Spacecraft: Cassini
DSS: 55
Monitor File: S12SAGS2005_177_0540_55_MON.ecsv
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APPLICABLE_STOP_TIME = 2005-177T18:02:56.475;
60 minutes omitted from beginning of file
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. Ka-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. Azimuth & Elevation

10. Conscan Drive Status

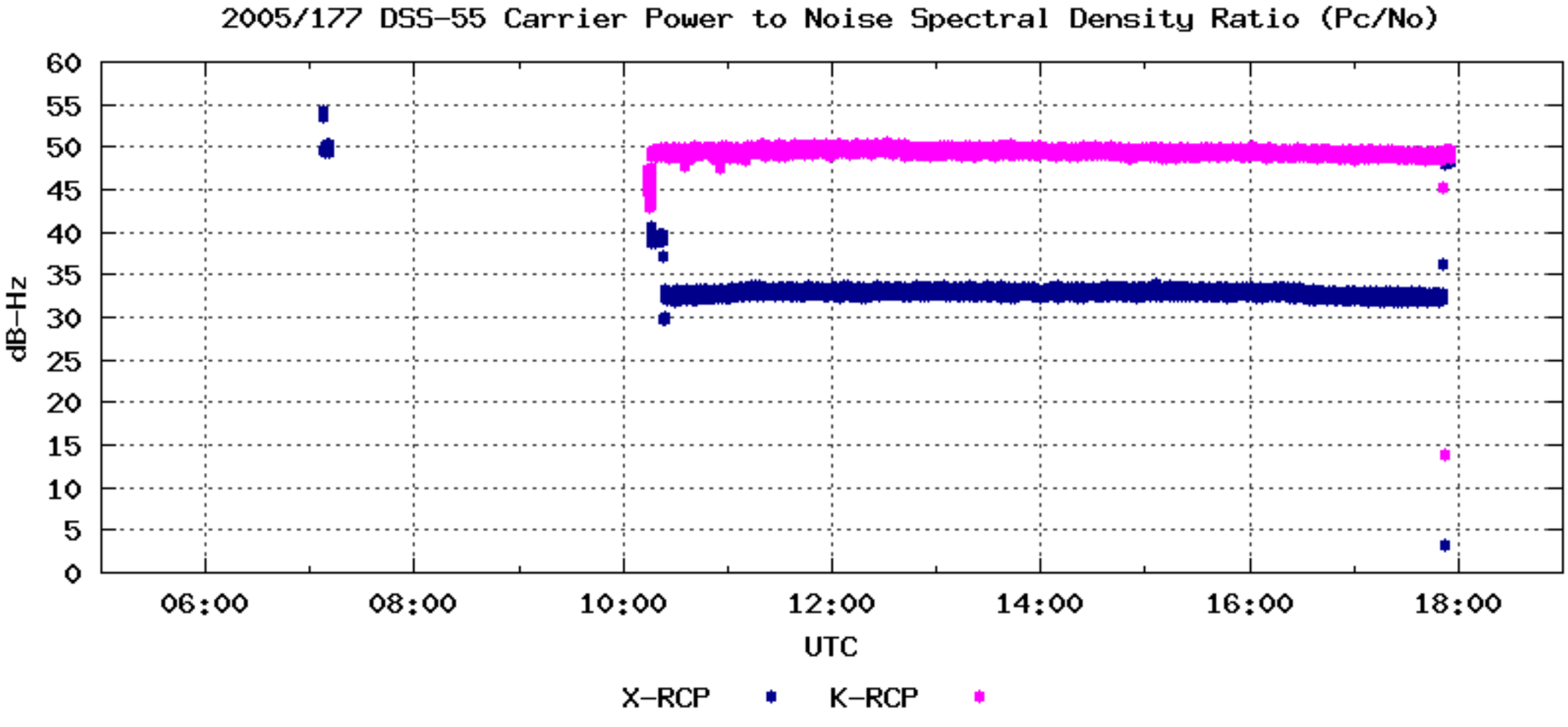
11. Azimuth & Elevation Monopulse Corrections

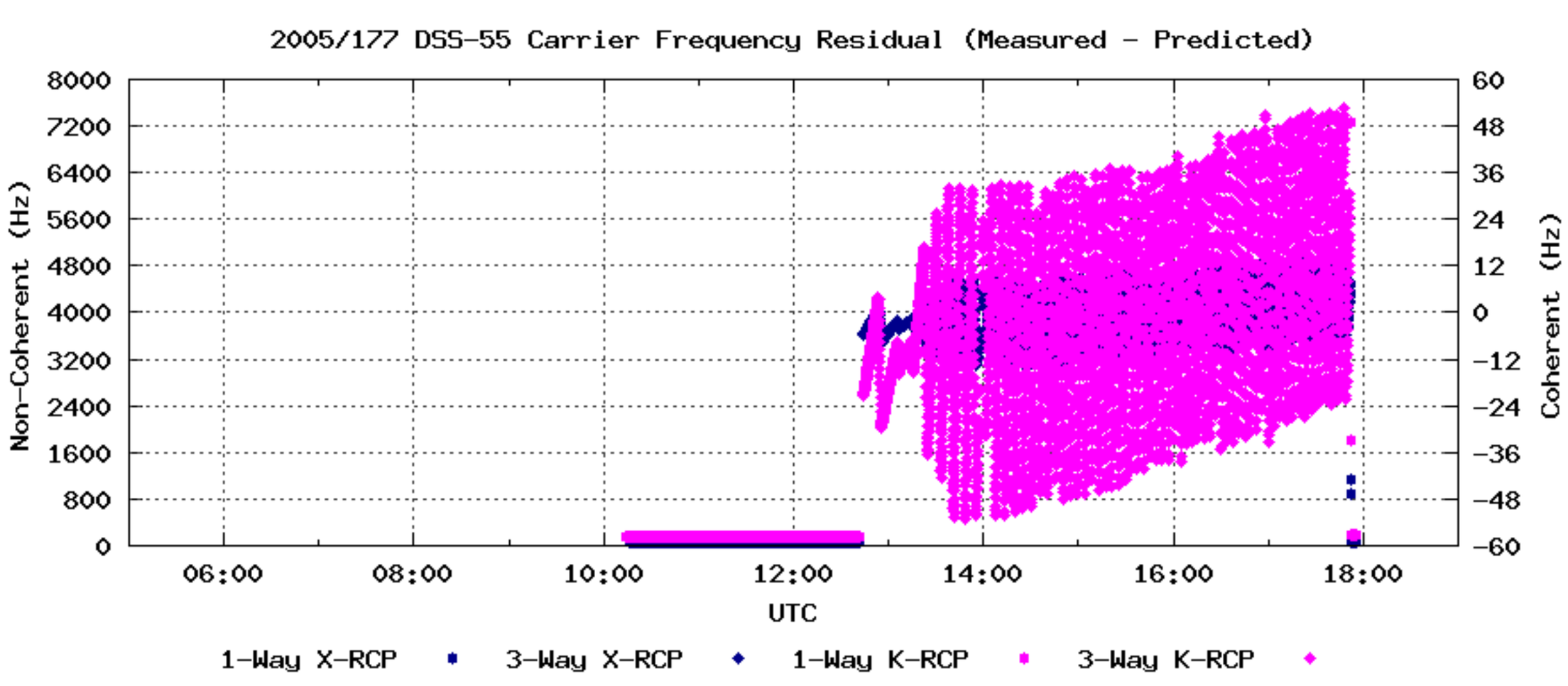
12. Azimuth & Elevation Residuals

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

14. Elevation & Azimuth, Elevation & Azimuth Corrections, and Wind Speed and Direction

15. Index


2005/177 DSS-55 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
08:00
10:00
12:00
14:00
16:00
18:00
UTC
X-RCP
K-RCP


2005/177 DSS-55 Carrier Frequency Residual (Measured - Predicted)
Non-Coherent (Hz)
8000
7200
6400
5600
4800
4000
3200
2400
1600
800
0
Coherent (Hz)
60
48
36
24
12
0
-12
-24
-36
-48
-60
06:00
08:00
10:00
12:00
14:00
16:00
18:00
UTC
1-Way X-RCP
3-Way X-RCP
1-Way K-RCP
3-Way K-RCP

2005/177 DSS-55 X-Band Measured and Predicted Carrier Frequency

Non-Coherent (Hz)

8426570000
8426561000
8426552000
8426543000
8426534000
8426525000
8426516000
8426507000
8426498000
8426489000
8426480000

Coherent (Hz)

8429200000
8429193000
8429186000
8429179000
8429172000
8429165000
8429158000
8429151000
8429144000
8429137000
8429130000

06:00 08:00 10:00 12:00 14:00 16:00 18:00

UTC

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

2005/177 DSS-55 X-Band Residual Frequency (Measured - Predicted)

Non-Coherent (Hz)

1200
1080
960
840
720
600
480
360
240
120
0

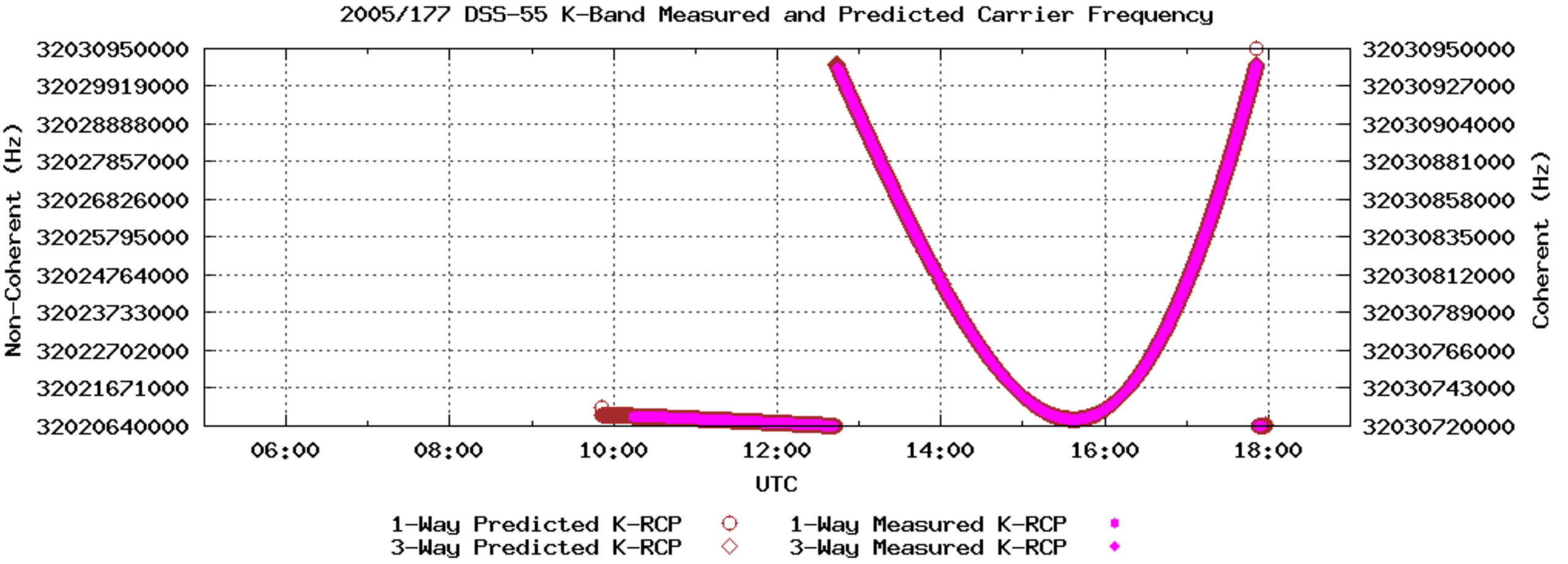
Coherent (Hz)

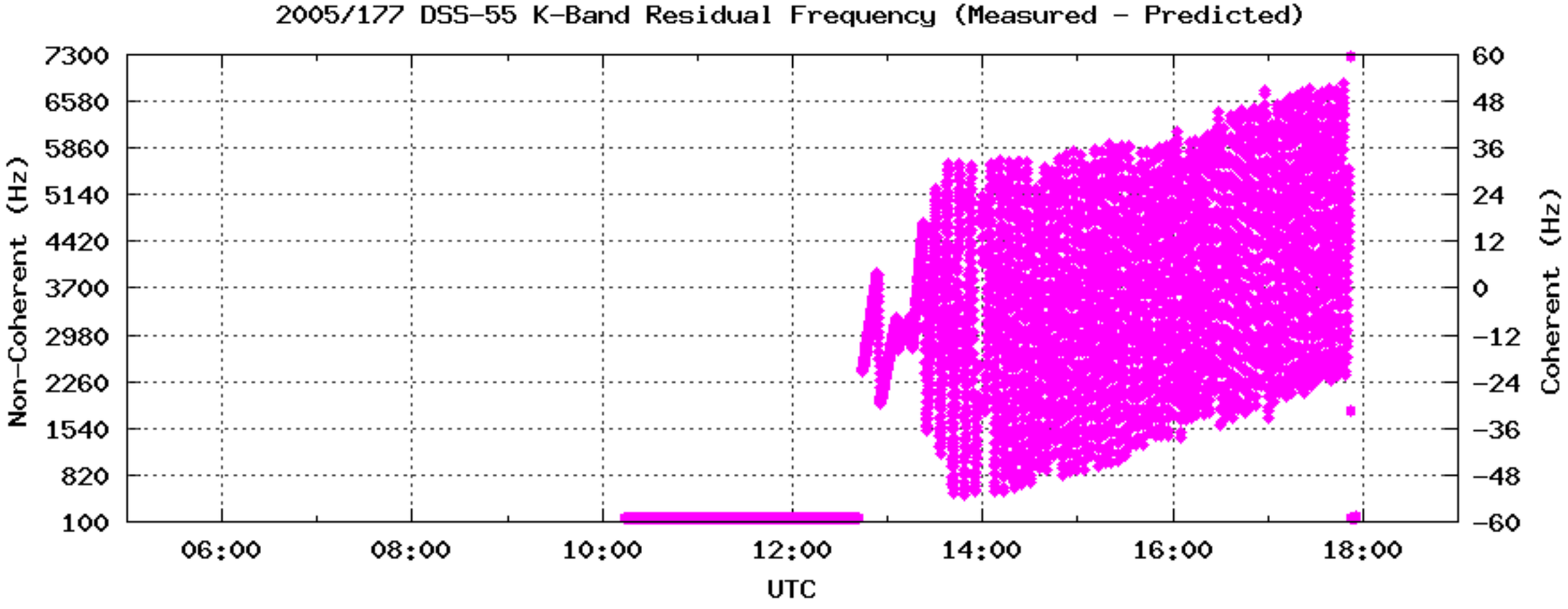
20
16
12
8
4
0
-4
-8
-12
-16
-20

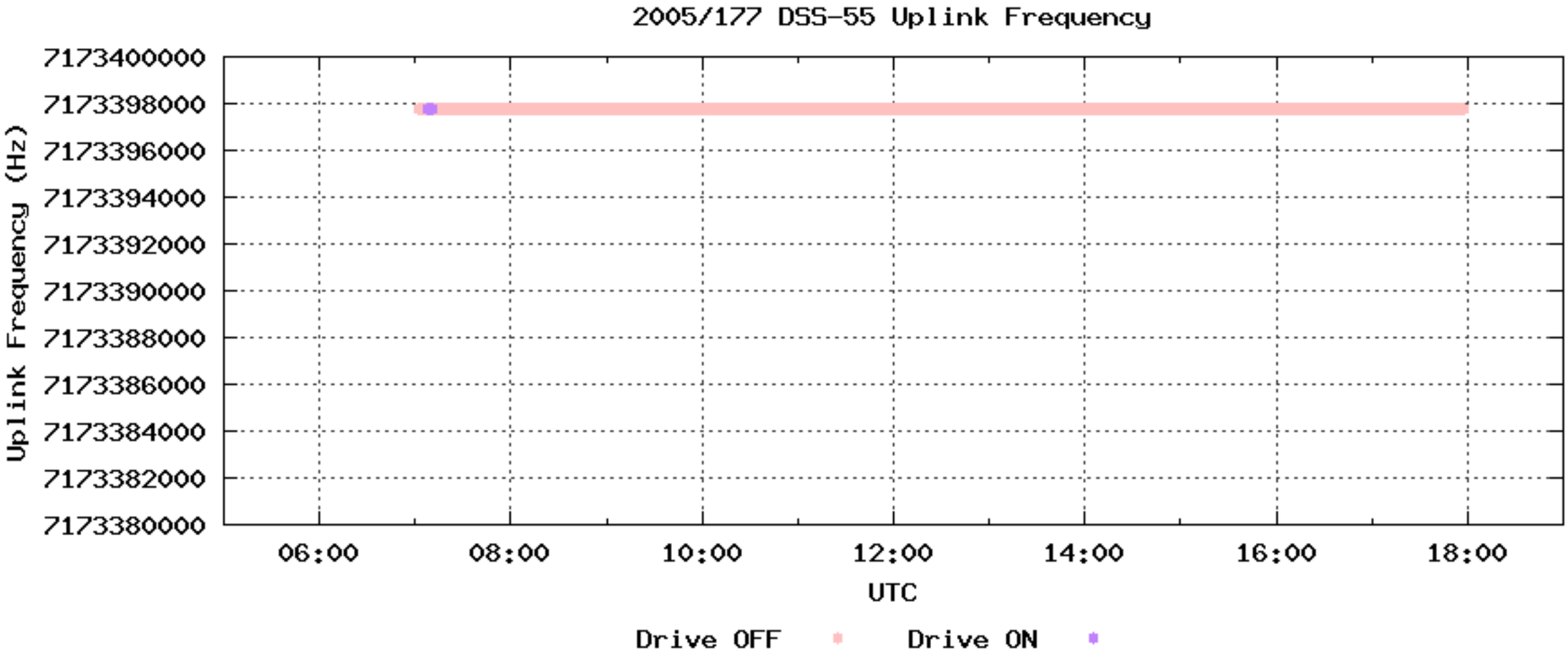
06:00 08:00 10:00 12:00 14:00 16:00 18:00

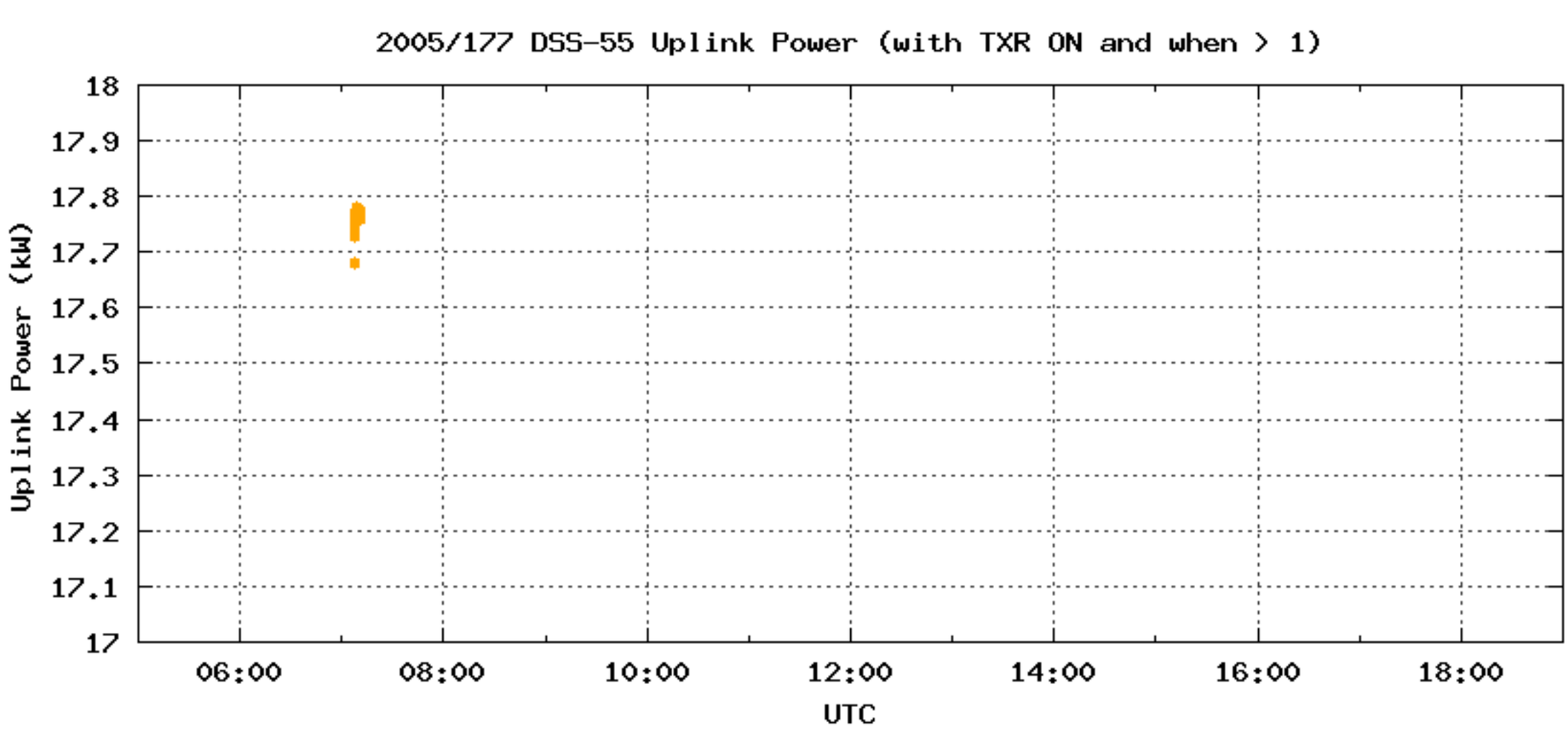
UTC

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

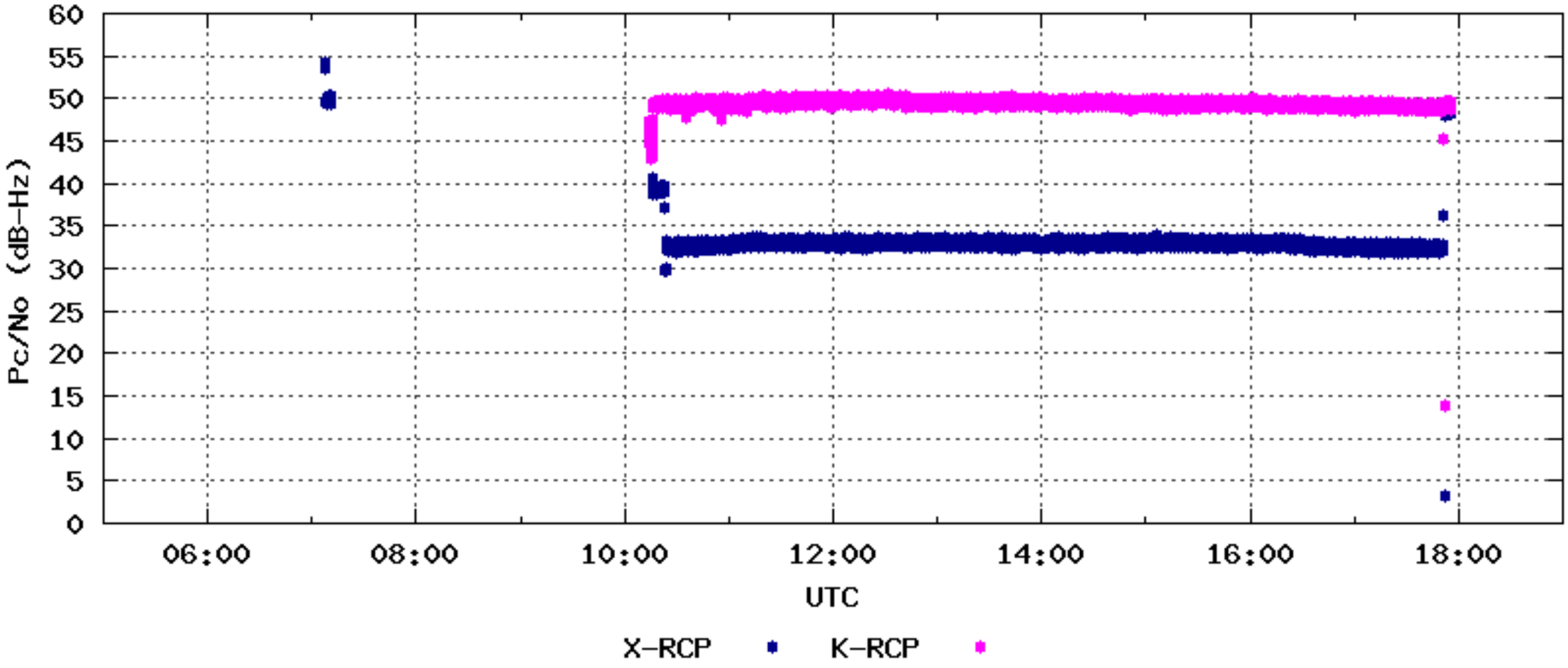

2005/177 DSS-55 K-Band Measured and Predicted Carrier Frequency
Non-Coherent (Hz)
32030950000
32029919000
32028888000
32027857000
32026826000
32025795000
32024764000
32023733000
32022702000
32021671000
32020640000
Coherent (Hz)
32030950000
32030927000
32030904000
32030881000
32030858000
32030835000
32030812000
32030789000
32030766000
32030743000
32030720000
06:00
08:00
10:00
12:00
14:00
16:00
18:00
UTC
1-Way Predicted K-RCP
3-Way Predicted K-RCP
1-Way Measured K-RCP
3-Way Measured K-RCP


2005/177 DSS-55 K-Band Residual Frequency (Measured - Predicted)
Non-Coherent (Hz)
7300
6580
5860
5140
4420
3700
2980
2260
1540
820
100
Coherent (Hz)
60
48
36
24
12
0
-12
-24
-36
-48
-60
06:00
08:00
10:00
12:00
14:00
16:00
18:00
UTC
1-Way K-RCP
3-Way K-RCP

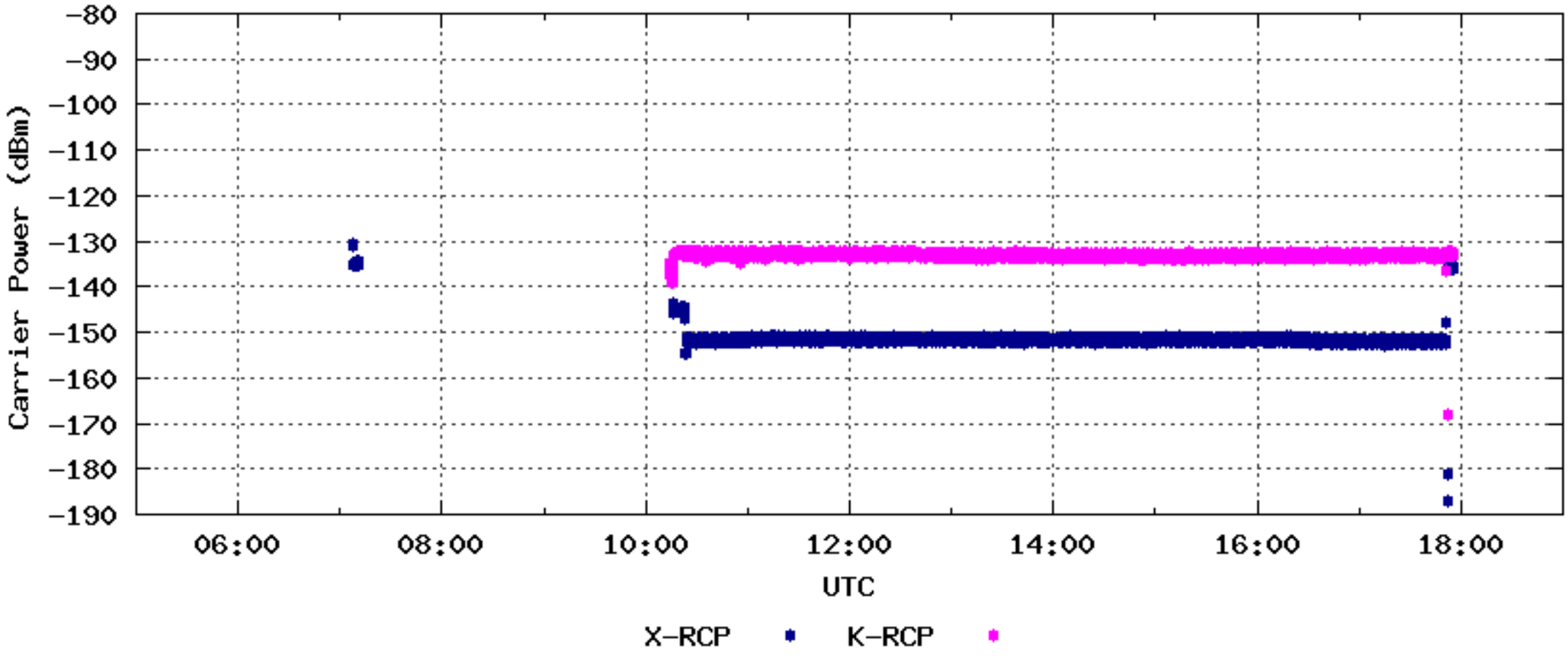

2005/177 DSS-55 Uplink Frequency
Uplink Frequency (Hz)
7173400000
7173398000
7173396000
7173394000
7173392000
7173390000
7173388000
7173386000
7173384000
7173382000
7173380000
06:00
08:00
10:00
12:00
14:00
16:00
18:00
UTC
Drive OFF
Drive ON


2005/177 DSS-55 Uplink Power (with TXR ON and when > 1)
Uplink Power (kW)
18
17.9
17.8
17.7
17.6
17.5
17.4
17.3
17.2
17.1
17
06:00
08:00
10:00
12:00
14:00
16:00
18:00
UTC

2005/177 DSS-55 Carrier Power to Noise Spectral Density Ratio (Pc/No)



2005/177 DSS-55 Carrier Power



2005/177 DSS-55 Carrier Power to Noise Spectral Density Ratio and System Noise Temperature

Pc/No (dB-Hz)

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

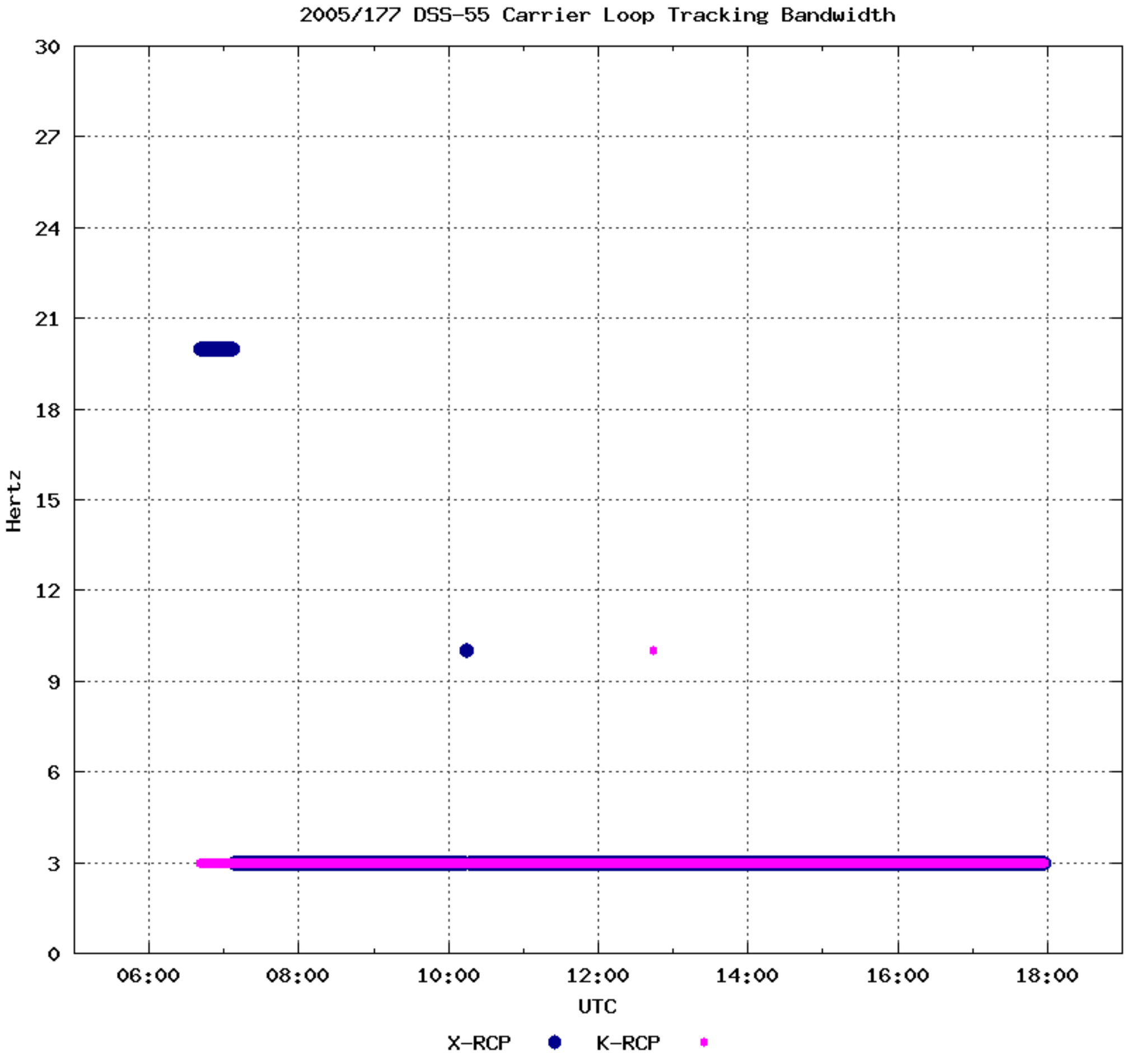
SNT (K)

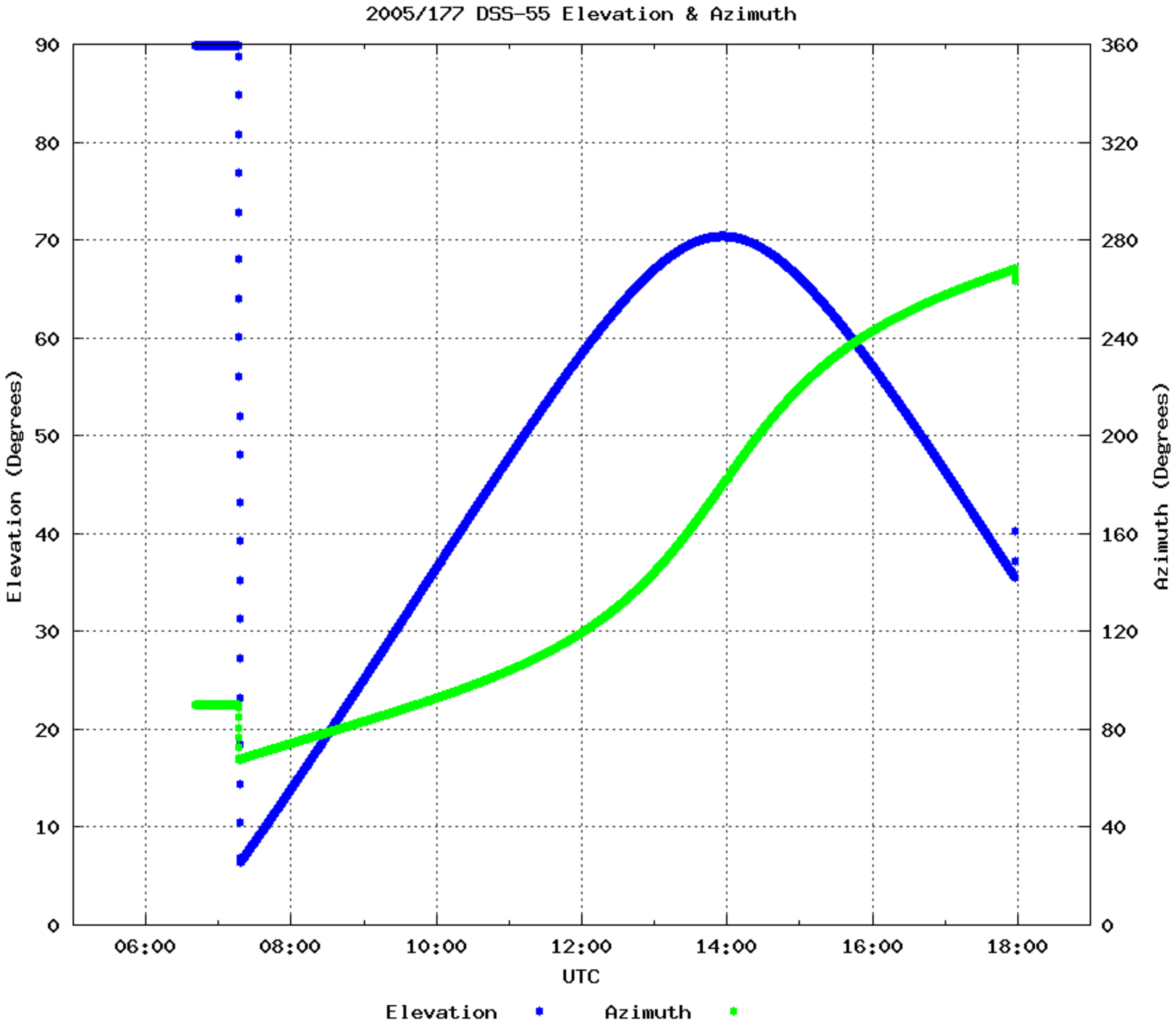
300
275
250
225
200
175
150
125
100
75
50
25
0

06:00
08:00
10:00
12:00
14:00
16:00
18:00

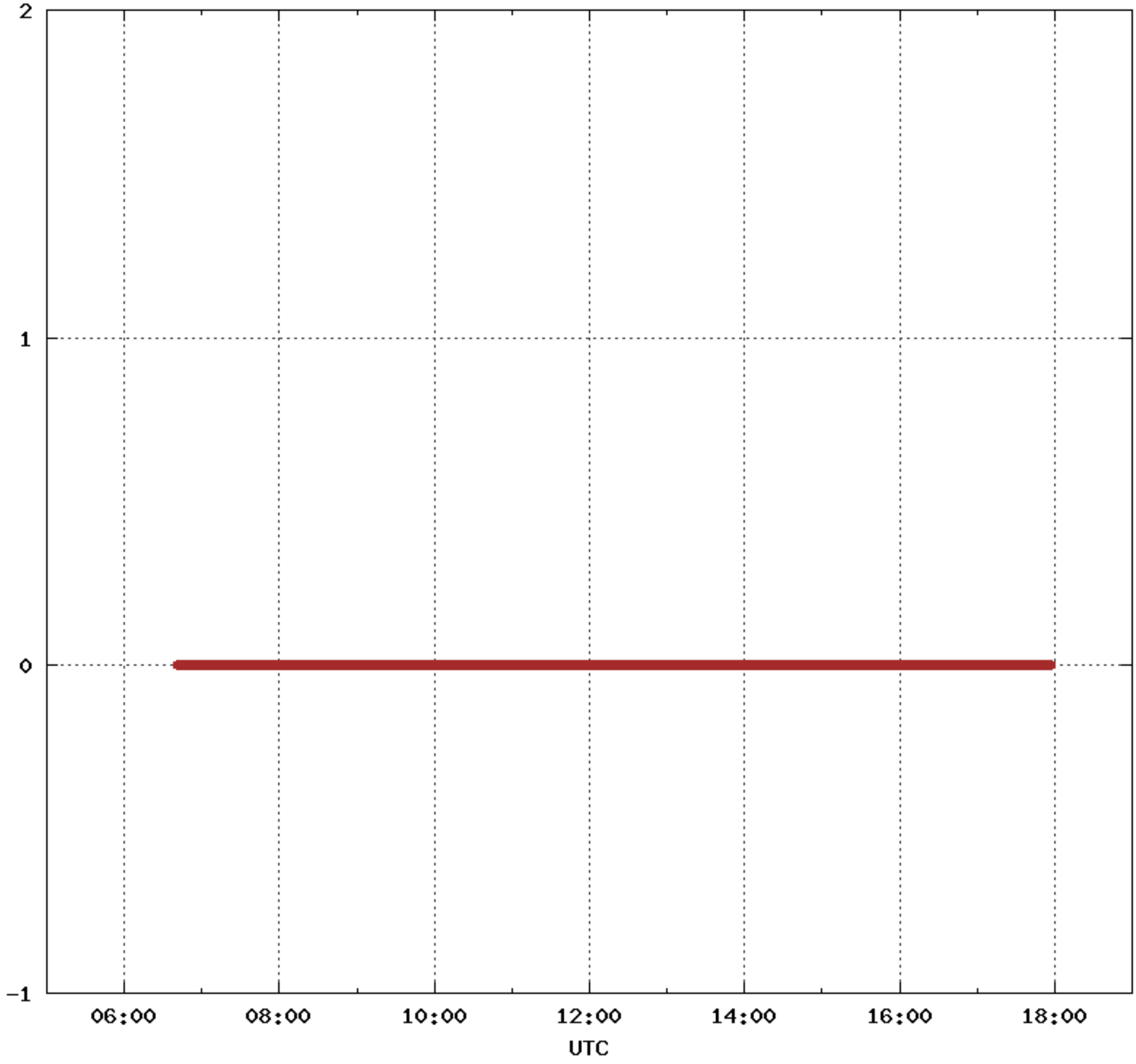
UTC

Pc/No X-RCP
SNT X-RCP
Pc/No K-RCP
SNT K-RCP

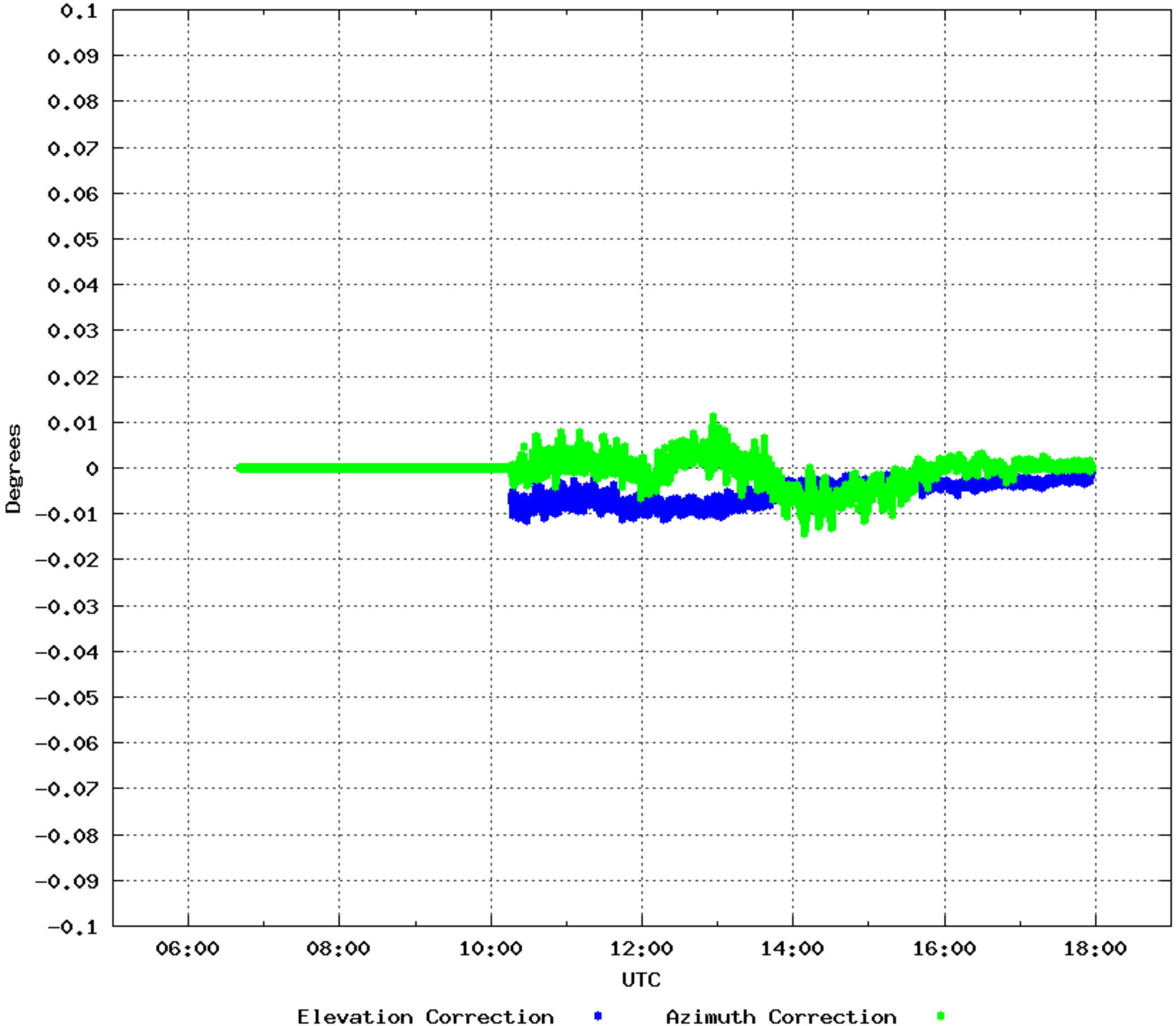

2005/177 DSS-55 Carrier Loop Tracking Bandwidth
Hertz
30
27
24
21
18
15
12
9
6
3
0
06:00
08:00
10:00
12:00
14:00
16:00
18:00
UTC
X-RCP
K-RCP


2005/177 DSS-55 Elevation & Azimuth
Elevation (Degrees)
Azimuth (Degrees)
90
80
70
60
50
40
30
20
10
0
360
320
280
240
200
160
120
80
40
0
06:00
08:00
10:00
12:00
14:00
16:00
18:00
UTC
Elevation
Azimuth

2005/177 DSS-55 Conscan Drive Status (ON = 1; OFF = 0)



2005/177 DSS-55 Monopulse Elevation & Azimuth Corrections



2005/177 DSS-55 Elevation & Azimuth Residuals

Elevation Residual (Degrees)

0.03
0.026
0.022
0.018
0.014
0.01
0.006
0.002
−0.002
−0.006
−0.01

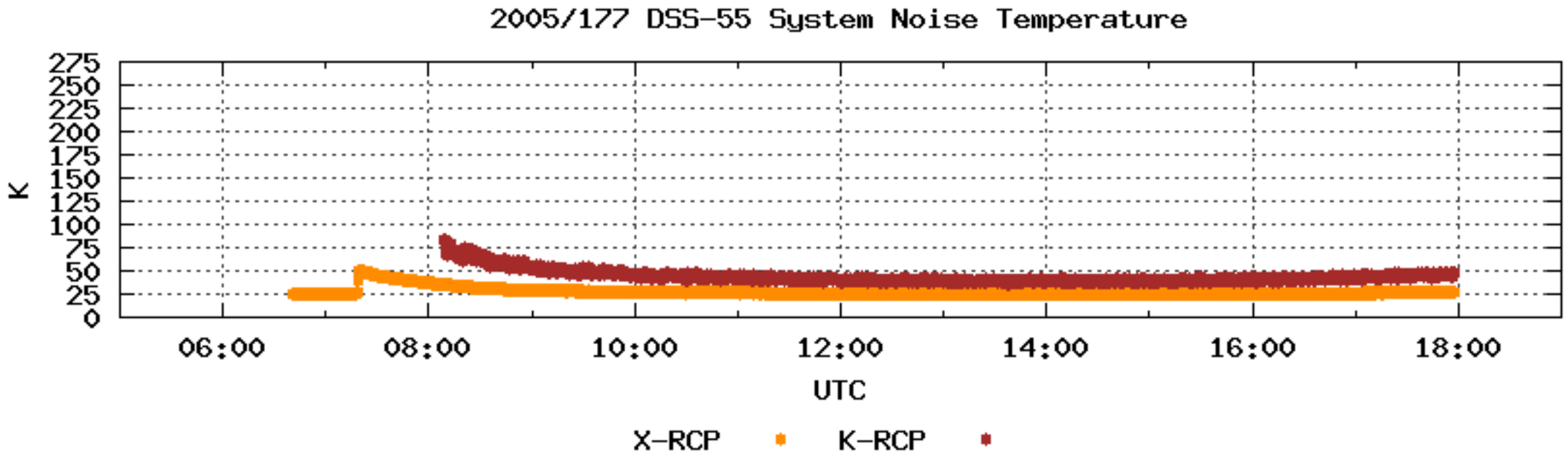
Azimuth Residual (Degrees)

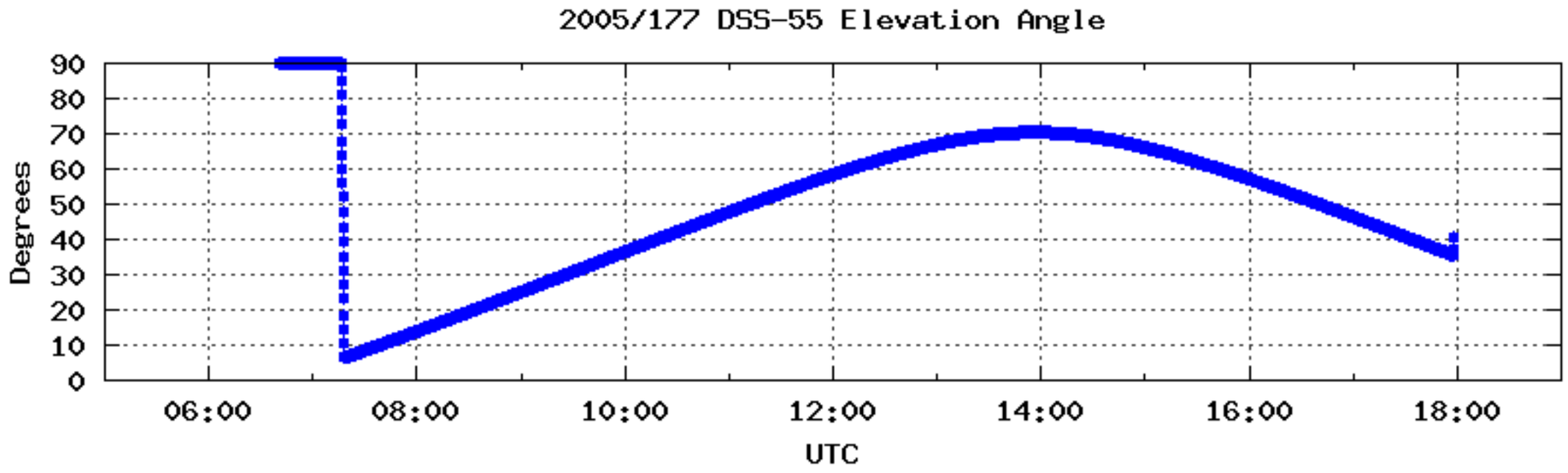
0.01
0.008
0.006
0.004
0.002
0
−0.002
−0.004
−0.006
−0.008
−0.01

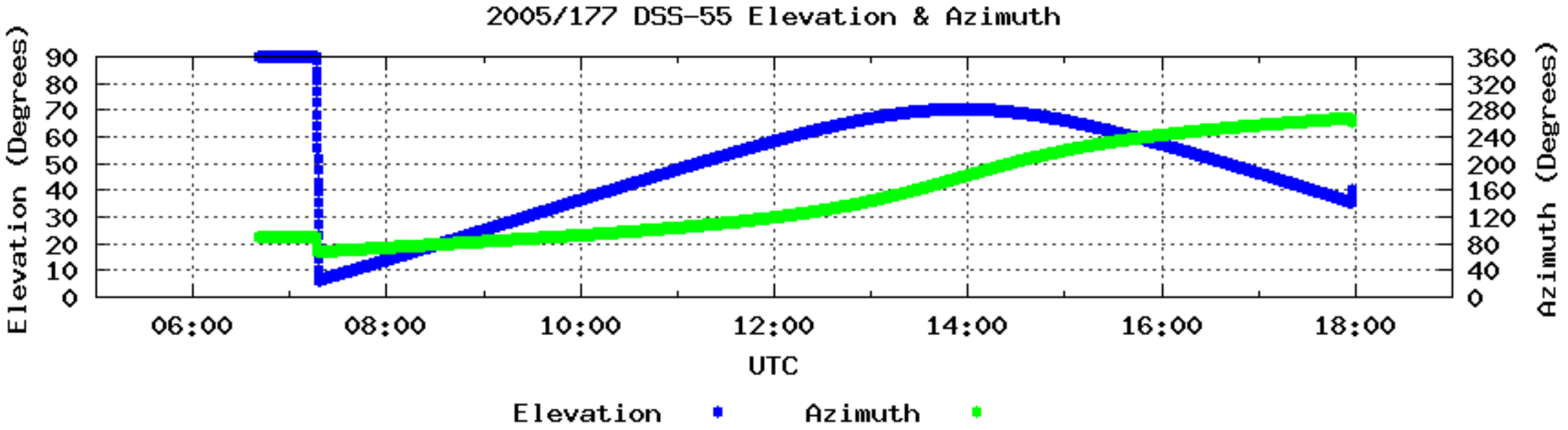
06:00 08:00 10:00 12:00 14:00 16:00 18:00

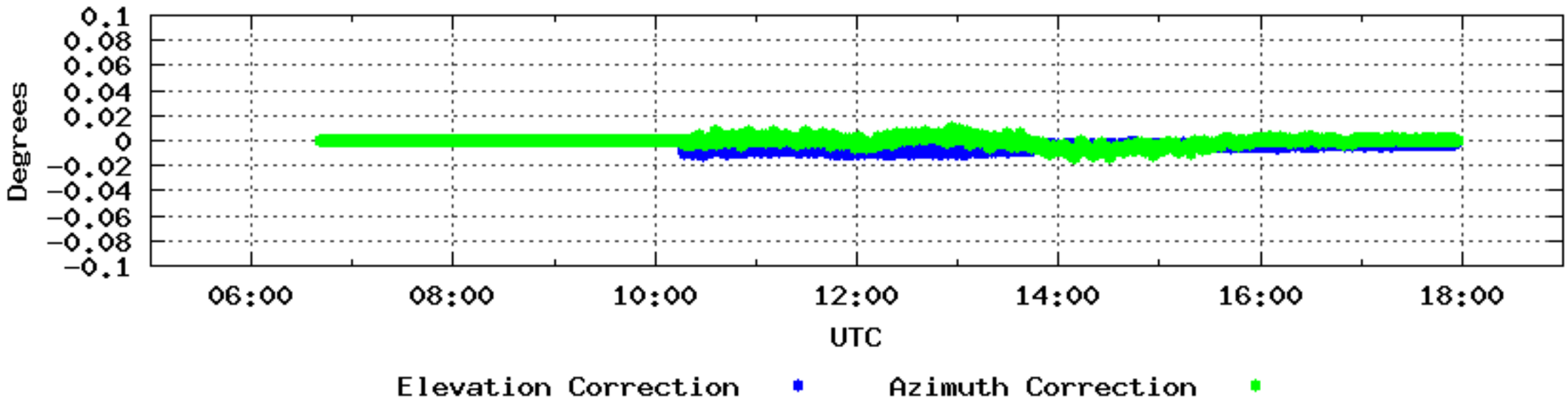
UTC

Elevation Residual Azimuth Residual


2005/177 DSS-55 System Noise Temperature
K
275
250
225
200
175
150
125
100
75
50
25
0
06:00
08:00
10:00
12:00
14:00
16:00
18:00
UTC
X-RCP
K-RCP


2005/177 DSS-55 Elevation Angle
Degrees
90
80
70
60
50
40
30
20
10
0
06:00
08:00
10:00
12:00
14:00
16:00
18:00
UTC


2005/177 DSS-55 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
08:00
10:00
12:00
14:00
16:00
18:00
UTC
Elevation
Azimuth


2005/177 DSS-55 Monopulse Elevation & Azimuth Corrections
Degrees
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-0.08
-0.1
06:00
08:00
10:00
12:00
14:00
16:00
18:00
UTC
Elevation Correction
Azimuth Correction

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

10. Conscan Drive Status

Conscan Drive Status (M-0308)

11. Azimuth & Elevation Monopulse Corrections

Elevation Corrections (M-0815)
Azimuth Corrections (M-0814)

12. Azimuth & Elevation Residuals

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

13. 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)

14. Elevation & Azimuth, Elevation & Azimuth Corrections, and Wind Speed and Direction

Top:
Elevation Angle (M-0304)
Azimuth Angle (M-0305)

Middle:
Elevation Corrections (M-0815)
Azimuth Corrections (M-0814)

Bottom:
Wind Speed (M-0388)
Wind Direction (M-0391)