Spacecraft: Cassini
DSS: 14
Monitor File: S99SROI2017_110_0625_14_MON.ecsv
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APPLICABLE_STOP_TIME = 2017-110T15:40:00.158;
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5 minutes omitted from end of file

02. Carrier Power to Noise Spectral Density Ratio (Pc/No) and Residual Frequency

03. X-Band Measured Carrier Frequency, Predicted Carrier Frequency, and Residual Frequency

04. S-Band Measured Carrier Frequency, Predicted Carrier Frequency, and Residual Frequency

05. Uplink Frequency and Power

06. Carrier Power to Noise Spectral Density Ratio (Pc/No) and Carrier Power

07. Carrier Power to Noise Spectral Density Ratio (Pc/No) and System Noise Temperature

08. Carrier Loop Tracking Bandwidth

09. AGC Voltage

10. Azimuth & Elevation

11. Weather: Air Temperature, Dew Point Temperature, Relative Humidity, Precipitation Rate, and Barometric Pressure

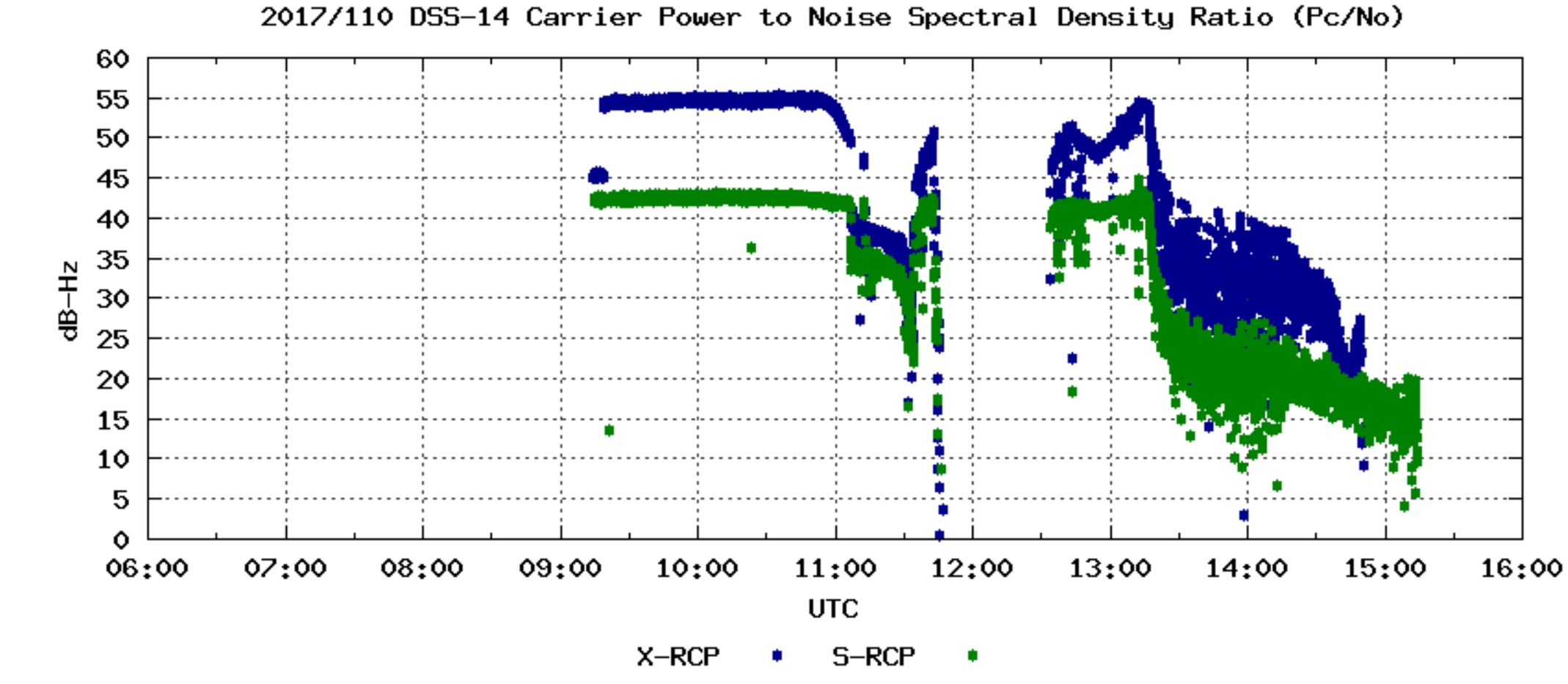
12. Wind Speed and Direction

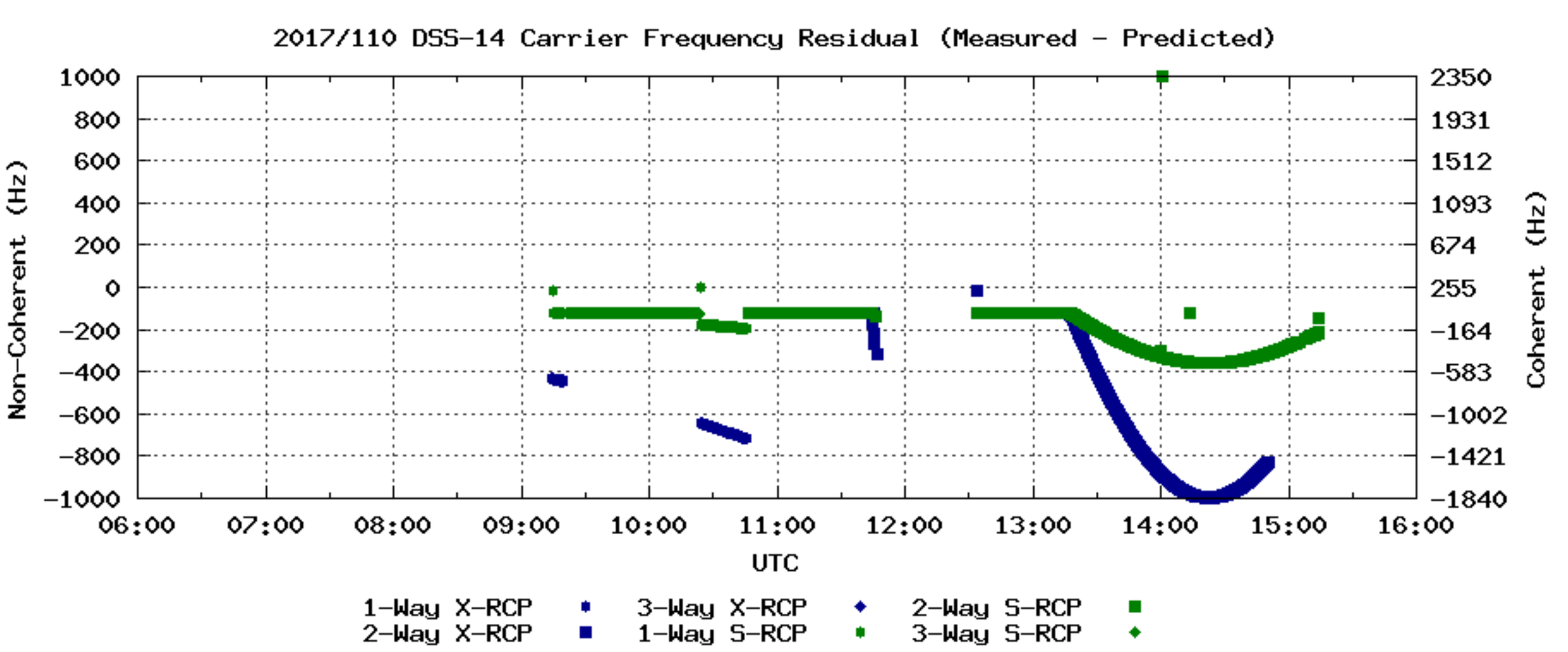
13. Conscan Drive Status

14. Azimuth & Elevation Residuals

15. System Noise Temperature, Elevation, Precipitation Rate, and Relative Humidity

16. Index


2017/110 DSS-14 Carrier Power to Noise Spectral Density Ratio (Pc/No)
dB-Hz
60
55
50
45
40
35
30
25
20
15
10
5
0
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC
X-RCP
S-RCP


2017/110 DSS-14 Carrier Frequency Residual (Measured - Predicted)
Non-Coherent (Hz)
1000
800
600
400
200
0
-200
-400
-600
-800
-1000
Coherent (Hz)
2350
1931
1512
1093
674
255
-164
-583
-1002
-1421
-1840
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC
1-Way X-RCP
2-Way X-RCP
3-Way X-RCP
1-Way S-RCP
2-Way S-RCP
3-Way S-RCP

2017/110 DSS-14 X-Band Measured and Predicted Carrier Frequency

Non-Coherent (Hz): 8430410000, 8430133000, 8429856000, 8429579000, 8429302000, 8429025000, 8428748000, 8428471000, 8428194000, 8427917000, 8427640000

Coherent (Hz): 8430480000, 8430202000, 8429924000, 8429646000, 8429368000, 8429090000, 8428812000, 8428534000, 8428256000, 8427978000, 8427700000

06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00

UTC

1-Way Predicted X-RCP
2-Way Predicted X-RCP
3-Way Predicted X-RCP
1-Way Measured X-RCP
2-Way Measured X-RCP
3-Way Measured X-RCP

2017/110 DSS-14 X-Band Residual Frequency (Measured - Predicted)

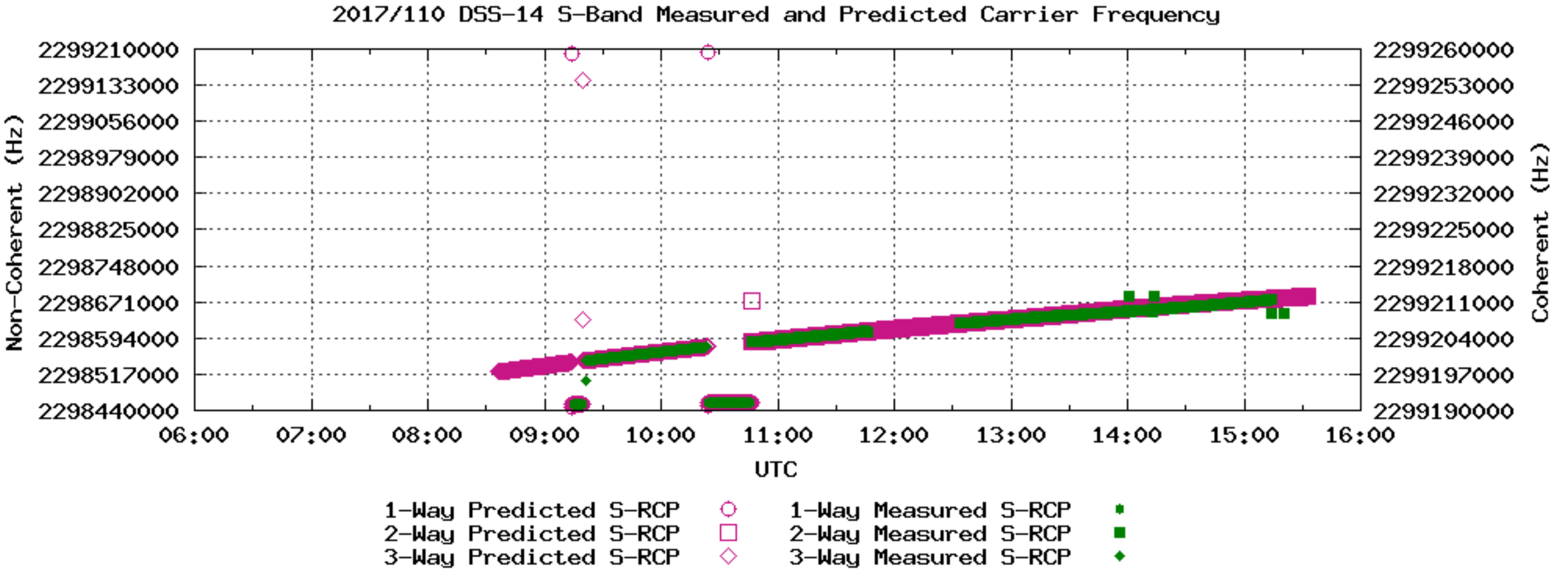
Non-Coherent (Hz): -400, -440, -480, -520, -560, -600, -640, -680, -720, -760, -800

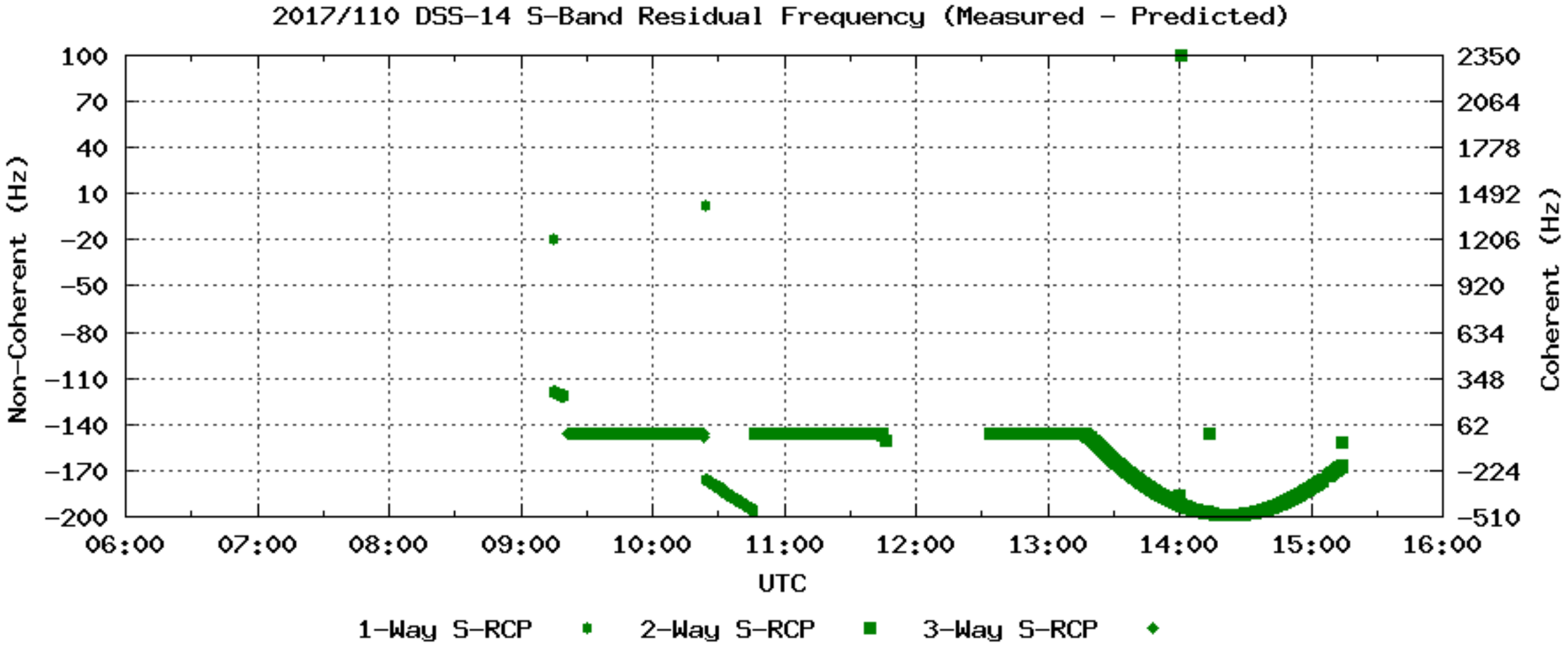
Coherent (Hz): 220, 14, -192, -398, -604, -810, -1016, -1222, -1428, -1634, -1840

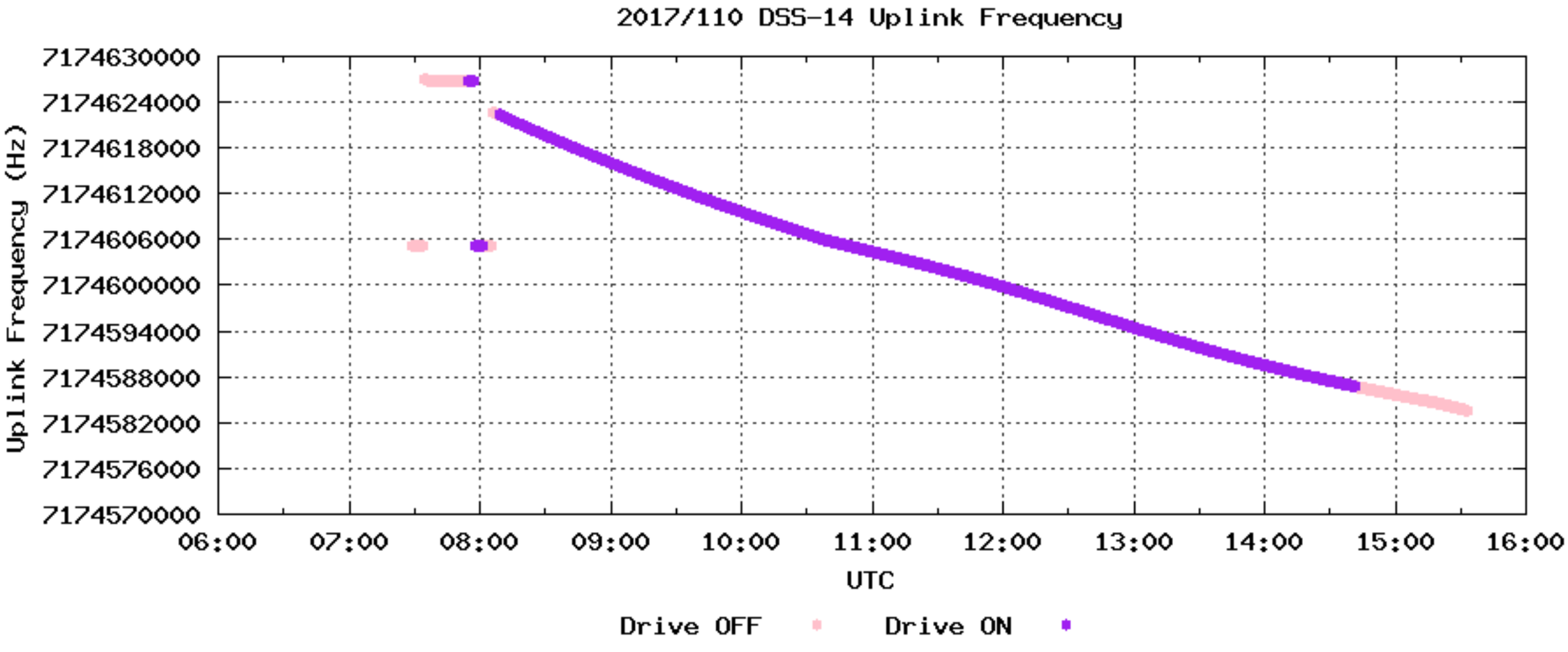
06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00

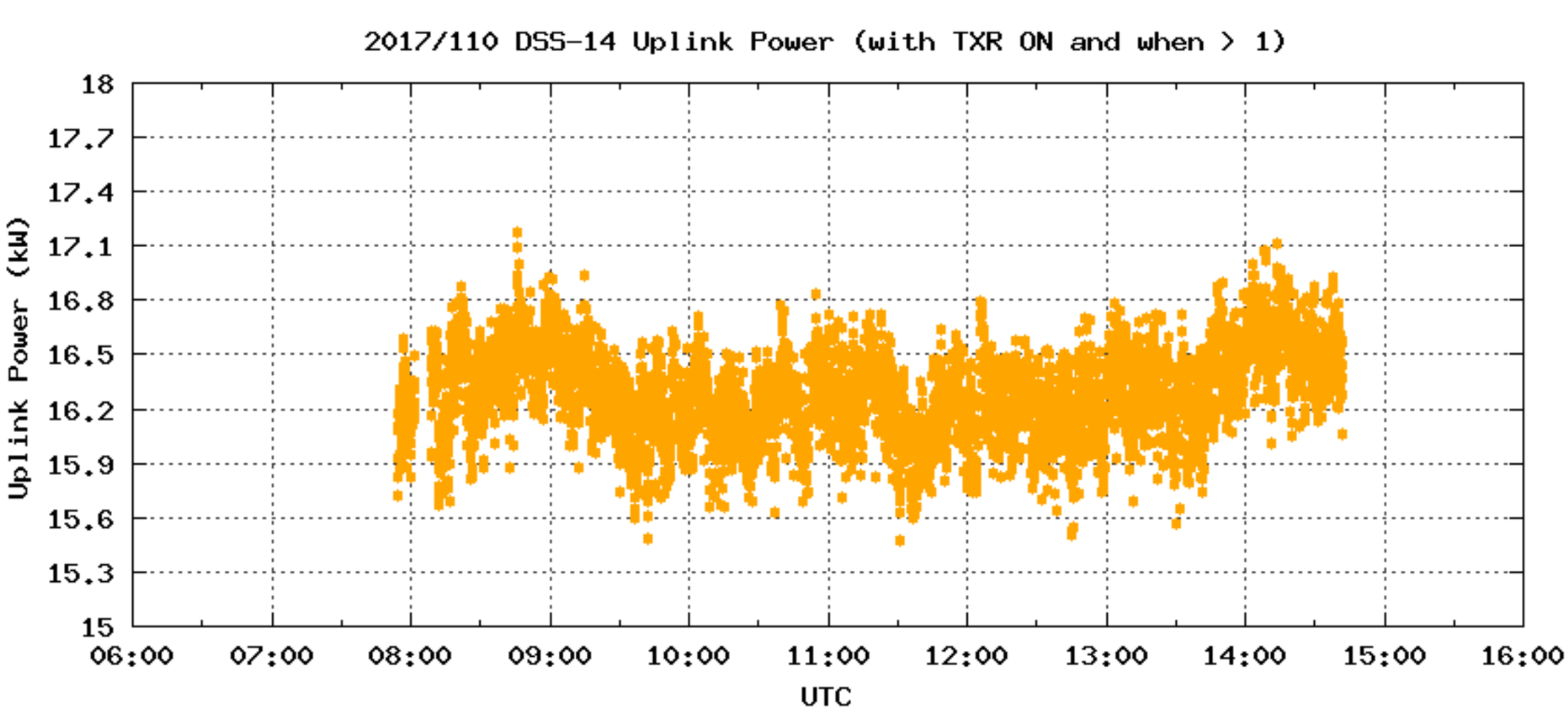
UTC

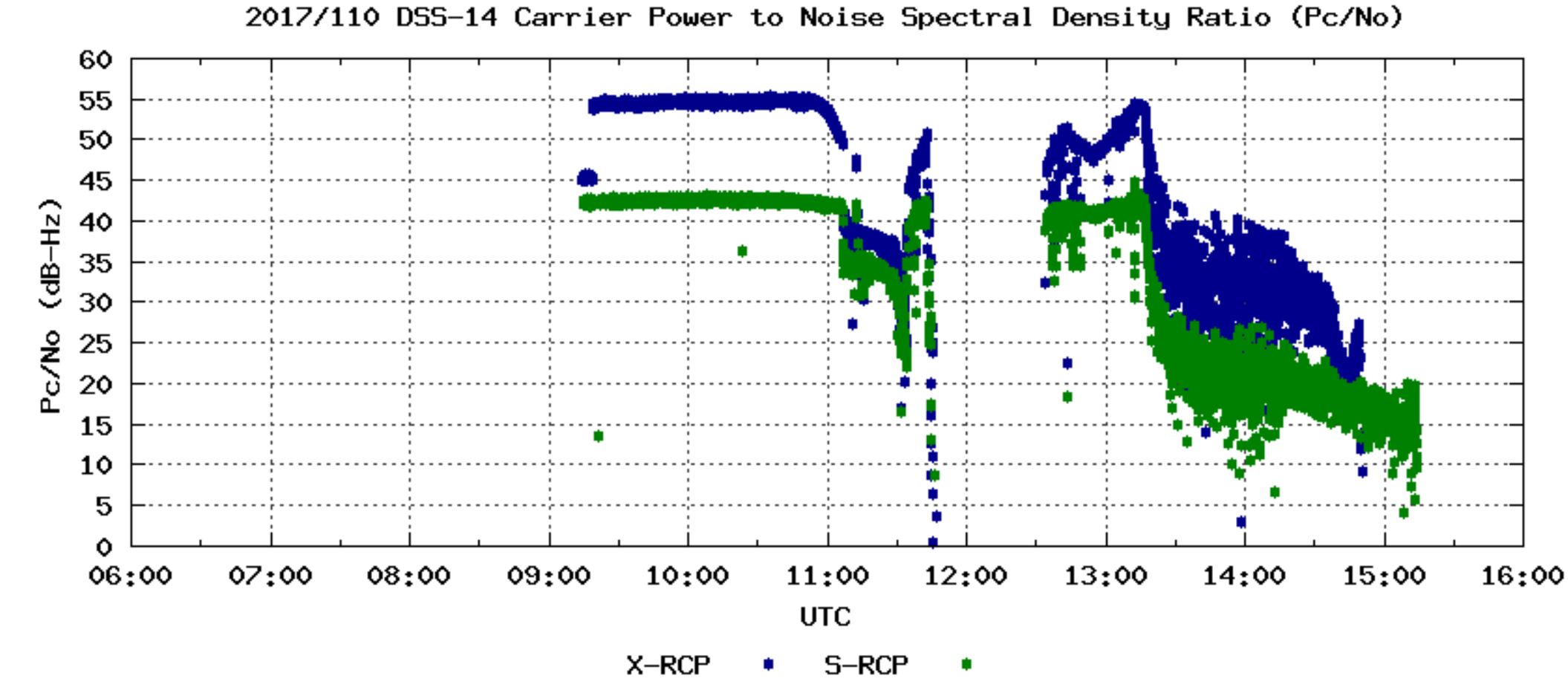
1-Way X-RCP
2-Way X-RCP
3-Way X-RCP

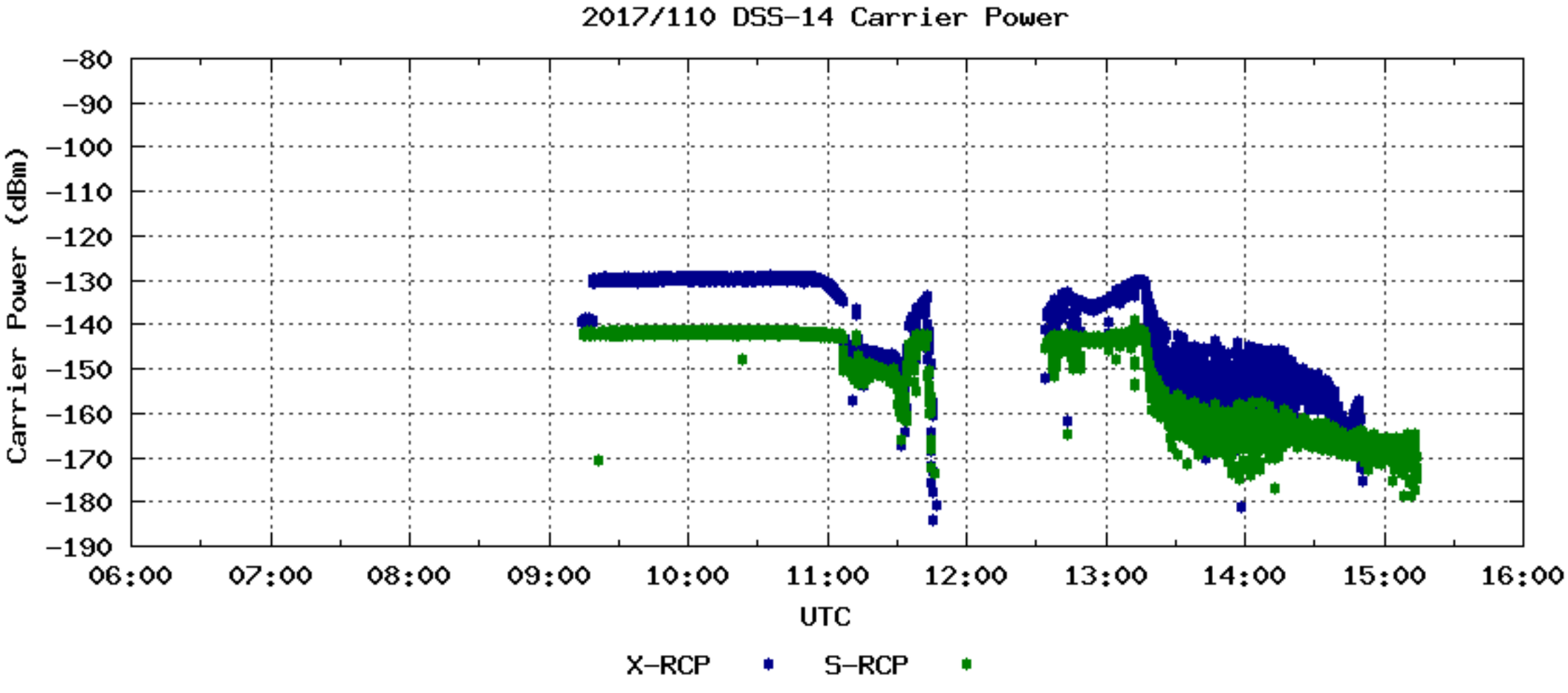

2017/110 DSS-14 S-Band Measured and Predicted Carrier Frequency
Non-Coherent (Hz)
2299210000
2299133000
2299056000
2298979000
2298902000
2298825000
2298748000
2298671000
2298594000
2298517000
2298440000
Coherent (Hz)
2299260000
2299253000
2299246000
2299239000
2299232000
2299225000
2299218000
2299211000
2299204000
2299197000
2299190000
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC
1-Way Predicted S-RCP
2-Way Predicted S-RCP
3-Way Predicted S-RCP
1-Way Measured S-RCP
2-Way Measured S-RCP
3-Way Measured S-RCP


2017/110 DSS-14 S-Band Residual Frequency (Measured - Predicted)
Non-Coherent (Hz)
100
70
40
10
-20
-50
-80
-110
-140
-170
-200
Coherent (Hz)
2350
2064
1778
1492
1206
920
634
348
62
-224
-510
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC
1-Way S-RCP
2-Way S-RCP
3-Way S-RCP


2017/110 DSS-14 Uplink Frequency
Uplink Frequency (Hz)
7174630000
7174624000
7174618000
7174612000
7174606000
7174600000
7174594000
7174588000
7174582000
7174576000
7174570000
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC
Drive OFF
Drive ON


2017/110 DSS-14 Uplink Power (with TXR ON and when > 1)
Uplink Power (kW)
18
17.7
17.4
17.1
16.8
16.5
16.2
15.9
15.6
15.3
15
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC


2017/110 DSS-14 Carrier Power to Noise Spectral Density Ratio (Pc/No)
Pc/No (dB-Hz)
60
55
50
45
40
35
30
25
20
15
10
5
0
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC
X-RCP
S-RCP


2017/110 DSS-14 Carrier Power
Carrier Power (dBm)
-80
-90
-100
-110
-120
-130
-140
-150
-160
-170
-180
-190
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC
X-RCP
S-RCP

2017/110 DSS-14 Carrier Power to Noise Spectral Density Ratio and System Noise Temperature

Pc/No (dB-Hz)

SNT (K)

60 55 50 45 40 35 30 25 20 15 10 5 0

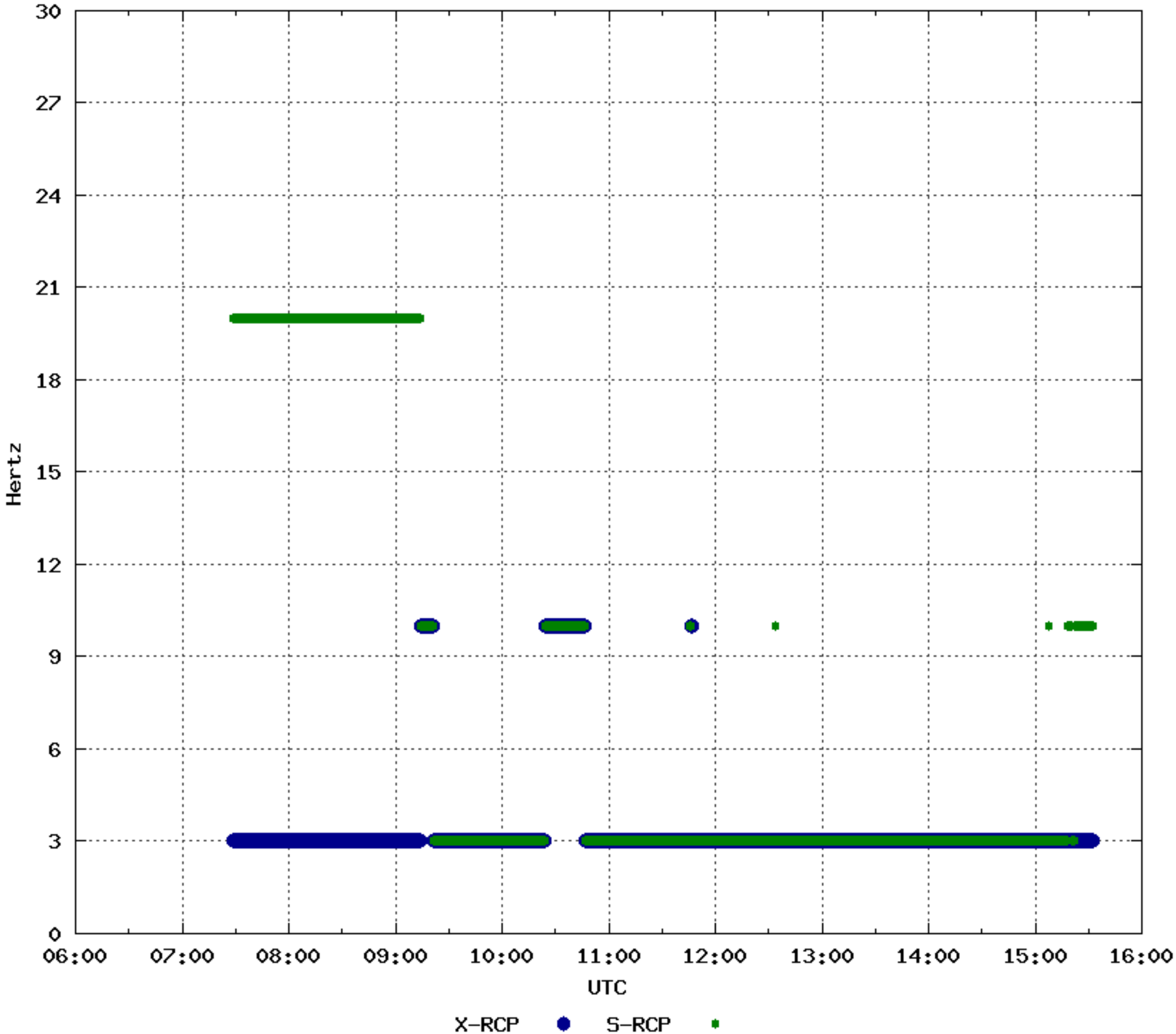
300 275 250 225 200 175 150 125 100 75 50 25 0

06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00

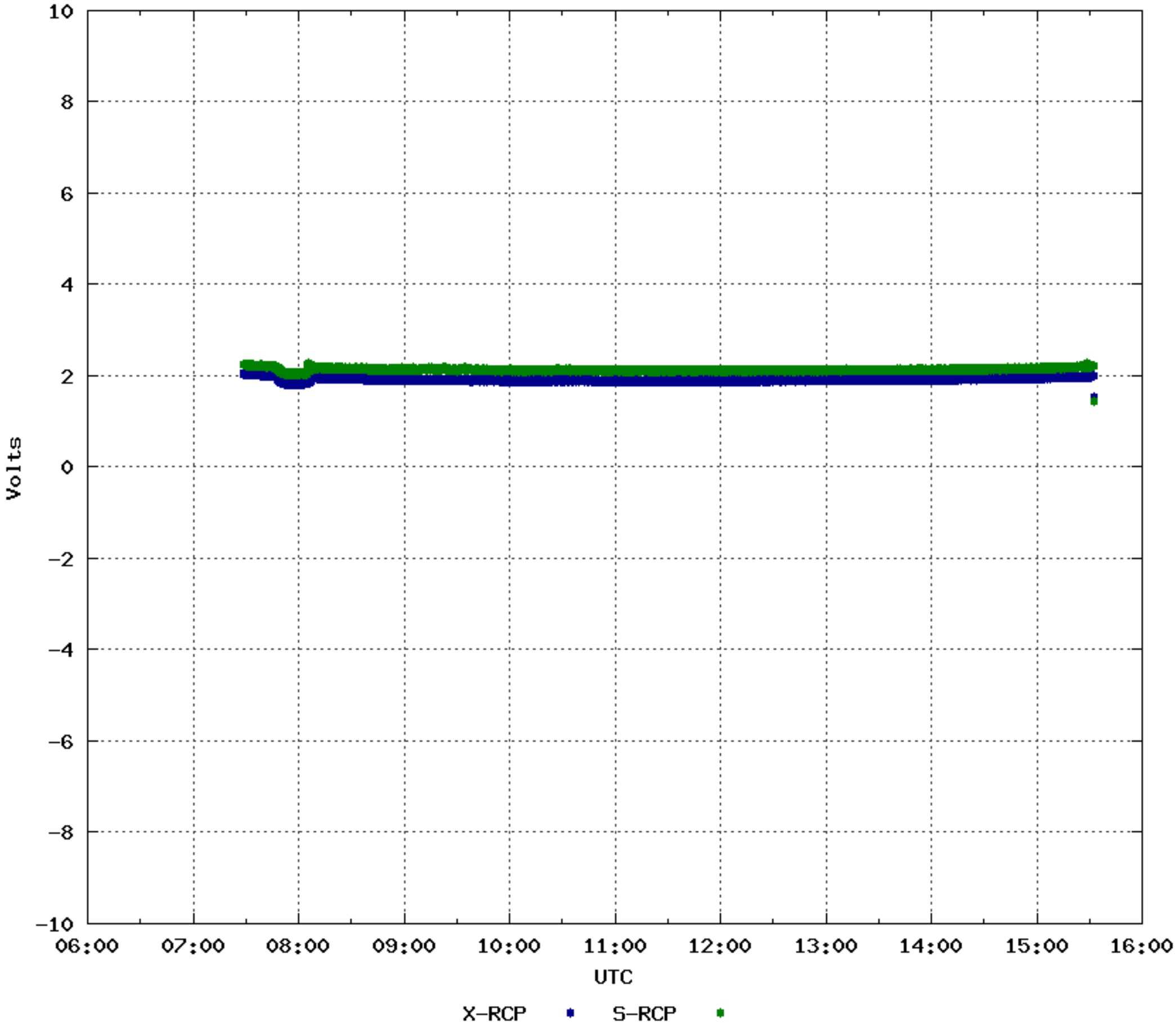
UTC

Pc/No X-RCP SNT X-RCP Pc/No S-RCP SNT S-RCP

2017/110 DSS-14 Carrier Loop Tracking Bandwidth



2017/110 DSS-14 Total Power Automatic Gain Control (AGC) Voltage



2017/110 DSS-14 Elevation & Azimuth

Elevation (Degrees)

90
80
70
60
50
40
30
20
10
0

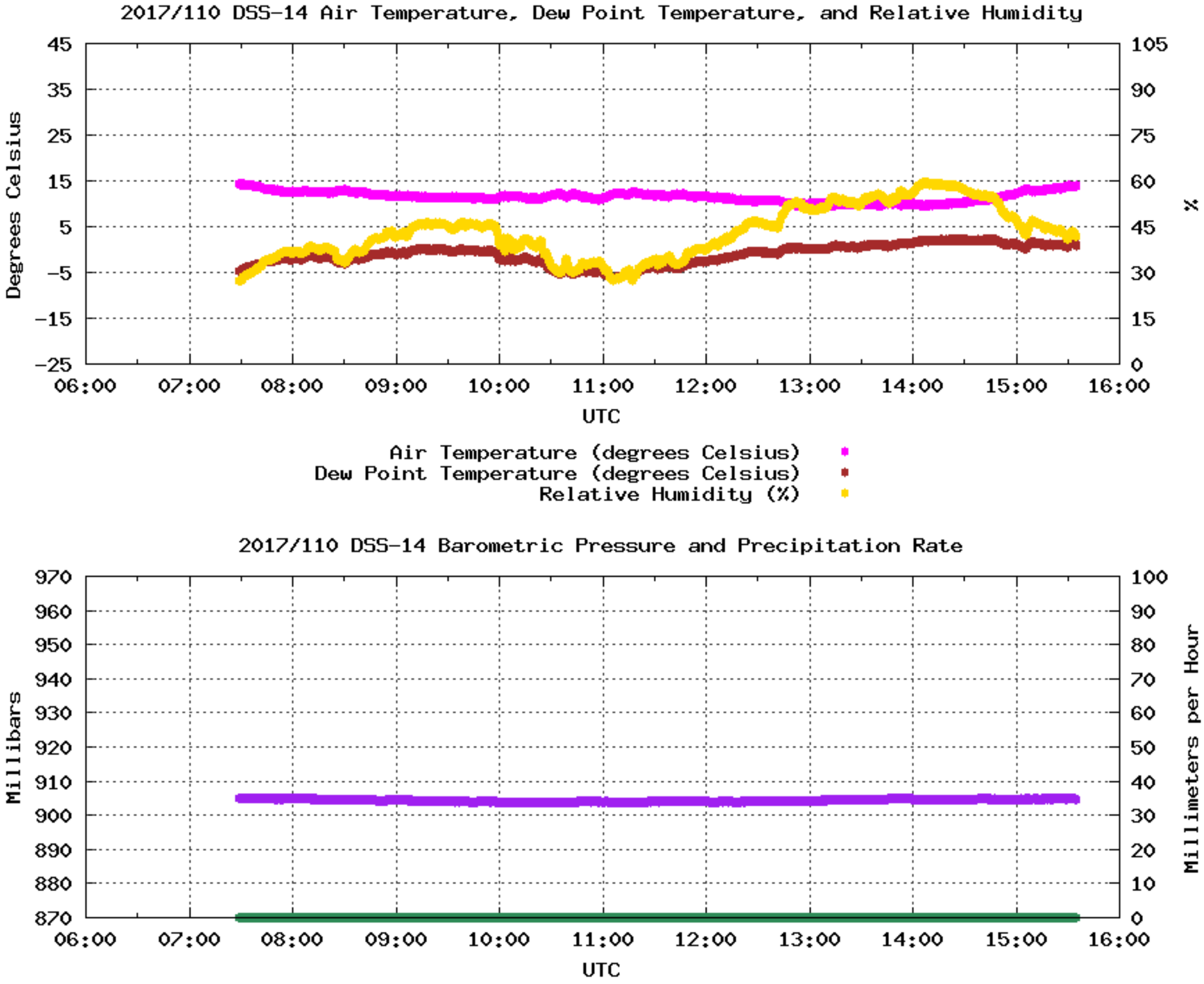
Azimuth (Degrees)

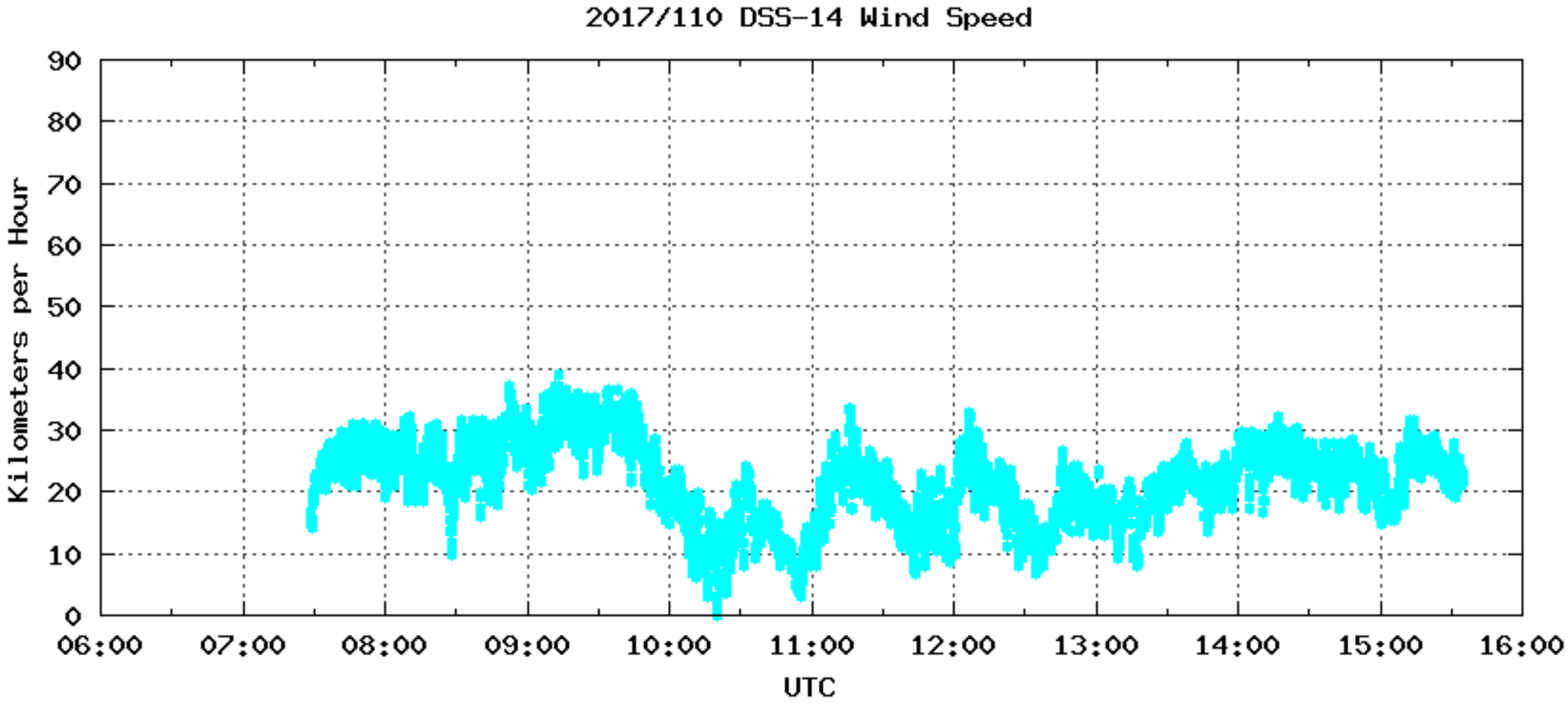
360
320
280
240
200
160
120
80
40
0

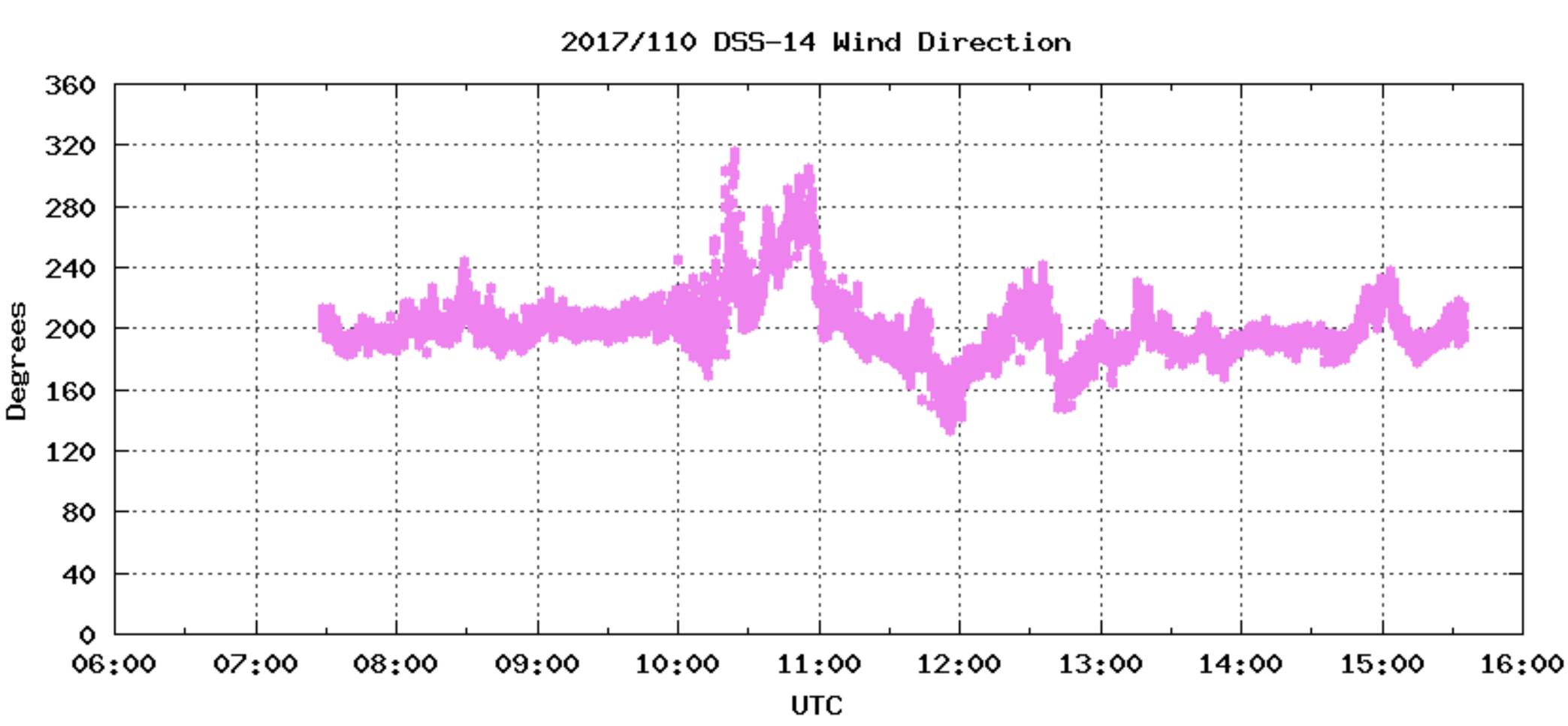
06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00

UTC

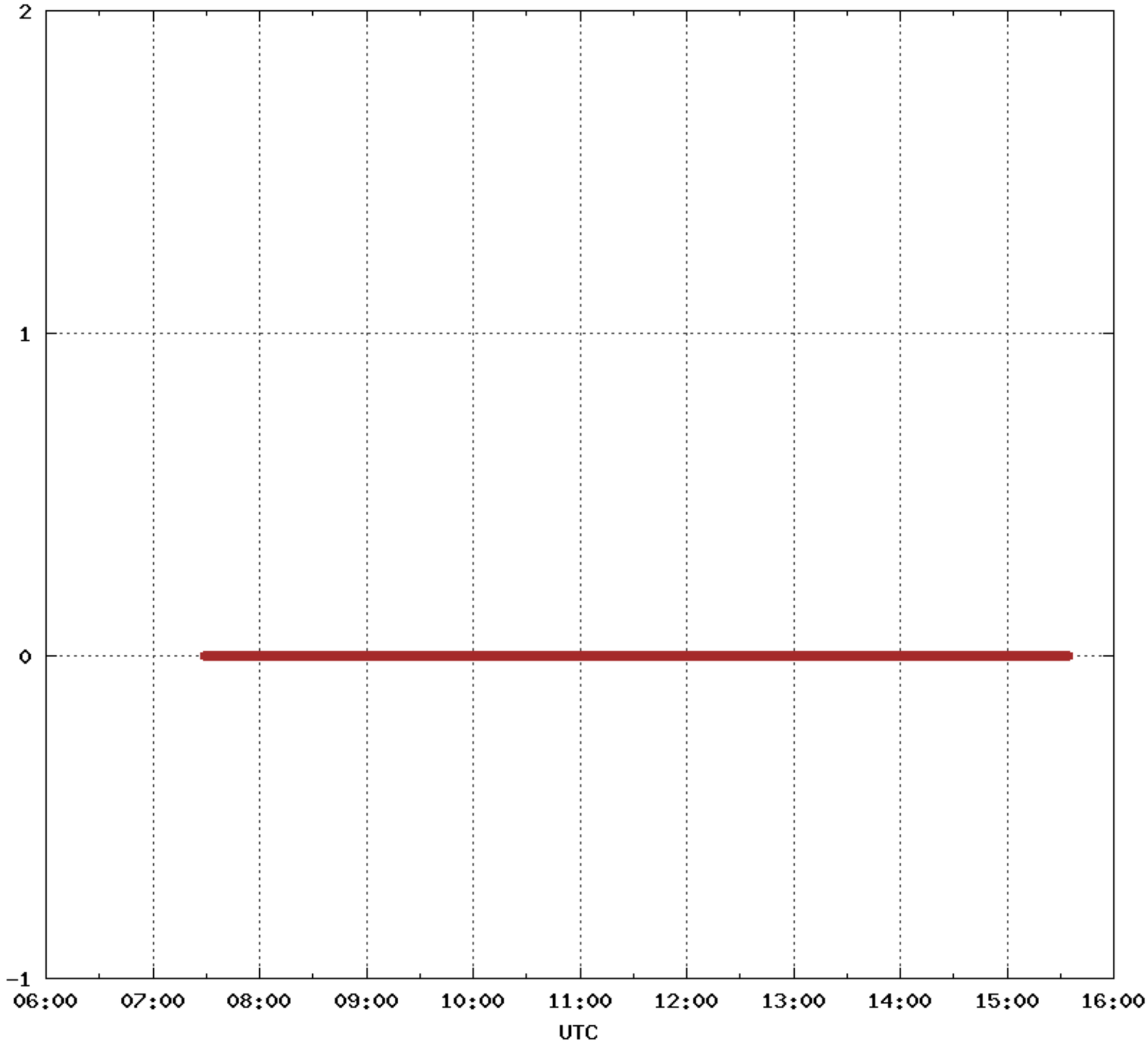
Elevation Azimuth

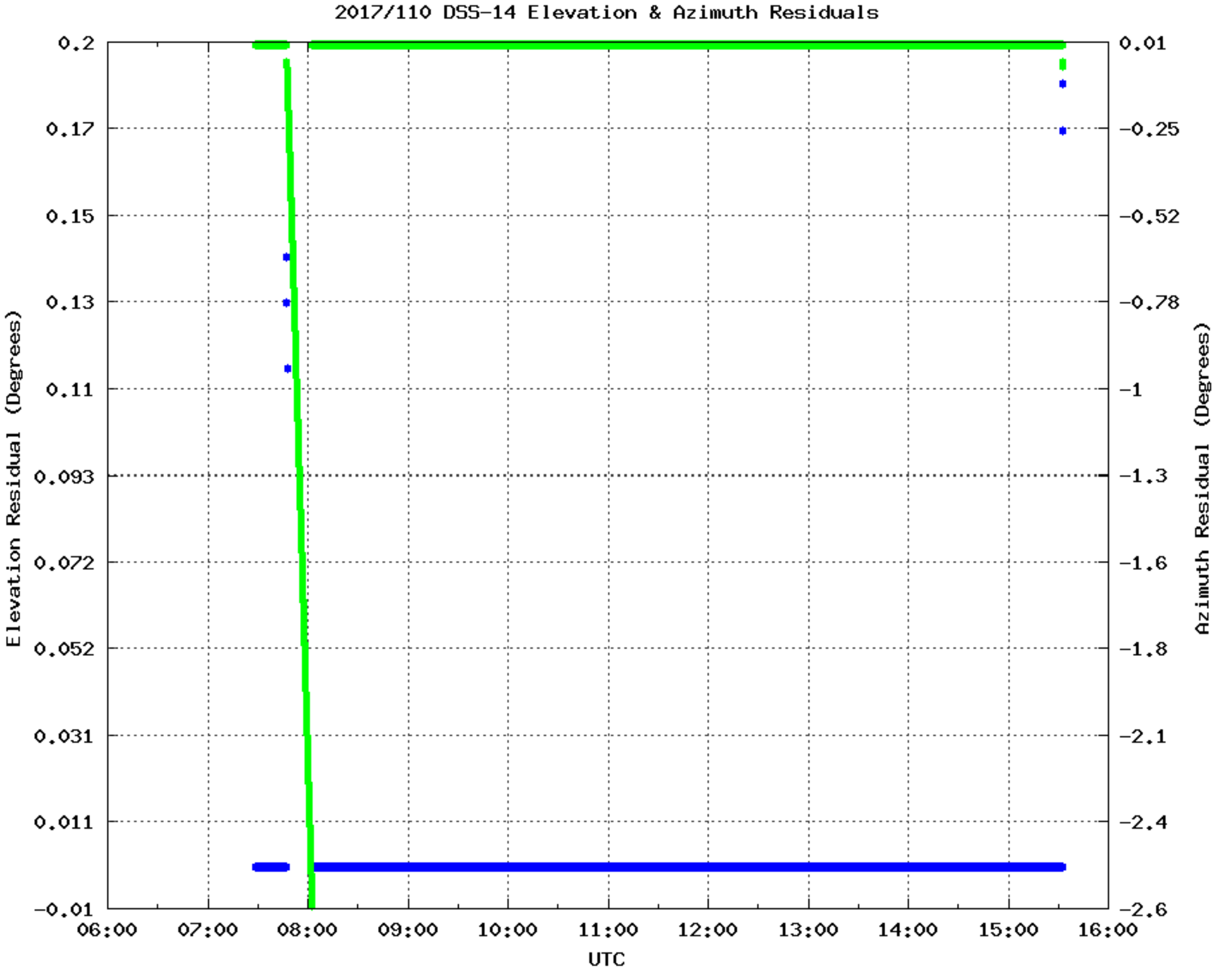

2017/110 DSS-14 Air Temperature, Dew Point Temperature, and Relative Humidity
Degrees Celsius
%
45
35
25
15
5
-5
-15
-25
105
90
75
60
45
30
15
0
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC
Air Temperature (degrees Celsius)
Dew Point Temperature (degrees Celsius)
Relative Humidity (%)
2017/110 DSS-14 Barometric Pressure and Precipitation Rate
Millibars
Millimeters per Hour
970
960
950
940
930
920
910
900
890
880
870
100
90
80
70
60
50
40
30
20
10
0
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC
Barometric Pressure (Millibars)
Precipitation Rate (Millimeters per Hour)


2017/110 DSS-14 Wind Speed
Kilometers per Hour
90
80
70
60
50
40
30
20
10
0
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC

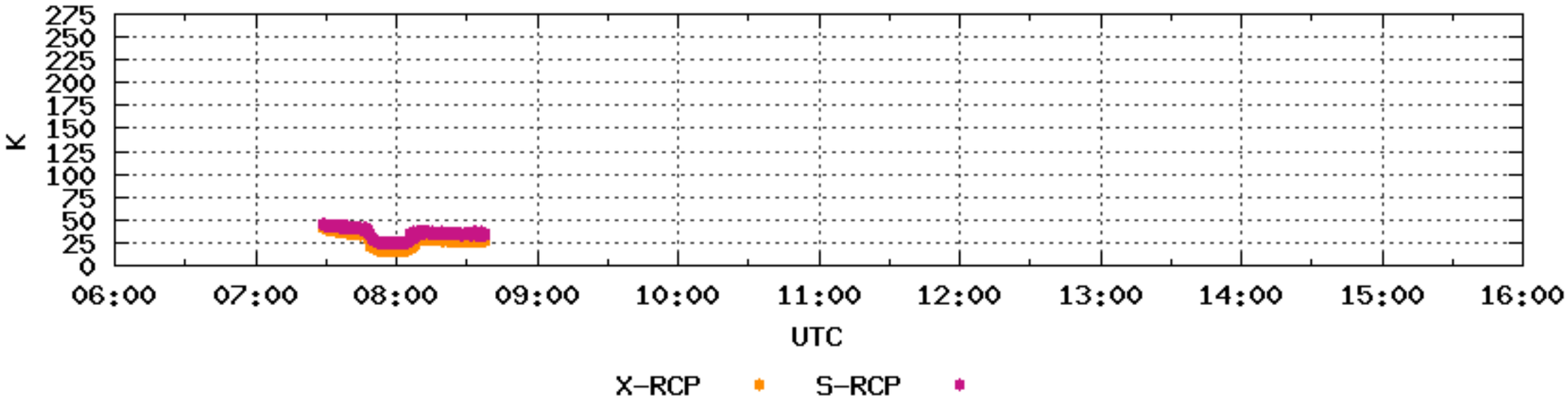

2017/110 DSS-14 Wind Direction
Degrees
360
320
280
240
200
160
120
80
40
0
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC

2017/110 DSS-14 Conscan Drive Status (ON = 1; OFF = 0)

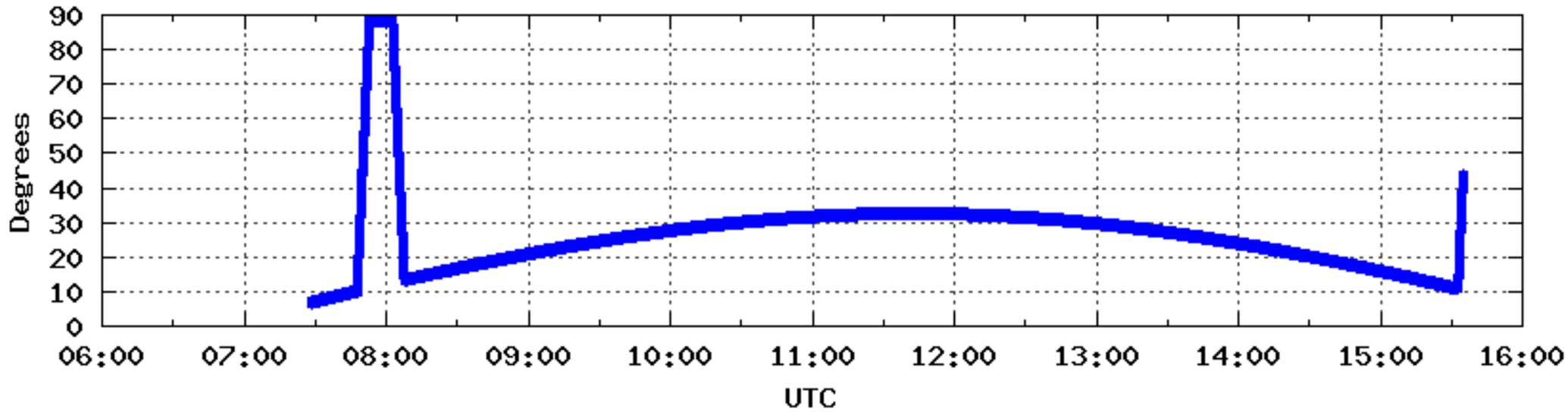



2017/110 DSS-14 Elevation & Azimuth Residuals
Elevation Residual (Degrees)
Azimuth Residual (Degrees)
0.2
0.17
0.15
0.13
0.11
0.093
0.072
0.052
0.031
0.011
-0.01
0.01
-0.25
-0.52
-0.78
-1
-1.3
-1.6
-1.8
-2.1
-2.4
-2.6
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
UTC
Elevation Residual
Azimuth Residual

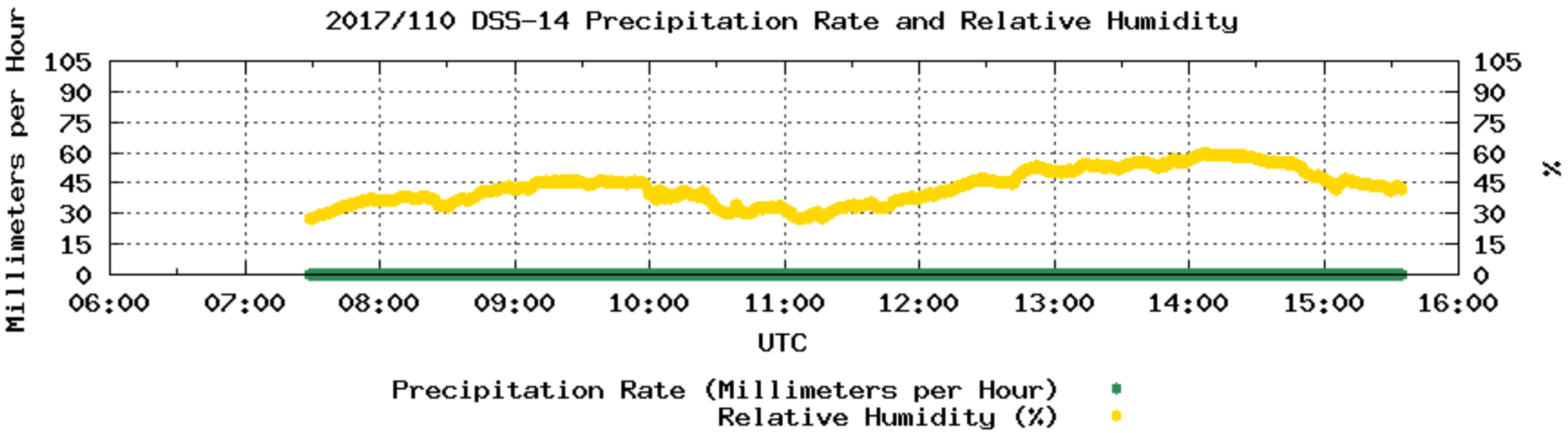
2017/110 DSS-14 System Noise Temperature



2017/110 DSS-14 Elevation Angle



2017/110 DSS-14 Precipitation Rate and Relative Humidity



02. Carrier Power to Noise Spectral Density Ratio (Pc/No) and Residual Frequency

Top:
Carrer Power to Noise Spectral Density Ratio (M-1315, M-1815, M-2315, M-2815)
   filtered by Carrier Tracking Loop Status (M-1302, M-1802, M-2302, M-2802)
   categorized by Downlink Band (M-1245, M-1745, M-2245, M-2745)
   and Polarization (M-1267, M-1767, M-2267, M-2767)

Bottom:
Residual Frequency (M-1305, M-1805, M-2305, M-2805)
   filtered by Carrier Tracking Loop Status (M-1302, M-1802, M-2302, M-2802)
   categorized by Predicts Mode (M-1248, M-1748, M-2248, M-2748)
   and by Downlink Band (M-1245, M-1745, M-2245, M-2745)
   and Polarization (M-1267, M-1767, M-2267, M-2767)

03. X-Band - Measured Carrier Frequency, Predicted Carrier Frequency, and Residual Frequency

Top:
Predicted Frequency including Doppler Shift (M-1320, M-1820, M-2320, M-2820)
   categorized by Predicts Mode (M-1248, M-1748, M-2248, M-2748)
   and by Downlink Band (M-1245, M-1745, M-2245, M-2745)
   and Polarization (M-1267, M-1767, M-2267, M-2767)
Measured Carrier Frequency (M-1304, M-1804, M-2304, M-2804)
   filtered by Carrier Tracking Loop Status (M-1302, M-1802, M-2302, M-2802)
   categorized by Predicts Mode (M-1248, M-1748, M-2248, M-2748)
   and by Downlink Band (M-1245,M-1745,M-2245,M-2745)
   and Polarization (M-1267,M-1767,M-2267,M-2767)

Bottom:
Residual Frequency (M-1305, M-1805, M-2305, M-2805)
   filtered by Carrier Tracking Loop Status (M-1302, M-1802, M-2302, M-2802)
   categorized by Predicts Mode (M-1248, M-1748, M-2248, M-2748)
   and by Downlink Band (M-1245, M-1745, M-2245, M-2745)
   and Polarization (M-1267, M-1767, M-2267, M-2767)

04. S-Band - Measured Carrier Frequency, Predicted Carrier Frequency, and Residual Frequency

Top:
Predicted Frequency including Doppler Shift (M-1320, M-1820, M-2320, M-2820)
   categorized by Predicts Mode (M-1248, M-1748, M-2248, M-2748)
   and by Downlink Band (M-1245, M-1745, M-2245, M-2745)
   and Polarization (M-1267, M-1767, M-2267, M-2767)
Measured Carrier Frequency (M-1304, M-1804, M-2304, M-2804)
   filtered by Carrier Tracking Loop Status (M-1302, M-1802, M-2302, M-2802)
   categorized by Predicts Mode (M-1248, M-1748, M-2248, M-2748)
   and by Downlink Band (M-1245,M-1745,M-2245,M-2745)
   and Polarization (M-1267,M-1767,M-2267,M-2767)

Bottom:
Residual Frequency (M-1305, M-1805, M-2305, M-2805)
   filtered by Carrier Tracking Loop Status (M-1302, M-1802, M-2302, M-2802)
   categorized by Predicts Mode (M-1248, M-1748, M-2248, M-2748)
   and by Downlink Band (M-1245, M-1745, M-2245, M-2745)

and Polarization (M-1267, M-1767, M-2267, M-2767)

05. Uplink Frequency and Power

Top:
Uplink Frequency (M-1049)
filtered by Transmitter Status (M-1070)

Bottom:
Uplink Power (M-1067)
filtered by Transmitter Status (M-1070)

06. Carrier Power to Noise Spectral Density Ratio (Pc/No) and Carrier Power

Top:
Carrer Power to Noise Spectral Density Ratio (M-1315, M-1815, M-2315, M-2815)
filtered by Carrier Tracking Loop Status (M-1302, M-1802, M-2302, M-2802)
categorized by Downlink Band (M-1245, M-1745, M-2245, M-2745)
and Polarization (M-1267, M-1767, M-2267, M-2767)

Bottom:
Carrer Power (M-1310, M-1810, M-2310, M-2810)
filtered by Carrier Tracking Loop Status (M-1302, M-1802, M-2302, M-2802)
categorized by Downlink Band (M-1245, M-1745, M-2245, M-2745)
and Polarization (M-1267, M-1767, M-2267, M-2767)

07. Carrier Power to Noise Spectral Density Ratio (Pc/No) and System Noise Temperature

Carrer Power to Noise Spectral Density Ratio (M-1315, M-1815, M-2315, M-2815)
filtered by Carrier Tracking Loop Status (M-1302, M-1802, M-2302, M-2802)
categorized by Downlink Band (M-1245, M-1745, M-2245, M-2745)
and Polarization (M-1267, M-1767, M-2267, M-2767)
System Noise Temperature (M-1318, M-1818, M-2318, M-2818)
categorized by Downlink Band (M-1245, M-1745, M-2245, M-2745)
and Polarization (M-1267, M-1767, M-2267, M-2767)

08. Carrier Loop Tracking Bandwidth

Carrier Loop Tracking Bandwidth (M-1299, M-1799, M-2299, M-2799)
categorized by Downlink Band (M-1245, M-1745, M-2245, M-2745)
and Polarization (M-1267, M-1767, M-2267, M-2767)

09. AGC Voltage

AGC Voltage (M-1325, M-1825, M-2325, M-2825)
categorized by Downlink Band (M-1245, M-1745, M-2245, M-2745)
and Polarization (M-1267, M-1767, M-2267, M-2767)

10. Azimuth & Elevation
Elevation Angle (M-0304)
Azimuth Angle (M-0305)

11. Weather: Air Temperature, Dew Point Temperature, Relative Humidity, Precipitation Rate, and Barometric Pressure

Top:
Air Temperature (M-0394)
Dew Point (M-0397)
Relative Humidity (M-0409)

Bottom:
Barometric Pressure (M-0400)
Precipitation Rate (M-0406)

12. Wind Speed and Direction

Top:
Wind Speed (M-0388)

Bottom:
Wind Direction (M-0391)

13. Conscan Drive Status

Conscan Drive Status (M-0308)

14. Azimuth & Elevation Residuals

Elevation Residuals (M-0307)
Azimuth Residuals (M-0306)

15. System Noise Temperature, Elevation, Precipitation Rate, and Relative Humidity

Top:
System Noise Temperature (M-1318, M-1818, M-2318, M-2818)
categorized by Downlink Band (M-1245, M-1745, M-2245, M-2745)
and Polarization (M-1267, M-1767, M-2267, M-2767)

Middle:
Elevation Angle (M-0304)

Bottom:
Precipitation Rate (M-0406)
Relative Humidity (M-0409)