REPORT OF 031119

1. Introduction
2. Summary
    - Instrument Unavailability
    - Browse Visual Inspection
    - Module Stepping Results
    - Data Analysis
3. Module Stepping
4. Internal Calibration pulses
    - Daily statistics (row 3 and 24)
    - Cyclic statistics (row 3 and 24)
    - cal pulses monitoring (all rows)
5. Raw Data Statistics
    - raw data mean I and Q
    - raw data stdev I and Q
    - raw gain imbalance
6. Wave Doppler analysis
    - Unbiased Doppler Error
    - Absolute Doppler
    - Doppler evolution versus ANX

1 - Introduction

This report is based on the analysis of wave mode level-1 cross spectra (ASA_WVS_1P) products, which are the available few hours after the acquisition, on the high rate browse (BP) products and on the Module Stepping (MS) product.

2 - Summary

2.1 - Instrument Unavailability

No unavailabilities during the reported period.

2.2 - Browse Visual Inspection

No anomalies observed on available browse products.

2.3 - Data Analysis

-Stable wave internal calibration pulses gain and phase.
-Stable raw data statistics.

-Nominal Doppler behavior.

3 - Module Stepping Mode

The MS mode provides an internal health check on an individual module basis.
The purpose of this mode is to identify any malfunctionning modules and
to identify modules foe which calibration offsets are to be applied.

No anomalies observed on available MS products:
- ASA_MS__0PNPDK20031118_195336_000000152021_00414_08985_0029.N1
- ASA_MS__0PNPDK20031118_195456_000000152021_00414_08985_0030.N1

Stabilization of the B3-3 module drift in transmit phase on H polarisation as shown below.

Polarisation	Start Time
V	20031118 195456
H	20031118 195336

MSM in V/V polarisation

Pre-launch Reference	DDS-B (2003-06-12) reference

MSM in H/H polarisation

Pre-launch Reference	DDS-B (2003-06-12) reference

4 - Internal calibration Results

No anomalies observed.

4.1 - Daily statistics

row	stat	AveP1	AveP2	AveP3
3	mean	-3.77496	-22.6235	-8.17981
	stdev	0.00658280	0.0626612	0.00332391
24	mean	-5.09654	-21.2861	-8.17981
	stdev	0.0106715	0.0567958	0.00332391

4.2 - Cyclic statistics

row	stat	AveP1	AveP2	AveP3
3	mean	-3.77778	-22.5527	-8.15459
	stdev	0.00600407	0.0658983	0.00304685
24	mean	-5.33079	-21.2450	-8.15459
	stdev	0.916543	0.0605719	0.00304685

4.3 - cal pulses monitoring (all rows)

The

5 - RAW data statistics

No anomalies observed.

5.1 - Input mean I/Q

channel	stat	DSS-B
MEAN I	mean	0.000405410
	stdev	3.35388e-07
MEAN Q	mean	0.000237481
	stdev	3.67603e-07

5.2 - Input stdev I/Q

channel	stat	DSS-B
STDEV I	mean	0.112525
	stdev	0.00147722
STDEV Q	mean	0.112777
	stdev	0.00149463

5.3 - Gain imbalance I/Q

6 - Wave Doppler Analysis

No anomalies observed in Doppler evolution.
Doppler analysis performed over the last 35 days.

6.1 - Unbiased Doppler Error

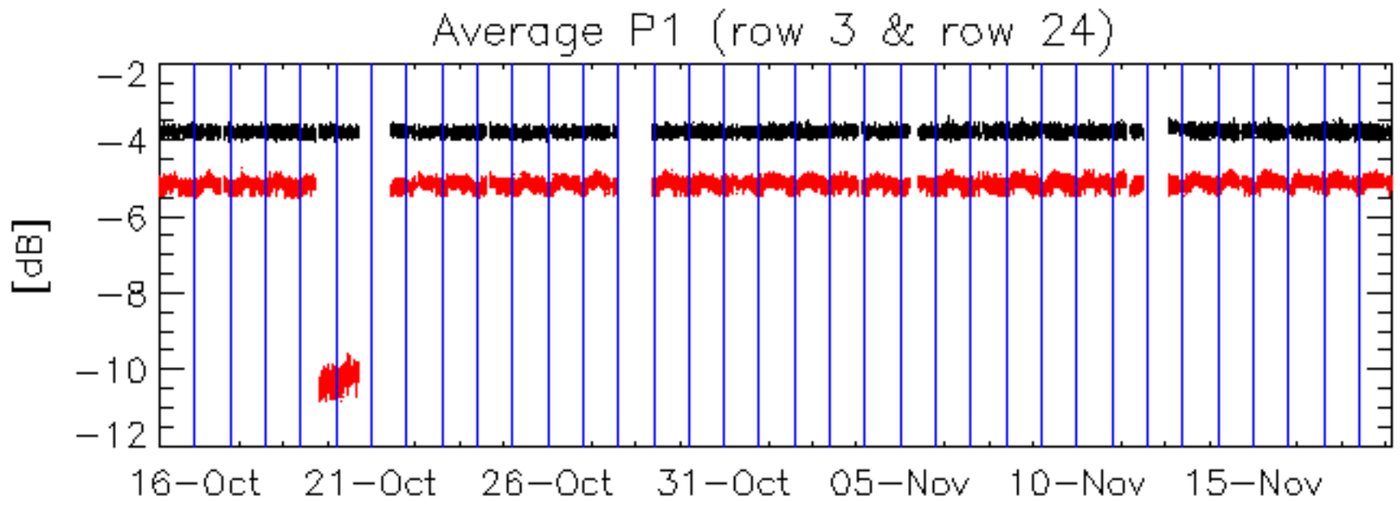
Evolution of unbiased Doppler error (Real - Expected)
Acsending
Descending

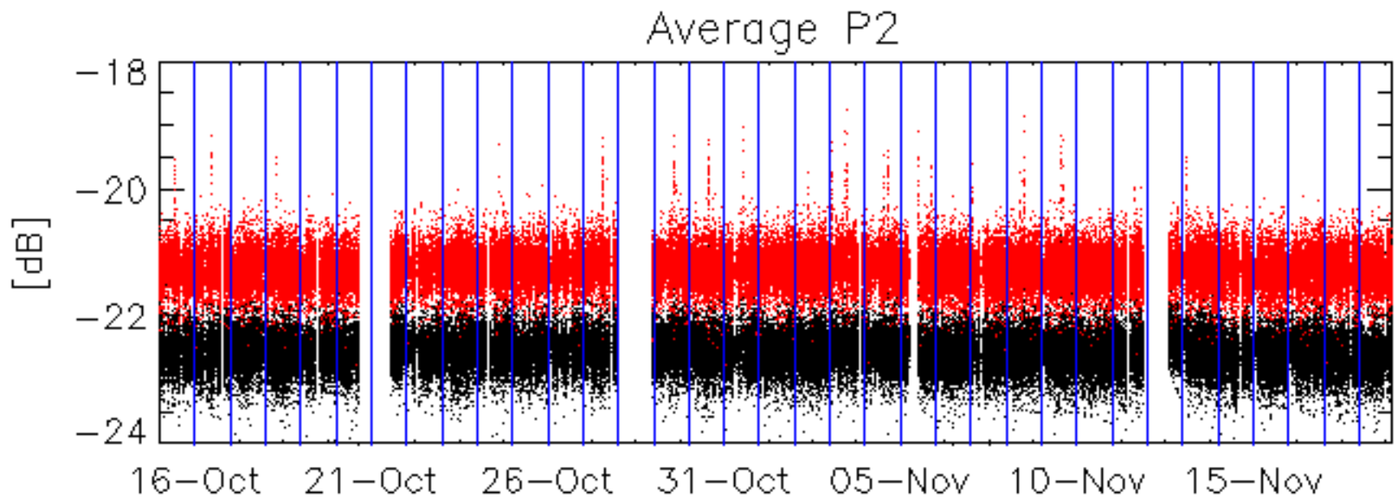
6.2 - Absolute Doppler

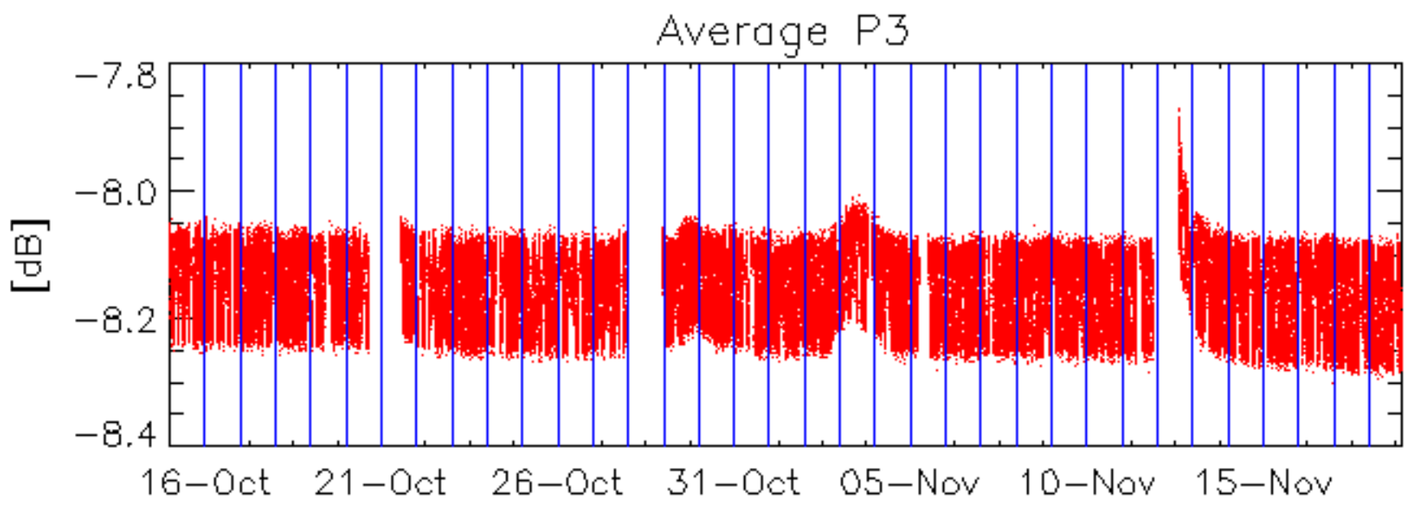
Evolution of Absolute Doppler
Acsending
Descending

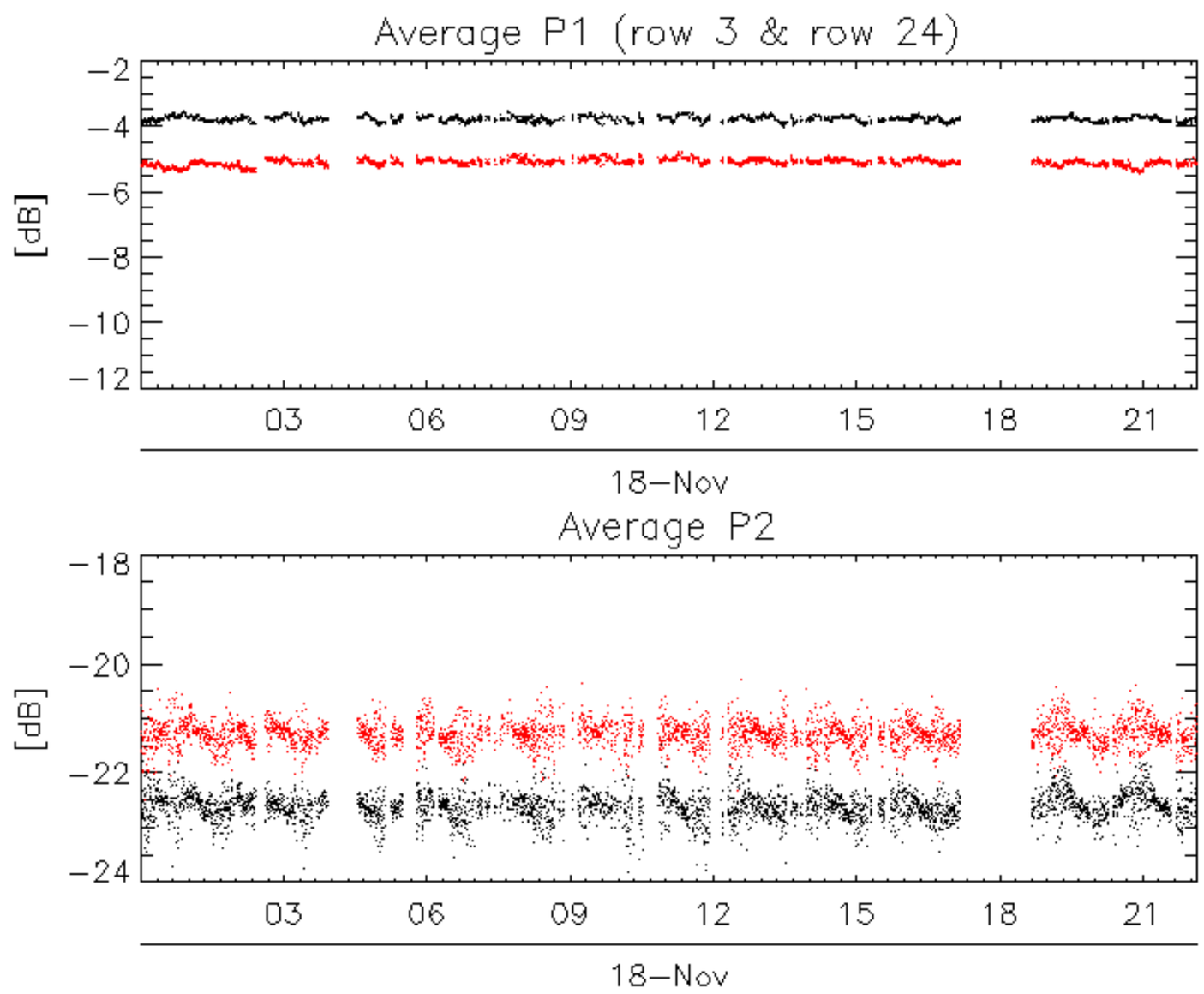
6.3 - Doppler evolution versus ANX

Evolution Doppler error versus ANX


Average P1 (row 3 & row 24)
[dB]
−2
−4
−6
−8
−10
−12
16−Oct
21−Oct
26−Oct
31−Oct
05−Nov
10−Nov
15−Nov

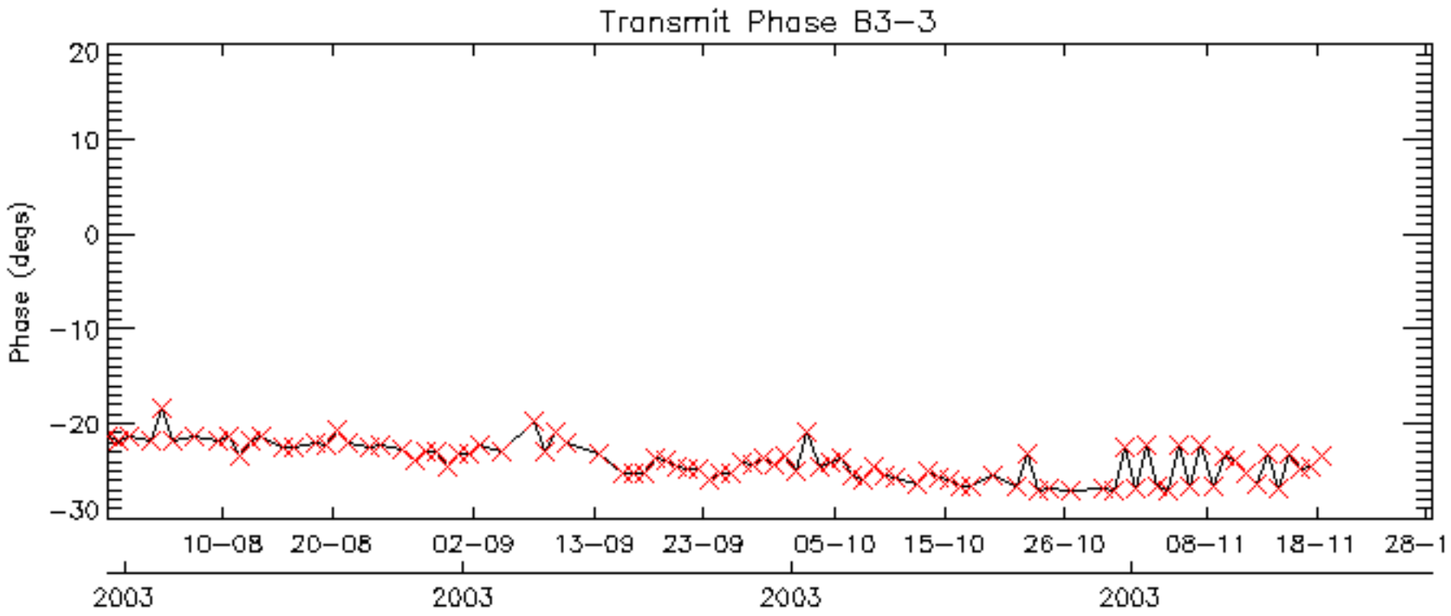

Average P2
[dB]
−18
−20
−22
−24
16−Oct
21−Oct
26−Oct
31−Oct
05−Nov
10−Nov
15−Nov


Average P3
[dB]
−7.8
−8.0
−8.2
−8.4
16−Oct
21−Oct
26−Oct
31−Oct
05−Nov
10−Nov
15−Nov


Average P1 (row 3 & row 24)
[dB]
−2
−4
−6
−8
−10
−12
03
06
09
12
15
18
21
18−Nov

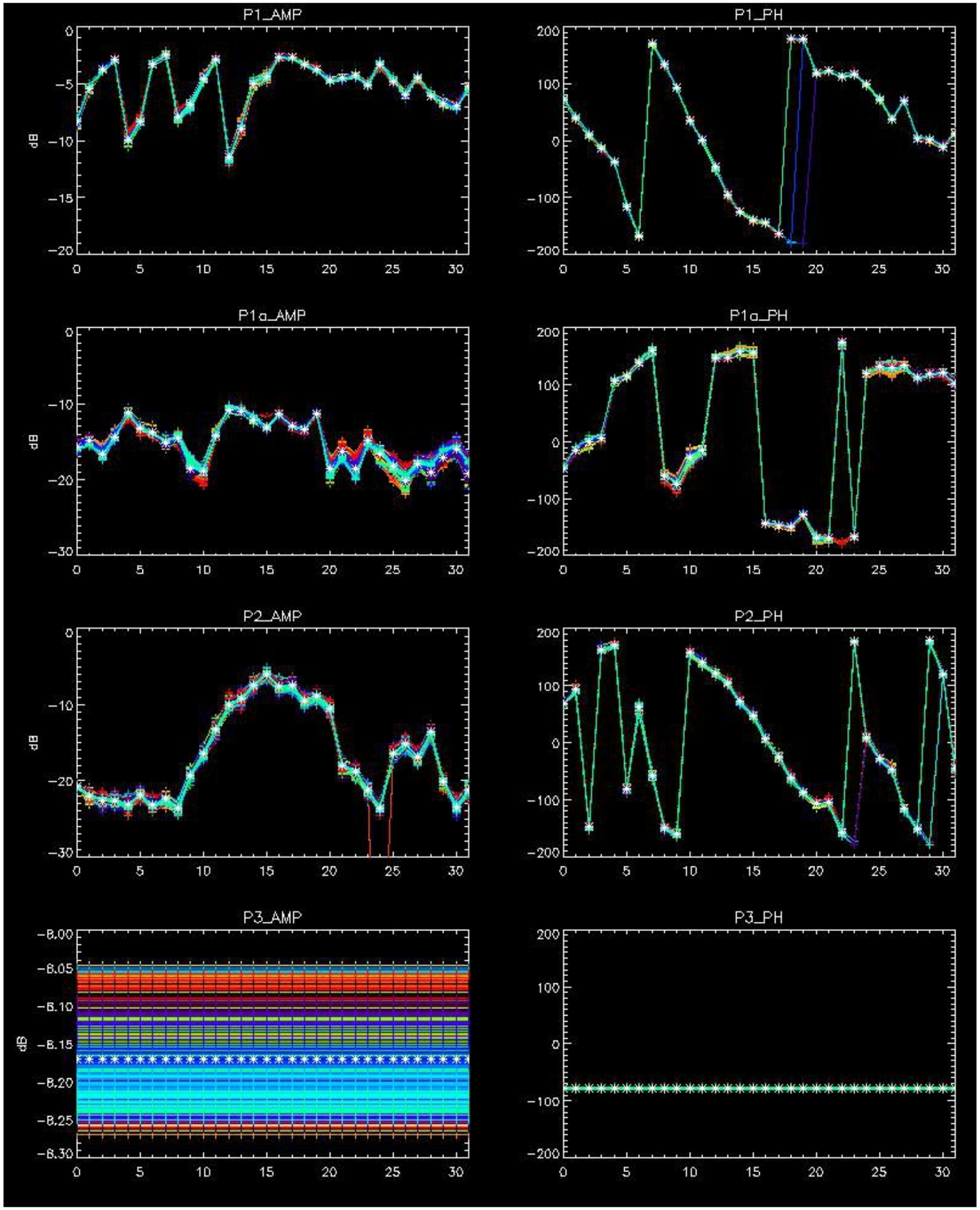
Average P2
[dB]
−18
−20
−22
−24
03
06
09
12
15
18
21
18−Nov

Average P3
[dB]
−7.8
−8.0
−8.2
−8.4
03
06
09
12
15
18
21
18−Nov


Transmit Phase B3-3
Phase (degs)
20
10
0
-10
-20
-30
10-08
20-08
02-09
13-09
23-09
05-10
15-10
26-10
08-11
18-11
28-11
2003
2003
2003
2003

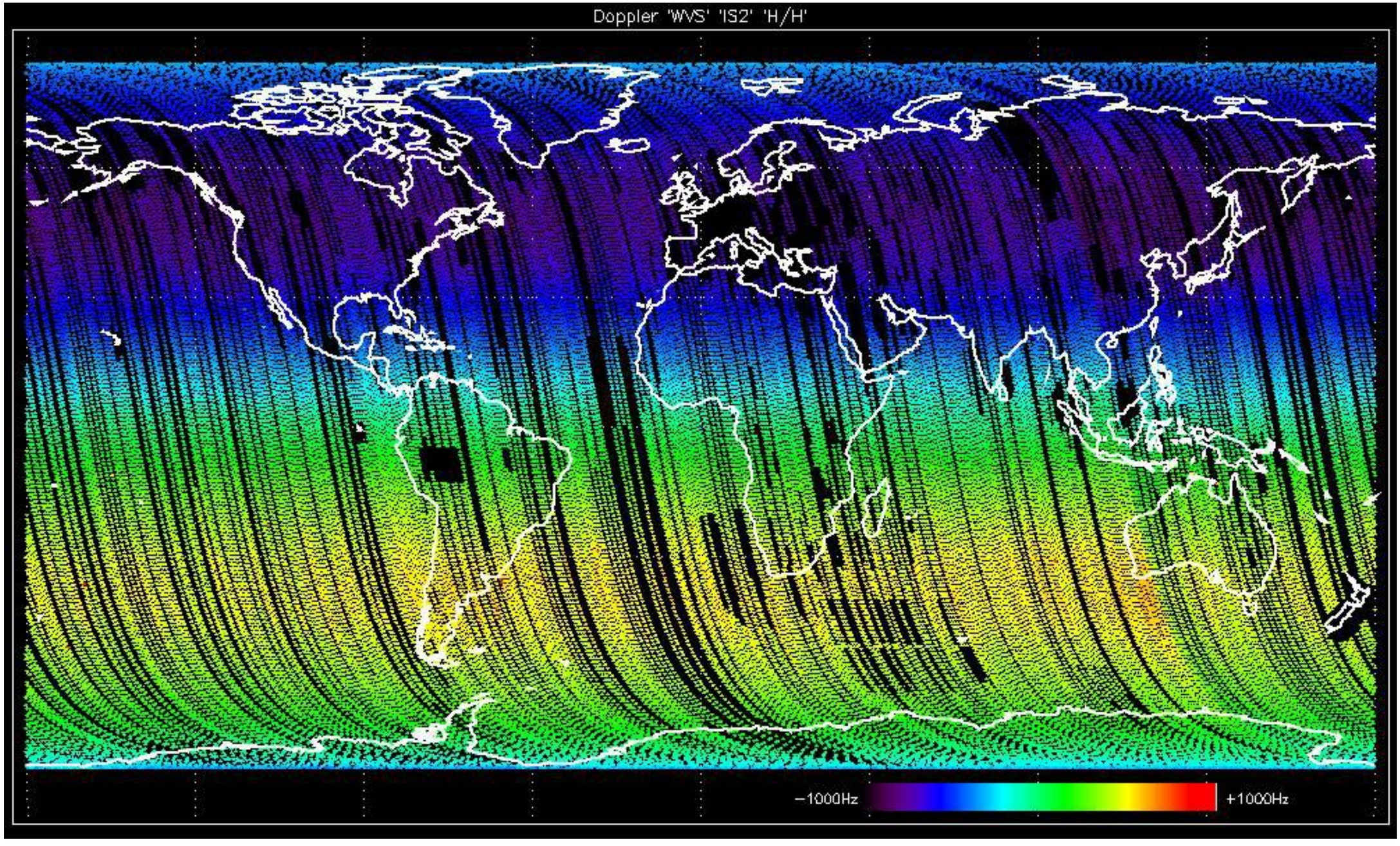
No anomalies observed on available browse products.

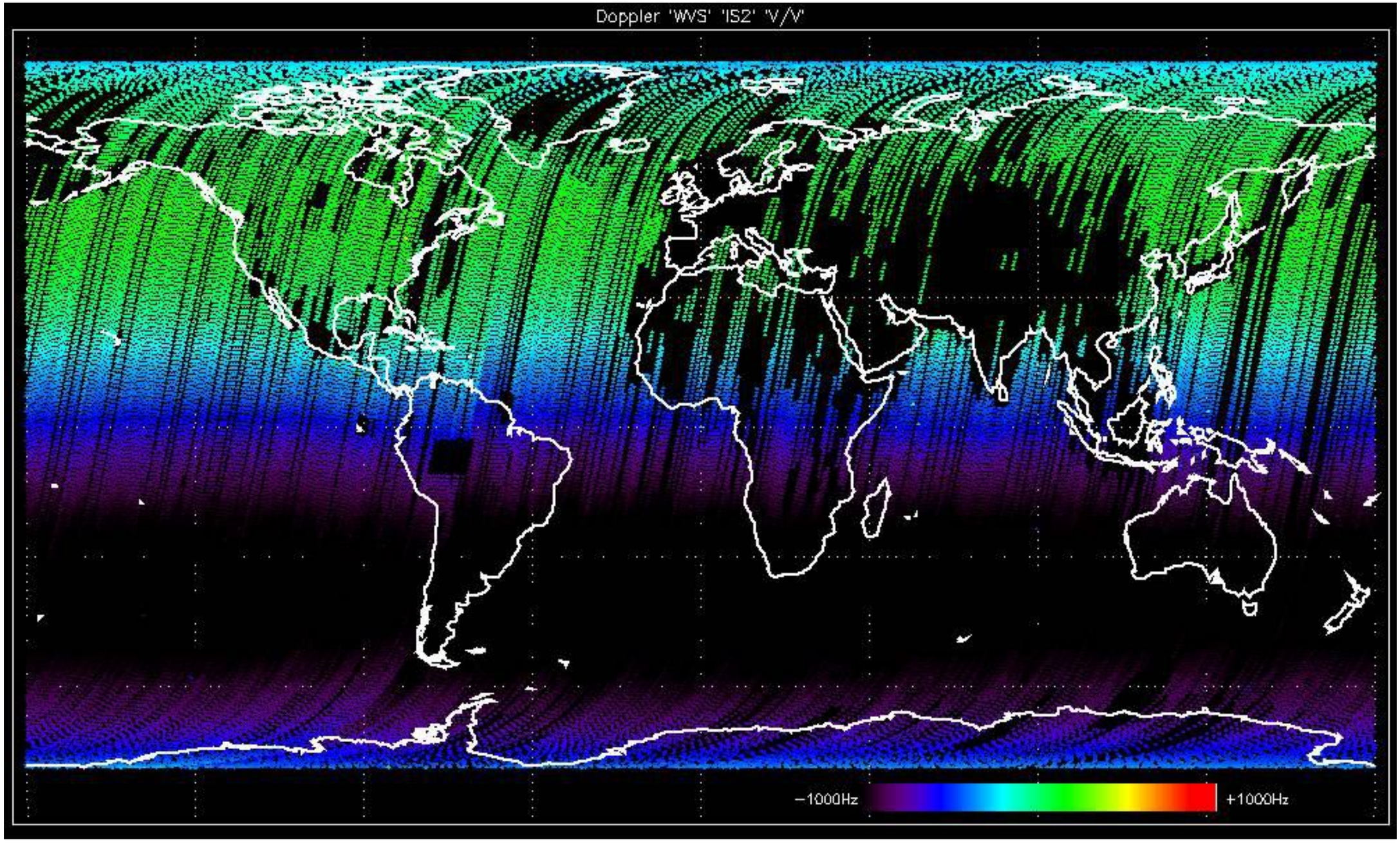
No anomalies observed.

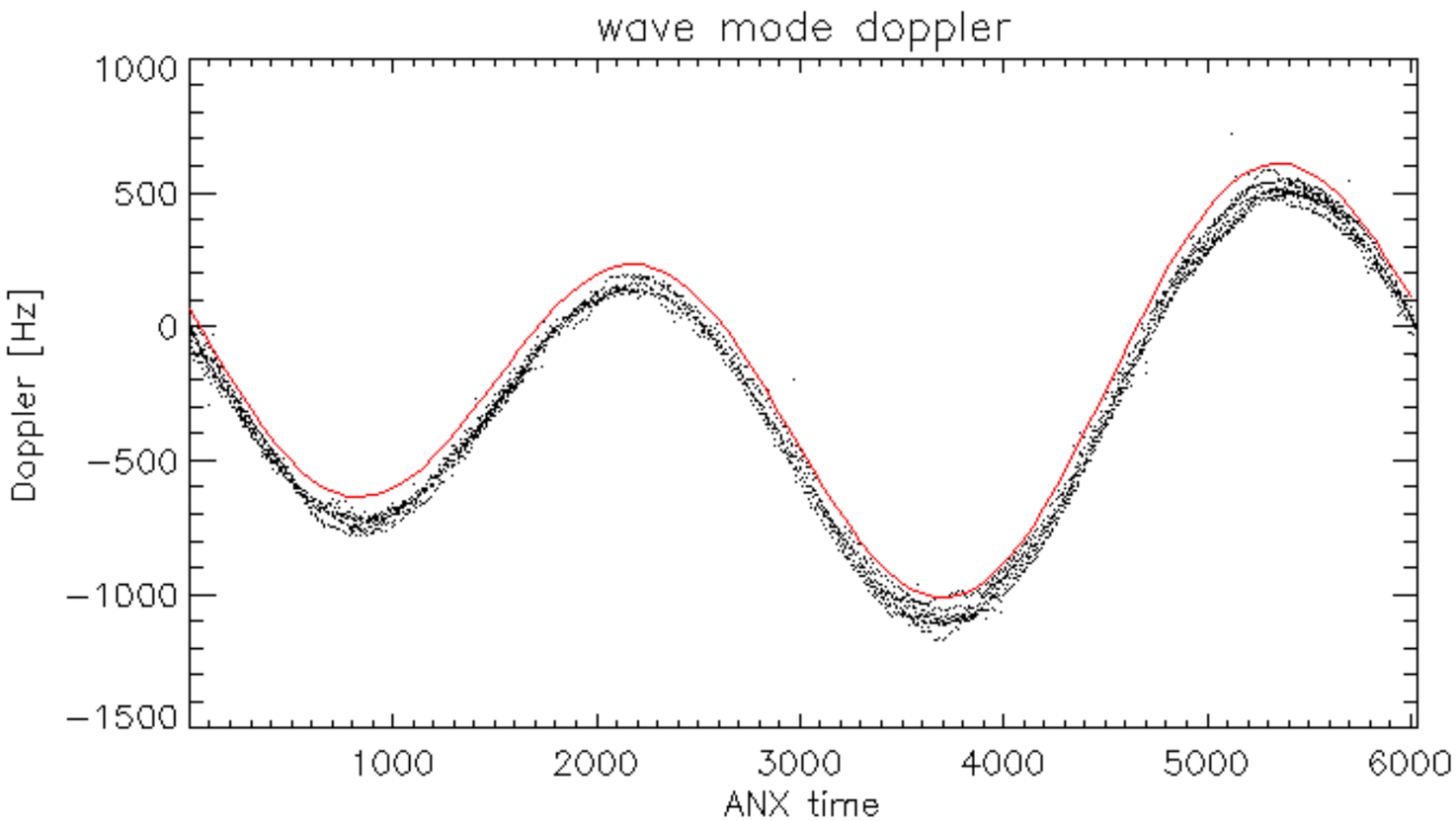

P1_AMP
P1_PH
P1a_AMP
P1a_PH
P2_AMP
P2_PH
P3_AMP
P3_PH
dB

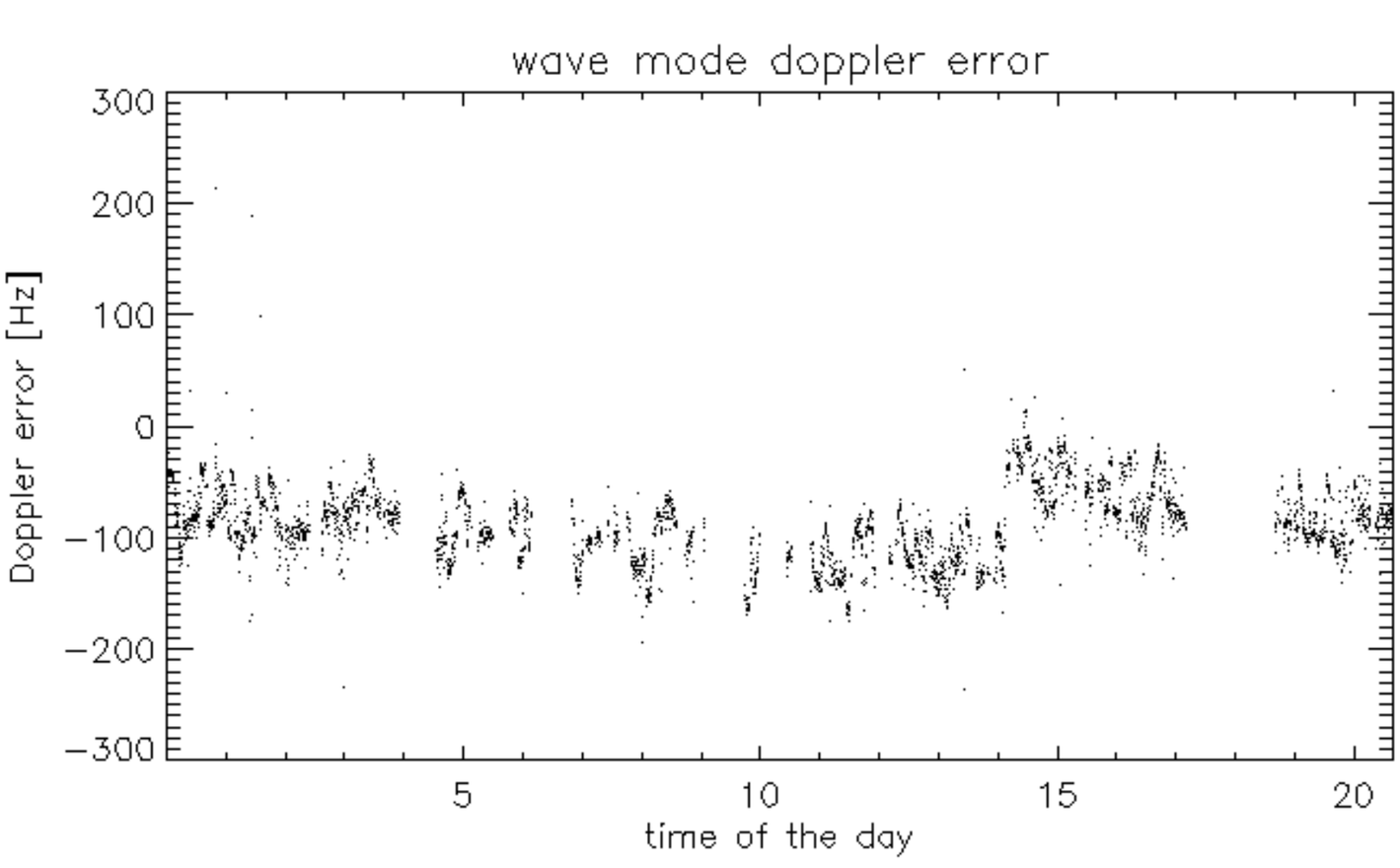
-Stable wave internal calibration pulses gain and phase.
-Stable raw data statistics.
-Nominal Doppler behavior.

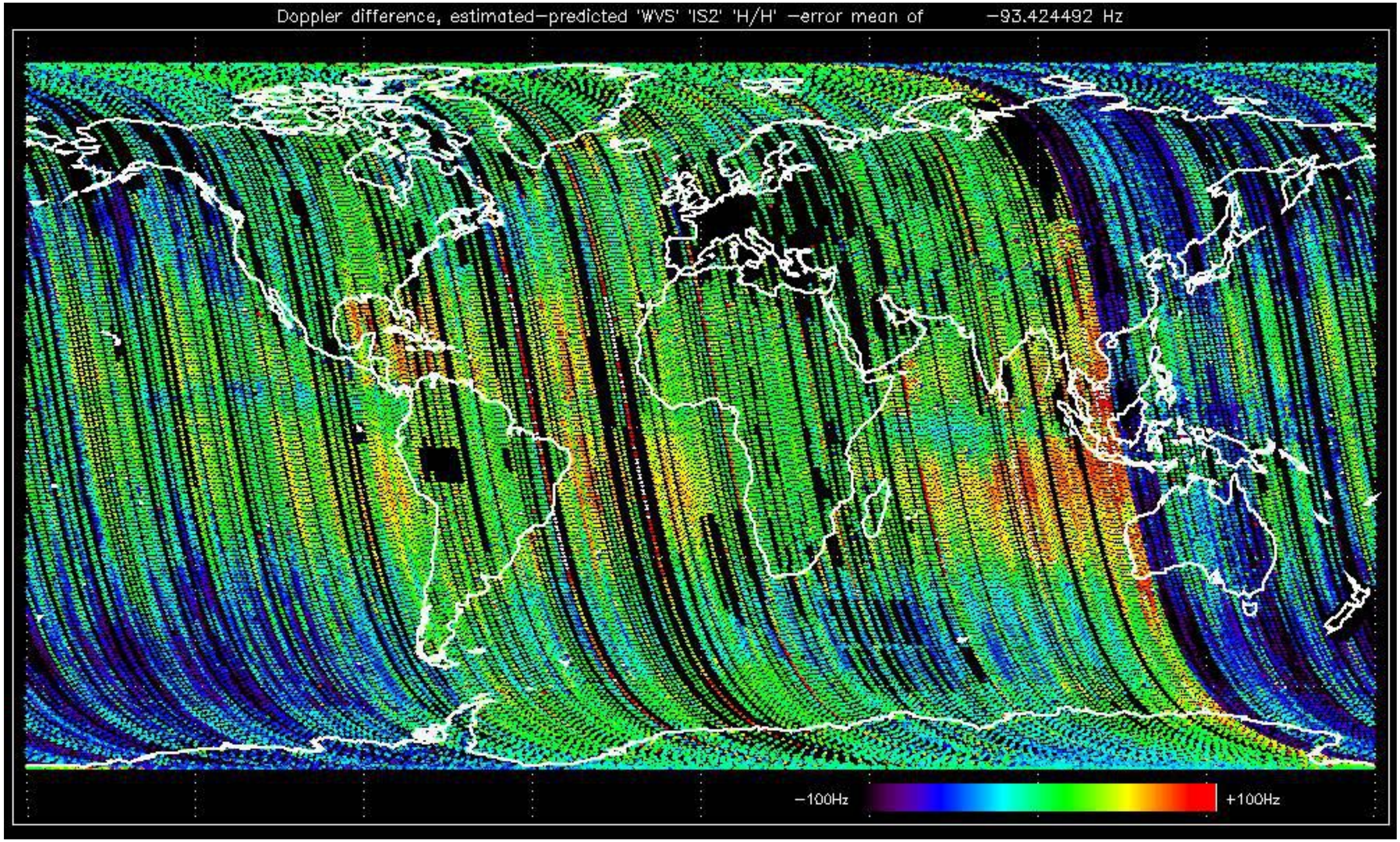
No anomalies observed in Doppler evolution.
Doppler analysis performed over the last 35 days.

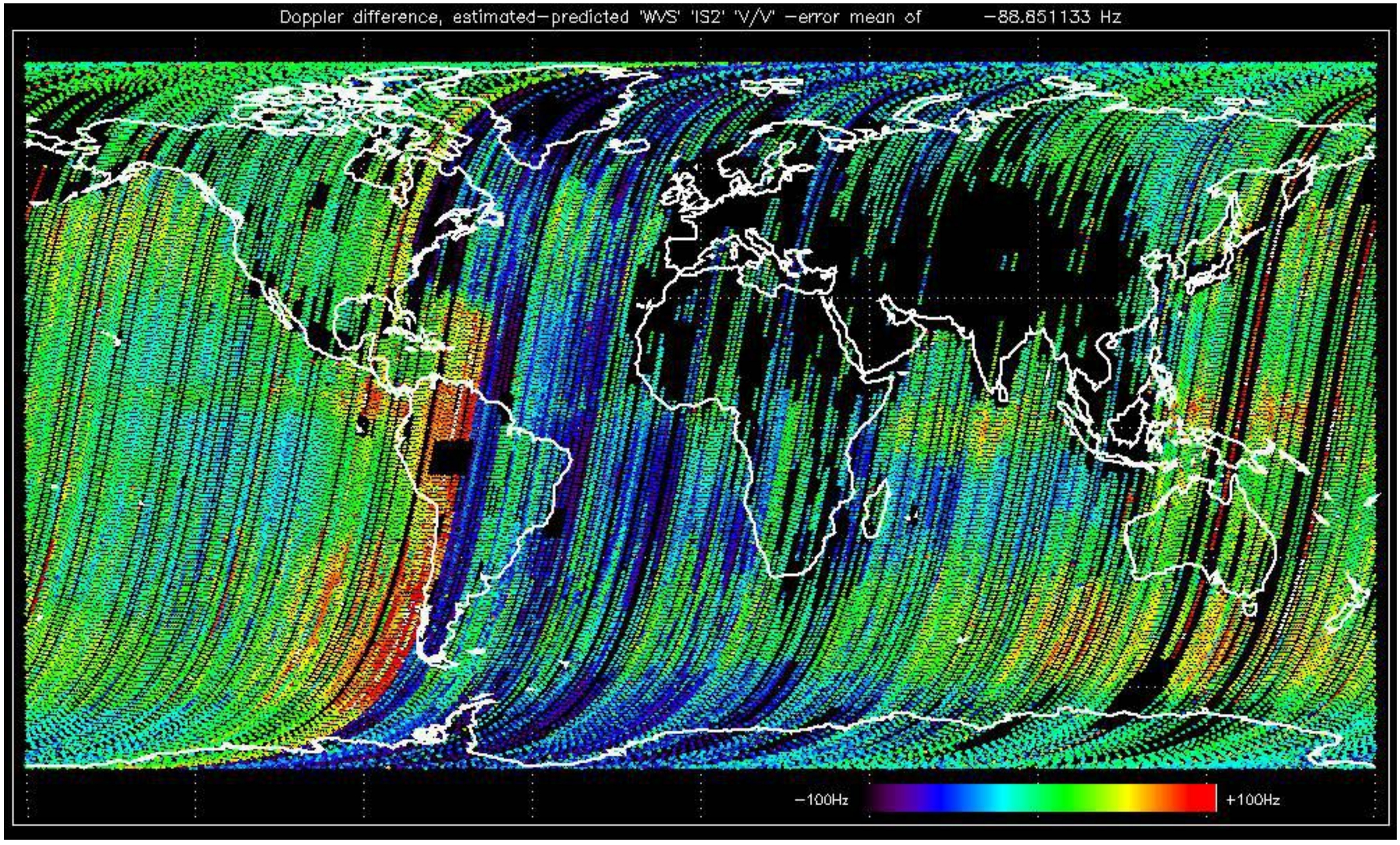

Doppler 'WVS' 'IS2' 'H/H'
−1000Hz
+1000Hz


Doppler 'WVS' 'IS2' 'V/V'
−1000Hz
+1000Hz


wave mode doppler
Doppler [Hz]
1000
500
0
−500
−1000
−1500
1000
2000
3000
4000
5000
6000
ANX time


wave mode doppler error
Doppler error [Hz]
300
200
100
0
−100
−200
−300
5
10
15
20
time of the day


Doppler difference, estimated−predicted 'WVS' 'IS2' 'H/H' −error mean of −93.424492 Hz
−100Hz
+100Hz

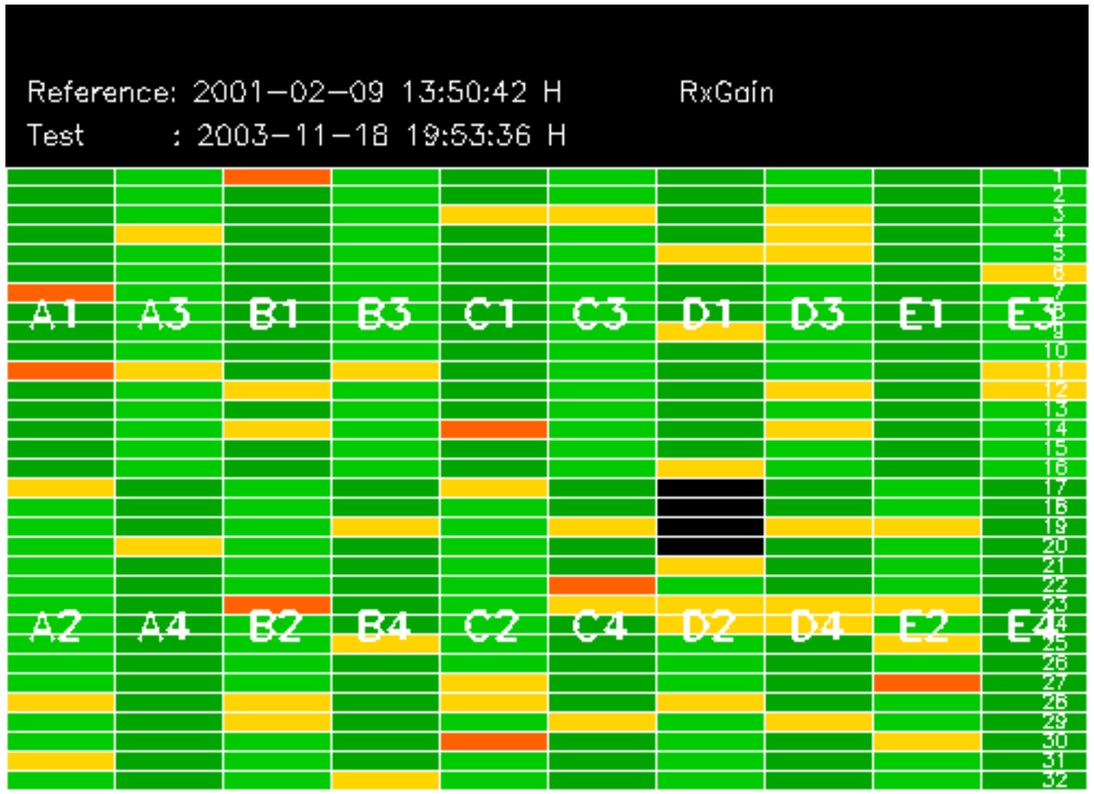

Doppler difference, estimated−predicted 'WVS' 'IS2' 'V/V' −error mean of −88.851133 Hz
−100Hz
+100Hz

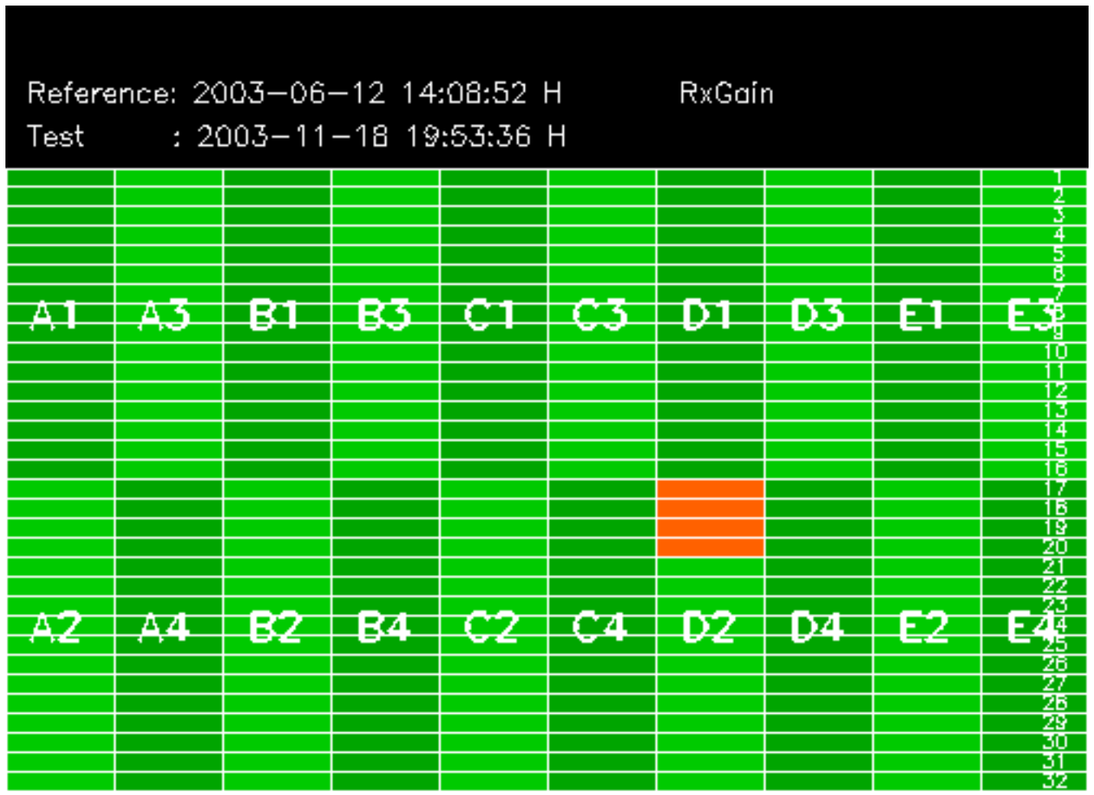
The MS mode provides an internal health check on an individual module basis.
The purpose of this mode is to identify any malfunctionning modules and
to identify modules foe which calibration offsets are to be applied.

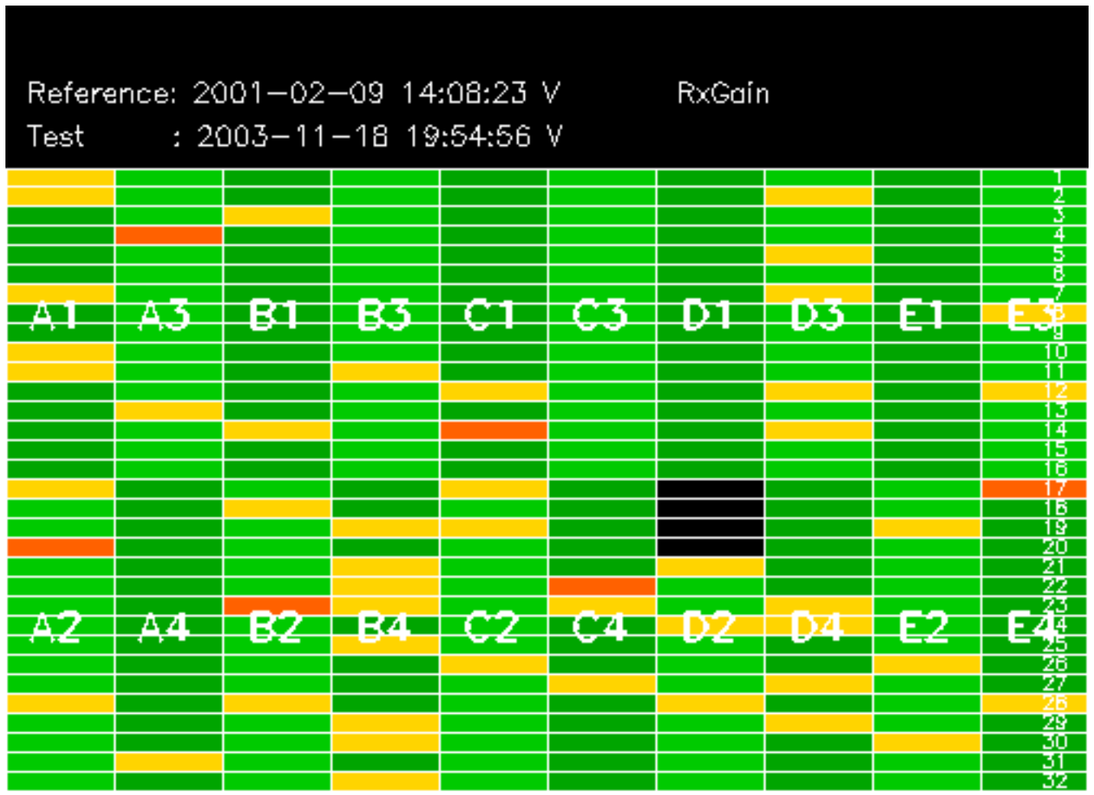
No anomalies observed on available MS products:
- ASA_MS__0PNPDK20031118_195336_000000152021_00414_08985_0029.N1
- ASA_MS__0PNPDK20031118_195456_000000152021_00414_08985_0030.N1

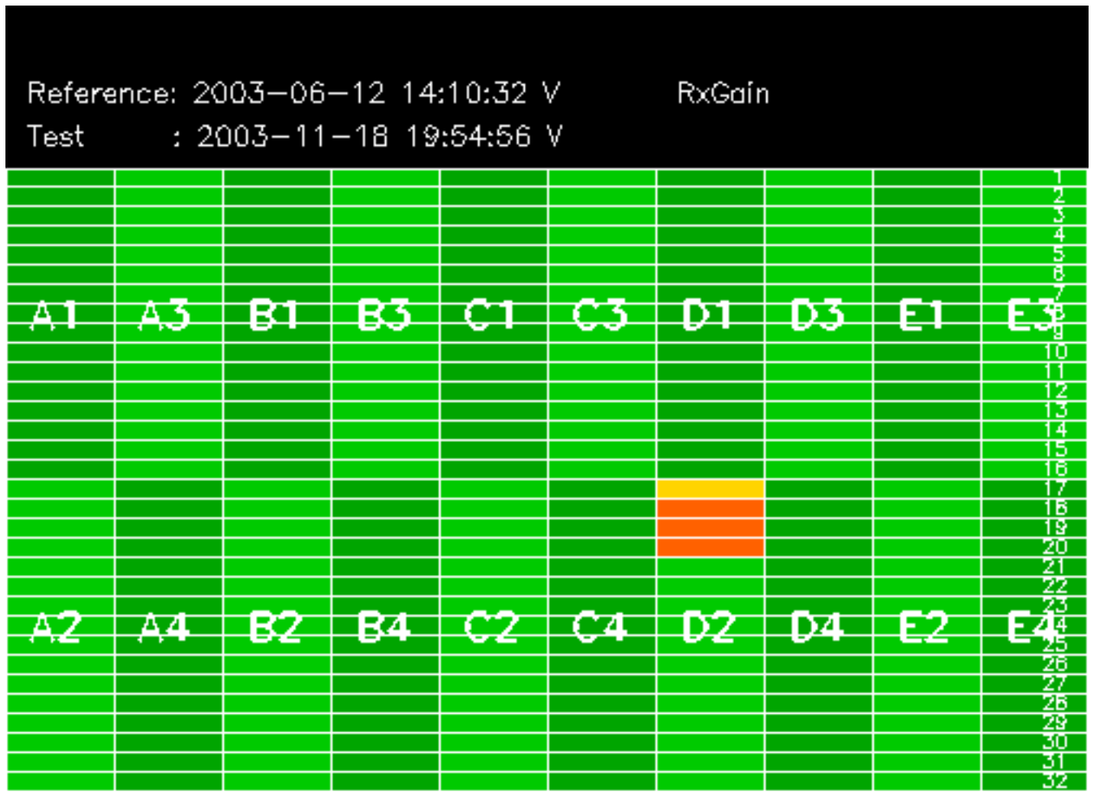
Stabilization of the B3-3 module drift in transmit phase on H polarisation as shown below.

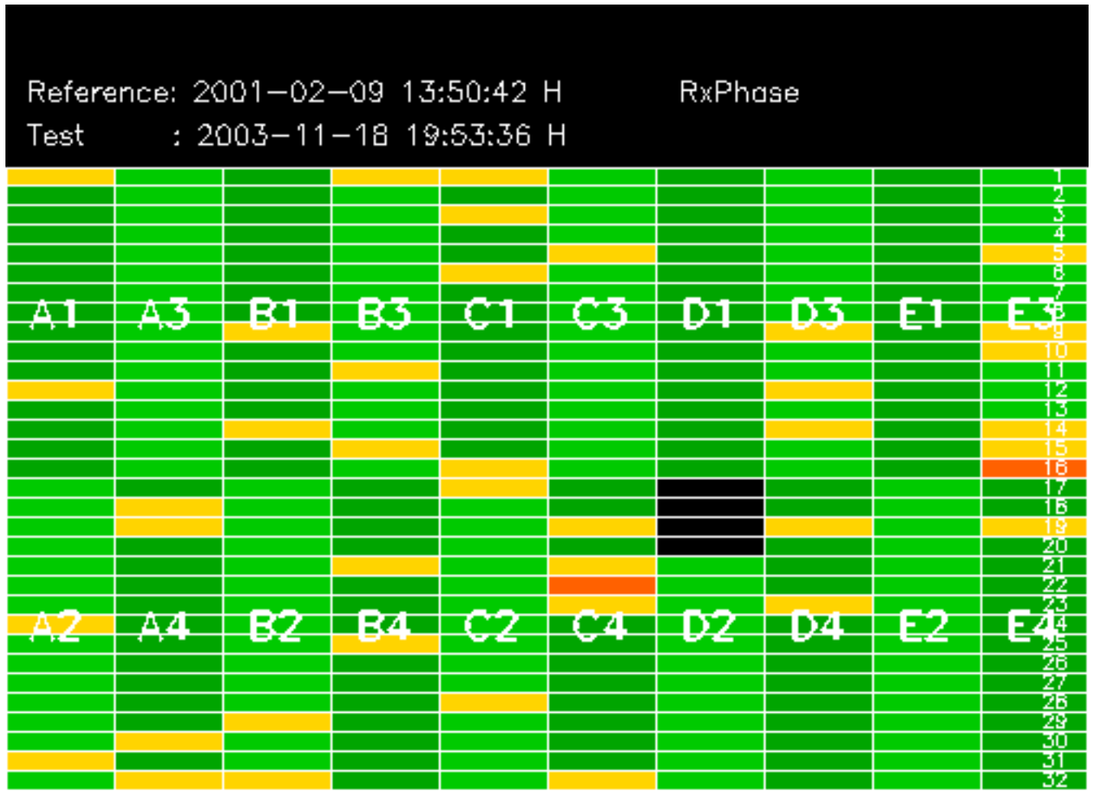
No anomalies observed.

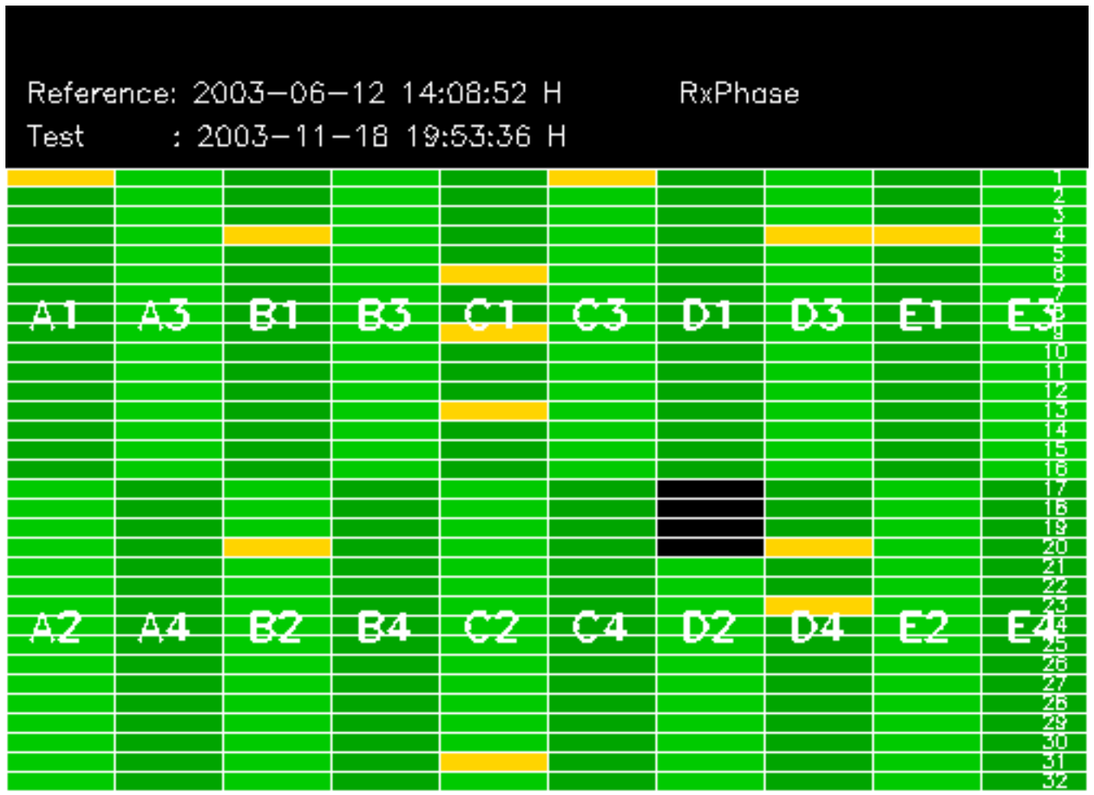

Reference: 2001-02-09 13:50:42 H
Test : 2003-11-18 19:53:36 H
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

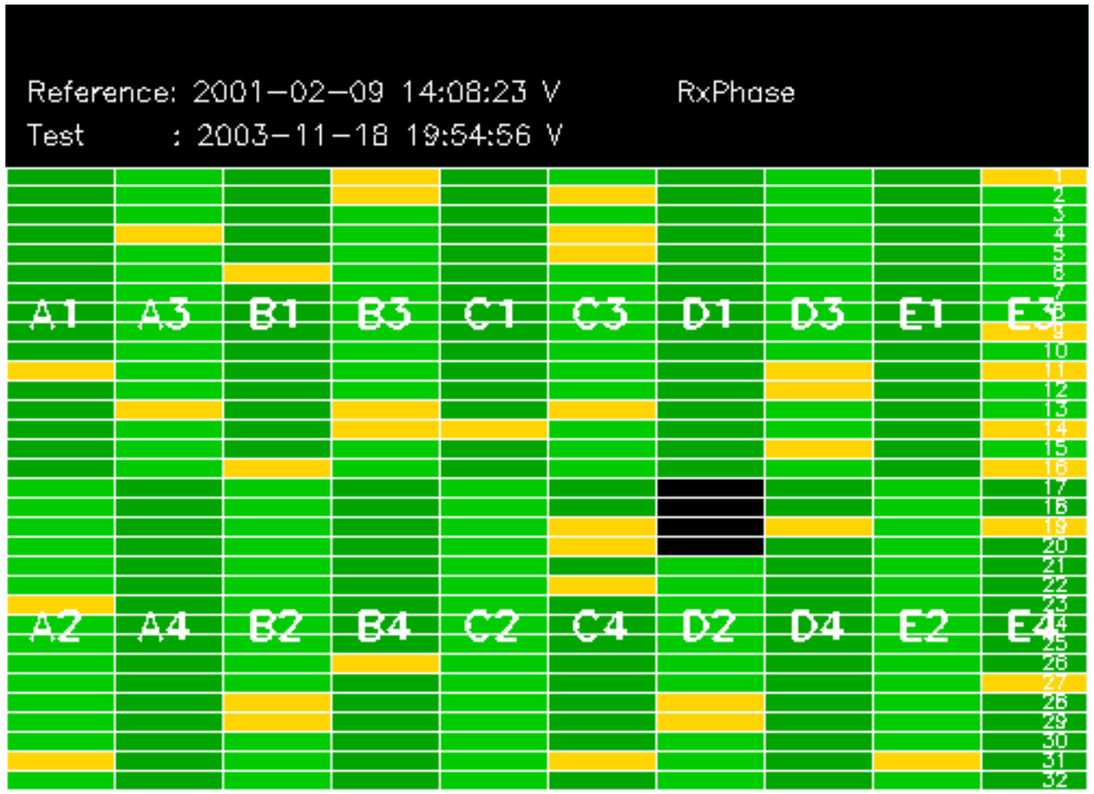

Reference: 2003-06-12 14:08:52 H
Test : 2003-11-18 19:53:36 H
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

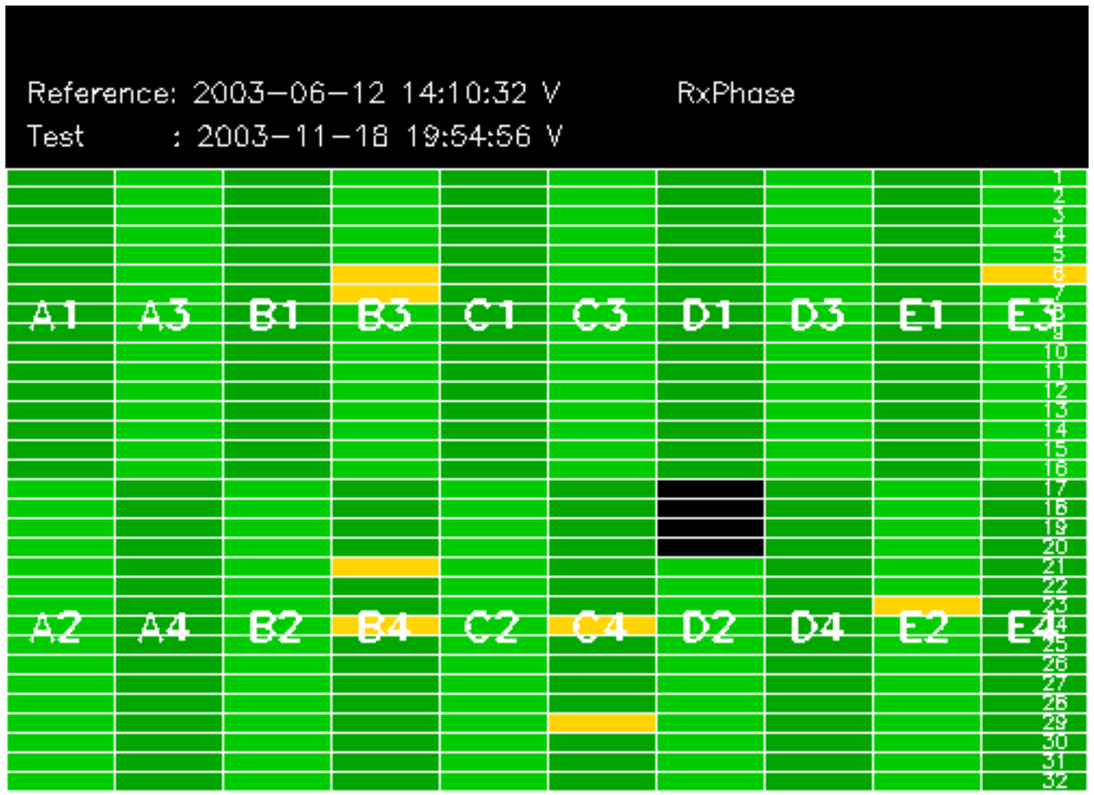

Reference: 2001-02-09 14:08:23 V
Test : 2003-11-18 19:54:56 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

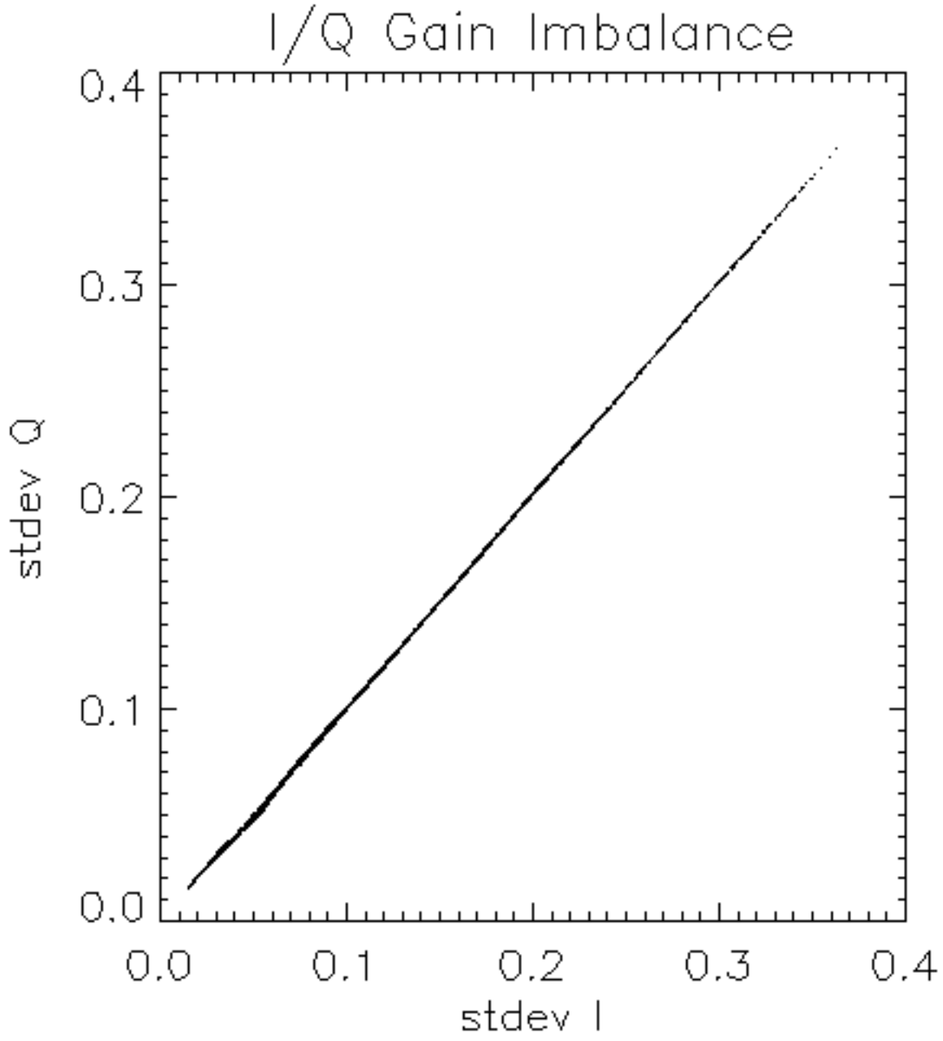

Reference: 2003-06-12 14:10:32 V
Test : 2003-11-18 19:54:56 V
RxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

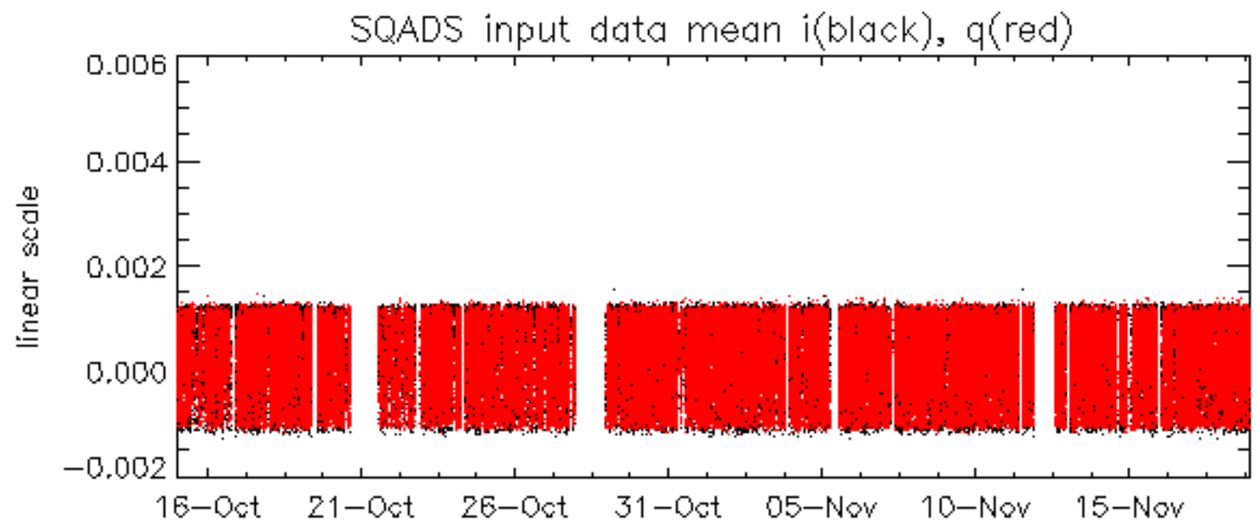

Reference: 2001-02-09 13:50:42 H
RxPhase
Test : 2003-11-18 19:53:36 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

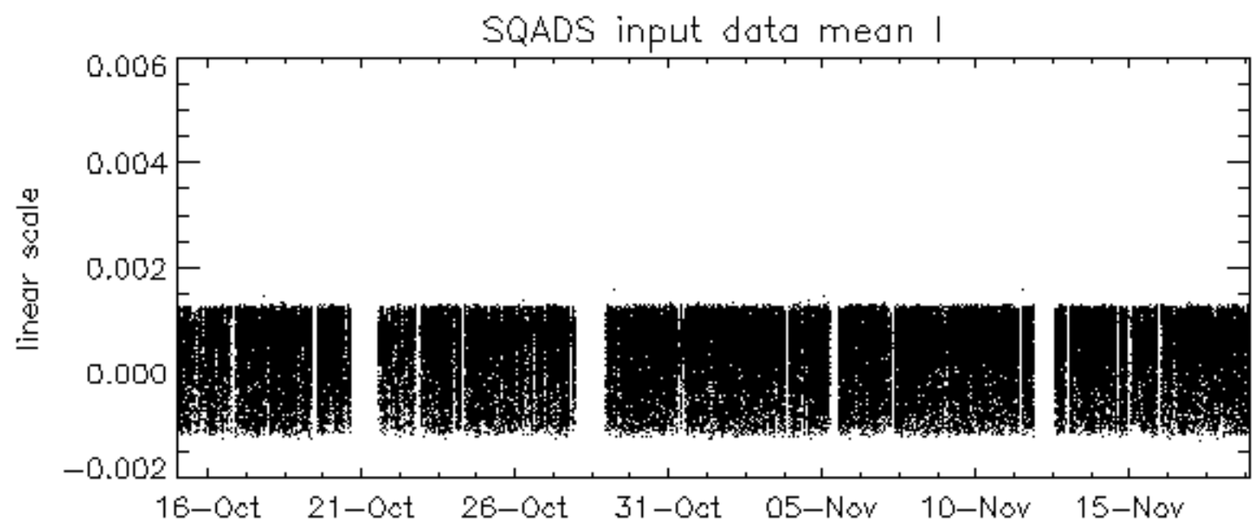

Reference: 2003-06-12 14:08:52 H
Test : 2003-11-18 19:53:36 H
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

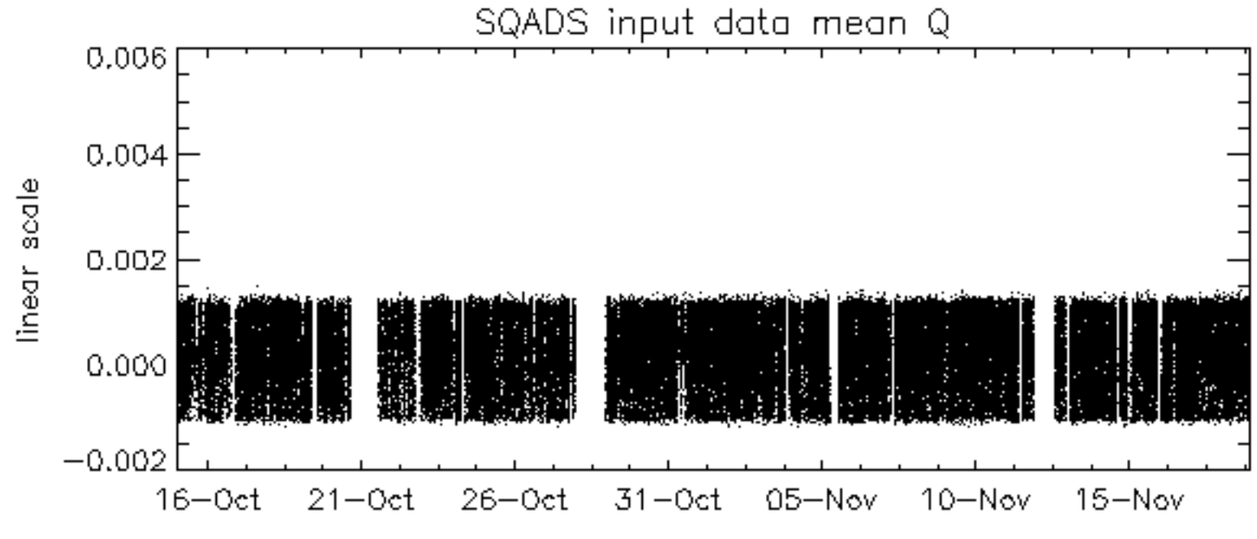

Reference: 2001-02-09 14:08:23 V
Test : 2003-11-18 19:54:56 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

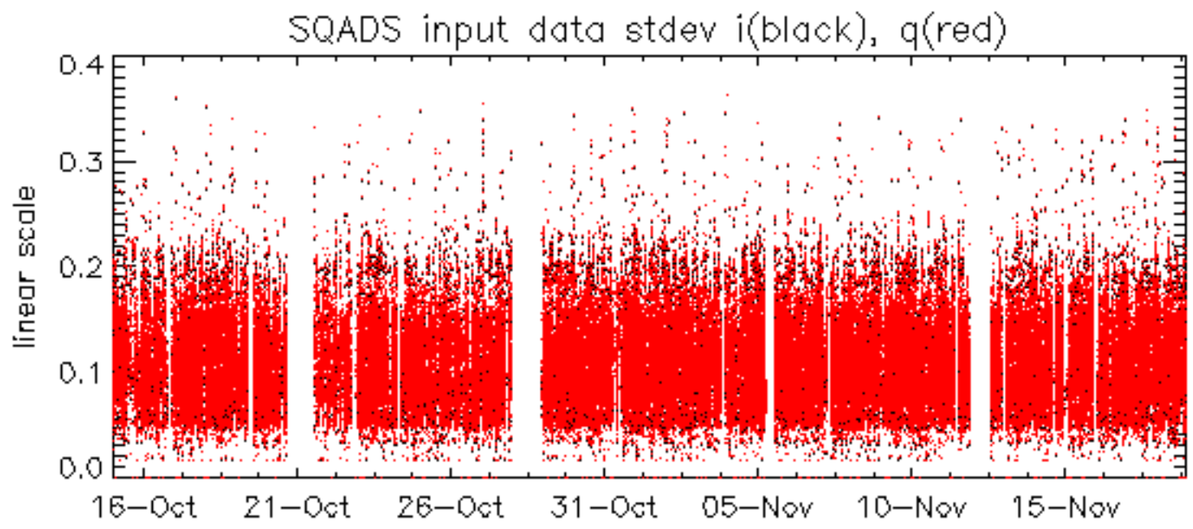

Reference: 2003-06-12 14:10:32 V
Test : 2003-11-18 19:54:56 V
RxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

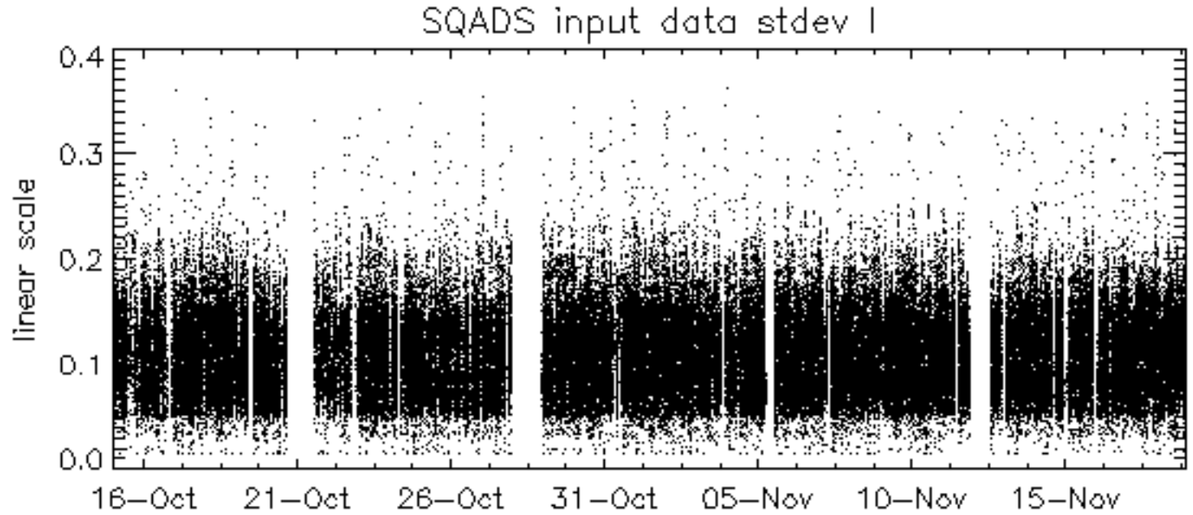

I/Q Gain Imbalance
0.4
0.3
0.2
0.1
0.0
stdev Q
0.0
0.1
0.2
0.3
0.4
stdev I

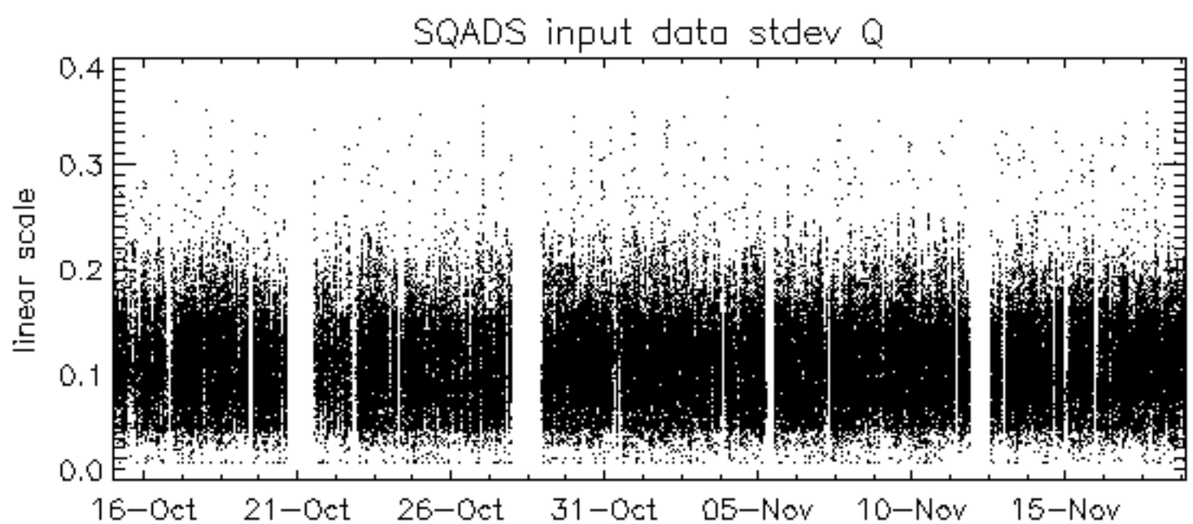

SQADS input data mean i(black), q(red)
linear scale
0.006
0.004
0.002
0.000
−0.002
16−Oct
21−Oct
26−Oct
31−Oct
05−Nov
10−Nov
15−Nov

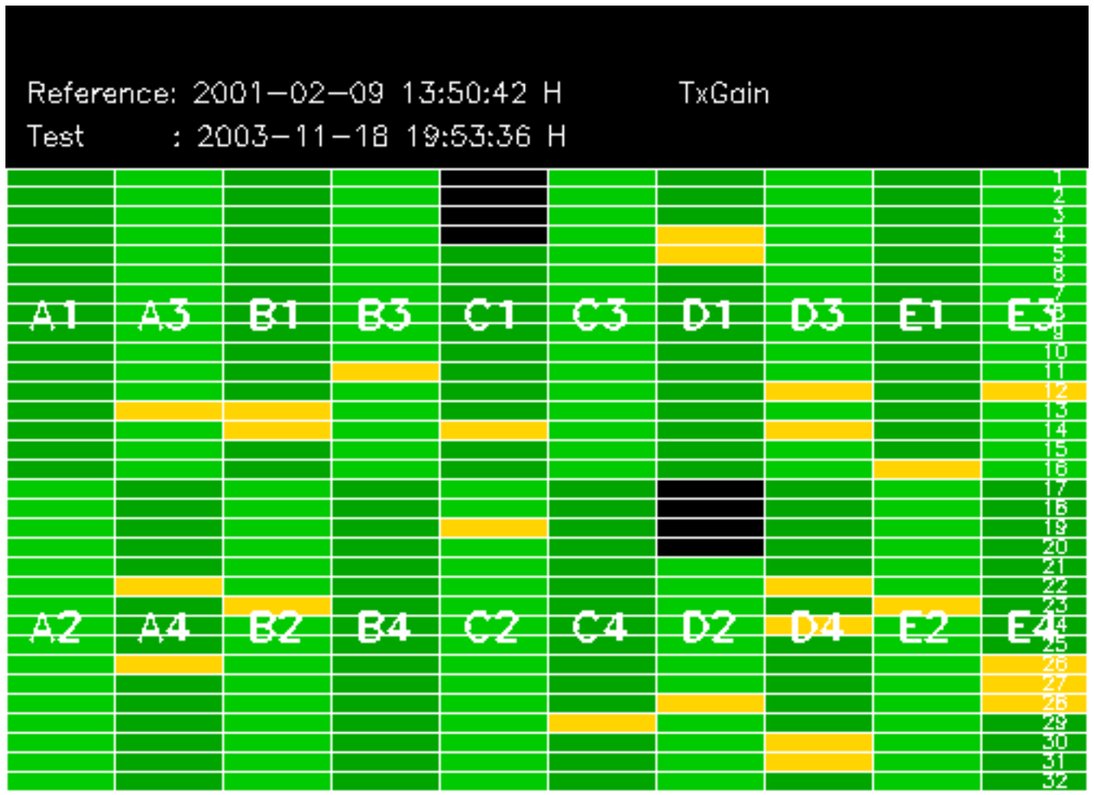

SQADS input data mean I
linear scale
0.006
0.004
0.002
0.000
−0.002
16−Oct
21−Oct
26−Oct
31−Oct
05−Nov
10−Nov
15−Nov

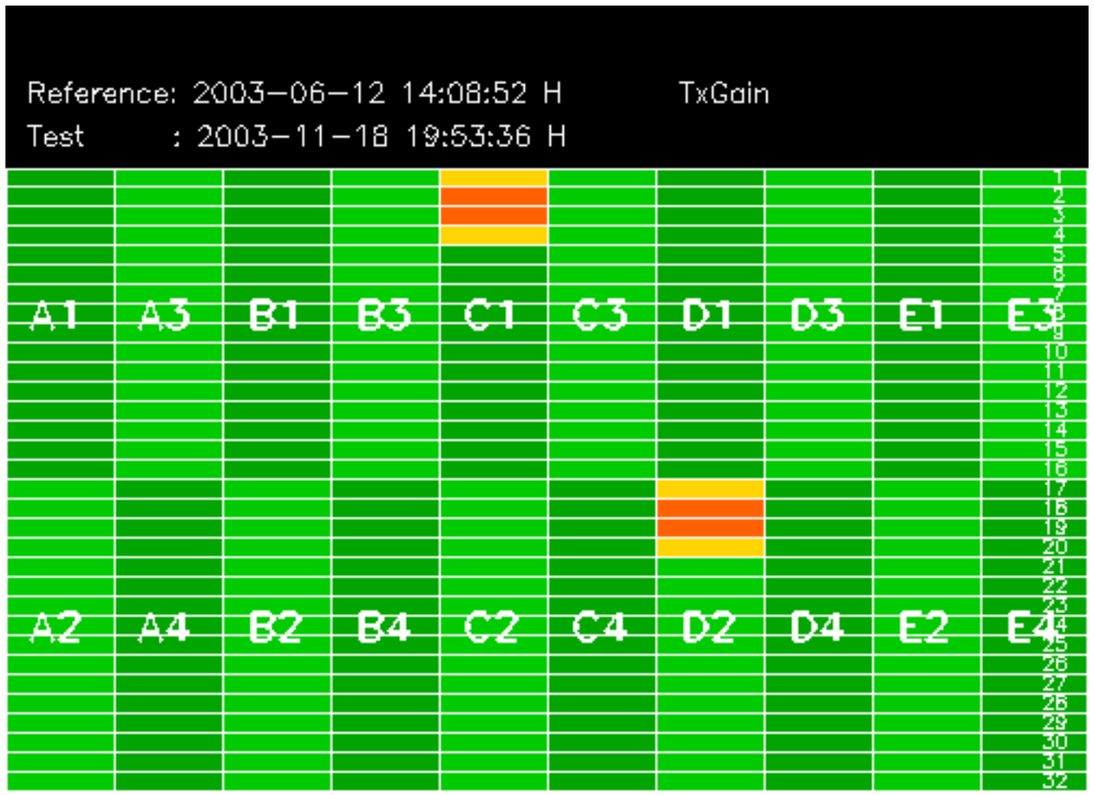

SQADS input data mean Q
linear scale
0.006
0.004
0.002
0.000
−0.002
16−Oct
21−Oct
26−Oct
31−Oct
05−Nov
10−Nov
15−Nov

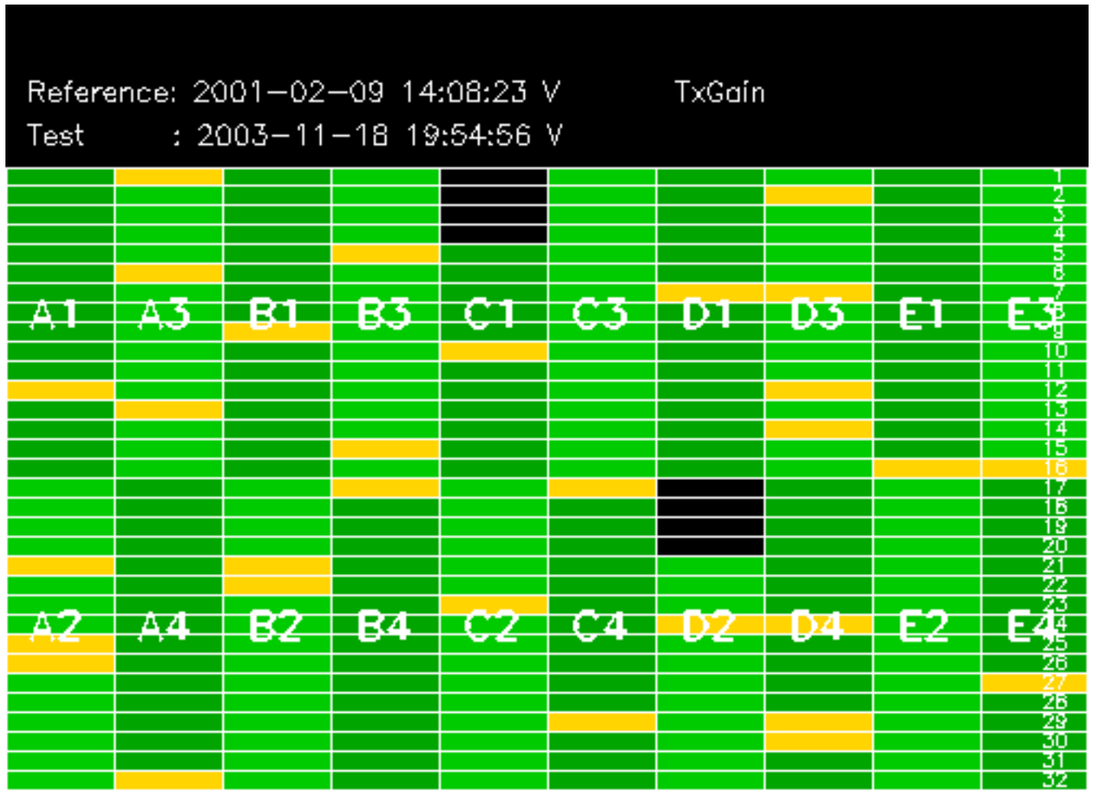

SQADS input data stdev i(black), q(red)
linear scale
0.4
0.3
0.2
0.1
0.0
16−Oct
21−Oct
26−Oct
31−Oct
05−Nov
10−Nov
15−Nov

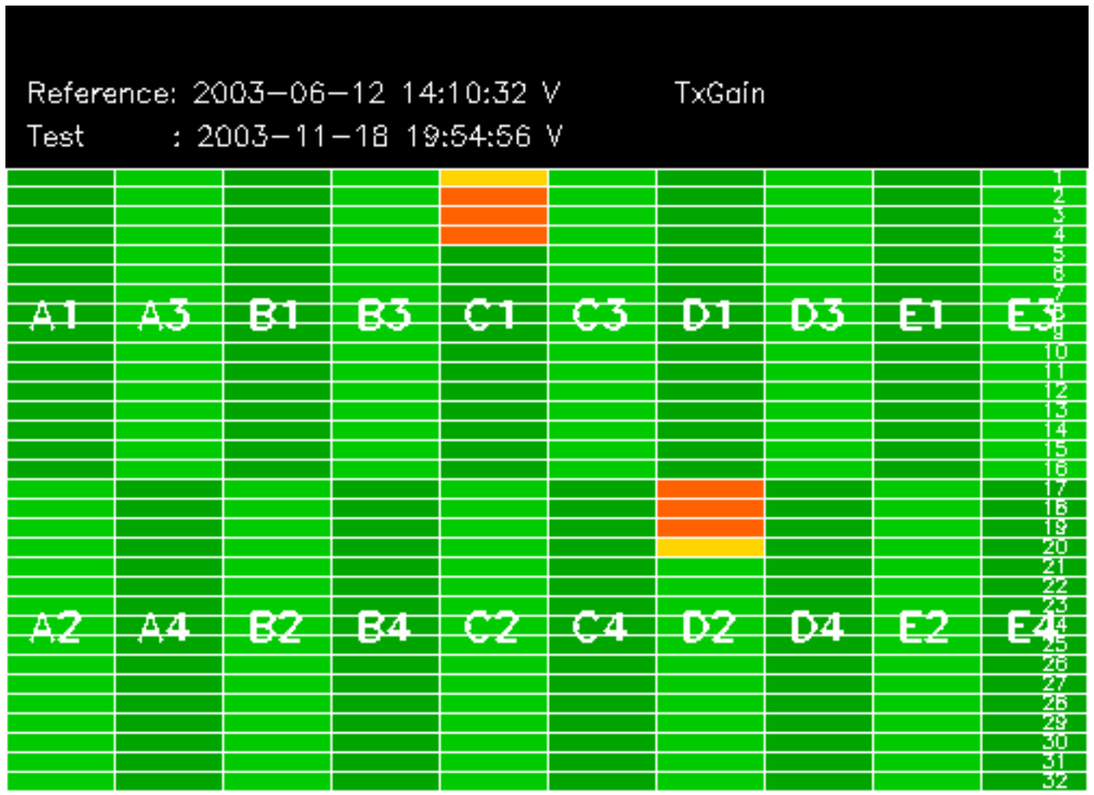

SQADS input data stdev I
linear scale
0.4
0.3
0.2
0.1
0.0
16−Oct
21−Oct
26−Oct
31−Oct
05−Nov
10−Nov
15−Nov

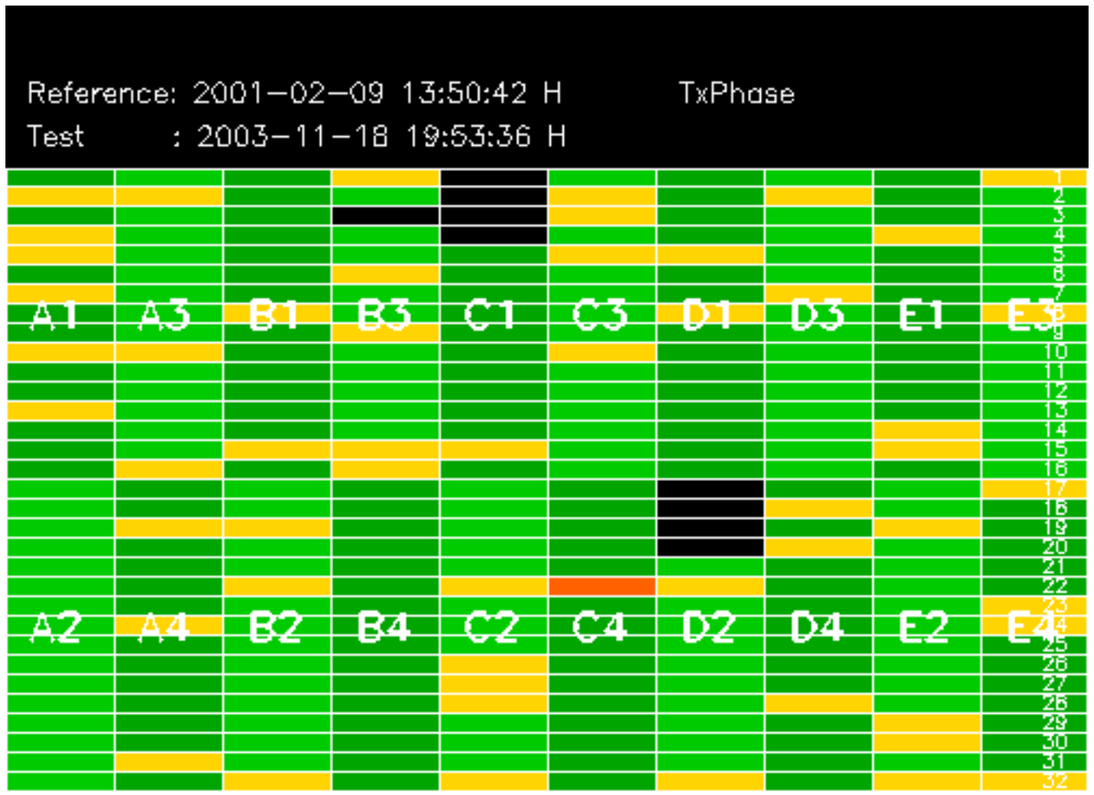

SQADS input data stdev Q
linear scale
0.4
0.3
0.2
0.1
0.0
16−Oct
21−Oct
26−Oct
31−Oct
05−Nov
10−Nov
15−Nov

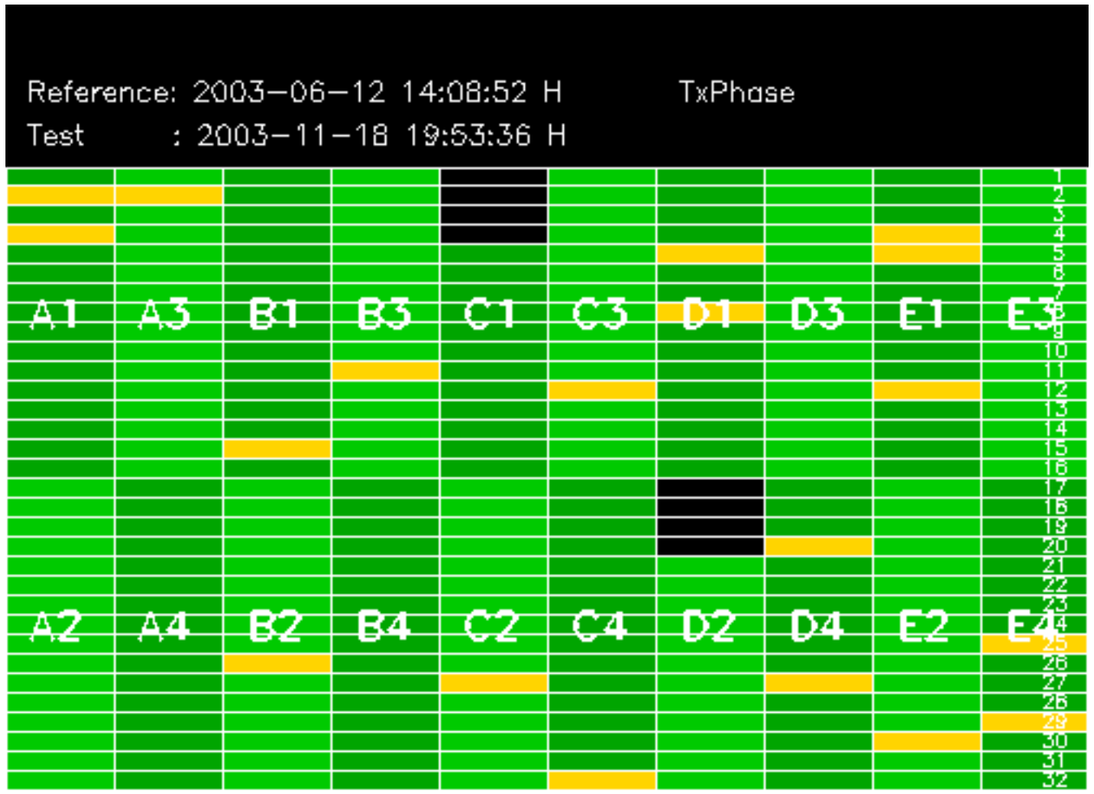

Reference: 2001-02-09 13:50:42 H
Test : 2003-11-18 19:53:36 H
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4

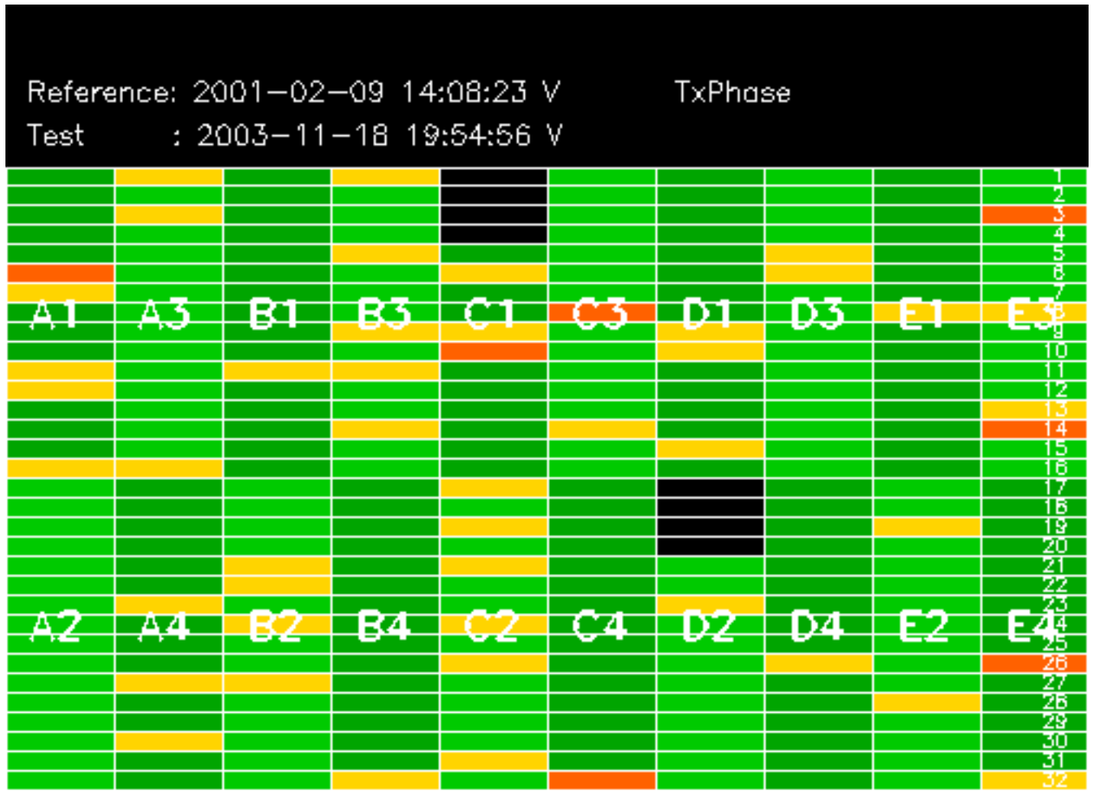

Reference: 2003-06-12 14:08:52 H
Test : 2003-11-18 19:53:36 H
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

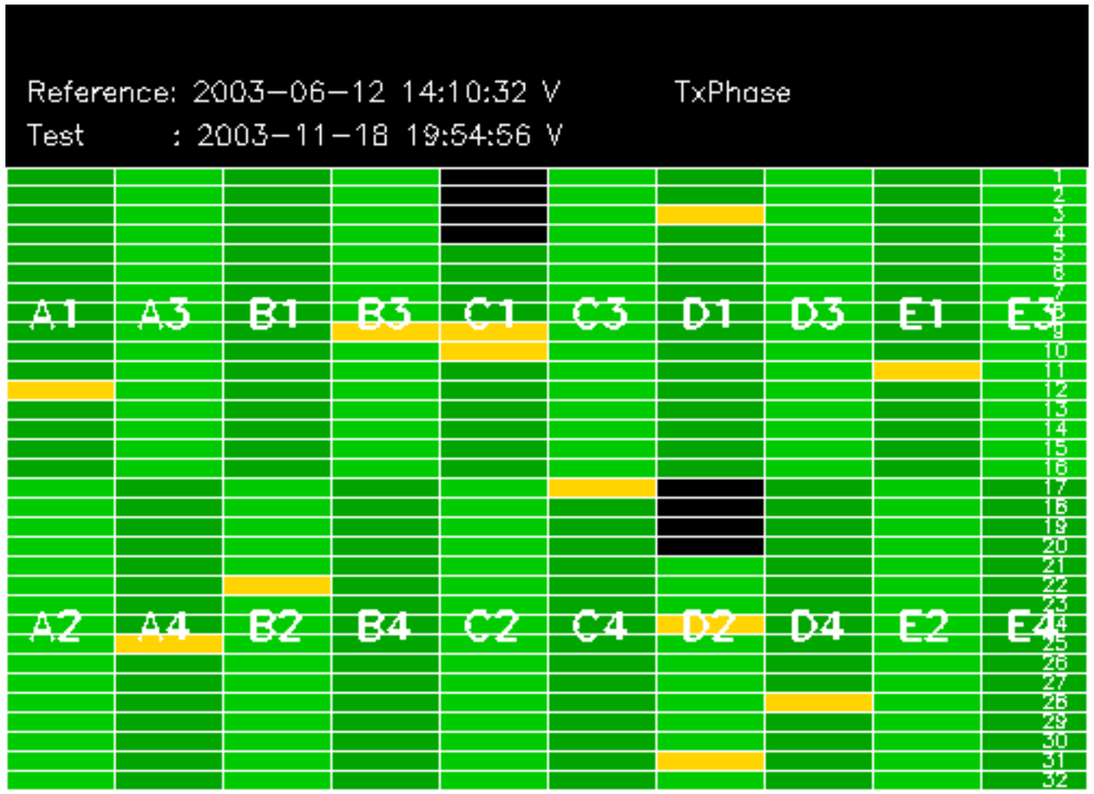

Reference: 2001-02-09 14:08:23 V
Test : 2003-11-18 19:54:56 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32


Reference: 2003-06-12 14:10:32 V
Test : 2003-11-18 19:54:56 V
TxGain
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32


Reference: 2001-02-09 13:50:42 H
TxPhase
Test : 2003-11-18 19:53:36 H
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2003-06-12 14:08:52 H
Test : 2003-11-18 19:53:36 H
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32


Reference: 2001-02-09 14:08:23 V
Test : 2003-11-18 19:54:56 V
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4


Reference: 2003-06-12 14:10:32 V
Test : 2003-11-18 19:54:56 V
TxPhase
A1
A3
B1
B3
C1
C3
D1
D3
E1
E3
A2
A4
B2
B4
C2
C4
D2
D4
E2
E4
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

No unavailabilities during the reported period.