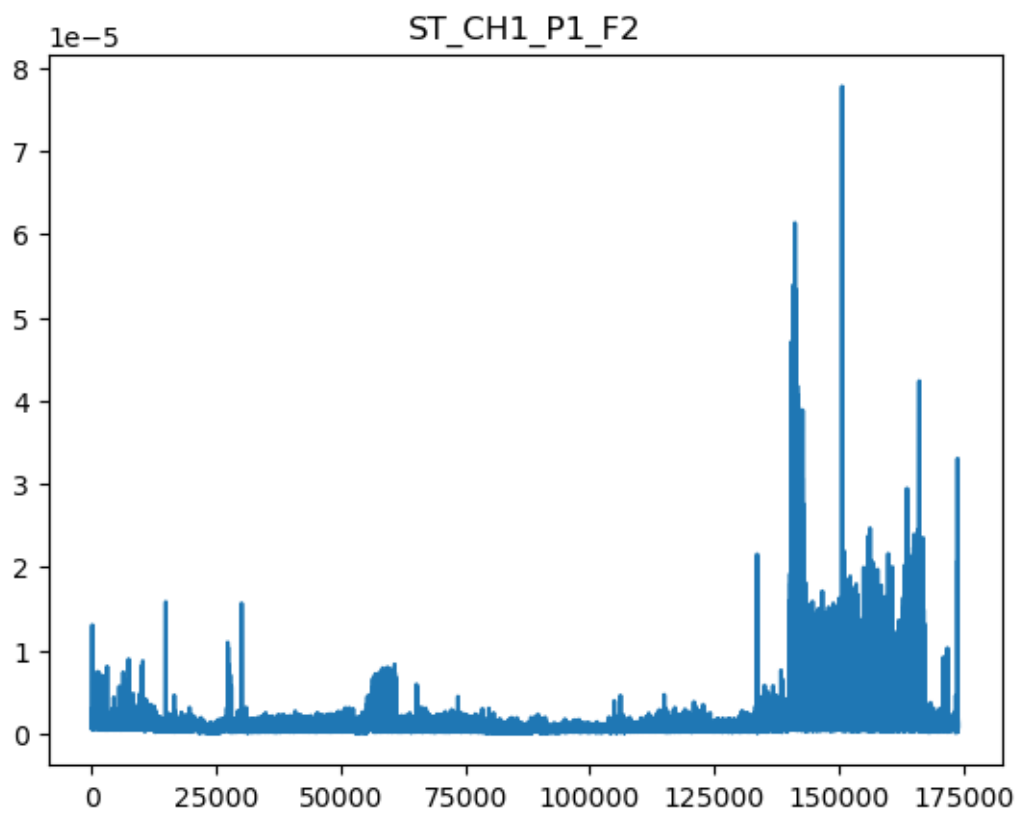


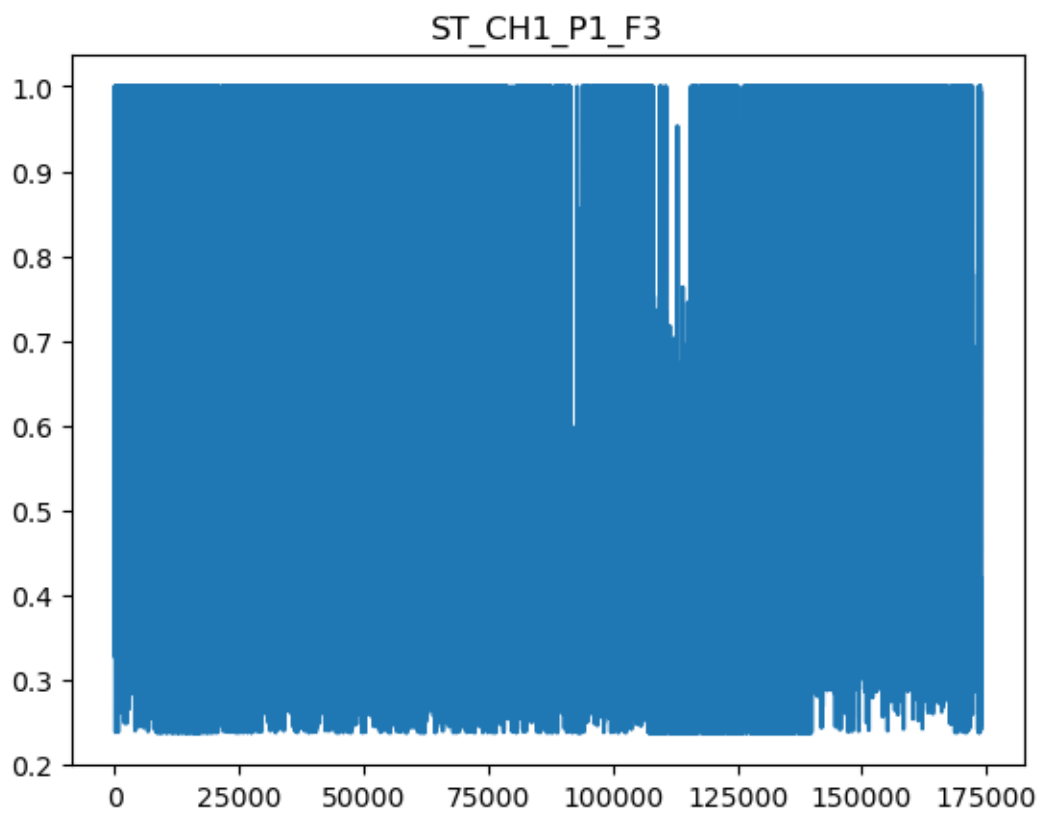


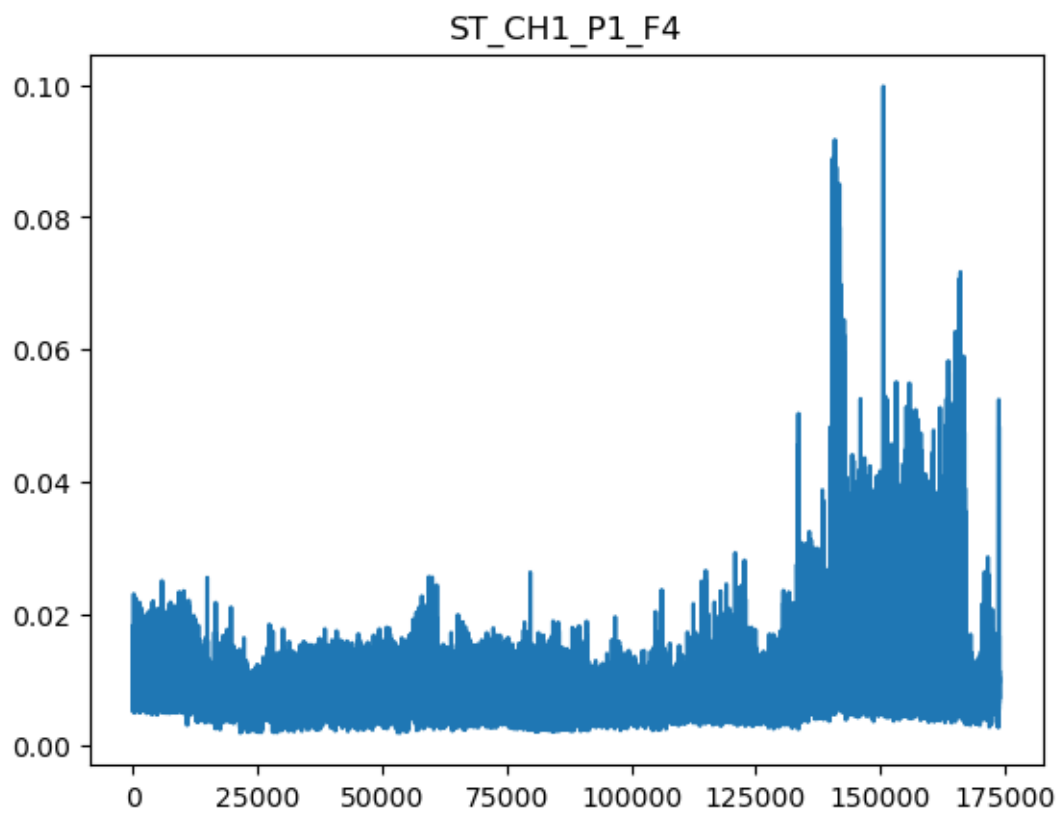


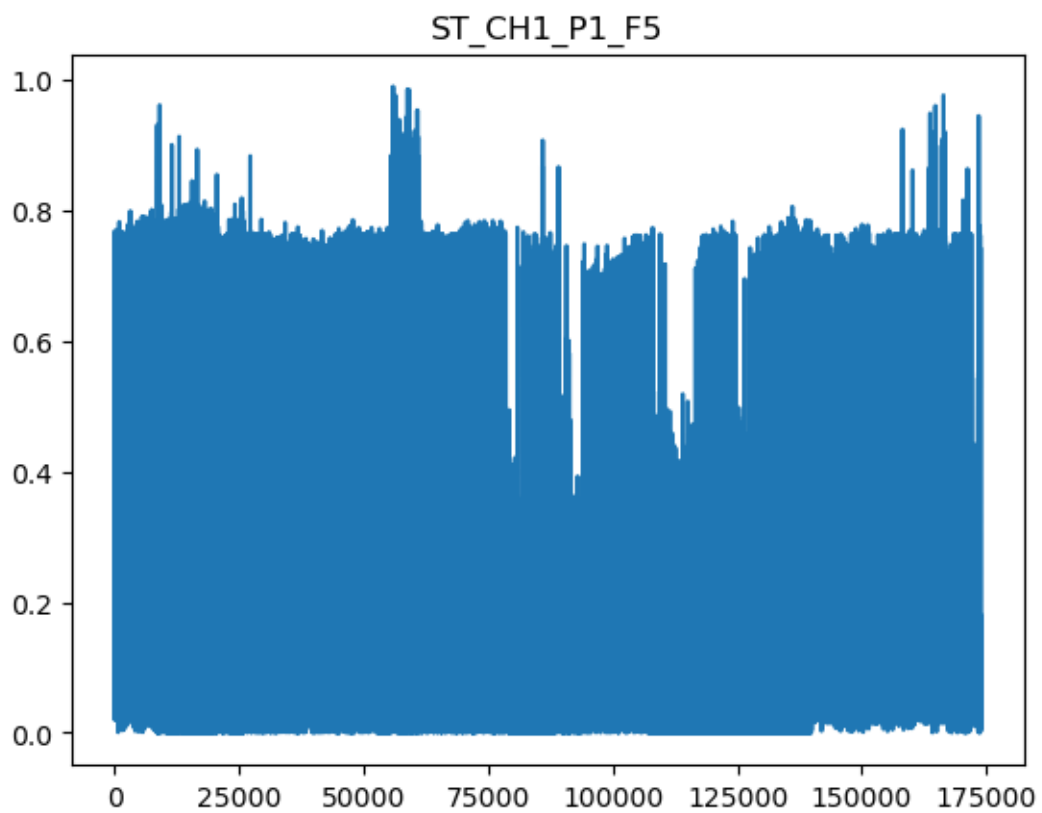


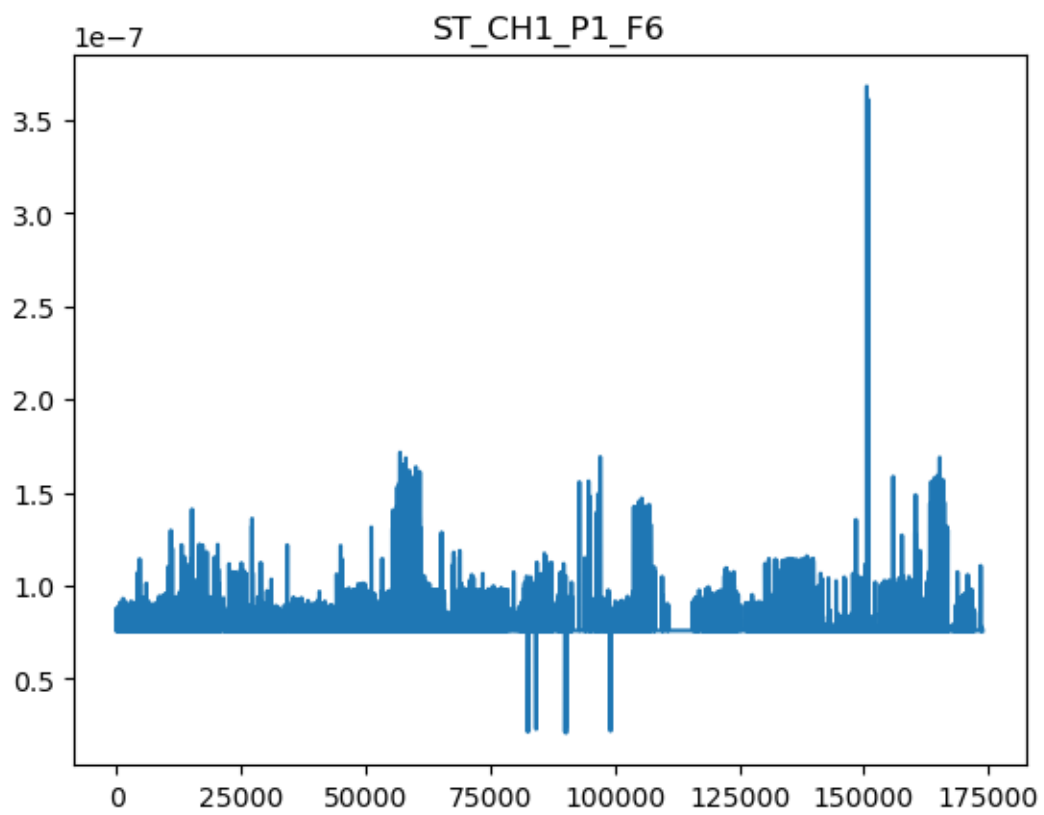




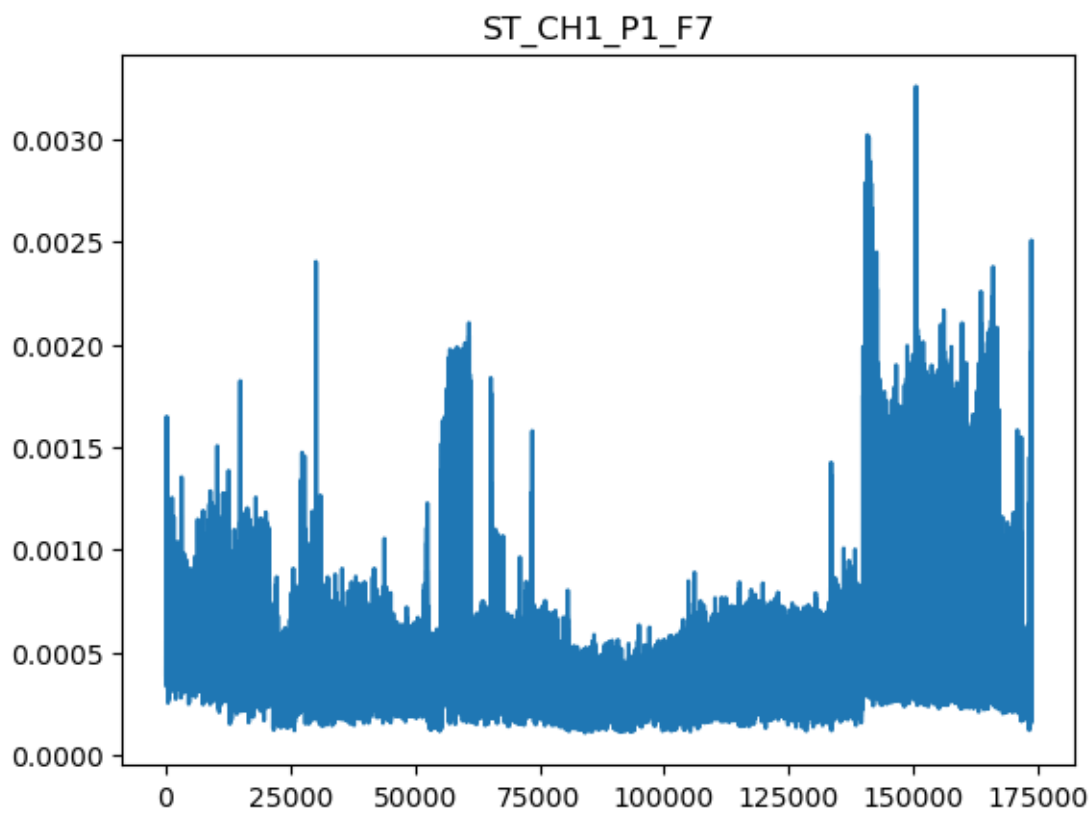


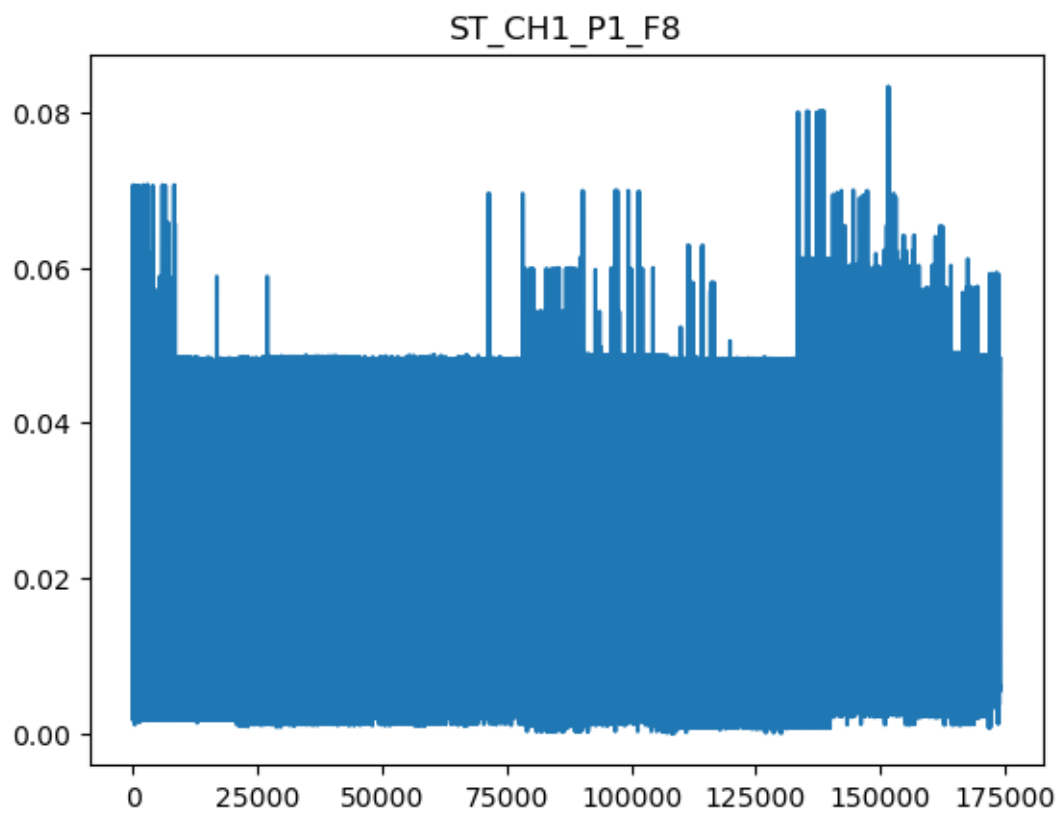


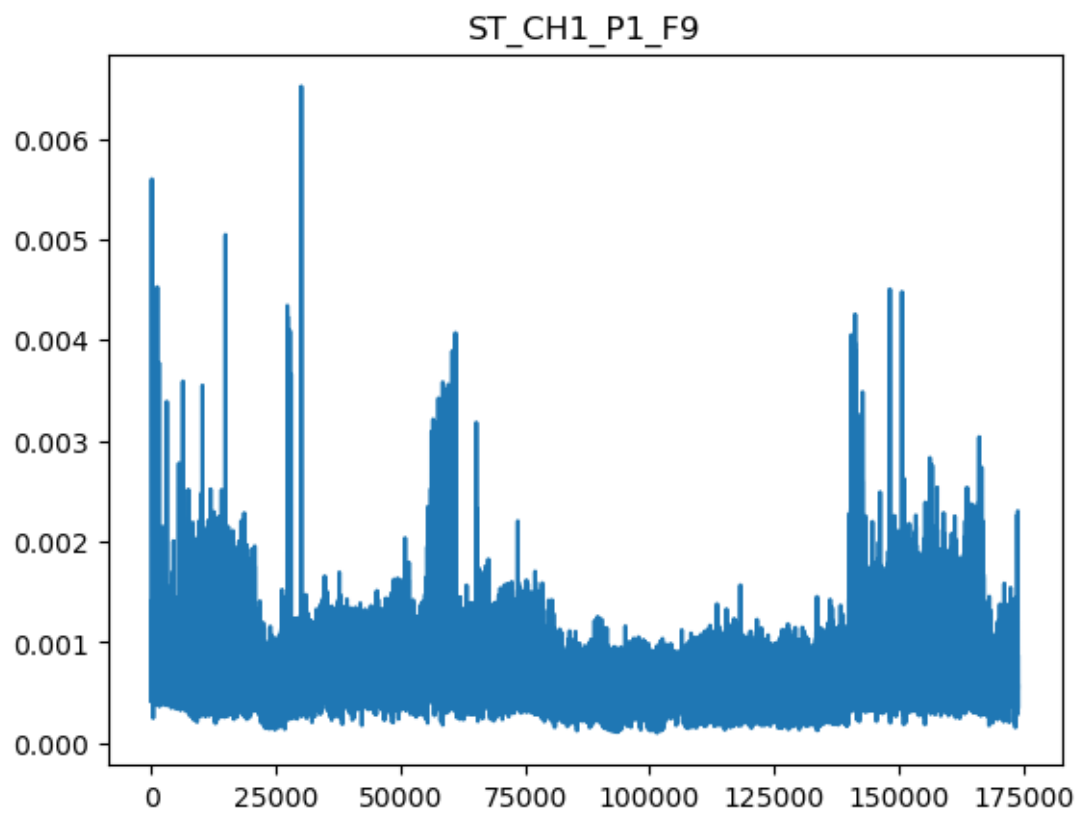


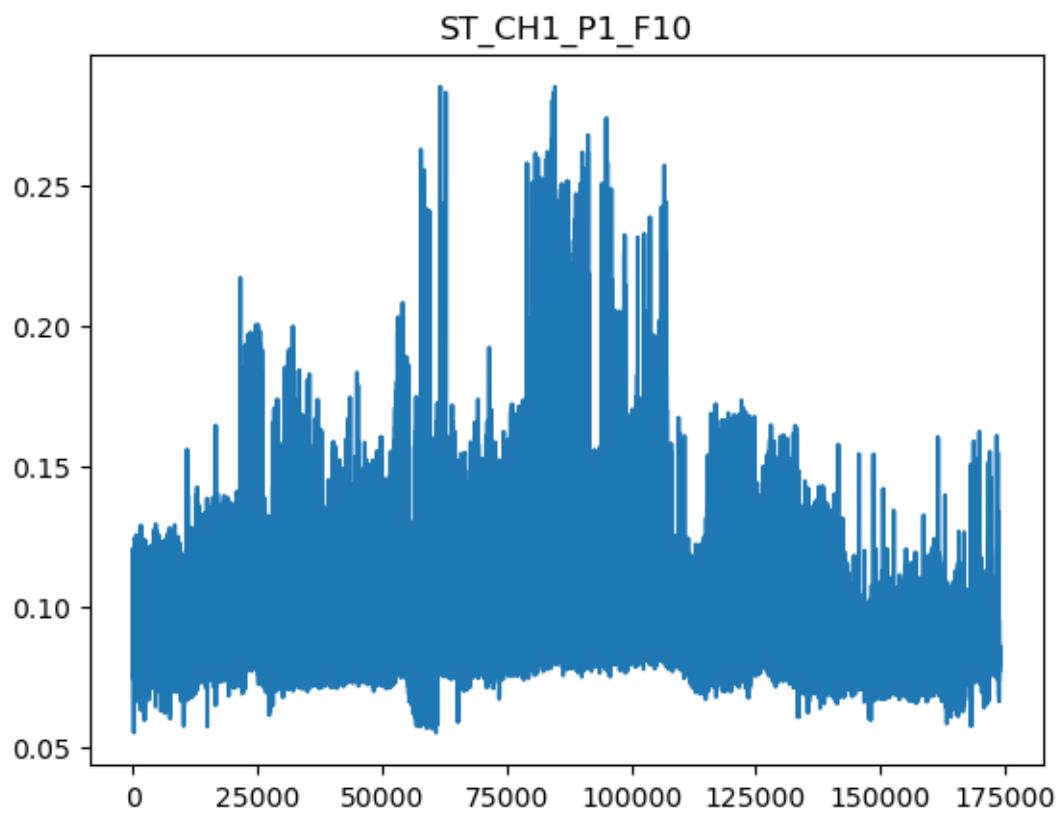


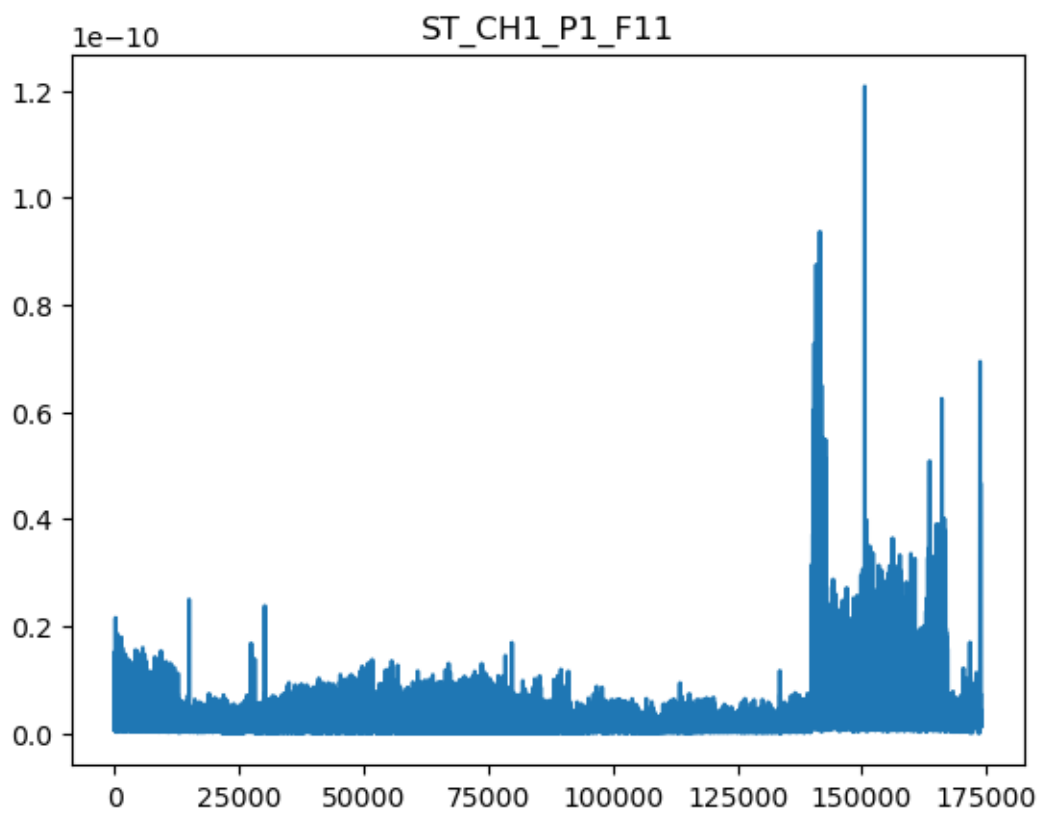


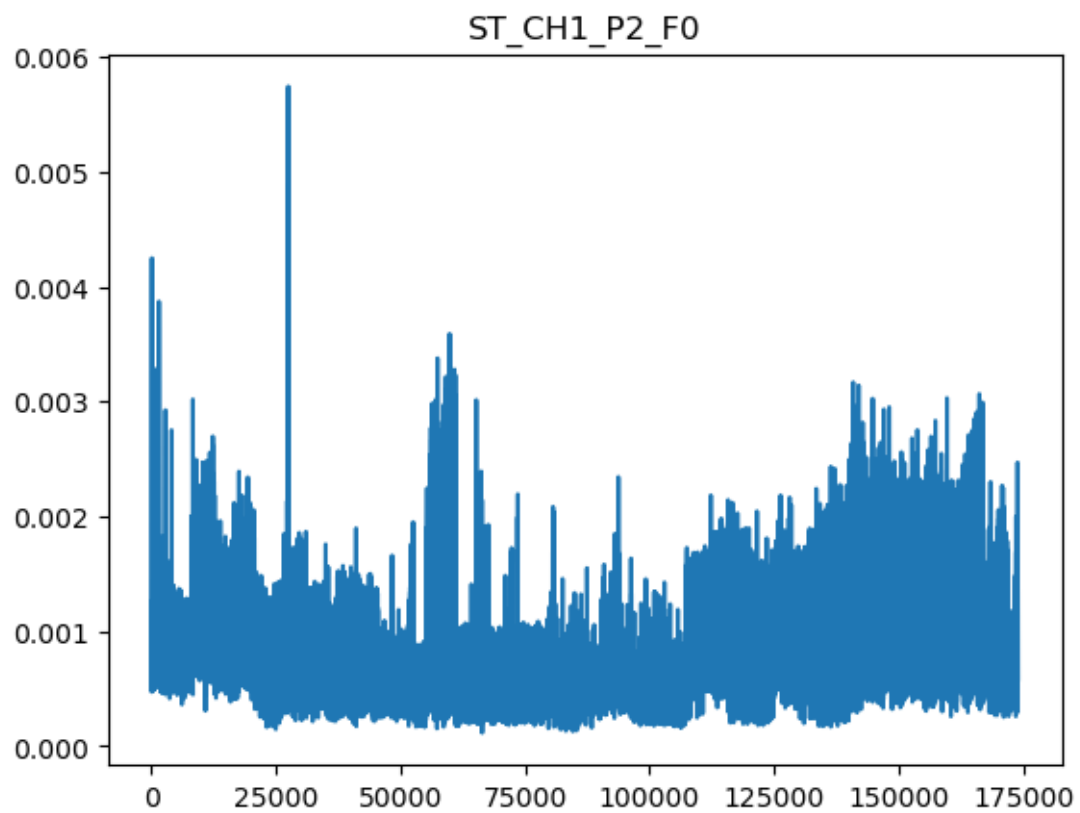


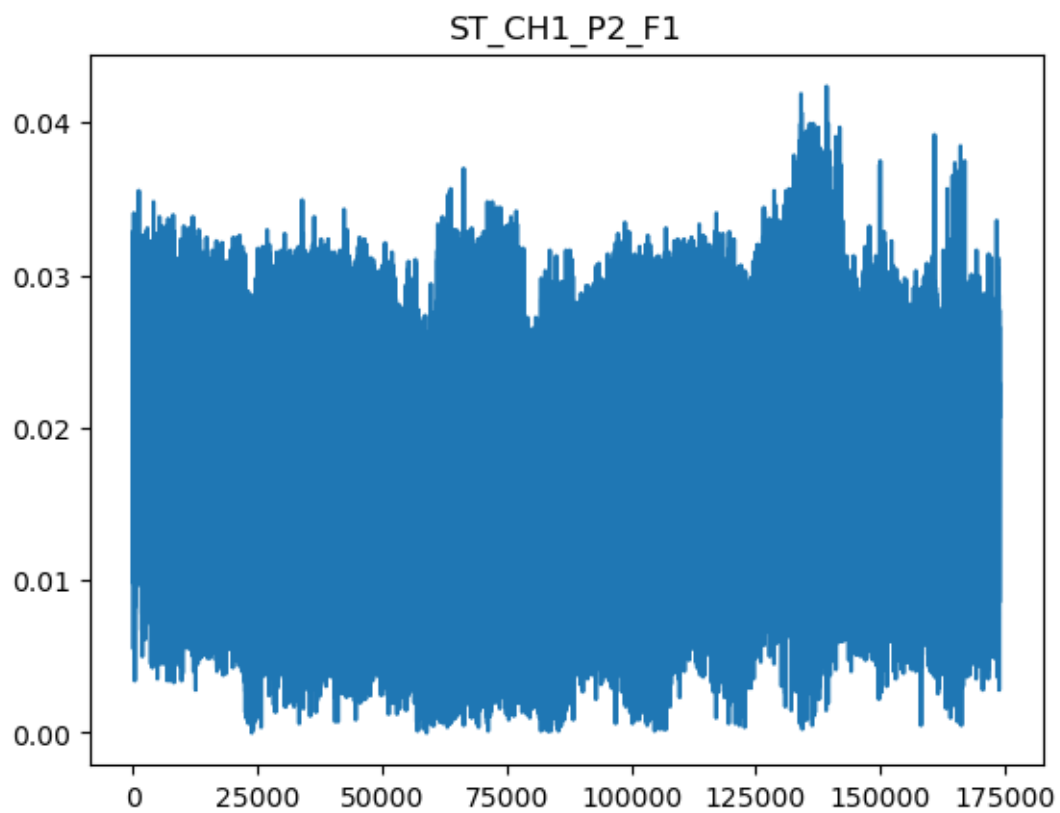


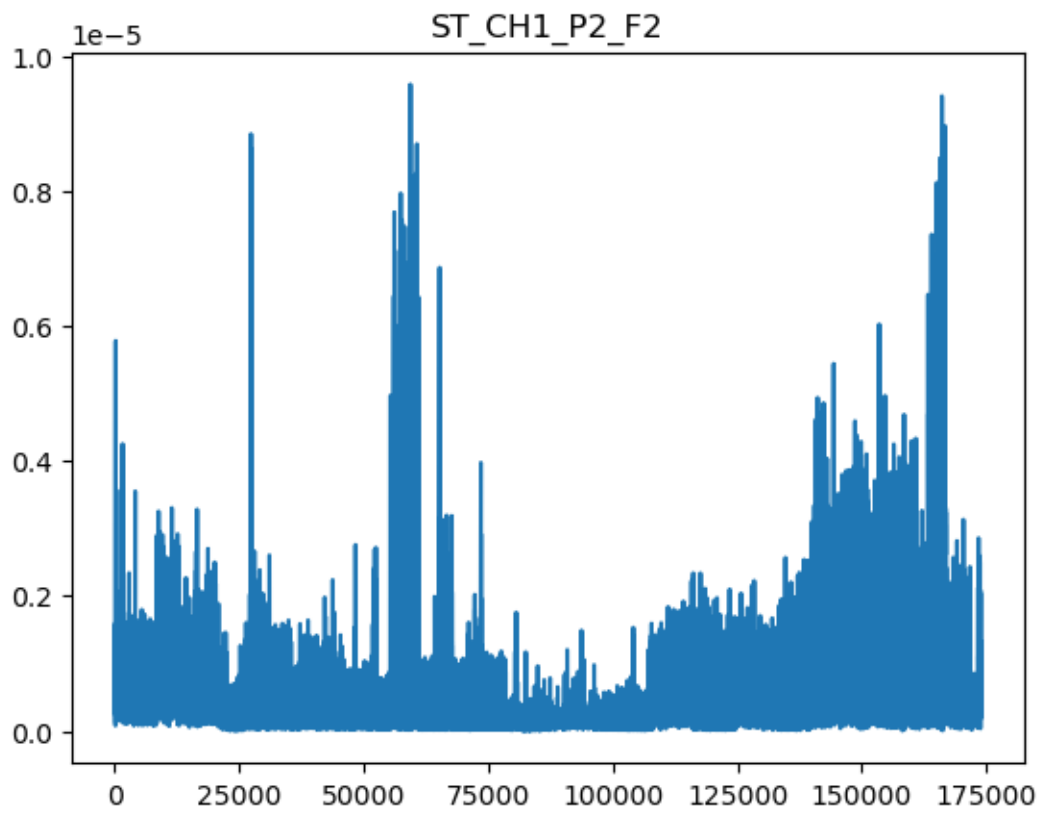




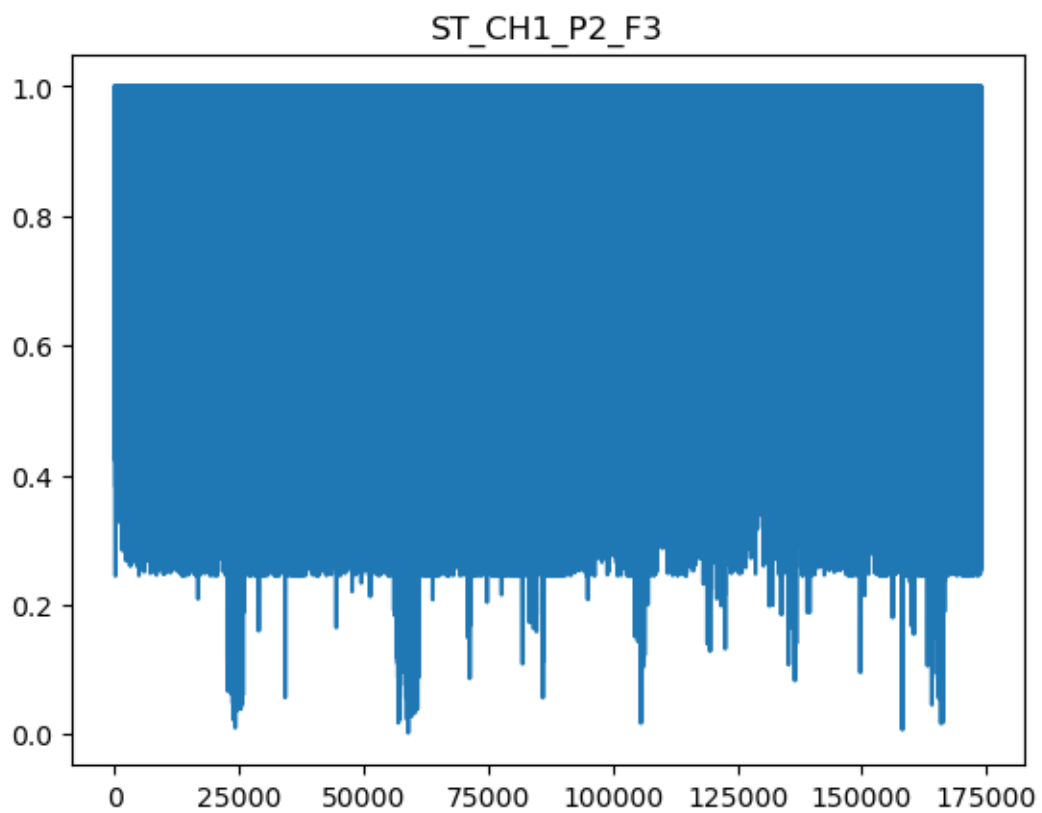


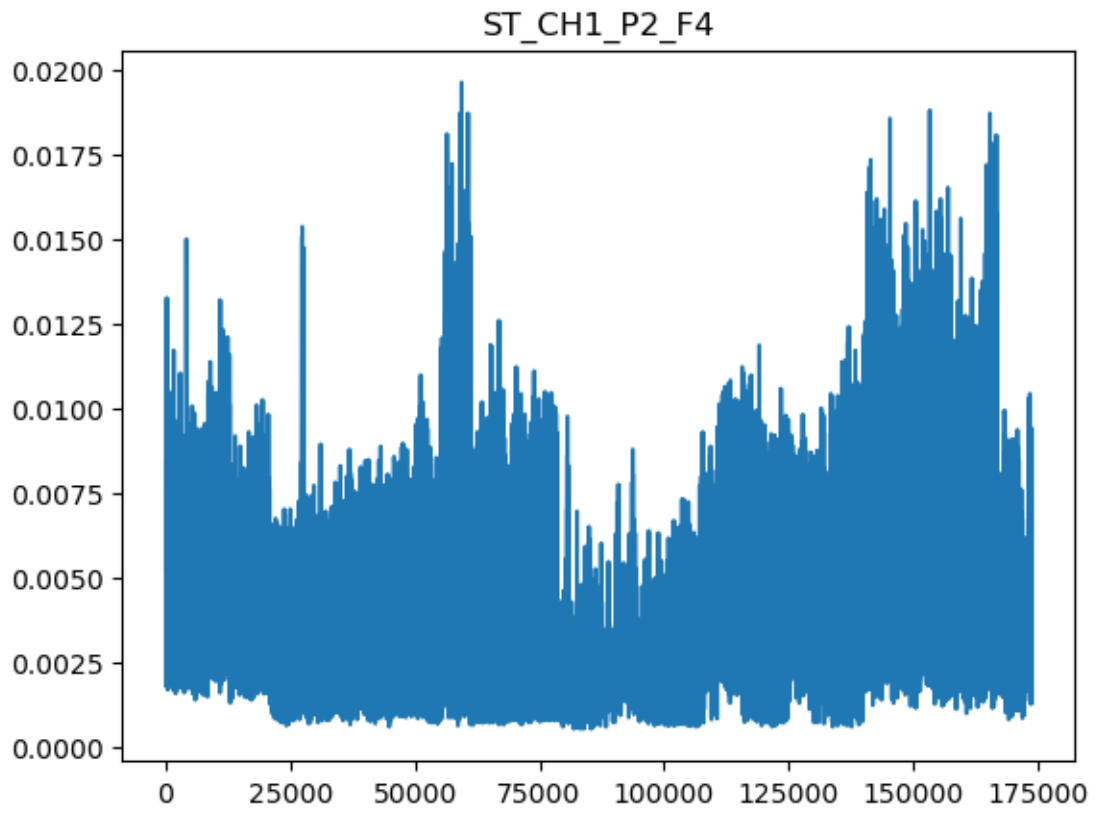


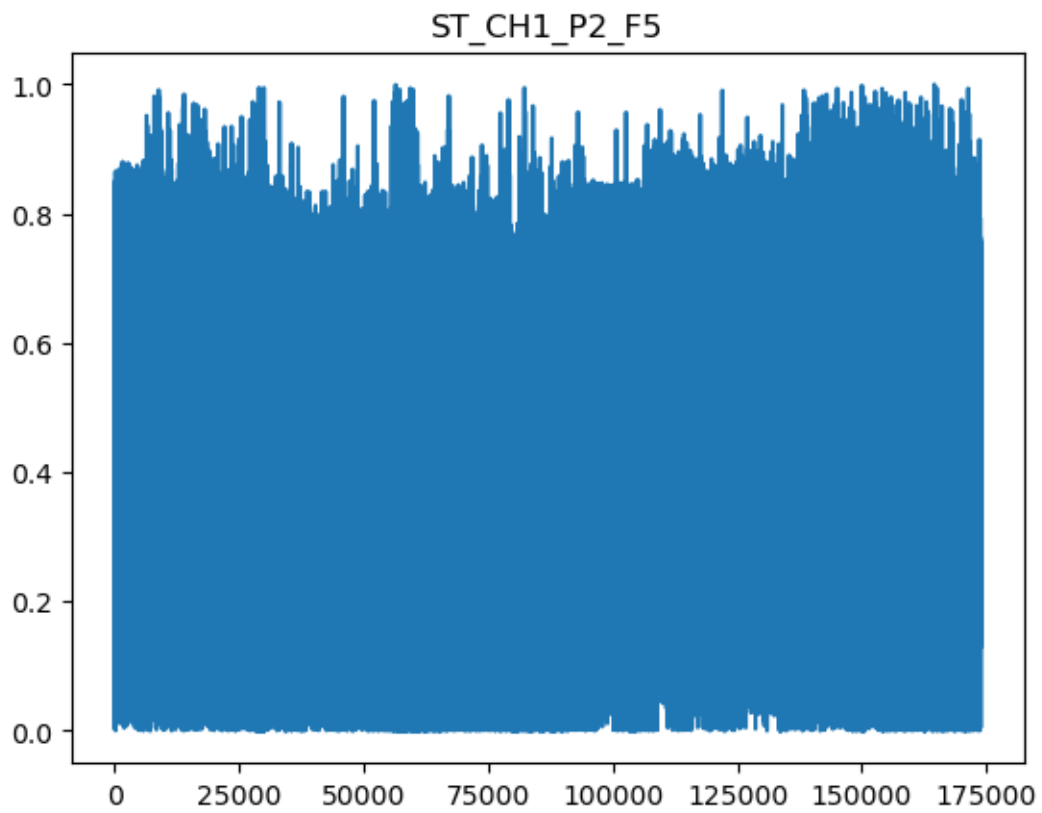


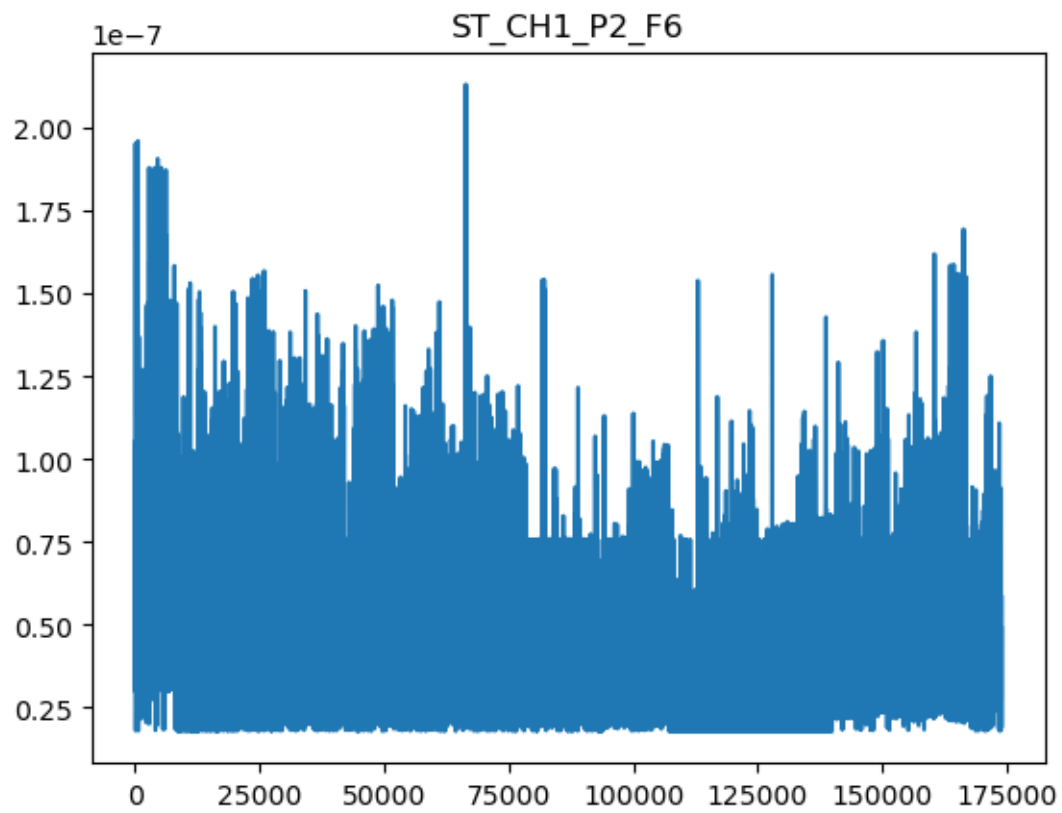


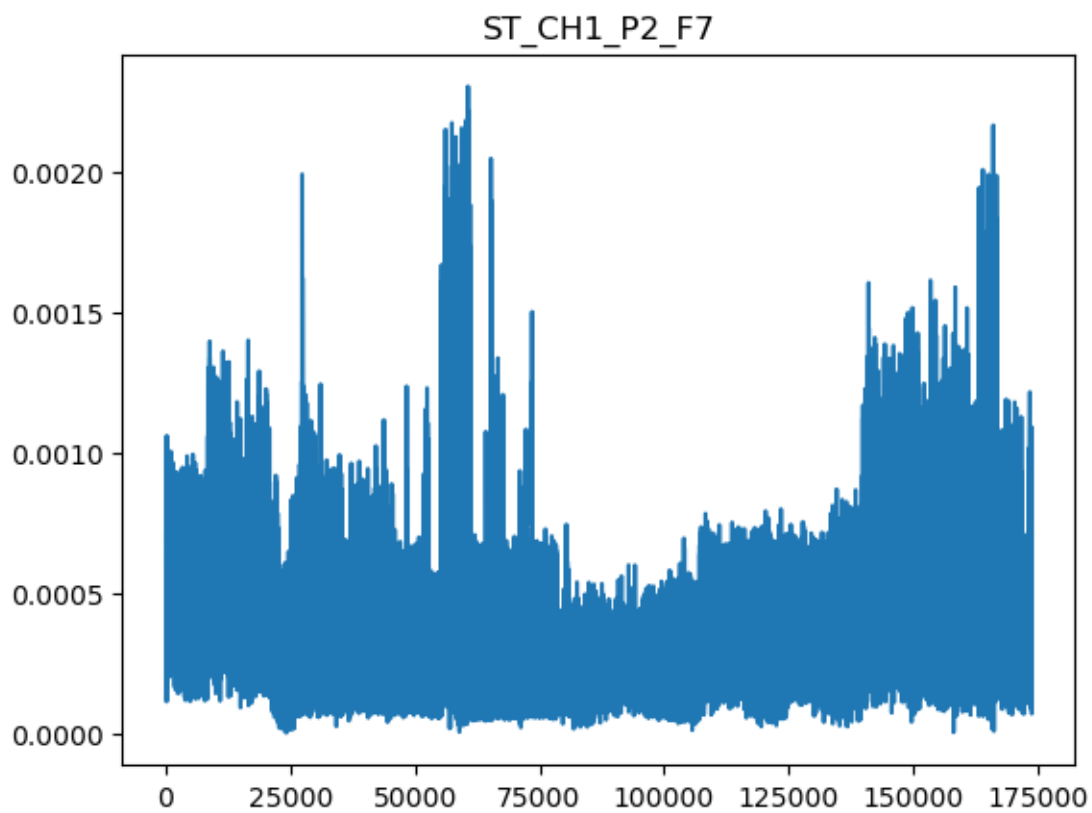


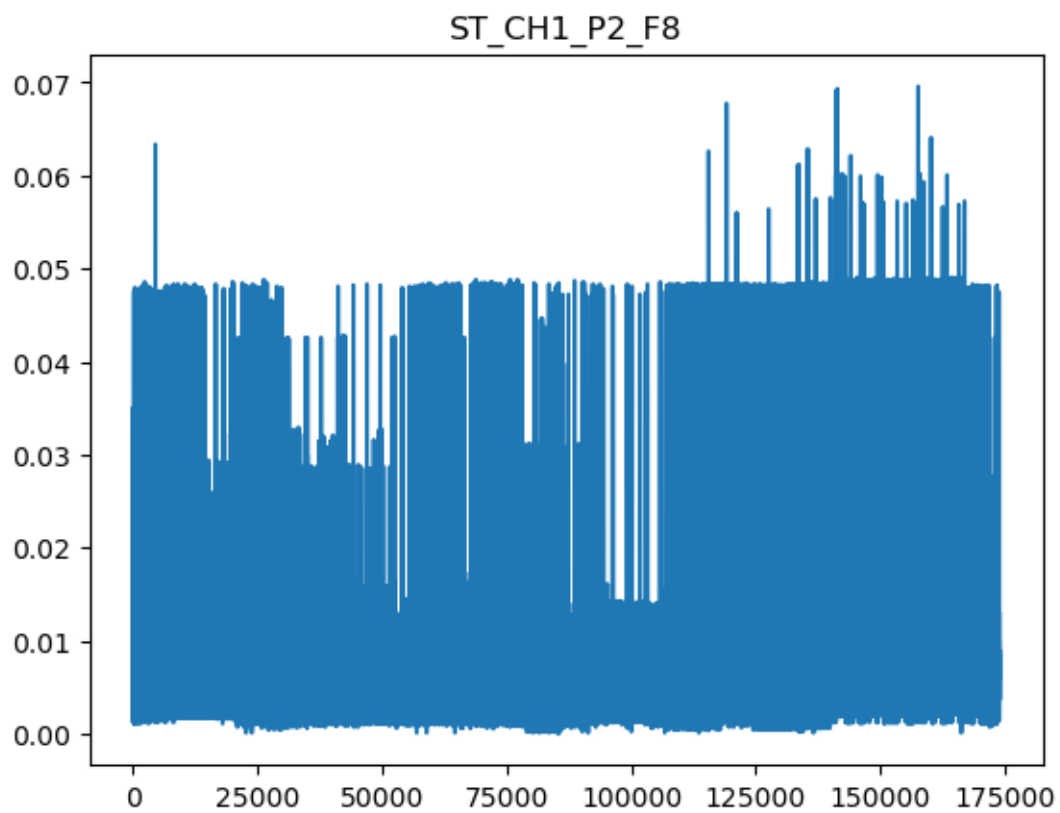


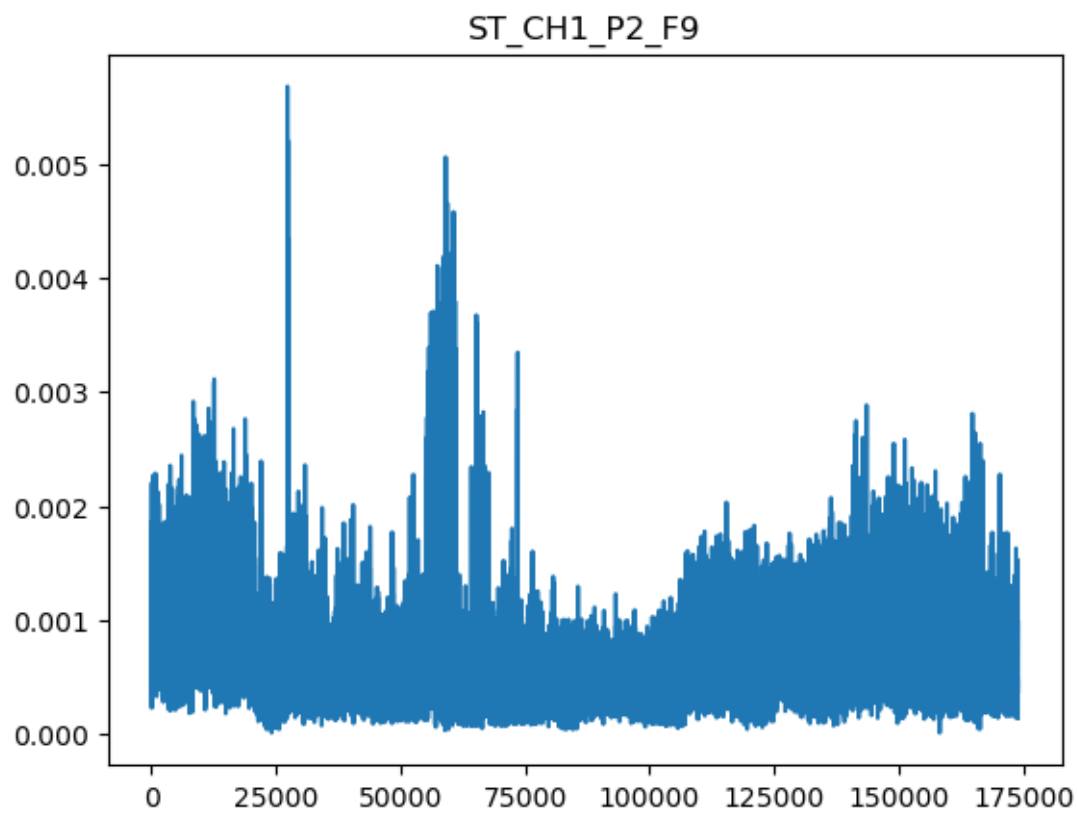


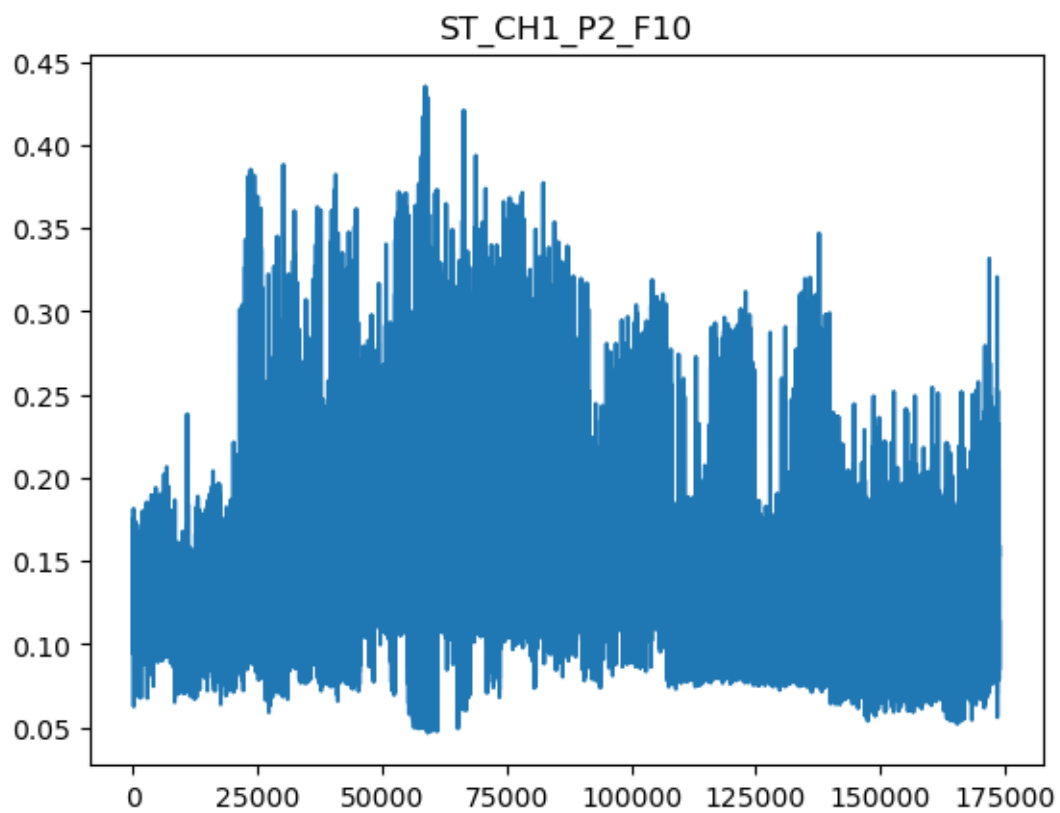




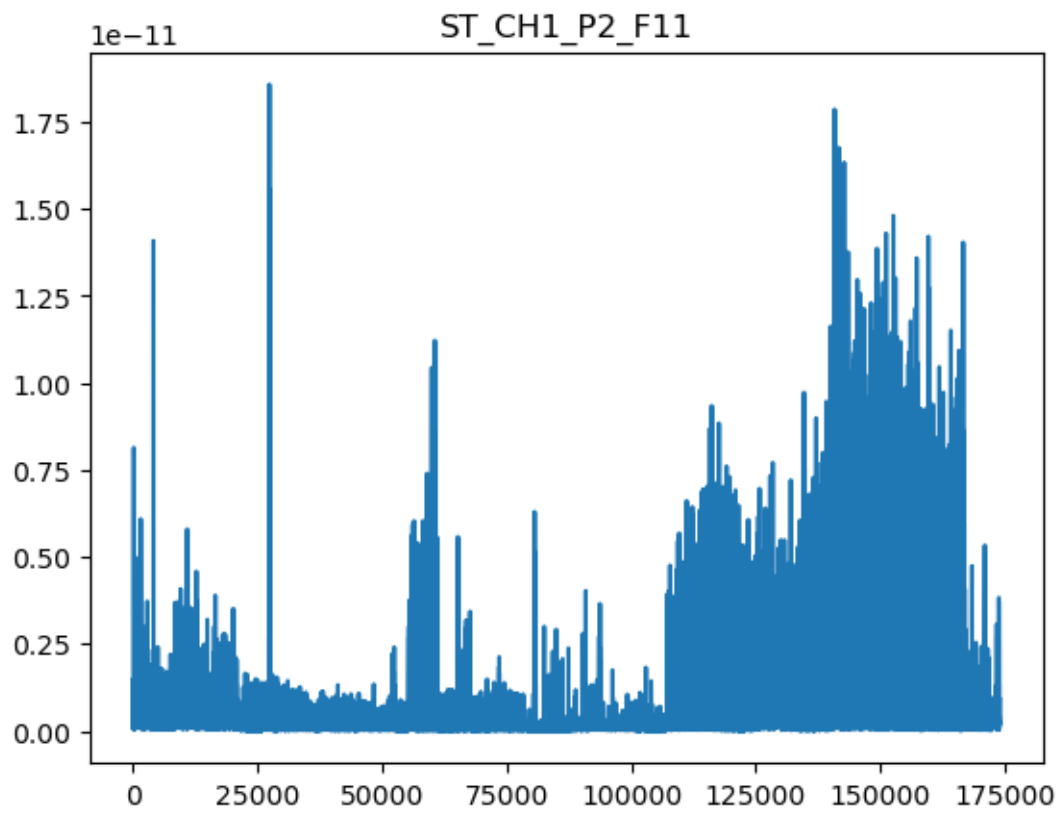


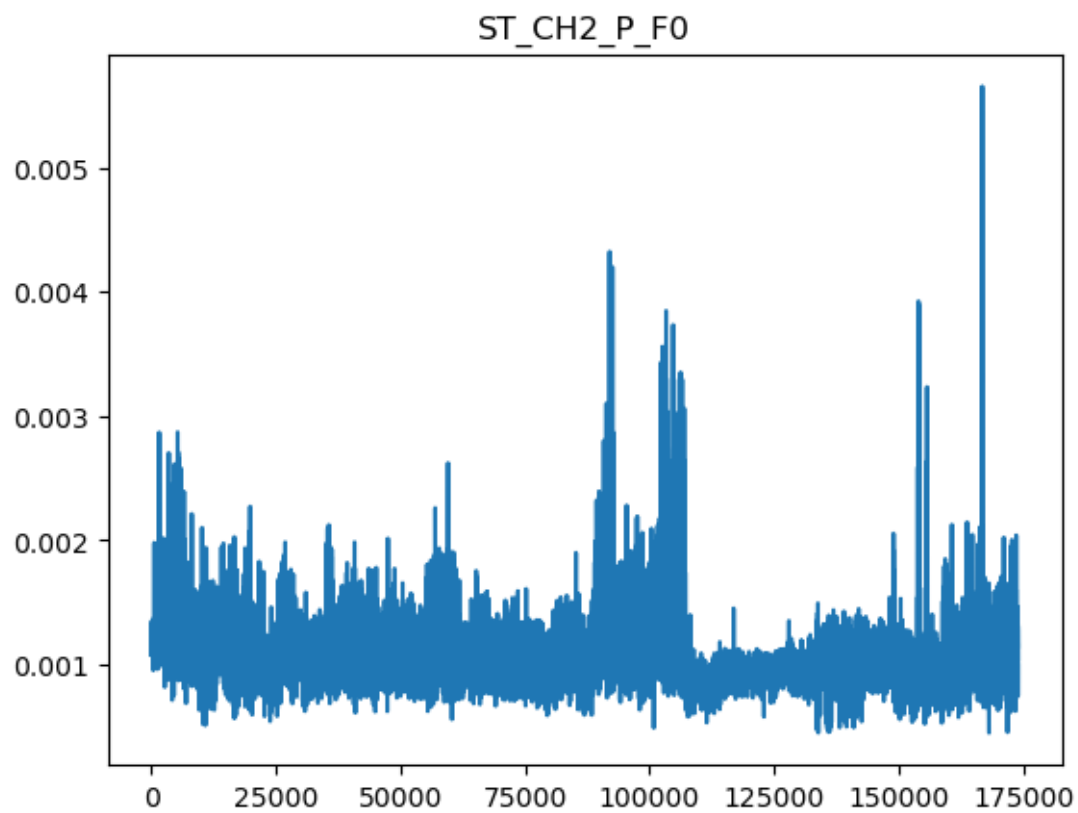


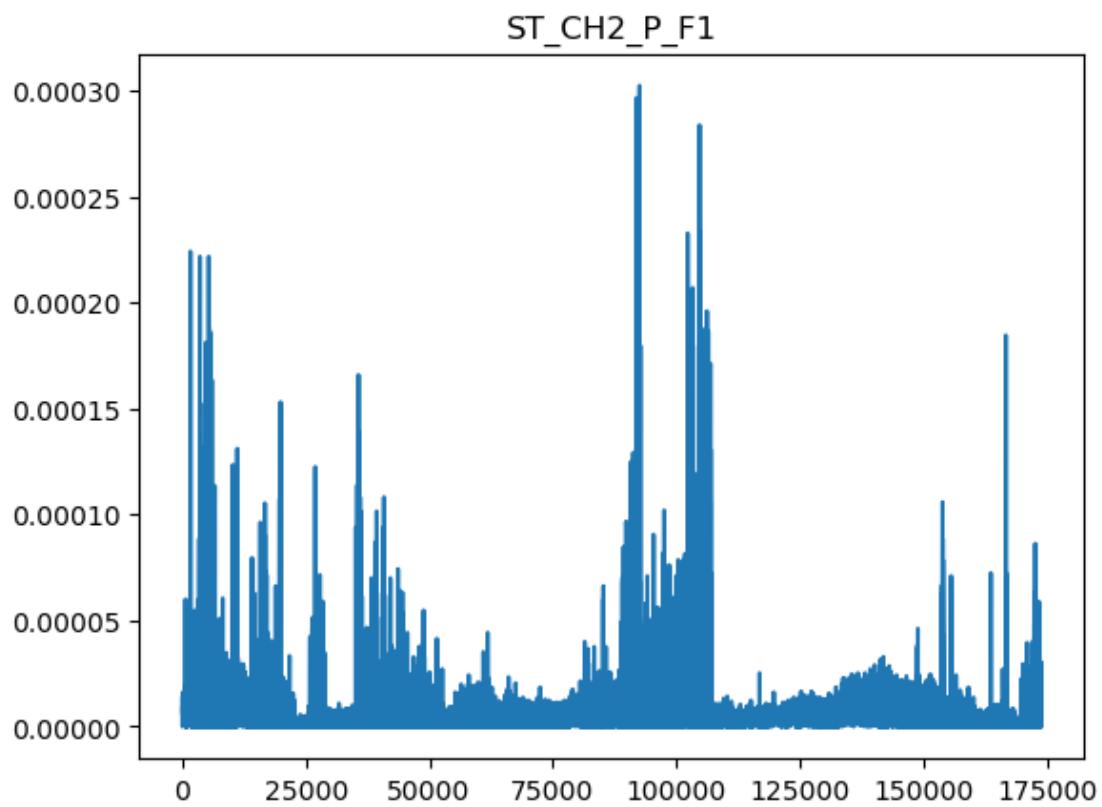


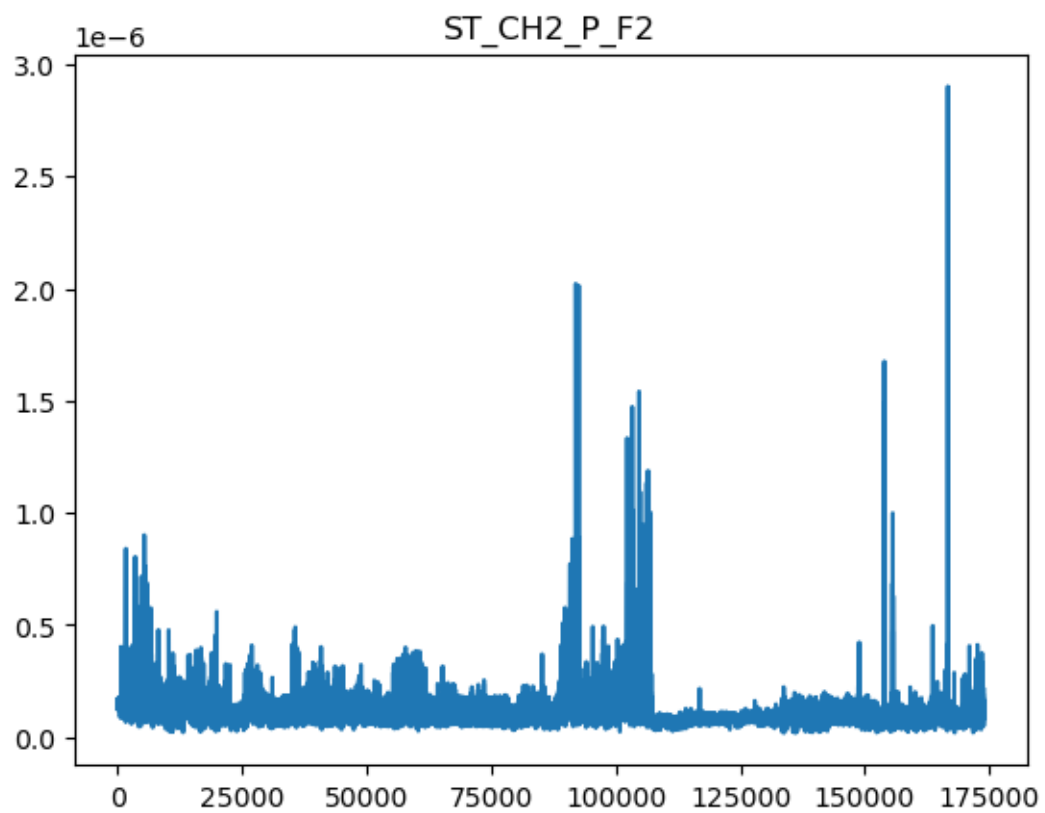


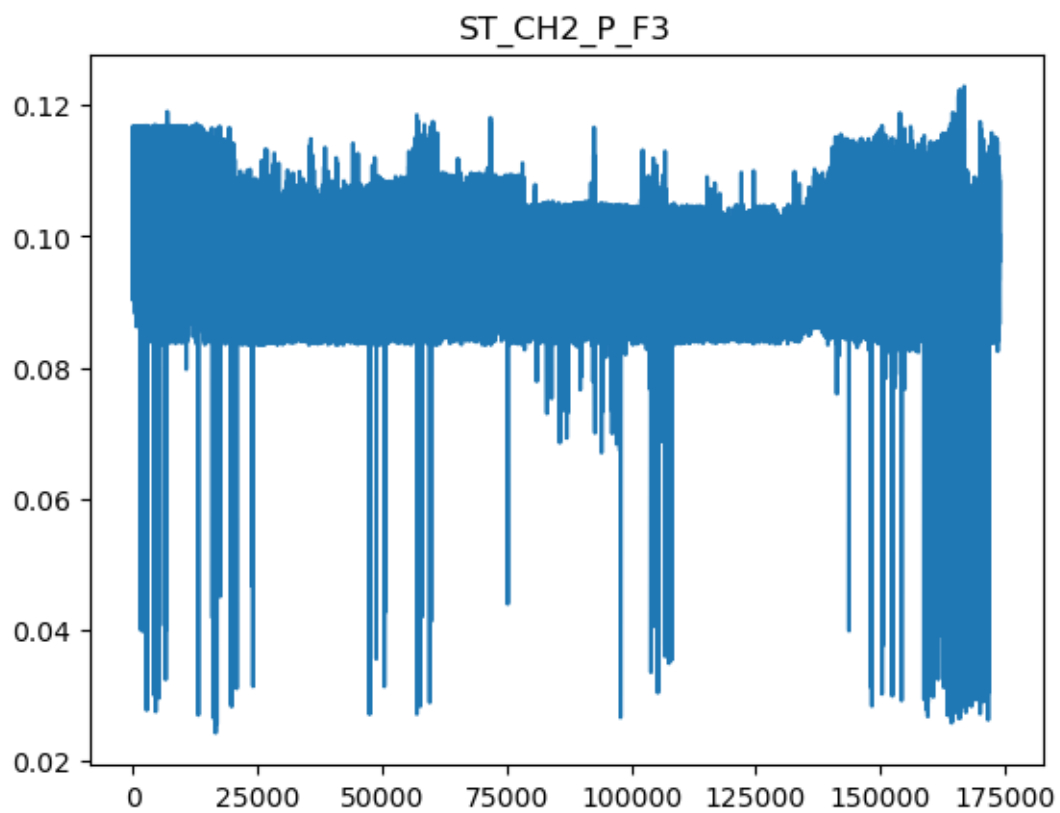


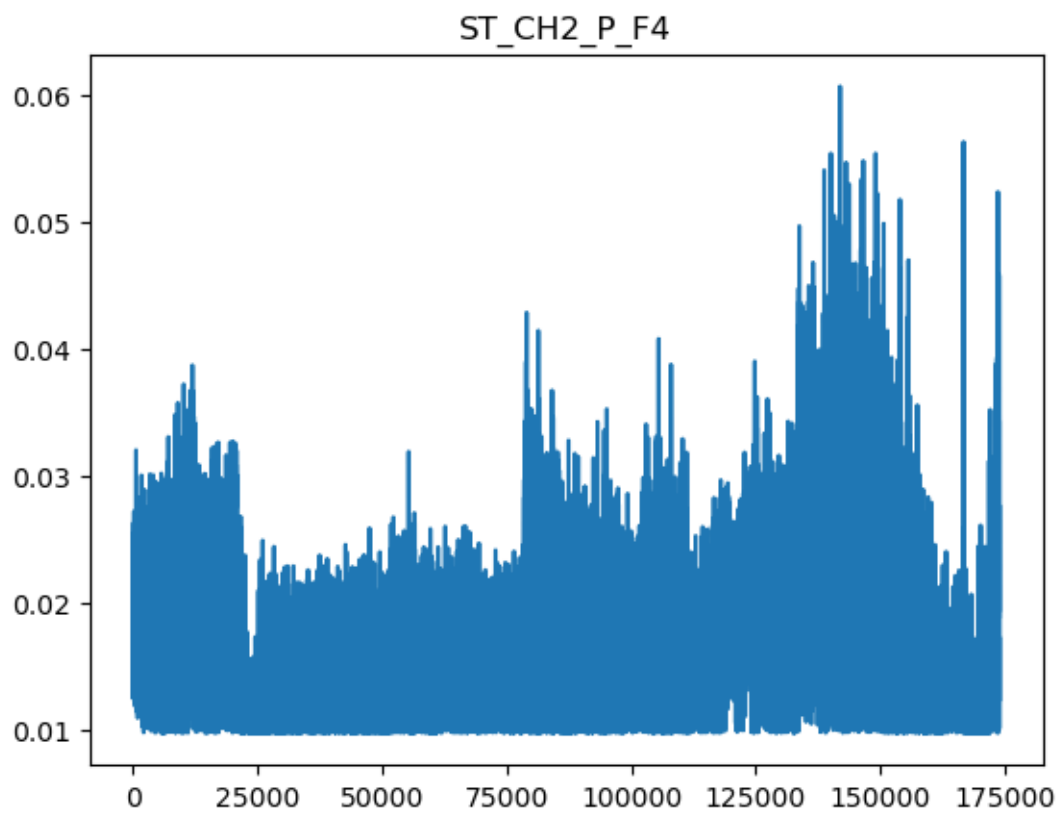


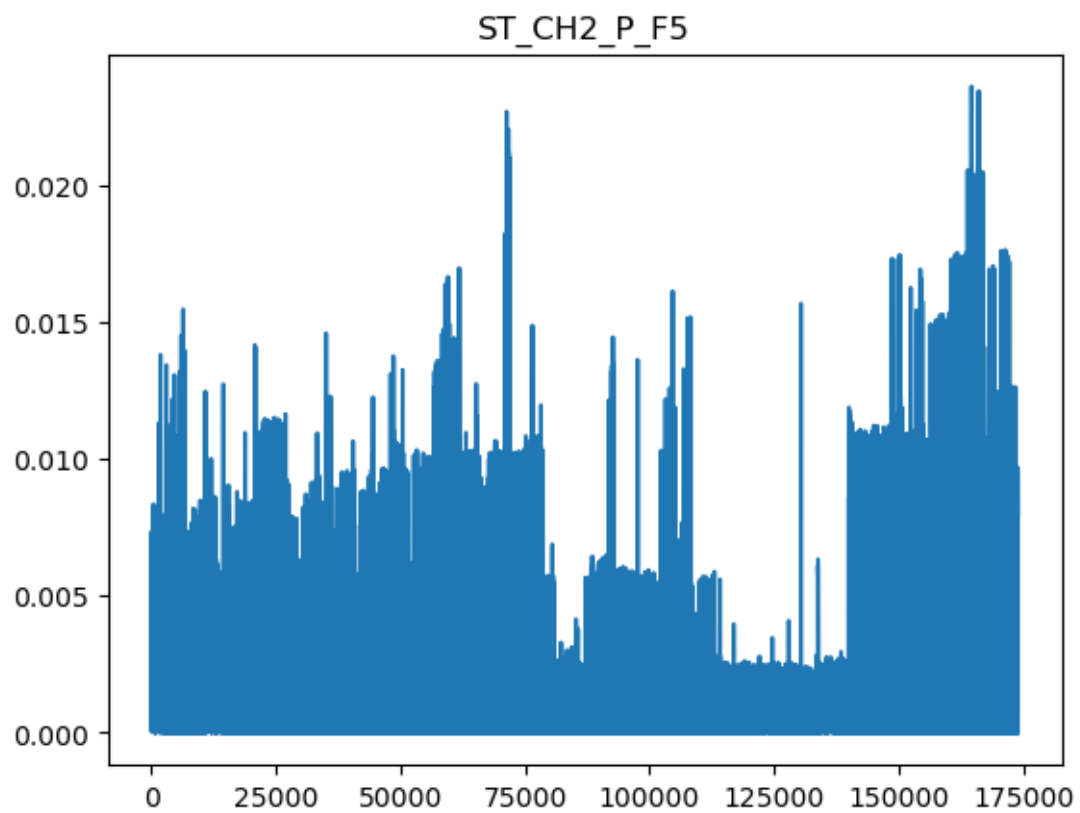


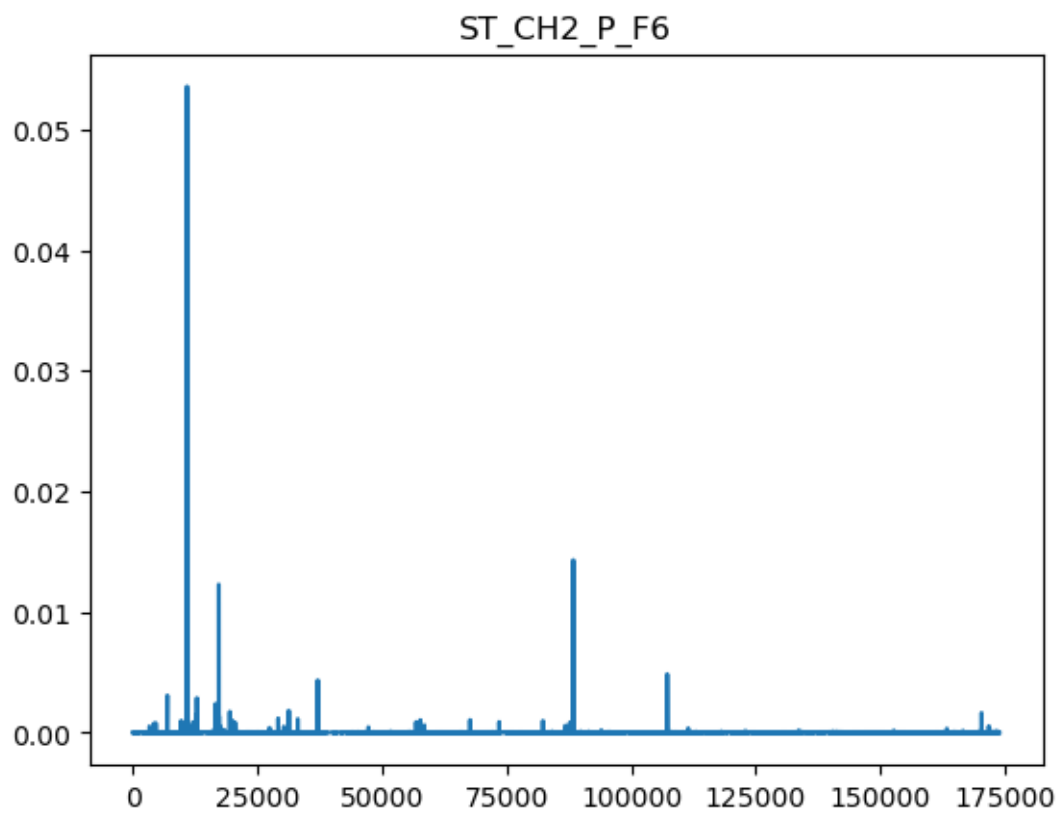




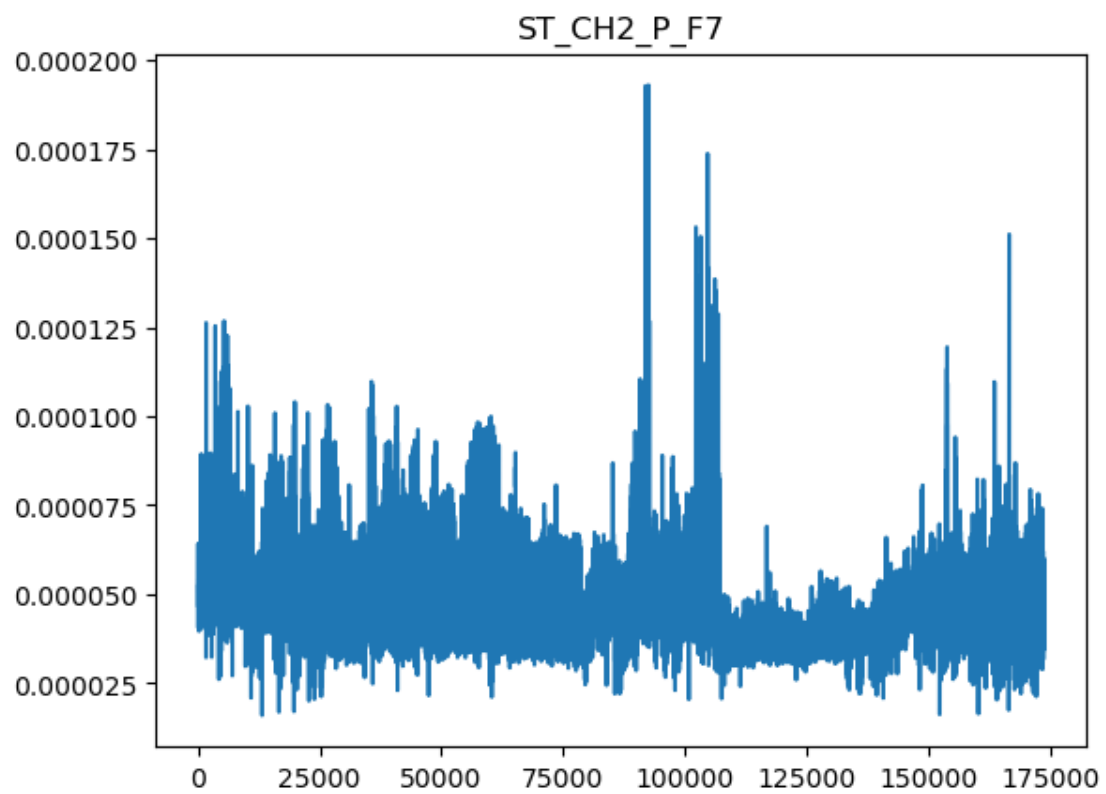


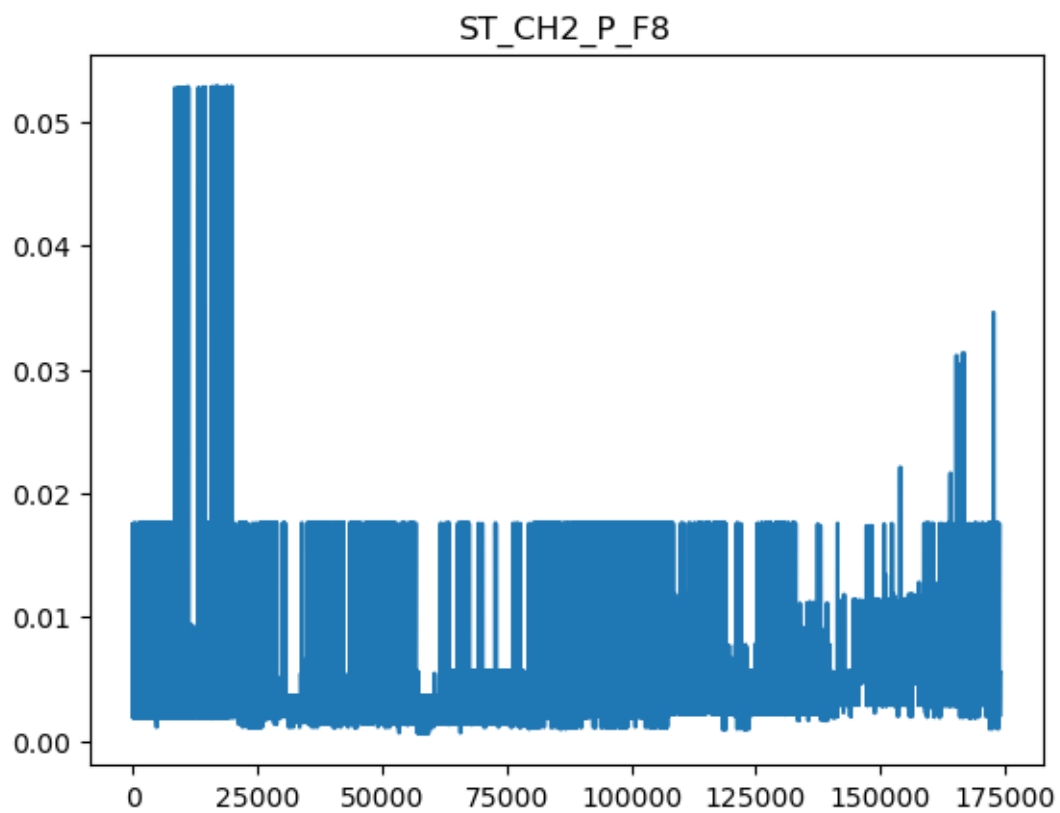


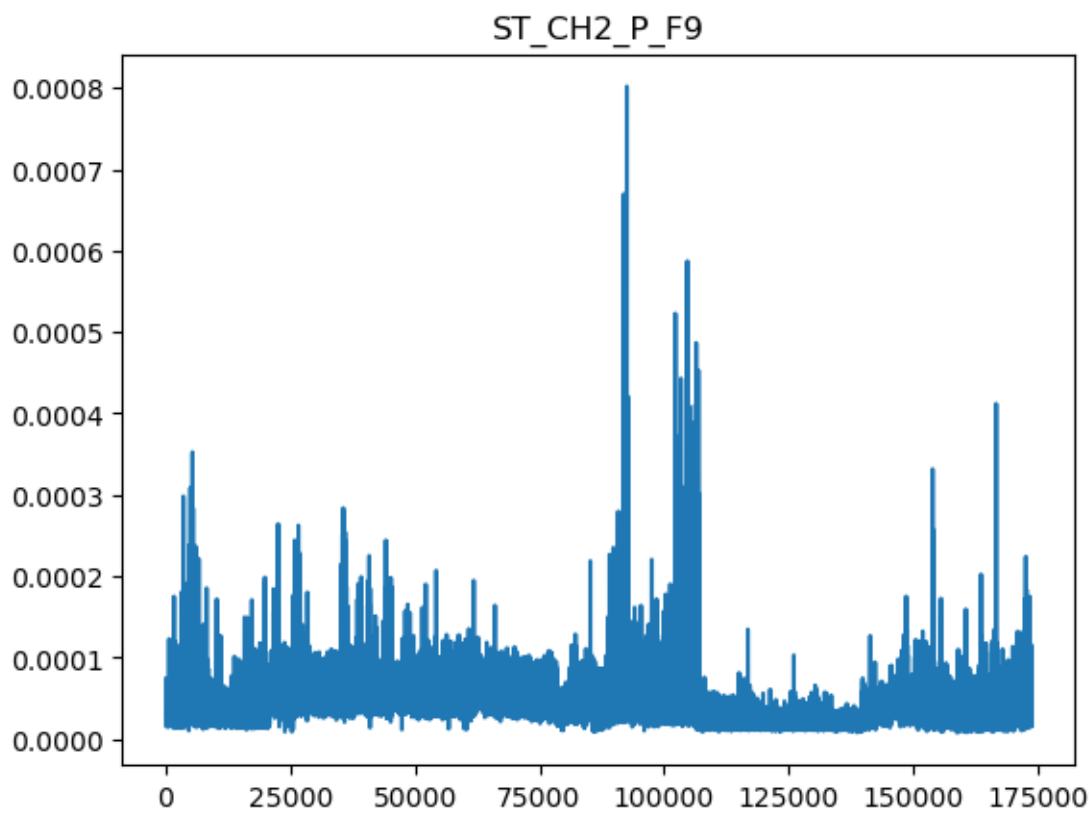


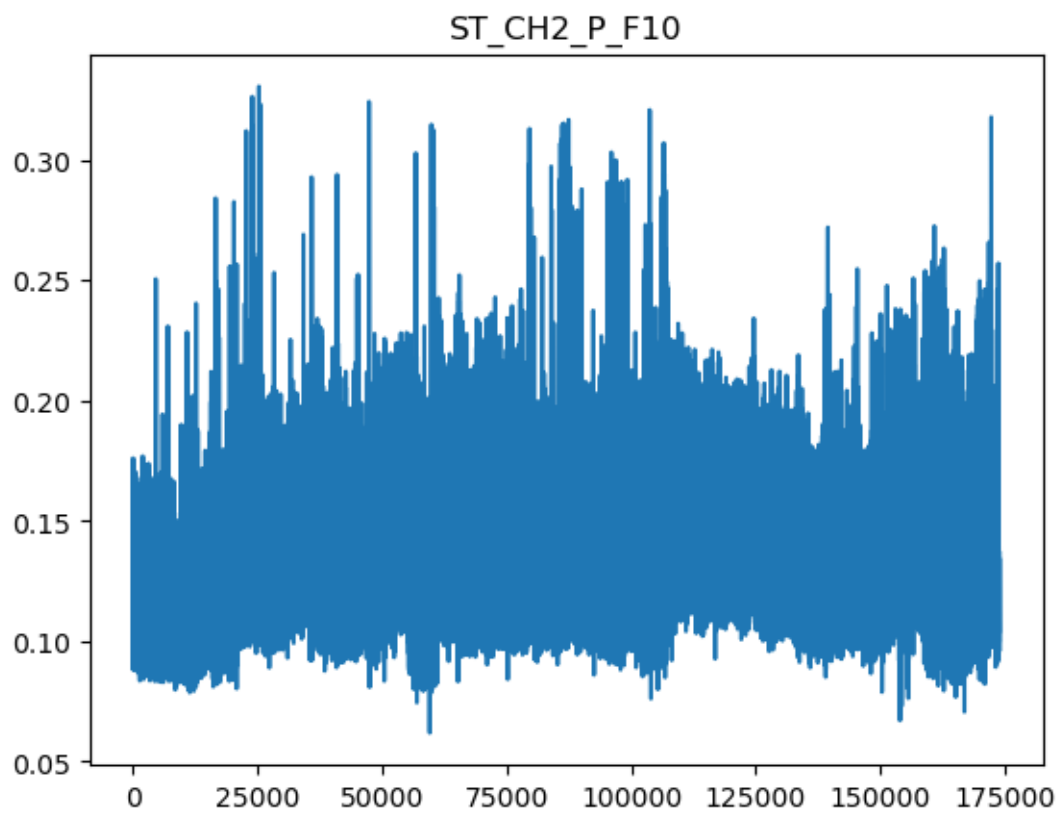


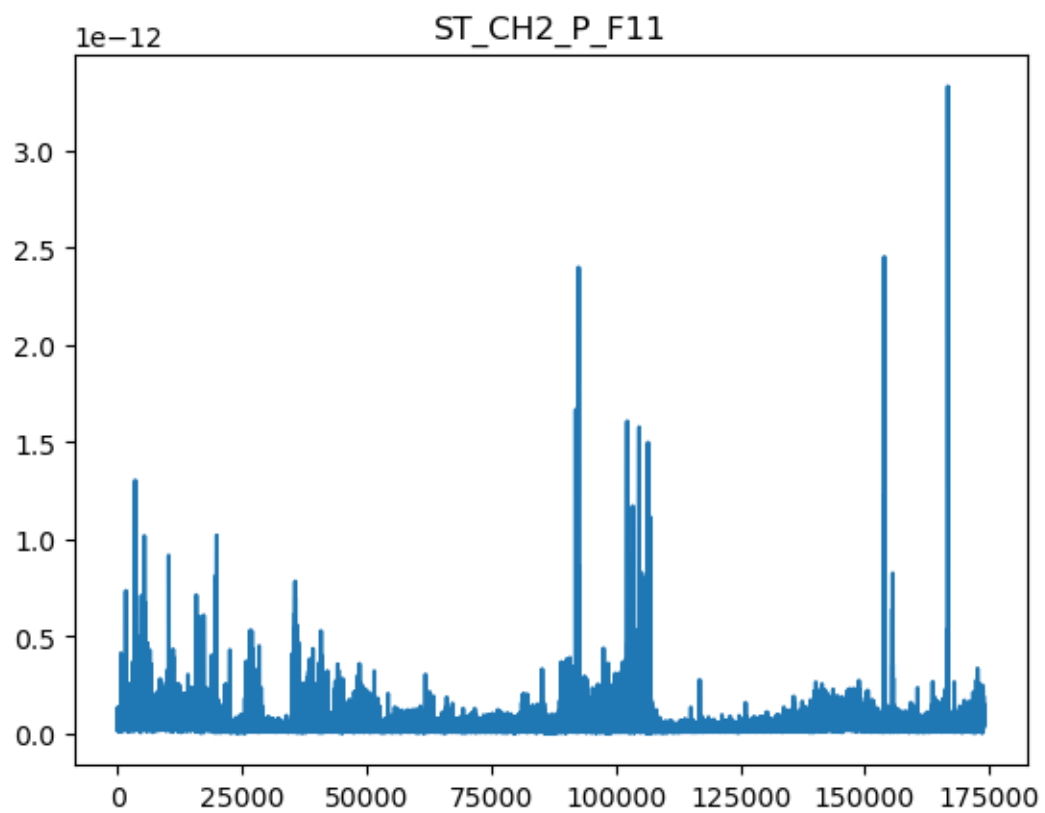


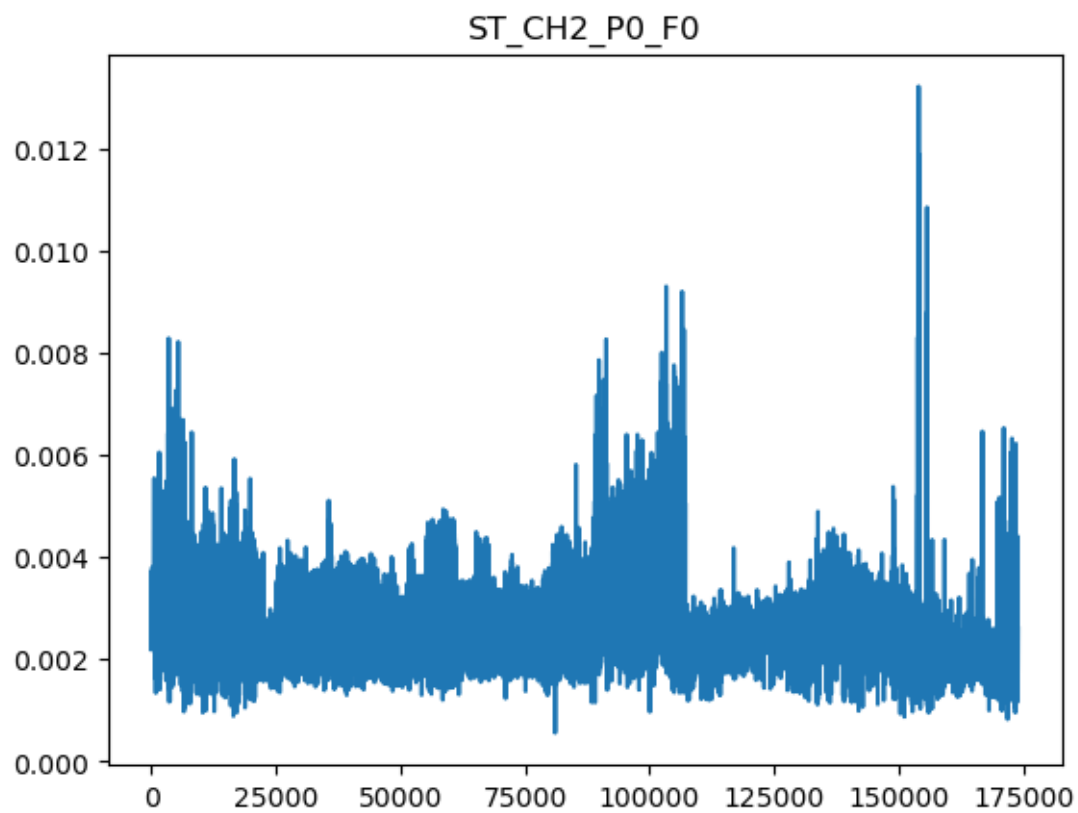


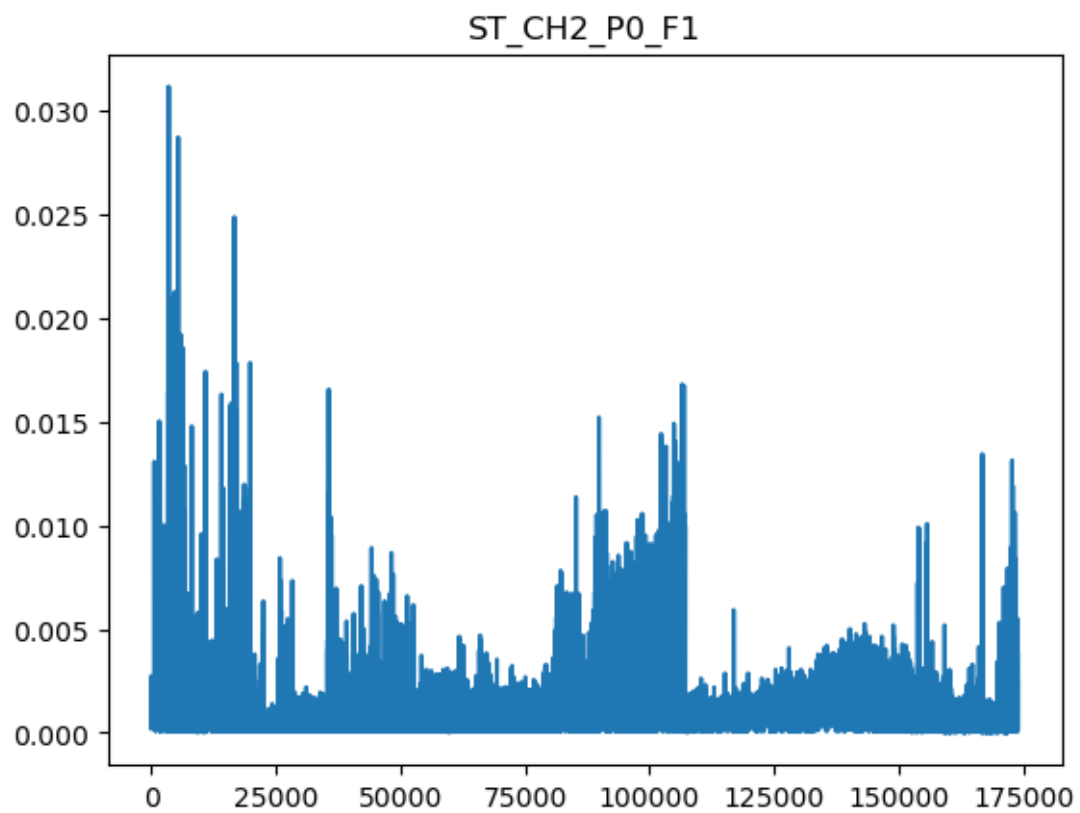


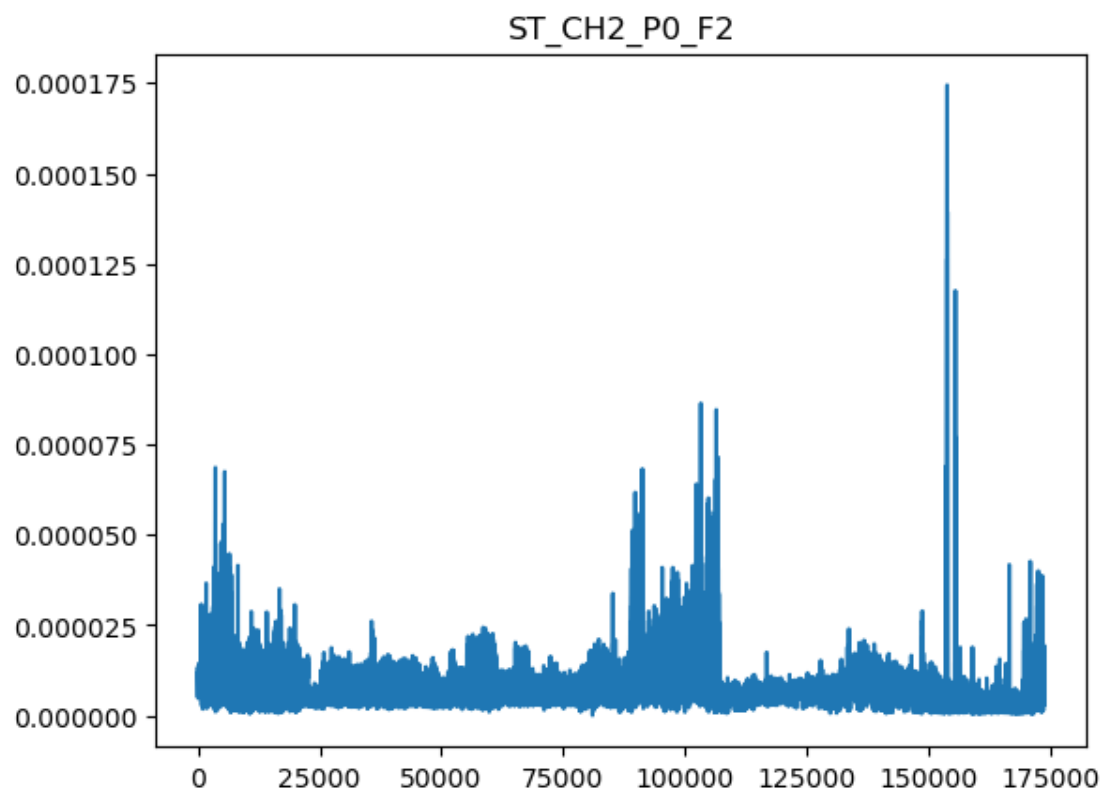




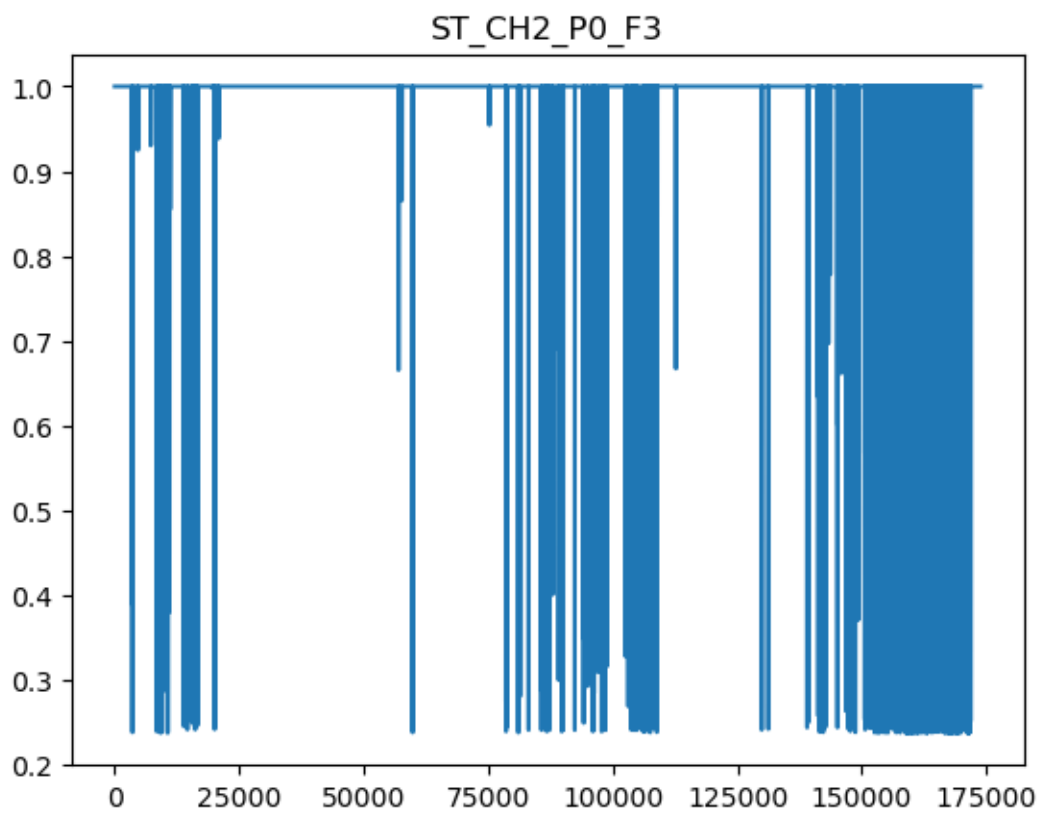


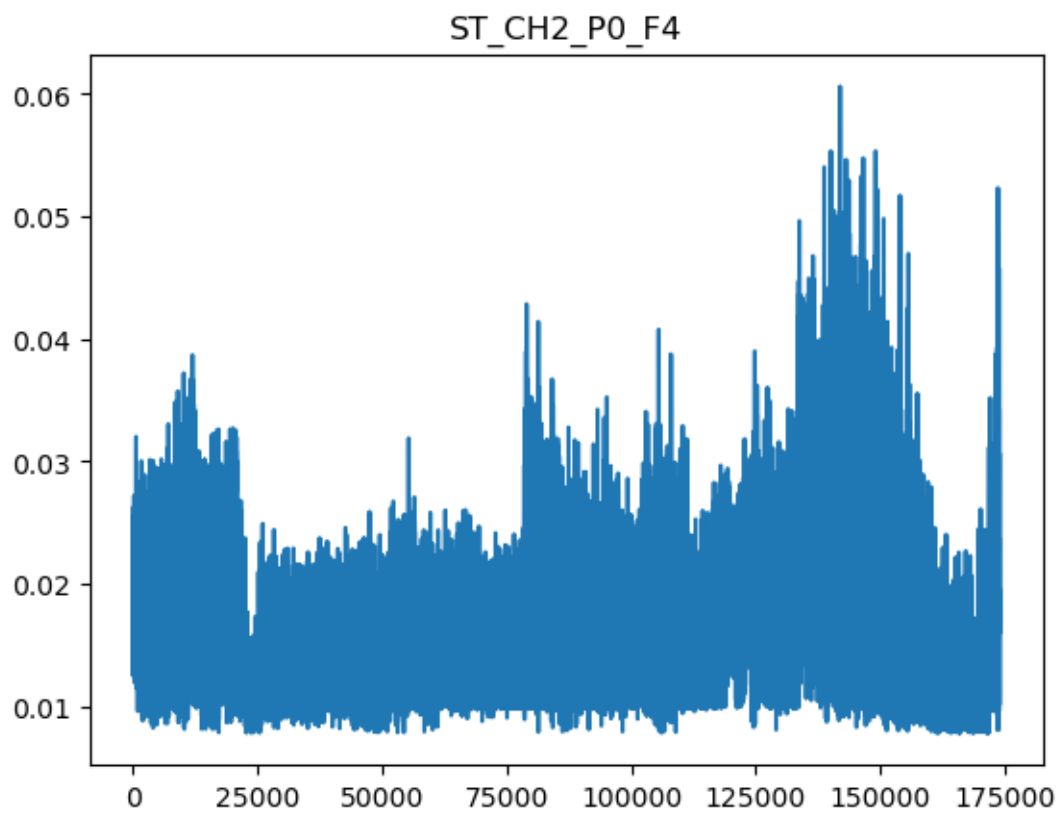


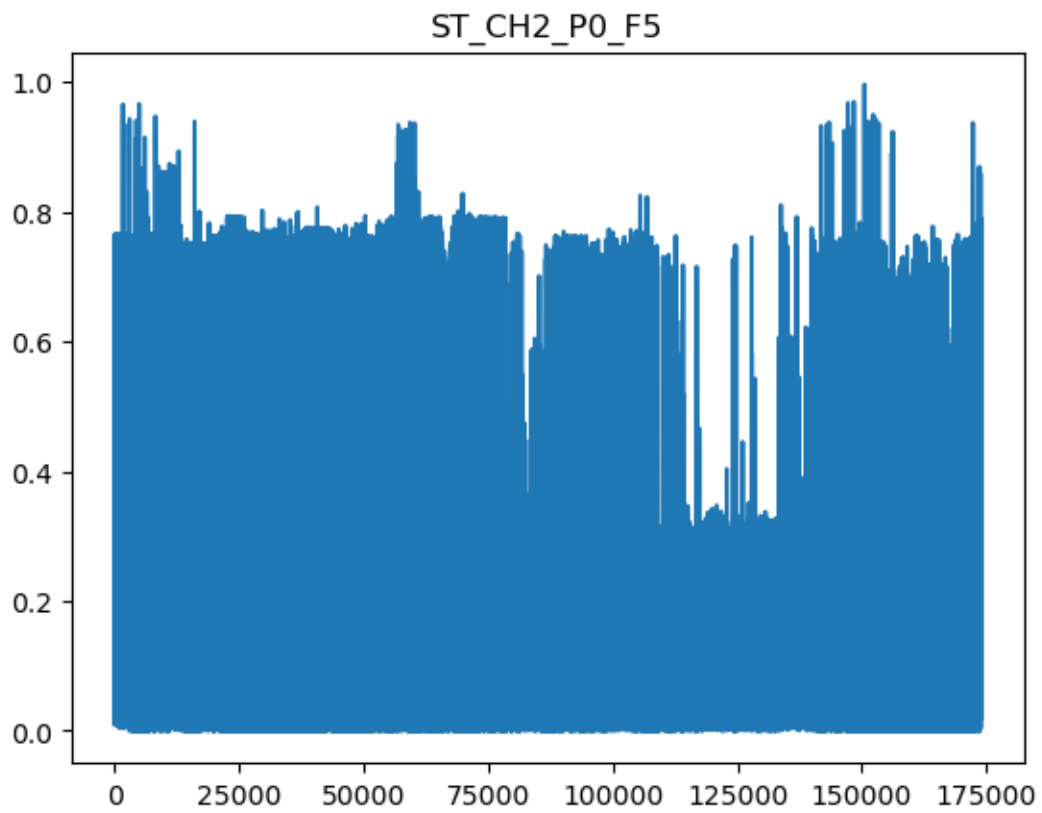


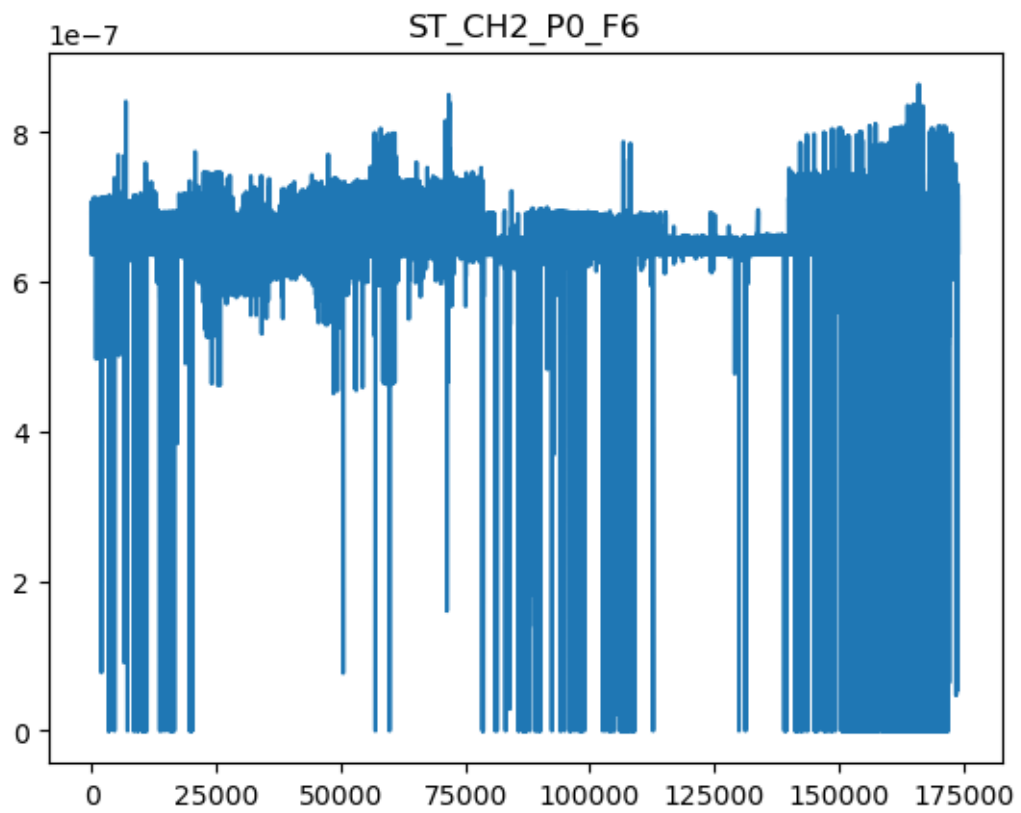


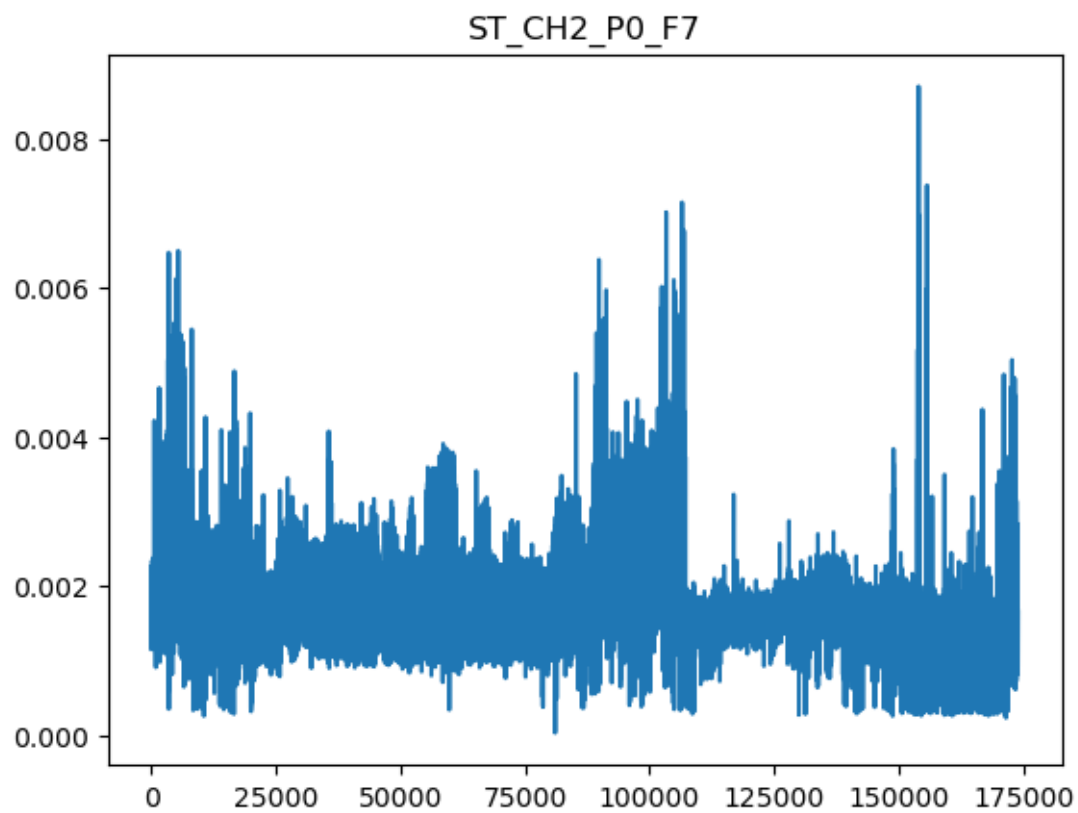


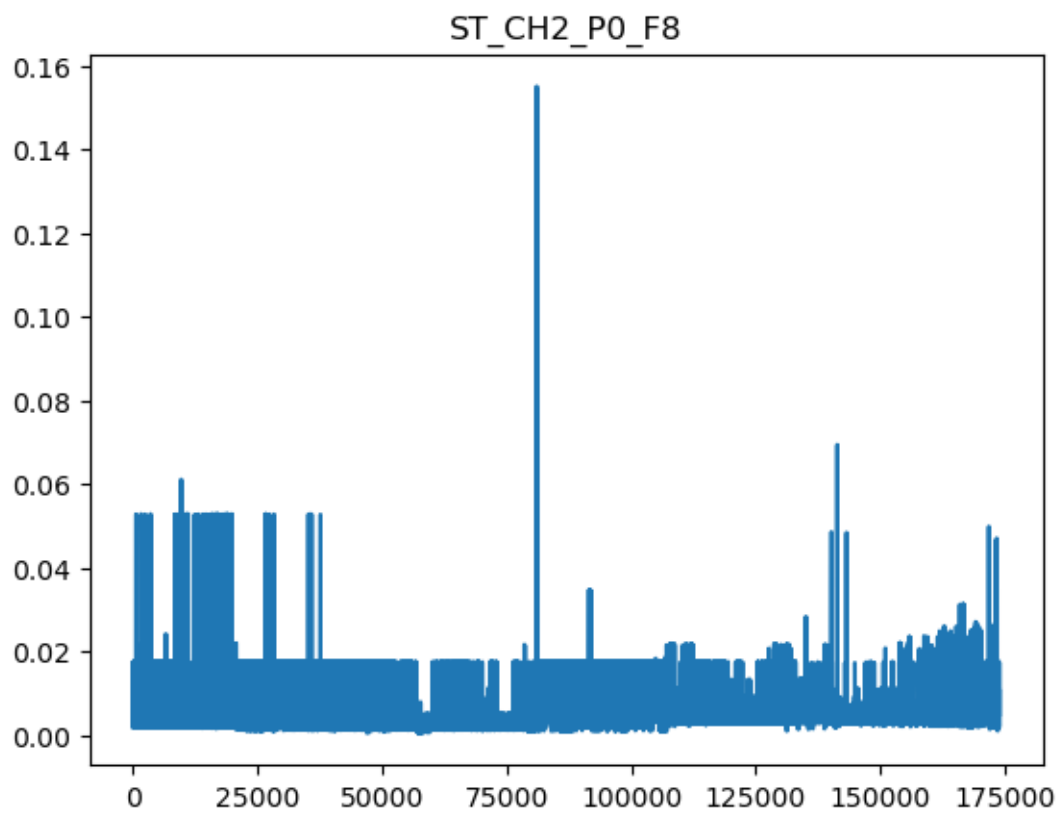


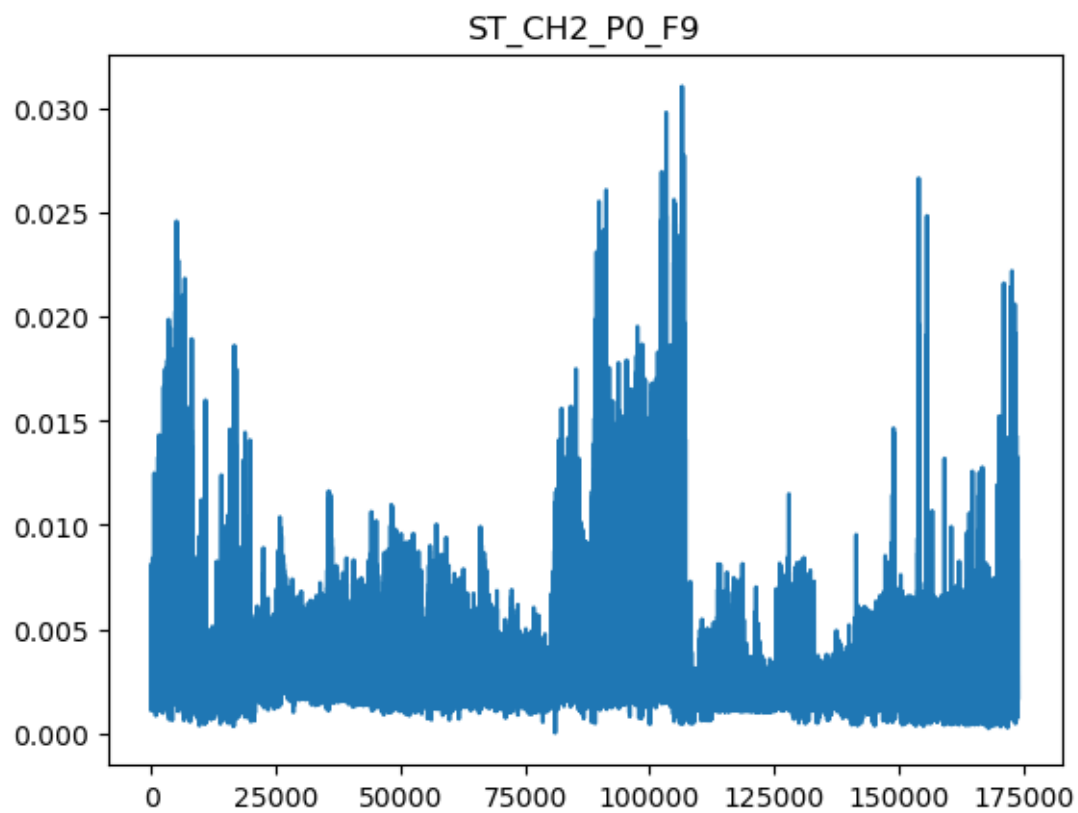


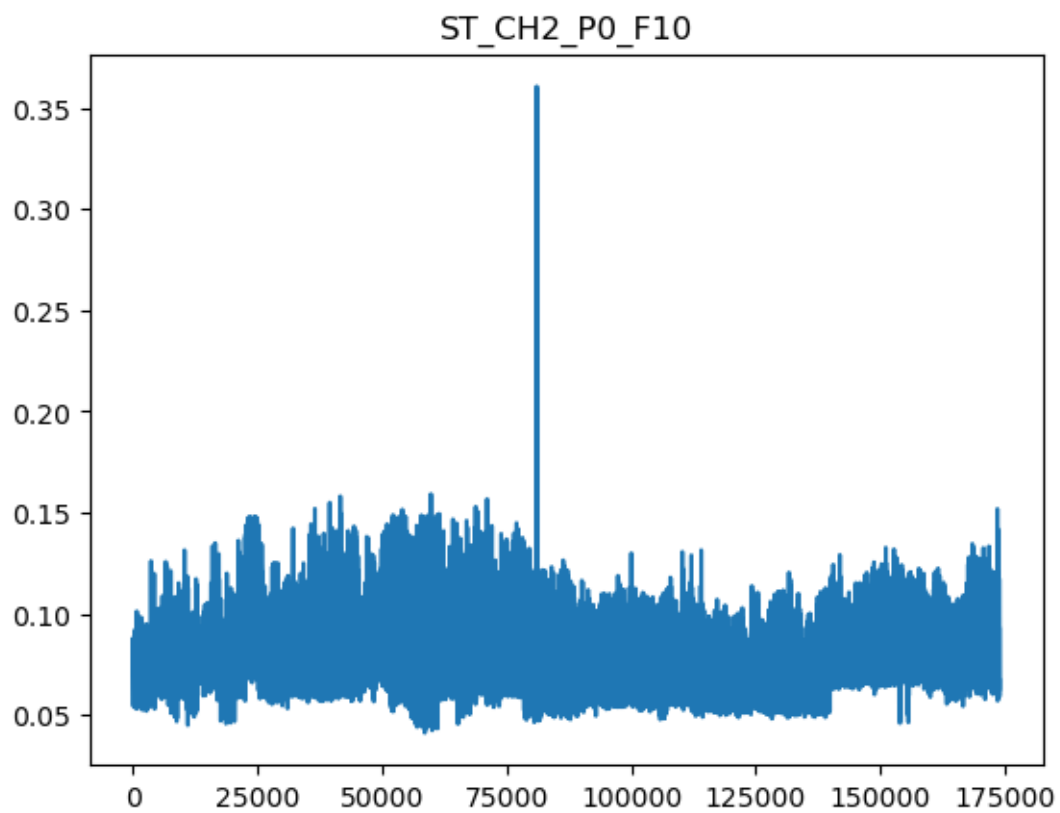




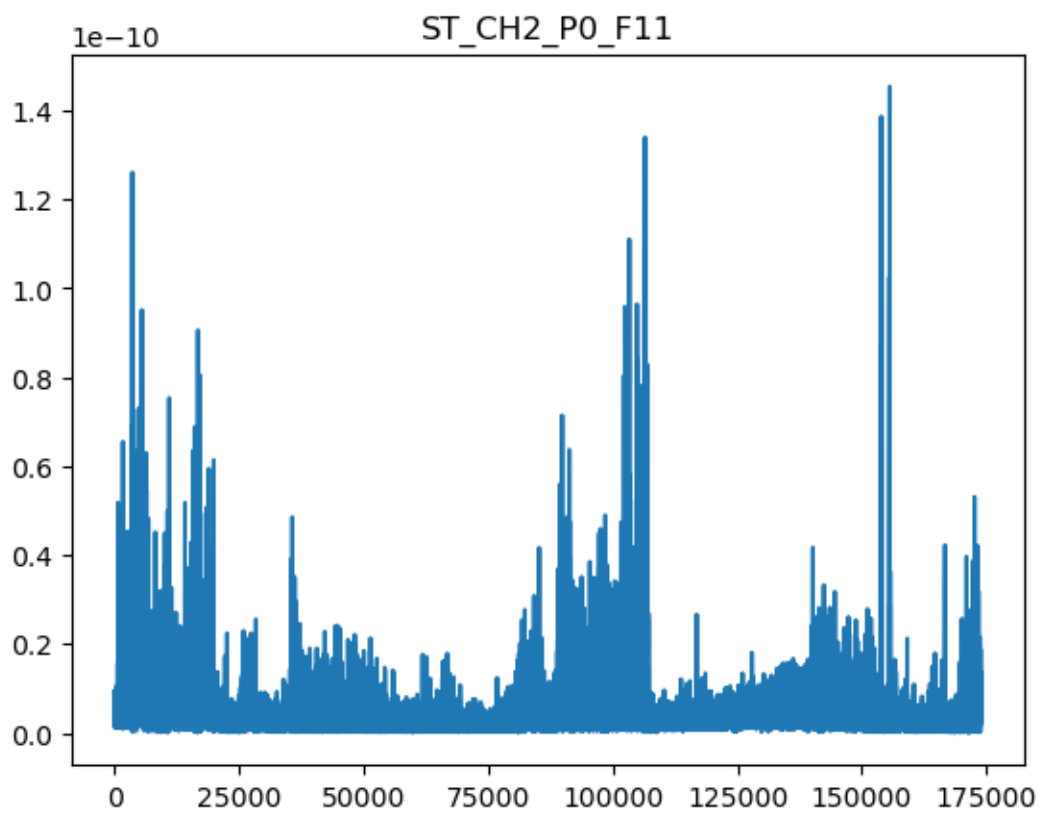


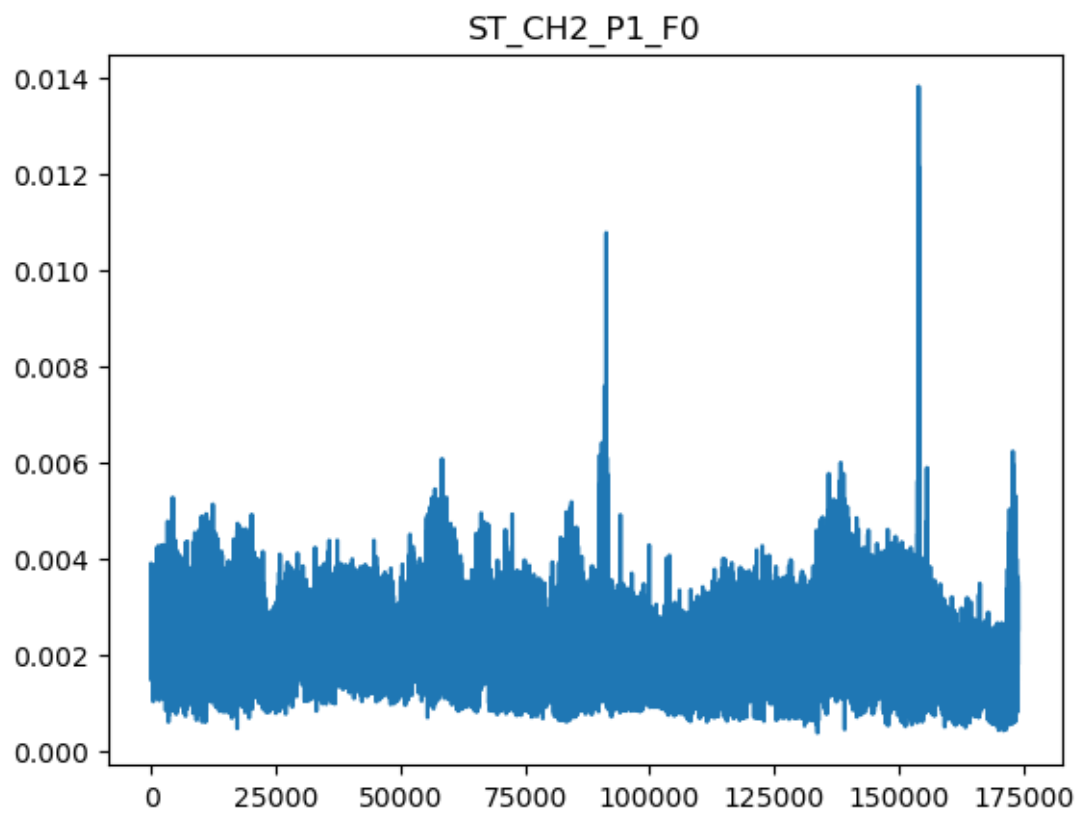


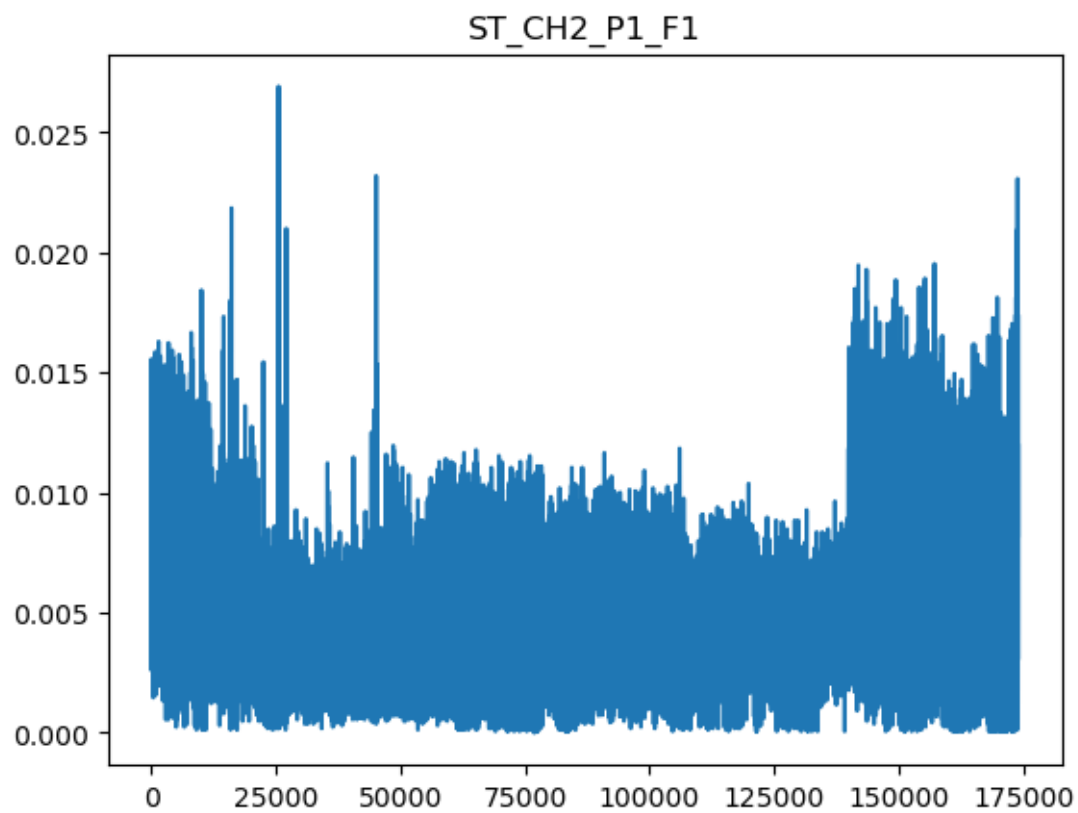


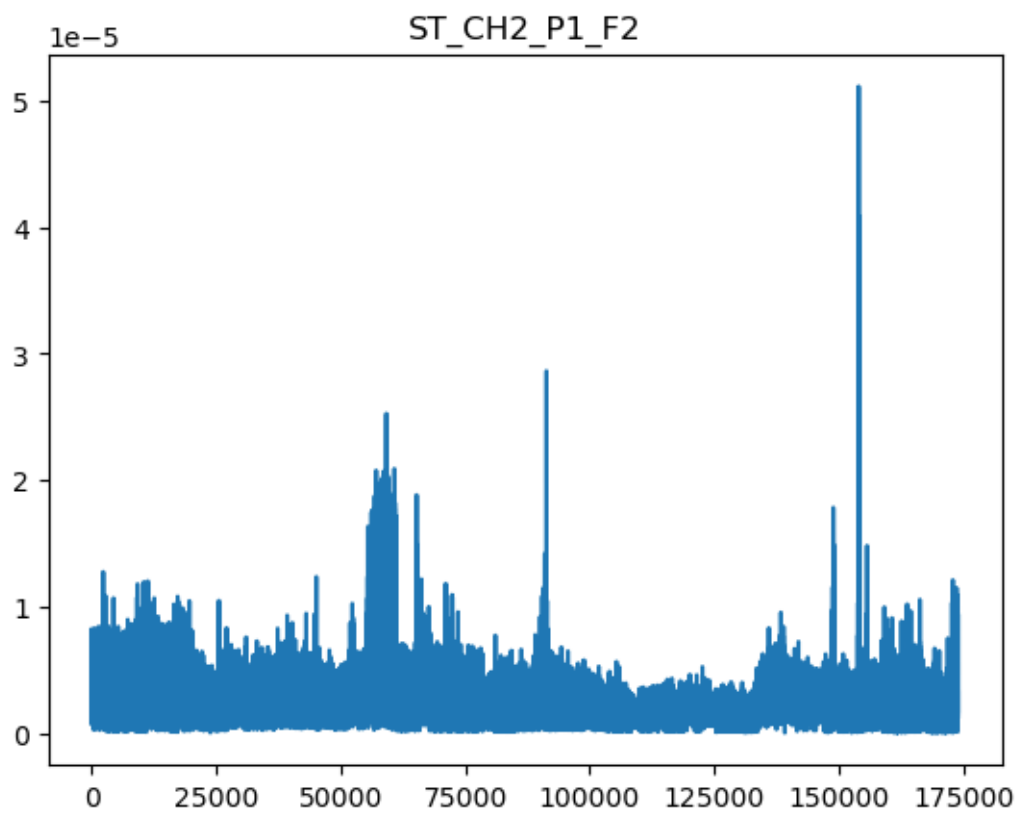


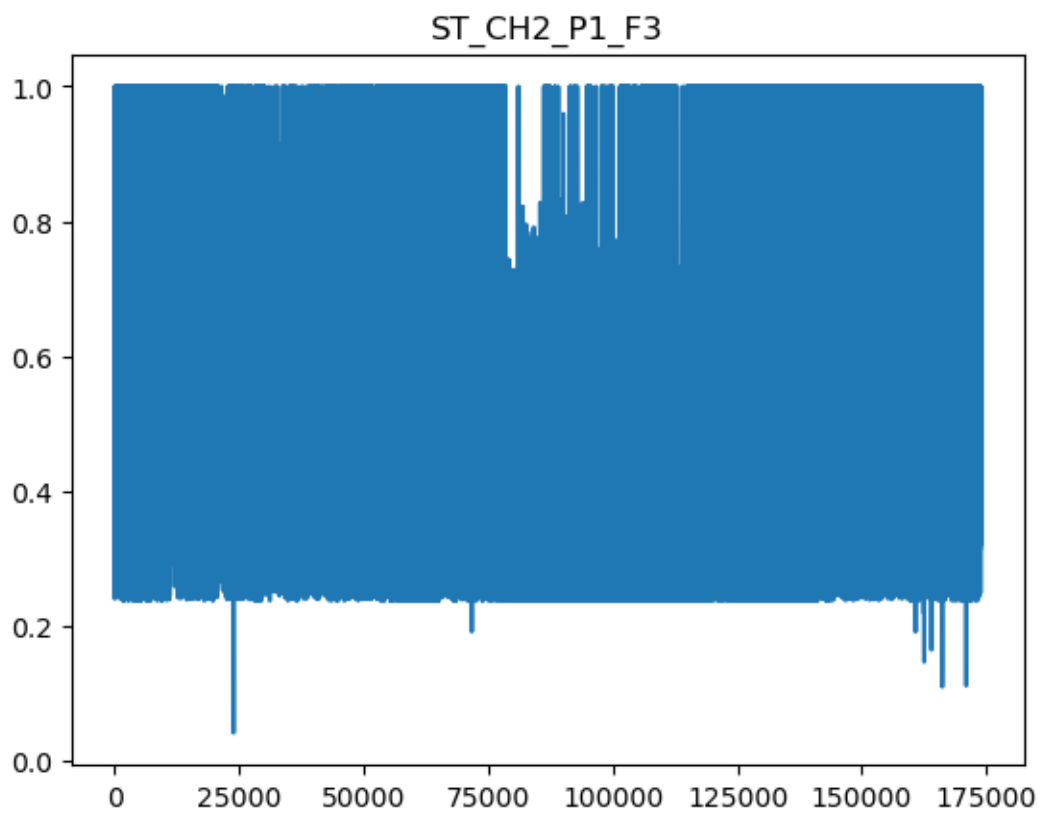


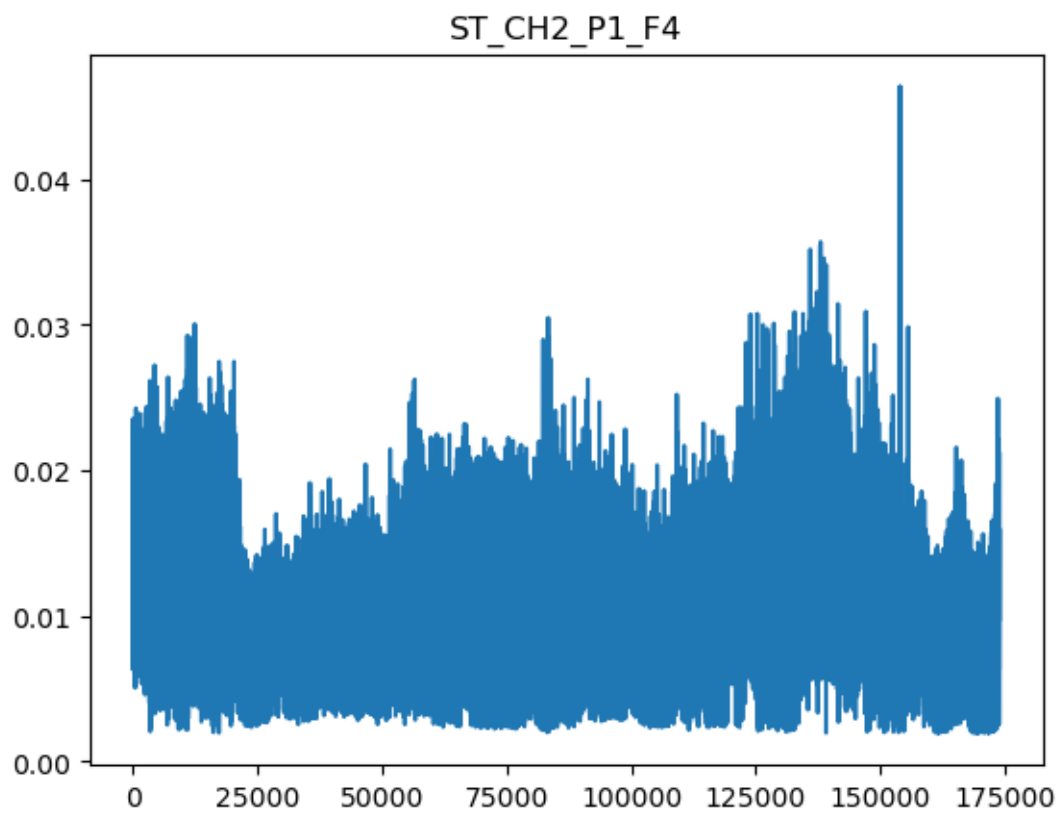


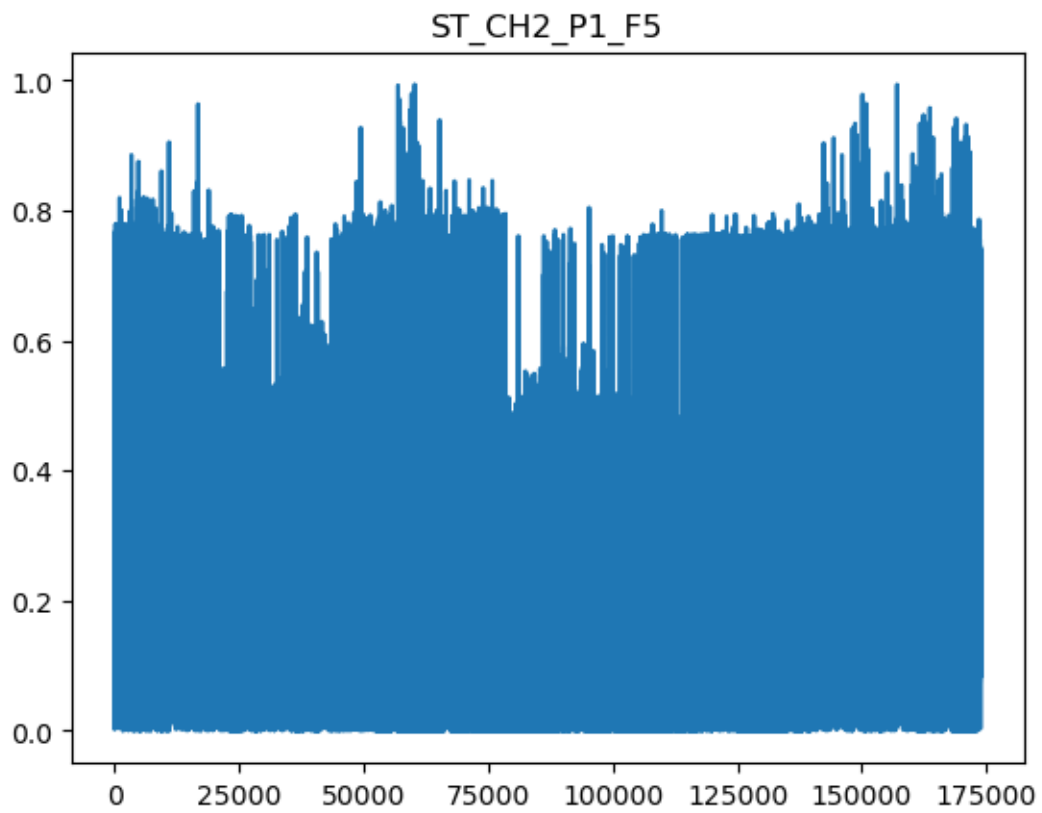


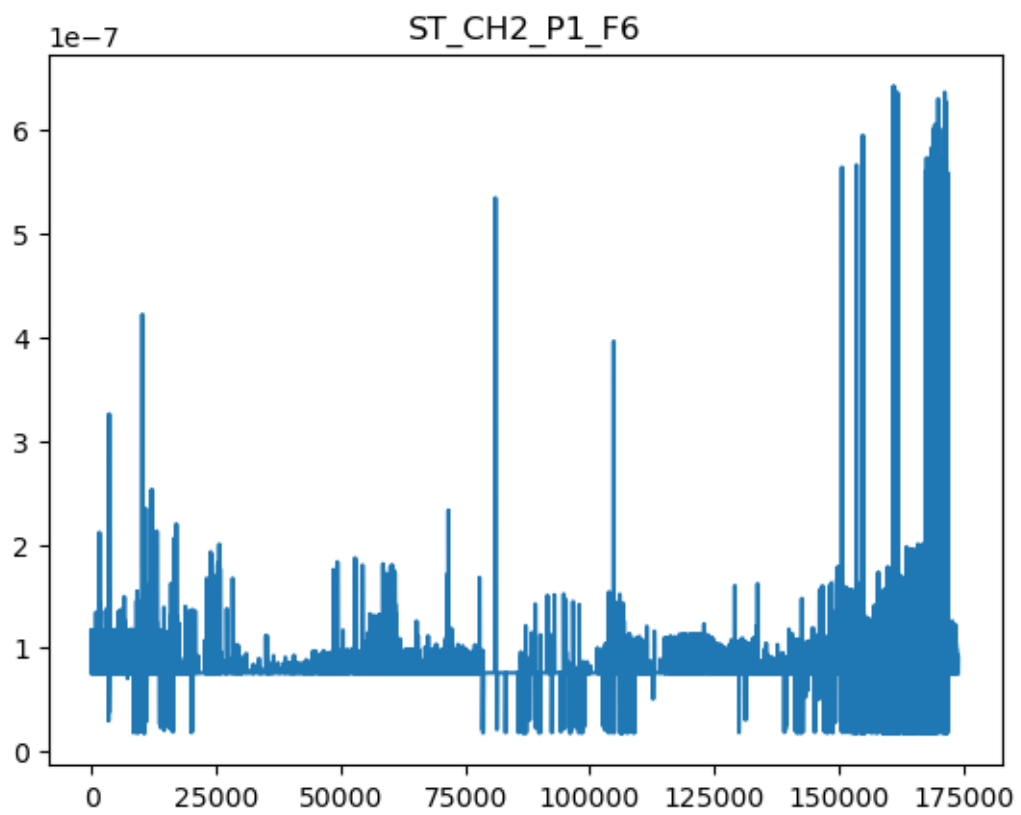




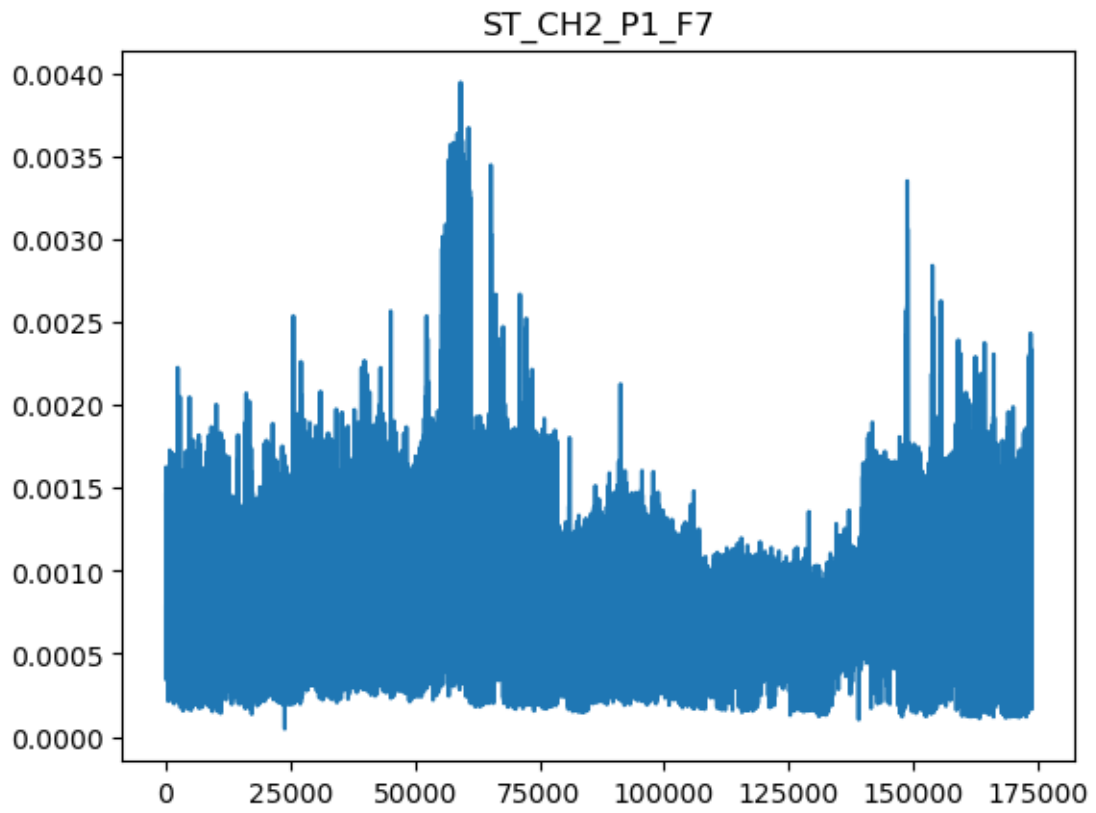


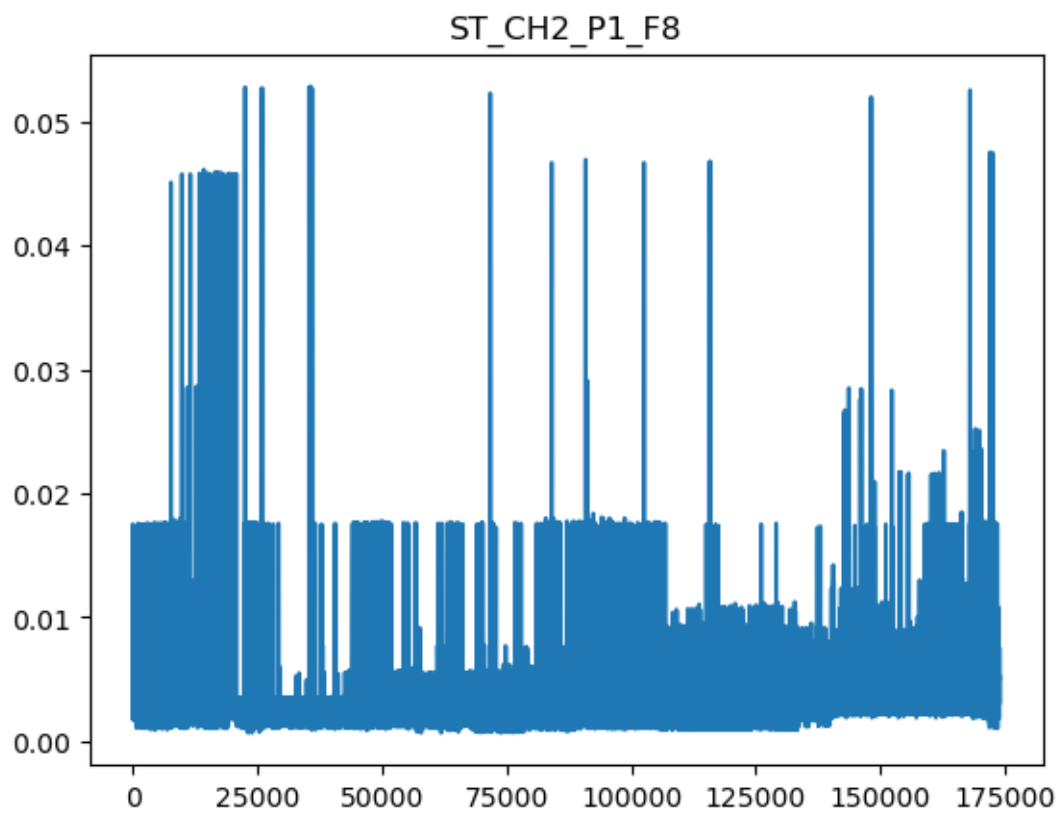


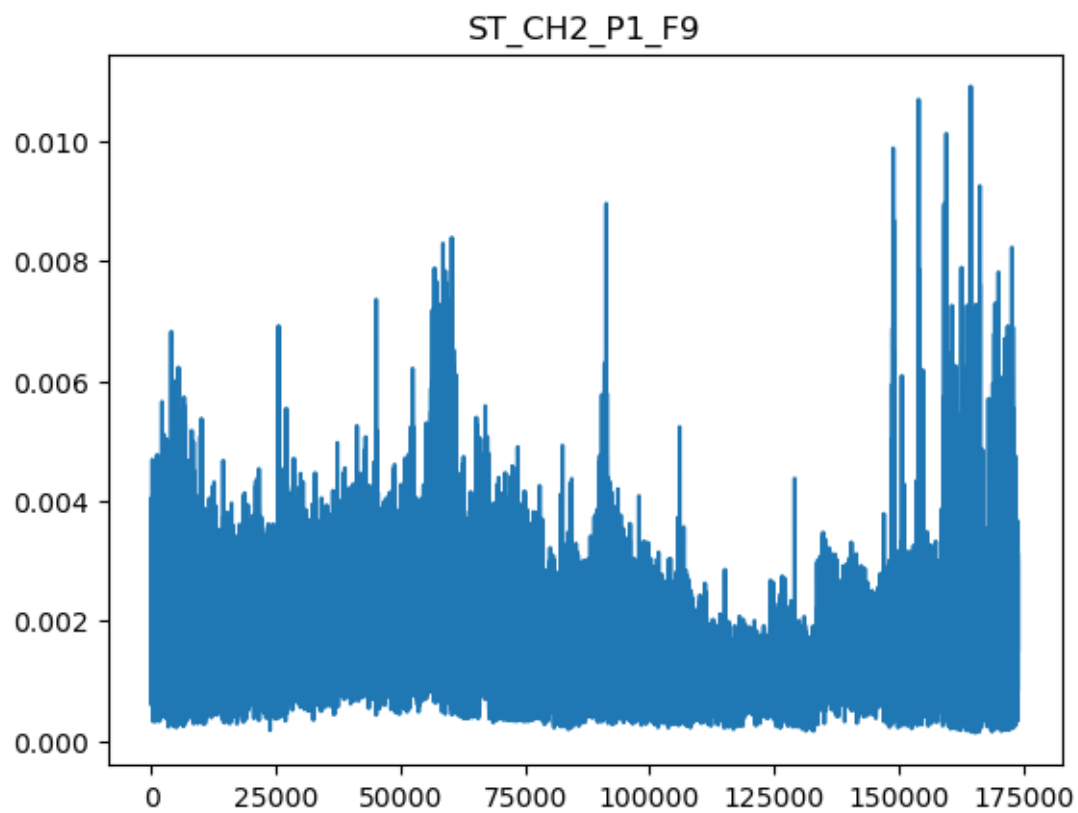


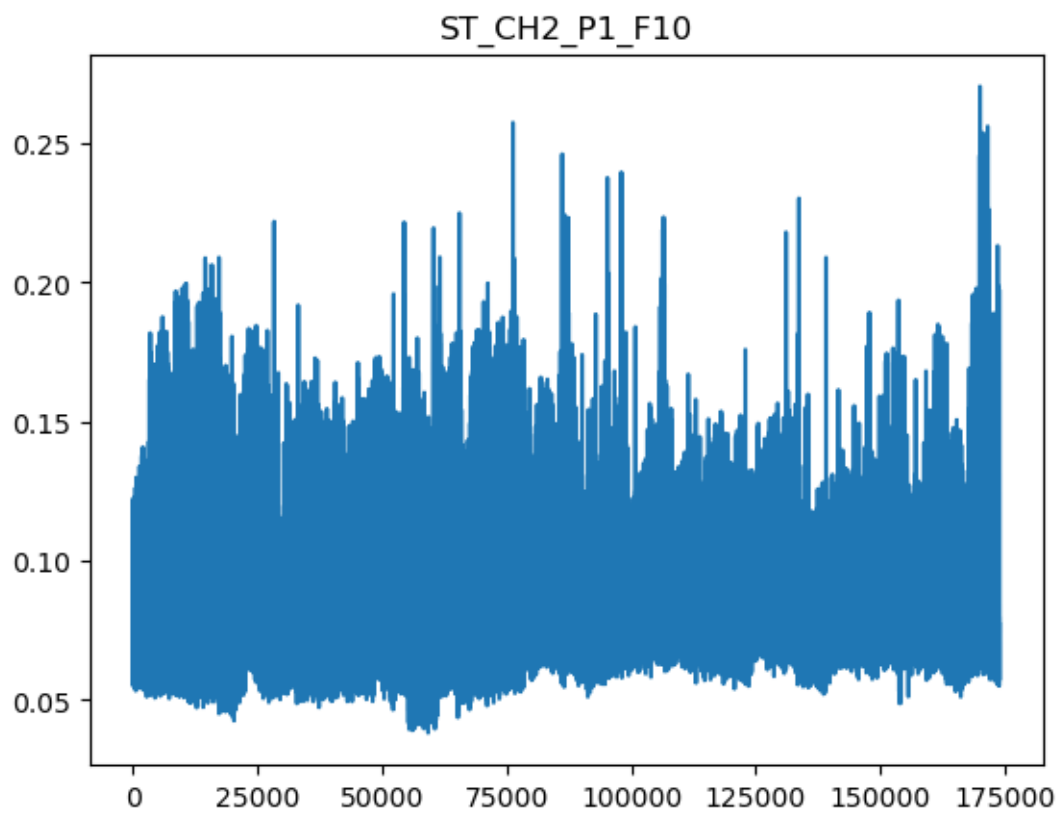


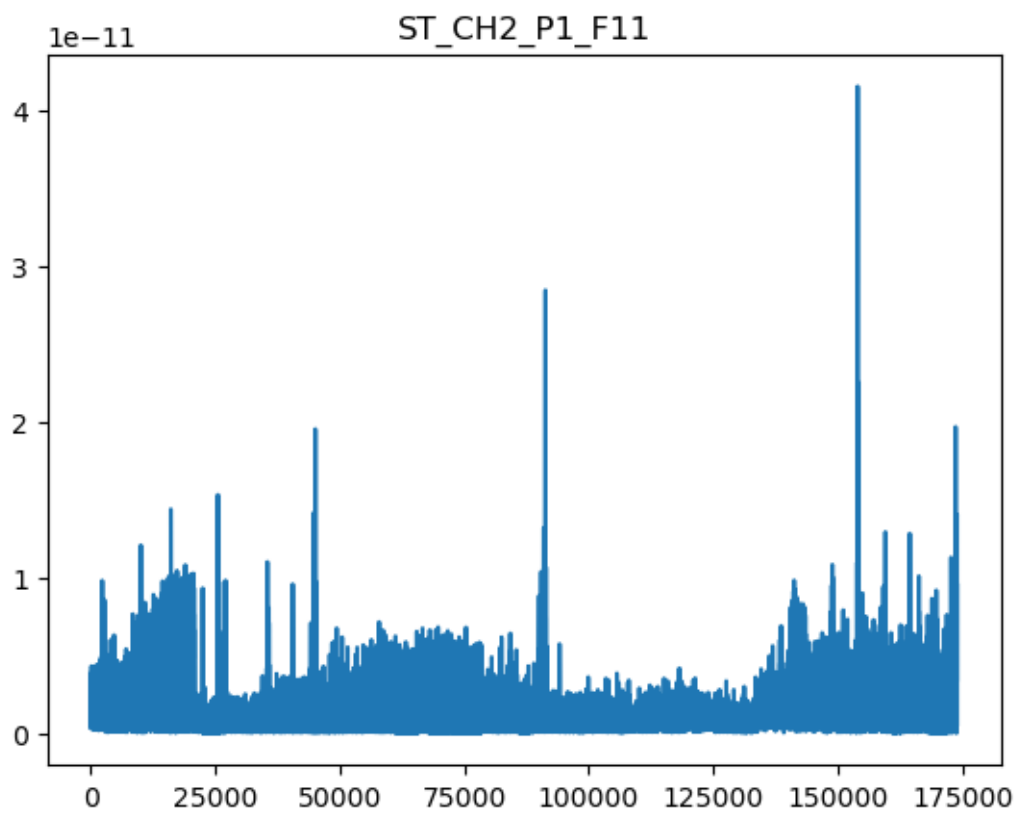


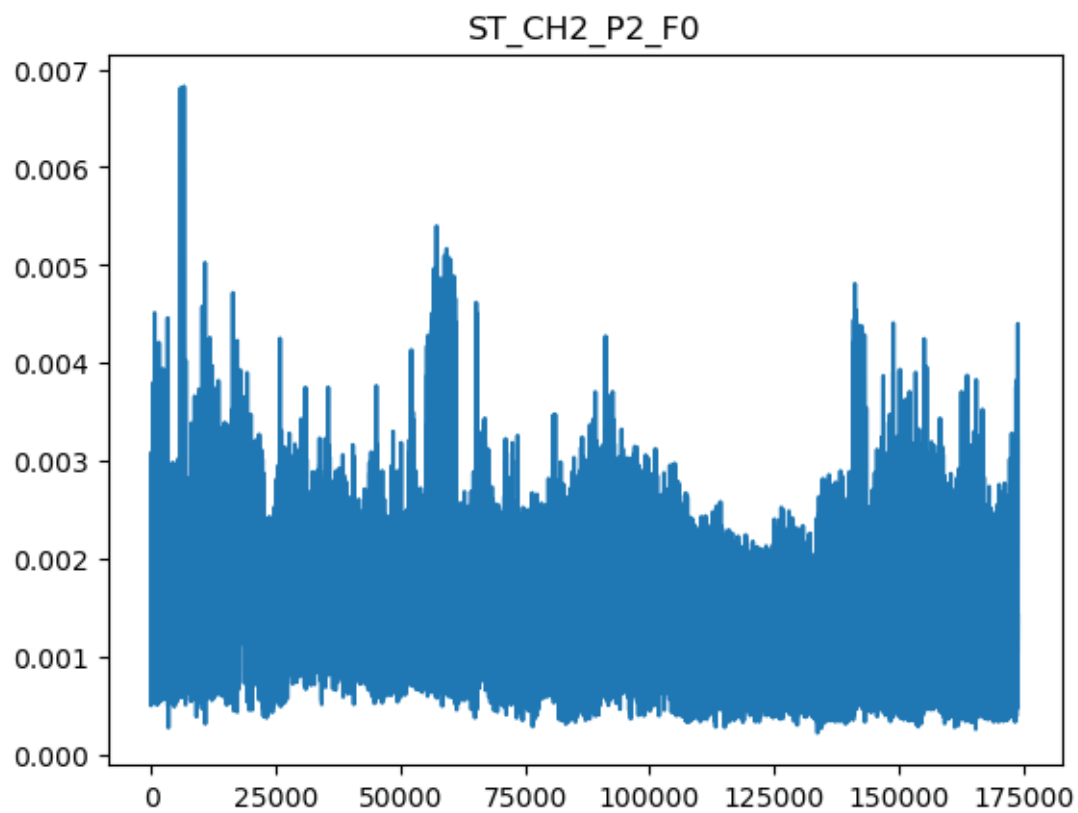


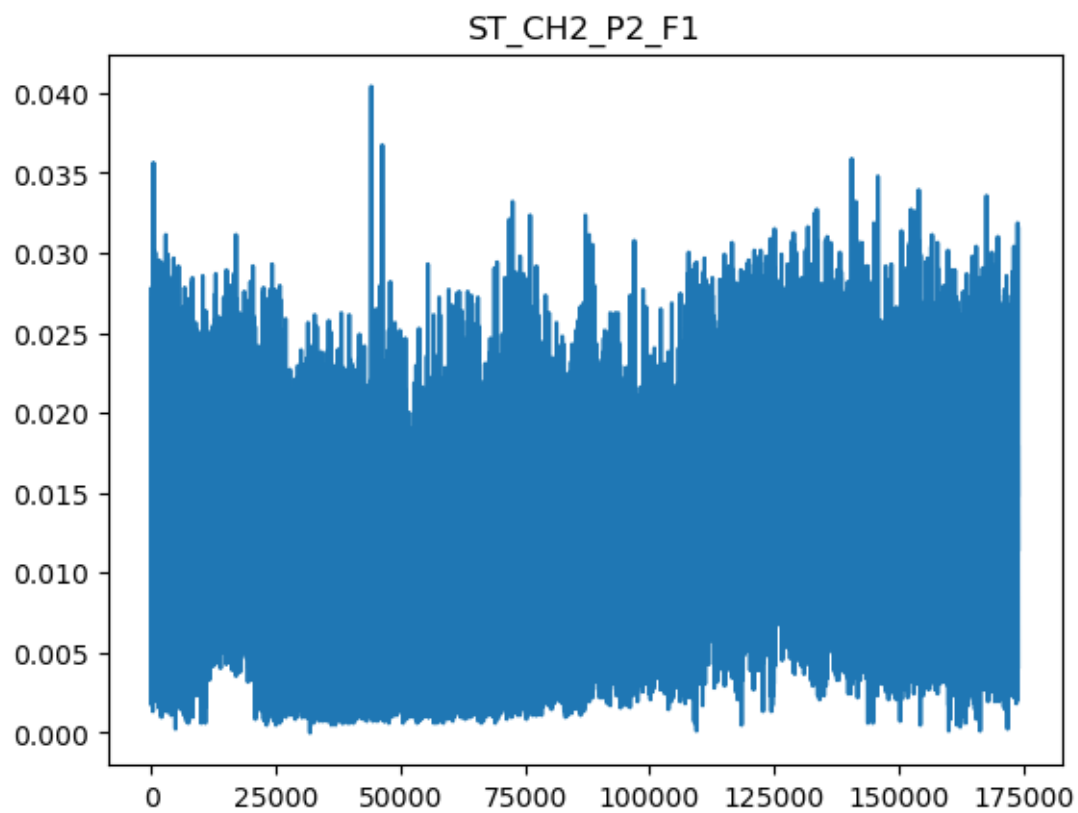


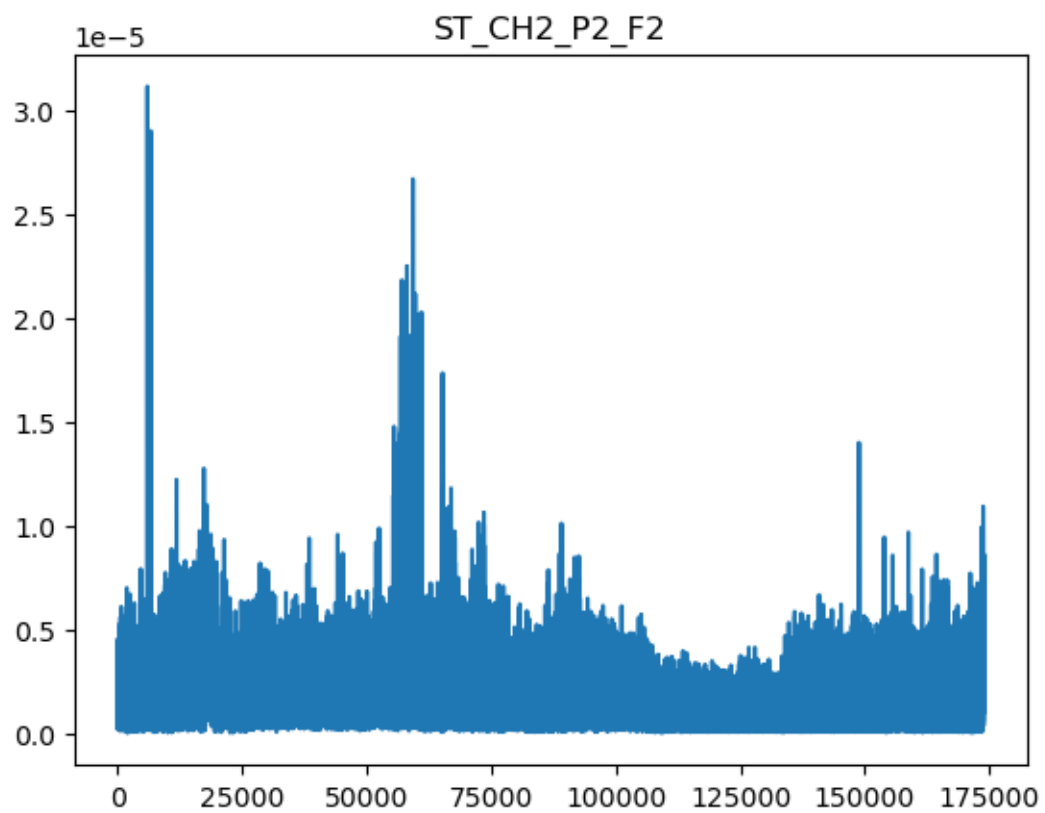




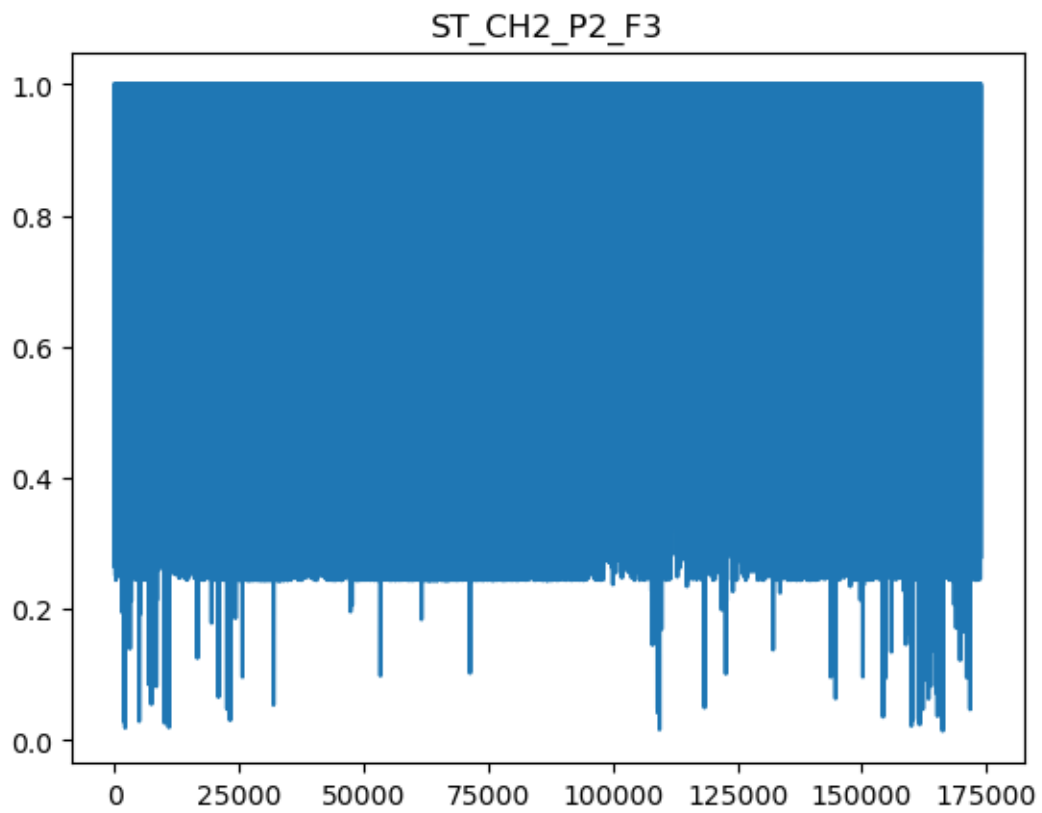


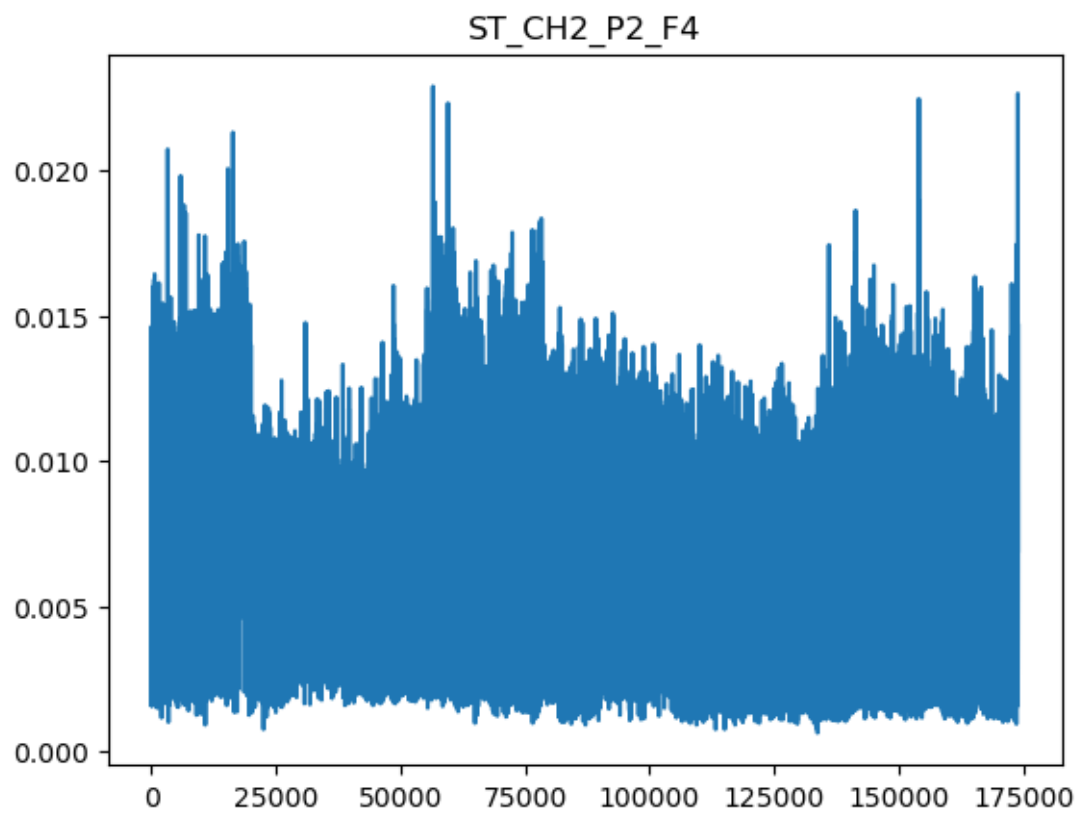


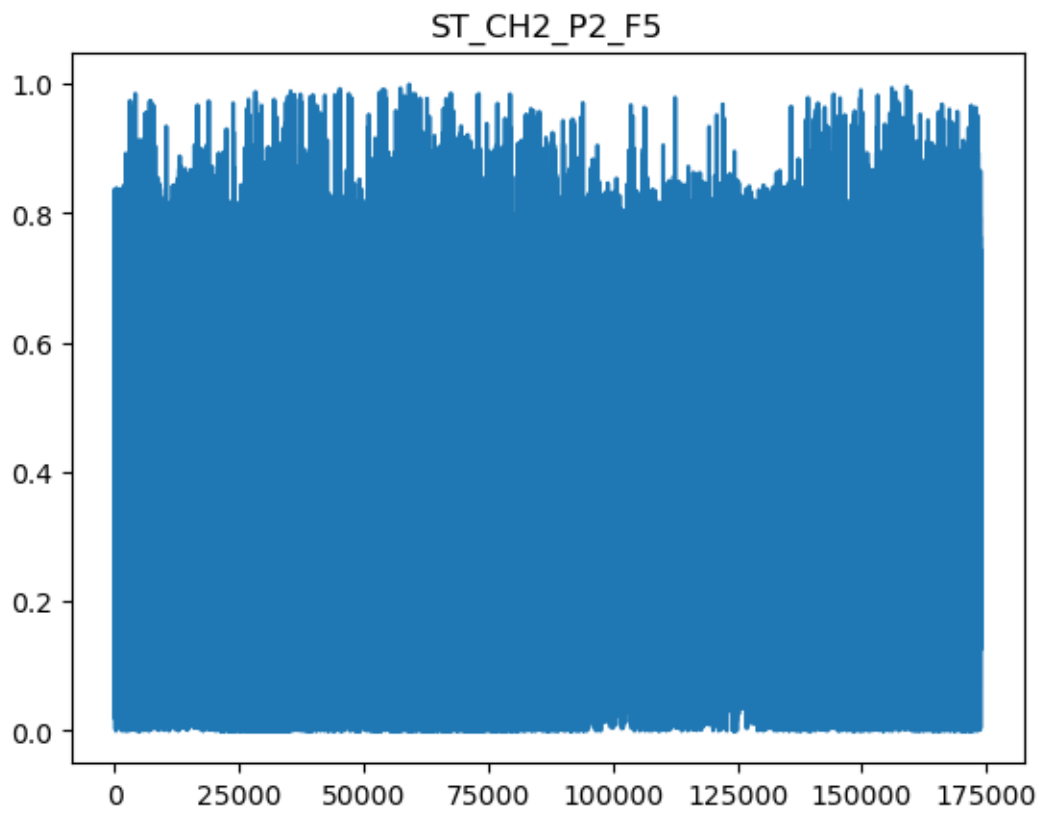


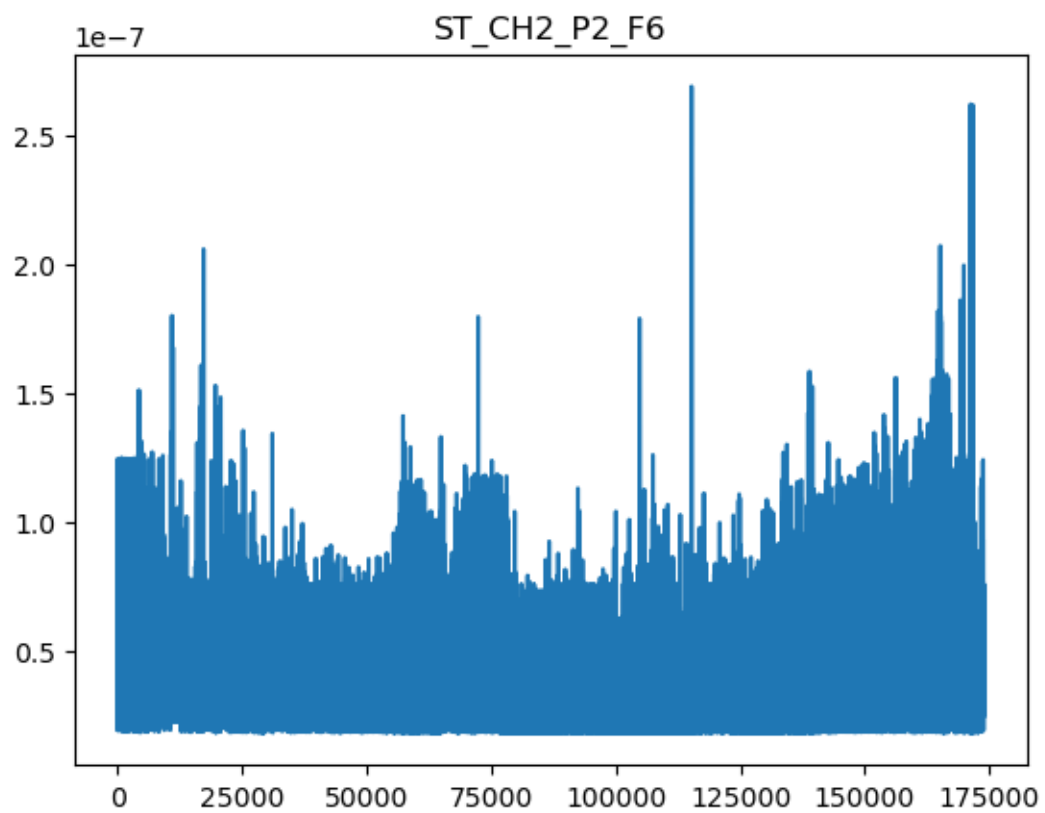


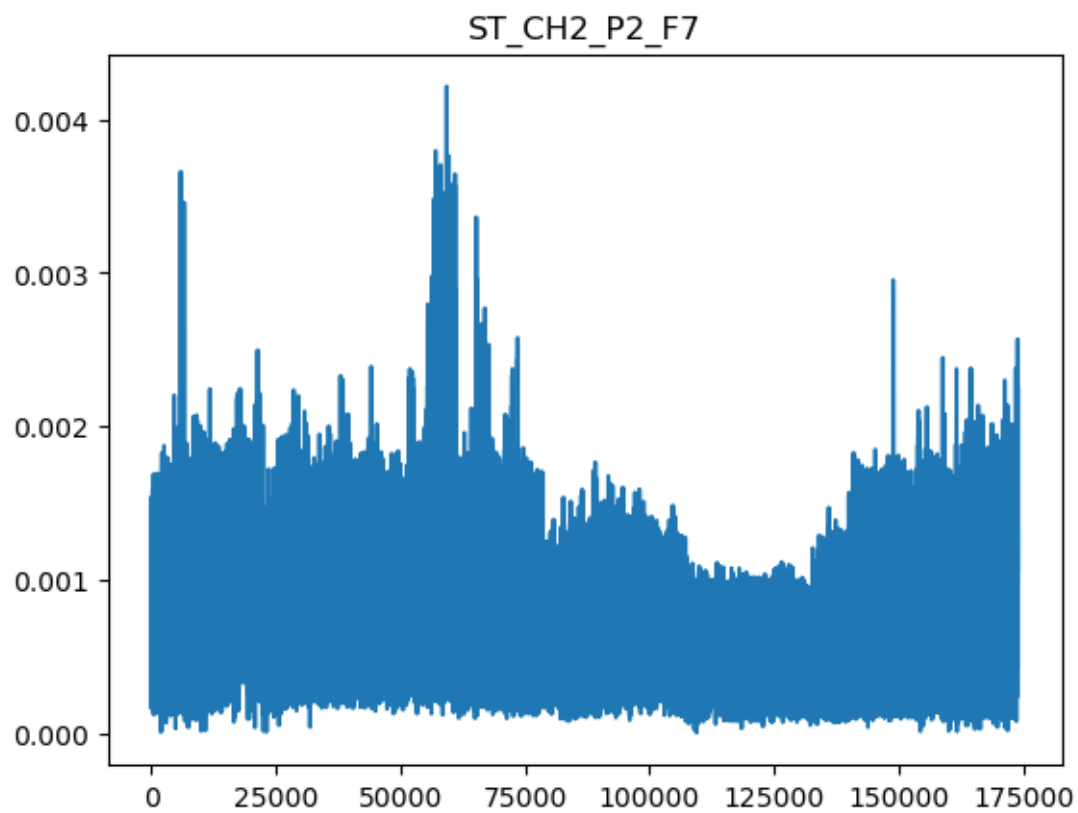


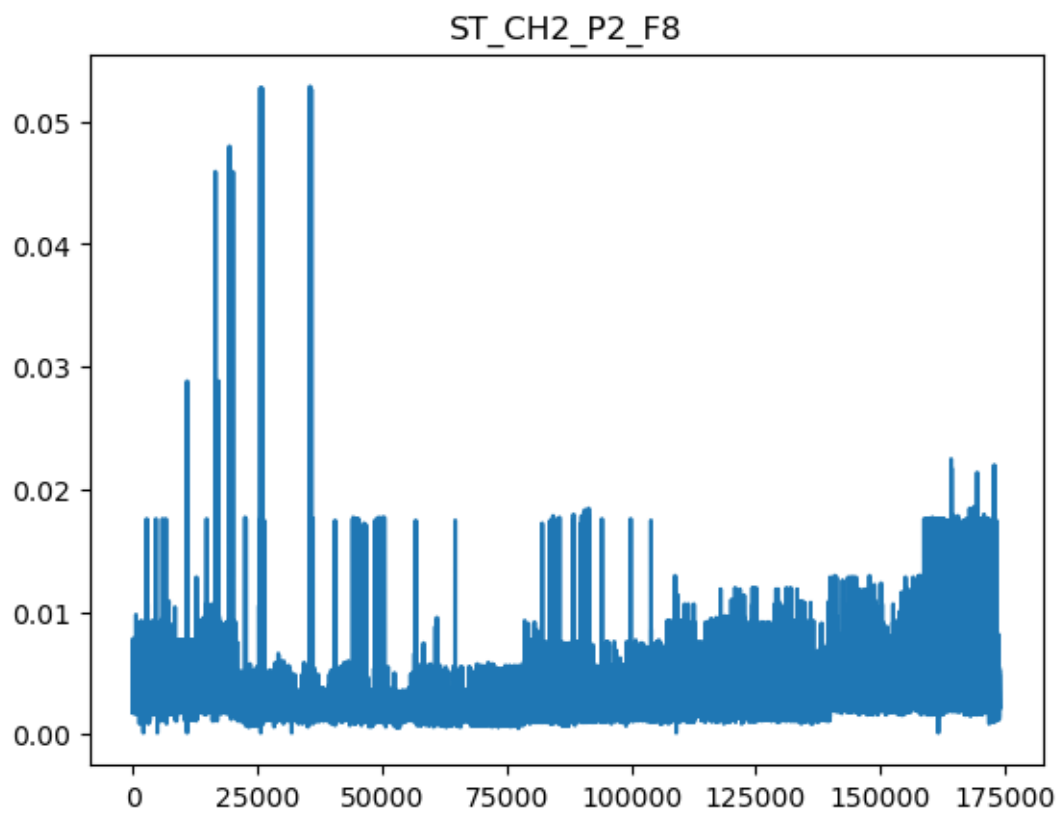


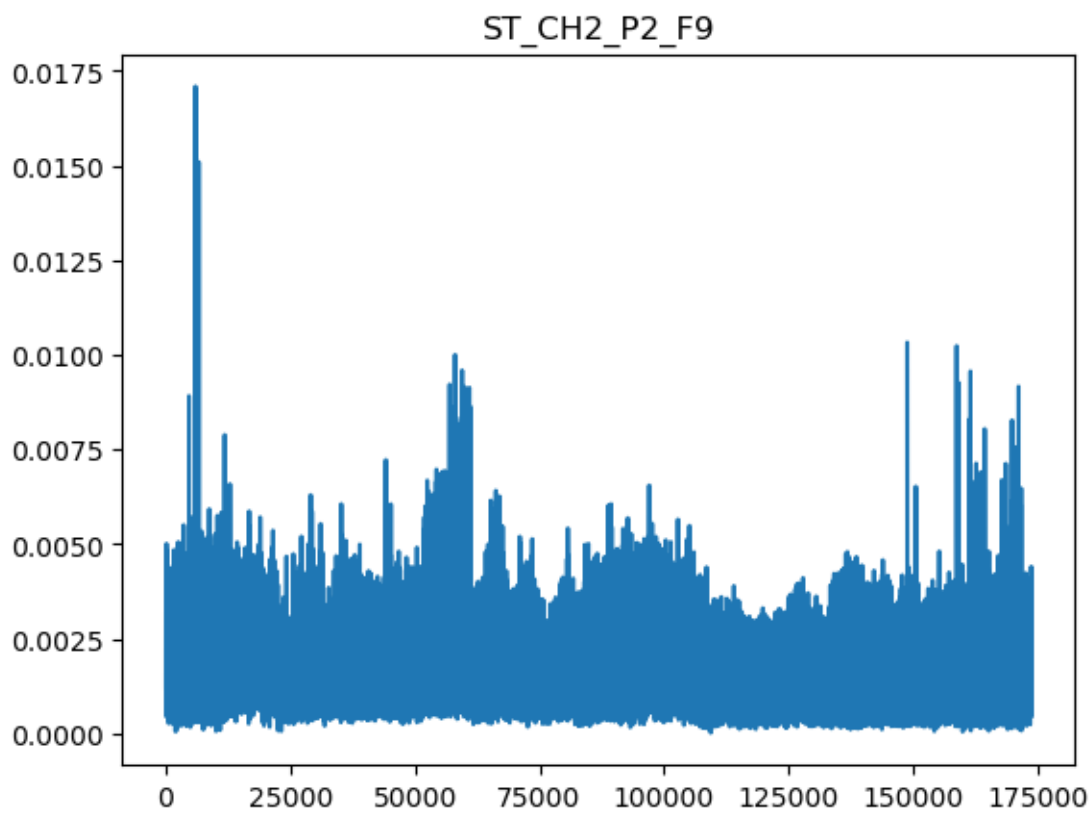


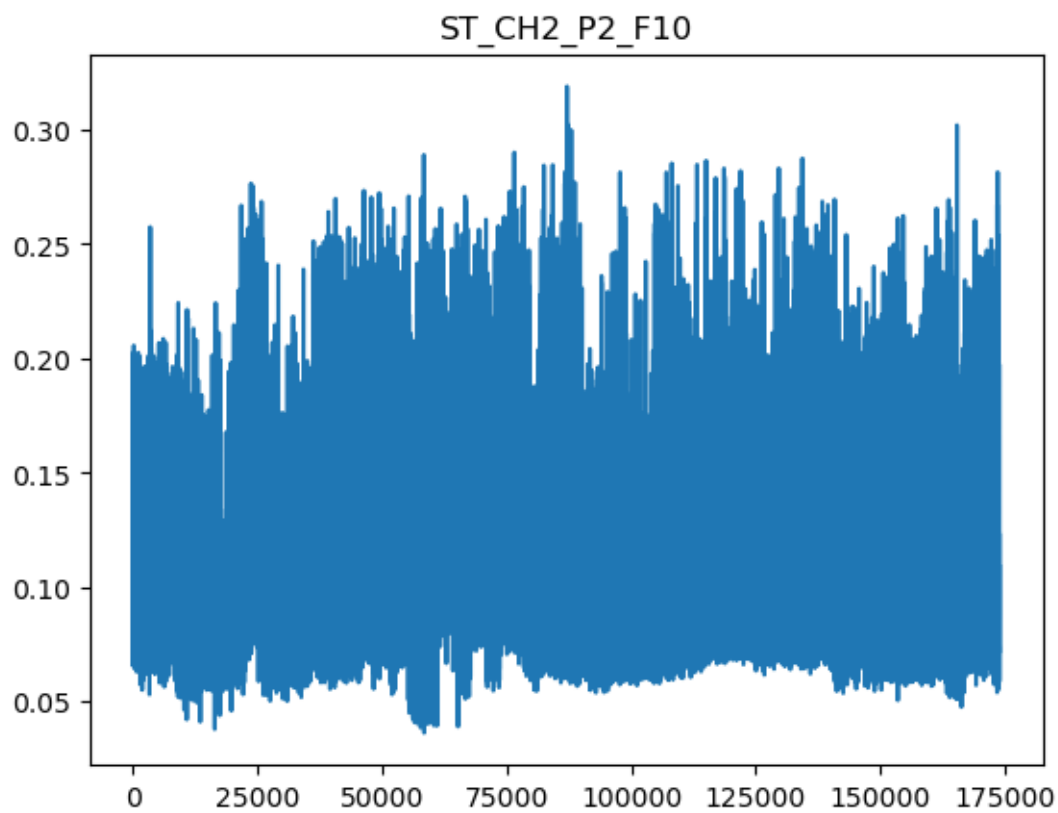




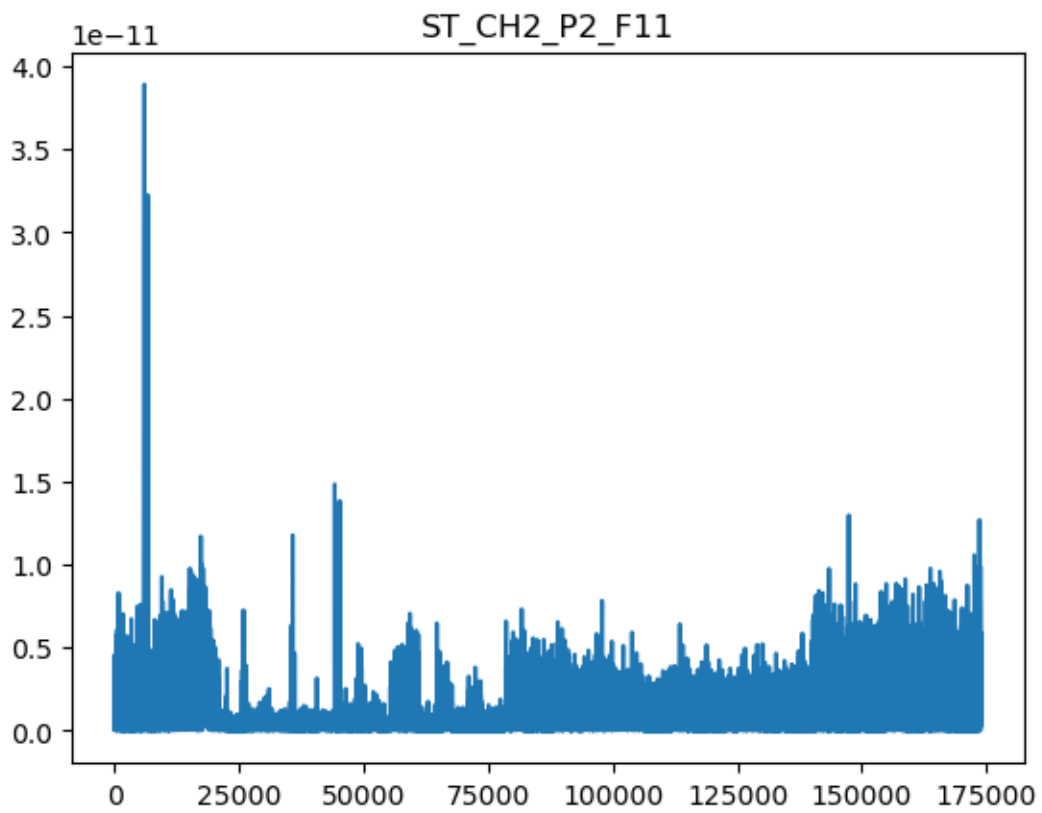


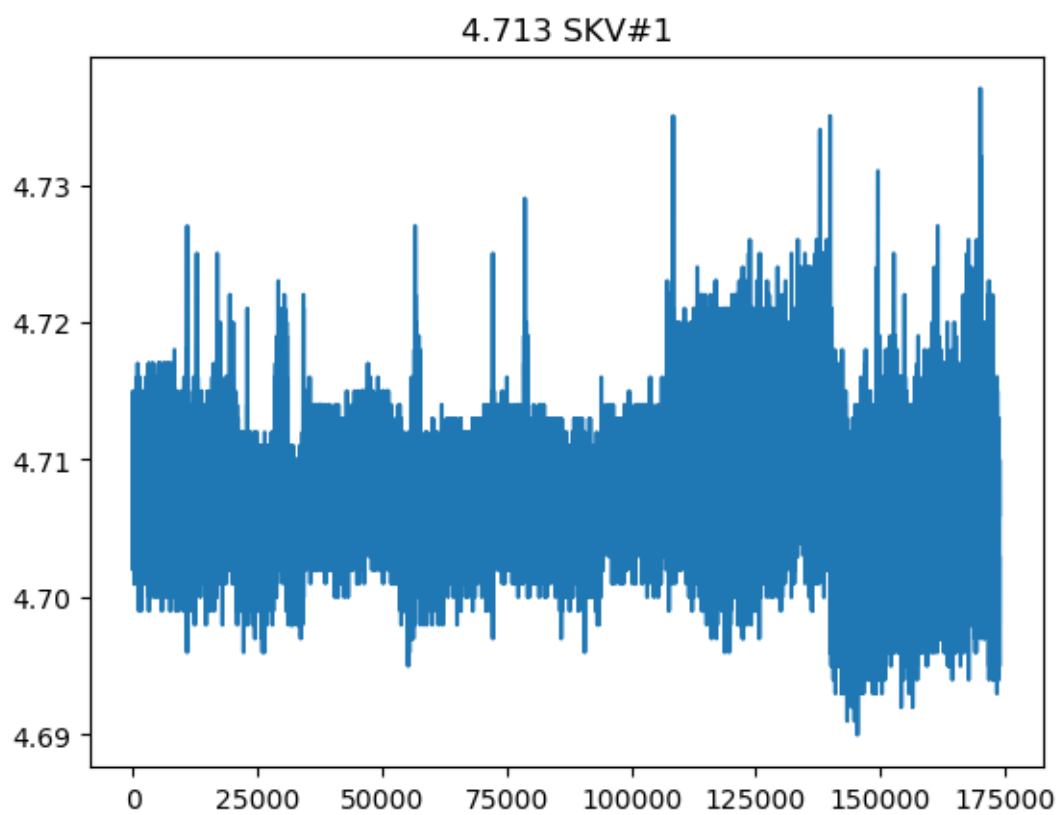


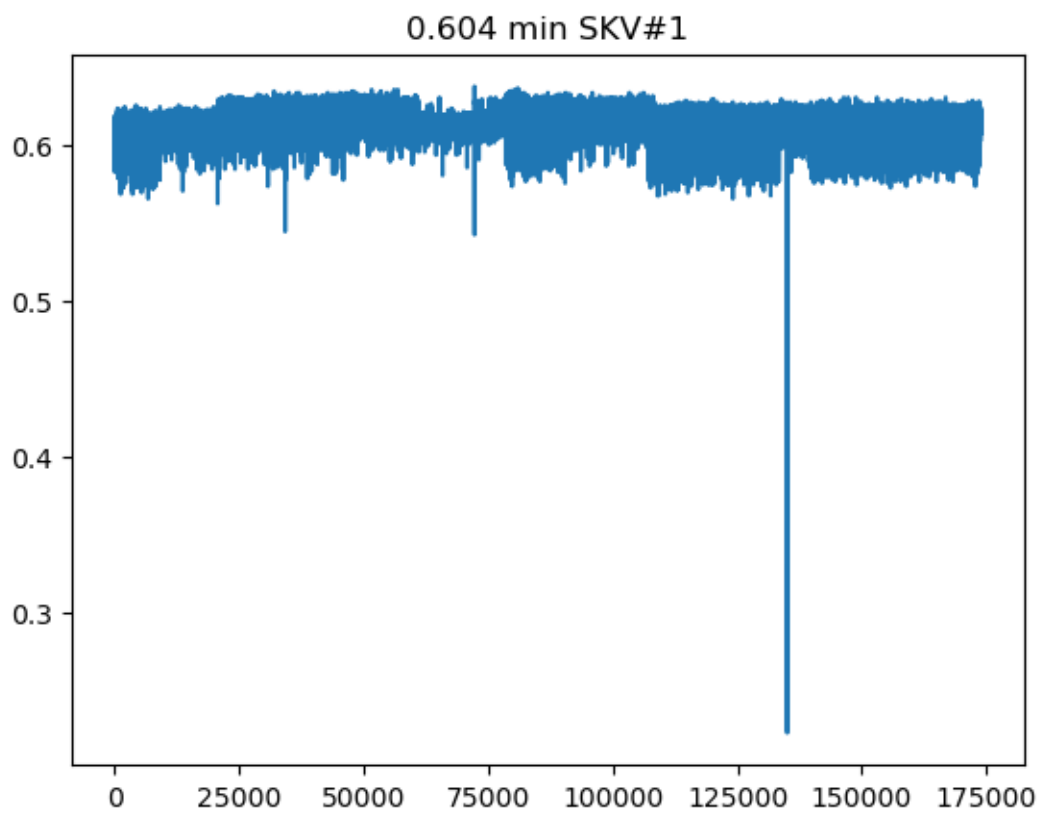


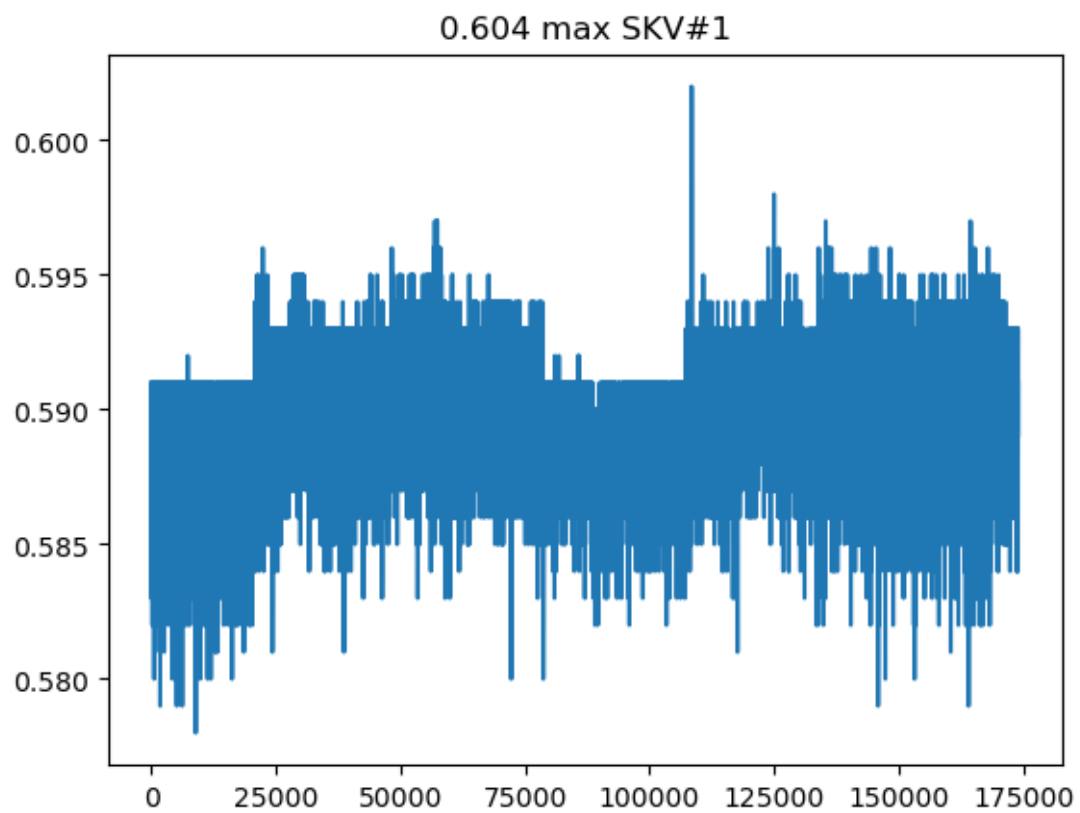


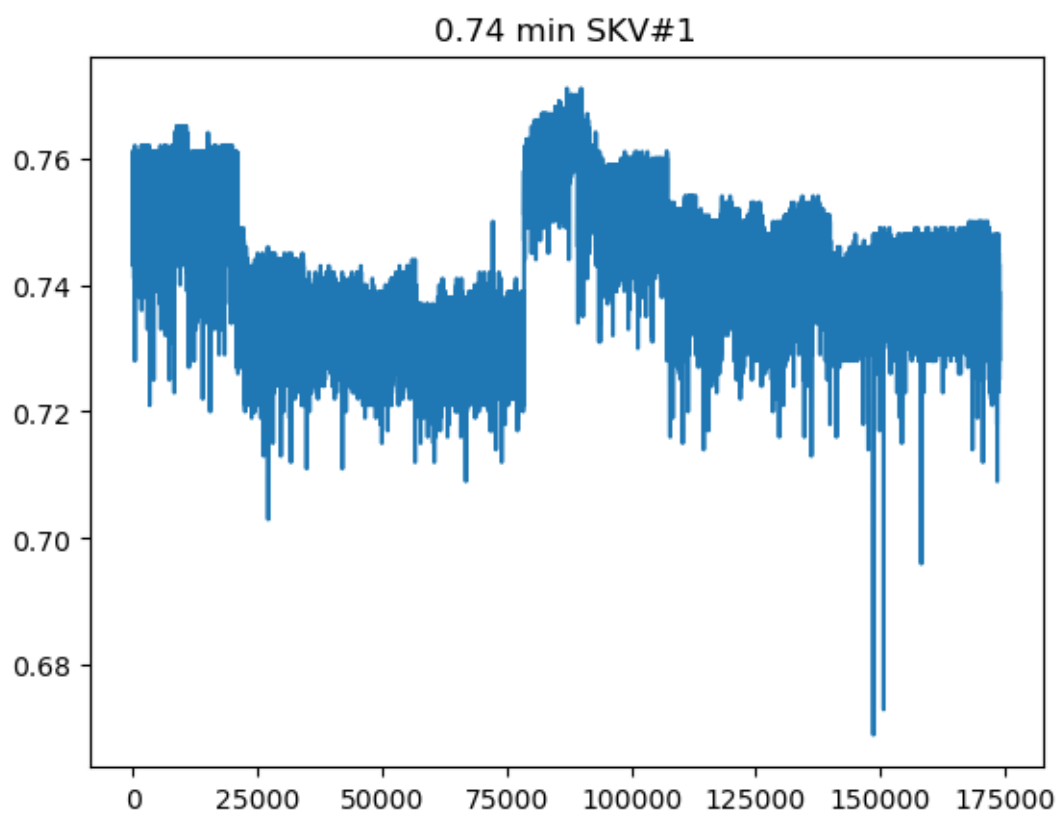


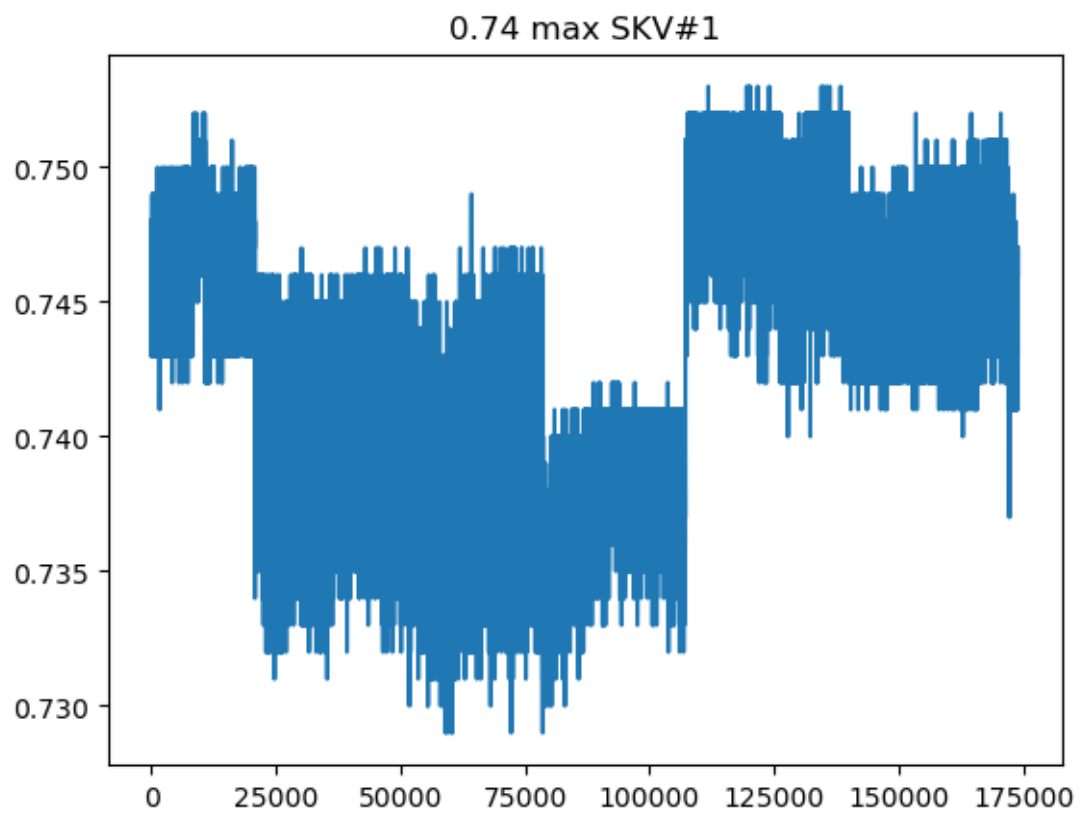


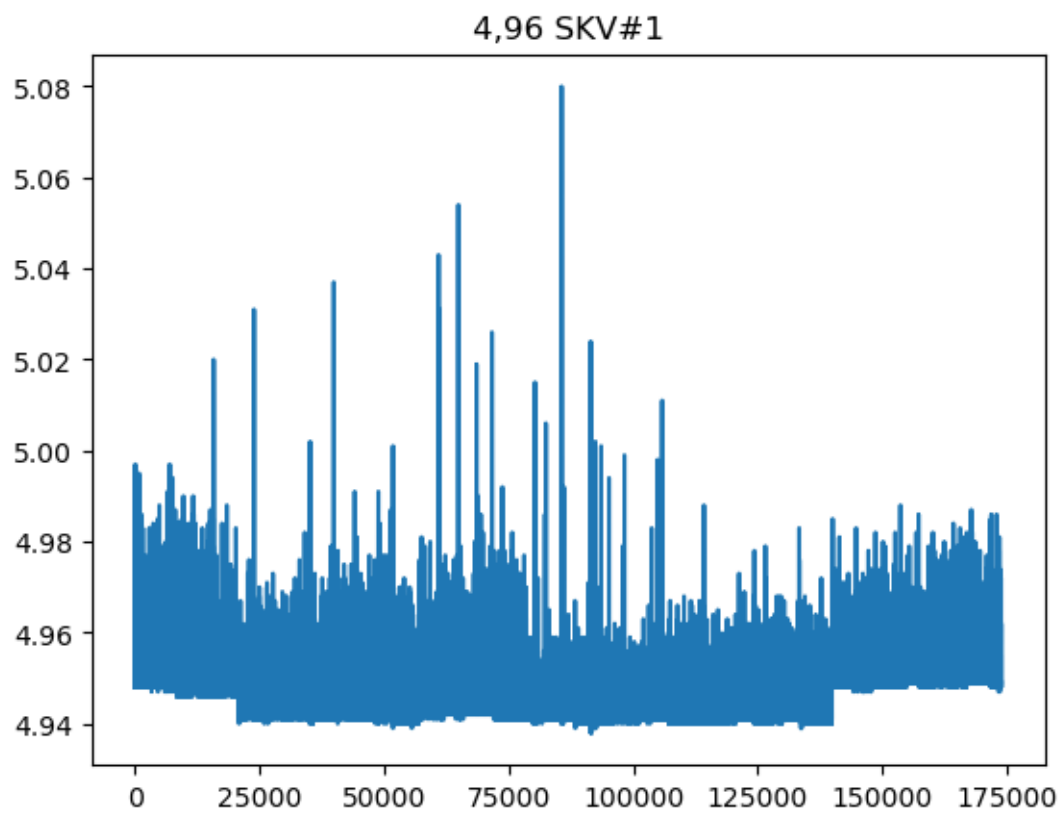


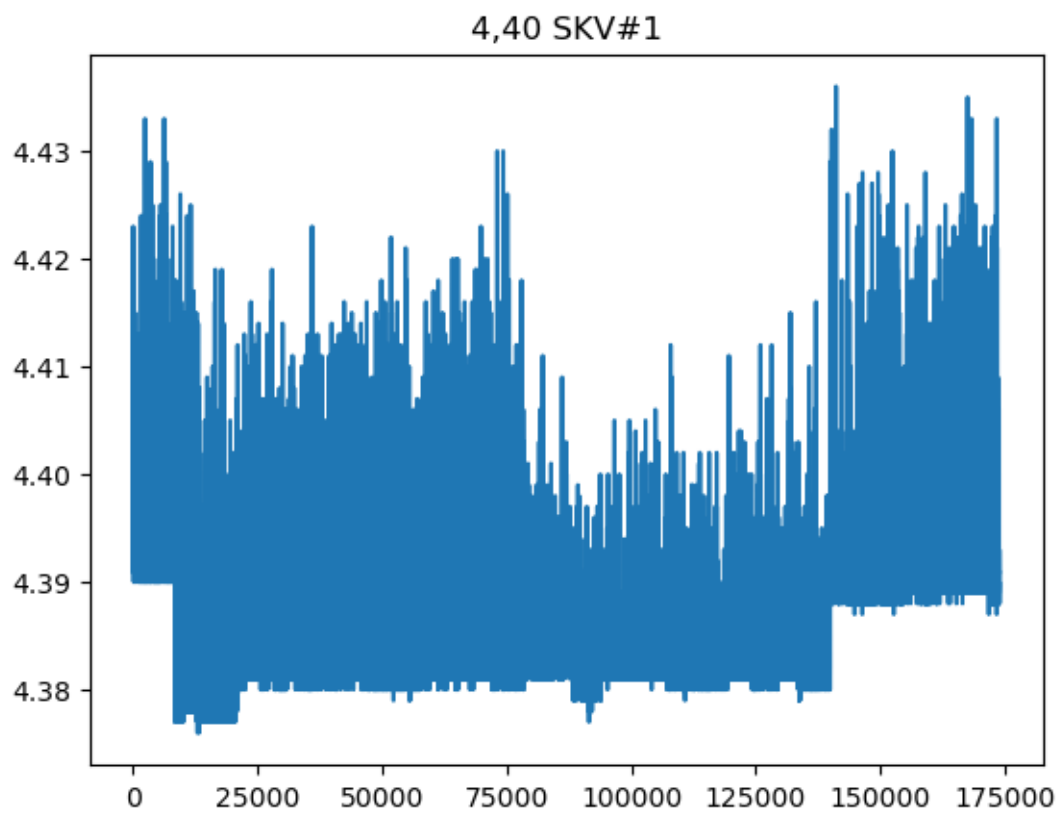




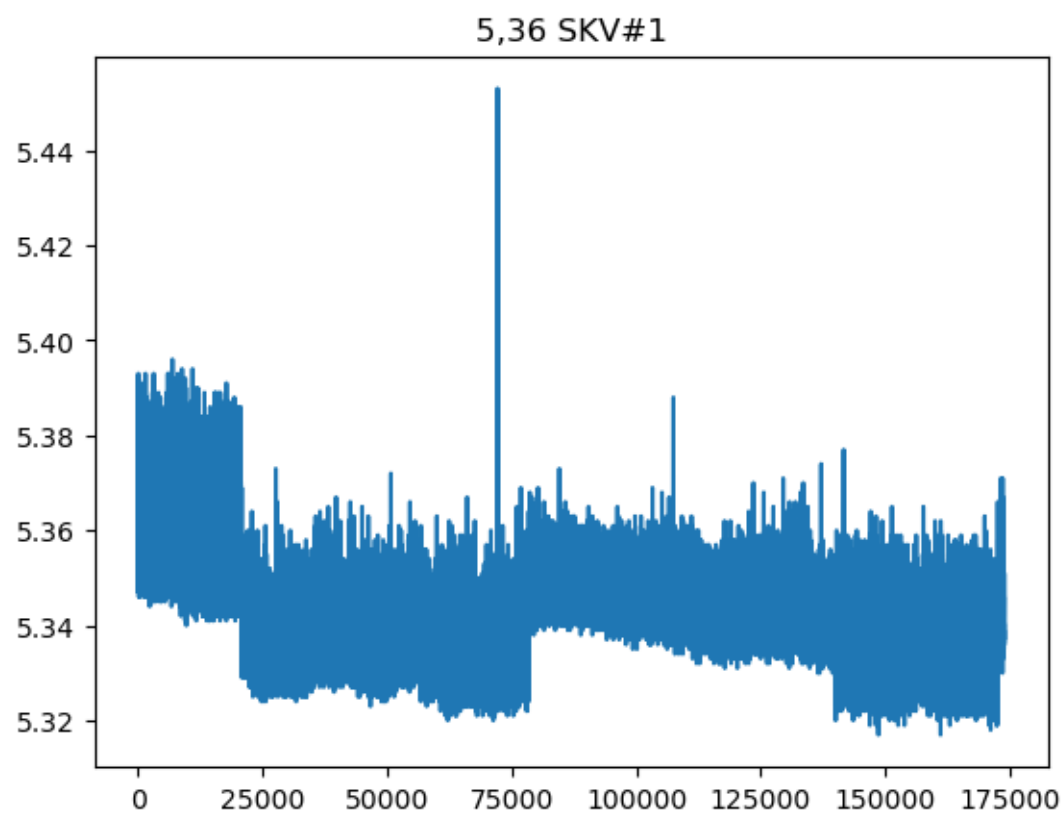


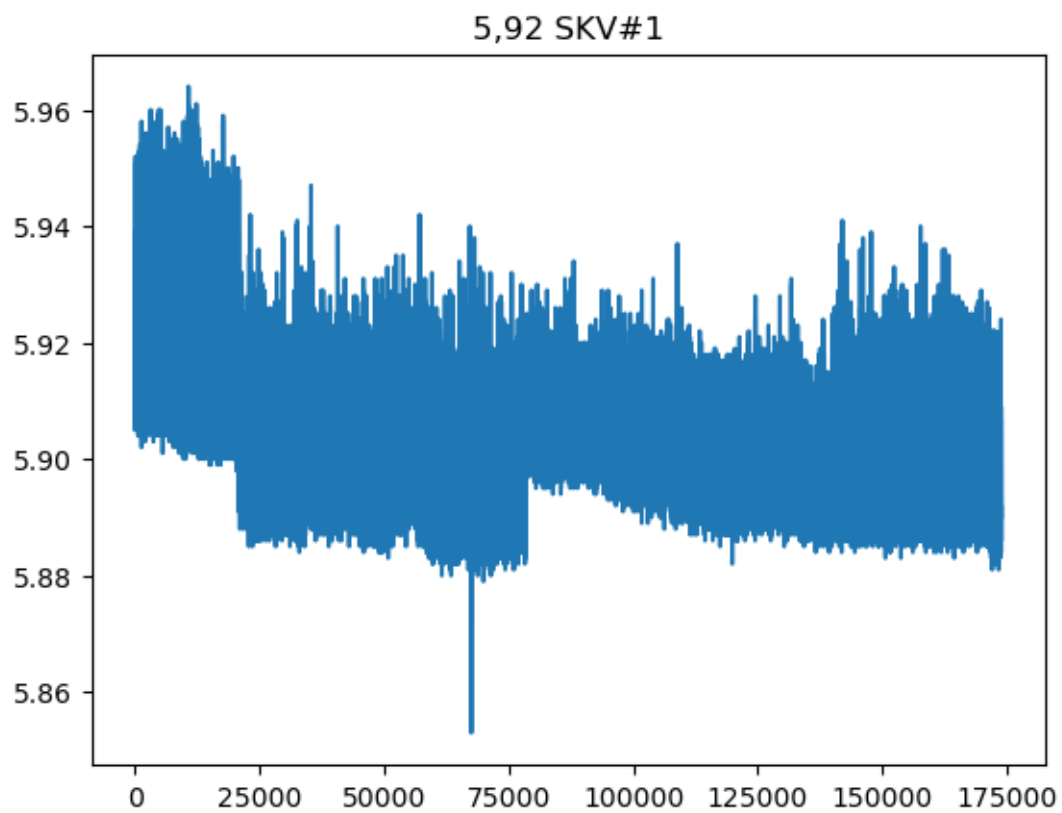


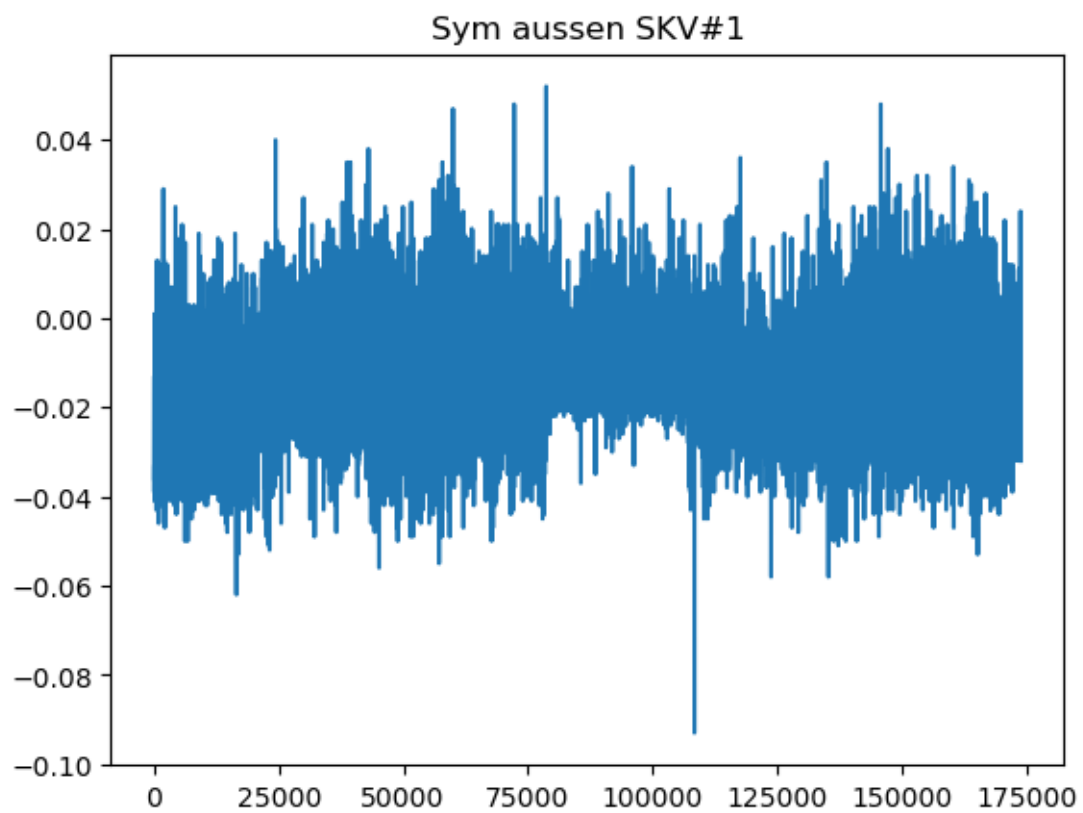


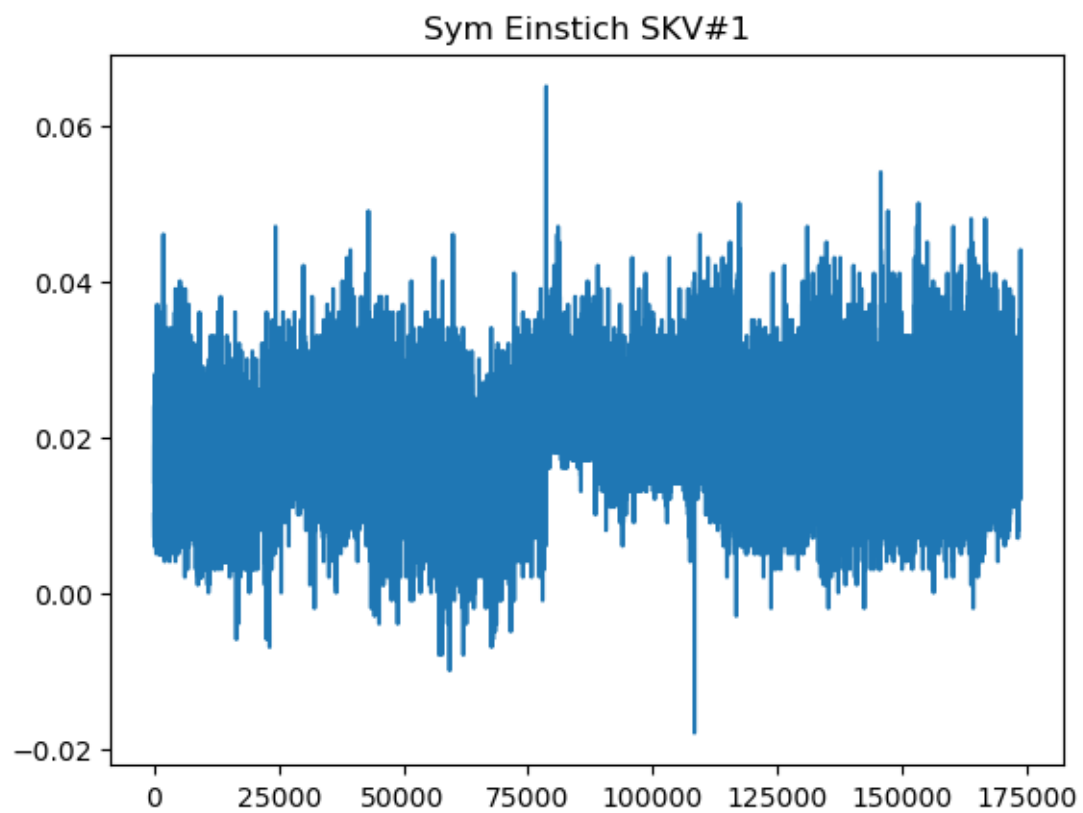


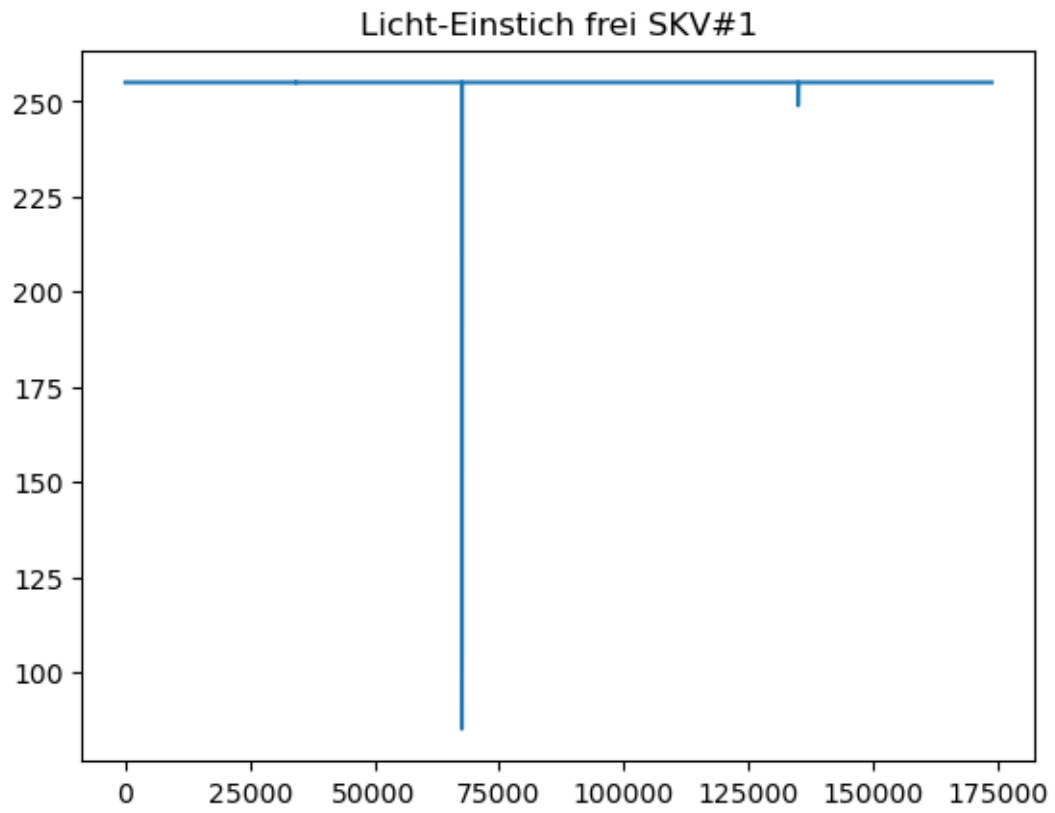


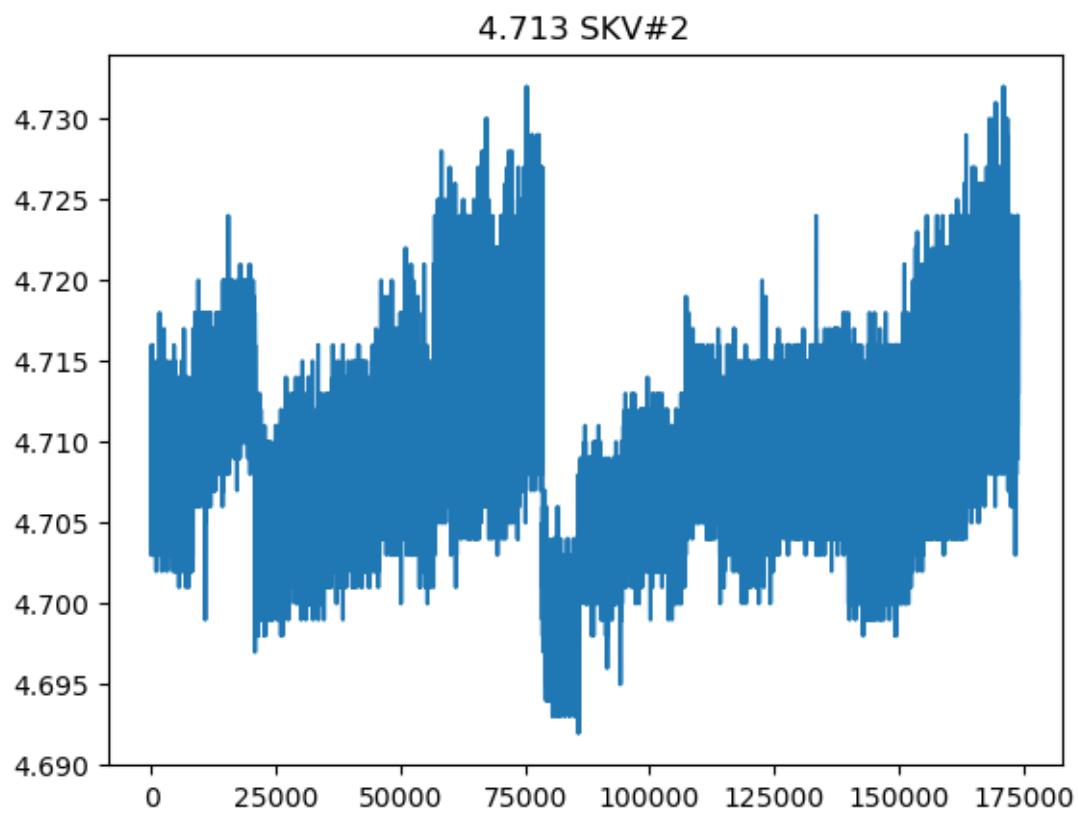


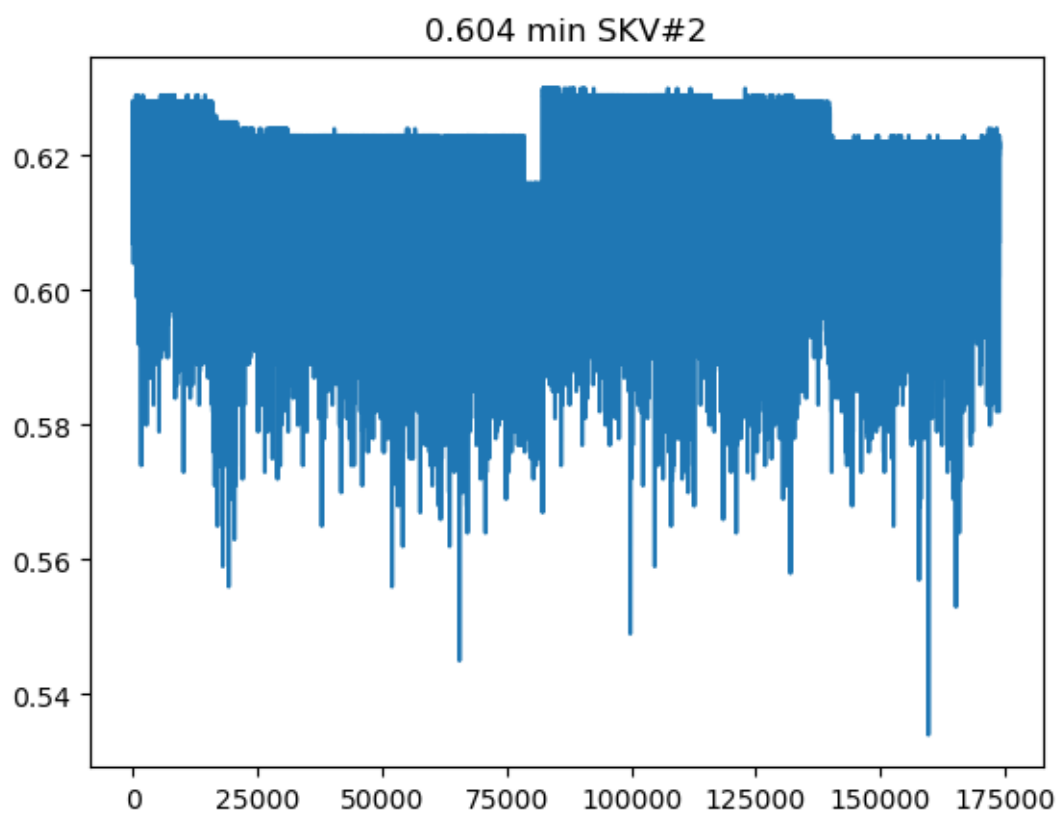


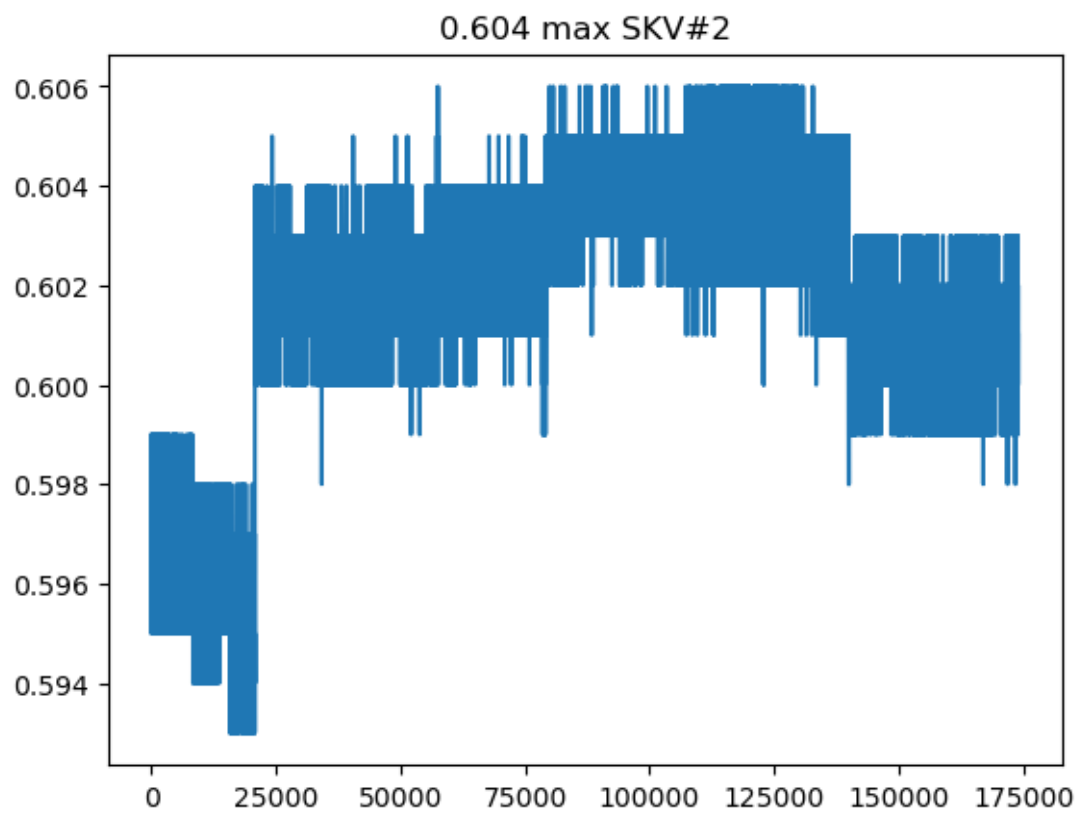




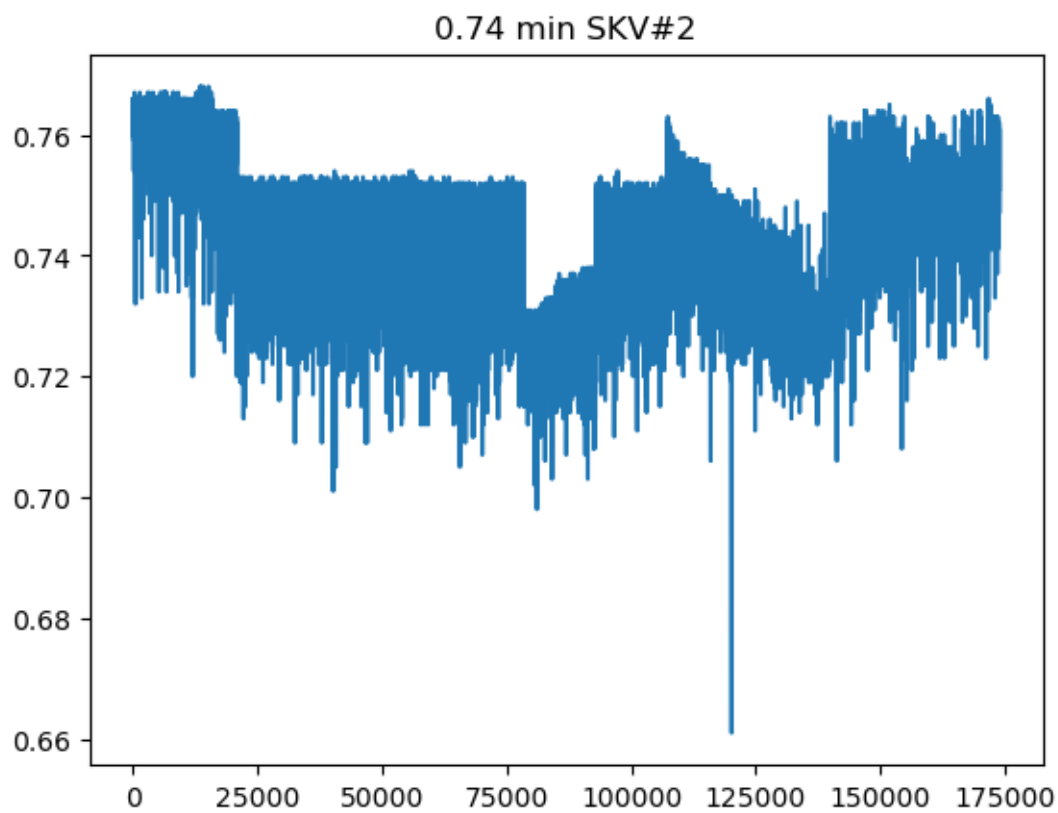


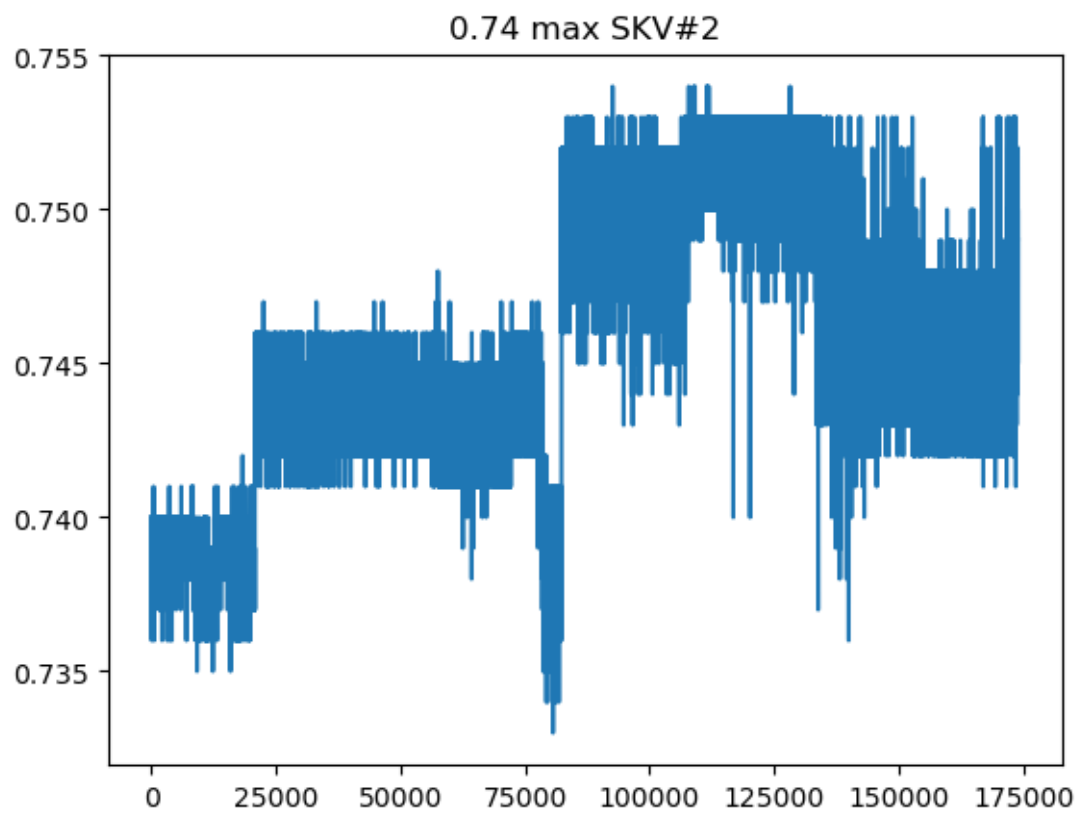


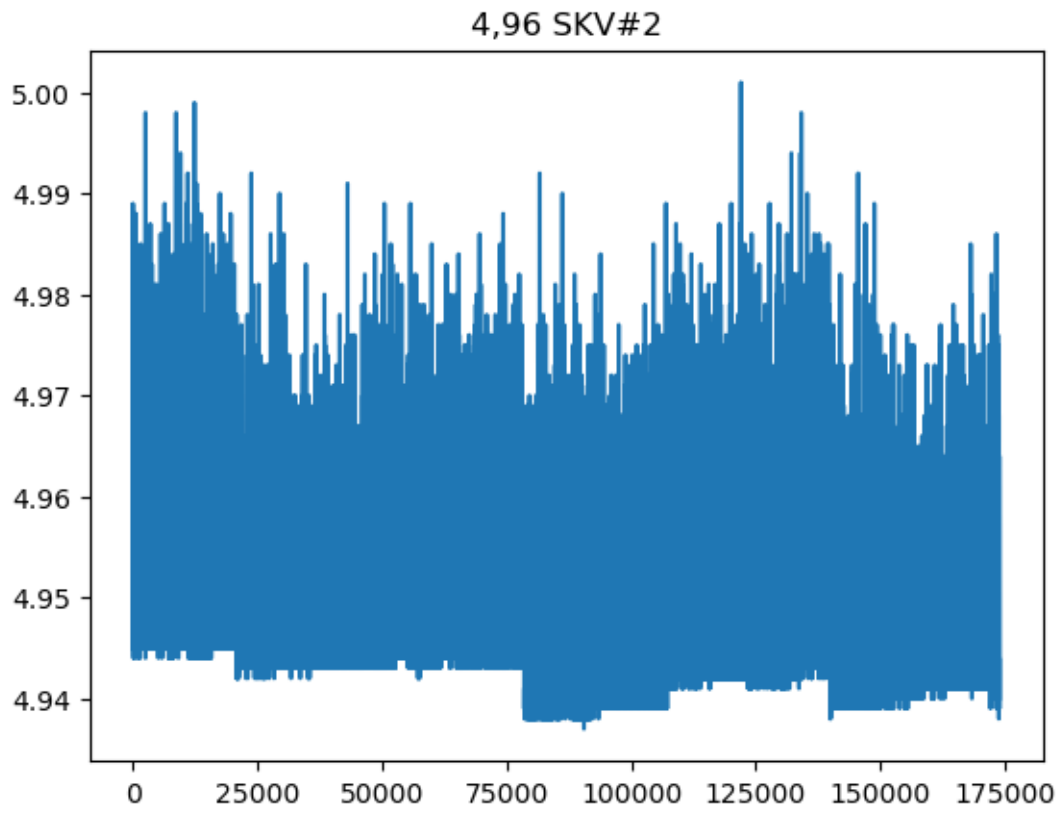


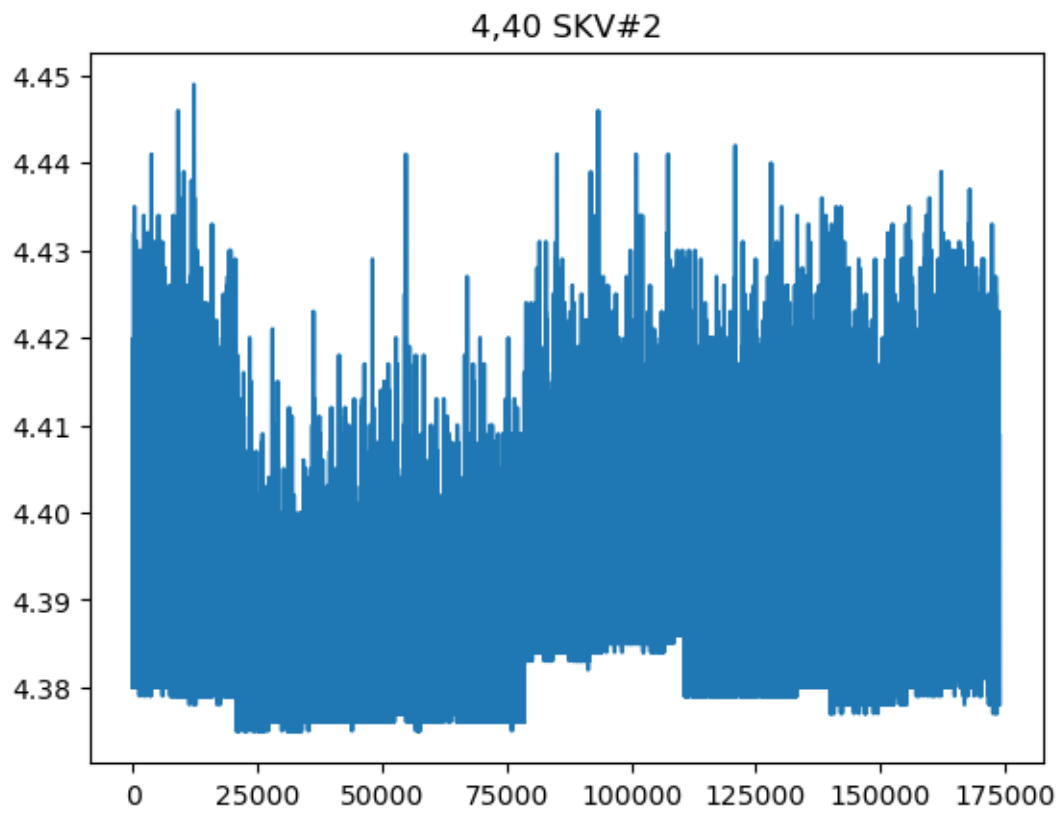


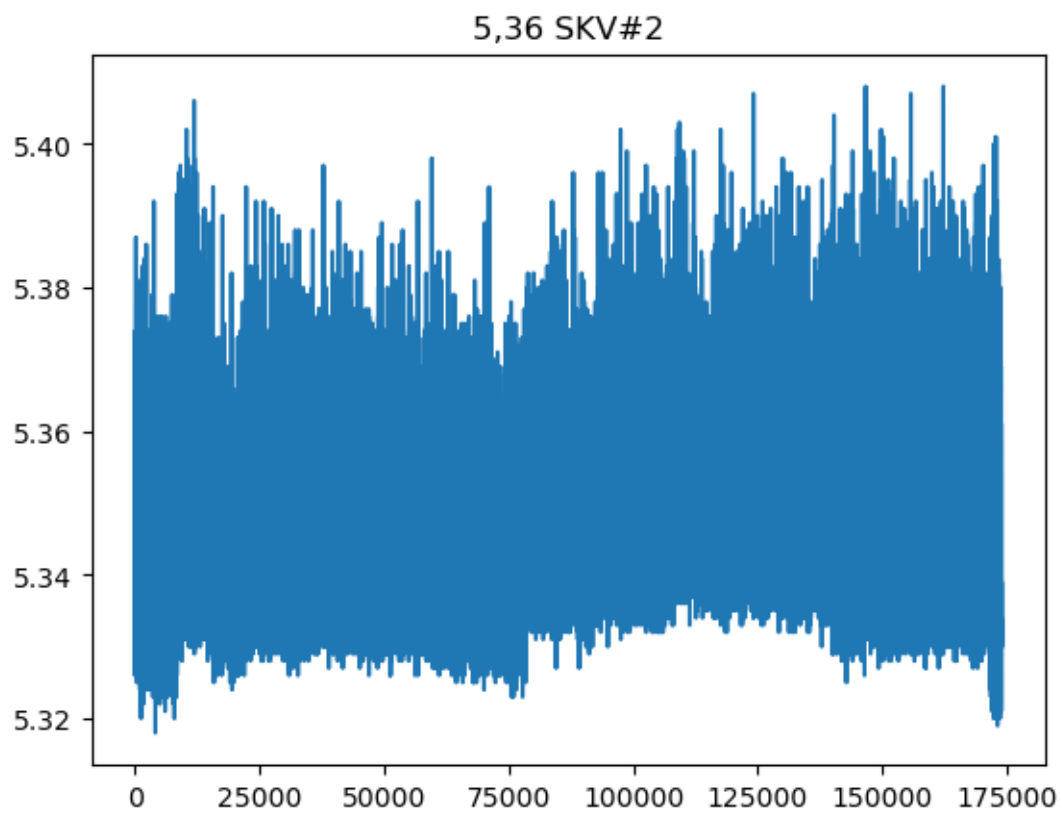


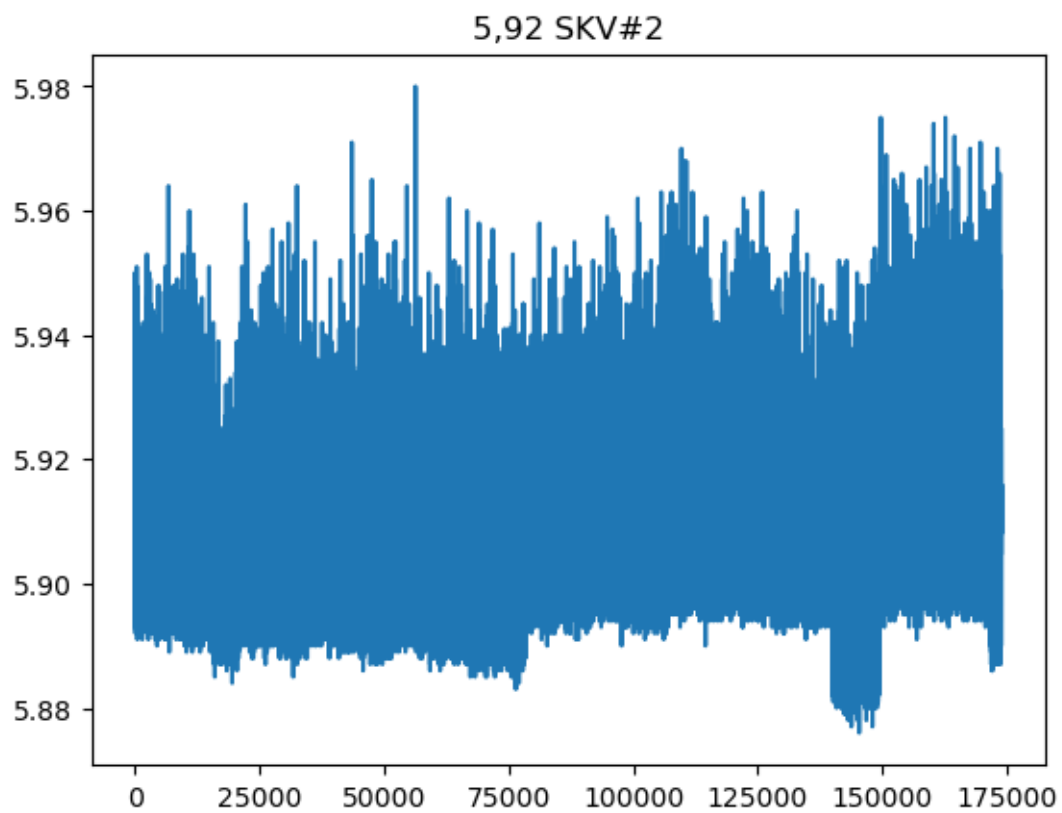


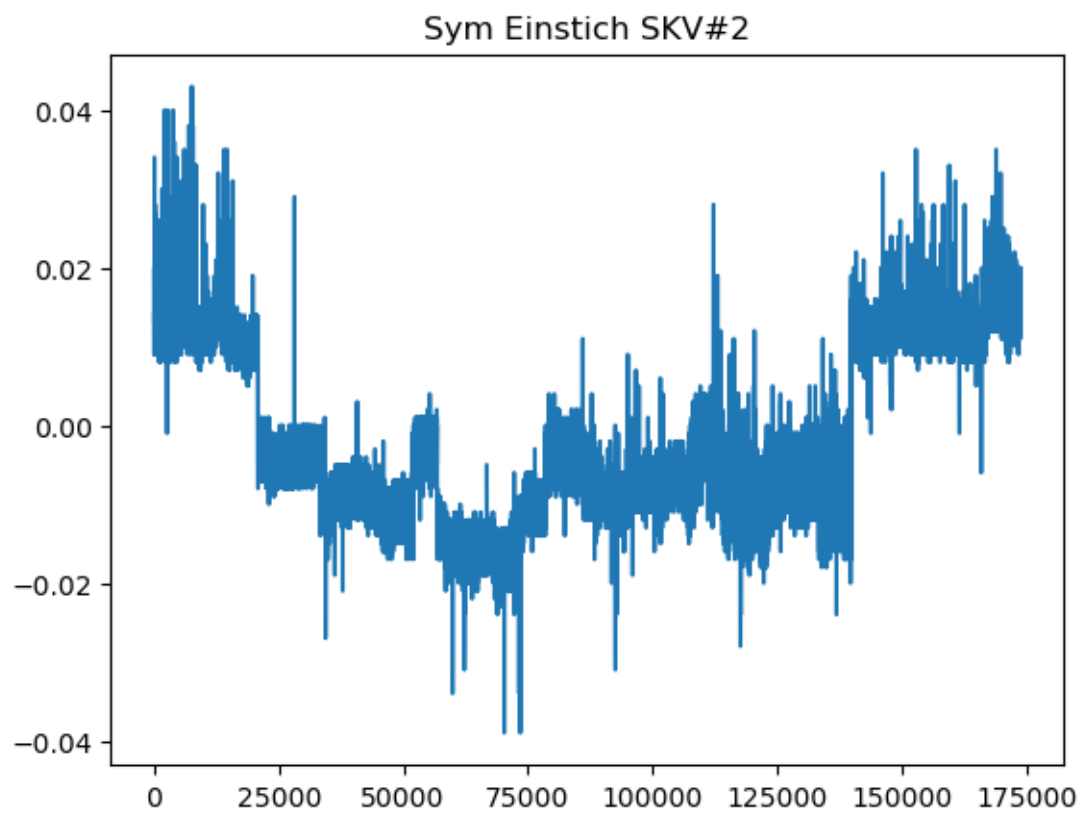


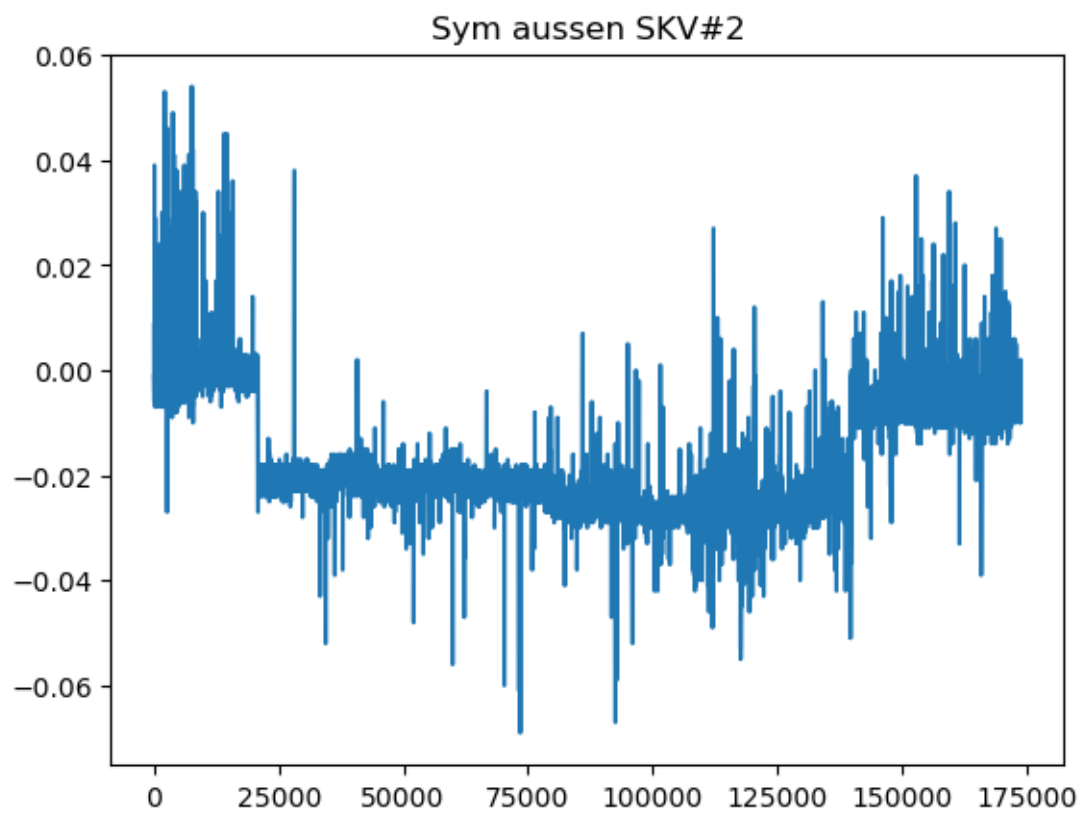




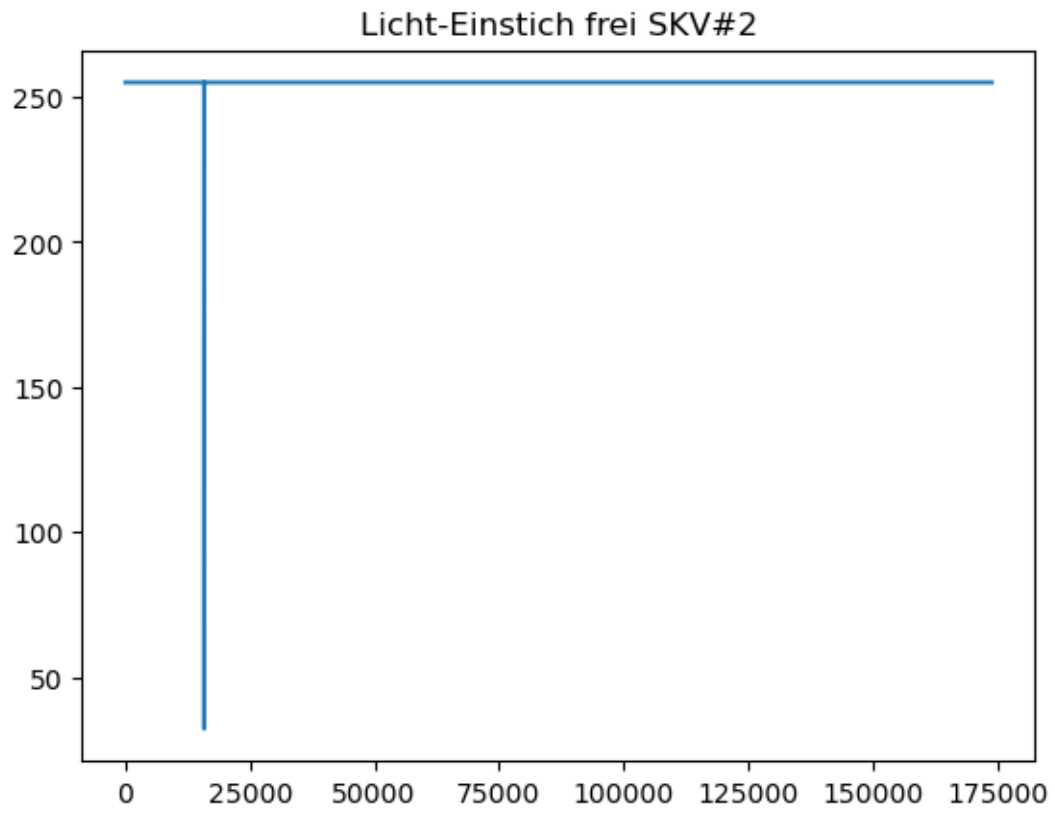


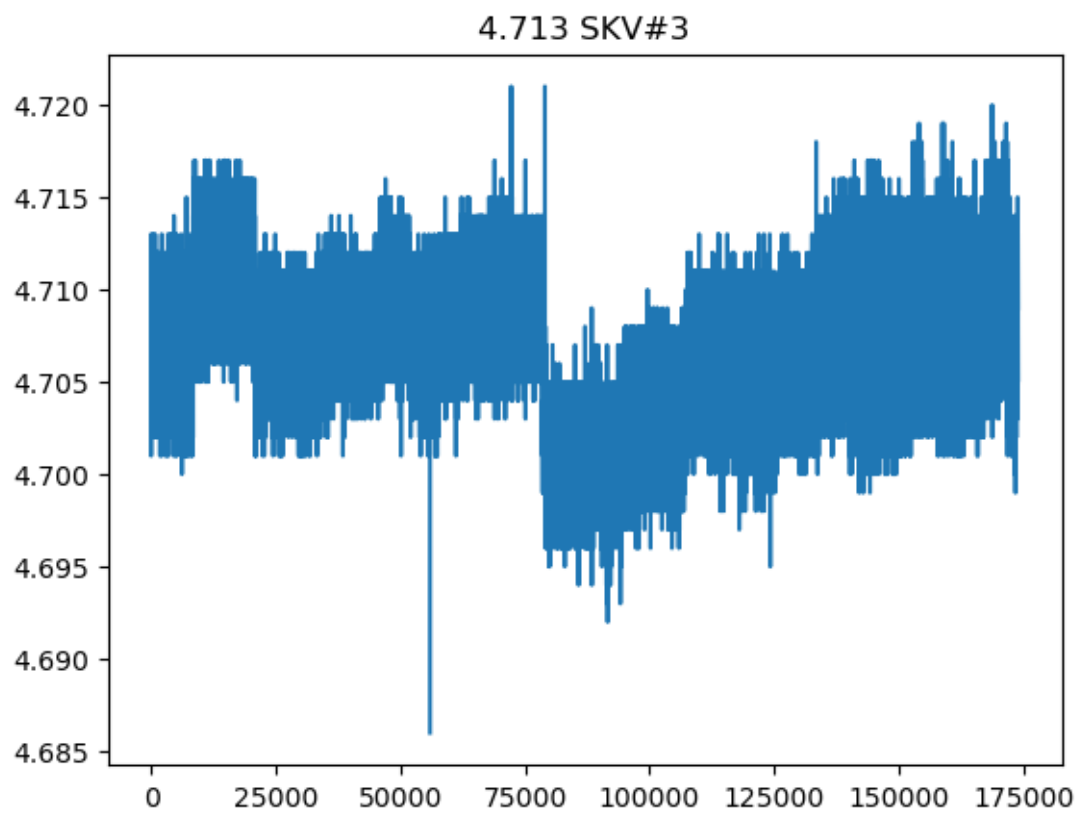


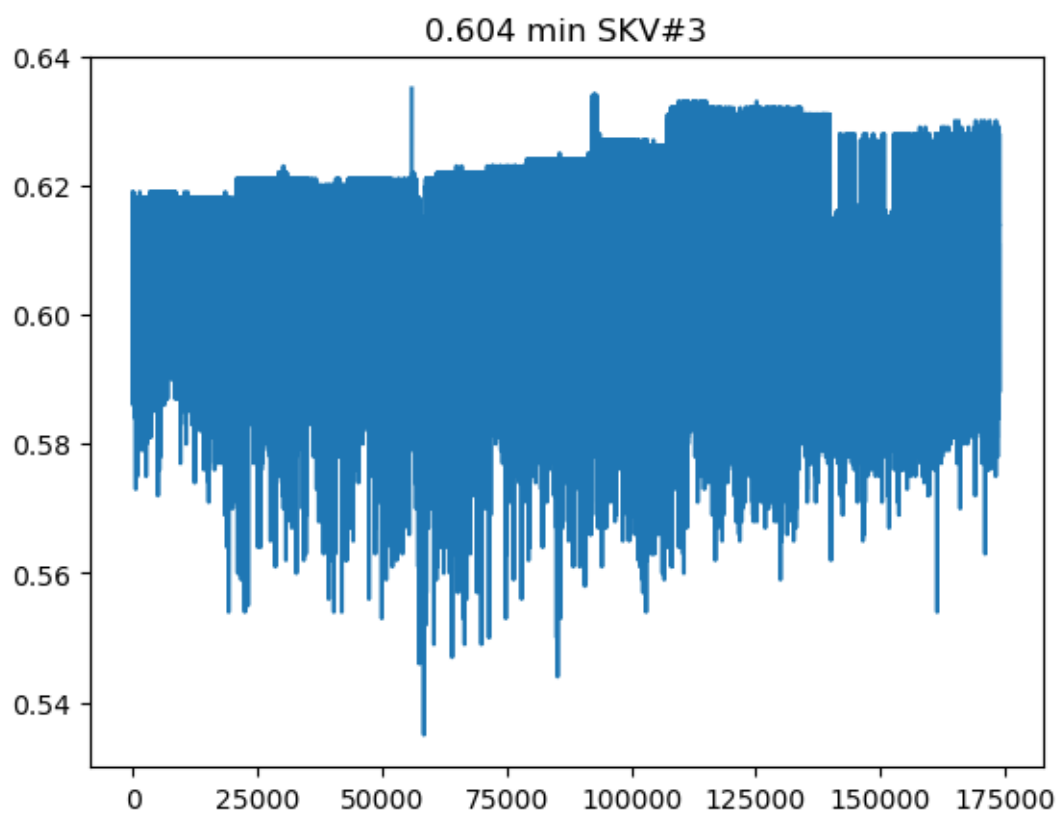


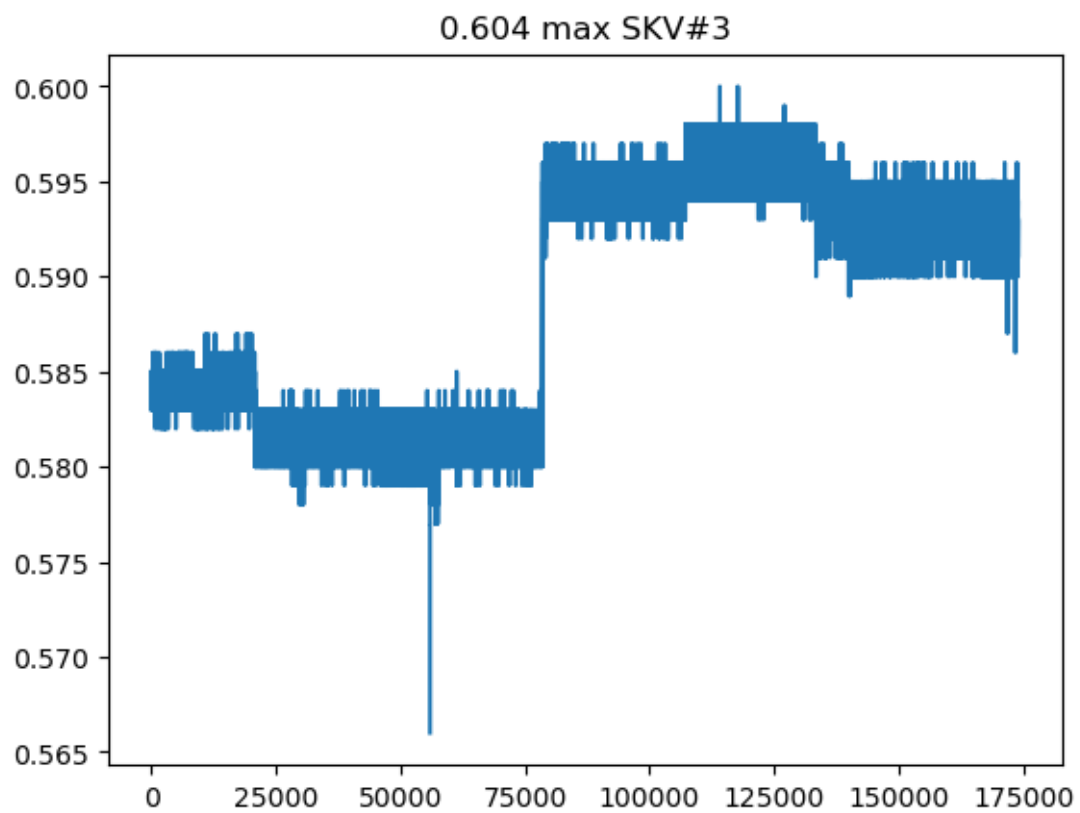


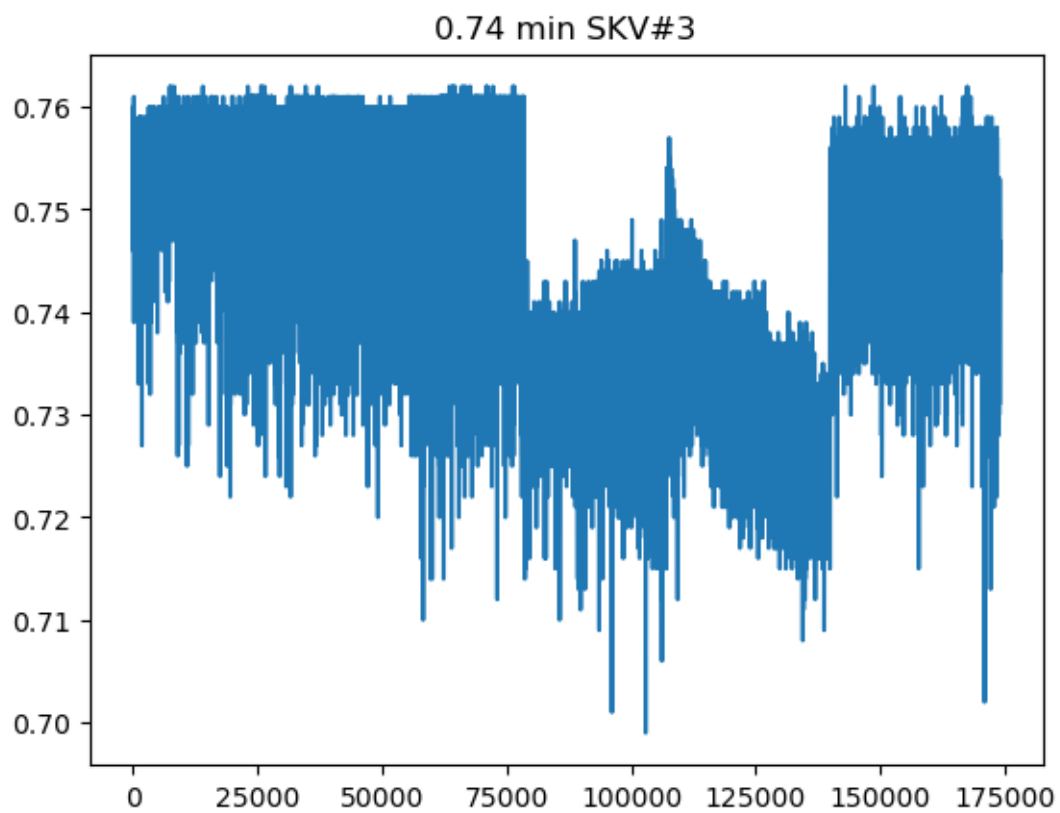


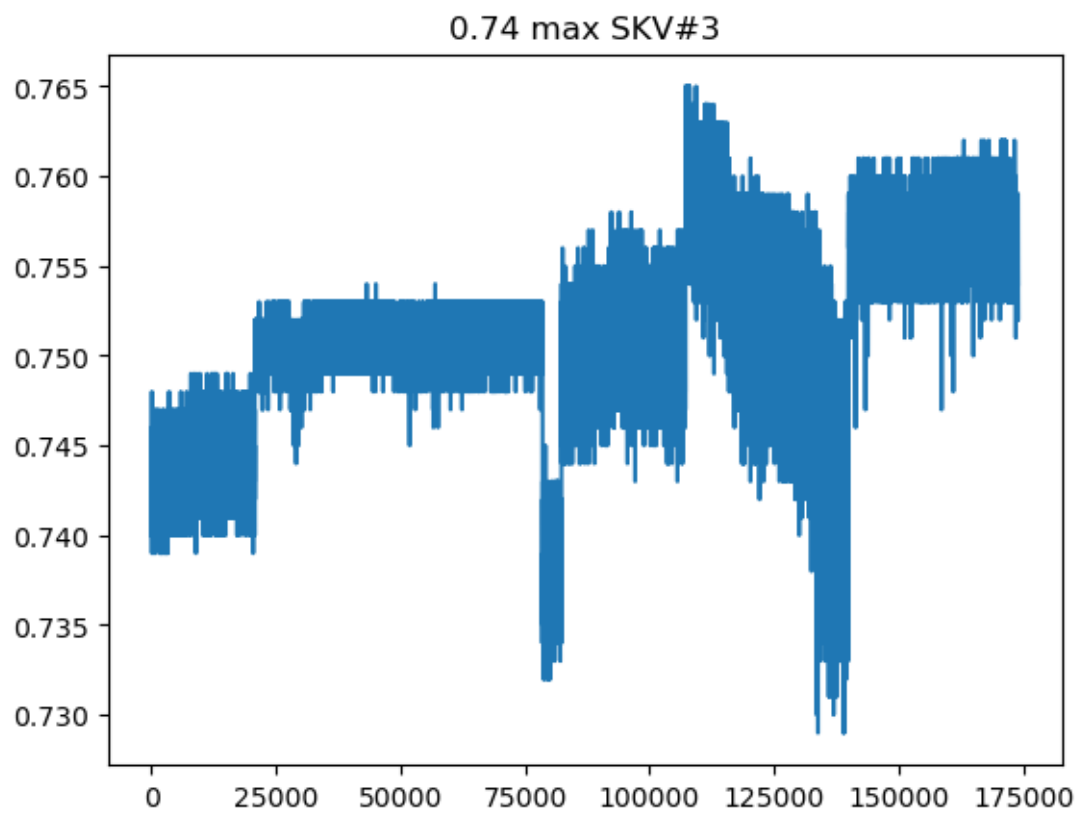


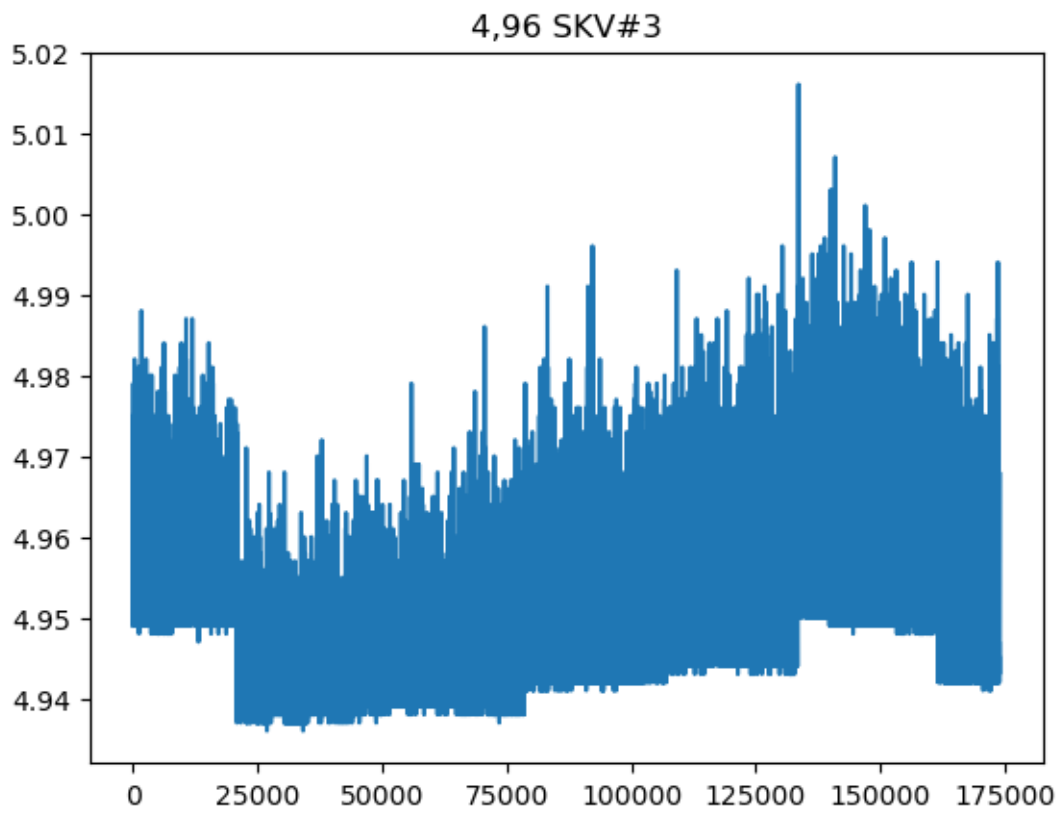


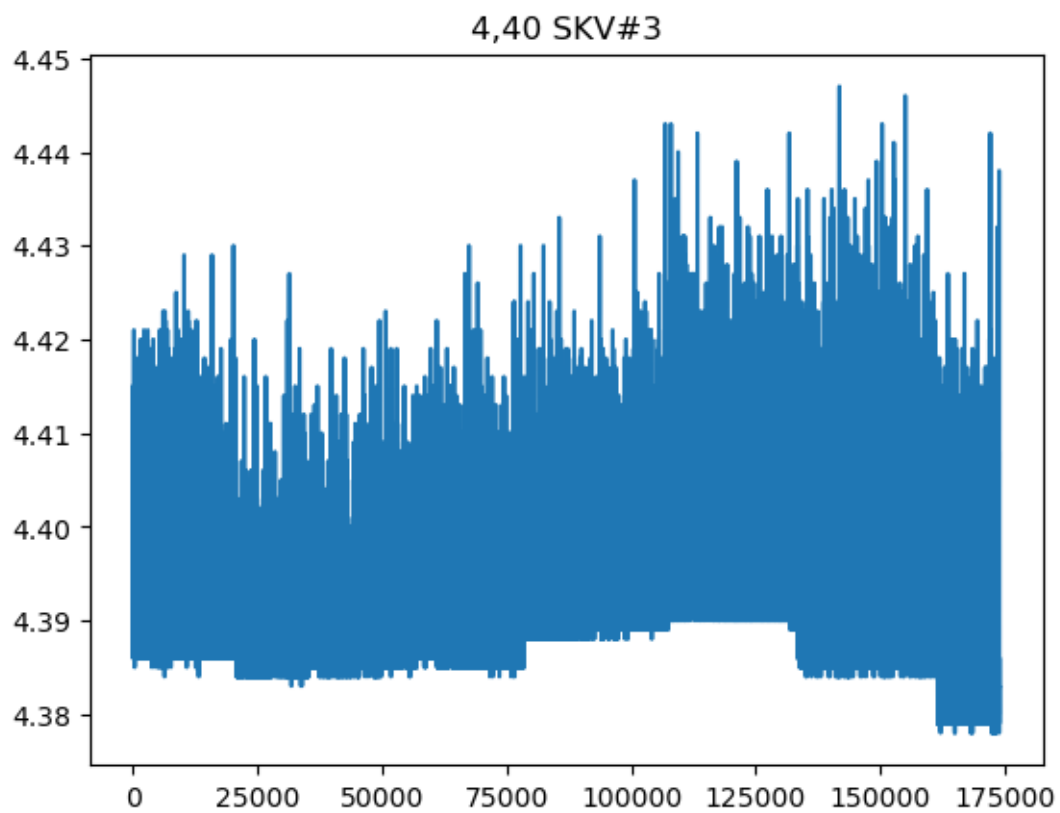




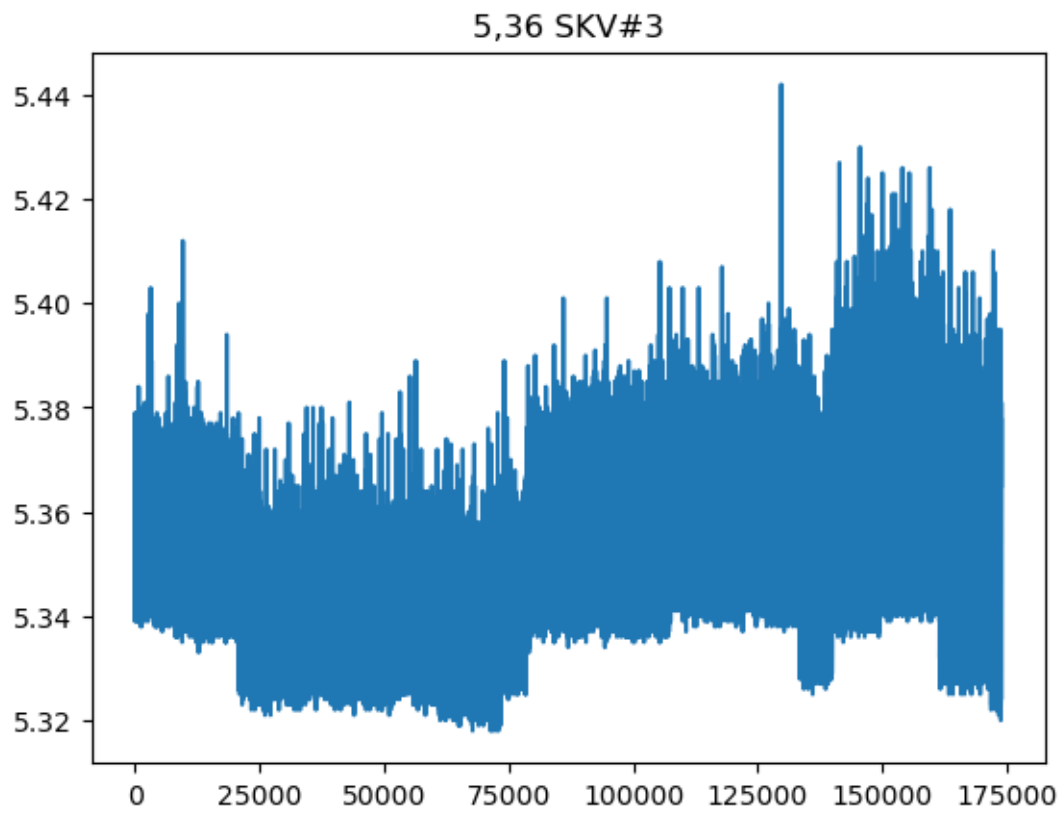


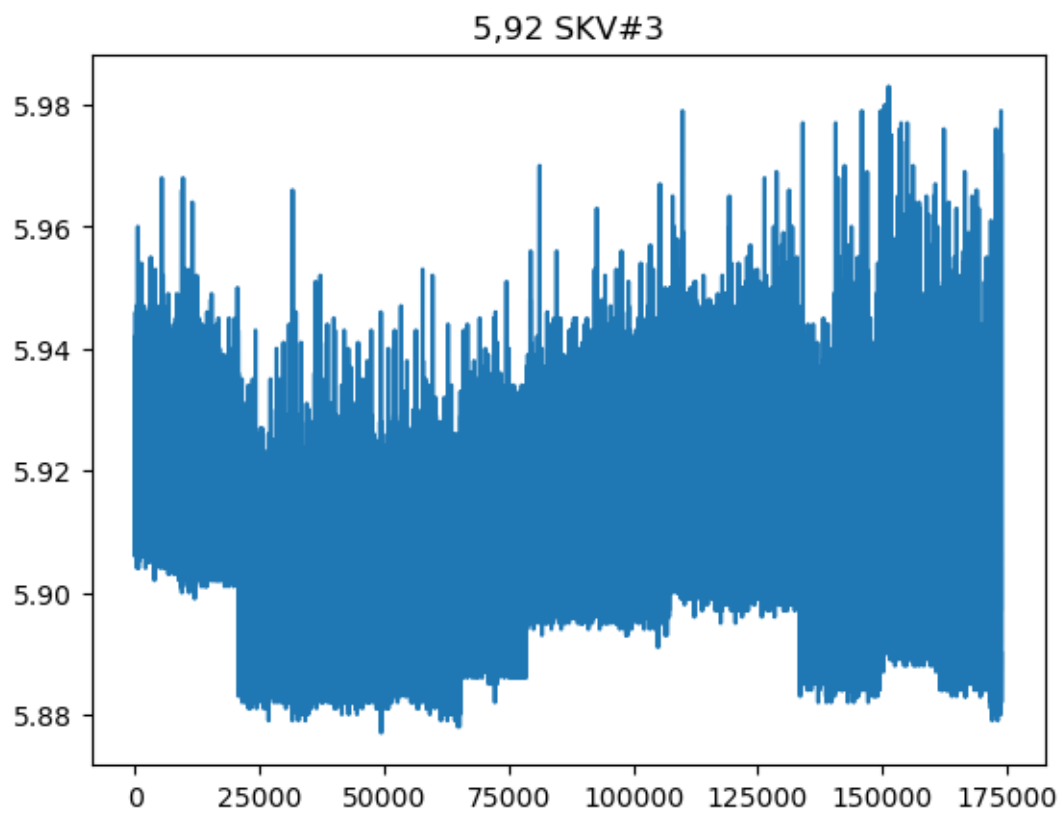


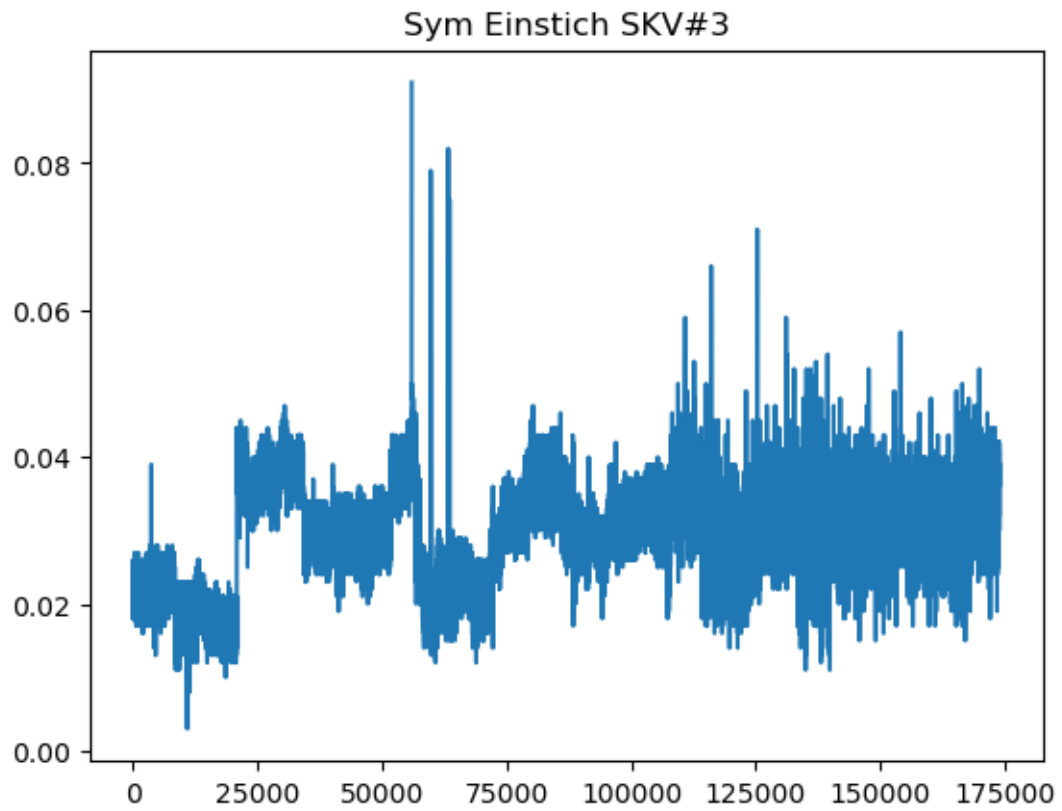


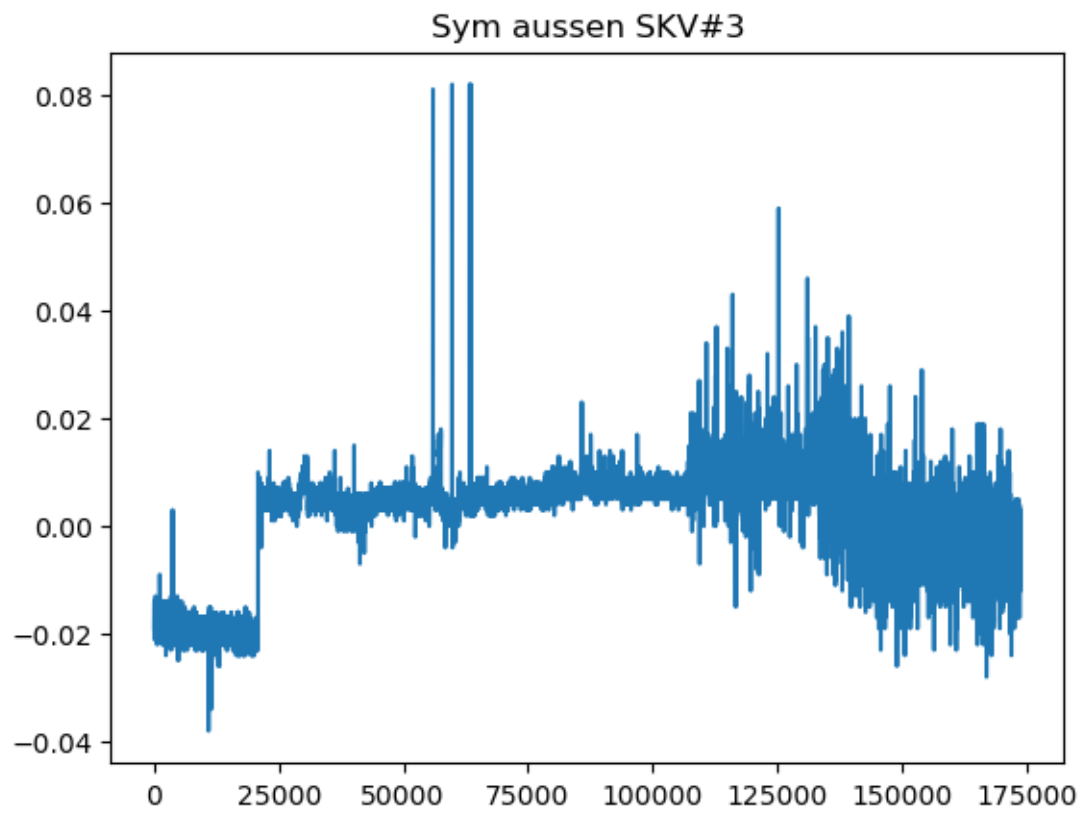


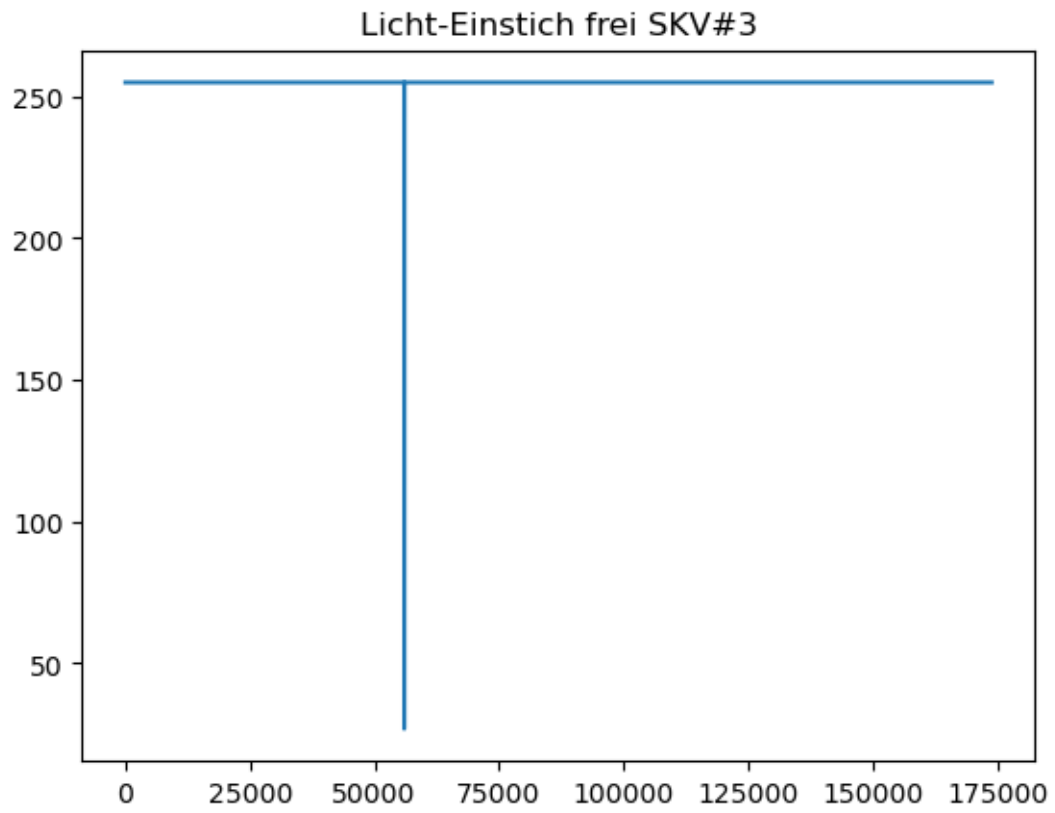


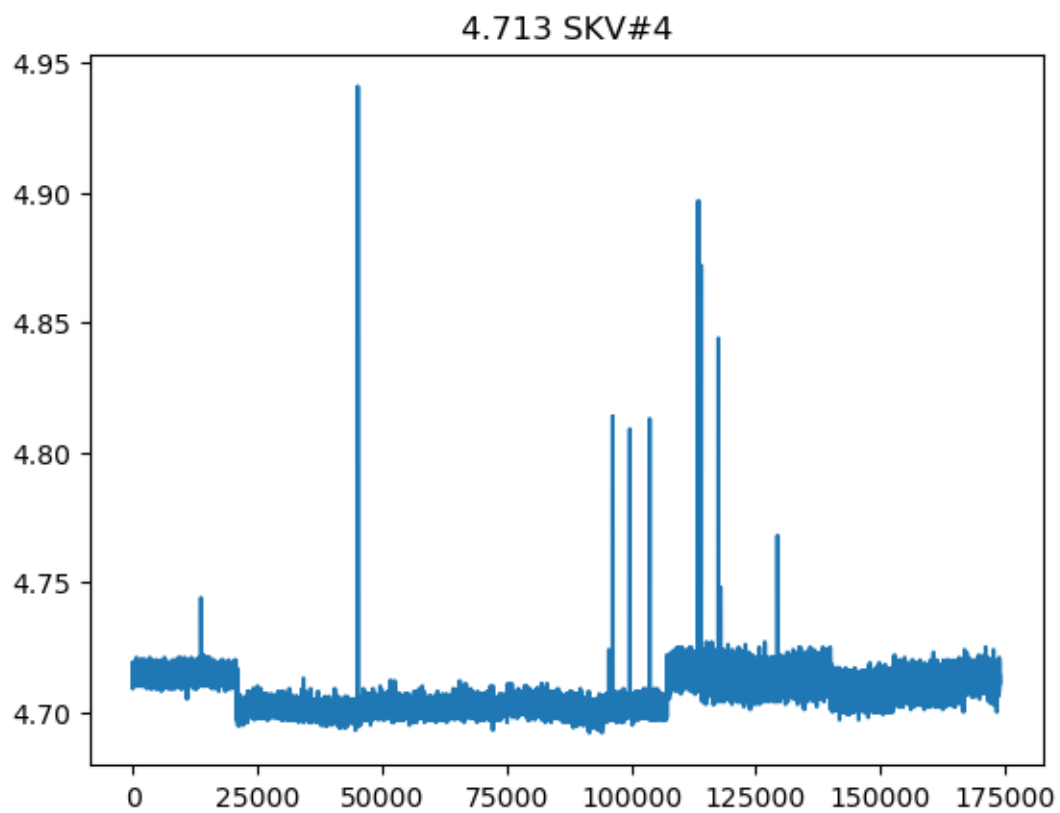


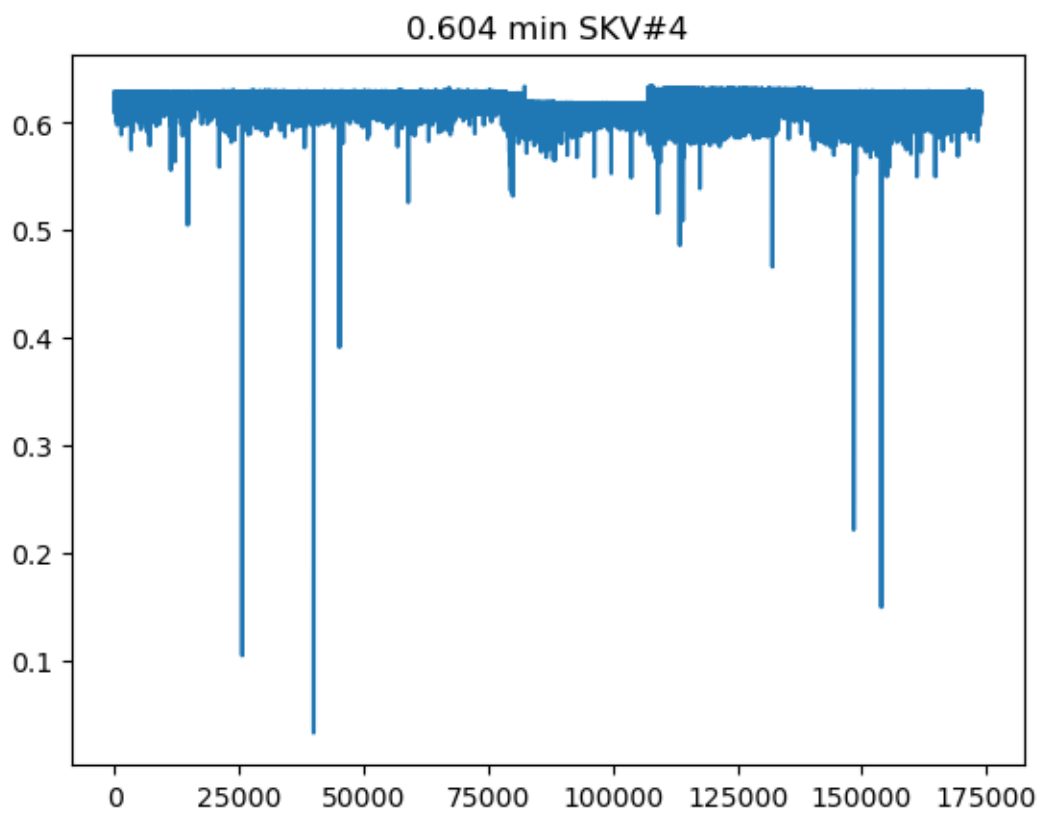


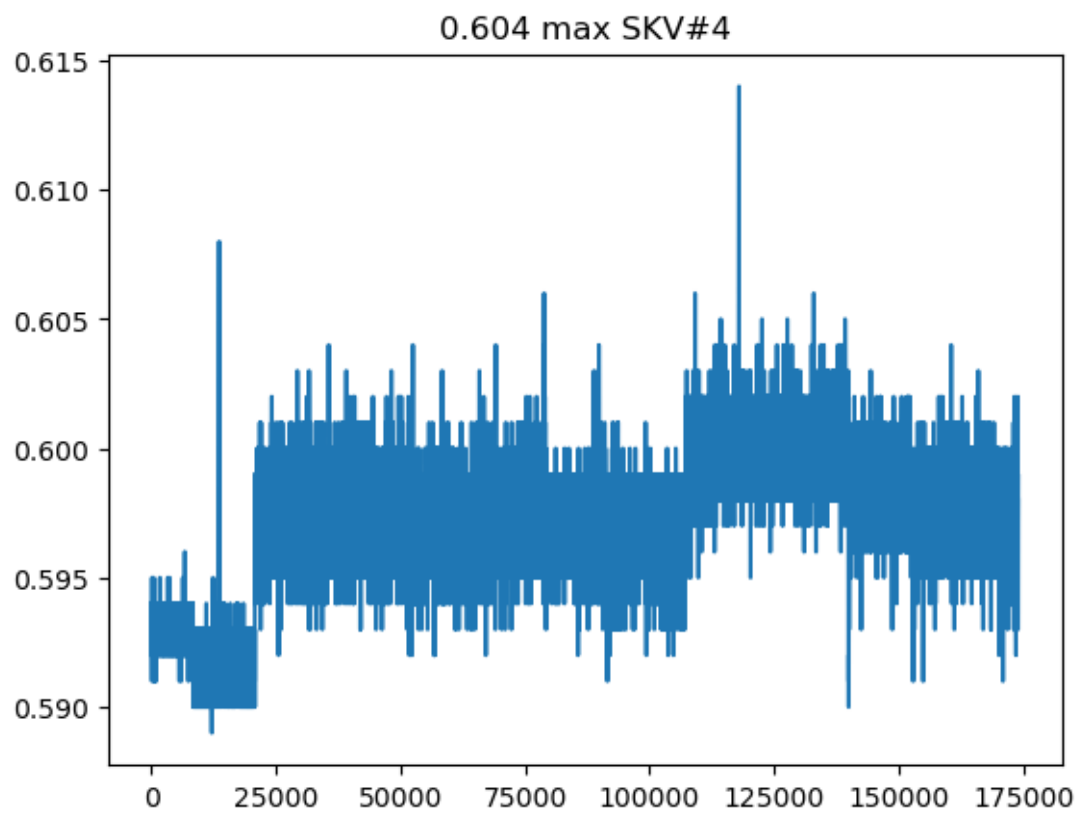




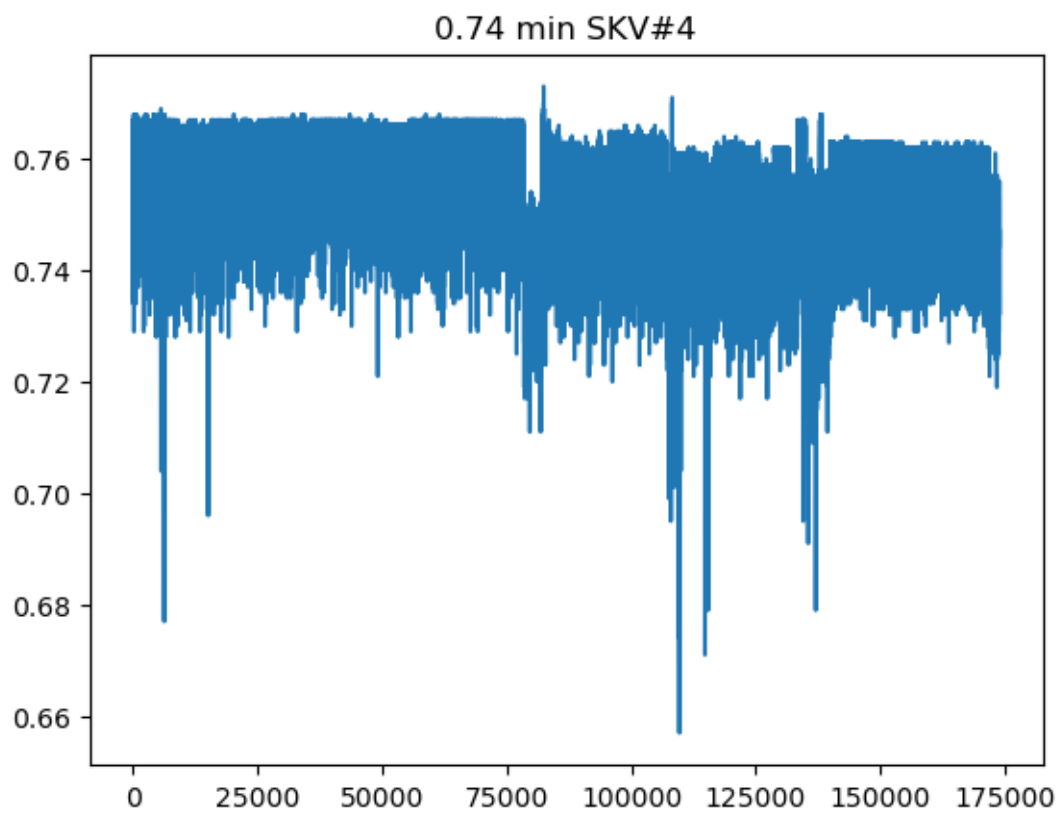


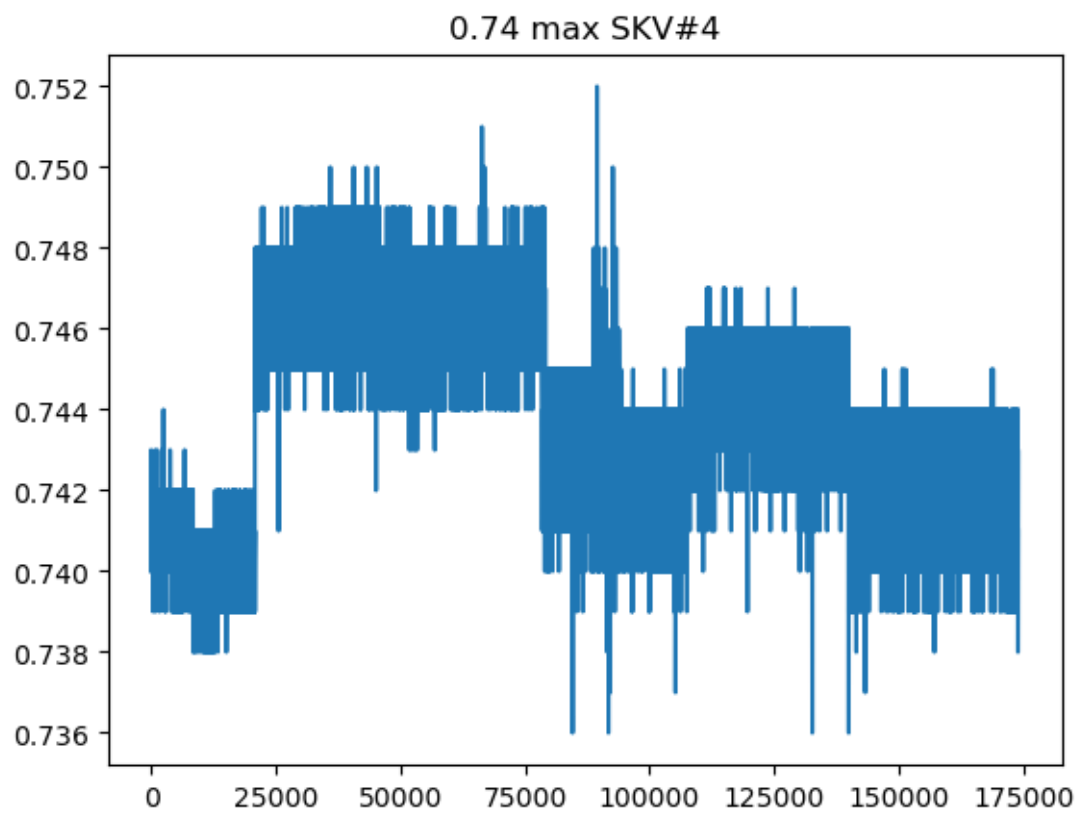


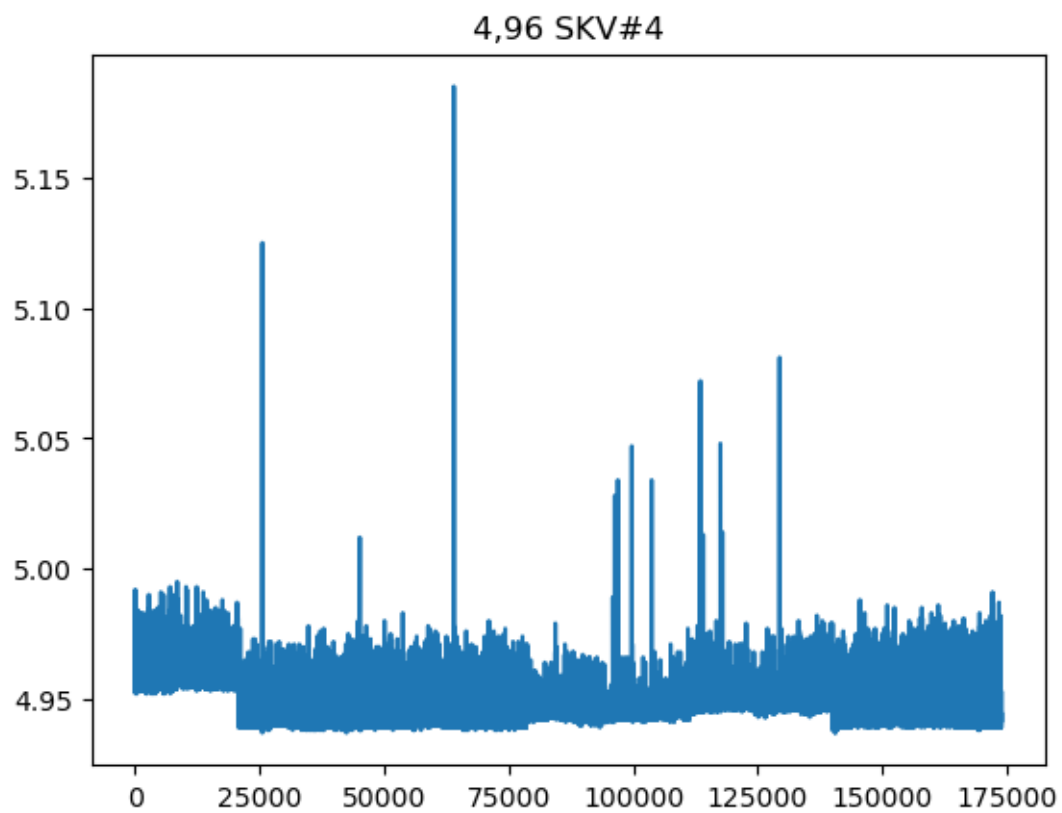


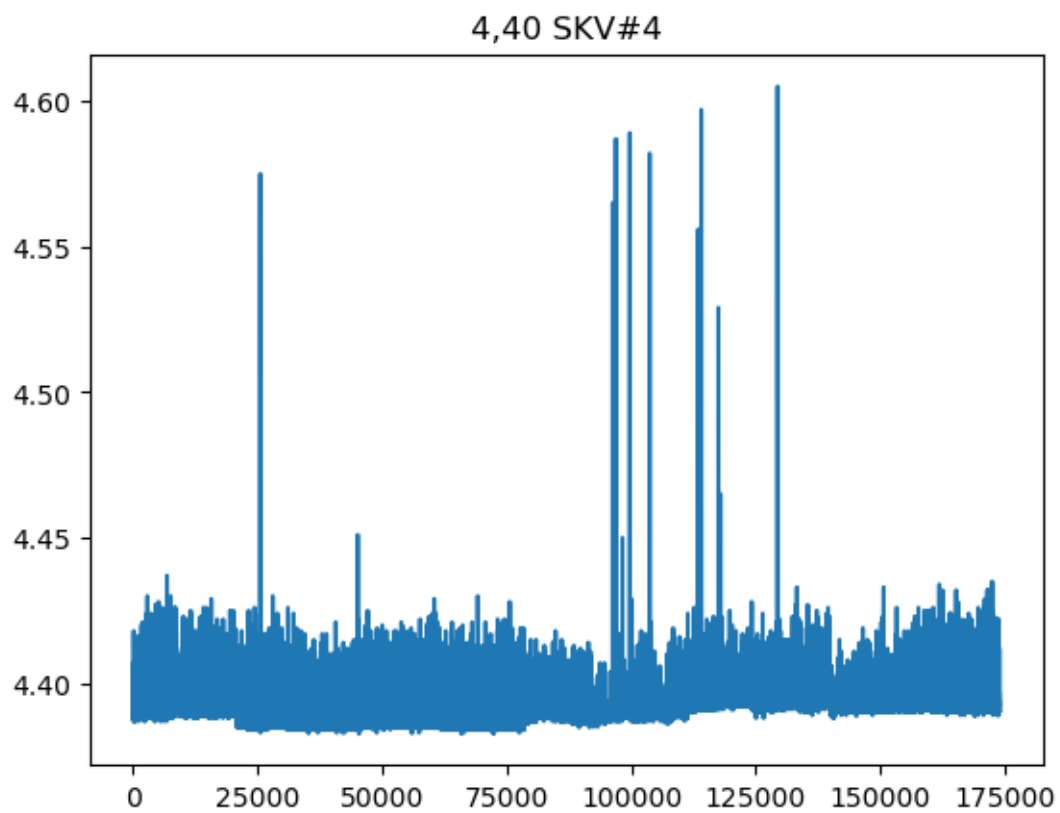


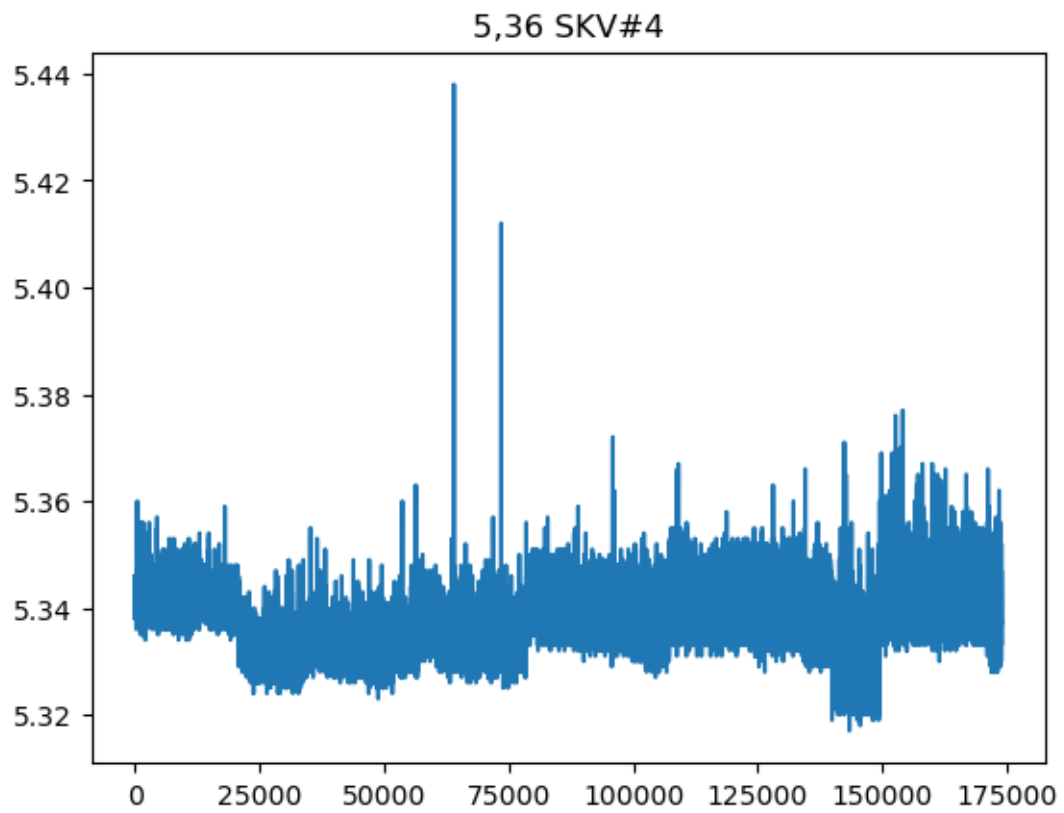


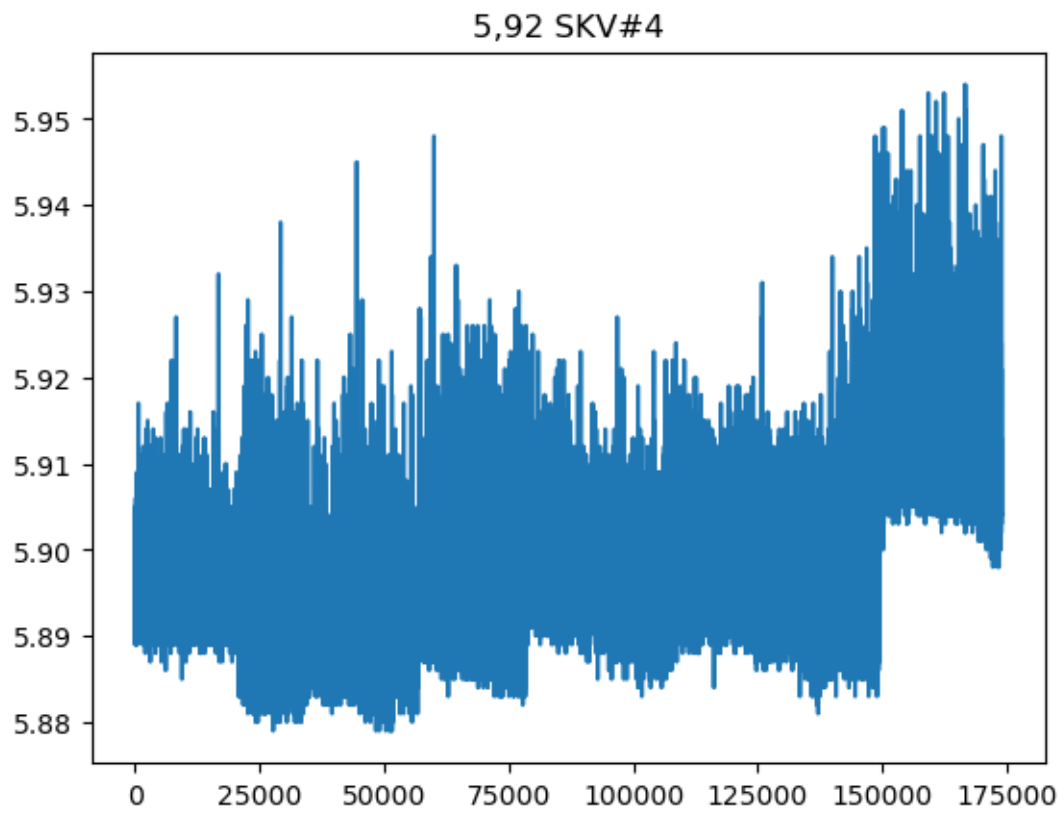


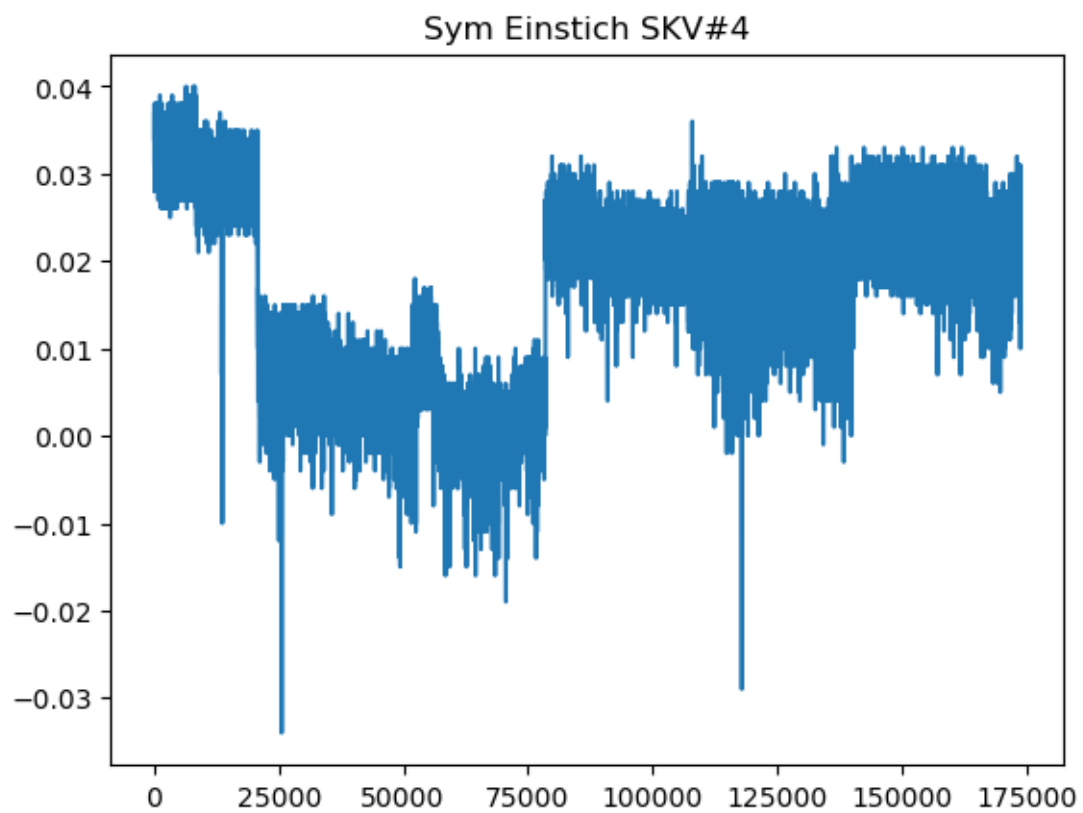


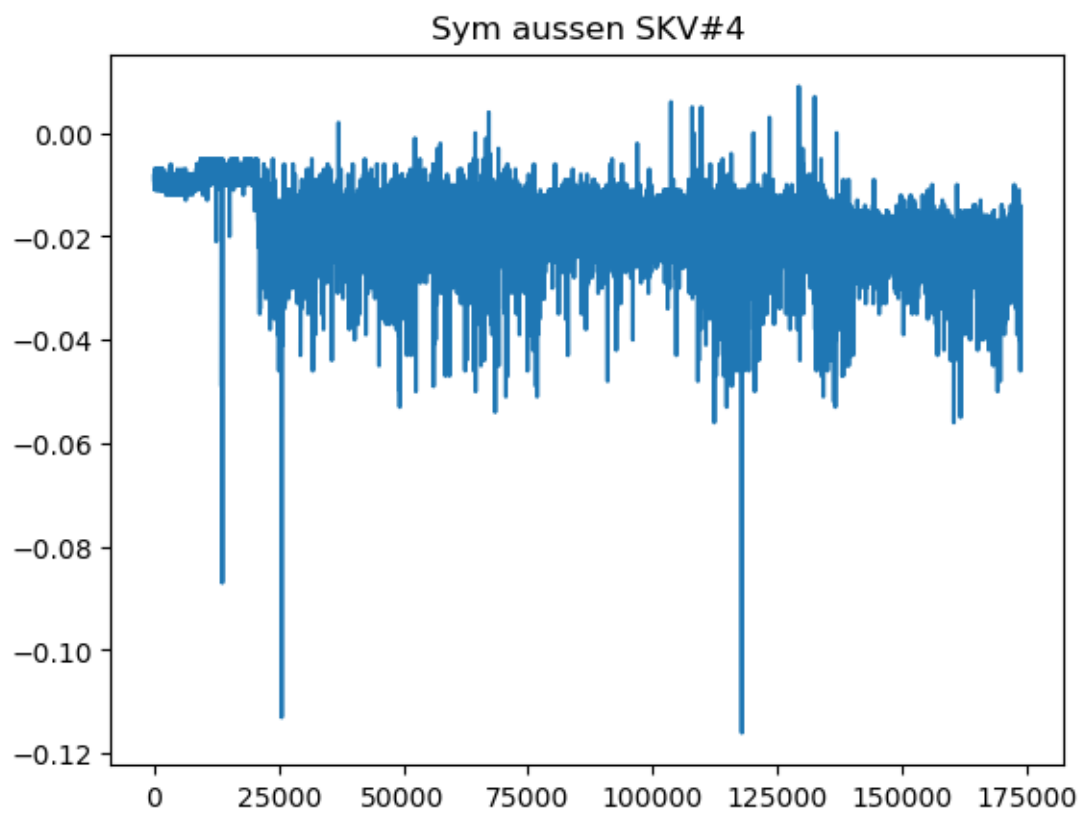




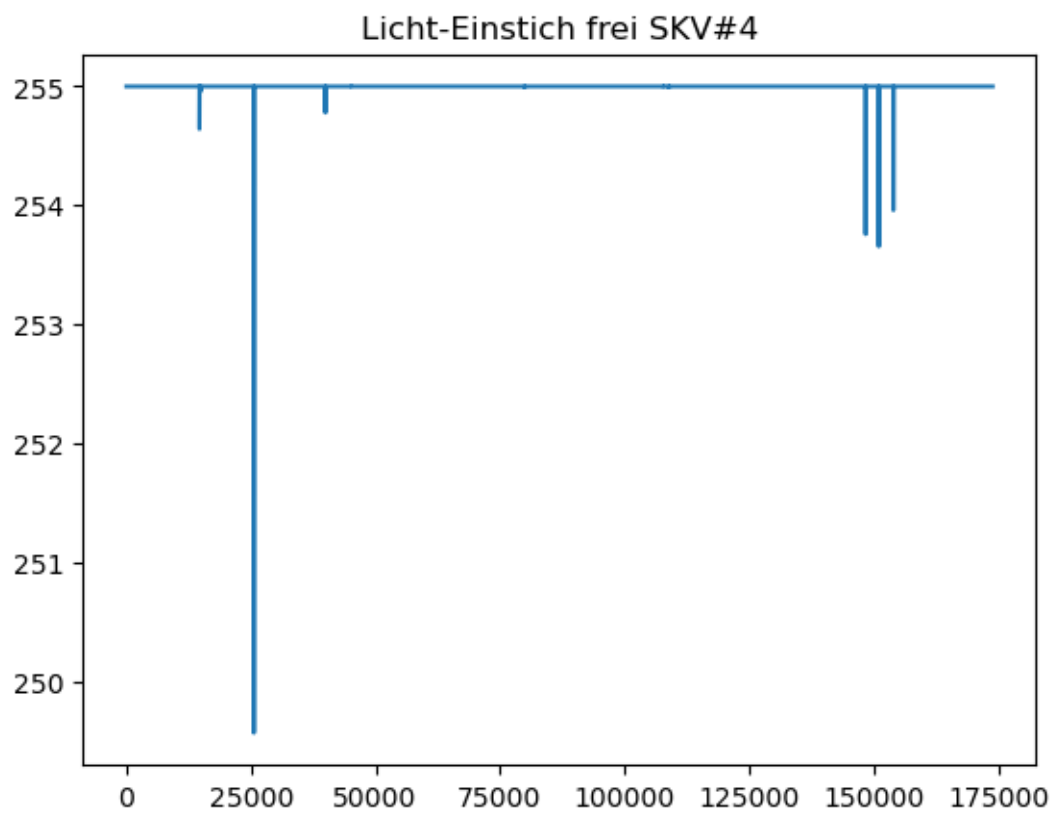


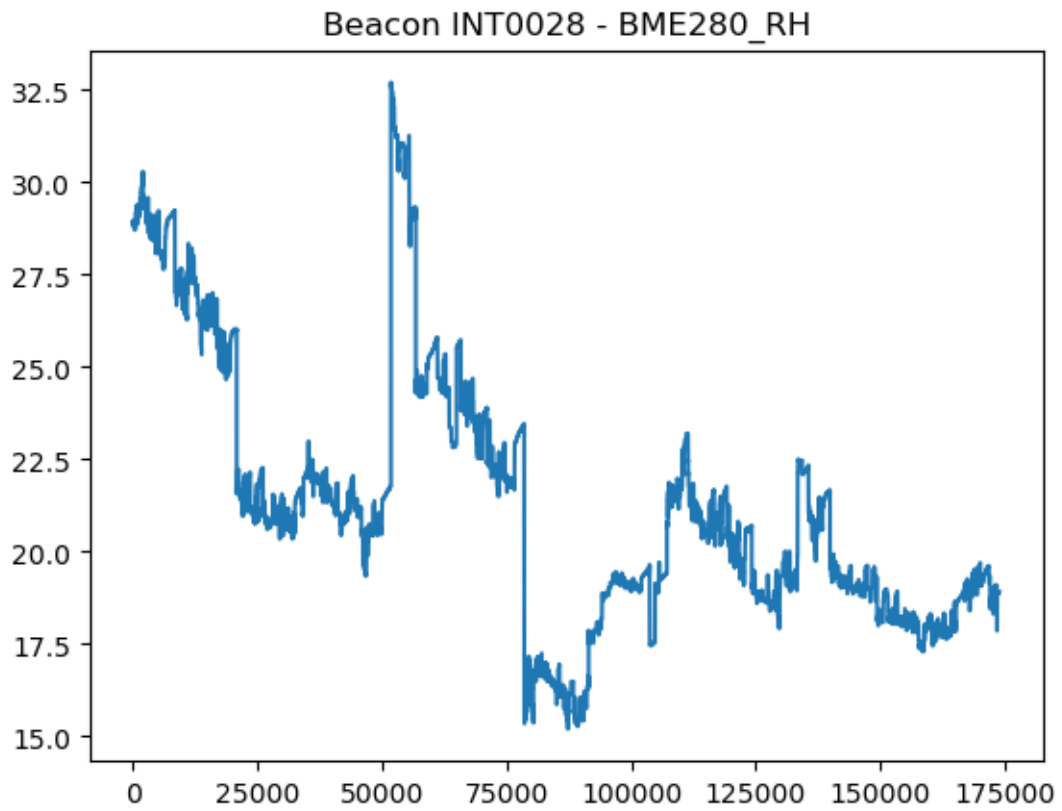


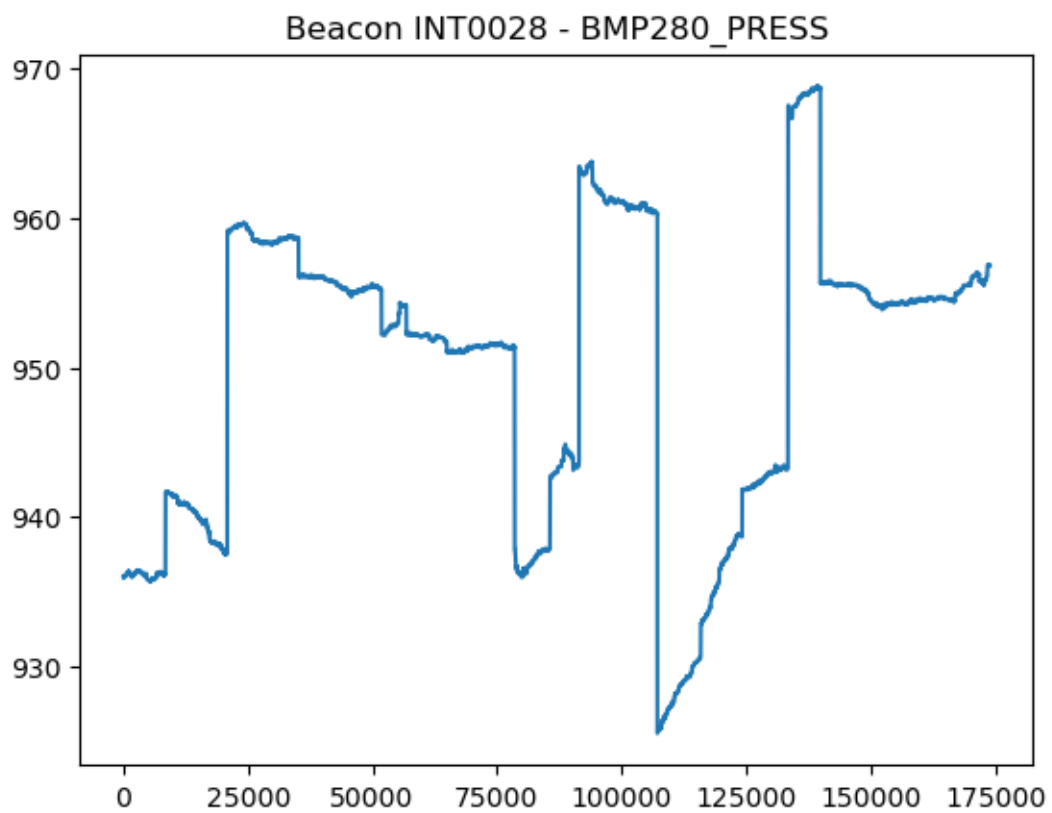


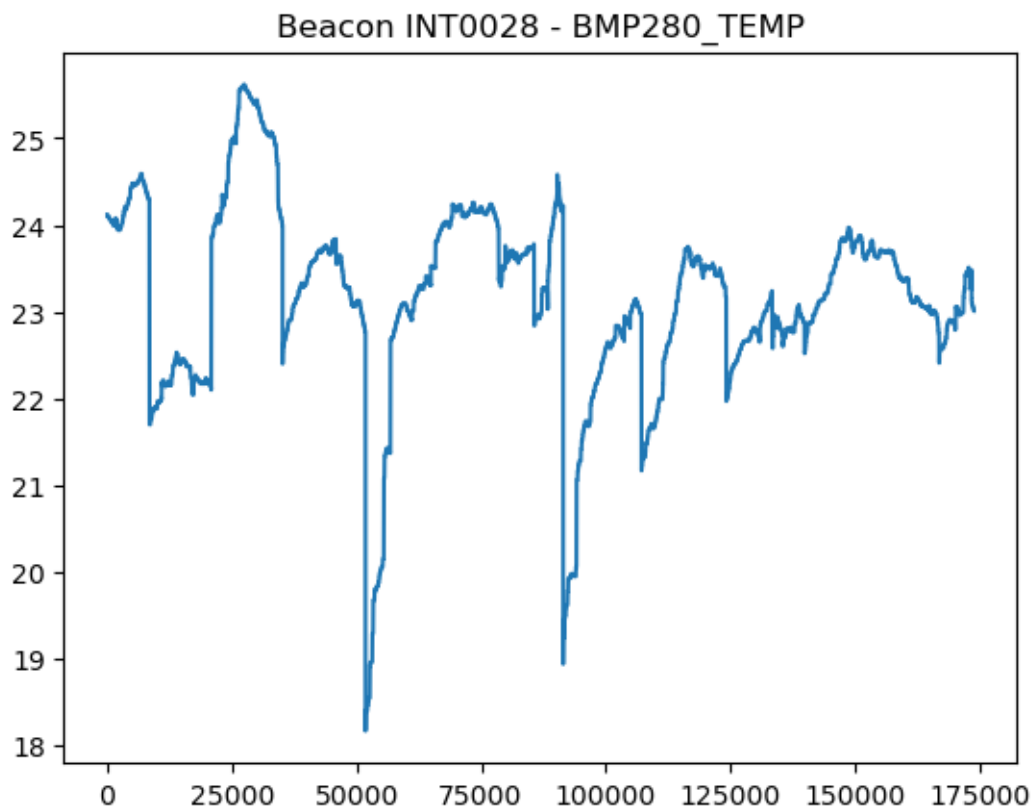












```
[41]: for f in interestingColumns:
        na = X[f].isna()
        toDrop = X[na].index
        print(f"{f} dropped {toDrop}")
        X = X.drop(toDrop)

#Xna = X[na > 0].drop()
```

```
ST_CH1_P_F0 dropped Index([], dtype='int64')
ST_CH1_P_F1 dropped Index([], dtype='int64')
ST_CH1_P_F2 dropped Index([], dtype='int64')
ST_CH1_P_F3 dropped Index([], dtype='int64')
ST_CH1_P_F4 dropped Index([], dtype='int64')
ST_CH1_P_F5 dropped Index([], dtype='int64')
ST_CH1_P_F6 dropped Index([], dtype='int64')
ST_CH1_P_F7 dropped Index([], dtype='int64')
ST_CH1_P_F8 dropped Index([], dtype='int64')
ST_CH1_P_F9 dropped Index([], dtype='int64')
ST_CH1_P_F10 dropped Index([], dtype='int64')
ST_CH1_P_F11 dropped Index([], dtype='int64')
ST_CH1_P0_F0 dropped Index([], dtype='int64')
```

```

ST_CH1_P0_F1 dropped Index([], dtype='int64')
ST_CH1_P0_F2 dropped Index([], dtype='int64')
ST_CH1_P0_F3 dropped Index([], dtype='int64')
ST_CH1_P0_F4 dropped Index([], dtype='int64')
ST_CH1_P0_F5 dropped Index([], dtype='int64')
ST_CH1_P0_F6 dropped Index([], dtype='int64')
ST_CH1_P0_F7 dropped Index([], dtype='int64')
ST_CH1_P0_F8 dropped Index([], dtype='int64')
ST_CH1_P0_F9 dropped Index([], dtype='int64')
ST_CH1_P0_F10 dropped Index([], dtype='int64')
ST_CH1_P0_F11 dropped Index([], dtype='int64')
ST_CH1_P1_F0 dropped Index([], dtype='int64')
ST_CH1_P1_F1 dropped Index([], dtype='int64')
ST_CH1_P1_F2 dropped Index([], dtype='int64')
ST_CH1_P1_F3 dropped Index([], dtype='int64')
ST_CH1_P1_F4 dropped Index([], dtype='int64')
ST_CH1_P1_F5 dropped Index([], dtype='int64')
ST_CH1_P1_F6 dropped Index([], dtype='int64')
ST_CH1_P1_F7 dropped Index([], dtype='int64')
ST_CH1_P1_F8 dropped Index([], dtype='int64')
ST_CH1_P1_F9 dropped Index([], dtype='int64')
ST_CH1_P1_F10 dropped Index([], dtype='int64')
ST_CH1_P1_F11 dropped Index([], dtype='int64')
ST_CH1_P2_F0 dropped Index([], dtype='int64')
ST_CH1_P2_F1 dropped Index([], dtype='int64')
ST_CH1_P2_F2 dropped Index([], dtype='int64')
ST_CH1_P2_F3 dropped Index([], dtype='int64')
ST_CH1_P2_F4 dropped Index([], dtype='int64')
ST_CH1_P2_F5 dropped Index([], dtype='int64')
ST_CH1_P2_F6 dropped Index([], dtype='int64')
ST_CH1_P2_F7 dropped Index([], dtype='int64')
ST_CH1_P2_F8 dropped Index([], dtype='int64')
ST_CH1_P2_F9 dropped Index([], dtype='int64')
ST_CH1_P2_F10 dropped Index([], dtype='int64')
ST_CH1_P2_F11 dropped Index([], dtype='int64')
ST_CH2_P_F0 dropped Index([], dtype='int64')
ST_CH2_P_F1 dropped Index([], dtype='int64')
ST_CH2_P_F2 dropped Index([], dtype='int64')
ST_CH2_P_F3 dropped Index([], dtype='int64')
ST_CH2_P_F4 dropped Index([], dtype='int64')
ST_CH2_P_F5 dropped Index([], dtype='int64')
ST_CH2_P_F6 dropped Index([], dtype='int64')
ST_CH2_P_F7 dropped Index([], dtype='int64')
ST_CH2_P_F8 dropped Index([], dtype='int64')
ST_CH2_P_F9 dropped Index([], dtype='int64')
ST_CH2_P_F10 dropped Index([], dtype='int64')
ST_CH2_P_F11 dropped Index([], dtype='int64')
ST_CH2_P0_F0 dropped Index([], dtype='int64')

```

```

ST_CH2_P0_F1 dropped Index([], dtype='int64')
ST_CH2_P0_F2 dropped Index([], dtype='int64')
ST_CH2_P0_F3 dropped Index([], dtype='int64')
ST_CH2_P0_F4 dropped Index([], dtype='int64')
ST_CH2_P0_F5 dropped Index([], dtype='int64')
ST_CH2_P0_F6 dropped Index([], dtype='int64')
ST_CH2_P0_F7 dropped Index([], dtype='int64')
ST_CH2_P0_F8 dropped Index([], dtype='int64')
ST_CH2_P0_F9 dropped Index([], dtype='int64')
ST_CH2_P0_F10 dropped Index([], dtype='int64')
ST_CH2_P0_F11 dropped Index([], dtype='int64')
ST_CH2_P1_F0 dropped Index([], dtype='int64')
ST_CH2_P1_F1 dropped Index([], dtype='int64')
ST_CH2_P1_F2 dropped Index([], dtype='int64')
ST_CH2_P1_F3 dropped Index([], dtype='int64')
ST_CH2_P1_F4 dropped Index([], dtype='int64')
ST_CH2_P1_F5 dropped Index([], dtype='int64')
ST_CH2_P1_F6 dropped Index([], dtype='int64')
ST_CH2_P1_F7 dropped Index([], dtype='int64')
ST_CH2_P1_F8 dropped Index([], dtype='int64')
ST_CH2_P1_F9 dropped Index([], dtype='int64')
ST_CH2_P1_F10 dropped Index([], dtype='int64')
ST_CH2_P1_F11 dropped Index([], dtype='int64')
ST_CH2_P2_F0 dropped Index([], dtype='int64')
ST_CH2_P2_F1 dropped Index([], dtype='int64')
ST_CH2_P2_F2 dropped Index([], dtype='int64')
ST_CH2_P2_F3 dropped Index([], dtype='int64')
ST_CH2_P2_F4 dropped Index([], dtype='int64')
ST_CH2_P2_F5 dropped Index([], dtype='int64')
ST_CH2_P2_F6 dropped Index([], dtype='int64')
ST_CH2_P2_F7 dropped Index([], dtype='int64')
ST_CH2_P2_F8 dropped Index([], dtype='int64')
ST_CH2_P2_F9 dropped Index([], dtype='int64')
ST_CH2_P2_F10 dropped Index([], dtype='int64')
ST_CH2_P2_F11 dropped Index([], dtype='int64')
4.713 SKV#1 dropped Index([], dtype='int64')
0.604 min SKV#1 dropped Index([67529], dtype='int64')
0.604 max SKV#1 dropped Index([], dtype='int64')
0.74 min SKV#1 dropped Index([], dtype='int64')
0.74 max SKV#1 dropped Index([], dtype='int64')
4,96 SKV#1 dropped Index([], dtype='int64')
4,40 SKV#1 dropped Index([], dtype='int64')
5,36 SKV#1 dropped Index([], dtype='int64')
5,92 SKV#1 dropped Index([], dtype='int64')
Sym aussen SKV#1 dropped Index([], dtype='int64')
Sym Einstich SKV#1 dropped Index([], dtype='int64')
Licht-Einstich frei SKV#1 dropped Index([], dtype='int64')
4.713 SKV#2 dropped Index([15807, 15808, 15809, 15810, 15811, 15812, 15813,

```

```

15900, 16556, 17224,
    18655, 19591, 19649, 20690, 20694, 82760],
    dtype='int64')
0.604 min SKV#2 dropped Index([], dtype='int64')
0.604 max SKV#2 dropped Index([], dtype='int64')
0.74 min SKV#2 dropped Index([], dtype='int64')
0.74 max SKV#2 dropped Index([], dtype='int64')
4,96 SKV#2 dropped Index([], dtype='int64')
4,40 SKV#2 dropped Index([], dtype='int64')
5,36 SKV#2 dropped Index([], dtype='int64')
5,92 SKV#2 dropped Index([], dtype='int64')
Sym Einstich SKV#2 dropped Index([], dtype='int64')
Sym aussen SKV#2 dropped Index([], dtype='int64')
Licht-Einstich frei SKV#2 dropped Index([], dtype='int64')
4.713 SKV#3 dropped Index([55958, 55959, 55960, 55961, 55962, 55963, 55964,
55965, 55966, 55967,
    55968, 55969, 55970],
    dtype='int64')
0.604 min SKV#3 dropped Index([], dtype='int64')
0.604 max SKV#3 dropped Index([], dtype='int64')
0.74 min SKV#3 dropped Index([], dtype='int64')
0.74 max SKV#3 dropped Index([], dtype='int64')
4,96 SKV#3 dropped Index([], dtype='int64')
4,40 SKV#3 dropped Index([], dtype='int64')
5,36 SKV#3 dropped Index([], dtype='int64')
5,92 SKV#3 dropped Index([], dtype='int64')
Sym Einstich SKV#3 dropped Index([], dtype='int64')
Sym aussen SKV#3 dropped Index([], dtype='int64')
Licht-Einstich frei SKV#3 dropped Index([], dtype='int64')
4.713 SKV#4 dropped Index([25593], dtype='int64')
0.604 min SKV#4 dropped Index([], dtype='int64')
0.604 max SKV#4 dropped Index([], dtype='int64')
0.74 min SKV#4 dropped Index([], dtype='int64')
0.74 max SKV#4 dropped Index([], dtype='int64')
4,96 SKV#4 dropped Index([], dtype='int64')
4,40 SKV#4 dropped Index([35250], dtype='int64')
5,36 SKV#4 dropped Index([], dtype='int64')
5,92 SKV#4 dropped Index([], dtype='int64')
Sym Einstich SKV#4 dropped Index([], dtype='int64')
Sym aussen SKV#4 dropped Index([], dtype='int64')
Licht-Einstich frei SKV#4 dropped Index([], dtype='int64')
Beacon INT0028 - BME280_RH dropped Index([], dtype='int64')
Beacon INT0028 - BMP280_PRESS dropped Index([], dtype='int64')
Beacon INT0028 - BMP280_TEMP dropped Index([], dtype='int64')

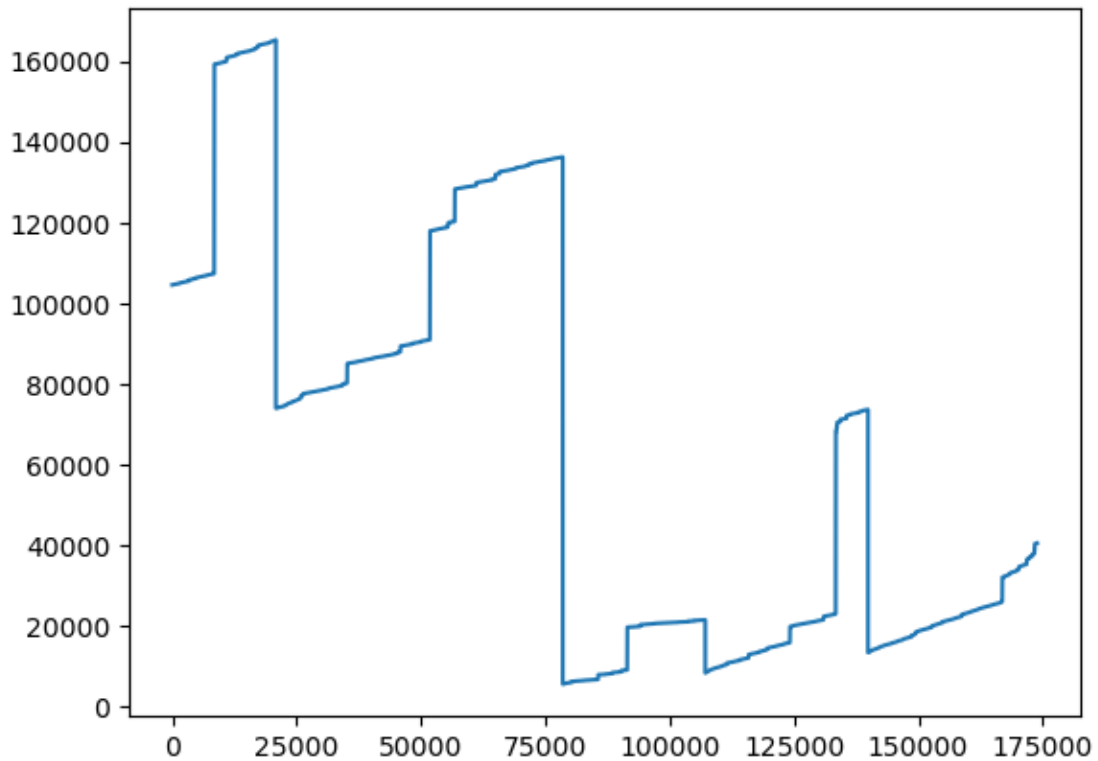
```

```
[42]: X.isna().sum()
```

```
[42]: timestamp_skv          0
      timediff_skv           7
      timestamp_sensor       0
      timediff_sensor        7
      SynchroDiff            0
      ..
      Beacon INT0028 - BMP280_PRESS 0
      timestamp.2            0
      Beacon INT0028 - BMP280_TEMP  0
      pieces                 0
      tool io                 0
      Length: 165, dtype: int64
```

```
[43]: plt.plot(X.index,X.pieces)
```

```
[43]: [<matplotlib.lines.Line2D at 0x7f3c5192c2e0>]
```



```
[ ]:
```