



|                         |   |
|-------------------------|---|
| <b>Publication Year</b> | 2009  |
| <b>Acceptance in OA</b> | 2023-03-01T10:27:30Z  |
| <b>Title</b>            | Planck-LFI CPV:CRYO 01 functionality test   |
| <b>Authors</b>          | Planck-LFI calibration Team, BATTAGLIA, Paola Maria, Bersanelli, M., CUTTAIA, FRANCESCO, Davis, R., Wilkinson, A, FRAILIS, Marco, Franceschet, C., FRANCESCHI, ENRICO, GALEOTTA, Samuele, GREGORIO, Anna, Leonardi, R., Lowe, S., MARIS, Michele, Meinhold, P., Mendes, L., MENNELLA, ANIELLO, Poutanen, T., SANDRI, MAURA, TAVAGNACCO, Daniele, TERENCE, LUCA, Tomasi, M., VILLA, Fabrizio, ZACCHEI, Andrea, Zonca, A. |
| <b>Handle</b>           | <a href="http://hdl.handle.net/20.500.12386/33965">http://hdl.handle.net/20.500.12386/33965</a>   |
| <b>Volume</b>           | PL-LFI-PST-RP-062   |



**TITLE:** **Planck-LFI CPV: CRYO\_01**  
**functionality test** (P\_PVP\_LFI\_0001\_01,  
P\_PVP\_LFI\_0101\_01, P\_PVP\_LFI\_0201\_01)

**DOC. TYPE:** **Test Report**

**PROJECT REF.:** **PL-LFI-PST-RP-062**      **PAGE:** I of IV, 11

**ISSUE/REV.:** **1.0**      **DATE:** **June 24<sup>th</sup>, 2009**

|                    |  |   |
|--------------------|--|---|
| <b>Prepared by</b> | <b>The Planck-LFI calibration team</b>                   | <b>Date:</b> June , 2008<br><b>Signature:</b> |
| <b>Agreed by</b>   | <b>C. BUTLER</b><br><b>LFI Program Manager</b>           | <b>Date:</b> June , 2008<br><b>Signature:</b> |
| <b>Approved by</b> | <b>N. MANDOLESI</b><br><b>LFI Principal Investigator</b> | <b>Date:</b> June , 2008<br><b>Signature:</b> |



## **The Planck-LFI calibration team**

- Paola Battaglia (SCOS/TQL operator)
- Marco Bersanelli (LFI instrument scientist, test leader)
- Francesco Cuttaia (CPV responsible, test leader)
- Richard Davis (30/44 GHz data analysis)
- Althea Wilkinson (30/44 GHz data analysis)
- Marco Frailis (Level 1 manager)
- Cristian Franceschet (SCOS/TQL operator)
- Enrico Franceschi (GSE manager)
- Samuele Galeotta (LIFE/PEGASO development)
- Anna Gregorio (Instrument Operation Manager)
- Rodrigo Leonardi (data analysis)
- Stuart Lowe (LIFE/PEGASO development)
- Michele Maris (data analysis, LIFE/PEGASO development)
- Peter Meinhold (Test leader, data analysis)
- Luis Mendes (data analysis)
- Aniello Mennella (Calibration Scientist, test leader)
- Torsti Poutanen (data analysis)
- Maura Sandri (Test leader, data analysis)
- Daniele Tavagnacco (SCOS/TQL operator)
- Luca Terenzi (Tests leader, data analysis and LIFE/PEGASO development)
- Maurizio Tomasi (Test leader, data analysis and LIFE/PEGASO development)
- Fabrizio Villa (Test leader, data analysis)
- Andrea Zacchei (LFI DPC manager)
- Andrea Zonca (SCOS/TQL operator, LIFE/PEGASO development)







## TABLE OF CONTENTS

|          |  |           |
|----------|--|-----------|
| <b>1</b> | <b>ACRONYMS .....</b>                                      | <b>1</b>  |
| <b>2</b> | <b>APPLICABLE AND REFERENCE DOCUMENTS .....</b>            | <b>2</b>  |
| 2.1      | APPLICABLE DOCUMENTS.....                                  | 2         |
| 2.2      | REFERENCE DOCUMENTS.....                                   | 2         |
| <b>3</b> | <b>INTRODUCTION .....</b>                                  | <b>3</b>  |
| <b>4</b> | <b>TEST EXECUTION .....</b>                                | <b>6</b>  |
| 4.1      | TEST CONFIGURATION.....                                    | 6         |
| 4.2      | PASS-FAIL CRITERIA, VERIFICATION MATRIX .....              | 6         |
| 4.3      | PROCEDURE/ TEST SEQUENCE AND ENVIRONMENTAL CONDITIONS..... | 7         |
| 4.3.1    | <i>Test procedure</i> .....                                | 7         |
| 4.3.2    | <i>Temperatures</i> .....                                  | 8         |
| 4.3.3    | <i>Results and Conclusions</i> .....                       | 10        |
| 4.3.4    | <i>Non nominal features</i> .....                          | 10        |
| 4.4      | DATA ANALYSIS .....  | 11        |
| 4.5      | CONCLUSIONS AND RECOMMENDATIONS .....                      | 15        |
| <b>5</b> | <b>APPENDIX 1 – TEST PROCEDURE.....</b>                    | <b>16</b> |



## 1 ACRONYMS

|        |   |
|--------|---|
| ACA    | Amplifier Chain Assembly                |
| AIV    | Assembly, Integration, Verification     |
| ASW    | Application Software                    |
| BEM    | Back End Module                         |
| BEU    | Back End Unit                           |
| CCS    | Central Check-out System                |
| CDMU   | Central Data Management Unit            |
| CPV    | Calibration Performance Verification    |
| CSL    | Centre Spatiale de Liège                |
| DAE    | Data Acquisition Electronics            |
| DPU    | Digital Processing Unit                 |
| EGSE   | Electrical ground Support Equipment     |
| FEM    | Front End Module                        |
| FPU    | Focal Plane Unit                        |
| I-EGSE | Instrument EGSE                         |
| ILT    | Instrument-level tests                  |
| IST    | Integrated Satellite Test               |
| OBC    | On Board Clock                          |
| RAA    | Radiometer Array Assembly               |
| REBA   | Radiometric Electronic Box Assembly     |
| S/C    | Spacecraft                              |
| SCOE   | Spacecraft Control and Operation System |
| SCS    | Sorption Cooler System                  |
| SLT    | Satellite-level tests                   |
| SPU    | Signal Processing Unit                  |
| SUSW   | Start- Up Software                      |
| SVM    | Service Module                          |
| TBC    | To Be Checked                           |
| TBW    | To Be Written                           |
| TC     | Telecommand                             |
| TM     | Telemetry                               |
| UFT    | Unit Functional Test                    |



## 2 APPLICABLE AND REFERENCE DOCUMENTS

### 2.1 Applicable Documents

- [AD1] Herschel/Planck Instrument Interface document Part A, SCI-PT-IIDA-04624 Issue 3.3
- [AD2] Herschel/Planck Instrument Interface document Part B, SCI-PT-IIDB-04142 Issue 3.1
- [AD3] Herschel/Planck Instrument Interface document Part B, SCI-PT-IIDB-04142 Issue 3.1, Annex 3, ICD 750800115
- [AD4] Herschel/Planck Instrument Interface document Part A, SCI-PT-IIDA-04624 Issue 3.3 Annex 10
- [AD5] Data analysis and scientific performance of the LFI FM instrument, PL-LFI-PST-AN-006 3.0
- [AD6] Planck-LFI TV-TB test report: executive summary, PL-LFI-PST-RP-040 1.1
- [AD7] Testing plan of the LFI instrument during the Planck Commissioning and CPV phase, PL-LFI-PST-PL-043 (4.2)

### 2.2 Reference Documents

- [RD1] Planck Instrument Testing at PFM S/C levels, H-P-3-ASP-TN-0676, Issue 1.0
- [RD2] Planck LFI User Manual, PL-LFI-PST-MA-001 Issue 2.1
- [RD3] Data analysis and of LFI switch on and cryogenic functionality test (Ph-5-01-c of TV/TB tests) PL-LFI-PST-RP-036

### 3 Introduction

This document describes the activities performed during the first instrument switch on and functionality test performed during CPV.

The functionality test CRYO\_01 consists in a gradual switch on of all amplifiers, one by one, and by a series of variations of the phase switch biases and configuration. A characteristic pattern in the output voltage must be seen in real time and the monitored drain currents must correspond to the values expected from previous tests (in particular from CRYO\_01 performed in CSL, [RD3]).

Here follows the series of steps that is performed for each radiometer (refer to Fig. 1)

**Table 1 – Steps performed during CRYO\_01 for the switch on of a couple of ACAs**

| Step n. | Description  | Expected response   | Notes   |
|---------|--|---|---|
| 1       | The first ACA is biased with amplifier and phase switch biases (Vg1, Vg2, Vd, I2, I2)                              | The signal rises on the pair of output diodes connected to the ACA  | Drain current is recorded and compared to CSL values  |
| 2       | The phase switch polarisation is changed   | The signal switches tagging from sky to ref or vice versa (also the output level may change a little bit)                     |   |
| 3       | The 4 KHz switching is activated   | From each diode two output streams appear, tagged sky and ref. Sky samples may be different in voltage level from ref samples |   |
| 4       | The phase switch bias current I1 is lowered  | The separation of the sky and reference datastreams changes (either they converge or they diverge)                            |   |
| 5       | The phase switch bias current I1 is returned to its nominal value and I2 is lowered                                | The separation changes in the opposite direction  |   |
| 6       | I2 is returned to its nominal value, the 4 KHz switching is turned off and the phase switch state is returned to 0 | The signal returns as after step 1  | Here the output voltage can be different because of drifts due to the thermal environment and amplifier |



|    |  |   |  |
|----|--|---|--|
|    | switch state is returned to 0  |   | stabilisation.   |
| 7  | The second ACA is biased with amplifier and phase switch biases (Vg1, Vg2, Vd, I2, I2)                             | The signal further on both diodes on top of the previous level <sup>1</sup>   | Drain current is recorded and compared to CSL values.  |
| 8  | The phase switch polarisation is changed   | The signal switches tagging from sky to ref or vice versa (also the output level may change a little bit)                     |  |
| 9  | The 4 KHz switching is activated   | From each diode two output streams appear, tagged sky and ref. Sky samples may be different in voltage level from ref samples |  |
| 10 | The phase switch bias current I1 is lowered  | The separation of the sky and reference datastreams changes (either they converge or they diverge)                            |  |
| 11 | The phase switch bias current I1 is returned to its nominal value and I2 is lowered                                | The separation changes in the opposite direction  |  |
| 12 | I2 is returned to its nominal value, the 4 KHz switching is turned off and the phase switch state is returned to 0 | The signal returns as after step 1  | Here the output voltage can be different because of drifts due to the thermal environment and amplifier stabilisation. |

<sup>1</sup> Note that for LFI18M the switch on of the second ACA produced a lowering of the signal in one of the detectors and a rise in the other; this was due to the strong unbalance in the amplifier biases in this particular test (one of the two drain voltages had to be reduced in order to avoid signal saturation)

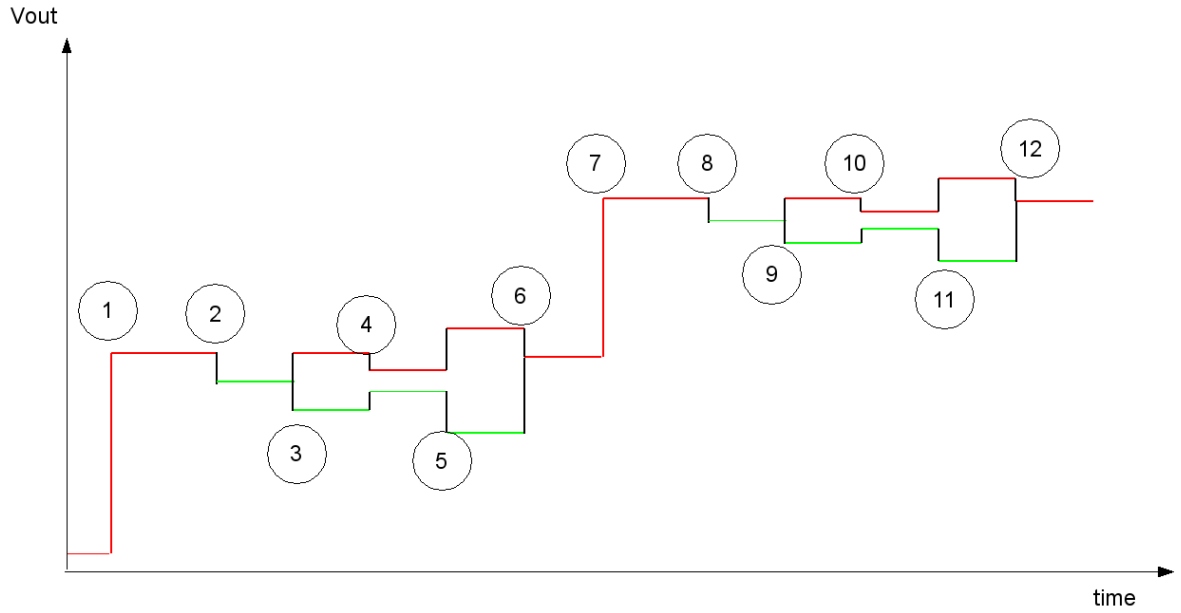


Figure 1 – Schematics of the various phases of a radiometer switch on during CRYO\_01 (see Table 1)



## 4 Test Execution

### 4.1 Test configuration

The test configuration is the following

SCOS 2K EGSE 3.1 Release 1.2  
RTSILib version 1.0  
RTSI Client version 1.2  
LEVEL1 (TMH/TQL) version 5.1  
LIFE Machine version OM 3.00  
IDIS 2.7.3.4

LFI Personnel involved during the test is:

|                                  |   |
|----------------------------------|---|
| LFI Instrument Operation Manager | Anna Gregorio (UniTs <a href="mailto:anna.gregorio@ts.infn.it">anna.gregorio@ts.infn.it</a> )   |
| LFI Calibration Scientist        | Aniello Mennella (UniMi <a href="mailto:aniello.mennella@fisica.unimi.it">aniello.mennella@fisica.unimi.it</a> )  |
| LFI CPV Manager                  | Francesco Cuttaia (IASF-BO <a href="mailto:cuttaia@iasfbo.inaf.it">cuttaia@iasfbo.inaf.it</a> )   |
| Test leader                      | Francesco Cuttaia   |
| LFI IOT                          | Anna Gregorio, Francesco Cuttaia, Aniello Mennella, Marco Frailis, Samuele Galeotta, Andrea Zacchei, Maurizio Tomasi, Althea Wilkinson, Peter Meinhold, Richard Davis, Daniele Tavagnacco |
| Industry support                 | Paola Battaglia   |

### 4.2 Pass-fail criteria, verification matrix

CPV P\_PVP\_LFI\_0001\_01, P\_PVP\_LFI\_0101\_01, P\_PVP\_LFI\_0201\_01

June, 11-12-13 2009 DoY 162-163-164 OD 29-30-31

Test name: CRYO 01

This test is dedicated to the radiometer part of LFI and it will be used during flight.

Test objectives:

This procedure is basically the same procedure run during IST in the commissioning stand alone phase, apart the exercise of the memories that is out of the scope of this test, moreover this time all the power groups are switched on so

all the FEMs  
are exercised.

| Verification matrix                                   |         |    |  |            |    |
|---|---------|----|--|------------|----|
| Check   | Passed? |    |  | Recovered? |    |
|   | Yes     | No | Notes  | Yes        | No |
| No unexpected events packets                          | Yes     |    |  |            |    |
| Science production telemetry as expected              |         | No | During second part of CRYO01 there was a problem in the real time telemetry link. It was recovered by switching to the redundant real time server (CHAN-B)   | Yes        |    |
| Every ACA is responding to biases stimuli as expected | Yes     |    |  |            |    |
| Every P/S is responding to bias stimuli as expected   | Yes     |    |  |            |    |
| Correct cryogenic biases are applied                  | Yes     |    |  |            |    |
| No unexpected features (spikes, popcorn noise, etc)   |         | No | There was a mistake in the procedure, so that wrong offsets were applied to LFI 21 that therefore showed a saturated signal. It was recovered by correcting the procedure and rerunning CRYO_01 on LFI21 | Yes        |    |

### 4.3 Procedure/ Test sequence and environmental conditions

#### 4.3.1 Test procedure

The test procedure (serving also as a checklist) is reported in appendix to the document

### 4.3.2 Temperatures

The test was run during three ODs, (29, 30, 31). In Figures 2, 3 and 4 we show the behaviour of the most relevant temperature stages.

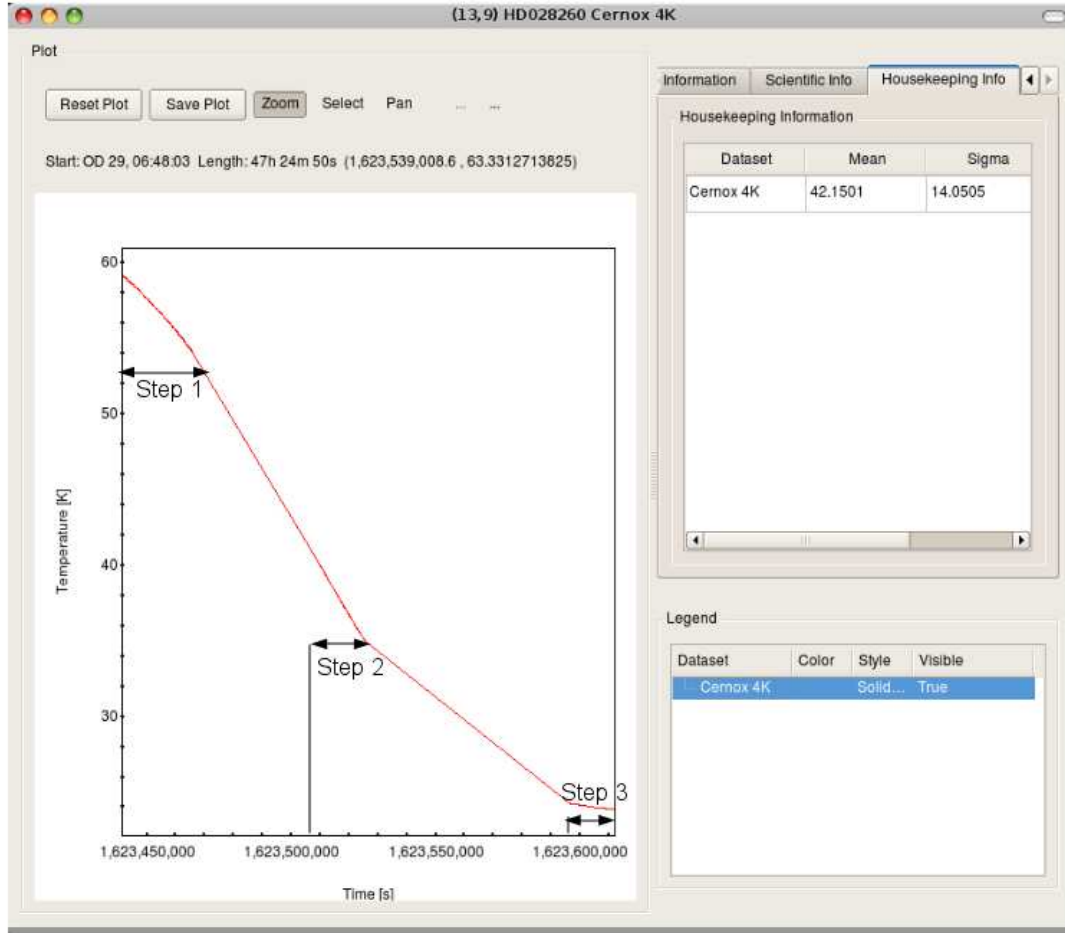


Figure 2 – 4 K temperature during the three CRYO-01 steps

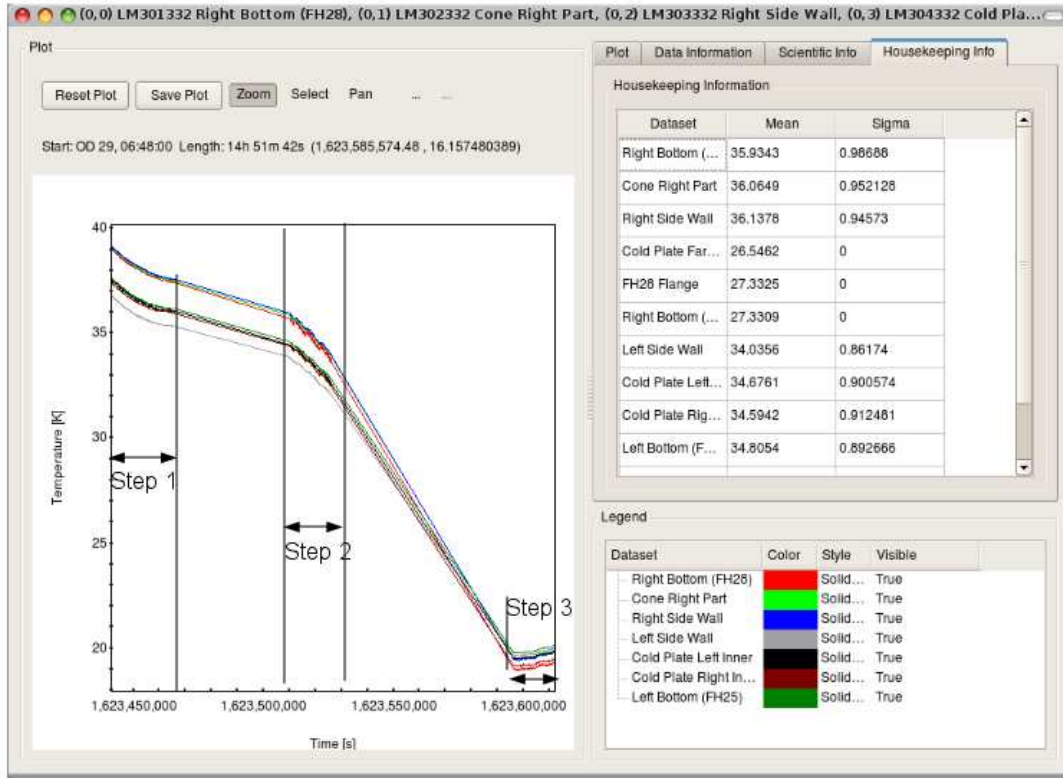


Figure 3 – LFI front-end unit temperature during the three CRYO-01 steps

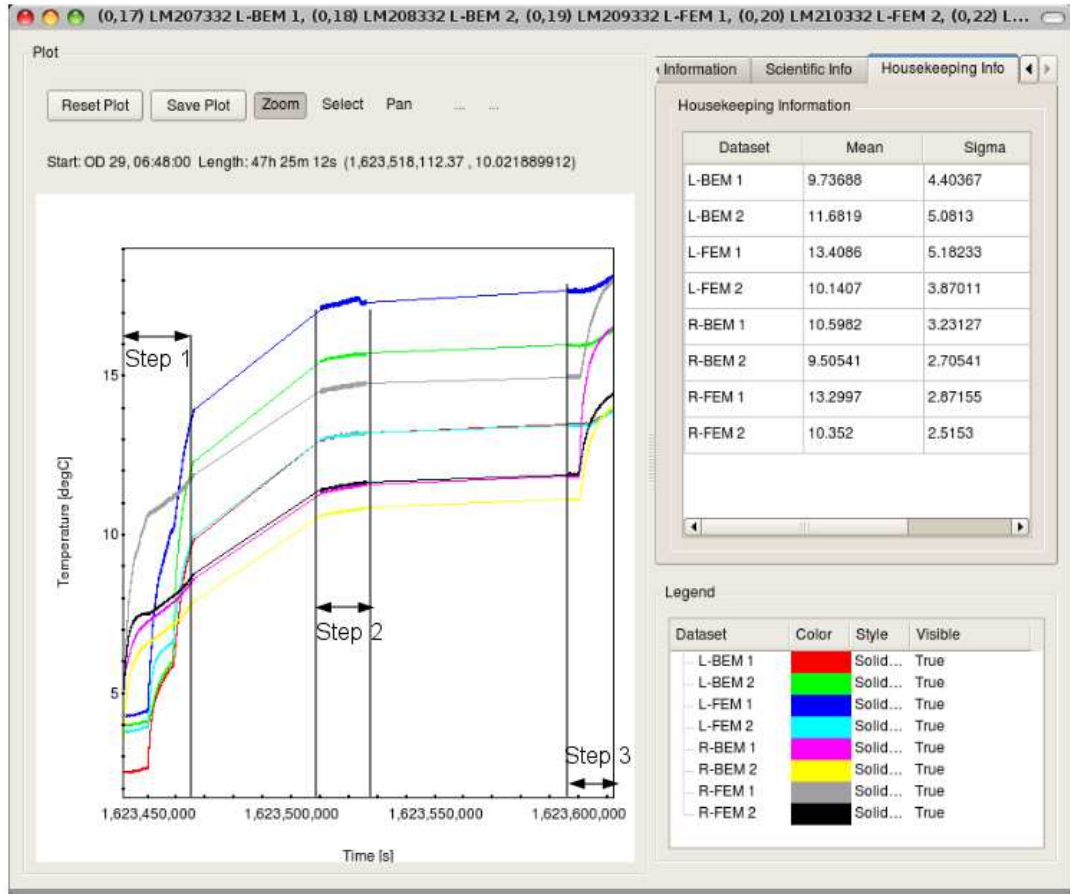


Figure 4 – BEU temperatures during the three CRYO-01 steps.

#### 4.3.3 Results and Conclusions

During the three steps all LFI RCAs were tested and showed full functionality. Two anomalies, that were encountered and resolved, allowing full test recovery.

#### 4.3.4 Non nominal features

- During step 1 an error in the procedure resulted in a wrong setting of the DAE offsets. This caused the signal of the RCA LFI21 to saturate. This anomaly was recovered by fixing the procedure, setting all the 44 offsets to 0 (maximum offset, about -2.5 V) and rerunning the procedure for LFI21 during the following OD.
- During the test packet loss in the real time telemetry was observed. This was caused by a problem (unidentified to date) in the “Channel A” server that routes the telemetry. The problem was solved (for this test) by switching to the redundant server “Channel B”.

### 4.3.5 Expected non idealities

RCA 28 showed the same behaviour as during ILT in THALES Milan (2006) and at SLT in CSL (2008): actually was once more clear that DAE capability to correctly tag sky and ref signal is lost when switching form the configuration A/C switching, B/D = 1, to the configuration B/D switching, A/C = 0.

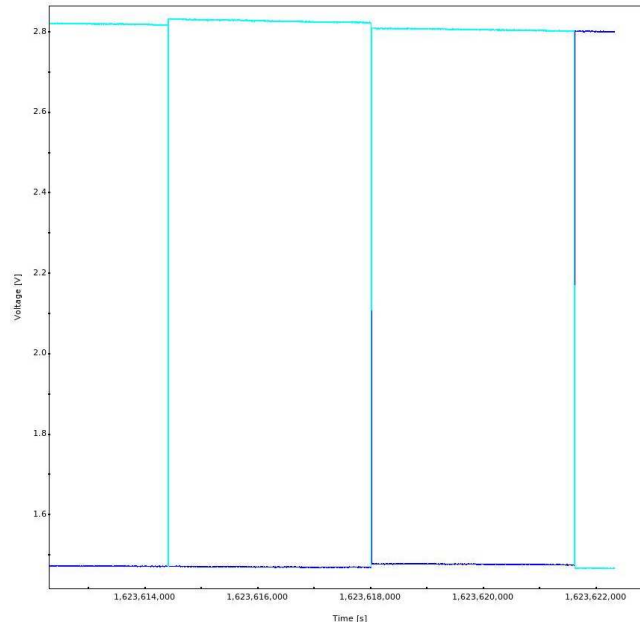


Figure 5 – signal swap in RCA28: sky and reference tags are swapped at the end of the test.

## 4.4 Data Analysis

### 4.4.1 Analysis of voltage output patterns

Analysis of the voltage output patterns during turn on revealed full functionality of all the LFI channels. The details of this analysis is reported in the following Annex documents:

- Annex 2: collection of voltage output patterns relative to the various switch on steps
- Annex 3: detailed quantitative report of drain currents and voltage outputs

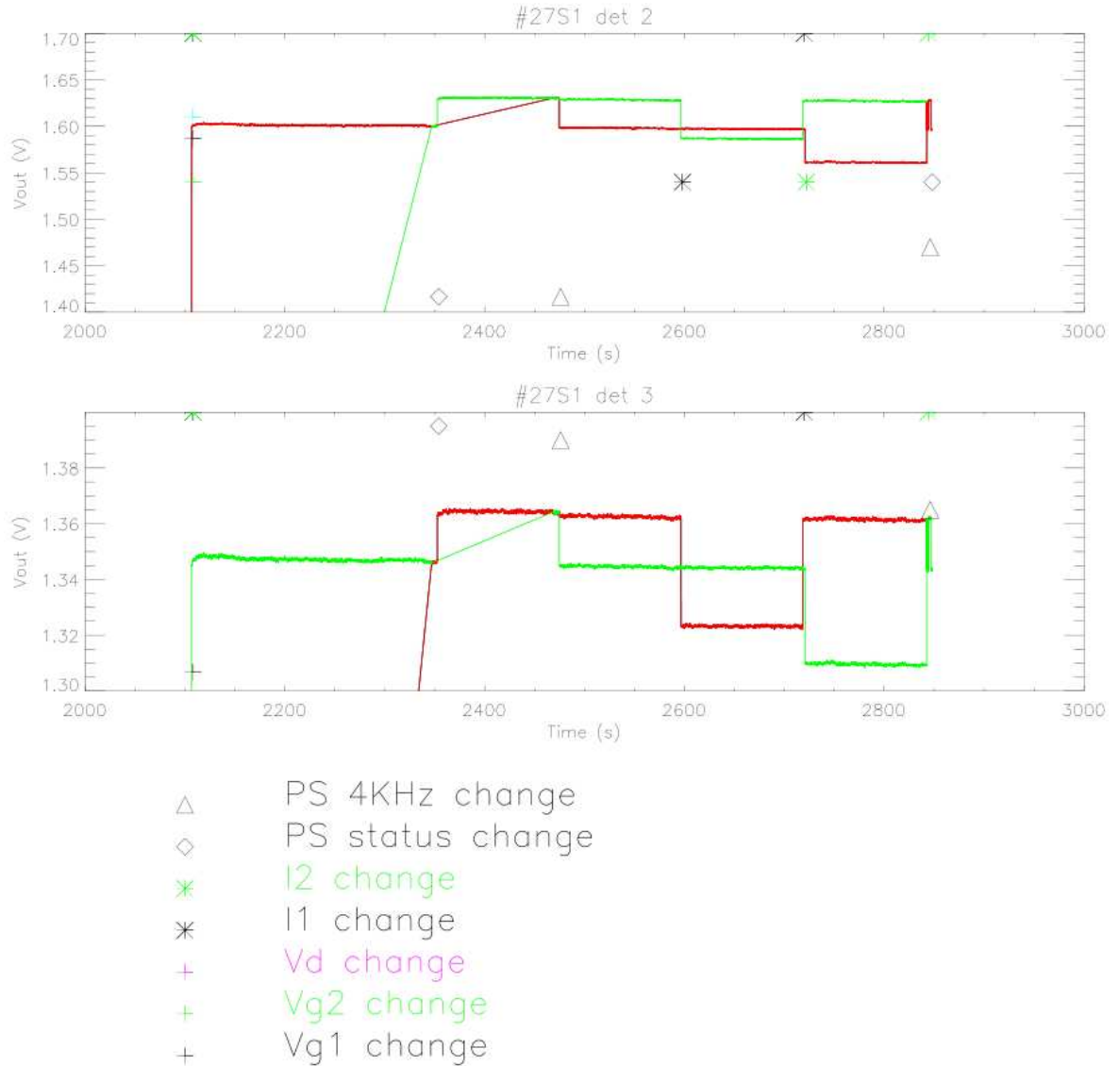


Figure 6 – Example of voltage output pattern during CRYO\_01.

#### 4.4.2 Comparison with CRYO 01 in CSL

This test was conducted in quite different conditions with respect to the same test in CSL. This is mostly because of the different duration of the test, here performed along three days instead of along 13 continuative hours as in CSL. It means that many temperatures, as the 4KRL temperature and BEM temperature were different, which makes a straight comparison of output voltages difficult.

FPU temperature, however, was similar (see Fig. 3): this allowed comparing drain currents between the two tests. Because  $I_d$  depends of the number of power groups and of ACAs that are on, they were recorded every time an ACA was biased.

A table containing drain currents for each ACA (recorded just after its switch on), for each RCA (recorded when just after the 4<sup>th</sup> ACAs was switched on) and for LFI (recorded after all 11 RCAs were on) was produced and compared with the same test performed in CSL (XXX\_0142, XXX\_0143, XXX\_0144, XXX\_0145). Comparison, reported in Table 2 shows in general a good agreement, indicating the full functionality of LNAs.

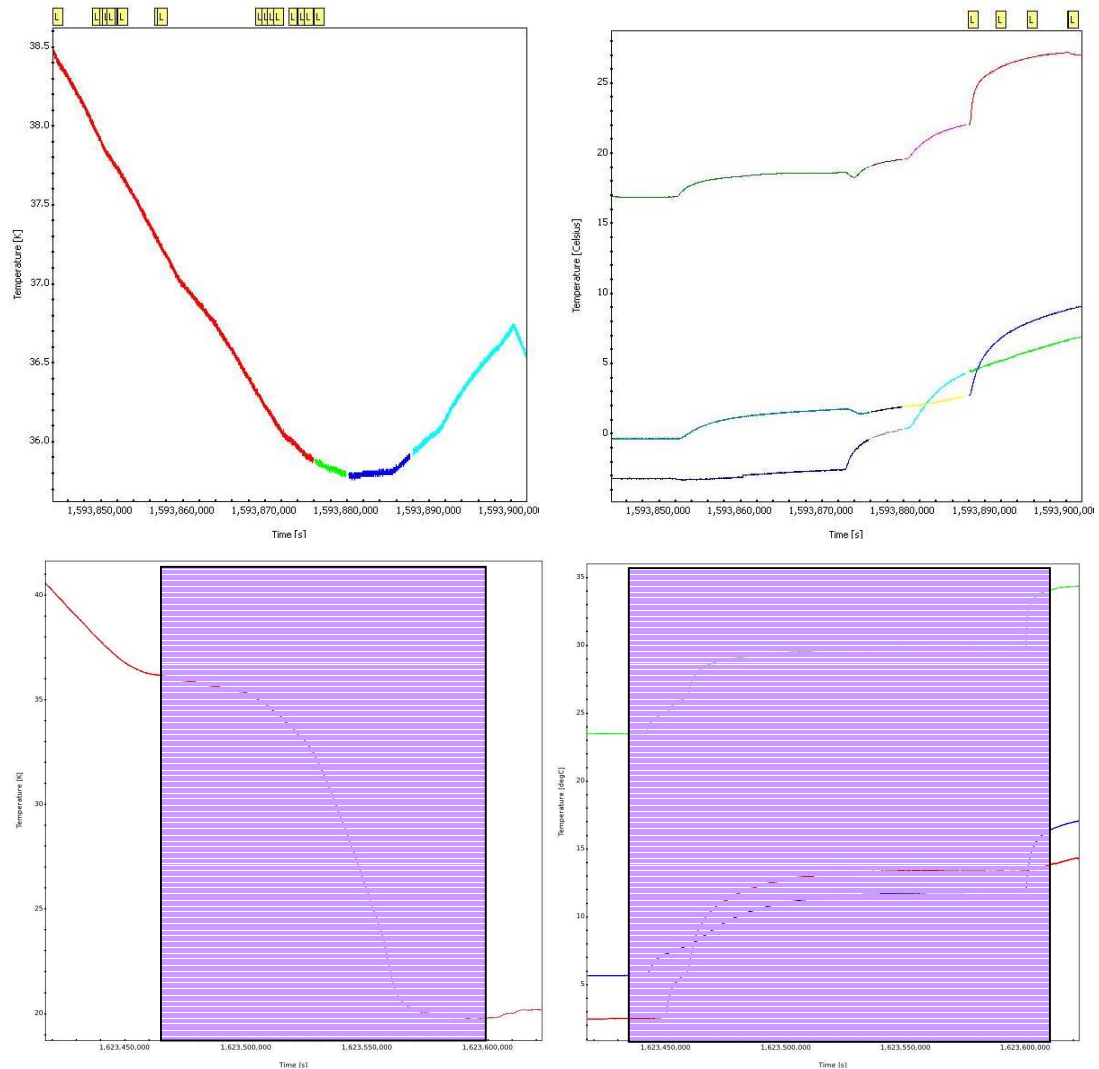


Figure 7 – CSL FPU and BEU temp against CPV



| RCA # | Detector ID | SCOS Parameter | Measured ACA | MEASURED RCA | measured LFI | delta aca | delta rca     | delta LFI     |               |
|-------|-------------|----------------|--------------|--------------|--------------|-----------|---------------|---------------|---------------|
|       |             |                |              |              |              |           |               |               |               |
| CH27  | 00          | 00             | LM051322     | 3.69         | 3.54         | 3.5       | -18.45        | -19.39        | -20.51        |
|       | 01          | 01             | LM052322     | 7.84         | 7.8          | 7.8       | 0.13          | 0.00          | 2.60          |
|       | 02          | 10             | LM053322     | 8.54         | 8.53         | 8.5       | 0.00          | 0.35          | 2.38          |
|       | 03          | 11             | LM054322     | 8.66         | 8.69         | 8.7       | 0.00          | 0.35          | 2.33          |
|       |             |                |              |              |              |           |               |               |               |
| CH24  | 04          | 00             | LM055322     | 7.43         | 7.25         | 7.2       | -0.54         | 2.09          | 2.11          |
|       | 05 **       | 01             | LM056322     | 10.18        | 10.13        | 10.2      | <b>-77.13</b> | <b>-75.82</b> | <b>-74.85</b> |
|       | 06          | 10             | LM057322     | 15.49        | 15.34        | 14.9      | 0.26          | 1.11          | -0.87         |
|       | 07          | 11             | LM058322     | 10.71        | 10.7         | 10.5      | 1.03          | 0.94          | 0.00          |
|       |             |                |              |              |              |           |               |               |               |
| CH21  | 08          | 00             | LM059322     | 20           | 19.1         | 16.59     | -0.15         | 1.05          | -3.14         |
|       | 09          | 01             | LM060322     | 20.97        | 20.65        | 18.8      | -1.23         | -0.24         | -4.06         |
|       | 0A          | 10             | LM061322     | 20.72        | 20.56        | 19.4      | -0.05         | 0.29          | 2.19          |
|       | 0B          | 11             | LM062322     | 21.75        | 21.74        | 20.1      | -1.14         | -0.28         | -2.31         |
|       |             |                |              |              |              |           |               |               |               |
| CH22  | 0C          | 00             | LM063322     | 15.8         | 15.45        | 15.4      | -3.42         | -1.54         | 2.30          |
|       | 0D          | 01             | LM064322     | 17.62        | 16.76        | 15        | -2.24         | -2.59         | -7.69         |
|       | 0E          | 10             | LM065322     | 13.92        | 13.4         | 12.11     | -2.90         | -2.94         | -7.09         |
|       | 0F          | 11             | LM066322     | 15.9         | 15.67        | 14.3      | -0.63         | -1.46         | -3.44         |
|       |             |                |              |              |              |           |               |               |               |
| CH23  | 10          | 00             | LM067322     | 14.74        | 13.73        | 12.6      | -2.81         | 0.22          | -4.20         |
|       | 11          | 01             | LM068322     | 22.32        | 21.79        | 20.4      | -0.80         | 0.18          | -4.13         |
|       | 12          | 10             | LM069322     | 14.22        | 13.97        | 12.4      | -3.32         | -0.21         | -8.12         |
|       | 13          | 11             | LM070322     | 11.84        | 11.84        | 11.3      | -6.22         | -3.00         | -1.75         |
|       |             |                |              |              |              |           |               |               |               |
| CH25  | 14          | 00             | LM071322     | 12.56        | 12.15        | 12.4      | -0.32         | -0.41         | 3.28          |
|       | 15          | 01             | LM072322     | 10.6         | 9.8          | 10.2      | 5.13          | 0.00          | 5.03          |
|       | 16          | 10             | LM073322     | 11.3         | 11.2         | 11.4      | -0.71         | -0.53         | 2.67          |
|       | 17          | 11             | LM074322     | 12.1         | 12.1         | 12.1      | -0.25         | -0.17         | 1.67          |
|       |             |                |              |              |              |           |               |               |               |
| CH28  | 18          | 00             | LM075322     | 5 steps      | 9.45         | 9.4       | DELTA 5steps  | -0.53         | -1.06         |
|       | 19          | 01             | LM076322     |              | 9.19         | 9.2       |               | -0.11         | 0.00          |
|       | 1A          | 10             | LM077322     |              | 8.798        | 8.8       |               | -0.02         | 0.00          |
|       | 1B          | 11             | LM078322     |              | 10.42        | 10.5      |               | -0.29         | 0.96          |
|       |             |                |              |              |              |           |               |               |               |
| CH20  | 1C          | 00             | LM079322     | 19.64        | 18.14        | 18.1      | -5.74         | -9.75         | -11.06        |
|       | 1D          | 01             | LM080322     | 14.7         | 14.07        | 13.6      | -10.32        | -8.38         | -14.46        |
|       | 1E          | 10             | LM081322     | 21.56        | 21.18        | 20.8      | -4.71         | -4.70         | -7.81         |
|       | 1F          | 11             | LM082322     | 20.93        | 20.93        | 20.5      | -5.44         | -5.44         | -4.06         |
|       |             |                |              |              |              |           |               |               |               |
| CH19  | 20          | 00             | LM083322     | 20.41        | 19.98        | 17.6      | -2.85         | -1.59         | -6.59         |
|       | 21          | 01             | LM084322     | 19.43        | 19.35        | 17        | -5.85         | -3.70         | -6.82         |
|       | 22          | 10             | LM085322     | 18.6         | 18.84        | 16.7      | -6.25         | -2.93         | -2.37         |
|       | 23          | 11             | LM086322     | 20.36        | 20.22        | 18.5      | -4.04         | -4.73         | -6.79         |
|       |             |                |              |              |              |           |               |               |               |
| CH18  | 24          | 00             | LM087322     | 22.95        | 22.21        | 21        | 0.79          | 1.86          | -3.51         |
|       | 25          | 01             | LM088322     | 18.66        | 16.01        | 13        | 20.96         | 11.28         | -10.50        |
|       | 26          | 10             | LM089322     | 11.95        | 11.28        | 8.3       | -24.91        | 30.44         | -11.47        |
|       | 27          | 11             | LM090322     | 12.56        | 12.55        | 11.2      | -5.20         | 4.48          | -6.48         |
|       |             |                |              |              |              |           |               |               |               |
| CH26  | 28          | 00             | LM091322     | 13.12        | 12.74        | 12.8      | 7.35          | 7.83          | 10.70         |
|       | 29          | 01             | LM092322     | 11.56        | 11.3         | 11.4      | -1.03         | -0.88         | 2.67          |
|       | 2A          | 10             | LM093322     | 10.6         | 10.47        | 10.6      | -1.78         | -0.86         | 2.87          |
|       | 2B          | 11             | LM094322     | 13.41        | 13.4         | 13.6      | -1.55         | -1.70         | 1.48          |

Table 2 – drain current results (ACA switch on, RCA switch on, LFI switch on) from CRYO 01 test in CPV and comparison with the same test in CSL .

RCA 28 was switched on following the default ‘soft switch on’ procedure, foreseeing the gradual increasing of LNAs bias following a well defined order. Comparison with CSL, along the 5 steps of the procedure, is reported in Tab. 3

|      |    |    |          | step1 | step2 | step3 | step5 |
|------|----|----|----------|-------|-------|-------|-------|
| CH28 | 18 | 00 | LM075322 | 7.22  | 9.54  | 9.50  | 9.62  |
|      | 19 | 01 | LM076322 | 7.38  | 7.40  | 9.25  | 9.16  |
|      | 1A | 10 | LM077322 | 0.00  | 0.00  | 0.00  | 9.08  |
|      | 1B | 11 | LM078322 | 0.00  | 0.00  | 0.00  | 10.45 |

|                 |    |    |          | step1 | step2 | step3 | step5 |
|-----------------|----|----|----------|-------|-------|-------|-------|
| DELTA<br>5steps | 18 | 00 | LM075322 | -1.10 | 0.42  | 0.00  | 1.26  |
|                 | 19 | 01 | LM076322 | 1.09  | 1.36  | -0.54 | -1.52 |
|                 | 1A | 10 | LM077322 | 0.00  | 0.00  | 0.00  | 2.00  |
|                 | 1B | 11 | LM078322 | 0.00  | 0.00  | 0.00  | 0.00  |

**Table 3 – Soft switch on of RCA 28 (Id) (the absolute values are reported in the top table and the comparison (percent variation w.r.t. CSL results) in the bottom table.**

Despite the different environmental conditions, acting on LNAs gain (FPU temperature) and on BEM Gain (DAE temperature), and despite no requirement was set on them, drain currents are in good agreement for almost all the ACAs, along the various phases of the test.

The only two cases showing a significant difference are ACA2 of RCA 24 and ACA1 of RCA27. This differences were expected as at the end of CRYO\_01 in CSL it was decided to change the switch-on biases of these two particular amplifiers.

#### 4.5 Conclusions and recommendations

The CRYO 01 test was successfully completed. The procedure, with the exception of a DAE offset change, corrected without any consequences for the test, was run as expected.

All the units under test show to be in good health and to respond as expected.

Results show a good agreement with the same test conducted in CSL (Summer 2008) during tests at satellite level, despite of the overall duration of the test (needed three DTCP days in CPV while in CSL it was performed continuously along 14 hrs) and the environmental conditions that were slightly different (FPU cooldown, BEU warmup, etc).

## 5 Appendix 1 – Test procedure

| Step   | Description  | START REF. | DURATION | Time                  | RCA    | YES | NO |
|--------|--|------------|----------|-----------------------|--------|-----|----|
| 5      | CRYO1 (UM section 13.1.2.3)                              | 0:00:00    |          | 6/11/2009<br>22:00:00 |        |     |    |
| 5      | RCA Activation (Power Group #1: RCA 18,26)               | 0:00:00    | 0:05:00  | 6/11/2009<br>22:05:00 |        | yes |    |
|        | Initialise RCA 18 and 26                                 | 0:05:00    | 0:00:00  | 6/11/2009<br>22:10:00 | 18, 26 |     |    |
|        | Set DAE Offset to 0 (FFh) (RCA18 and 26)                 | 0:05:00    | 0:00:02  | 6/11/2009<br>22:10:00 | 18, 26 | yes |    |
|        | Set DAE Gain to 1 (0h) (RCA18 and 26)                    | 0:05:02    | 0:00:02  | 6/11/2009<br>22:10:02 | 18, 26 | yes |    |
|        | Configure 5 RCA parameters (RCA18 and 26) to zero biases | 0:05:04    | 0:00:06  | 6/11/2009<br>22:10:04 | 18, 26 | yes |    |
|        | Disable A/C 4kHz (RCA18 and 26)                          | 0:05:10    | 0:00:02  | 6/11/2009<br>22:10:10 | 18, 26 | yes |    |
|        | Disable B/D 4kHz (RCA18 and 26)                          | 0:05:12    | 0:00:02  | 6/11/2009<br>22:10:12 | 18, 26 | yes |    |
|        | Set A/CP/S Status (0) (RCA18 and 26)                     | 0:05:14    | 0:00:02  | 6/11/2009<br>22:10:14 | 18, 26 | yes |    |
|        | Set B/DP/S Status (0) (RCA18 and 26)                     | 0:05:16    | 0:00:02  | 6/11/2009<br>22:10:16 | 18, 26 | yes |    |
| 5.01   | Perform RCA 18 Activation                                | 0:05:18    | 0:04:00  | 6/11/2009<br>22:10:18 | 18     |     |    |
| 5.1.1  | Set Cryo values on ACA1 RCA 18                           | 0:09:18    | 0:00:06  | 6/11/2009<br>22:14:18 | 18     | yes |    |
| 5.1.2  | Set DAE Gain values ACA1 RCA 18                          | 0:09:24    | 0:00:02  | 6/11/2009<br>22:14:24 | 18     | yes |    |
| 5.1.3  | Set DAE offset values ACA1 RCA 18                        | 0:09:26    | 0:04:02  | 6/11/2009<br>22:14:26 | 18     | yes |    |
| 5.1.5  | SetPS status = 1 (A/C) RCA 18                            | 0:13:28    | 0:00:02  | 6/11/2009<br>22:18:28 | 18     | yes |    |
| 5.1.6  | Acquire Data   | 0:13:30    | 0:02:00  | 6/11/2009<br>22:18:30 | 18     |     |    |
| 5.1.7  | Enable 4kHz (A/C) RCA 18                                 | 0:15:30    | 0:00:02  | 6/11/2009<br>22:20:30 | 18     | yes |    |
| 5.1.8  | Acquire Data   | 0:15:32    | 0:02:00  | 6/11/2009<br>22:20:32 | 18     |     |    |
| 5.1.9  | Set lswitch1 low value on ACA1 RCA 18                    | 0:17:32    | 0:00:02  | 6/11/2009<br>22:22:32 | 18     | yes |    |
| 5.1.10 | Acquire Data   | 0:17:34    | 0:02:00  | 6/11/2009<br>22:22:34 | 18     |     |    |
| 5.1.11 | Set lswitch1 nominal value on ACA1 RCA 18                | 0:19:34    | 0:00:02  | 6/11/2009<br>22:24:34 | 18     | yes |    |
| 5.1.12 | Set lswitch2 low value on ACA1 RCA 18                    | 0:19:36    | 0:00:02  | 6/11/2009<br>22:24:36 | 18     | yes |    |
| 5.1.13 | Acquire Data   | 0:19:38    | 0:02:00  | 6/11/2009<br>22:24:38 | 18     |     |    |
| 5.1.14 | Set lswitch2 nominal value on ACA1 RCA 18                | 0:21:38    | 0:00:02  | 6/11/2009<br>22:26:38 | 18     | yes |    |
| 5.1.15 | Disable 4kHz (A/C) RCA 18                                | 0:21:40    | 0:00:02  | 6/11/2009<br>22:26:40 | 18     | yes |    |
| 5.1.16 | SetPS status = 0 (A/C) RCA 18                            | 0:21:42    | 0:00:02  | 6/11/2009<br>22:26:42 | 18     | yes |    |
| 5.1.17 | Acquire Data   | 0:21:44    | 0:02:00  | 6/11/2009<br>22:26:44 | 18     |     |    |



|        |   |         |         |                       |    |     |  |
|--------|---|---------|---------|-----------------------|----|-----|--|
| 5.1.18 | Set Cryo values on ACA2 RCA 18                      | 0:23:44 | 0:00:06 | 6/11/2009<br>22:28:44 | 18 | yes |  |
| 5.1.19 | Set DAE Gain values ACA2 RCA 18                     | 0:23:50 | 0:00:02 | 6/11/2009<br>22:28:50 | 18 | yes |  |
| 5.1.20 | Set DAE offset values ACA2 RCA 18                   | 0:23:52 | 0:04:02 | 6/11/2009<br>22:28:52 | 18 | yes |  |
| 5.1.21 | SetPS status = 1 (B/D) RCA 18                       | 0:27:54 | 0:00:02 | 6/11/2009<br>22:32:54 | 18 | yes |  |
| 5.1.22 | Acquire Data  | 0:27:56 | 0:02:00 | 6/11/2009<br>22:32:56 | 18 |     |  |
| 5.1.23 | Enable 4kHz (B/D) RCA 18                            | 0:29:56 | 0:00:02 | 6/11/2009<br>22:34:56 | 18 | yes |  |
| 5.1.24 | Acquire Data  | 0:29:58 | 0:02:00 | 6/11/2009<br>22:34:58 | 18 |     |  |
| 5.1.25 | Set lswitch1 low value on ACA2 RCA 18               | 0:31:58 | 0:00:02 | 6/11/2009<br>22:36:58 | 18 | yes |  |
| 5.1.26 | Acquire Data  | 0:32:00 | 0:02:00 | 6/11/2009<br>22:37:00 | 18 |     |  |
| 5.1.27 | Set lswitch1 nominal value on ACA2 RCA 18           | 0:34:00 | 0:00:02 | 6/11/2009<br>22:39:00 | 18 |     |  |
| 5.1.28 | Set lswitch2 low value on ACA2 RCA 18               | 0:34:02 | 0:00:02 | 6/11/2009<br>22:39:02 | 18 | yes |  |
| 5.1.29 | Acquire Data  | 0:34:04 | 0:02:00 | 6/11/2009<br>22:39:04 | 18 |     |  |
| 5.1.30 | Set lswitch2 nominal value on ACA2 RCA 18           | 0:36:04 | 0:00:02 | 6/11/2009<br>22:41:04 | 18 | yes |  |
| 5.1.31 | Disable 4kHz (B/D) RCA 18                           | 0:36:06 | 0:00:02 | 6/11/2009<br>22:41:06 | 18 | yes |  |
| 5.1.32 | SetPS status = 0 (B/D) RCA 18                       | 0:36:08 | 0:00:02 | 6/11/2009<br>22:41:08 | 18 | yes |  |
| 5.1.33 | Acquire Data  | 0:36:10 | 0:02:00 | 6/11/2009<br>22:41:10 | 18 |     |  |
| 5.1.34 | Note: ACA1 and 2 of RCA 18 now set with Cryo values | 0:38:10 | 0:00:00 | 6/11/2009<br>22:43:10 | 18 |     |  |
| 5.1.35 | Set Cryo values on ACA3 RCA 18                      | 0:38:10 | 0:00:06 | 6/11/2009<br>22:43:10 | 18 | yes |  |
| 5.1.36 | Set DAE Gain values ACA3 RCA 18                     | 0:38:16 | 0:00:02 | 6/11/2009<br>22:43:16 | 18 | yes |  |
| 5.1.37 | Set DAE offset values ACA3 RCA 18                   | 0:38:18 | 0:04:02 | 6/11/2009<br>22:43:18 | 18 | yes |  |
| 5.1.39 | SetPS status = 1 (A/C) RCA 18                       | 0:42:20 | 0:00:02 | 6/11/2009<br>22:47:20 | 18 | yes |  |
| 5.1.40 | Acquire Data  | 0:42:22 | 0:02:00 | 6/11/2009<br>22:47:22 | 18 |     |  |
| 5.1.41 | Enable 4kHz (A/C) RCA 18                            | 0:44:22 | 0:00:02 | 6/11/2009<br>22:49:22 | 18 | yes |  |
| 5.1.42 | Acquire Data  | 0:44:24 | 0:02:00 | 6/11/2009<br>22:49:24 | 18 |     |  |
| 5.1.43 | Set lswitch1 low value on ACA3 RCA 18               | 0:46:24 | 0:00:02 | 6/11/2009<br>22:51:24 | 18 | yes |  |
| 5.1.44 | Acquire Data  | 0:46:26 | 0:02:00 | 6/11/2009<br>22:51:26 | 18 |     |  |
| 5.1.45 | Set lswitch1 nominal value on ACA3 RCA 18           | 0:48:26 | 0:00:02 | 6/11/2009<br>22:53:26 | 18 | yes |  |
| 5.1.46 | Set lswitch2 low value on ACA3 RCA 18               | 0:48:28 | 0:00:02 | 6/11/2009<br>22:53:28 | 18 | yes |  |
| 5.1.47 | Acquire Data  | 0:48:30 | 0:02:00 | 6/11/2009<br>22:53:30 | 18 |     |  |
| 5.1.48 | Set lswitch2 nominal value on ACA3 RCA 18           | 0:50:30 | 0:00:02 | 6/11/2009<br>22:55:30 | 18 | yes |  |



|        |   |         |         |                       |    |     |  |
|--------|---|---------|---------|-----------------------|----|-----|--|
| 5.1.49 | Disable 4kHz (A/C) RCA 18                             | 0:50:32 | 0:00:02 | 6/11/2009<br>22:55:32 | 18 | yes |  |
| 5.1.50 | SetPS status = 0 (A/C) RCA 18                         | 0:50:34 | 0:00:02 | 6/11/2009<br>22:55:34 | 18 | yes |  |
| 5.1.51 | Acquire Data  | 0:50:36 | 0:02:00 | 6/11/2009<br>22:55:36 | 18 |     |  |
| 5.1.52 | Set Cryo values on ACA4 RCA 18                        | 0:52:36 | 0:00:06 | 6/11/2009<br>22:57:36 | 18 | yes |  |
| 5.1.53 | Set DAE Gain values ACA4 RCA 18                       | 0:52:42 | 0:00:02 | 6/11/2009<br>22:57:42 | 18 | yes |  |
| 5.1.54 | Set DAE offset values ACA4 RCA 18                     | 0:52:44 | 0:04:02 | 6/11/2009<br>22:57:44 | 18 | yes |  |
| 5.1.56 | SetPS status = 1 (B/D) RCA 18                         | 0:56:46 | 0:00:02 | 6/11/2009<br>23:01:46 | 18 | yes |  |
| 5.1.57 | Acquire Data  | 0:56:48 | 0:02:00 | 6/11/2009<br>23:01:48 | 18 |     |  |
| 5.1.58 | Enable 4kHz (B/D) RCA 18                              | 0:58:48 | 0:00:02 | 6/11/2009<br>23:03:48 | 18 | yes |  |
| 5.1.59 | Acquire Data  | 0:58:50 | 0:02:00 | 6/11/2009<br>23:03:50 | 18 |     |  |
| 5.1.60 | Set lswitch1 low value on ACA4 RCA 18                 | 1:00:50 | 0:00:02 | 6/11/2009<br>23:05:50 | 18 | yes |  |
| 5.1.61 | Acquire Data  | 1:00:52 | 0:02:00 | 6/11/2009<br>23:05:52 | 18 |     |  |
| 5.1.62 | Set lswitch1 nominal value on ACA4 RCA 18             | 1:02:52 | 0:00:02 | 6/11/2009<br>23:07:52 | 18 | yes |  |
| 5.1.63 | Set lswitch2 low value on ACA4 RCA 18                 | 1:02:54 | 0:00:02 | 6/11/2009<br>23:07:54 | 18 | yes |  |
| 5.1.64 | Acquire Data  | 1:02:56 | 0:02:00 | 6/11/2009<br>23:07:56 | 18 |     |  |
| 5.1.65 | Set lswitch2 nominal value on ACA4 RCA 18             | 1:04:56 | 0:00:02 | 6/11/2009<br>23:09:56 | 18 | yes |  |
| 5.1.66 | Disable 4kHz (B/D) RCA 18                             | 1:04:58 | 0:00:02 | 6/11/2009<br>23:09:58 | 18 | yes |  |
| 5.1.67 | SetPS status = 0 (B/D) RCA 18                         | 1:05:00 | 0:00:02 | 6/11/2009<br>23:10:00 | 18 | yes |  |
| 5.1.68 | Acquire Data  | 1:05:02 | 0:02:00 | 6/11/2009<br>23:10:02 | 18 |     |  |
|        | Completion of RCA 18 Activation - Cryo values applied | 1:07:02 | 0:05:00 | 6/11/2009<br>23:12:02 | 18 |     |  |
|        |   | 1:12:02 | 0:00:00 | 6/11/2009<br>23:17:02 |    |     |  |
|        | Perform RCA 26 Activation                             | 1:12:02 | 0:04:00 | 6/11/2009<br>23:17:02 | 26 |     |  |
| 5.2.1  | Set Cryo values on ACA1 RCA 26                        | 1:16:02 | 0:00:06 | 6/11/2009<br>23:21:02 | 26 | yes |  |
| 5.2.2  | Set DAE Gain values ACA1 RCA 26                       | 1:16:08 | 0:00:02 | 6/11/2009<br>23:21:08 | 26 | yes |  |
| 5.2.3  | Set DAE offset values ACA1 RCA 26                     | 1:16:10 | 0:04:02 | 6/11/2009<br>23:21:10 | 26 | yes |  |
| 5.2.5  | SetPS status = 1 (A/C) RCA 26                         | 1:20:12 | 0:00:02 | 6/11/2009<br>23:25:12 | 26 | yes |  |
| 5.2.6  | Acquire Data  | 1:20:14 | 0:02:00 | 6/11/2009<br>23:25:14 | 26 |     |  |
| 5.2.7  | Enable 4kHz (A/C) RCA 26                              | 1:22:14 | 0:00:02 | 6/11/2009<br>23:27:14 | 26 | yes |  |
| 5.2.8  | Acquire Data  | 1:22:16 | 0:02:00 | 6/11/2009<br>23:27:16 | 26 |     |  |
| 5.2.9  | Set lswitch1 low value on ACA1 RCA 26                 | 1:24:16 | 0:00:02 | 6/11/2009<br>23:29:16 | 26 | yes |  |



|        |   |         |         |                       |    |     |  |
|--------|---|---------|---------|-----------------------|----|-----|--|
| 5.2.10 | Acquire Data  | 1:24:18 | 0:02:00 | 6/11/2009<br>23:29:18 | 26 |     |  |
| 5.2.11 | Set lswitch1 nominal value on ACA1 RCA 26           | 1:26:18 | 0:00:02 | 6/11/2009<br>23:31:18 | 26 | yes |  |
| 5.2.12 | Set lswitch2 low value on ACA1 RCA 26               | 1:26:20 | 0:00:02 | 6/11/2009<br>23:31:20 | 26 | yes |  |
| 5.2.13 | Acquire Data  | 1:26:22 | 0:02:00 | 6/11/2009<br>23:31:22 | 26 |     |  |
| 5.2.14 | Set lswitch2 nominal value on ACA1 RCA 26           | 1:28:22 | 0:00:02 | 6/11/2009<br>23:33:22 | 26 | yes |  |
| 5.2.15 | Disable 4kHz (A/C) RCA 26                           | 1:28:24 | 0:00:02 | 6/11/2009<br>23:33:24 | 26 | yes |  |
| 5.2.16 | SetPS status = 0 (A/C) RCA 26                       | 1:28:26 | 0:00:02 | 6/11/2009<br>23:33:26 | 26 | yes |  |
| 5.2.17 | Acquire Data  | 1:28:28 | 0:02:00 | 6/11/2009<br>23:33:28 | 26 |     |  |
| 5.2.18 | Set Cryo values on ACA2 RCA 26                      | 1:30:28 | 0:00:06 | 6/11/2009<br>23:35:28 | 26 | yes |  |
| 5.2.19 | Set DAE Gain values ACA2 RCA 26                     | 1:30:34 | 0:00:02 | 6/11/2009<br>23:35:34 | 26 | yes |  |
| 5.2.20 | Set DAE offset values ACA2 RCA 26                   | 1:30:36 | 0:04:02 | 6/11/2009<br>23:35:36 | 26 | yes |  |
| 5.2.22 | SetPS status = 1 (B/D) RCA 26                       | 1:34:38 | 0:00:02 | 6/11/2009<br>23:39:38 | 26 | yes |  |
| 5.2.23 | Acquire Data  | 1:34:40 | 0:02:00 | 6/11/2009<br>23:39:40 | 26 |     |  |
| 5.2.24 | Enable 4kHz (B/D) RCA 26                            | 1:36:40 | 0:00:02 | 6/11/2009<br>23:41:40 | 26 | yes |  |
| 5.2.25 | Acquire Data  | 1:36:42 | 0:02:00 | 6/11/2009<br>23:41:42 | 26 |     |  |
| 5.2.26 | Set lswitch1 low value on ACA2 RCA 26               | 1:38:42 | 0:00:02 | 6/11/2009<br>23:43:42 | 26 | yes |  |
| 5.2.27 | Acquire Data  | 1:38:44 | 0:02:00 | 6/11/2009<br>23:43:44 | 26 |     |  |
| 5.2.28 | Set lswitch1 nominal value on ACA2 RCA 26           | 1:40:44 | 0:00:02 | 6/11/2009<br>23:45:44 | 26 | yes |  |
| 5.2.29 | Set lswitch2 low value on ACA2 RCA 26               | 1:40:46 | 0:00:02 | 6/11/2009<br>23:45:46 | 26 | yes |  |
| 5.2.30 | Acquire Data  | 1:40:48 | 0:02:00 | 6/11/2009<br>23:45:48 | 26 |     |  |
| 5.2.31 | Set lswitch2 nominal value on ACA2 RCA 26           | 1:42:48 | 0:00:02 | 6/11/2009<br>23:47:48 | 26 | yes |  |
| 5.2.32 | Disable 4kHz (B/D) RCA 26                           | 1:42:50 | 0:00:02 | 6/11/2009<br>23:47:50 | 26 | yes |  |
| 5.2.33 | SetPS status = 0 (B/D) RCA 26                       | 1:42:52 | 0:00:02 | 6/11/2009<br>23:47:52 | 26 | yes |  |
| 5.2.34 | Acquire Data  | 1:42:54 | 0:02:00 | 6/11/2009<br>23:47:54 | 26 |     |  |
|        | Note: ACA1 and 2 of RCA 26 now set with Cryo values | 1:44:54 | 0:00:00 | 6/11/2009<br>23:49:54 | 26 |     |  |
| 5.2.35 | Set Cryo values on ACA3 RCA 26                      | 1:44:54 | 0:00:06 | 6/11/2009<br>23:49:54 | 26 | yes |  |
| 5.2.36 | Set DAE Gain values ACA3 RCA 26                     | 1:45:00 | 0:00:02 | 6/11/2009<br>23:50:00 | 26 | yes |  |
| 5.2.37 | Set DAE offset values ACA3 RCA 26                   | 1:45:02 | 0:04:02 | 6/11/2009<br>23:50:02 | 26 | yes |  |
| 5.2.39 | SetPS status = 1 (A/C) RCA 26                       | 1:49:04 | 0:00:02 | 6/11/2009<br>23:54:04 | 26 | yes |  |
| 5.2.40 | Acquire Data  | 1:49:06 | 0:02:00 | 6/11/2009<br>23:54:06 | 26 |     |  |



|        |   |         |         |                       |        |     |  |
|--------|---|---------|---------|-----------------------|--------|-----|--|
| 5.2.41 | Enable 4kHz (A/C) RCA 26                              | 1:51:06 | 0:00:02 | 6/11/2009<br>23:56:06 | 26     | yes |  |
| 5.2.42 | Acquire Data  | 1:51:08 | 0:02:00 | 6/11/2009<br>23:56:08 | 26     |     |  |
| 5.2.43 | Set lswitch1 low value on ACA3 RCA 26                 | 1:53:08 | 0:00:02 | 6/11/2009<br>23:58:08 | 26     | yes |  |
| 5.2.44 | Acquire Data  | 1:53:10 | 0:02:00 | 6/11/2009<br>23:58:10 | 26     |     |  |
| 5.2.45 | Set lswitch1 nominal value on ACA3 RCA 26             | 1:55:10 | 0:00:02 | 6/12/2009<br>0:00:10  | 26     | yes |  |
| 5.2.46 | Set lswitch2 low value on ACA3 RCA 26                 | 1:55:12 | 0:00:02 | 6/12/2009<br>0:00:12  | 26     | yes |  |
| 5.2.47 | Acquire Data  | 1:55:14 | 0:02:00 | 6/12/2009<br>0:00:14  | 26     |     |  |
| 5.2.48 | Set lswitch2 nominal value on ACA3 RCA 26             | 1:57:14 | 0:00:02 | 6/12/2009<br>0:02:14  | 26     | yes |  |
| 5.2.49 | Disable 4kHz (A/C) RCA 26                             | 1:57:16 | 0:00:02 | 6/12/2009<br>0:02:16  | 26     | yes |  |
| 5.2.50 | SetPS status = 0 (A/C) RCA 26                         | 1:57:18 | 0:00:02 | 6/12/2009<br>0:02:18  | 26     | yes |  |
| 5.2.51 | Acquire Data  | 1:57:20 | 0:02:00 | 6/12/2009<br>0:02:20  | 26     |     |  |
| 5.2.52 | Set Cryo values on ACA4 RCA 26                        | 1:59:20 | 0:00:06 | 6/12/2009<br>0:04:20  | 26     | yes |  |
| 5.2.53 | Set DAE Gain values ACA4 RCA 26                       | 1:59:26 | 0:00:02 | 6/12/2009<br>0:04:26  | 26     | yes |  |
| 5.2.54 | Set DAE offset values ACA4 RCA 26                     | 1:59:28 | 0:04:02 | 6/12/2009<br>0:04:28  | 26     | yes |  |
| 5.2.56 | SetPS status = 1 (B/D) RCA 26                         | 2:03:30 | 0:00:02 | 6/12/2009<br>0:08:30  | 26     | yes |  |
| 5.2.57 | Acquire Data  | 2:03:32 | 0:02:00 | 6/12/2009<br>0:08:32  | 26     |     |  |
| 5.2.58 | Enable 4kHz (B/D) RCA 26                              | 2:05:32 | 0:00:02 | 6/12/2009<br>0:10:32  | 26     | yes |  |
| 5.2.59 | Acquire Data  | 2:05:34 | 0:02:00 | 6/12/2009<br>0:10:34  | 26     |     |  |
| 5.2.60 | Set lswitch1 low value on ACA4 RCA 26                 | 2:07:34 | 0:00:02 | 6/12/2009<br>0:12:34  | 26     | yes |  |
| 5.2.61 | Acquire Data  | 2:07:36 | 0:02:00 | 6/12/2009<br>0:12:36  | 26     |     |  |
| 5.2.62 | Set lswitch1 nominal value on ACA4 RCA 26             | 2:09:36 | 0:00:02 | 6/12/2009<br>0:14:36  | 26     | yes |  |
| 5.2.63 | Set lswitch2 low value on ACA4 RCA 26                 | 2:09:38 | 0:00:02 | 6/12/2009<br>0:14:38  | 26     | yes |  |
| 5.2.64 | Acquire Data  | 2:09:40 | 0:02:00 | 6/12/2009<br>0:14:40  | 26     |     |  |
| 5.2.65 | Set lswitch2 nominal value on ACA4 RCA 26             | 2:11:40 | 0:00:02 | 6/12/2009<br>0:16:40  | 26     | yes |  |
| 5.2.66 | Disable 4kHz (B/D) RCA 26                             | 2:11:42 | 0:00:02 | 6/12/2009<br>0:16:42  | 26     | yes |  |
| 5.2.67 | SetPS status = 0 (B/D) RCA 26                         | 2:11:44 | 0:00:02 | 6/12/2009<br>0:16:44  | 26     | yes |  |
| 5.2.68 | Acquire Data  | 2:11:46 | 0:02:00 | 6/12/2009<br>0:16:46  | 26     |     |  |
|        | Completion of RCA 26 Activation - Cryo values applied | 2:13:46 | 0:05:00 | 6/12/2009<br>0:18:46  | 26     |     |  |
|        |   | 2:18:46 | 0:00:00 | 6/12/2009<br>0:23:46  |        |     |  |
| 5.3    | RCA Activation (Power Group #4: RCA 23,25)            | 0:00:00 | 0:05:00 | 6/12/2009<br>0:23:46  | 23, 25 | yes |  |



|        |   |         |         |                      |        |     |  |
|--------|---|---------|---------|----------------------|--------|-----|--|
|        | Initialise RCA 23 and 25                  | 0:05:00 | 0:00:00 | 6/12/2009<br>0:28:46 | 23, 25 |     |  |
|        | Set DAE Offset to 0 (FFh) (RCA23 and 25)  | 0:05:00 | 0:00:02 | 6/12/2009<br>0:28:46 | 23, 25 | yes |  |
|        | Set DAE Gain to 1 (0h)                    | 0:05:02 | 0:00:02 | 6/12/2009<br>0:28:48 | 23, 25 | yes |  |
|        | (RCA23 and 25)                            | 0:05:04 | 0:00:00 | 6/12/2009<br>0:28:50 | 23, 25 | yes |  |
|        | Configure 5 RCA parameters (RCA23 and 25) | 0:05:04 | 0:00:06 | 6/12/2009<br>0:28:50 | 23, 25 | yes |  |
|        | Disable A/C 4kHz (RCA23 and 25)           | 0:05:10 | 0:00:02 | 6/12/2009<br>0:28:56 | 23, 25 | yes |  |
|        | Disable B/D 4kHz (RCA23 and 25)           | 0:05:12 | 0:00:02 | 6/12/2009<br>0:28:58 | 23, 25 | yes |  |
|        | Set A/CP/S Status (0) (RCA23 and 25)      | 0:05:14 | 0:00:02 | 6/12/2009<br>0:29:00 | 23, 25 | yes |  |
|        | Set B/DP/S Status (0) (RCA23 and 25)      | 0:05:16 | 0:00:02 | 6/12/2009<br>0:29:02 | 23, 25 | yes |  |
| 5.3.1  | Perform RCA 23 Activation                 | 0:05:18 | 0:04:00 | 6/12/2009<br>0:29:04 | 23     |     |  |
| 5.3.2  | Set Cryo values on ACA1 RCA 23            | 0:09:18 | 0:00:06 | 6/12/2009<br>0:33:04 | 23     | yes |  |
| 5.3.3  | Set DAE Gain values ACA1 RCA 23           | 0:09:24 | 0:00:02 | 6/12/2009<br>0:33:10 | 23     | yes |  |
| 5.3.4  | Set DAE offset values ACA1 RCA 23         | 0:09:26 | 0:04:02 | 6/12/2009<br>0:33:12 | 23     | yes |  |
| 5.3.6  | SetPS status = 1 (A/C) RCA 23             | 0:13:28 | 0:00:02 | 6/12/2009<br>0:37:14 | 23     | yes |  |
| 5.3.7  | Acquire Data                              | 0:13:30 | 0:02:00 | 6/12/2009<br>0:37:16 | 23     |     |  |
| 5.3.8  | Enable 4kHz (A/C) RCA 23                  | 0:15:30 | 0:00:02 | 6/12/2009<br>0:39:16 | 23     | yes |  |
| 5.3.9  | Acquire Data                              | 0:15:32 | 0:02:00 | 6/12/2009<br>0:39:18 | 23     |     |  |
| 5.3.10 | Set lswitch1 low value on ACA1 RCA 23     | 0:17:32 | 0:00:02 | 6/12/2009<br>0:41:18 | 23     | yes |  |
| 5.3.11 | Acquire Data                              | 0:17:34 | 0:02:00 | 6/12/2009<br>0:41:20 | 23     |     |  |
| 5.3.12 | Set lswitch1 nominal value on ACA1 RCA 23 | 0:19:34 | 0:00:02 | 6/12/2009<br>0:43:20 | 23     | yes |  |
| 5.3.13 | Set lswitch2 low value on ACA1 RCA 23     | 0:19:36 | 0:00:02 | 6/12/2009<br>0:43:22 | 23     | yes |  |
| 5.3.14 | Acquire Data                              | 0:19:38 | 0:02:00 | 6/12/2009<br>0:43:24 | 23     |     |  |
| 5.3.15 | Set lswitch2 nominal value on ACA1 RCA 23 | 0:21:38 | 0:00:02 | 6/12/2009<br>0:45:24 | 23     | yes |  |
| 5.3.16 | Disable 4kHz (A/C) RCA 23                 | 0:21:40 | 0:00:02 | 6/12/2009<br>0:45:26 | 23     | yes |  |
| 5.3.17 | SetPS status = 0 (A/C) RCA 23             | 0:21:42 | 0:00:02 | 6/12/2009<br>0:45:28 | 23     | yes |  |
| 5.3.18 | Acquire Data                              | 0:21:44 | 0:02:00 | 6/12/2009<br>0:45:30 | 23     |     |  |
| 5.3.19 | Set Cryo values on ACA2 RCA 23            | 0:23:44 | 0:00:06 | 6/12/2009<br>0:47:30 | 23     | yes |  |
| 5.3.20 | Set DAE Gain values ACA2 RCA 23           | 0:23:50 | 0:00:02 | 6/12/2009<br>0:47:36 | 23     | yes |  |
| 5.3.21 | Set DAE offset values ACA2 RCA 23         | 0:23:52 | 0:04:02 | 6/12/2009<br>0:47:38 | 23     | yes |  |
| 5.3.23 | SetPS status = 1 (B/D) RCA 23             | 0:27:54 | 0:00:02 | 6/12/2009<br>0:51:40 | 23     | yes |  |



|        |   |         |         |                      |    |     |  |
|--------|---|---------|---------|----------------------|----|-----|--|
| 5.3.24 | Acquire Data  | 0:27:56 | 0:02:00 | 6/12/2009<br>0:51:42 | 23 |     |  |
| 5.3.25 | Enable 4kHz (B/D) RCA 23                            | 0:29:56 | 0:00:02 | 6/12/2009<br>0:53:42 | 23 | yes |  |
| 5.3.26 | Acquire Data  | 0:29:58 | 0:02:00 | 6/12/2009<br>0:53:44 | 23 |     |  |
| 5.3.27 | Set Iswitch1 low value on ACA2 RCA 23               | 0:31:58 | 0:00:02 | 6/12/2009<br>0:55:44 | 23 | yes |  |
| 5.3.28 | Acquire Data  | 0:32:00 | 0:02:00 | 6/12/2009<br>0:55:46 | 23 |     |  |
| 5.3.29 | Set Iswitch1 nominal value on ACA2 RCA 23           | 0:34:00 | 0:00:02 | 6/12/2009<br>0:57:46 | 23 | yes |  |
| 5.3.30 | Set Iswitch2 low value on ACA2 RCA 23               | 0:34:02 | 0:00:02 | 6/12/2009<br>0:57:48 | 23 | yes |  |
| 5.3.31 | Acquire Data  | 0:34:04 | 0:02:00 | 6/12/2009<br>0:57:50 | 23 |     |  |
| 5.3.32 | Set Iswitch2 nominal value on ACA2 RCA 23           | 0:36:04 | 0:00:02 | 6/12/2009<br>0:59:50 | 23 | yes |  |
| 5.3.33 | Disable 4kHz (B/D) RCA 23                           | 0:36:06 | 0:00:02 | 6/12/2009<br>0:59:52 | 23 | yes |  |
| 5.3.34 | SetPS status = 0 (B/D) RCA 23                       | 0:36:08 | 0:00:02 | 6/12/2009<br>0:59:54 | 23 | yes |  |
| 5.3.35 | Acquire Data  | 0:36:10 | 0:02:00 | 6/12/2009<br>0:59:56 | 23 | yes |  |
|        | Note: ACA1 and 2 of RCA 23 now set with Cryo values | 0:38:10 | 0:00:00 | 6/12/2009<br>1:01:56 | 23 |     |  |
| 5.3.36 | Set Cryo values on ACA3 RCA 23                      | 0:38:10 | 0:00:06 | 6/12/2009<br>1:01:56 | 23 | yes |  |
| 5.3.37 | Set DAE Gain values ACA3 RCA 23                     | 0:38:16 | 0:00:02 | 6/12/2009<br>1:02:02 | 23 | yes |  |
| 5.3.38 | Set DAE offset values ACA3 RCA 23                   | 0:38:18 | 0:04:02 | 6/12/2009<br>1:02:04 | 23 | yes |  |
| 5.3.40 | SetPS status = 1 (A/C) RCA 23                       | 0:42:20 | 0:00:02 | 6/12/2009<br>1:06:06 | 23 | yes |  |
| 5.3.41 | Acquire Data  | 0:42:22 | 0:02:00 | 6/12/2009<br>1:06:08 | 23 |     |  |
| 5.3.42 | Enable 4kHz (A/C) RCA 23                            | 0:44:22 | 0:00:02 | 6/12/2009<br>1:08:08 | 23 | yes |  |
| 5.3.43 | Acquire Data  | 0:44:24 | 0:02:00 | 6/12/2009<br>1:08:10 | 23 |     |  |
| 5.3.44 | Set Iswitch1 low value on ACA3 RCA 23               | 0:46:24 | 0:00:02 | 6/12/2009<br>1:10:10 | 23 | yes |  |
| 5.3.45 | Acquire Data  | 0:46:26 | 0:02:00 | 6/12/2009<br>1:10:12 | 23 |     |  |
| 5.3.46 | Set Iswitch1 nominal value on ACA3 RCA 23           | 0:48:26 | 0:00:02 | 6/12/2009<br>1:12:12 | 23 | yes |  |
| 5.3.47 | Set Iswitch2 low value on ACA3 RCA 23               | 0:48:28 | 0:00:02 | 6/12/2009<br>1:12:14 | 23 | yes |  |
| 5.3.48 | Acquire Data  | 0:48:30 | 0:02:00 | 6/12/2009<br>1:12:16 | 23 |     |  |
| 5.3.49 | Set Iswitch2 nominal value on ACA3 RCA 23           | 0:50:30 | 0:00:02 | 6/12/2009<br>1:14:16 | 23 | yes |  |
| 5.3.50 | Disable 4kHz (A/C) RCA 23                           | 0:50:32 | 0:00:02 | 6/12/2009<br>1:14:18 | 23 | yes |  |
| 5.3.51 | SetPS status = 0 (A/C) RCA 23                       | 0:50:34 | 0:00:02 | 6/12/2009<br>1:14:20 | 23 | yes |  |
| 5.3.52 | Acquire Data  | 0:50:36 | 0:02:00 | 6/12/2009<br>1:14:22 | 23 |     |  |
| 5.3.53 | Set Cryo values on ACA4 RCA 23                      | 0:52:36 | 0:00:06 | 6/12/2009<br>1:16:22 | 23 | yes |  |



|        |   |         |         |                      |    |     |  |
|--------|---|---------|---------|----------------------|----|-----|--|
| 5.3.54 | Set DAE Gain values ACA4 RCA 23                       | 0:52:42 | 0:00:02 | 6/12/2009<br>1:16:28 | 23 | yes |  |
| 5.3.55 | Set DAE offset values ACA4 RCA 23                     | 0:52:44 | 0:04:02 | 6/12/2009<br>1:16:30 | 23 | yes |  |
| 5.3.57 | SetPS status = 1 (B/D) RCA 23                         | 0:56:46 | 0:00:02 | 6/12/2009<br>1:20:32 | 23 | yes |  |
| 5.3.58 | Acquire Data  | 0:56:48 | 0:02:00 | 6/12/2009<br>1:20:34 | 23 |     |  |
| 5.3.59 | Enable 4kHz (B/D) RCA 23                              | 0:58:48 | 0:00:02 | 6/12/2009<br>1:22:34 | 23 | yes |  |
| 5.3.60 | Acquire Data  | 0:58:50 | 0:02:00 | 6/12/2009<br>1:22:36 | 23 |     |  |
| 5.3.61 | Set lswitch1 low value on ACA4 RCA 23                 | 1:00:50 | 0:00:02 | 6/12/2009<br>1:24:36 | 23 | yes |  |
| 5.3.62 | Acquire Data  | 1:00:52 | 0:02:00 | 6/12/2009<br>1:24:38 | 23 |     |  |
| 5.3.63 | Set lswitch1 nominal value on ACA4 RCA 23             | 1:02:52 | 0:00:02 | 6/12/2009<br>1:26:38 | 23 | yes |  |
| 5.3.64 | Set lswitch2 low value on ACA4 RCA 23                 | 1:02:54 | 0:00:02 | 6/12/2009<br>1:26:40 | 23 | yes |  |
| 5.3.65 | Acquire Data  | 1:02:56 | 0:02:00 | 6/12/2009<br>1:26:42 | 23 |     |  |
| 5.3.66 | Set lswitch2 nominal value on ACA4 RCA 23             | 1:04:56 | 0:00:02 | 6/12/2009<br>1:28:42 | 23 | yes |  |
| 5.3.67 | Disable 4kHz (B/D) RCA 23                             | 1:04:58 | 0:00:02 | 6/12/2009<br>1:28:44 | 23 | yes |  |
| 5.3.68 | SetPS status = 0 (B/D) RCA 23                         | 1:05:00 | 0:00:02 | 6/12/2009<br>1:28:46 | 23 | yes |  |
| 5.3.69 | Acquire Data  | 1:05:02 | 0:02:00 | 6/12/2009<br>1:28:48 | 23 |     |  |
|        | Completion of RCA 23 Activation - Cryo values applied | 1:07:02 | 0:05:00 | 6/12/2009<br>1:30:48 | 23 |     |  |
|        |   | 1:12:02 | 0:00:00 | 6/12/2009<br>1:35:48 |    |     |  |
| 5.4.1  | Perform RCA 25 Activation                             | 1:12:02 | 0:04:00 | 6/12/2009<br>1:35:48 | 25 |     |  |
| 5.4.2  | Set Cryo values on ACA1 RCA 25                        | 1:16:02 | 0:00:06 | 6/12/2009<br>1:39:48 | 25 | yes |  |
| 5.4.3  | Set DAE Gain values ACA1 RCA 25                       | 1:16:08 | 0:00:02 | 6/12/2009<br>1:39:54 | 25 | yes |  |
| 5.4.4  | Set DAE offset values ACA1 RCA 25                     | 1:16:10 | 0:04:02 | 6/12/2009<br>1:39:56 | 25 | yes |  |
| 5.4.6  | SetPS status = 1 (A/C) RCA 25                         | 1:20:12 | 0:00:02 | 6/12/2009<br>1:43:58 | 25 | yes |  |
| 5.4.7  | Acquire Data  | 1:20:14 | 0:02:00 | 6/12/2009<br>1:44:00 | 25 |     |  |
| 5.4.8  | Enable 4kHz (A/C) RCA 25                              | 1:22:14 | 0:00:02 | 6/12/2009<br>1:46:00 | 25 | yes |  |
| 5.4.9  | Acquire Data  | 1:22:16 | 0:02:00 | 6/12/2009<br>1:46:02 | 25 |     |  |
| 5.4.10 | Set lswitch1 low value on ACA1 RCA 25                 | 1:24:16 | 0:00:02 | 6/12/2009<br>1:48:02 | 25 | yes |  |
| 5.4.11 | Acquire Data  | 1:24:18 | 0:02:00 | 6/12/2009<br>1:48:04 | 25 |     |  |
| 5.4.12 | Set lswitch1 nominal value on ACA1 RCA 25             | 1:26:18 | 0:00:02 | 6/12/2009<br>1:50:04 | 25 | yes |  |
| 5.4.13 | Set lswitch2 low value on ACA1 RCA 25                 | 1:26:20 | 0:00:02 | 6/12/2009<br>1:50:06 | 25 | yes |  |
| 5.4.14 | Acquire Data  | 1:26:22 | 0:02:00 | 6/12/2009<br>1:50:08 | 25 |     |  |



|        |   |         |         |                      |    |     |  |
|--------|---|---------|---------|----------------------|----|-----|--|
| 5.4.15 | Set lswitch2 nominal value on ACA1 RCA 25           | 1:28:22 | 0:00:02 | 6/12/2009<br>1:52:08 | 25 | yes |  |
| 5.4.16 | Disable 4kHz (A/C) RCA 25                           | 1:28:24 | 0:00:02 | 6/12/2009<br>1:52:10 | 25 | yes |  |
| 5.4.17 | SetPS status = 0 (A/C) RCA 25                       | 1:28:26 | 0:00:02 | 6/12/2009<br>1:52:12 | 25 | yes |  |
| 5.4.18 | Acquire Data  | 1:28:28 | 0:02:00 | 6/12/2009<br>1:52:14 | 25 |     |  |
| 5.4.19 | Set Cryo values on ACA2 RCA 25                      | 1:30:28 | 0:00:06 | 6/12/2009<br>1:54:14 | 25 | yes |  |
| 5.4.20 | Set DAE Gain values ACA2 RCA 25                     | 1:30:34 | 0:00:02 | 6/12/2009<br>1:54:20 | 25 | yes |  |
| 5.4.21 | Set DAE offset values ACA2 RCA 25                   | 1:30:36 | 0:04:02 | 6/12/2009<br>1:54:22 | 25 | yes |  |
| 5.4.23 | SetPS status = 1 (B/D) RCA 25                       | 1:34:38 | 0:00:02 | 6/12/2009<br>1:58:24 | 25 | yes |  |
| 5.4.24 | Acquire Data  | 1:34:40 | 0:02:00 | 6/12/2009<br>1:58:26 | 25 |     |  |
| 5.4.25 | Enable 4kHz (B/D) RCA 25                            | 1:36:40 | 0:00:02 | 6/12/2009<br>2:00:26 | 25 | yes |  |
| 5.4.26 | Acquire Data  | 1:36:42 | 0:02:00 | 6/12/2009<br>2:00:28 | 25 |     |  |
| 5.4.27 | Set lswitch1 low value on ACA2 RCA 25               | 1:38:42 | 0:00:02 | 6/12/2009<br>2:02:28 | 25 | yes |  |
| 5.4.28 | Acquire Data  | 1:38:44 | 0:02:00 | 6/12/2009<br>2:02:30 | 25 |     |  |
| 5.4.29 | Set lswitch1 nominal value on ACA2 RCA 25           | 1:40:44 | 0:00:02 | 6/12/2009<br>2:04:30 | 25 | yes |  |
| 5.4.30 | Set lswitch2 low value on ACA2 RCA 25               | 1:40:46 | 0:00:02 | 6/12/2009<br>2:04:32 | 25 | yes |  |
| 5.4.31 | Acquire Data  | 1:40:48 | 0:02:00 | 6/12/2009<br>2:04:34 | 25 |     |  |
| 5.4.32 | Set lswitch2 nominal value on ACA2 RCA 25           | 1:42:48 | 0:00:02 | 6/12/2009<br>2:06:34 | 25 | yes |  |
| 5.4.33 | Disable 4kHz (B/D) RCA 25                           | 1:42:50 | 0:00:02 | 6/12/2009<br>2:06:36 | 25 | yes |  |
| 5.4.34 | SetPS status = 0 (B/D) RCA 25                       | 1:42:52 | 0:00:02 | 6/12/2009<br>2:06:38 | 25 | yes |  |
| 5.4.35 | Acquire Data  | 1:42:54 | 0:02:00 | 6/12/2009<br>2:06:40 | 25 |     |  |
|        | Note: ACA1 and 2 of RCA 25 now set with Cryo values | 1:44:54 | 0:00:00 | 6/12/2009<br>2:08:40 | 25 |     |  |
| 5.4.36 | Set Cryo values on ACA3 RCA 25                      | 1:44:54 | 0:00:06 | 6/12/2009<br>2:08:40 | 25 | yes |  |
| 5.4.37 | Set DAE Gain values ACA3 RCA 25                     | 1:45:00 | 0:00:02 | 6/12/2009<br>2:08:46 | 25 | yes |  |
| 5.4.38 | Set DAE offset values ACA3 RCA 25                   | 1:45:02 | 0:04:02 | 6/12/2009<br>2:08:48 | 25 | yes |  |
| 5.4.40 | SetPS status = 1 (A/C) RCA 25                       | 1:49:04 | 0:00:02 | 6/12/2009<br>2:12:50 | 25 | yes |  |
| 5.4.41 | Acquire Data  | 1:49:06 | 0:02:00 | 6/12/2009<br>2:12:52 | 25 |     |  |
| 5.4.42 | Enable 4kHz (A/C) RCA 25                            | 1:51:06 | 0:00:02 | 6/12/2009<br>2:14:52 | 25 | yes |  |
| 5.4.43 | Acquire Data  | 1:51:08 | 0:02:00 | 6/12/2009<br>2:14:54 | 25 |     |  |
| 5.4.44 | Set lswitch1 low value on ACA3 RCA 25               | 1:53:08 | 0:00:02 | 6/12/2009<br>2:16:54 | 25 | yes |  |
| 5.4.45 | Acquire Data  | 1:53:10 | 0:02:00 | 6/12/2009<br>2:16:56 | 25 |     |  |



|        |   |         |         |                   |             |     |    |
|--------|---|---------|---------|-------------------|-------------|-----|----|
| 5.4.46 | Set lswitch1 nominal value on ACA3 RCA 25             | 1:55:10 | 0:00:02 | 6/12/2009 2:18:56 | 25          | yes |    |
| 5.4.47 | Set lswitch2 low value on ACA3 RCA 25                 | 1:55:12 | 0:00:02 | 6/12/2009 2:18:58 | 25          | yes |    |
| 5.4.48 | Acquire Data  | 1:55:14 | 0:02:00 | 6/12/2009 2:19:00 | 25          |     |    |
| 5.4.49 | Set lswitch2 nominal value on ACA3 RCA 25             | 1:57:14 | 0:00:02 | 6/12/2009 2:21:00 | 25          | yes |    |
| 5.4.50 | Disable 4kHz (A/C) RCA 25                             | 1:57:16 | 0:00:02 | 6/12/2009 2:21:02 | 25          | yes |    |
| 5.4.51 | SetPS status = 0 (A/C) RCA 25                         | 1:57:18 | 0:00:02 | 6/12/2009 2:21:04 | 25          | yes |    |
| 5.4.52 | Acquire Data  | 1:57:20 | 0:02:00 | 6/12/2009 2:21:06 | 25          |     |    |
| 5.4.53 | Set Cryo values on ACA4 RCA 25                        | 1:59:20 | 0:00:06 | 6/12/2009 2:23:06 | 25          | yes |    |
| 5.4.54 | Set DAE Gain values ACA4 RCA 25                       | 1:59:26 | 0:00:02 | 6/12/2009 2:23:12 | 25          | yes |    |
| 5.4.55 | Set DAE offset values ACA4 RCA 25                     | 1:59:28 | 0:04:02 | 6/12/2009 2:23:14 | 25          | yes |    |
| 5.4.57 | SetPS status = 1 (B/D) RCA 25                         | 2:03:30 | 0:00:02 | 6/12/2009 2:27:16 | 25          |     |    |
| 5.4.58 | Acquire Data  | 2:03:32 | 0:02:00 | 6/12/2009 2:27:18 | 25          |     |    |
| 5.4.59 | Enable 4kHz (B/D) RCA 25                              | 2:05:32 | 0:00:02 | 6/12/2009 2:29:18 | 25          | yes |    |
| 5.4.60 | Acquire Data  | 2:05:34 | 0:02:00 | 6/12/2009 2:29:20 | 25          |     |    |
| 5.4.61 | Set lswitch1 low value on ACA4 RCA 25                 | 2:07:34 | 0:00:02 | 6/12/2009 2:31:20 | 25          | yes |    |
| 5.4.62 | Acquire Data  | 2:07:36 | 0:02:00 | 6/12/2009 2:31:22 | 25          |     |    |
| 5.4.63 | Set lswitch1 nominal value on ACA4 RCA 25             | 2:09:36 | 0:00:02 | 6/12/2009 2:33:22 | 25          | yes |    |
| 5.4.64 | Set lswitch2 low value on ACA4 RCA 25                 | 2:09:38 | 0:00:02 | 6/12/2009 2:33:24 | 25          | yes |    |
| 5.4.65 | Acquire Data  | 2:09:40 | 0:02:00 | 6/12/2009 2:33:26 | 25          |     |    |
| 5.4.66 | Set lswitch2 nominal value on ACA4 RCA 25             | 2:11:40 | 0:00:02 | 6/12/2009 2:35:26 | 25          | yes |    |
| 5.4.67 | Disable 4kHz (B/D) RCA 25                             | 2:11:42 | 0:00:02 | 6/12/2009 2:35:28 | 25          | yes |    |
| 5.4.68 | SetPS status = 0 (B/D) RCA 25                         | 2:11:44 | 0:00:02 | 6/12/2009 2:35:30 | 25          | yes |    |
| 5.4.69 | Acquire Data  | 2:11:46 | 0:02:00 | 6/12/2009 2:35:32 | 25          |     |    |
|        | Completion of RCA 25 Activation - Cryo values applied | 2:13:46 | 0:05:00 | 6/12/2009 2:37:32 | 25          |     |    |
|        |   | 2:18:46 | 0:00:00 | 6/12/2009 2:42:32 |             |     |    |
| 5.5    | RCA Activation (Power Group #3: RCA 21, 22, 24, 27)   | 0:00:00 | 0:05:00 | 6/12/2009 2:42:32 | 21,22,24,27 | yes |    |
|        | Initialise RCA 21, 22, 24, 27                         | 0:05:00 | 0:00:00 | 6/12/2009 2:47:32 | 21,22,24,27 |     |    |
|        | Set DAE Offset to 0 (FFh) (RCA21,22,24,27)            | 0:05:00 | 0:00:02 | 6/12/2009 2:47:32 | 21,22,24,27 |     | no |
|        | Set DAE Gain to 1 (0h)                                | 0:05:02 | 0:00:02 | 6/12/2009 2:47:34 | 21,22,24,27 |     | no |



|        |  |         |         |                       |             |     |    |
|--------|--|---------|---------|-----------------------|-------------|-----|----|
|        | (RCA21,22,24,27)                               | 0:05:04 | 0:00:00 | 6/12/2009<br>2:47:36  | 21,22,24,27 |     |    |
|        | Configure 5 RCA parameters<br>(RCA21,22,24,27) | 0:05:04 | 0:00:06 | 6/12/2009<br>20:40:00 | 21,22,24,27 | yes |    |
|        | Disable A/C 4kHz (RCA21,22,24,27)              | 0:05:10 | 0:00:02 | 6/12/2009<br>20:40:06 | 21,22,24,27 | yes |    |
|        | Disable B/D 4kHz (RCA21,22,24,27)              | 0:05:12 | 0:00:02 | 6/12/2009<br>20:40:08 | 21,22,24,27 | yes |    |
|        | Set A/CP/S Status (0) (RCA21,22,24,27)         | 0:05:14 | 0:00:02 | 6/12/2009<br>20:40:10 | 21,22,24,27 | yes |    |
|        | Set B/DP/S Status (0) (RCA21,22,24,27)         | 0:05:16 | 0:00:02 | 6/12/2009<br>20:40:12 | 21,22,24,27 | yes |    |
| 5.5.1  | Perform RCA 21 Activation                      | 0:05:18 | 0:04:00 | 6/12/2009<br>20:40:14 | 21          |     |    |
| 5.5.2  | Set Cryo values on ACA1 RCA 21                 | 0:09:18 | 0:00:06 | 6/12/2009<br>20:44:14 | 21          | yes |    |
| 5.5.3  | Set DAE Gain values ACA1 RCA 21                | 0:09:24 | 0:00:02 | 6/12/2009<br>20:44:20 | 21          |     | no |
| 5.5.4  | Set DAE offset values ACA1 RCA 21              | 0:09:26 | 0:04:02 | 6/12/2009<br>20:44:22 | 21          |     | no |
| 5.5.6  | SetPS status = 1 (A/C) RCA 21                  | 0:13:28 | 0:00:02 | 6/12/2009<br>20:48:24 | 21          | yes |    |
| 5.5.7  | Acquire Data                                   | 0:13:30 | 0:02:00 | 6/12/2009<br>20:48:26 | 21          |     |    |
| 5.5.8  | Enable 4kHz (A/C) RCA 21                       | 0:15:30 | 0:00:02 | 6/12/2009<br>20:50:26 | 21          | yes |    |
| 5.5.9  | Acquire Data                                   | 0:15:32 | 0:02:00 | 6/12/2009<br>20:50:28 | 21          |     |    |
| 5.5.10 | Set lswitch1 low value on ACA1 RCA 21          | 0:17:32 | 0:00:02 | 6/12/2009<br>20:52:28 | 21          | yes |    |
| 5.5.11 | Acquire Data                                   | 0:17:34 | 0:02:00 | 6/12/2009<br>20:52:30 | 21          |     |    |
| 5.5.12 | Set lswitch1 nominal value on ACA1 RCA 21      | 0:19:34 | 0:00:02 | 6/12/2009<br>20:54:30 | 21          | yes |    |
| 5.5.13 | Set lswitch2 low value on ACA1 RCA 21          | 0:19:36 | 0:00:02 | 6/12/2009<br>20:54:32 | 21          | yes |    |
| 5.5.14 | Acquire Data                                   | 0:19:38 | 0:02:00 | 6/12/2009<br>20:54:34 | 21          |     |    |
| 5.5.15 | Set lswitch2 nominal value on ACA1 RCA 21      | 0:21:38 | 0:00:02 | 6/12/2009<br>20:56:34 | 21          | yes |    |
| 5.5.16 | Disable 4kHz (A/C) RCA 21                      | 0:21:40 | 0:00:02 | 6/12/2009<br>20:56:36 | 21          | yes |    |
| 5.5.17 | SetPS status = 0 (A/C) RCA 21                  | 0:21:42 | 0:00:02 | 6/12/2009<br>20:56:38 | 21          | yes |    |
| 5.5.18 | Acquire Data                                   | 0:21:44 | 0:02:00 | 6/12/2009<br>20:56:40 | 21          |     |    |
| 5.5.19 | Set Cryo values on ACA2 RCA 21                 | 0:23:44 | 0:00:06 | 6/12/2009<br>20:58:40 | 21          | yes |    |
| 5.5.20 | Set DAE Gain values ACA2 RCA 21                | 0:23:50 | 0:00:02 | 6/12/2009<br>20:58:46 | 21          |     | no |
| 5.5.21 | Set DAE offset values ACA2 RCA 21              | 0:23:52 | 0:04:02 | 6/12/2009<br>20:58:48 | 21          |     | no |
| 5.5.23 | SetPS status = 1 (B/D) RCA 21                  | 0:27:54 | 0:00:02 | 6/12/2009<br>21:02:50 | 21          | yes |    |
| 5.5.24 | Acquire Data                                   | 0:27:56 | 0:02:00 | 6/12/2009<br>21:02:52 | 21          |     |    |



|        |   |         |         |                       |    |     |    |
|--------|---|---------|---------|-----------------------|----|-----|----|
| 5.5.25 | Enable 4kHz (B/D) RCA 21                            | 0:29:56 | 0:00:02 | 6/12/2009<br>21:04:52 | 21 | yes |    |
| 5.5.26 | Acquire Data  | 0:29:58 | 0:02:00 | 6/12/2009<br>21:04:54 | 21 |     |    |
| 5.5.27 | Set lswitch1 low value on ACA2 RCA 21               | 0:31:58 | 0:00:02 | 6/12/2009<br>21:06:54 | 21 | yes |    |
| 5.5.28 | Acquire Data  | 0:32:00 | 0:02:00 | 6/12/2009<br>21:06:56 | 21 |     |    |
| 5.5.29 | Set lswitch1 nominal value on ACA2 RCA 21           | 0:34:00 | 0:00:02 | 6/12/2009<br>21:08:56 | 21 | yes |    |
| 5.5.30 | Set lswitch2 low value on ACA2 RCA 21               | 0:34:02 | 0:00:02 | 6/12/2009<br>21:08:58 | 21 | yes |    |
| 5.5.31 | Acquire Data  | 0:34:04 | 0:02:00 | 6/12/2009<br>21:09:00 | 21 |     |    |
| 5.5.32 | Set lswitch2 nominal value on ACA2 RCA 21           | 0:36:04 | 0:00:02 | 6/12/2009<br>21:11:00 | 21 | yes |    |
| 5.5.33 | Disable 4kHz (B/D) RCA 21                           | 0:36:06 | 0:00:02 | 6/12/2009<br>21:11:02 | 21 | yes |    |
| 5.5.34 | SetPS status = 0 (B/D) RCA 21                       | 0:36:08 | 0:00:02 | 6/12/2009<br>21:11:04 | 21 | yes |    |
| 5.5.35 | Acquire Data  | 0:36:10 | 0:02:00 | 6/12/2009<br>21:11:06 | 21 |     |    |
|        | Note: ACA1 and 2 of RCA 21 now set with Cryo values | 0:38:10 | 0:00:00 | 6/12/2009<br>21:13:06 | 21 |     |    |
| 5.5.36 | Set Cryo values on ACA3 RCA 21                      | 0:38:10 | 0:00:06 | 6/12/2009<br>21:13:06 | 21 | yes |    |
| 5.5.37 | Set DAE Gain values ACA3 RCA 21                     | 0:38:16 | 0:00:02 | 6/12/2009<br>21:13:12 | 21 |     | no |
| 5.5.38 | Set DAE offset values ACA3 RCA 21                   | 0:38:18 | 0:04:02 | 6/12/2009<br>21:13:14 | 21 |     | no |
| 5.5.40 | SetPS status = 1 (A/C) RCA 21                       | 0:42:20 | 0:00:02 | 6/12/2009<br>21:17:16 | 21 | yes |    |
| 5.5.41 | Acquire Data  | 0:42:22 | 0:02:00 | 6/12/2009<br>21:17:18 | 21 |     |    |
| 5.5.42 | Enable 4kHz (A/C) RCA 21                            | 0:44:22 | 0:00:02 | 6/12/2009<br>21:19:18 | 21 | yes |    |
| 5.5.43 | Acquire Data  | 0:44:24 | 0:02:00 | 6/12/2009<br>21:19:20 | 21 |     |    |
| 5.5.44 | Set lswitch1 low value on ACA3 RCA 21               | 0:46:24 | 0:00:02 | 6/12/2009<br>21:21:20 | 21 |     |    |
| 5.5.45 | Acquire Data  | 0:46:26 | 0:02:00 | 6/12/2009<br>21:21:22 | 21 |     |    |
| 5.5.46 | Set lswitch1 nominal value on ACA3 RCA 21           | 0:48:26 | 0:00:02 | 6/12/2009<br>21:23:22 | 21 | yes |    |
| 5.5.47 | Set lswitch2 low value on ACA3 RCA 21               | 0:48:28 | 0:00:02 | 6/12/2009<br>21:23:24 | 21 | yes |    |
| 5.5.48 | Acquire Data  | 0:48:30 | 0:02:00 | 6/12/2009<br>21:23:26 | 21 |     |    |
| 5.5.49 | Set lswitch2 nominal value on ACA3 RCA 21           | 0:50:30 | 0:00:02 | 6/12/2009<br>21:25:26 | 21 | yes |    |
| 5.5.50 | Disable 4kHz (A/C) RCA 21                           | 0:50:32 | 0:00:02 | 6/12/2009<br>21:25:28 | 21 | yes |    |
| 5.5.51 | SetPS status = 0 (A/C) RCA 21                       | 0:50:34 | 0:00:02 | 6/12/2009<br>21:25:30 | 21 | yes |    |
| 5.5.52 | Acquire Data  | 0:50:36 | 0:02:00 | 6/12/2009<br>21:25:32 | 21 |     |    |



|        |   |         |         |                       |    |     |    |
|--------|---|---------|---------|-----------------------|----|-----|----|
| 5.5.53 | Set Cryo values on ACA4 RCA 21                        | 0:52:36 | 0:00:06 | 6/12/2009<br>21:27:32 | 21 | yes |    |
| 5.5.54 | Set DAE Gain values ACA4 RCA 21                       | 0:52:42 | 0:00:02 | 6/12/2009<br>21:27:38 | 21 |     | no |
| 5.5.55 | Set DAE offset values ACA4 RCA 21                     | 0:52:44 | 0:04:02 | 6/12/2009<br>21:27:40 | 21 |     | no |
| 5.5.57 | SetPS status = 1 (B/D) RCA 21                         | 0:56:46 | 0:00:02 | 6/12/2009<br>21:31:42 | 21 |     |    |
| 5.5.58 | Acquire Data  | 0:56:48 | 0:02:00 | 6/12/2009<br>21:31:44 | 21 |     |    |
| 5.5.59 | Enable 4kHz (B/D) RCA 21                              | 0:58:48 | 0:00:02 | 6/12/2009<br>21:33:44 | 21 | yes |    |
| 5.5.60 | Acquire Data  | 0:58:50 | 0:02:00 | 6/12/2009<br>21:33:46 | 21 |     |    |
| 5.5.61 | Set lswitch1 low value on ACA4 RCA 21                 | 1:00:50 | 0:00:02 | 6/12/2009<br>21:35:46 | 21 | yes |    |
| 5.5.62 | Acquire Data  | 1:00:52 | 0:02:00 | 6/12/2009<br>21:35:48 | 21 |     |    |
| 5.5.63 | Set lswitch1 nominal value on ACA4 RCA 21             | 1:02:52 | 0:00:02 | 6/12/2009<br>21:37:48 | 21 | yes |    |
| 5.5.64 | Set lswitch2 low value on ACA4 RCA 21                 | 1:02:54 | 0:00:02 | 6/12/2009<br>21:37:50 | 21 | yes |    |
| 5.5.65 | Acquire Data  | 1:02:56 | 0:02:00 | 6/12/2009<br>21:37:52 | 21 |     |    |
| 5.5.66 | Set lswitch2 nominal value on ACA4 RCA 21             | 1:04:56 | 0:00:02 | 6/12/2009<br>21:39:52 | 21 | yes |    |
| 5.5.67 | Disable 4kHz (B/D) RCA 21                             | 1:04:58 | 0:00:02 | 6/12/2009<br>21:39:54 | 21 | yes |    |
| 5.5.68 | SetPS status = 0 (B/D) RCA 21                         | 1:05:00 | 0:00:02 | 6/12/2009<br>21:39:56 | 21 | yes |    |
| 5.5.69 | Acquire Data  | 1:05:02 | 0:02:00 | 6/12/2009<br>21:39:58 | 21 |     |    |
|        | Completion of RCA 21 Activation - Cryo values applied | 1:07:02 | 0:05:00 | 6/12/2009<br>21:41:58 | 21 |     |    |
|        |   | 1:12:02 | 0:00:00 | 6/12/2009<br>21:46:58 |    |     |    |
|        | Perform RCA 22 Activation                             | 1:12:02 | 0:04:00 | 6/12/2009<br>21:46:58 | 22 |     |    |
| 5.6.1  | Set Cryo values on ACA1 RCA 22                        | 1:16:02 | 0:00:06 | 6/12/2009<br>3:54:00  | 22 | yes |    |
| 5.6.2  | Set DAE Gain values ACA1 RCA 22                       | 1:16:08 | 0:00:02 | 6/12/2009<br>3:54:06  | 22 |     | no |
| 5.6.3  | Set DAE offset values ACA1 RCA 22                     | 1:16:10 | 0:04:02 | 6/12/2009<br>3:54:08  | 22 |     | no |
| 5.6.4  | SetPS status = 1 (A/C) RCA 22                         | 1:20:12 | 0:00:02 | 6/12/2009<br>3:58:10  | 22 | yes |    |
| 5.6.6  | Acquire Data  | 1:20:14 | 0:02:00 | 6/12/2009<br>3:58:12  | 22 |     |    |
| 5.6.7  | Enable 4kHz (A/C) RCA 22                              | 1:22:14 | 0:00:02 | 6/12/2009<br>4:00:12  | 22 | yes |    |
| 5.6.8  | Acquire Data  | 1:22:16 | 0:02:00 | 6/12/2009<br>4:00:14  | 22 |     |    |
| 5.6.9  | Set lswitch1 low value on ACA1 RCA 22                 | 1:24:16 | 0:00:02 | 6/12/2009<br>4:02:14  | 22 | yes |    |
| 5.6.10 | Acquire Data  | 1:24:18 | 0:02:00 | 6/12/2009<br>4:02:16  | 22 |     |    |
| 5.6.11 | Set lswitch1 nominal value on ACA1 RCA 22             | 1:26:18 | 0:00:02 | 6/12/2009<br>4:04:16  | 22 | yes |    |
| 5.6.12 | Set lswitch2 low value on ACA1 RCA 22                 | 1:26:20 | 0:00:02 | 6/12/2009<br>4:04:18  | 22 | yes |    |



|        |   |         |         |                      |    |     |    |
|--------|---|---------|---------|----------------------|----|-----|----|
| 5.6.13 | Acquire Data  | 1:26:22 | 0:02:00 | 6/12/2009<br>4:04:20 | 22 |     |    |
| 5.6.14 | Set lswitch2 nominal value on ACA1 RCA 22           | 1:28:22 | 0:00:02 | 6/12/2009<br>4:06:20 | 22 | yes |    |
| 5.6.15 | Disable 4kHz (A/C) RCA 22                           | 1:28:24 | 0:00:02 | 6/12/2009<br>4:06:22 | 22 | yes |    |
| 5.6.16 | SetPS status = 0 (A/C) RCA 22                       | 1:28:26 | 0:00:02 | 6/12/2009<br>4:06:24 | 22 | yes |    |
| 5.6.17 | Acquire Data  | 1:28:28 | 0:02:00 | 6/12/2009<br>4:06:26 | 22 |     |    |
| 5.6.18 | Set Cryo values on ACA2 RCA 22                      | 1:30:28 | 0:00:06 | 6/12/2009<br>4:08:26 | 22 | yes |    |
| 5.6.19 | Set DAE Gain values ACA2 RCA 22                     | 1:30:34 | 0:00:02 | 6/12/2009<br>4:08:32 | 22 |     | no |
| 5.6.20 | Set DAE offset values ACA2 RCA 22                   | 1:30:36 | 0:04:02 | 6/12/2009<br>4:08:34 | 22 |     | no |
| 5.6.21 | SetPS status = 1 (B/D) RCA 22                       | 1:34:38 | 0:00:02 | 6/12/2009<br>4:12:36 | 22 | yes |    |
| 5.6.23 | Acquire Data  | 1:34:40 | 0:02:00 | 6/12/2009<br>4:12:38 | 22 |     |    |
| 5.6.24 | Enable 4kHz (B/D) RCA 22                            | 1:36:40 | 0:00:02 | 6/12/2009<br>4:14:38 | 22 | yes |    |
| 5.6.25 | Acquire Data  | 1:36:42 | 0:02:00 | 6/12/2009<br>4:14:40 | 22 |     |    |
| 5.6.26 | Set lswitch1 low value on ACA2 RCA 22               | 1:38:42 | 0:00:02 | 6/12/2009<br>4:16:40 | 22 | yes |    |
| 5.6.27 | Acquire Data  | 1:38:44 | 0:02:00 | 6/12/2009<br>4:16:42 | 22 |     |    |
| 5.6.28 | Set lswitch1 nominal value on ACA2 RCA 22           | 1:40:44 | 0:00:02 | 6/12/2009<br>4:18:42 | 22 | yes |    |
| 5.6.29 | Set lswitch2 low value on ACA2 RCA 22               | 1:40:46 | 0:00:02 | 6/12/2009<br>4:18:44 | 22 | yes |    |
| 5.6.30 | Acquire Data  | 1:40:48 | 0:02:00 | 6/12/2009<br>4:18:46 | 22 |     |    |
| 5.6.31 | Set lswitch2 nominal value on ACA2 RCA 22           | 1:42:48 | 0:00:02 | 6/12/2009<br>4:20:46 | 22 | yes |    |
| 5.6.32 | Disable 4kHz (B/D) RCA 22                           | 1:42:50 | 0:00:02 | 6/12/2009<br>4:20:48 | 22 | yes |    |
| 5.6.33 | SetPS status = 0 (B/D) RCA 22                       | 1:42:52 | 0:00:02 | 6/12/2009<br>4:20:50 | 22 | yes |    |
| 5.6.34 | Acquire Data  | 1:42:54 | 0:02:00 | 6/12/2009<br>4:20:52 | 22 |     |    |
|        | Note: ACA1 and 2 of RCA 22 now set with Cryo values | 1:44:54 | 0:00:00 | 6/12/2009<br>4:22:52 | 22 |     |    |
| 5.6.35 | Set Cryo values on ACA3 RCA 22                      | 1:44:54 | 0:00:06 | 6/12/2009<br>4:22:52 | 22 | yes |    |
| 5.6.36 | Set DAE Gain values ACA3 RCA 22                     | 1:45:00 | 0:00:02 | 6/12/2009<br>4:22:58 | 22 |     | no |
| 5.6.37 | Set DAE offset values ACA3 RCA 22                   | 1:45:02 | 0:04:02 | 6/12/2009<br>4:23:00 | 22 |     | no |
| 5.6.39 | SetPS status = 1 (A/C) RCA 22                       | 1:49:04 | 0:00:02 | 6/12/2009<br>4:27:02 | 22 | yes |    |
| 5.6.40 | Acquire Data  | 1:49:06 | 0:02:00 | 6/12/2009<br>4:27:04 | 22 |     |    |
| 5.6.41 | Enable 4kHz (A/C) RCA 22                            | 1:51:06 | 0:00:02 | 6/12/2009<br>4:29:04 | 22 | yes |    |
| 5.6.42 | Acquire Data  | 1:51:08 | 0:02:00 | 6/12/2009<br>4:29:06 | 22 |     |    |
| 5.6.43 | Set lswitch1 low value on ACA3 RCA 22               | 1:53:08 | 0:00:02 | 6/12/2009            | 22 | yes |    |



|        |   |         |         |                       |    |     |    |
|--------|---|---------|---------|-----------------------|----|-----|----|
|        |   |         |         | 4:31:06               |    |     |    |
| 5.6.44 | Acquire Data  | 1:53:10 | 0:02:00 | 6/12/2009<br>4:31:08  | 22 |     |    |
| 5.6.45 | Set lswitch1 nominal value on ACA3 RCA 22             | 1:55:10 | 0:00:02 | 6/12/2009<br>4:33:08  | 22 | yes |    |
| 5.6.46 | Set lswitch2 low value on ACA3 RCA 22                 | 1:55:12 | 0:00:02 | 6/12/2009<br>4:33:10  | 22 | yes |    |
| 5.6.47 | Acquire Data  | 1:55:14 | 0:02:00 | 6/12/2009<br>4:33:12  | 22 |     |    |
| 5.6.48 | Set lswitch2 nominal value on ACA3 RCA 22             | 1:57:14 | 0:00:02 | 6/12/2009<br>4:35:12  | 22 | yes |    |
| 5.6.49 | Disable 4kHz (A/C) RCA 22                             | 1:57:16 | 0:00:02 | 6/12/2009<br>4:35:14  | 22 | yes |    |
| 5.6.50 | SetPS status = 0 (A/C) RCA 22                         | 1:57:18 | 0:00:02 | 6/12/2009<br>4:35:16  | 22 | yes |    |
| 5.6.51 | Acquire Data  | 1:57:20 | 0:02:00 | 6/12/2009<br>4:35:18  | 22 |     |    |
| 5.6.52 | Set Cryo values on ACA4 RCA 22                        | 1:59:20 | 0:00:06 | 6/12/2009<br>4:37:18  | 22 | yes |    |
| 5.6.53 | Set DAE Gain values ACA4 RCA 22                       | 1:59:26 | 0:00:02 | 6/12/2009<br>4:37:24  | 22 |     | no |
| 5.6.54 | Set DAE offset values ACA4 RCA 22                     | 1:59:28 | 0:04:02 | 6/12/2009<br>4:37:26  | 22 |     | no |
| 5.6.56 | SetPS status = 1 (B/D) RCA 22                         | 2:03:30 | 0:00:02 | 6/12/2009<br>4:41:28  | 22 |     |    |
| 5.6.57 | Acquire Data  | 2:03:32 | 0:02:00 | 6/12/2009<br>4:41:30  | 22 |     |    |
| 5.6.58 | Enable 4kHz (B/D) RCA 22                              | 2:05:32 | 0:00:02 | 6/12/2009<br>4:43:30  | 22 | yes |    |
| 5.6.59 | Acquire Data  | 2:05:34 | 0:02:00 | 6/12/2009<br>4:43:32  | 22 |     |    |
| 5.6.60 | Set lswitch1 low value on ACA4 RCA 22                 | 2:07:34 | 0:00:02 | 6/12/2009<br>4:45:32  | 22 | yes |    |
| 5.6.61 | Acquire Data  | 2:07:36 | 0:02:00 | 6/12/2009<br>4:45:34  | 22 |     |    |
| 5.6.62 | Set lswitch1 nominal value on ACA4 RCA 22             | 2:09:36 | 0:00:02 | 6/12/2009<br>4:47:34  | 22 | yes |    |
| 5.6.63 | Set lswitch2 low value on ACA4 RCA 22                 | 2:09:38 | 0:00:02 | 6/12/2009<br>4:47:36  | 22 | yes |    |
| 5.6.64 | Acquire Data  | 2:09:40 | 0:02:00 | 6/12/2009<br>4:47:38  | 22 |     |    |
| 5.6.65 | Set lswitch2 nominal value on ACA4 RCA 22             | 2:11:40 | 0:00:02 | 6/12/2009<br>4:49:38  | 22 | yes |    |
| 5.6.66 | Disable 4kHz (B/D) RCA 22                             | 2:11:42 | 0:00:02 | 6/12/2009<br>4:49:40  | 22 | yes |    |
| 5.6.67 | SetPS status = 0 (B/D) RCA 22                         | 2:11:44 | 0:00:02 | 6/12/2009<br>4:49:42  | 22 | yes |    |
| 5.6.68 | Acquire Data  | 2:11:46 | 0:02:00 | 6/12/2009<br>4:49:44  | 22 |     |    |
|        | Completion of RCA 22 Activation - Cryo values applied | 2:13:46 | 0:05:00 | 6/12/2009<br>4:51:44  | 22 |     |    |
|        |   | 2:18:46 | 0:00:00 | 6/12/2009<br>4:56:44  |    |     |    |
|        | Perform RCA 24 Activation                             | 2:18:46 | 0:04:00 | 6/12/2009<br>17:45:00 | 24 |     |    |
| 5.7.1  | Set Cryo values on ACA1 RCA 24                        | 2:22:46 | 0:00:06 | 6/12/2009<br>17:49:00 | 24 | yes |    |
| 5.7.2  | Set DAE Gain values ACA1 RCA 24                       | 2:22:52 | 0:00:02 | 6/12/2009<br>17:49:06 | 24 |     | no |



|        |   |         |         |                       |    |     |    |
|--------|---|---------|---------|-----------------------|----|-----|----|
| 5.7.3  | Set DAE offset values ACA1 RCA 24         | 2:22:54 | 0:04:02 | 6/12/2009<br>17:49:08 | 24 |     | no |
| 5.7.5  | SetPS status = 1 (A/C) RCA 24             | 2:26:56 | 0:00:02 | 6/12/2009<br>17:53:10 | 24 | yes |    |
| 5.7.6  | Acquire Data                              | 2:26:58 | 0:02:00 | 6/12/2009<br>17:53:12 | 24 |     |    |
| 5.7.7  | Enable 4kHz (A/C) RCA 24                  | 2:28:58 | 0:00:02 | 6/12/2009<br>17:55:12 | 24 | yes |    |
| 5.7.8  | Acquire Data                              | 2:29:00 | 0:02:00 | 6/12/2009<br>17:55:14 | 24 |     |    |
| 5.7.9  | Set lswitch1 low value on ACA1 RCA 24     | 2:31:00 | 0:00:02 | 6/12/2009<br>17:57:14 | 24 | yes |    |
| 5.7.10 | Acquire Data                              | 2:31:02 | 0:02:00 | 6/12/2009<br>17:57:16 | 24 |     |    |
| 5.7.11 | Set lswitch1 nominal value on ACA1 RCA 24 | 2:33:02 | 0:00:02 | 6/12/2009<br>18:35:00 | 24 | yes |    |
| 5.7.12 | Set lswitch2 low value on ACA1 RCA 24     | 2:33:04 | 0:00:02 | 6/12/2009<br>18:35:02 | 24 | yes |    |
| 5.7.13 | Acquire Data                              | 2:33:06 | 0:02:00 | 6/12/2009<br>18:35:04 | 24 |     |    |
| 5.7.14 | Set lswitch2 nominal value on ACA1 RCA 24 | 2:35:06 | 0:00:02 | 6/12/2009<br>18:37:04 | 24 | yes |    |
| 5.7.15 | Disable 4kHz (A/C) RCA 24                 | 2:35:08 | 0:00:02 | 6/12/2009<br>18:37:06 | 24 | yes |    |
| 5.7.16 | SetPS status = 0 (A/C) RCA 24             | 2:35:10 | 0:00:02 | 6/12/2009<br>18:37:08 | 24 | yes |    |
| 5.7.17 | Acquire Data                              | 2:35:12 | 0:02:00 | 6/12/2009<br>18:37:10 | 24 |     |    |
| 5.7.18 | Set Cryo values on ACA2 RCA 24            | 2:37:12 | 0:00:06 | 6/12/2009<br>18:39:10 | 24 |     |    |
| 5.7.19 | Set DAE Gain values ACA2 RCA 24           | 2:37:18 | 0:00:02 | 6/12/2009<br>18:39:16 | 24 |     | no |
| 5.7.20 | Set DAE offset values ACA2 RCA 24         | 2:37:20 | 0:04:02 | 6/12/2009<br>18:39:18 | 24 |     | no |
| 5.7.22 | SetPS status = 1 (B/D) RCA 24             | 2:41:22 | 0:00:02 | 6/12/2009<br>18:43:20 | 24 | yes |    |
| 5.7.23 | Acquire Data                              | 2:41:24 | 0:02:00 | 6/12/2009<br>18:43:22 | 24 |     |    |
| 5.7.24 | Enable 4kHz (B/D) RCA 24                  | 2:43:24 | 0:00:02 | 6/12/2009<br>18:45:22 | 24 | yes |    |
| 5.7.25 | Acquire Data                              | 2:43:26 | 0:02:00 | 6/12/2009<br>18:45:24 | 24 |     |    |
| 5.7.26 | Set lswitch1 low value on ACA2 RCA 24     | 2:45:26 | 0:00:02 | 6/12/2009<br>18:47:24 | 24 | yes |    |
| 5.7.27 | Acquire Data                              | 2:45:28 | 0:02:00 | 6/12/2009<br>18:47:26 | 24 |     |    |
| 5.7.28 | Set lswitch1 nominal value on ACA2 RCA 24 | 2:47:28 | 0:00:02 | 6/12/2009<br>18:49:26 | 24 | yes |    |
| 5.7.29 | Set lswitch2 low value on ACA2 RCA 24     | 2:47:30 | 0:00:02 | 6/12/2009<br>18:49:28 | 24 | yes |    |
| 5.7.30 | Acquire Data                              | 2:47:32 | 0:02:00 | 6/12/2009<br>18:49:30 | 24 |     |    |
| 5.7.31 | Set lswitch2 nominal value on ACA2 RCA 24 | 2:49:32 | 0:00:02 | 6/12/2009<br>18:51:30 | 24 | yes |    |
| 5.7.32 | Disable 4kHz (B/D) RCA 24                 | 2:49:34 | 0:00:02 | 6/12/2009<br>18:51:32 | 24 | yes |    |
| 5.7.33 | SetPS status = 0 (B/D) RCA 24             | 2:49:36 | 0:00:02 | 6/12/2009             | 24 | yes |    |



|        |   |         |         |                       |    |     |    |
|--------|---|---------|---------|-----------------------|----|-----|----|
| 5.7.34 | Acquire Data  | 2:49:38 | 0:02:00 | 6/12/2009<br>18:51:34 | 24 |     |    |
|        | Note: ACA1 and 2 of RCA 24 now set with Cryo values | 2:51:38 | 0:00:00 | 6/12/2009<br>18:53:36 | 24 |     |    |
| 5.7.35 | Set Cryo values on ACA3 RCA 24                      | 2:51:38 | 0:00:06 | 6/12/2009<br>18:53:36 | 24 | yes |    |
| 5.7.36 | Set DAE Gain values ACA3 RCA 24                     | 2:51:44 | 0:00:02 | 6/12/2009<br>18:53:42 | 24 | yes |    |
| 5.7.37 | Set DAE offset values ACA3 RCA 24                   | 2:51:46 | 0:04:02 | 6/12/2009<br>18:53:44 | 24 | yes |    |
| 5.7.39 | SetPS status = 1 (A/C) RCA 24                       | 2:55:48 | 0:00:02 | 6/12/2009<br>18:57:46 | 24 | yes |    |
| 5.7.40 | Acquire Data  | 2:55:50 | 0:02:00 | 6/12/2009<br>18:57:48 | 24 |     |    |
| 5.7.41 | Enable 4kHz (A/C) RCA 24                            | 2:57:50 | 0:00:02 | 6/12/2009<br>18:59:48 | 24 | yes |    |
| 5.7.42 | Acquire Data  | 2:57:52 | 0:02:00 | 6/12/2009<br>18:59:50 | 24 |     |    |
| 5.7.43 | Set lswitch1 low value on ACA3 RCA 24               | 2:59:52 | 0:00:02 | 6/12/2009<br>19:01:50 | 24 | yes |    |
| 5.7.44 | Acquire Data  | 2:59:54 | 0:02:00 | 6/12/2009<br>19:01:52 | 24 |     |    |
| 5.7.45 | Set lswitch1 nominal value on ACA3 RCA 24           | 3:01:54 | 0:00:02 | 6/12/2009<br>19:03:52 | 24 | yes |    |
| 5.7.46 | Set lswitch2 low value on ACA3 RCA 24               | 3:01:56 | 0:00:02 | 6/12/2009<br>19:03:54 | 24 | yes |    |
| 5.7.47 | Acquire Data  | 3:01:58 | 0:02:00 | 6/12/2009<br>19:03:56 | 24 |     |    |
| 5.7.48 | Set lswitch2 nominal value on ACA3 RCA 24           | 3:03:58 | 0:00:02 | 6/12/2009<br>19:05:56 | 24 | yes |    |
| 5.7.49 | Disable 4kHz (A/C) RCA 24                           | 3:04:00 | 0:00:02 | 6/12/2009<br>19:05:58 | 24 | yes |    |
| 5.7.50 | SetPS status = 0 (A/C) RCA 24                       | 3:04:02 | 0:00:02 | 6/12/2009<br>19:06:00 | 24 | yes |    |
| 5.7.51 | Acquire Data  | 3:04:04 | 0:02:00 | 6/12/2009<br>19:06:02 | 24 |     |    |
|        | Set Cryo values on ACA4 RCA 24 (Special ordering)   | 3:06:04 | 0:00:00 | 6/12/2009<br>19:08:02 | 24 |     |    |
| 5.7.52 | Set Vg2 on ACA4 of RCA 24                           | 3:06:04 | 0:00:02 | 6/12/2009<br>19:08:02 | 24 | yes |    |
| 5.7.53 | Set Vdrain on ACA4 of RCA 24                        | 3:06:06 | 0:00:02 | 6/12/2009<br>19:08:04 | 24 | yes |    |
| 5.7.54 | Set Vg1 on ACA4 of RCA 24                           | 3:06:08 | 0:00:02 | 6/12/2009<br>19:08:06 | 24 | yes |    |
| 5.7.55 | Set lswitch1 on ACA4 of RCA 24                      | 3:06:10 | 0:00:02 | 6/12/2009<br>19:08:08 | 24 | yes |    |
| 5.7.56 | Set lswitch2 on ACA4 of RCA 24                      | 3:06:12 | 0:00:02 | 6/12/2009<br>19:08:10 | 24 | yes |    |
| 5.7.57 | Set DAE Gain values ACA4 RCA 24                     | 3:06:14 | 0:00:02 | 6/12/2009<br>19:08:12 | 24 |     | no |
| 5.7.58 | Set DAE offset values ACA4 RCA 24                   | 3:06:16 | 0:04:02 | 6/12/2009<br>19:08:14 | 24 |     | no |
| 5.7.60 | SetPS status = 1 (B/D) RCA 24                       | 3:10:18 | 0:00:02 | 6/12/2009<br>19:12:16 | 24 | yes |    |
| 5.7.61 | Acquire Data  | 3:10:20 | 0:02:00 | 6/12/2009<br>19:12:18 | 24 |     |    |
| 5.7.62 | Enable 4kHz (B/D) RCA 24                            | 3:12:20 | 0:00:02 | 6/12/2009<br>19:14:18 | 24 | yes |    |



|        |   |         |         |                       |    |     |    |
|--------|---|---------|---------|-----------------------|----|-----|----|
| 5.7.63 | Acquire Data  | 3:12:22 | 0:02:00 | 6/12/2009<br>19:14:20 | 24 |     |    |
| 5.7.64 | Set lswitch1 low value on ACA4 RCA 24                 | 3:14:22 | 0:00:02 | 6/12/2009<br>19:16:20 | 24 | yes |    |
| 5.7.65 | Acquire Data  | 3:14:24 | 0:02:00 | 6/12/2009<br>19:16:22 | 24 |     |    |
| 5.7.66 | Set lswitch1 nominal value on ACA4 RCA 24             | 3:16:24 | 0:00:02 | 6/12/2009<br>19:18:22 | 24 | yes |    |
| 5.7.67 | Set lswitch2 low value on ACA4 RCA 24                 | 3:16:26 | 0:00:02 | 6/12/2009<br>19:18:24 | 24 | yes |    |
| 5.7.68 | Acquire Data  | 3:16:28 | 0:02:00 | 6/12/2009<br>19:18:26 | 24 |     |    |
| 5.7.69 | Set lswitch2 nominal value on ACA4 RCA 24             | 3:18:28 | 0:00:02 | 6/12/2009<br>19:20:26 | 24 | yes |    |
| 5.7.70 | Disable 4kHz (B/D) RCA 24                             | 3:18:30 | 0:00:02 | 6/12/2009<br>19:20:28 | 24 | yes |    |
| 5.7.71 | SetPS status = 0 (B/D)RCA 24                          | 3:18:32 | 0:00:02 | 6/12/2009<br>19:20:30 | 24 | yes |    |
| 5.7.72 | Acquire Data  | 3:18:34 | 0:02:00 | 6/12/2009<br>19:20:32 | 24 |     |    |
|        | Completion of RCA 24 Activation - Cryo values applied | 3:20:34 | 0:05:00 | 6/12/2009<br>19:22:32 | 24 |     |    |
|        |   | 3:25:34 | 0:00:00 | 6/12/2009<br>19:27:32 |    |     |    |
|        | Perform RCA 27 Activation                             | 3:25:34 | 0:04:00 | 6/12/2009<br>19:27:32 | 27 |     |    |
| 5.8.1  | Set Cryo values on ACA1 RCA 27                        | 3:29:34 | 0:00:06 | 6/12/2009<br>19:31:32 | 27 | yes |    |
| 5.8.2  | Set DAE Gain values ACA1 RCA 27                       | 3:29:40 | 0:00:02 | 6/12/2009<br>19:31:38 | 27 |     | no |
| 5.8.3  | Set DAE offset values ACA1 RCA 27                     | 3:29:42 | 0:04:02 | 6/12/2009<br>19:31:40 | 27 |     | no |
| 5.8.5  | SetPS status = 1 (A/C) RCA 27                         | 3:33:44 | 0:00:02 | 6/12/2009<br>19:35:42 | 27 | yes |    |
| 5.8.6  | Acquire Data  | 3:33:46 | 0:02:00 | 6/12/2009<br>19:35:44 | 27 |     |    |
| 5.8.7  | Enable 4kHz (A/C) RCA 27                              | 3:35:46 | 0:00:02 | 6/12/2009<br>19:37:44 | 27 | yes |    |
| 5.8.8  | Acquire Data  | 3:35:48 | 0:02:00 | 6/12/2009<br>19:37:46 | 27 |     |    |
| 5.8.9  | Set lswitch1 low value on ACA1 RCA 27                 | 3:37:48 | 0:00:02 | 6/12/2009<br>19:39:46 | 27 | yes |    |
| 5.8.10 | Acquire Data  | 3:37:50 | 0:02:00 | 6/12/2009<br>19:39:48 | 27 |     |    |
| 5.8.11 | Set lswitch1 nominal value on ACA1 RCA 27             | 3:39:50 | 0:00:02 | 6/12/2009<br>19:41:48 | 27 | yes |    |
| 5.8.12 | Set lswitch2 low value on ACA1 RCA 27                 | 3:39:52 | 0:00:02 | 6/12/2009<br>19:41:50 | 27 | yes |    |
| 5.8.13 | Acquire Data  | 3:39:54 | 0:02:00 | 6/12/2009<br>19:41:52 | 27 |     |    |
| 5.8.14 | Set lswitch2 nominal value on ACA1 RCA 27             | 3:41:54 | 0:00:02 | 6/12/2009<br>19:43:52 | 27 | yes |    |
| 5.8.15 | Disable 4kHz (A/C) RCA 27                             | 3:41:56 | 0:00:02 | 6/12/2009<br>19:43:54 | 27 | yes |    |
| 5.8.16 | SetPS status = 0 (A/C) RCA 27                         | 3:41:58 | 0:00:02 | 6/12/2009<br>19:43:56 | 27 | yes |    |
| 5.8.17 | Acquire Data  | 3:42:00 | 0:02:00 | 6/12/2009<br>19:43:58 | 27 |     |    |
| 5.8.18 | Set Cryo values on ACA2 RCA 27                        | 3:44:00 | 0:00:06 | 6/12/2009<br>19:45:58 | 27 | yes |    |



|        |   |         |         |                    |    |     |    |
|--------|---|---------|---------|--------------------|----|-----|----|
| 5.8.19 | Set DAE Gain values ACA2 RCA 27                     | 3:44:06 | 0:00:02 | 6/12/2009 19:46:04 | 27 |     | no |
| 5.8.20 | Set DAE offset values ACA2 RCA 27                   | 3:44:08 | 0:04:02 | 6/12/2009 19:46:06 | 27 |     | no |
| 5.8.22 | SetPS status = 1 (B/D) RCA 27                       | 3:48:10 | 0:00:02 | 6/12/2009 19:50:08 | 27 | yes |    |
| 5.8.23 | Acquire Data  | 3:48:12 | 0:02:00 | 6/12/2009 19:50:10 | 27 |     |    |
| 5.8.24 | Enable 4kHz (B/D) RCA 27                            | 3:50:12 | 0:00:02 | 6/12/2009 19:52:10 | 27 | yes |    |
| 5.8.25 | Acquire Data  | 3:50:14 | 0:02:00 | 6/12/2009 19:52:12 | 27 |     |    |
| 5.8.26 | Set lswitch1 low value on ACA2 RCA 27               | 3:52:14 | 0:00:02 | 6/12/2009 19:54:12 | 27 | yes |    |
| 5.8.27 | Acquire Data  | 3:52:16 | 0:02:00 | 6/12/2009 19:54:14 | 27 |     |    |
| 5.8.28 | Set lswitch1 nominal value on ACA2 RCA 27           | 3:54:16 | 0:00:02 | 6/12/2009 19:56:14 | 27 | yes |    |
| 5.8.29 | Set lswitch2 low value on ACA2 RCA 27               | 3:54:18 | 0:00:02 | 6/12/2009 19:56:16 | 27 | yes |    |
| 5.8.30 | Acquire Data  | 3:54:20 | 0:02:00 | 6/12/2009 19:56:18 | 27 |     |    |
| 5.8.31 | Set lswitch2 nominal value on ACA2 RCA 27           | 3:56:20 | 0:00:02 | 6/12/2009 19:58:18 | 27 | yes |    |
| 5.8.32 | Disable 4kHz (B/D) RCA 27                           | 3:56:22 | 0:00:02 | 6/12/2009 19:58:20 | 27 | yes |    |
| 5.8.33 | SetPS status = 0 (B/D) RCA 27                       | 3:56:24 | 0:00:02 | 6/12/2009 19:58:22 | 27 | yes |    |
| 5.8.34 | Acquire Data  | 3:56:26 | 0:02:00 | 6/12/2009 19:58:24 | 27 |     |    |
|        | Note: ACA1 and 2 of RCA 27 now set with Cryo values | 3:58:26 | 0:00:00 | 6/12/2009 20:00:24 | 27 |     |    |
| 5.8.35 | Set Cryo values on ACA3 RCA 27                      | 3:58:26 | 0:00:06 | 6/12/2009 20:00:24 | 27 | yes |    |
| 5.8.36 | Set DAE Gain values ACA3 RCA 27                     | 3:58:32 | 0:00:02 | 6/12/2009 20:00:30 | 27 |     | no |
| 5.8.37 | Set DAE offset values ACA3 RCA 27                   | 3:58:34 | 0:04:02 | 6/12/2009 20:00:32 | 27 |     | no |
| 5.8.39 | SetPS status = 1 (A/C) RCA 27                       | 4:02:36 | 0:00:02 | 6/12/2009 20:04:34 | 27 | yes |    |
| 5.8.40 | Acquire Data  | 4:02:38 | 0:02:00 | 6/12/2009 20:04:36 | 27 |     |    |
| 5.8.41 | Enable 4kHz (A/C) RCA 27                            | 4:04:38 | 0:00:02 | 6/12/2009 20:06:36 | 27 | yes |    |
| 5.8.42 | Acquire Data  | 4:04:40 | 0:02:00 | 6/12/2009 20:06:38 | 27 |     |    |
| 5.8.43 | Set lswitch1 low value on ACA3 RCA 27               | 4:06:40 | 0:00:02 | 6/12/2009 20:08:38 | 27 | yes |    |
| 5.8.44 | Acquire Data  | 4:06:42 | 0:02:00 | 6/12/2009 20:08:40 | 27 |     |    |
| 5.8.45 | Set lswitch1 nominal value on ACA3 RCA 27           | 4:08:42 | 0:00:02 | 6/12/2009 20:10:40 | 27 | yes |    |
| 5.8.46 | Set lswitch2 low value on ACA3 RCA 27               | 4:08:44 | 0:00:02 | 6/12/2009 20:10:42 | 27 | yes |    |
| 5.8.47 | Acquire Data  | 4:08:46 | 0:02:00 | 6/12/2009 20:10:44 | 27 |     |    |
| 5.8.48 | Set lswitch2 nominal value on ACA3 RCA 27           | 4:10:46 | 0:00:02 | 6/12/2009 20:12:44 | 27 | yes |    |
| 5.8.49 | Disable 4kHz (A/C) RCA 27                           | 4:10:48 | 0:00:02 | 6/12/2009          | 27 | yes |    |



|        |   |         |         |                       |          |     |    |
|--------|---|---------|---------|-----------------------|----------|-----|----|
|        |   |         |         | 20:12:46              |          |     |    |
| 5.8.50 | SetPS status = 0 (A/C) RCA 27                         | 4:10:50 | 0:00:02 | 6/12/2009<br>20:12:48 | 27       | yes |    |
| 5.8.51 | Acquire Data  | 4:10:52 | 0:02:00 | 6/12/2009<br>20:12:50 | 27       |     |    |
| 5.8.52 | Set Cryo values on ACA4 RCA 27                        | 4:12:52 | 0:00:06 | 6/12/2009<br>20:14:50 | 27       | yes |    |
| 5.8.53 | Set DAE Gain values ACA4 RCA 27                       | 4:12:58 | 0:00:02 | 6/12/2009<br>20:14:56 | 27       |     | no |
| 5.8.54 | Set DAE offset values ACA4 RCA 27                     | 4:13:00 | 0:04:02 | 6/12/2009<br>20:14:58 | 27       |     | no |
| 5.8.56 | SetPS status = 1 (B/D) RCA 27                         | 4:17:02 | 0:00:02 | 6/12/2009<br>20:19:00 | 27       | yes |    |
| 5.8.57 | Acquire Data  | 4:17:04 | 0:02:00 | 6/12/2009<br>20:19:02 | 27       |     |    |
| 5.8.58 | Enable 4kHz (B/D) RCA 27                              | 4:19:04 | 0:00:02 | 6/12/2009<br>20:21:02 | 27       | yes |    |
| 5.8.59 | Acquire Data  | 4:19:06 | 0:02:00 | 6/12/2009<br>20:21:04 | 27       |     |    |
| 5.8.60 | Set lswitch1 low value on ACA4 RCA 27                 | 4:21:06 | 0:00:02 | 6/12/2009<br>20:23:04 | 27       | yes |    |
| 5.8.61 | Acquire Data  | 4:21:08 | 0:02:00 | 6/12/2009<br>20:23:06 | 27       |     |    |
| 5.8.62 | Set lswitch1 nominal value on ACA4 RCA 27             | 4:23:08 | 0:00:02 | 6/12/2009<br>20:25:06 | 27       | yes |    |
| 5.8.63 | Set lswitch2 low value on ACA4 RCA 27                 | 4:23:10 | 0:00:02 | 6/12/2009<br>20:25:08 | 27       | yes |    |
| 5.8.64 | Acquire Data  | 4:23:12 | 0:02:00 | 6/12/2009<br>20:25:10 | 27       |     |    |
| 5.8.65 | Set lswitch2 nominal value on ACA4 RCA 27             | 4:25:12 | 0:00:02 | 6/12/2009<br>20:27:10 | 27       | yes |    |
| 5.8.66 | Disable 4kHz (B/D) RCA 27                             | 4:25:14 | 0:00:02 | 6/12/2009<br>20:27:12 | 27       | yes |    |
| 5.8.67 | SetPS status = 0 (B/D) RCA 27                         | 4:25:16 | 0:00:02 | 6/12/2009<br>20:27:14 | 27       | yes |    |
| 5.8.68 | Acquire Data  | 4:25:18 | 0:02:00 | 6/12/2009<br>20:27:16 | 27       |     |    |
|        | Completion of RCA 27 Activation - Cryo values applied | 4:27:18 | 0:05:00 | 6/12/2009<br>20:29:16 | 27       |     |    |
|        |   | 4:32:18 | 0:00:00 | 6/12/2009<br>20:34:16 |          |     |    |
|        |   | 4:32:18 | 0:00:00 | 6/12/2009<br>20:34:16 |          |     |    |
| 5.9    | RCA Activation (Power Group #2: RCA 19, 20, 28)       | 0:00:00 | 0:05:00 | 6/13/2009<br>18:00:00 | 19,20,28 | yes |    |
|        | Initialise RCA 19, 20, 28                             | 0:05:00 | 0:00:00 | 6/13/2009<br>18:05:00 | 19,20,28 |     |    |
|        | Set DAE Offset to 0 (FFh) (RCA19,20,28)               | 0:05:00 | 0:00:02 | 6/13/2009<br>18:05:00 | 19,20,28 | yes |    |
|        | Set DAE Gain to 1 (0h)                                | 0:05:02 | 0:00:02 | 6/13/2009<br>18:05:02 | 19,20,28 | yes |    |
|        | (RCA19,20,28)   | 0:05:04 | 0:00:00 | 6/13/2009<br>18:05:04 | 19,20,28 | yes |    |
|        | Configure 5 RCA parameters (RCA19,20,28)              | 0:05:04 | 0:00:06 | 6/13/2009<br>18:05:04 | 19,20,28 | yes |    |
|        | Disable A/C 4kHz (RCA19,20,28)                        | 0:05:10 | 0:00:02 | 6/13/2009<br>18:05:10 | 19,20,28 | yes |    |
|        | Disable B/D 4kHz (RCA19,20,28)                        | 0:05:12 | 0:00:02 | 6/13/2009<br>18:05:12 | 19,20,28 | yes |    |



|        |   |         |         |                       |          |     |    |
|--------|---|---------|---------|-----------------------|----------|-----|----|
|        | Set A/CP/S Status (0) (RCA19,20,28)       | 0:05:14 | 0:00:02 | 6/13/2009<br>18:05:14 | 19,20,28 | yes |    |
|        | Set B/DP/S Status (0) (RCA19,20,28)       | 0:05:16 | 0:00:02 | 6/13/2009<br>18:05:16 | 19,20,28 | yes |    |
| 5.9.1  | Perform RCA 19 Activation                 | 0:05:18 | 0:04:00 | 6/13/2009<br>18:05:18 | 19       |     |    |
| 5.9.2  | Set Cryo values on ACA1 RCA 19            | 0:09:18 | 0:00:06 | 6/13/2009<br>18:09:18 | 19       | yes |    |
| 5.9.3  | Set DAE Gain values ACA1 RCA 19           | 0:09:24 | 0:00:02 | 6/13/2009<br>18:09:24 | 19       |     | no |
| 5.9.4  | Set DAE offset values ACA1 RCA 19         | 0:09:26 | 0:04:02 | 6/13/2009<br>18:09:26 | 19       |     | no |
| 5.9.6  | SetPS status = 1 (A/C) RCA 19             | 0:13:28 | 0:00:02 | 6/13/2009<br>18:13:28 | 19       | yes |    |
| 5.9.7  | Acquire Data                              | 0:13:30 | 0:02:00 | 6/13/2009<br>18:13:30 | 19       |     |    |
| 5.9.8  | Enable 4kHz (A/C) RCA 19                  | 0:15:30 | 0:00:02 | 6/13/2009<br>18:15:30 | 19       | yes |    |
| 5.9.9  | Acquire Data                              | 0:15:32 | 0:02:00 | 6/13/2009<br>18:15:32 | 19       |     |    |
| 5.9.10 | Set lswitch1 low value on ACA1 RCA 19     | 0:17:32 | 0:00:02 | 6/13/2009<br>18:17:32 | 19       | yes |    |
| 5.9.11 | Acquire Data                              | 0:17:34 | 0:02:00 | 6/13/2009<br>18:17:34 | 19       |     |    |
| 5.9.12 | Set lswitch1 nominal value on ACA1 RCA 19 | 0:19:34 | 0:00:02 | 6/13/2009<br>18:19:34 | 19       | yes |    |
| 5.9.13 | Set lswitch2 low value on ACA1 RCA 19     | 0:19:36 | 0:00:02 | 6/13/2009<br>18:19:36 | 19       | yes |    |
| 5.9.14 | Acquire Data                              | 0:19:38 | 0:02:00 | 6/13/2009<br>18:19:38 | 19       |     |    |
| 5.9.15 | Set lswitch2 nominal value on ACA1 RCA 19 | 0:21:38 | 0:00:02 | 6/13/2009<br>18:21:38 | 19       | yes |    |
| 5.9.16 | Disable 4kHz (A/C) RCA 19                 | 0:21:40 | 0:00:02 | 6/13/2009<br>18:21:40 | 19       | yes |    |
| 5.9.17 | SetPS status = 0 (A/C) RCA 19             | 0:21:42 | 0:00:02 | 6/13/2009<br>18:21:42 | 19       | yes |    |
| 5.9.18 | Acquire Data                              | 0:21:44 | 0:02:00 | 6/13/2009<br>18:21:44 | 19       |     |    |
| 5.9.19 | Set Cryo values on ACA2 RCA 19            | 0:23:44 | 0:00:06 | 6/13/2009<br>18:23:44 | 19       | yes |    |
| 5.9.20 | Set DAE Gain values ACA2 RCA 19           | 0:23:50 | 0:00:02 | 6/13/2009<br>18:23:50 | 19       |     | no |
| 5.9.21 | Set DAE offset values ACA2 RCA 19         | 0:23:52 | 0:04:02 | 6/13/2009<br>18:23:52 | 19       |     | no |
| 5.9.23 | SetPS status = 1 (B/D) RCA 19             | 0:27:54 | 0:00:02 | 6/13/2009<br>18:27:54 | 19       | yes |    |
| 5.9.24 | Acquire Data                              | 0:27:56 | 0:02:00 | 6/13/2009<br>18:27:56 | 19       |     |    |
| 5.9.25 | Enable 4kHz (B/D) RCA 19                  | 0:29:56 | 0:00:02 | 6/13/2009<br>18:29:56 | 19       | yes |    |
| 5.9.26 | Acquire Data                              | 0:29:58 | 0:02:00 | 6/13/2009<br>18:29:58 | 19       |     |    |
| 5.9.27 | Set lswitch1 low value on ACA2 RCA 19     | 0:31:58 | 0:00:02 | 6/13/2009<br>18:31:58 | 19       | yes |    |
| 5.9.28 | Acquire Data                              | 0:32:00 | 0:02:00 | 6/13/2009<br>18:32:00 | 19       |     |    |
| 5.9.29 | Set lswitch1 nominal value on ACA2 RCA 19 | 0:34:00 | 0:00:02 | 6/13/2009<br>18:34:00 | 19       | yes |    |
| 5.9.30 | Set lswitch2 low value on ACA2 RCA 19     | 0:34:02 | 0:00:02 | 6/13/2009             | 19       | yes |    |



|        |   |         |         |                       |    |     |    |
|--------|---|---------|---------|-----------------------|----|-----|----|
| 5.9.31 | Acquire Data  | 0:34:04 | 0:02:00 | 6/13/2009<br>18:34:02 | 19 |     |    |
| 5.9.32 | Set lswitch2 nominal value on ACA2 RCA 19           | 0:36:04 | 0:00:02 | 6/13/2009<br>18:36:04 | 19 | yes |    |
| 5.9.33 | Disable 4kHz (B/D) RCA 19                           | 0:36:06 | 0:00:02 | 6/13/2009<br>18:36:06 | 19 | yes |    |
| 5.9.34 | SetPS status = 0 (B/D) RCA 19                       | 0:36:08 | 0:00:02 | 6/13/2009<br>18:36:08 | 19 | yes |    |
| 5.9.35 | Acquire Data  | 0:36:10 | 0:02:00 | 6/13/2009<br>18:36:10 | 19 |     |    |
|        | Note: ACA1 and 2 of RCA 19 now set with Cryo values | 0:38:10 | 0:00:00 | 6/13/2009<br>18:38:10 | 19 |     |    |
| 5.9.36 | Set Cryo values on ACA3 RCA 19                      | 0:38:10 | 0:00:06 | 6/13/2009<br>18:38:10 | 19 | yes |    |
| 5.9.37 | Set DAE Gain values ACA3 RCA 19                     | 0:38:16 | 0:00:02 | 6/13/2009<br>18:38:16 | 19 |     | no |
| 5.9.38 | Set DAE offset values ACA3 RCA 19                   | 0:38:18 | 0:04:02 | 6/13/2009<br>18:38:18 | 19 |     | no |
| 5.9.40 | SetPS status = 1 (A/C) RCA 19                       | 0:42:20 | 0:00:02 | 6/13/2009<br>18:42:20 | 19 | yes |    |
| 5.9.41 | Acquire Data  | 0:42:22 | 0:02:00 | 6/13/2009<br>18:42:22 | 19 |     |    |
| 5.9.42 | Enable 4kHz (A/C) RCA 19                            | 0:44:22 | 0:00:02 | 6/13/2009<br>18:44:22 | 19 | yes |    |
| 5.9.43 | Acquire Data  | 0:44:24 | 0:02:00 | 6/13/2009<br>18:44:24 | 19 |     |    |
| 5.9.44 | Set lswitch1 low value on ACA3 RCA 19               | 0:46:24 | 0:00:02 | 6/13/2009<br>18:46:24 | 19 | yes |    |
| 5.9.45 | Acquire Data  | 0:46:26 | 0:02:00 | 6/13/2009<br>18:46:26 | 19 |     |    |
| 5.9.46 | Set lswitch1 nominal value on ACA3 RCA 19           | 0:48:26 | 0:00:02 | 6/13/2009<br>18:48:26 | 19 | yes |    |
| 5.9.47 | Set lswitch2 low value on ACA3 RCA 19               | 0:48:28 | 0:00:02 | 6/13/2009<br>18:48:28 | 19 | yes |    |
| 5.9.48 | Acquire Data  | 0:48:30 | 0:02:00 | 6/13/2009<br>18:48:30 | 19 |     |    |
| 5.9.49 | Set lswitch2 nominal value on ACA3 RCA 19           | 0:50:30 | 0:00:02 | 6/13/2009<br>18:50:30 | 19 | yes |    |
| 5.9.50 | Disable 4kHz (A/C) RCA 19                           | 0:50:32 | 0:00:02 | 6/13/2009<br>18:50:32 | 19 | yes |    |
| 5.9.51 | SetPS status = 0 (A/C) RCA 19                       | 0:50:34 | 0:00:02 | 6/13/2009<br>18:50:34 | 19 | yes |    |
| 5.9.52 | Acquire Data  | 0:50:36 | 0:02:00 | 6/13/2009<br>18:50:36 | 19 |     |    |
| 5.9.53 | Set Cryo values on ACA4 RCA 19                      | 0:52:36 | 0:00:06 | 6/13/2009<br>18:52:36 | 19 | yes |    |
| 5.9.54 | Set DAE Gain values ACA4 RCA 19                     | 0:52:42 | 0:00:02 | 6/13/2009<br>18:52:42 | 19 |     | no |
| 5.9.55 | Set DAE offset values ACA4 RCA 19                   | 0:52:44 | 0:04:02 | 6/13/2009<br>18:52:44 | 19 |     | no |
| 5.9.57 | SetPS status = 1 (B/D) RCA 19                       | 0:56:46 | 0:00:02 | 6/13/2009<br>18:56:46 | 19 | yes |    |
| 5.9.58 | Acquire Data  | 0:56:48 | 0:02:00 | 6/13/2009<br>18:56:48 | 19 |     |    |
| 5.9.59 | Enable 4kHz (B/D) RCA 19                            | 0:58:48 | 0:00:02 | 6/13/2009<br>18:58:48 | 19 | yes |    |
| 5.9.60 | Acquire Data  | 0:58:50 | 0:02:00 | 6/13/2009<br>18:58:50 | 19 |     |    |



|         |   |         |         |                       |    |     |    |
|---------|---|---------|---------|-----------------------|----|-----|----|
| 5.9.61  | Set lswitch1 low value on ACA4 RCA 19                 | 1:00:50 | 0:00:02 | 6/13/2009<br>19:00:50 | 19 | yes |    |
| 5.9.62  | Acquire Data  | 1:00:52 | 0:02:00 | 6/13/2009<br>19:00:52 | 19 |     |    |
| 5.9.63  | Set lswitch1 nominal value on ACA4 RCA 19             | 1:02:52 | 0:00:02 | 6/13/2009<br>19:02:52 | 19 | yes |    |
| 5.9.64  | Set lswitch2 low value on ACA4 RCA 19                 | 1:02:54 | 0:00:02 | 6/13/2009<br>19:02:54 | 19 | yes |    |
| 5.9.65  | Acquire Data  | 1:02:56 | 0:02:00 | 6/13/2009<br>19:02:56 | 19 |     |    |
| 5.9.66  | Set lswitch2 nominal value on ACA4 RCA 19             | 1:04:56 | 0:00:02 | 6/13/2009<br>19:04:56 | 19 | yes |    |
| 5.9.67  | Disable 4kHz (B/D) RCA 19                             | 1:04:58 | 0:00:02 | 6/13/2009<br>19:04:58 | 19 | yes |    |
| 5.9.68  | SetPS status = 0 (B/D) RCA 19                         | 1:05:00 | 0:00:02 | 6/13/2009<br>19:05:00 | 19 | yes |    |
| 5.9.69  | Acquire Data  | 1:05:02 | 0:02:00 | 6/13/2009<br>19:05:02 | 19 |     |    |
|         | Completion of RCA 19 Activation - Cryo values applied | 1:07:02 | 0:05:00 | 6/13/2009<br>19:07:02 | 19 |     |    |
|         |   | 1:12:02 | 0:00:00 | 6/13/2009<br>19:12:02 |    |     |    |
|         | Perform RCA 20 Activation                             | 1:12:02 | 0:04:00 | 6/13/2009<br>19:12:02 | 20 |     |    |
| 5.10.1  | Set Cryo values on ACA1 RCA 20                        | 1:16:02 | 0:00:06 | 6/13/2009<br>19:16:02 | 20 | yes |    |
| 5.10.2  | Set DAE Gain values ACA1 RCA 20                       | 1:16:08 | 0:00:02 | 6/13/2009<br>19:16:08 | 20 |     | no |
| 5.10.3  | Set DAE offset values ACA1 RCA 20                     | 1:16:10 | 0:04:02 | 6/13/2009<br>19:16:10 | 20 |     | no |
| 5.10.5  | SetPS status = 1 (A/C) RCA 20                         | 1:20:12 | 0:00:02 | 6/13/2009<br>19:20:12 | 20 | yes |    |
| 5.10.6  | Acquire Data  | 1:20:14 | 0:02:00 | 6/13/2009<br>19:20:14 | 20 |     |    |
| 5.10.7  | Enable 4kHz (A/C) RCA 20                              | 1:22:14 | 0:00:02 | 6/13/2009<br>19:22:14 | 20 | yes |    |
| 5.10.8  | Acquire Data  | 1:22:16 | 0:02:00 | 6/13/2009<br>19:22:16 | 20 |     |    |
| 5.10.9  | Set lswitch1 low value on ACA1 RCA 20                 | 1:24:16 | 0:00:02 | 6/13/2009<br>19:24:16 | 20 | yes |    |
| 5.10.10 | Acquire Data  | 1:24:18 | 0:02:00 | 6/13/2009<br>19:24:18 | 20 |     |    |
| 5.10.11 | Set lswitch1 nominal value on ACA1 RCA 20             | 1:26:18 | 0:00:02 | 6/13/2009<br>19:26:18 | 20 | yes |    |
| 5.10.12 | Set lswitch2 low value on ACA1 RCA 20                 | 1:26:20 | 0:00:02 | 6/13/2009<br>19:26:20 | 20 | yes |    |
| 5.10.13 | Acquire Data  | 1:26:22 | 0:02:00 | 6/13/2009<br>19:26:22 | 20 |     |    |
| 5.10.14 | Set lswitch2 nominal value on ACA1 RCA 20             | 1:28:22 | 0:00:02 | 6/13/2009<br>19:28:22 | 20 | yes |    |
| 5.10.15 | Disable 4kHz (A/C) RCA 20                             | 1:28:24 | 0:00:02 | 6/13/2009<br>19:28:24 | 20 | yes |    |
| 5.10.16 | SetPS status = 0 (A/C) RCA 20                         | 1:28:26 | 0:00:02 | 6/13/2009<br>19:28:26 | 20 | yes |    |
| 5.10.17 | Acquire Data  | 1:28:28 | 0:02:00 | 6/13/2009<br>19:28:28 | 20 |     |    |
| 5.10.18 | Set Cryo values on ACA2 RCA 20                        | 1:30:28 | 0:00:06 | 6/13/2009<br>19:30:28 | 20 | yes |    |



|         |   |         |         |                       |    |     |    |
|---------|---|---------|---------|-----------------------|----|-----|----|
| 5.10.19 | Set DAE Gain values ACA2 RCA 20                     | 1:30:34 | 0:00:02 | 6/13/2009<br>19:30:34 | 20 |     | no |
| 5.10.20 | Set DAE offset values ACA2 RCA 20                   | 1:30:36 | 0:04:02 | 6/13/2009<br>19:30:36 | 20 |     | no |
| 5.10.22 | SetPS status = 1 (B/D) RCA 20                       | 1:34:38 | 0:00:02 | 6/13/2009<br>19:34:38 | 20 | yes |    |
| 5.10.23 | Acquire Data  | 1:34:40 | 0:02:00 | 6/13/2009<br>19:34:40 | 20 |     |    |
| 5.10.24 | Enable 4kHz (B/D) RCA 20                            | 1:36:40 | 0:00:02 | 6/13/2009<br>19:36:40 | 20 | yes |    |
| 5.10.25 | Acquire Data  | 1:36:42 | 0:02:00 | 6/13/2009<br>19:36:42 | 20 |     |    |
| 5.10.26 | Set lswitch1 low value on ACA2 RCA 20               | 1:38:42 | 0:00:02 | 6/13/2009<br>19:38:42 | 20 | yes |    |
| 5.10.27 | Acquire Data  | 1:38:44 | 0:02:00 | 6/13/2009<br>19:38:44 | 20 |     |    |
| 5.10.28 | Set lswitch1 nominal value on ACA2 RCA 20           | 1:40:44 | 0:00:02 | 6/13/2009<br>19:40:44 | 20 | yes |    |
| 5.10.29 | Set lswitch2 low value on ACA2 RCA 20               | 1:40:46 | 0:00:02 | 6/13/2009<br>19:40:46 | 20 | yes |    |
| 5.10.30 | Acquire Data  | 1:40:48 | 0:02:00 | 6/13/2009<br>19:40:48 | 20 |     |    |
| 5.10.31 | Set lswitch2 nominal value on ACA2 RCA 20           | 1:42:48 | 0:00:02 | 6/13/2009<br>19:42:48 | 20 | yes |    |
| 5.10.32 | Disable 4kHz (B/D) RCA 20                           | 1:42:50 | 0:00:02 | 6/13/2009<br>19:42:50 | 20 | yes |    |
| 5.10.33 | SetPS status = 0 (B/D) RCA 20                       | 1:42:52 | 0:00:02 | 6/13/2009<br>19:42:52 | 20 | yes |    |
| 5.10.34 | Acquire Data  | 1:42:54 | 0:02:00 | 6/13/2009<br>19:42:54 | 20 |     |    |
|         | Note: ACA1 and 2 of RCA 20 now set with Cryo values | 1:44:54 | 0:00:00 | 6/13/2009<br>19:44:54 | 20 |     |    |
| 5.10.35 | Set Cryo values on ACA3 RCA 20                      | 1:44:54 | 0:00:06 | 6/13/2009<br>19:44:54 | 20 | yes |    |
| 5.10.36 | Set DAE Gain values ACA3 RCA 20                     | 1:45:00 | 0:00:02 | 6/13/2009<br>19:45:00 | 20 |     | no |
| 5.10.37 | Set DAE offset values ACA3 RCA 20                   | 1:45:02 | 0:04:02 | 6/13/2009<br>19:45:02 | 20 |     | no |
| 5.10.38 | SetPS status = 1 (A/C) RCA 20                       | 1:49:04 | 0:00:02 | 6/13/2009<br>19:49:04 | 20 | yes |    |
| 5.10.40 | Acquire Data  | 1:49:06 | 0:02:00 | 6/13/2009<br>19:49:06 | 20 |     |    |
| 5.10.41 | Enable 4kHz (A/C) RCA 20                            | 1:51:06 | 0:00:02 | 6/13/2009<br>19:51:06 | 20 | yes |    |
| 5.10.42 | Acquire Data  | 1:51:08 | 0:02:00 | 6/13/2009<br>19:51:08 | 20 |     |    |
| 5.10.43 | Set lswitch1 low value on ACA3 RCA 20               | 1:53:08 | 0:00:02 | 6/13/2009<br>19:53:08 | 20 | yes |    |
| 5.10.44 | Acquire Data  | 1:53:10 | 0:02:00 | 6/13/2009<br>19:53:10 | 20 |     |    |
| 5.10.45 | Set lswitch1 nominal value on ACA3 RCA 20           | 1:55:10 | 0:00:02 | 6/13/2009<br>19:55:10 | 20 | yes |    |
| 5.10.46 | Set lswitch2 low value on ACA3 RCA 20               | 1:55:12 | 0:00:02 | 6/13/2009<br>19:55:12 | 20 | yes |    |
| 5.10.47 | Acquire Data  | 1:55:14 | 0:02:00 | 6/13/2009<br>19:55:14 | 20 |     |    |
| 5.10.48 | Set lswitch2 nominal value on ACA3 RCA 20           | 1:57:14 | 0:00:02 | 6/13/2009<br>19:57:14 | 20 | yes |    |
| 5.10.49 | Disable 4kHz (A/C) RCA 20                           | 1:57:16 | 0:00:02 | 6/13/2009             | 20 | yes |    |



|         |   |         |         |                       |    |     |    |
|---------|---|---------|---------|-----------------------|----|-----|----|
|         |   |         |         | 19:57:16              |    |     |    |
| 5.10.50 | SetPS status = 0 (A/C) RCA 20                         | 1:57:18 | 0:00:02 | 6/13/2009<br>19:57:18 | 20 | yes |    |
| 5.10.51 | Acquire Data  | 1:57:20 | 0:02:00 | 6/13/2009<br>19:57:20 | 20 |     |    |
| 5.10.52 | Set Cryo values on ACA4 RCA 20                        | 1:59:20 | 0:00:06 | 6/13/2009<br>19:59:20 | 20 | yes |    |
| 5.10.53 | Set DAE Gain values ACA4 RCA 20                       | 1:59:26 | 0:00:02 | 6/13/2009<br>19:59:26 | 20 |     | no |
| 5.10.54 | Set DAE offset values ACA4 RCA 20                     | 1:59:28 | 0:04:02 | 6/13/2009<br>19:59:28 | 20 |     | no |
| 5.10.55 | SetPS status = 1 (B/D) RCA 20                         | 2:03:30 | 0:00:02 | 6/13/2009<br>20:03:30 | 20 | yes |    |
| 5.10.57 | Acquire Data  | 2:03:32 | 0:02:00 | 6/13/2009<br>20:03:32 | 20 |     |    |
| 5.10.58 | Enable 4kHz (B/D) RCA 20                              | 2:05:32 | 0:00:02 | 6/13/2009<br>20:05:32 | 20 | yes |    |
| 5.10.59 | Acquire Data  | 2:05:34 | 0:02:00 | 6/13/2009<br>20:05:34 | 20 |     |    |
| 5.10.60 | Set Iswitch1 low value on ACA4 RCA 20                 | 2:07:34 | 0:00:02 | 6/13/2009<br>20:07:34 | 20 | yes |    |
| 5.10.61 | Acquire Data  | 2:07:36 | 0:02:00 | 6/13/2009<br>20:07:36 | 20 |     |    |
| 5.10.62 | Set Iswitch1 nominal value on ACA4 RCA 20             | 2:09:36 | 0:00:02 | 6/13/2009<br>20:09:36 | 20 | yes |    |
| 5.10.63 | Set Iswitch2 low value on ACA4 RCA 20                 | 2:09:38 | 0:00:02 | 6/13/2009<br>20:09:38 | 20 | yes |    |
| 5.10.64 | Acquire Data  | 2:09:40 | 0:02:00 | 6/13/2009<br>20:09:40 | 20 |     |    |
| 5.10.65 | Set Iswitch2 nominal value on ACA4 RCA 20             | 2:11:40 | 0:00:02 | 6/13/2009<br>20:11:40 | 20 | yes |    |
| 5.10.66 | Disable 4kHz (B/D) RCA 20                             | 2:11:42 | 0:00:02 | 6/13/2009<br>20:11:42 | 20 | yes |    |
| 5.10.67 | SetPS status = 0 (B/D) RCA 20                         | 2:11:44 | 0:00:02 | 6/13/2009<br>20:11:44 | 20 | yes |    |
| 5.10.68 | Acquire Data  | 2:11:46 | 0:02:00 | 6/13/2009<br>20:11:46 | 20 |     |    |
|         | Completion of RCA 20 Activation - Cryo values applied | 2:13:46 | 0:05:00 | 6/13/2009<br>20:13:46 | 20 |     |    |
|         |   | 2:18:46 | 0:00:00 | 6/13/2009<br>20:18:46 |    |     |    |
|         | Perform RCA 28 Activation                             | 2:18:46 | 0:04:00 | 6/13/2009<br>20:18:46 | 28 |     |    |
| 5.11.1  | Power on ACA1 and ACA2 with Soft Switch-On procedure  | 2:22:46 | 0:00:06 | 6/13/2009<br>20:22:46 | 28 | yes |    |
| 5.11.1  | Power on ACA1 and ACA2 with Soft Switch-On procedure  | 2:22:52 | 0:00:06 | 6/13/2009<br>20:22:52 | 28 | yes |    |
| 5.11.1  | Power on ACA1 and ACA2 with Soft Switch-On procedure  | 2:22:58 | 0:00:06 | 6/13/2009<br>20:22:58 | 28 | yes |    |
| 5.11.1  | Power on ACA1 and ACA2 with Soft Switch-On procedure  | 2:23:04 | 0:00:06 | 6/13/2009<br>20:23:04 | 28 | yes |    |
| 5.11.2  | Set zero bias on ACA2                                 | 2:23:10 | 0:00:06 | 6/13/2009<br>20:23:10 | 28 | yes |    |
| 5.11.3  | Set DAE Gain values ACA1 RCA 28                       | 2:23:16 | 0:00:02 | 6/13/2009<br>20:23:16 | 28 |     | no |
| 5.11.4  | Set DAE offset values ACA1 RCA 28                     | 2:23:18 | 0:04:02 | 6/13/2009<br>20:23:18 | 28 |     | no |
| 5.11.6  | SetPS status = 1 (A/C) RCA 28                         | 2:27:20 | 0:00:02 | 6/13/2009<br>20:27:20 | 28 | yes |    |



|         |  |         |         |                       |    |     |  |
|---------|--|---------|---------|-----------------------|----|-----|--|
| 5.11.7  | Acquire Data   | 2:27:22 | 0:02:00 | 6/13/2009<br>20:27:22 | 28 |     |  |
| 5.11.8  | Enable 4kHz (A/C) RCA 28                             | 2:29:22 | 0:00:02 | 6/13/2009<br>20:29:22 | 28 | yes |  |
| 5.11.9  | Acquire Data   | 2:29:24 | 0:02:00 | 6/13/2009<br>20:29:24 | 28 |     |  |
| 5.11.10 | Set lswitch1 low value on ACA1 RCA 28                | 2:31:24 | 0:00:02 | 6/13/2009<br>20:31:24 | 28 | yes |  |
| 5.11.11 | Acquire Data   | 2:31:26 | 0:02:00 | 6/13/2009<br>20:31:26 | 28 |     |  |
| 5.11.12 | Set lswitch1 nominal value on ACA1 RCA 28            | 2:33:26 | 0:00:02 | 6/13/2009<br>20:33:26 | 28 | yes |  |
| 5.11.13 | Set lswitch2 low value on ACA1 RCA 28                | 2:33:28 | 0:00:02 | 6/13/2009<br>20:33:28 | 28 | yes |  |
| 5.11.14 | Acquire Data   | 2:33:30 | 0:02:00 | 6/13/2009<br>20:33:30 | 28 |     |  |
| 5.11.15 | Set lswitch2 nominal value on ACA1 RCA 28            | 2:35:30 | 0:00:02 | 6/13/2009<br>20:35:30 | 28 | yes |  |
| 5.11.16 | Disable 4kHz (A/C) RCA 28                            | 2:35:32 | 0:00:02 | 6/13/2009<br>20:35:32 | 28 | yes |  |
| 5.11.17 | SetPS status = 0 (A/C) RCA 28                        | 2:35:34 | 0:00:02 | 6/13/2009<br>20:35:34 | 28 | yes |  |
| 5.11.18 | Acquire Data   | 2:35:36 | 0:02:00 | 6/13/2009<br>20:35:36 | 28 |     |  |
| 5.11.19 | Set zero bias on ACA1                                | 2:37:36 | 0:00:06 | 6/13/2009<br>20:37:36 | 28 | yes |  |
| 5.11.20 | Power on ACA1 and ACA2 with Soft Switch-On procedure | 2:37:42 | 0:00:06 | 6/13/2009<br>20:37:42 | 28 | yes |  |
| 5.11.20 | Power on ACA1 and ACA2 with Soft Switch-On procedure | 2:37:48 | 0:00:06 | 6/13/2009<br>20:37:48 | 28 | yes |  |
| 5.11.20 | Power on ACA1 and ACA2 with Soft Switch-On procedure | 2:37:54 | 0:00:06 | 6/13/2009<br>20:37:54 | 28 | yes |  |
| 5.11.20 | Power on ACA1 and ACA2 with Soft Switch-On procedure | 2:38:00 | 0:00:06 | 6/13/2009<br>20:38:00 | 28 | yes |  |
| 5.11.21 | Set DAE Gain values ACA2 RCA 28                      | 2:38:06 | 0:00:02 | 6/13/2009<br>20:38:06 | 28 |     |  |
| 5.11.22 | Set DAE offset values ACA2 RCA 28                    | 2:38:08 | 0:04:02 | 6/13/2009<br>20:38:08 | 28 |     |  |
| 5.11.24 | SetPS status = 1 (B/D) RCA 28                        | 2:42:10 | 0:00:02 | 6/13/2009<br>20:42:10 | 28 | yes |  |
| 5.11.25 | Acquire Data   | 2:42:12 | 0:02:00 | 6/13/2009<br>20:42:12 | 28 |     |  |
| 5.11.26 | Enable 4kHz (B/D) RCA 28                             | 2:44:12 | 0:00:02 | 6/13/2009<br>20:44:12 | 28 | yes |  |
| 5.11.27 | Acquire Data   | 2:44:14 | 0:02:00 | 6/13/2009<br>20:44:14 | 28 |     |  |
| 5.11.28 | Set lswitch1 low value on ACA2 RCA 28                | 2:46:14 | 0:00:02 | 6/13/2009<br>20:46:14 | 28 | yes |  |
| 5.11.29 | Acquire Data   | 2:46:16 | 0:02:00 | 6/13/2009<br>20:46:16 | 28 |     |  |
| 5.11.30 | Set lswitch1 nominal value on ACA2 RCA 28            | 2:48:16 | 0:00:02 | 6/13/2009<br>20:48:16 | 28 | yes |  |
| 5.11.31 | Set lswitch2 low value on ACA2 RCA 28                | 2:48:18 | 0:00:02 | 6/13/2009<br>20:48:18 | 28 | yes |  |
| 5.11.32 | Acquire Data   | 2:48:20 | 0:02:00 | 6/13/2009<br>20:48:20 | 28 |     |  |
| 5.11.33 | Set lswitch2 nominal value on ACA2 RCA 28            | 2:50:20 | 0:00:02 | 6/13/2009<br>20:50:20 | 28 | yes |  |
| 5.11.34 | Disable 4kHz (B/D) RCA 28                            | 2:50:22 | 0:00:02 | 6/13/2009<br>20:50:22 | 28 | yes |  |



|         |   |         |         |                       |    |     |    |
|---------|---|---------|---------|-----------------------|----|-----|----|
| 5.11.35 | SetPS status = 0 (B/D) RCA 28                       | 2:50:24 | 0:00:02 | 6/13/2009<br>20:50:24 | 28 | yes |    |
| 5.11.36 | Acquire Data  | 2:50:26 | 0:02:00 | 6/13/2009<br>20:50:26 | 28 |     |    |
|         | Note: ACA1 and 2 of RCA 28 now set with Cryo values | 2:52:26 | 0:00:00 | 6/13/2009<br>20:52:26 | 28 |     |    |
| 5.11.37 | Set Cryo values on ACA3 RCA 28                      | 2:52:26 | 0:00:06 | 6/13/2009<br>20:52:26 | 28 | yes |    |
| 5.11.38 | Set DAE Gain values ACA3 RCA 28                     | 2:52:32 | 0:00:02 | 6/13/2009<br>20:52:32 | 28 |     | no |
| 5.11.39 | Set DAE offset values ACA3 RCA 28                   | 2:52:34 | 0:04:02 | 6/13/2009<br>20:52:34 | 28 |     | no |
| 5.11.41 | SetPS status = 1 (A/C) RCA 28                       | 2:56:36 | 0:00:02 | 6/13/2009<br>20:56:36 | 28 | yes |    |
| 5.11.42 | Acquire Data  | 2:56:38 | 0:02:00 | 6/13/2009<br>20:56:38 | 28 |     |    |
| 5.11.43 | Enable 4kHz (A/C) RCA 28                            | 2:58:38 | 0:00:02 | 6/13/2009<br>20:58:38 | 28 | yes |    |
| 5.11.44 | Acquire Data  | 2:58:40 | 0:02:00 | 6/13/2009<br>20:58:40 | 28 |     |    |
| 5.11.45 | Set lswitch1 low value on ACA3 RCA 28               | 3:00:40 | 0:00:02 | 6/13/2009<br>21:00:40 | 28 | yes |    |
| 5.11.46 | Acquire Data  | 3:00:42 | 0:02:00 | 6/13/2009<br>21:00:42 | 28 |     |    |
| 5.11.47 | Set lswitch1 nominal value on ACA3 RCA 28           | 3:02:42 | 0:00:02 | 6/13/2009<br>21:02:42 | 28 | yes |    |
| 5.11.48 | Set lswitch2 low value on ACA3 RCA 28               | 3:02:44 | 0:00:02 | 6/13/2009<br>21:02:44 | 28 | yes |    |
| 5.11.49 | Acquire Data  | 3:02:46 | 0:02:00 | 6/13/2009<br>21:02:46 | 28 |     |    |
| 5.11.50 | Set lswitch2 nominal value on ACA3 RCA 28           | 3:04:46 | 0:00:02 | 6/13/2009<br>21:04:46 | 28 | yes |    |
| 5.11.51 | Disable 4kHz (A/C) RCA 28                           | 3:04:48 | 0:00:02 | 6/13/2009<br>21:04:48 | 28 | yes |    |
| 5.11.52 | SetPS status = 0 (A/C) RCA 28                       | 3:04:50 | 0:00:02 | 6/13/2009<br>21:04:50 | 28 | yes |    |
| 5.11.53 | Acquire Data  | 3:04:52 | 0:02:00 | 6/13/2009<br>21:04:52 | 28 |     |    |
| 5.11.54 | Set Cryo values on ACA4 RCA 28                      | 3:06:52 | 0:00:06 | 6/13/2009<br>21:06:52 | 28 | yes |    |
| 5.11.55 | Set DAE Gain values ACA4 RCA 28                     | 3:06:58 | 0:00:02 | 6/13/2009<br>21:06:58 | 28 |     | no |
| 5.11.56 | Set DAE offset values ACA4 RCA 28                   | 3:07:00 | 0:04:02 | 6/13/2009<br>21:07:00 | 28 |     | no |
| 5.11.58 | SetPS status = 1 (B/D) RCA 28                       | 3:11:02 | 0:00:02 | 6/13/2009<br>21:11:02 | 28 | yes |    |
| 5.11.59 | Acquire Data  | 3:11:04 | 0:02:00 | 6/13/2009<br>21:11:04 | 28 |     |    |
| 5.11.60 | Enable 4kHz (B/D) RCA 28                            | 3:13:04 | 0:00:02 | 6/13/2009<br>21:13:04 | 28 | yes |    |
| 5.11.61 | Acquire Data  | 3:13:06 | 0:02:00 | 6/13/2009<br>21:13:06 | 28 |     |    |
| 5.11.62 | Set lswitch1 low value on ACA4 RCA 28               | 3:15:06 | 0:00:02 | 6/13/2009<br>21:15:06 | 28 | yes |    |
| 5.11.63 | Acquire Data  | 3:15:08 | 0:02:00 | 6/13/2009<br>21:15:08 | 28 |     |    |
| 5.11.64 | Set lswitch1 nominal value on ACA4 RCA 28           | 3:17:08 | 0:00:02 | 6/13/2009<br>21:17:08 | 28 | yes |    |
| 5.11.65 | Set lswitch2 low value on ACA4 RCA 28               | 3:17:10 | 0:00:02 | 6/13/2009             | 28 | yes |    |



|         |   |         |         |                       |     |     |  |
|---------|---|---------|---------|-----------------------|-----|-----|--|
|         |   |         |         | 21:17:10              |     |     |  |
| 5.11.66 | Acquire Data  | 3:17:12 | 0:02:00 | 6/13/2009<br>21:17:12 | 28  |     |  |
| 5.11.67 | Set lswitch2 nominal value on ACA4 RCA 28                       | 3:19:12 | 0:00:02 | 6/13/2009<br>21:19:12 | 28  | yes |  |
| 5.11.68 | Disable 4kHz (B/D) RCA 28                                       | 3:19:14 | 0:00:02 | 6/13/2009<br>21:19:14 | 28  | yes |  |
| 5.11.69 | SetPS status = 0 (B/D) RCA 28                                   | 3:19:16 | 0:00:02 | 6/13/2009<br>21:19:16 | 28  | yes |  |
| 5.11.70 | Acquire Data  | 3:19:18 | 0:02:00 | 6/13/2009<br>21:19:18 | 28  |     |  |
|         | Completion of RCA 28 Activation - Cryo values applied           | 3:21:18 | 0:05:00 | 6/13/2009<br>21:21:18 | 28  |     |  |
|         |   | 3:26:18 | 0:00:00 | 6/13/2009<br>21:26:18 |     |     |  |
| 5.12    | Set CRYO values and set DAE Gain and Offset to avoid saturation | 3:26:18 | 0:00:00 | 6/13/2009<br>21:26:18 | All |     |  |
| 5.12.1  | Set Cryo values on all  | 3:26:18 | 0:00:06 | 6/13/2009<br>21:26:18 | All | yes |  |
| 5.12.2  | SetPS status = 1 (A/C)  | 3:26:24 | 0:00:02 | 6/13/2009<br>21:26:24 | All | yes |  |
| 5.12.3  | SetPS status = 0 (B/D)  | 3:26:26 | 0:00:02 | 6/13/2009<br>21:26:26 | All | yes |  |
| 5.12.4  | Enable 4kHz (A/C) RCA23   | 3:26:28 | 0:00:02 | 6/13/2009<br>21:26:28 | All | yes |  |
| 5.12.5  | Enable 4kHz (B/D) all but RCA 23                                | 3:26:30 | 0:00:02 | 6/13/2009<br>21:26:30 | All | yes |  |
| 5.12.6  | Set DAE Gain values   | 3:26:32 | 0:00:02 | 6/13/2009<br>21:26:32 | All | yes |  |
| 5.12.7  | Set DAE offset values   | 3:26:34 | 0:00:02 | 6/13/2009<br>21:26:34 | All | yes |  |
| 5.12.8  | Save as default configuration                                   | 3:26:36 | 0:00:02 | 6/13/2009<br>21:26:36 | All |     |  |
|         | end of the test   | 3:26:38 |         | 6/13/2009<br>21:26:38 |     |     |  |

# Annex 2

## Report

Pegaso 0.9.0  
(release date: 2009-04-10 09:55:48)

Tue Jun 16 16:02:31 2009

# Chapter 1

## Pegaso-bscope

1.1 pegaso\_bscope\_mini\_report\_00001

Bscope\_00001

### 1.1.1.1 Bias status for PEGASO

This section provides an overall view of the bias settings used in a number of tests. It is used as an useful way to check the set up used during a tuning/calibration test.

### 1.1.2 Test PEGASO, Feed Horn 18

#### Channel S2

Results for feed horn 18, channel S2 (test PEGASO). The analysis has been done in the range [1623441986., 1623446039.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/11 20:07:28 | 0   | 0   | 0   | 0   | 0   | 0      | 0    | 0       | 0        | -0.2    | 0.000     | 0.016     | 0.019     | 0.000     | 0.000     | 0.017     | 0.024     | 0.000     |
| 2009/06/11 20:09:22 | 201 | 205 | 115 | 255 | 255 |        |      |         |          | 24.0    | 0.000     | -0.020    | 0.021     | 0.000     | 0.000     | 2.364     | 1.782     | 0.000     |
| 2009/06/11 20:09:26 |     |     |     |     |     |        |      |         |          | 23.2    | 0.011     | 0.011     | 0.021     | 0.021     | 2.492     | 2.486     | 1.882     | 1.892     |
| 2009/06/11 20:13:28 |     |     |     |     |     | 1      |      |         |          | 22.9    | 0.011     | 0.011     | 0.021     | 0.021     | 2.547     | 2.547     | 1.921     | 1.919     |
| 2009/06/11 20:15:30 |     |     |     |     |     |        | 1    |         |          | 22.9    | 0.011     | 0.011     | 0.021     | 0.021     | 2.583     | 2.469     | 1.879     | 1.911     |
| 2009/06/11 20:17:32 |     |     |     | 170 |     |        |      |         |          | 22.8    | 0.011     | 0.011     | 0.021     | 0.021     | 2.482     | 2.465     | 1.878     | 1.886     |
| 2009/06/11 20:19:34 |     |     |     | 255 |     |        |      |         |          | 22.8    | 0.011     | 0.011     | 0.021     | 0.021     | 2.524     | 2.437     | 1.863     | 1.907     |
| 2009/06/11 20:19:36 |     |     |     |     | 170 |        |      |         |          | 22.8    | 0.011     | 0.011     | 0.021     | 0.021     | 2.528     | 2.422     | 1.856     | 1.911     |
| 2009/06/11 20:21:38 |     |     |     |     | 255 |        |      |         |          | 22.8    | 0.000     | 0.011     | 0.021     | 0.000     | 0.000     | 2.518     | 1.908     | 0.000     |
| 2009/06/11 20:21:40 |     |     |     |     |     |        | 0    |         |          | 22.8    | 0.000     | 0.011     | 0.021     | 0.000     | 0.000     | 2.506     | 1.904     | 0.000     |
| 2009/06/11 20:21:42 |     |     |     |     |     | 0      |      |         |          | 22.5    | 0.011     | 0.064     | 0.080     | 0.011     | 2.307     | 2.084     | 1.776     | 1.638     |
| 2009/06/11 20:42:20 |     |     |     |     |     | 1      |      |         |          | 22.4    | 0.179     | 0.000     | 0.000     | 0.236     | 2.154     | 0.000     | 0.000     | 1.561     |
| 2009/06/11 20:44:22 |     |     |     |     |     |        | 1    |         |          | 22.4    | 0.178     | 0.175     | 0.231     | 0.234     | 2.147     | 1.933     | 1.654     | 1.560     |
| 2009/06/11 20:50:32 |     |     |     |     |     |        | 0    |         |          | 22.4    | 0.000     | 0.178     | 0.236     | 0.000     | 0.000     | 2.040     | 1.617     | 0.000     |
| 2009/06/11 20:50:34 |     |     |     |     |     | 0      |      |         |          | 22.2    | 1.331     | 1.094     | 1.621     | 1.613     | 1.919     | 1.812     | 1.549     | 1.441     |

#### Channel S1

Results for feed horn 18, channel S1 (test PEGASO). The analysis has been done in the range [1623441986., 1623446039.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/11 20:07:28 | 0   | 0   | 0  | 0   | 0   | 0      | 0    | 0       | 0        | -0.2    | 0.011     | 0.008     | 0.021     | 0.021     | 2.527     | 2.065     | 1.572     | 1.909     |
| 2009/06/11 20:23:48 | 201 | 197 | 60 | 255 | 255 |        |      |         |          | 20.1    | 0.000     | 0.011     | -0.017    | 0.000     | 0.000     | 2.052     | 1.810     | 0.000     |
| 2009/06/11 20:23:52 |     |     |    |     |     |        |      |         |          | 19.8    | 0.011     | 0.011     | 0.011     | 0.011     | 2.066     | 2.058     | 1.806     | 1.805     |
| 2009/06/11 20:27:54 |     |     |    |     |     | 1      |      |         |          | 19.3    | 0.011     | 0.011     | 0.011     | 0.011     | 2.314     | 2.314     | 1.629     | 1.628     |
| 2009/06/11 20:29:56 |     |     |    |     |     |        | 1    |         |          | 19.0    | 0.011     | 0.011     | 0.011     | 0.011     | 2.312     | 2.071     | 1.802     | 1.632     |
| 2009/06/11 20:31:58 |     |     |    | 170 |     |        |      |         |          | 18.7    | 0.011     | 0.011     | 0.011     | 0.011     | 2.310     | 2.078     | 1.802     | 1.638     |
| 2009/06/11 20:34:00 |     |     |    | 255 |     |        |      |         |          | 18.7    | 0.011     | 0.011     | 0.011     | 0.011     | 2.313     | 2.084     | 1.803     | 1.642     |
| 2009/06/11 20:34:02 |     |     |    |     | 170 |        |      |         |          | 18.5    | 0.011     | 0.011     | 0.011     | 0.011     | 2.304     | 2.087     | 1.803     | 1.649     |
| 2009/06/11 20:36:04 |     |     |    |     | 255 |        |      |         |          | 18.5    | 0.011     | 0.011     | 0.011     | 0.011     | 2.226     | 2.308     | 1.648     | 1.704     |
| 2009/06/11 20:36:06 |     |     |    |     |     |        | 0    |         |          | 18.5    | 0.000     | 0.011     | 0.011     | 0.000     | 0.000     | 2.192     | 1.729     | 0.000     |
| 2009/06/11 20:36:08 |     |     |    |     |     | 0      |      |         |          | 17.0    | 0.188     | 0.487     | 0.693     | 0.250     | 2.146     | 1.912     | 1.642     | 1.560     |
| 2009/06/11 20:56:46 |     |     |    |     |     | 1      |      |         |          | 16.2    | 1.373     | 1.355     | 1.642     | 1.667     | 1.921     | 1.918     | 1.438     | 1.438     |
| 2009/06/11 20:58:48 |     |     |    |     |     |        | 1    |         |          | 16.1    | 1.304     | 1.179     | 1.763     | 1.570     | 1.922     | 1.791     | 1.538     | 1.441     |
| 2009/06/11 21:04:58 |     |     |    |     |     |        | 0    |         |          | 16.1    | 0.000     | 1.211     | 1.640     | 0.000     | 0.000     | 1.855     | 1.494     | 0.000     |
| 2009/06/11 21:05:00 |     |     |    |     |     | 0      |      |         |          | 15.9    | 0.000     | 1.128     | 1.691     | 0.000     | 0.000     | 1.799     | 1.540     | 0.000     |

### Channel M1

Results for feed horn 18, channel M1 (test PEGASO). The analysis has been done in the range [1623441986., 1623446039.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/11 20:07:28 | 0   | 0   | 0  | 0   | 0   | 0      | 0    | 0       | 0        | -0.2    | 0.011     | 0.005     | 0.020     | 0.021     | 2.492     | 1.705     | 1.294     | 1.892     |
| 2009/06/11 20:13:28 |     |     |    |     |     | 1      |      |         |          | -0.2    | 0.011     | 0.011     | 0.021     | 0.021     | 2.547     | 2.547     | 1.921     | 1.919     |
| 2009/06/11 20:15:30 |     |     |    |     |     |        | 1    |         |          | -0.2    | 0.011     | 0.011     | 0.021     | 0.021     | 2.514     | 2.452     | 1.871     | 1.903     |
| 2009/06/11 20:21:40 |     |     |    |     |     |        | 0    |         |          | -0.2    | 0.000     | 0.011     | 0.021     | 0.000     | 0.000     | 2.506     | 1.904     | 0.000     |
| 2009/06/11 20:21:42 |     |     |    |     |     | 0      |      |         |          | -0.2    | 0.011     | 0.011     | 0.009     | 0.011     | 2.307     | 2.146     | 1.818     | 1.638     |
| 2009/06/11 20:38:14 | 193 | 193 | 60 | 255 | 255 |        |      |         |          | 14.7    | 0.000     | 0.257     | 0.340     | 0.000     | 0.000     | 1.863     | 1.648     | 0.000     |
| 2009/06/11 20:38:18 |     |     |    |     |     |        |      |         |          | 13.0    | 0.000     | 0.207     | 0.273     | 0.000     | 0.000     | 1.925     | 1.663     | 0.000     |
| 2009/06/11 20:42:20 |     |     |    |     |     | 1      |      |         |          | 12.1    | 0.179     | 0.000     | 0.000     | 0.236     | 2.154     | 0.000     | 0.000     | 1.561     |
| 2009/06/11 20:44:22 |     |     |    |     |     |        | 1    |         |          | 12.0    | 0.179     | 0.176     | 0.232     | 0.235     | 2.148     | 1.929     | 1.655     | 1.558     |
| 2009/06/11 20:46:24 |     |     |    | 170 |     |        |      |         |          | 12.0    | 0.177     | 0.176     | 0.232     | 0.233     | 2.147     | 1.932     | 1.655     | 1.561     |
| 2009/06/11 20:48:26 |     |     |    | 255 |     |        |      |         |          | 12.0    | 0.180     | 0.176     | 0.232     | 0.237     | 2.147     | 1.934     | 1.655     | 1.562     |
| 2009/06/11 20:48:28 |     |     |    |     | 170 |        |      |         |          | 11.9    | 0.179     | 0.175     | 0.230     | 0.236     | 2.146     | 1.934     | 1.653     | 1.562     |
| 2009/06/11 20:50:30 |     |     |    |     | 255 |        |      |         |          | 11.9    | 0.000     | 0.179     | 0.236     | 0.000     | 0.000     | 2.102     | 1.586     | 0.000     |
| 2009/06/11 20:50:32 |     |     |    |     |     |        | 0    |         |          | 11.9    | 0.000     | 0.178     | 0.236     | 0.000     | 0.000     | 2.040     | 1.617     | 0.000     |
| 2009/06/11 20:50:34 |     |     |    |     |     | 0      |      |         |          | 11.4    | 1.331     | 1.094     | 1.621     | 1.613     | 1.919     | 1.812     | 1.549     | 1.441     |

### Channel M2

Results for feed horn 18, channel M2 (test PEGASO). The analysis has been done in the range [1623441986., 1623446039.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/11 20:07:28 | 0   | 0   | 0   | 0   | 0   | 0         | 0    | 0          | 0           | -0.2       | 0.011        | 0.009        | 0.015        | 0.021        | 2.524        | 2.064        | 1.635        | 1.908        |
| 2009/06/11 20:27:54 |     |     |     |     |     | 1         | 0    | 0          | 0           | -0.2       | 0.011        | 0.011        | 0.011        | 0.011        | 2.314        | 2.311        | 1.629        | 1.628        |
| 2009/06/11 20:29:56 |     |     |     |     |     | 1         | 1    | 0          | 0           | -0.2       | 0.011        | 0.011        | 0.011        | 0.011        | 2.308        | 2.078        | 1.803        | 1.641        |
| 2009/06/11 20:36:06 |     |     |     |     |     | 0         | 0    | 0          | 0           | -0.2       | 0.000        | 0.011        | 0.011        | 0.000        | 0.000        | 2.192        | 1.729        | 0.000        |
| 2009/06/11 20:36:08 |     |     |     |     |     | 0         | 0    | 0          | 0           | -0.2       | 0.179        | 0.158        | 0.208        | 0.235        | 2.149        | 1.958        | 1.684        | 1.561        |
| 2009/06/11 20:52:40 | 187 | 195 | 120 | 255 | 255 |           |      | 0          | 0           | 14.3       | 0.000        | 1.903        | 2.646        | 0.000        | 0.000        | 1.771        | 1.381        | 0.000        |
| 2009/06/11 20:52:44 |     |     |     |     |     |           |      | 2          | 2           | 13.1       | 1.284        | 1.399        | 2.046        | 1.903        | 1.789        | 1.785        | 1.536        | 1.538        |
| 2009/06/11 20:56:46 |     |     |     |     |     | 1         |      | 2          | 2           | 12.7       | 1.373        | 1.355        | 1.642        | 1.667        | 1.921        | 1.918        | 1.438        | 1.438        |
| 2009/06/11 20:58:48 |     |     |     |     |     | 1         | 1    | 2          | 2           | 12.6       | 1.335        | 1.211        | 1.808        | 1.611        | 1.922        | 1.790        | 1.538        | 1.440        |
| 2009/06/11 21:00:50 |     |     |     | 170 |     |           |      | 2          | 2           | 12.6       | 1.293        | 1.183        | 1.770        | 1.554        | 1.922        | 1.791        | 1.538        | 1.441        |
| 2009/06/11 21:02:52 |     |     |     | 255 |     |           |      | 2          | 2           | 12.6       | 1.296        | 1.162        | 1.739        | 1.560        | 1.920        | 1.790        | 1.537        | 1.440        |
| 2009/06/11 21:02:54 |     |     |     |     | 170 |           |      | 2          | 2           | 12.5       | 1.285        | 1.145        | 1.712        | 1.546        | 1.922        | 1.793        | 1.538        | 1.442        |
| 2009/06/11 21:04:56 |     |     |     |     | 255 |           |      | 2          | 2           | 12.5       | 0.000        | 1.251        | 1.577        | 0.000        | 0.000        | 1.897        | 1.463        | 0.000        |
| 2009/06/11 21:04:58 |     |     |     |     |     | 0         | 0    | 2          | 2           | 12.5       | 0.000        | 1.211        | 1.640        | 0.000        | 0.000        | 1.855        | 1.494        | 0.000        |
| 2009/06/11 21:05:00 |     |     |     |     |     | 0         | 0    | 2          | 2           | 12.4       | 0.000        | 1.128        | 1.691        | 0.000        | 0.000        | 1.799        | 1.540        | 0.000        |

## **1.2 pegaso\_bscope\_mini\_report\_00002**

### **Bscope\_00002**

### 1.2.1 Bias status for PEGASO

This section provides an overall view of the bias settings used in a number of tests. It is used as an useful way to check the set up used during a tuning/calibration test.

#### 1.2.2 Test PEGASO, Feed Horn 26

##### Channel M2

Results for feed horn 26, channel M2 (test PEGASO). The analysis has been done in the range [1623444486., 1623450208.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | SKY10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/11 20:48:26 | 171 | 171 | 0   | 0   | 0   | 0         | 0    | 0          | 0           | -0.3       | 0.003        | 0.000        | 0.000        | 0.006        | 0.004        | 0.000        | 0.000        | 0.006        |
| 2009/06/11 21:16:06 | 232 | 219 | 171 | 152 | 253 | 0         | 0    | 0          | 0           | 13.1       | 0.099        | 0.000        | 0.000        | 0.201        | 0.004        | 0.000        | 0.000        | 0.006        |
| 2009/06/11 21:16:10 |     |     |     |     |     |           |      |            |             | 13.1       | 0.122        | 0.000        | 0.000        | 0.202        | 0.004        | 0.000        | 0.000        | 0.006        |
| 2009/06/11 21:20:12 |     |     |     |     |     | 1         |      | 2          |             | 13.1       | 0.137        | 0.137        | 0.200        | 0.200        | 0.004        | 0.004        | 0.006        | 0.006        |
| 2009/06/11 21:22:14 |     |     |     |     |     |           | 1    | 2          |             | 13.1       | 0.138        | 0.137        | 0.199        | 0.201        | 0.004        | 0.004        | 0.006        | 0.006        |
| 2009/06/11 21:24:16 |     |     |     | 101 |     |           |      | 2          |             | 13.1       | 0.138        | 0.135        | 0.197        | 0.201        | 0.004        | 0.004        | 0.006        | 0.006        |
| 2009/06/11 21:26:18 |     |     |     | 152 |     |           |      | 2          |             | 13.1       | 0.137        | 0.137        | 0.199        | 0.200        | 0.004        | 0.004        | 0.006        | 0.006        |
| 2009/06/11 21:26:20 |     |     |     |     | 168 |           |      | 2          |             | 13.1       | 0.136        | 0.137        | 0.199        | 0.199        | 0.004        | 0.004        | 0.006        | 0.006        |
| 2009/06/11 21:28:22 |     |     |     |     | 253 |           |      | 2          |             | 13.1       | 0.137        | 0.000        | 0.000        | 0.200        | 0.004        | 0.000        | 0.006        | 0.006        |
| 2009/06/11 21:28:24 |     |     |     |     |     |           | 0    | 2          |             | 13.1       | 0.138        | 0.000        | 0.000        | 0.201        | 0.004        | 0.000        | 0.006        | 0.006        |
| 2009/06/11 21:28:26 |     |     |     |     |     | 0         |      | 2          |             | 13.0       | 0.169        | 0.420        | 0.211        | 0.411        | 0.055        | 0.004        | 0.006        | 0.062        |
| 2009/06/11 21:49:04 |     |     |     |     |     | 1         |      | 2          |             | 12.9       | 0.000        | 0.418        | 0.203        | 0.000        | 0.000        | 0.211        | 0.220        | 0.000        |
| 2009/06/11 21:51:06 |     |     |     |     |     |           | 1    | 2          |             | 12.9       | 0.174        | 0.418        | 0.202        | 0.444        | 0.204        | 0.209        | 0.219        | 0.214        |
| 2009/06/11 21:57:16 |     |     |     |     |     |           | 0    | 2          |             | 12.9       | 0.288        | 0.000        | 0.000        | 0.331        | 0.208        | 0.000        | 0.000        | 0.217        |
| 2009/06/11 21:57:18 |     |     |     |     |     | 0         |      | 2          |             | 12.7       | 0.171        | 0.413        | 0.209        | 0.441        | 0.198        | 0.495        | 0.211        | 0.447        |

##### Channel M1

Results for feed horn 26, channel M1 (test PEGASO). The analysis has been done in the range [1623444486., 1623450208.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/11 20:48:26 | 171 | 171 | 0   | 0   | 0   | 0      | 0    | 0       | 0        | -0.3    | 0.031     | 0.137     | 0.199     | 0.056     | 0.004     | 0.004     | 0.006     | 0.006     |
| 2009/06/11 21:30:32 | 232 | 221 | 170 | 178 | 230 |        |      |         |          | 11.6    | 0.173     | 0.000     | 0.000     | 0.402     | 0.000     | 0.000     | 0.000     | 0.006     |
| 2009/06/11 21:30:36 |     |     |     |     |     |        |      |         |          | 11.6    | 0.174     | 0.174     | 0.449     | 0.448     | 0.004     | 0.004     | 0.006     | 0.006     |
| 2009/06/11 21:34:38 |     |     |     |     |     | 1      |      |         |          | 11.6    | 0.425     | 0.425     | 0.210     | 0.210     | 0.004     | 0.004     | 0.006     | 0.006     |
| 2009/06/11 21:36:40 |     |     |     |     |     |        | 1    |         |          | 11.6    | 0.172     | 0.424     | 0.207     | 0.448     | 0.004     | 0.004     | 0.006     | 0.006     |
| 2009/06/11 21:38:42 |     |     |     | 118 |     |        |      |         |          | 11.6    | 0.172     | 0.421     | 0.206     | 0.448     | 0.004     | 0.004     | 0.006     | 0.006     |
| 2009/06/11 21:40:44 |     |     |     | 178 |     |        |      |         |          | 11.6    | 0.171     | 0.424     | 0.207     | 0.448     | 0.004     | 0.004     | 0.006     | 0.006     |
| 2009/06/11 21:40:46 |     |     |     |     | 153 |        |      |         |          | 11.6    | 0.170     | 0.424     | 0.207     | 0.447     | 0.004     | 0.004     | 0.006     | 0.006     |
| 2009/06/11 21:42:48 |     |     |     |     | 230 |        |      |         |          | 11.6    | 0.369     | 0.000     | 0.000     | 0.261     | 0.004     | 0.000     | 0.000     | 0.006     |
| 2009/06/11 21:42:50 |     |     |     |     |     |        | 0    |         |          | 11.6    | 0.292     | 0.000     | 0.000     | 0.335     | 0.004     | 0.000     | 0.000     | 0.006     |
| 2009/06/11 21:42:52 |     |     |     |     |     | 0      |      |         |          | 11.4    | 0.173     | 0.174     | 0.206     | 0.444     | 0.174     | 0.210     | 0.222     | 0.253     |
| 2009/06/11 22:03:30 |     |     |     |     |     | 1      |      |         |          | 11.3    | 0.418     | 0.418     | 0.206     | 0.206     | 0.501     | 0.501     | 0.209     | 0.209     |
| 2009/06/11 22:05:32 |     |     |     |     |     |        | 1    |         |          | 11.3    | 0.168     | 0.417     | 0.204     | 0.442     | 0.193     | 0.500     | 0.205     | 0.476     |
| 2009/06/11 22:11:42 |     |     |     |     |     |        | 0    |         |          | 11.3    | 0.287     | 0.000     | 0.000     | 0.330     | 0.339     | 0.000     | 0.000     | 0.349     |
| 2009/06/11 22:11:44 |     |     |     |     |     | 0      |      |         |          | 11.3    | 0.170     | 0.000     | 0.000     | 0.442     | 0.196     | 0.000     | 0.000     | 0.476     |

### Channel S2

Results for feed horn 26, channel S2 (test PEGASO). The analysis has been done in the range [1623444486., 1623450208.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/11 20:48:26 | 171 | 171 | 0   | 0   | 0   | 0      | 0    | 0       | 0        | -0.3    | 0.013     | 0.000     | 0.000     | 0.031     | 0.004     | 0.000     | 0.000     | 0.006     |
| 2009/06/11 21:20:12 |     |     |     |     |     | 1      |      |         |          | -0.3    | 0.137     | 0.137     | 0.200     | 0.200     | 0.004     | 0.004     | 0.006     | 0.006     |
| 2009/06/11 21:22:14 |     |     |     |     |     |        | 1    |         |          | -0.3    | 0.137     | 0.136     | 0.199     | 0.200     | 0.004     | 0.004     | 0.006     | 0.006     |
| 2009/06/11 21:28:24 |     |     |     |     |     |        | 0    |         |          | -0.3    | 0.138     | 0.000     | 0.000     | 0.201     | 0.004     | 0.000     | 0.000     | 0.006     |
| 2009/06/11 21:28:26 |     |     |     |     |     | 0      |      |         |          | -0.3    | 0.168     | 0.420     | 0.211     | 0.398     | 0.004     | 0.004     | 0.006     | 0.006     |
| 2009/06/11 21:44:58 | 232 | 217 | 170 | 153 | 249 |        |      |         |          | 10.6    | 0.172     | 0.000     | 0.000     | 0.446     | 0.168     | 0.000     | 0.000     | 0.215     |
| 2009/06/11 21:45:02 |     |     |     |     |     |        |      |         |          | 10.6    | 0.172     | 0.000     | 0.000     | 0.446     | 0.207     | 0.000     | 0.000     | 0.216     |
| 2009/06/11 21:49:04 |     |     |     |     |     | 1      |      |         |          | 10.6    | 0.000     | 0.418     | 0.203     | 0.000     | 0.000     | 0.211     | 0.220     | 0.000     |
| 2009/06/11 21:51:06 |     |     |     |     |     |        | 1    |         |          | 10.6    | 0.172     | 0.418     | 0.202     | 0.446     | 0.205     | 0.210     | 0.219     | 0.214     |
| 2009/06/11 21:53:08 |     |     |     | 102 |     |        |      |         |          | 10.6    | 0.172     | 0.418     | 0.202     | 0.446     | 0.205     | 0.207     | 0.217     | 0.214     |
| 2009/06/11 21:55:10 |     |     |     | 153 |     |        |      |         |          | 10.6    | 0.172     | 0.418     | 0.202     | 0.446     | 0.204     | 0.210     | 0.219     | 0.213     |
| 2009/06/11 21:55:12 |     |     |     |     | 166 |        |      |         |          | 10.6    | 0.174     | 0.418     | 0.202     | 0.444     | 0.203     | 0.210     | 0.219     | 0.213     |
| 2009/06/11 21:57:14 |     |     |     |     | 249 |        |      |         |          | 10.6    | 0.364     | 0.000     | 0.000     | 0.257     | 0.209     | 0.000     | 0.000     | 0.218     |
| 2009/06/11 21:57:16 |     |     |     |     |     |        | 0    |         |          | 10.6    | 0.288     | 0.000     | 0.000     | 0.331     | 0.208     | 0.000     | 0.000     | 0.217     |
| 2009/06/11 21:57:18 |     |     |     |     |     | 0      |      |         |          | 10.5    | 0.171     | 0.413     | 0.209     | 0.441     | 0.198     | 0.495     | 0.211     | 0.447     |

### Channel S1

Results for feed horn 26, channel S1 (test PEGASO). The analysis has been done in the range [1623444486., 1623450208.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/11 20:48:26 | 171 | 171 | 0   | 0   | 0   | 0         | 0    | 0          | 0           | -0.3       | 0.045        | 0.137        | 0.201        | 0.093        | 0.004        | 0.004        | 0.006        | 0.006        |
| 2009/06/11 21:34:38 |     |     |     |     |     | 1         | 0    | 0          | 0           | -0.3       | 0.425        | 0.425        | 0.210        | 0.210        | 0.004        | 0.004        | 0.006        | 0.006        |
| 2009/06/11 21:36:40 |     |     |     |     |     |           | 1    | 0          | 0           | -0.3       | 0.171        | 0.423        | 0.207        | 0.448        | 0.004        | 0.004        | 0.006        | 0.006        |
| 2009/06/11 21:42:50 |     |     |     |     |     |           | 0    | 0          | 0           | -0.3       | 0.292        | 0.000        | 0.000        | 0.335        | 0.004        | 0.000        | 0.000        | 0.006        |
| 2009/06/11 21:42:52 |     |     |     |     |     | 0         | 0    | 0          | 0           | -0.3       | 0.174        | 0.417        | 0.204        | 0.444        | 0.166        | 0.210        | 0.219        | 0.178        |
| 2009/06/11 21:59:24 | 228 | 226 | 173 | 179 | 252 |           |      | 0          | 0           | 13.4       | 0.170        | 0.000        | 0.000        | 0.442        | 0.196        | 0.000        | 0.000        | 0.473        |
| 2009/06/11 21:59:28 |     |     |     |     |     |           |      | 2          | 0           | 13.4       | 0.170        | 0.170        | 0.442        | 0.442        | 0.196        | 0.196        | 0.476        | 0.476        |
| 2009/06/11 22:03:30 |     |     |     |     |     | 1         |      | 2          | 0           | 13.4       | 0.418        | 0.418        | 0.206        | 0.206        | 0.501        | 0.501        | 0.209        | 0.209        |
| 2009/06/11 22:05:32 |     |     |     |     |     |           | 1    | 2          | 0           | 13.5       | 0.168        | 0.417        | 0.204        | 0.442        | 0.193        | 0.501        | 0.206        | 0.476        |
| 2009/06/11 22:07:34 |     |     |     | 119 |     |           |      | 2          | 0           | 13.5       | 0.169        | 0.417        | 0.204        | 0.442        | 0.193        | 0.498        | 0.205        | 0.476        |
| 2009/06/11 22:09:36 |     |     |     | 179 |     |           |      | 2          | 0           | 13.5       | 0.168        | 0.417        | 0.204        | 0.442        | 0.193        | 0.501        | 0.206        | 0.475        |
| 2009/06/11 22:09:38 |     |     |     |     | 168 |           |      | 2          | 0           | 13.5       | 0.168        | 0.417        | 0.203        | 0.442        | 0.192        | 0.501        | 0.206        | 0.475        |
| 2009/06/11 22:11:40 |     |     |     |     | 252 |           |      | 2          | 0           | 13.5       | 0.362        | 0.000        | 0.000        | 0.257        | 0.432        | 0.000        | 0.000        | 0.266        |
| 2009/06/11 22:11:42 |     |     |     |     |     | 0         | 0    | 2          | 0           | 13.5       | 0.287        | 0.000        | 0.000        | 0.330        | 0.339        | 0.000        | 0.000        | 0.349        |
| 2009/06/11 22:11:44 |     |     |     |     |     | 0         | 0    | 2          | 0           | 13.5       | 0.170        | 0.000        | 0.000        | 0.442        | 0.196        | 0.000        | 0.000        | 0.476        |

### **1.3 pegaso\_bscope\_mini\_report\_00003**

#### **Bscope\_00003**

### 1.3.1 Bias status for PEGASO

This section provides an overall view of the bias settings used in a number of tests. It is used as an useful way to check the set up used during a tuning/calibration test.

### 1.3.2 Test PEGASO, Feed Horn 23

#### Channel S2

Results for feed horn 23, channel S2 (test PEGASO). The analysis has been done in the range [1623450278., 1623454388.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/11 22:25:04 | 0   | 0   | 0   | 0   | 0   | 0         | 0    | 0          | 0           | -0.2       | 0.000        | 0.019        | 0.023        | 0.000        | 0.000        | 0.029        | 0.014        | 0.000        |
| 2009/06/11 22:28:07 | 186 | 193 | 122 | 255 | 255 |           |      |            |             | 16.1       | 0.000        | -0.018       | 0.024        | 0.000        | 0.000        | 1.823        | 0.970        | 0.000        |
| 2009/06/11 22:28:11 |     |     |     |     |     |           |      |            |             | 15.1       | 0.020        | 0.020        | 0.024        | 0.024        | 1.277        | 1.395        | 0.732        | 0.666        |
| 2009/06/11 22:32:13 |     |     |     |     |     | 1         |      |            |             | 14.7       | 0.020        | 0.020        | 0.024        | 0.024        | 1.232        | 1.212        | 0.630        | 0.641        |
| 2009/06/11 22:34:15 |     |     |     |     |     |           | 1    |            |             | 14.7       | 0.020        | 0.020        | 0.024        | 0.024        | 1.189        | 1.207        | 0.628        | 0.618        |
| 2009/06/11 22:36:17 |     |     |     | 170 |     |           |      |            |             | 14.6       | 0.020        | 0.020        | 0.025        | 0.025        | 1.142        | 1.178        | 0.612        | 0.594        |
| 2009/06/11 22:38:19 |     |     |     | 255 |     |           |      |            |             | 14.6       | 0.020        | 0.020        | 0.025        | 0.025        | 1.149        | 1.157        | 0.602        | 0.596        |
| 2009/06/11 22:38:21 |     |     |     |     | 170 |           |      |            |             | 14.6       | 0.020        | 0.020        | 0.025        | 0.025        | 1.138        | 1.138        | 0.592        | 0.589        |
| 2009/06/11 22:40:23 |     |     |     |     | 255 |           |      |            |             | 14.6       | 0.000        | 0.020        | 0.025        | 0.000        | 0.000        | 1.135        | 0.587        | 0.000        |
| 2009/06/11 22:40:25 |     |     |     |     |     |           | 0    |            |             | 14.6       | 0.000        | 0.020        | 0.025        | 0.000        | 0.000        | 1.141        | 0.590        | 0.000        |
| 2009/06/11 22:40:27 |     |     |     |     |     | 0         |      |            |             | 14.1       | 0.031        | 0.252        | 0.290        | 0.034        | 1.169        | 2.305        | 0.603        | 1.418        |
| 2009/06/11 23:01:05 |     |     |     |     |     | 1         |      |            |             | 13.9       | 0.811        | 0.800        | 0.935        | 0.948        | 0.984        | 0.984        | 1.222        | 1.222        |
| 2009/06/11 23:03:07 |     |     |     |     |     |           | 1    |            |             | 13.9       | 0.774        | 0.749        | 0.885        | 0.907        | 0.976        | 2.229        | 0.525        | 1.227        |
| 2009/06/11 23:09:17 |     |     |     |     |     |           | 0    |            |             | 13.9       | 0.000        | 0.755        | 0.888        | 0.000        | 0.000        | 1.646        | 0.858        | 0.000        |
| 2009/06/11 23:09:19 |     |     |     |     |     | 0         |      |            |             | 13.7       | 0.777        | 1.692        | 0.967        | 2.316        | 0.933        | 2.051        | 0.488        | 1.099        |

#### Channel S1

Results for feed horn 23, channel S1 (test PEGASO). The analysis has been done in the range [1623450278., 1623454388.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/11 22:25:04 | 0   | 0   | 0   | 0   | 0   | 0      | 0    | 0       | 0        | -0.2    | 0.020     | 0.016     | 0.024     | 0.025     | 1.188     | 1.089     | 0.568     | 0.617     |
| 2009/06/11 22:42:33 | 197 | 166 | 118 | 255 | 255 |        |      |         |          | 23.2    | 0.000     | 0.020     | -0.013    | 0.000     | 0.000     | 2.697     | 0.899     | 0.000     |
| 2009/06/11 22:42:37 |     |     |     |     |     |        |      |         |          | 22.5    | 0.020     | 0.020     | 0.021     | 0.020     | 2.661     | 2.694     | 0.682     | 0.631     |
| 2009/06/11 22:46:39 |     |     |     |     |     | 1      |      |         |          | 22.3    | 0.020     | 0.020     | 0.020     | 0.021     | 1.156     | 1.146     | 1.455     | 1.471     |
| 2009/06/11 22:48:41 |     |     |     |     |     |        | 1    |         |          | 22.3    | 0.020     | 0.020     | 0.021     | 0.021     | 1.125     | 2.587     | 0.605     | 1.444     |
| 2009/06/11 22:50:43 |     |     |     | 170 |     |        |      |         |          | 22.2    | 0.020     | 0.020     | 0.021     | 0.021     | 1.110     | 2.560     | 0.598     | 1.421     |
| 2009/06/11 22:52:45 |     |     |     | 255 |     |        |      |         |          | 22.2    | 0.020     | 0.020     | 0.021     | 0.021     | 1.111     | 2.543     | 0.595     | 1.423     |
| 2009/06/11 22:52:47 |     |     |     |     | 170 |        |      |         |          | 22.2    | 0.020     | 0.020     | 0.021     | 0.021     | 1.131     | 2.522     | 0.590     | 1.399     |
| 2009/06/11 22:54:49 |     |     |     |     | 255 |        |      |         |          | 22.2    | 0.020     | 0.000     | 0.000     | 0.021     | 1.424     | 0.000     | 0.000     | 1.228     |
| 2009/06/11 22:54:51 |     |     |     |     |     |        | 0    |         |          | 22.2    | 0.020     | 0.020     | 0.021     | 0.021     | 1.114     | 1.941     | 0.935     | 1.408     |
| 2009/06/11 22:54:53 |     |     |     |     |     |        |      |         |          | 21.9    | 0.793     | 1.039     | 0.866     | 0.924     | 1.009     | 2.195     | 0.524     | 1.208     |
| 2009/06/11 23:15:31 |     |     |     |     |     | 1      |      |         |          | 21.8    | 0.768     | 0.760     | 2.371     | 2.406     | 0.914     | 0.915     | 1.113     | 1.111     |
| 2009/06/11 23:17:33 |     |     |     |     |     |        | 1    |         |          | 21.8    | 0.759     | 1.767     | 0.948     | 2.287     | 0.922     | 2.035     | 0.480     | 1.105     |
| 2009/06/11 23:23:43 |     |     |     |     |     |        | 0    |         |          | 21.8    | 0.000     | 1.267     | 1.567     | 0.000     | 0.000     | 1.507     | 0.782     | 0.000     |
| 2009/06/11 23:23:45 |     |     |     |     |     | 0      |      |         |          | 21.8    | 0.000     | 1.722     | 0.935     | 0.000     | 0.000     | 2.039     | 0.487     | 0.000     |

### Channel M1

Results for feed horn 23, channel M1 (test PEGASO). The analysis has been done in the range [1623450278., 1623454388.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/11 22:25:04 | 0   | 0   | 0   | 0   | 0   | 0      | 0    | 0       | 0        | -0.2    | 0.020     | 0.012     | 0.024     | 0.024     | 1.277     | 1.019     | 0.535     | 0.666     |
| 2009/06/11 22:32:13 |     |     |     |     |     | 1      |      |         |          | -0.2    | 0.020     | 0.020     | 0.024     | 0.024     | 1.232     | 1.212     | 0.630     | 0.641     |
| 2009/06/11 22:34:15 |     |     |     |     |     |        | 1    |         |          | -0.2    | 0.020     | 0.020     | 0.025     | 0.025     | 1.156     | 1.174     | 0.611     | 0.600     |
| 2009/06/11 22:40:25 |     |     |     |     |     |        | 0    |         |          | -0.2    | 0.000     | 0.020     | 0.025     | 0.000     | 0.000     | 1.141     | 0.590     | 0.000     |
| 2009/06/11 22:40:27 |     |     |     |     |     |        |      |         |          | 15.7    | 0.000     | 1.228     | 1.411     | 0.021     | 1.154     | 2.342     | 0.631     | 1.430     |
| 2009/06/11 22:56:59 | 193 | 187 | 121 | 255 | 255 |        |      |         |          | 14.6    | 0.805     | 0.895     | 1.047     | 0.947     | 2.224     | 2.216     | 0.525     | 0.527     |
| 2009/06/11 22:57:03 |     |     |     |     |     |        |      |         |          | 14.3    | 0.811     | 0.800     | 0.935     | 0.948     | 0.984     | 0.984     | 1.222     | 1.222     |
| 2009/06/11 23:01:05 |     |     |     |     |     | 1      |      |         |          | 14.3    | 0.788     | 0.763     | 0.900     | 0.923     | 0.974     | 2.228     | 0.523     | 1.225     |
| 2009/06/11 23:03:07 |     |     |     |     |     |        |      |         |          | 14.2    | 0.768     | 0.751     | 0.887     | 0.900     | 0.976     | 2.232     | 0.524     | 1.227     |
| 2009/06/11 23:05:09 |     |     |     | 170 |     |        |      |         |          | 14.2    | 0.771     | 0.742     | 0.877     | 0.903     | 0.976     | 2.231     | 0.523     | 1.226     |
| 2009/06/11 23:07:11 |     |     |     | 255 |     |        |      |         |          | 14.2    | 0.771     | 0.742     | 0.877     | 0.903     | 0.976     | 2.231     | 0.523     | 1.226     |
| 2009/06/11 23:07:13 |     |     |     |     | 170 |        |      |         |          | 14.2    | 0.767     | 0.735     | 0.868     | 0.898     | 0.977     | 2.234     | 0.524     | 1.228     |
| 2009/06/11 23:09:15 |     |     |     |     | 255 |        |      |         |          | 14.2    | 0.000     | 0.760     | 0.891     | 0.000     | 0.000     | 1.262     | 1.073     | 0.000     |
| 2009/06/11 23:09:17 |     |     |     |     |     |        | 0    |         |          | 14.2    | 0.000     | 0.755     | 0.888     | 0.000     | 0.000     | 1.646     | 0.858     | 0.000     |
| 2009/06/11 23:09:19 |     |     |     |     |     | 0      |      |         |          | 14.0    | 0.777     | 1.692     | 0.967     | 2.316     | 0.933     | 2.051     | 0.488     | 1.099     |

### Channel M2

Results for feed horn 23, channel M2 (test PEGASO). The analysis has been done in the range [1623450278., 1623454388.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/11 22:25:04 | 0   | 0   | 0   | 0   | 0   | 0         | 0    | 0          | 0           | -0.2       | 0.020        | 0.017        | 0.020        | 0.025        | 1.188        | 1.526        | 0.601        | 0.617        |
| 2009/06/11 22:46:39 |     |     |     |     |     | 1         | 0    | 0          | 0           | -0.2       | 0.020        | 0.020        | 0.020        | 0.021        | 1.156        | 1.146        | 1.455        | 1.471        |
| 2009/06/11 22:48:41 |     |     |     |     |     |           | 1    | 0          | 0           | -0.2       | 0.020        | 0.020        | 0.021        | 0.021        | 1.129        | 2.557        | 0.598        | 1.417        |
| 2009/06/11 22:54:51 |     |     |     |     |     |           | 0    | 0          | 0           | -0.2       | 0.020        | 0.020        | 0.021        | 0.021        | 1.114        | 1.941        | 0.935        | 1.408        |
| 2009/06/11 22:54:53 |     |     |     |     |     | 0         | 0    | 0          | 0           | -0.2       | 0.789        | 0.673        | 0.790        | 0.924        | 1.005        | 2.262        | 0.545        | 1.210        |
| 2009/06/11 23:11:25 | 196 | 190 | 120 | 255 | 255 |           |      | 0          | 0           | 13.7       | 0.000        | 2.860        | 1.477        | 0.000        | 0.000        | 1.972        | 0.433        | 0.000        |
| 2009/06/11 23:11:29 |     |     |     |     |     |           |      | 2          | 2           | 12.1       | 1.870        | 2.034        | 1.065        | 0.992        | 2.025        | 2.011        | 0.479        | 0.482        |
| 2009/06/11 23:15:31 |     |     |     |     |     | 1         |      | 2          | 2           | 11.9       | 0.768        | 0.760        | 2.371        | 2.406        | 0.914        | 0.915        | 1.113        | 1.111        |
| 2009/06/11 23:17:33 |     |     |     |     |     |           | 1    | 2          | 2           | 11.9       | 0.752        | 1.795        | 0.959        | 2.345        | 0.905        | 2.033        | 0.480        | 1.113        |
| 2009/06/11 23:19:35 |     |     |     | 170 |     |           |      | 2          | 2           | 11.8       | 0.743        | 1.768        | 0.948        | 2.295        | 0.906        | 2.035        | 0.480        | 1.114        |
| 2009/06/11 23:21:37 |     |     |     | 255 |     |           |      | 2          | 2           | 11.8       | 0.741        | 1.747        | 0.940        | 2.287        | 0.906        | 2.035        | 0.480        | 1.113        |
| 2009/06/11 23:21:39 |     |     |     |     | 170 |           |      | 2          | 2           | 11.8       | 0.767        | 1.737        | 0.936        | 2.243        | 0.937        | 2.037        | 0.481        | 1.098        |
| 2009/06/11 23:23:41 |     |     |     |     | 255 |           |      | 2          | 2           | 11.8       | 0.968        | 0.743        | 2.273        | 1.968        | 1.169        | 0.916        | 1.113        | 0.970        |
| 2009/06/11 23:23:43 |     |     |     |     |     | 0         |      | 2          | 2           | 11.9       | 0.000        | 1.267        | 1.567        | 0.000        | 0.000        | 1.507        | 0.782        | 0.000        |
| 2009/06/11 23:23:45 |     |     |     |     |     | 0         |      | 2          | 2           | 11.9       | 0.000        | 1.722        | 0.935        | 0.000        | 0.000        | 2.039        | 0.487        | 0.000        |

## 1.4 pegaso\_bscope\_mini\_report\_00004

### Bscope\_00004

### 1.4.1 Bias status for PEGASO

This section provides an overall view of the bias settings used in a number of tests. It is used as an useful way to check the set up used during a tuning/calibration test.

### 1.4.2 Test PEGASO, Feed Horn 25

#### Channel M1

Results for feed horn 25, channel M1 (test PEGASO). The analysis has been done in the range [1623453671., 1623458877.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | SKY10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/11 23:21:36 | 171 | 171 | 0   | 0   | 0   | 0      | 0    | 0       | 0        | -0.2    | 0.006     | 0.000     | 0.000     | 0.007     | 0.004     | 0.000     | 0.000     | 0.003     |
| 2009/06/11 23:34:51 | 222 | 221 | 184 | 152 | 252 | 0      | 0    | 0       | 0        | 12.5    | 0.198     | 0.000     | 0.000     | 0.249     | 0.004     | 0.000     | 0.000     | 0.003     |
| 2009/06/11 23:34:55 |     |     |     |     |     |        |      | 2       | 2        | 12.5    | 0.238     | 0.238     | 0.250     | 0.250     | 0.004     | 0.004     | 0.003     | 0.003     |
| 2009/06/11 23:38:57 |     |     |     |     |     | 1      |      | 2       | 2        | 12.6    | 0.238     | 0.238     | 0.250     | 0.250     | 0.004     | 0.004     | 0.003     | 0.003     |
| 2009/06/11 23:40:59 |     |     |     |     |     |        | 1    | 2       | 2        | 12.6    | 0.237     | 0.237     | 0.249     | 0.249     | 0.004     | 0.004     | 0.004     | 0.004     |
| 2009/06/11 23:43:01 |     |     |     | 101 |     |        |      | 2       | 2        | 12.6    | 0.237     | 0.235     | 0.246     | 0.249     | 0.004     | 0.004     | 0.004     | 0.004     |
| 2009/06/11 23:45:03 |     |     |     | 152 |     |        |      | 2       | 2        | 12.6    | 0.236     | 0.237     | 0.249     | 0.248     | 0.004     | 0.004     | 0.004     | 0.004     |
| 2009/06/11 23:45:05 |     |     |     |     | 168 |        |      | 2       | 2        | 12.5    | 0.235     | 0.237     | 0.249     | 0.247     | 0.004     | 0.004     | 0.004     | 0.004     |
| 2009/06/11 23:47:07 |     |     |     |     | 252 |        |      | 2       | 2        | 12.5    | 0.237     | 0.000     | 0.000     | 0.249     | 0.004     | 0.000     | 0.000     | 0.004     |
| 2009/06/11 23:47:09 |     |     |     |     |     | 0      | 0    | 2       | 2        | 12.5    | 0.238     | 0.000     | 0.000     | 0.250     | 0.004     | 0.000     | 0.000     | 0.003     |
| 2009/06/11 23:47:11 |     |     |     |     |     |        |      | 2       | 2        | 12.4    | 0.235     | 0.495     | 0.240     | 0.461     | 0.064     | 0.009     | 0.007     | 0.059     |
| 2009/06/12 00:07:49 |     |     |     |     |     | 1      |      | 2       | 2        | 12.3    | 0.492     | 0.492     | 0.226     | 0.226     | 0.253     | 0.253     | 0.220     | 0.220     |
| 2009/06/12 00:09:51 |     |     |     |     |     |        | 1    | 2       | 2        | 12.3    | 0.231     | 0.494     | 0.224     | 0.496     | 0.252     | 0.252     | 0.219     | 0.213     |
| 2009/06/12 00:16:00 |     |     |     |     |     |        | 0    | 2       | 2        | 12.3    | 0.444     | 0.000     | 0.000     | 0.276     | 0.251     | 0.000     | 0.000     | 0.219     |
| 2009/06/12 00:16:03 |     |     |     |     |     | 0      |      | 2       | 2        | 12.2    | 0.231     | 0.495     | 0.230     | 0.491     | 0.226     | 0.544     | 0.205     | 0.448     |

#### Channel M2

Results for feed horn 25, channel M2 (test PEGASO). The analysis has been done in the range [1623453671., 1623458877.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/11 23:21:36 | 171 | 171 | 0   | 0   | 0   | 0      | 0    | 0       | 0        | -0.2    | 0.100     | 0.237     | 0.249     | 0.107     | 0.004     | 0.004     | 0.004     | 0.003     |
| 2009/06/11 23:49:17 | 224 | 212 | 185 | 153 | 249 |        |      |         |          | 9.9     | 0.233     | 0.000     | 0.000     | 0.459     | 0.004     | 0.000     | 0.000     | 0.004     |
| 2009/06/11 23:49:21 |     |     |     |     |     |        |      |         |          | 10.0    | 0.234     | 0.234     | 0.498     | 0.498     | 0.004     | 0.004     | 0.004     | 0.004     |
| 2009/06/11 23:53:23 |     |     |     |     |     | 1      |      |         |          | 10.0    | 0.504     | 0.504     | 0.231     | 0.231     | 0.004     | 0.004     | 0.004     | 0.004     |
| 2009/06/11 23:55:25 |     |     |     |     |     |        | 1    |         |          | 10.0    | 0.233     | 0.506     | 0.230     | 0.501     | 0.005     | 0.005     | 0.004     | 0.004     |
| 2009/06/11 23:57:27 |     |     |     |     |     |        |      |         |          | 10.1    | 0.233     | 0.504     | 0.228     | 0.501     | 0.005     | 0.005     | 0.004     | 0.004     |
| 2009/06/11 23:59:29 |     |     |     |     |     |        |      |         |          | 10.1    | 0.232     | 0.506     | 0.230     | 0.500     | 0.005     | 0.005     | 0.004     | 0.004     |
| 2009/06/11 23:59:31 |     |     |     |     | 166 |        |      |         |          | 10.1    | 0.232     | 0.499     | 0.236     | 0.499     | 0.005     | 0.005     | 0.004     | 0.004     |
| 2009/06/12 00:01:33 |     |     |     |     | 249 |        |      |         |          | 10.1    | 0.000     | 0.445     | 0.291     | 0.000     | 0.000     | 0.005     | 0.004     | 0.000     |
| 2009/06/12 00:01:35 |     |     |     |     |     |        | 0    |         |          | 10.1    | 0.362     | 0.000     | 0.000     | 0.372     | 0.004     | 0.000     | 0.000     | 0.004     |
| 2009/06/12 00:01:37 |     |     |     |     |     | 0      |      |         |          | 9.9     | 0.234     | 0.485     | 0.233     | 0.493     | 0.204     | 0.252     | 0.221     | 0.251     |
| 2009/06/12 00:22:15 |     |     |     |     |     | 1      |      |         |          | 9.8     | 0.498     | 0.498     | 0.228     | 0.228     | 0.548     | 0.548     | 0.203     | 0.203     |
| 2009/06/12 00:24:17 |     |     |     |     |     |        | 1    |         |          | 9.8     | 0.229     | 0.500     | 0.226     | 0.494     | 0.221     | 0.548     | 0.201     | 0.472     |
| 2009/06/12 00:30:27 |     |     |     |     |     |        | 0    |         |          | 9.8     | 0.356     | 0.000     | 0.000     | 0.367     | 0.376     | 0.000     | 0.000     | 0.345     |
| 2009/06/12 00:30:29 |     |     |     |     |     | 0      |      |         |          | 9.8     | 0.231     | 0.000     | 0.000     | 0.491     | 0.224     | 0.000     | 0.000     | 0.470     |

### Channel S1

Results for feed horn 25, channel S1 (test PEGASO). The analysis has been done in the range [1623453671., 1623458877.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/11 23:21:36 | 171 | 171 | 0   | 0   | 0   | 0      | 0    | 0       | 0        | -0.2    | 0.058     | 0.238     | 0.250     | 0.063     | 0.004     | 0.004     | 0.003     | 0.003     |
| 2009/06/11 23:38:57 |     |     |     |     |     | 1      |      |         |          | -0.2    | 0.238     | 0.238     | 0.250     | 0.250     | 0.004     | 0.004     | 0.003     | 0.003     |
| 2009/06/11 23:40:59 |     |     |     |     |     |        | 1    |         |          | -0.2    | 0.236     | 0.236     | 0.248     | 0.248     | 0.004     | 0.004     | 0.004     | 0.004     |
| 2009/06/11 23:47:09 |     |     |     |     |     |        | 0    |         |          | -0.2    | 0.238     | 0.000     | 0.000     | 0.250     | 0.004     | 0.000     | 0.000     | 0.003     |
| 2009/06/12 00:03:43 |     |     |     |     | 180 |        |      |         |          | 11.3    | 0.233     | 0.000     | 0.000     | 0.449     | 0.004     | 0.005     | 0.004     | 0.004     |
| 2009/06/12 00:03:47 | 226 | 216 | 167 | 153 | 180 |        |      |         |          | 11.3    | 0.233     | 0.233     | 0.495     | 0.495     | 0.206     | 0.000     | 0.213     | 0.213     |
| 2009/06/12 00:07:49 |     |     |     |     |     | 1      |      |         |          | 11.3    | 0.492     | 0.492     | 0.226     | 0.226     | 0.253     | 0.245     | 0.214     | 0.214     |
| 2009/06/12 00:09:51 |     |     |     |     |     |        | 1    |         |          | 11.4    | 0.231     | 0.494     | 0.224     | 0.497     | 0.244     | 0.252     | 0.220     | 0.213     |
| 2009/06/12 00:11:53 |     |     |     | 102 |     |        |      |         |          | 11.4    | 0.231     | 0.494     | 0.224     | 0.497     | 0.244     | 0.250     | 0.217     | 0.213     |
| 2009/06/12 00:13:55 |     |     |     | 153 |     |        |      |         |          | 11.4    | 0.231     | 0.494     | 0.224     | 0.497     | 0.242     | 0.252     | 0.220     | 0.212     |
| 2009/06/12 00:13:57 |     |     |     |     | 120 |        |      |         |          | 11.3    | 0.231     | 0.494     | 0.224     | 0.497     | 0.241     | 0.253     | 0.220     | 0.211     |
| 2009/06/12 00:15:59 |     |     |     |     | 180 |        |      |         |          | 11.3    | 0.362     | 0.000     | 0.000     | 0.360     | 0.248     | 0.000     | 0.000     | 0.217     |
| 2009/06/12 00:16:00 |     |     |     |     |     |        | 0    |         |          | 11.4    | 0.444     | 0.000     | 0.000     | 0.276     | 0.251     | 0.000     | 0.000     | 0.219     |
| 2009/06/12 00:16:03 |     |     |     |     |     | 0      |      |         |          | 11.2    | 0.231     | 0.495     | 0.230     | 0.491     | 0.226     | 0.544     | 0.205     | 0.448     |

### Channel S2

Results for feed horn 25, channel S2 (test PEGASO). The analysis has been done in the range [1623453671., 1623458877.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/11 23:21:36 | 171 | 171 | 0   | 0   | 0   | 0         | 0    | 0          | 0           | -0.2       | 0.120        | 0.237        | 0.249        | 0.165        | 0.004        | 0.004        | 0.004        | 0.003        |
| 2009/06/11 23:53:23 |     |     |     |     |     | 1         | 0    | 0          | 0           | -0.2       | 0.504        | 0.504        | 0.231        | 0.231        | 0.004        | 0.004        | 0.004        | 0.004        |
| 2009/06/11 23:55:25 |     |     |     |     |     |           | 1    | 0          | 0           | -0.2       | 0.232        | 0.502        | 0.233        | 0.500        | 0.005        | 0.005        | 0.004        | 0.004        |
| 2009/06/12 00:01:35 |     |     |     |     |     |           | 0    | 0          | 0           | -0.2       | 0.362        | 0.000        | 0.000        | 0.372        | 0.004        | 0.000        | 0.000        | 0.004        |
| 2009/06/12 00:01:37 |     |     |     |     |     |           | 0    | 0          | 0           | -0.2       | 0.235        | 0.487        | 0.231        | 0.493        | 0.197        | 0.252        | 0.219        | 0.176        |
| 2009/06/12 00:18:08 | 219 | 220 | 166 | 126 | 178 |           |      | 0          | 0           | 12.1       | 0.231        | 0.000        | 0.000        | 0.492        | 0.224        | 0.000        | 0.000        | 0.469        |
| 2009/06/12 00:18:13 |     |     |     |     |     |           |      | 2          | 0           | 12.1       | 0.231        | 0.231        | 0.491        | 0.491        | 0.224        | 0.224        | 0.471        | 0.471        |
| 2009/06/12 00:22:15 |     |     |     |     |     | 1         |      | 2          | 2           | 12.1       | 0.498        | 0.498        | 0.228        | 0.228        | 0.548        | 0.548        | 0.203        | 0.203        |
| 2009/06/12 00:24:17 |     |     |     |     |     |           | 1    | 2          | 2           | 12.1       | 0.229        | 0.500        | 0.226        | 0.494        | 0.222        | 0.550        | 0.202        | 0.473        |
| 2009/06/12 00:26:19 |     |     |     | 84  |     |           |      | 2          | 2           | 12.1       | 0.229        | 0.500        | 0.226        | 0.494        | 0.222        | 0.545        | 0.199        | 0.473        |
| 2009/06/12 00:28:21 |     |     |     | 126 |     |           |      | 2          | 2           | 12.1       | 0.229        | 0.500        | 0.226        | 0.494        | 0.221        | 0.550        | 0.202        | 0.471        |
| 2009/06/12 00:28:23 |     |     |     |     | 118 |           |      | 2          | 2           | 12.1       | 0.229        | 0.499        | 0.226        | 0.483        | 0.220        | 0.550        | 0.202        | 0.470        |
| 2009/06/12 00:30:25 |     |     |     |     | 178 |           |      | 2          | 2           | 12.1       | 0.435        | 0.499        | 0.226        | 0.290        | 0.472        | 0.550        | 0.202        | 0.266        |
| 2009/06/12 00:30:27 |     |     |     |     |     |           | 0    | 2          | 2           | 12.1       | 0.356        | 0.000        | 0.000        | 0.367        | 0.376        | 0.000        | 0.000        | 0.345        |
| 2009/06/12 00:30:29 |     |     |     |     |     | 0         |      | 2          | 2           | 12.1       | 0.231        | 0.000        | 0.000        | 0.491        | 0.224        | 0.000        | 0.000        | 0.470        |

## **1.5 pegaso\_bscope\_mini\_report\_00005**

### **Bscope\_00005**

### 1.5.1 Bias status for PEGASO

This section provides an overall view of the bias settings used in a number of tests. It is used as an useful way to check the set up used during a tuning/calibration test.

### 1.5.2 Test PEGASO, Feed Horn 22

#### Channel S2

Results for feed horn 22, channel S2 (test PEGASO). The analysis has been done in the range [1623461897., 1623466233.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/12 01:38:20 | 0   | 0   | 0   | 0   | 0   | 0         | 0    | 0          | 0           | -0.1       | 0.000        | 0.009        | 0.008        | 0.000        | 0.000        | 0.007        | 0.009        | 0.000        |
| 2009/06/12 01:53:36 | 220 | 199 | 123 | 255 | 255 |           | 0    | 0          | 0           | 17.4       | 0.000        | -0.140       | 0.008        | 0.000        | 0.000        | 0.858        | 1.107        | 0.000        |
| 2009/06/12 01:53:40 |     |     |     |     |     |           |      | 2          |             | 16.1       | -0.004       | -0.004       | -0.103       | -0.013       | 0.583        | 0.530        | 0.728        | 0.770        |
| 2009/06/12 01:57:42 |     |     |     |     |     | 1         |      | 2          |             | 15.9       | -0.004       | -0.004       | -0.013       | -0.013       | 0.572        | 0.564        | 0.762        | 0.771        |
| 2009/06/12 01:59:44 |     |     |     |     |     |           | 1    | 2          |             | 15.9       | -0.004       | -0.004       | -0.013       | -0.013       | 0.559        | 0.558        | 0.736        | 0.753        |
| 2009/06/12 02:01:46 |     |     |     | 170 |     |           |      | 2          |             | 15.8       | -0.003       | -0.003       | -0.012       | -0.012       | 0.542        | 0.547        | 0.723        | 0.728        |
| 2009/06/12 02:03:48 |     |     |     | 255 |     |           |      | 2          |             | 15.8       | -0.003       | -0.003       | -0.012       | -0.012       | 0.544        | 0.539        | 0.711        | 0.734        |
| 2009/06/12 02:03:50 |     |     |     |     | 170 |           |      | 2          |             | 15.8       | -0.003       | -0.003       | -0.012       | -0.012       | 0.539        | 0.532        | 0.700        | 0.728        |
| 2009/06/12 02:05:52 |     |     |     |     | 255 |           |      | 2          |             | 15.8       | 0.000        | -0.003       | -0.012       | 0.000        | 0.000        | 0.535        | 0.721        | 0.000        |
| 2009/06/12 02:05:54 |     |     |     |     |     |           | 0    | 2          |             | 15.8       | 0.000        | -0.003       | -0.012       | 0.000        | 0.000        | 0.535        | 0.717        | 0.000        |
| 2009/06/12 02:05:56 |     |     |     |     |     | 0         |      | 2          |             | 15.7       | 0.002        | 0.111        | 0.118        | -0.006       | 0.764        | 1.535        | 0.902        | 2.069        |
| 2009/06/12 02:26:34 |     |     |     |     |     | 1         |      | 2          |             | 15.6       | 0.421        | 0.418        | 0.476        | 0.479        | 0.694        | 0.693        | 1.953        | 1.955        |
| 2009/06/12 02:28:36 |     |     |     |     |     |           | 1    | 2          |             | 15.6       | 0.410        | 0.396        | 0.447        | 0.467        | 0.690        | 1.583        | 0.872        | 1.950        |
| 2009/06/12 02:34:46 |     |     |     |     |     | 0         |      | 2          |             | 15.6       | 0.000        | 0.403        | 0.458        | 0.000        | 0.000        | 1.164        | 1.384        | 0.000        |
| 2009/06/12 02:34:48 |     |     |     |     |     | 0         |      | 2          |             | 15.5       | 0.510        | 0.986        | 0.539        | 1.310        | 0.681        | 1.520        | 0.848        | 1.847        |

#### Channel S1

Results for feed horn 22, channel S1 (test PEGASO). The analysis has been done in the range [1623461897., 1623466233.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/12 01:38:20 | 0   | 0   | 0   | 0   | 0   | 0      | 0    | 0       | 0        | -0.1    | 0.000     | 0.005     | -0.007    | 0.000     | 0.000     | 0.055     | 0.077     | 0.000     |
| 2009/06/12 01:55:12 |     |     |     |     |     |        |      | 2       | 0        | -0.1    | -0.003    | -0.003    | -0.013    | -0.013    | 0.557     | 0.559     | 0.739     | 0.751     |
| 2009/06/12 02:08:00 | 204 | 184 | 122 | 255 | 255 |        |      | 2       | 2        | -0.1    | 0.000     | -0.003    | -0.012    | 0.000     | 0.000     | 1.427     | 0.910     | 0.000     |
| 2009/06/12 02:08:02 |     |     |     |     |     | 1      |      | 2       | 2        | 17.9    | 0.000     | -0.003    | -0.012    | 0.000     | 0.000     | 1.810     | 0.980     | 0.000     |
| 2009/06/12 02:12:08 |     |     |     |     |     |        | 1    | 2       | 2        | 17.4    | -0.003    | 0.000     | 0.000     | -0.012    | 0.762     | 0.000     | 0.000     | 2.120     |
| 2009/06/12 02:14:10 |     |     |     |     |     |        |      | 2       | 2        | 17.3    | -0.003    | -0.003    | -0.012    | -0.012    | 0.749     | 1.715     | 0.930     | 2.093     |
| 2009/06/12 02:16:12 |     |     |     | 170 |     |        |      | 2       | 2        | 17.2    | -0.003    | -0.003    | -0.012    | -0.012    | 0.736     | 1.694     | 0.921     | 2.053     |
| 2009/06/12 02:18:14 |     |     |     | 255 |     |        |      | 2       | 2        | 17.2    | -0.003    | -0.003    | -0.012    | -0.012    | 0.738     | 1.680     | 0.914     | 2.063     |
| 2009/06/12 02:18:16 |     |     |     |     | 170 |        |      | 2       | 2        | 17.2    | -0.003    | -0.003    | -0.012    | -0.012    | 0.735     | 1.666     | 0.922     | 2.055     |
| 2009/06/12 02:20:18 |     |     |     | 255 |     |        |      | 2       | 2        | 17.2    | 0.000     | -0.003    | -0.012    | 0.000     | 0.000     | 0.943     | 1.803     | 0.000     |
| 2009/06/12 02:20:20 |     |     |     |     |     |        | 0    | 2       | 2        | 17.2    | 0.000     | -0.003    | -0.012    | 0.000     | 0.000     | 1.232     | 1.453     | 0.000     |
| 2009/06/12 02:20:22 |     |     |     |     |     | 0      |      | 2       | 2        | 16.9    | 0.416     | 0.575     | 0.432     | 0.472     | 0.710     | 1.566     | 0.875     | 1.930     |
| 2009/06/12 02:41:00 |     |     |     |     |     | 1      |      | 2       | 2        | 16.8    | 0.505     | 0.504     | 1.320     | 1.324     | 0.671     | 0.672     | 1.865     | 1.861     |
| 2009/06/12 02:43:02 |     |     |     |     |     |        | 1    | 2       | 2        | 16.8    | 0.494     | 1.166     | 0.543     | 1.313     | 0.668     | 1.508     | 0.836     | 1.859     |

### Channel M1

Results for feed horn 22, channel M1 (test PEGASO). The analysis has been done in the range [1623461897., 1623466233.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/12 01:38:20 | 0   | 0   | 0   | 0   | 0   | 0      | 0    | 0       | 0        | -0.1    | 0.000     | 0.005     | -0.007    | 0.000     | 0.000     | 0.055     | 0.077     | 0.000     |
| 2009/06/12 01:55:12 |     |     |     |     |     |        |      | 2       | 0        | -0.1    | -0.004    | -0.004    | -0.013    | -0.013    | 0.583     | 0.599     | 0.790     | 0.770     |
| 2009/06/12 01:57:42 |     |     |     |     |     | 1      |      | 2       | 2        | -0.1    | -0.004    | -0.004    | -0.013    | -0.013    | 0.572     | 0.564     | 0.762     | 0.771     |
| 2009/06/12 01:59:44 |     |     |     |     |     |        | 1    | 2       | 2        | -0.1    | -0.003    | -0.003    | -0.012    | -0.012    | 0.547     | 0.545     | 0.720     | 0.736     |
| 2009/06/12 02:05:54 |     |     |     |     |     |        | 0    | 2       | 2        | -0.1    | 0.000     | -0.003    | -0.012    | 0.000     | 0.000     | 0.535     | 0.717     | 0.000     |
| 2009/06/12 02:05:56 |     |     |     |     |     | 0      |      | 2       | 2        | -0.1    | -0.003    | -0.003    | -0.012    | -0.012    | 0.753     | 1.518     | 0.912     | 2.083     |
| 2009/06/12 02:22:28 |     |     |     |     |     |        |      | 2       | 2        | 14.4    | 0.416     | 0.434     | 0.485     | 0.468     | 1.585     | 1.583     | 0.873     | 0.875     |
| 2009/06/12 02:26:34 | 179 | 204 | 118 | 255 | 255 |        |      | 2       | 2        | 13.7    | 0.421     | 0.418     | 0.476     | 0.479     | 0.694     | 0.693     | 1.953     | 1.955     |
| 2009/06/12 02:28:36 |     |     |     |     |     | 1      |      | 2       | 2        | 13.7    | 0.415     | 0.401     | 0.453     | 0.473     | 0.690     | 1.583     | 0.871     | 1.950     |
| 2009/06/12 02:30:38 |     |     |     | 170 |     |        |      | 2       | 2        | 13.6    | 0.406     | 0.398     | 0.450     | 0.462     | 0.691     | 1.584     | 0.872     | 1.950     |
| 2009/06/12 02:32:40 |     |     |     | 255 |     |        |      | 2       | 2        | 13.6    | 0.410     | 0.393     | 0.444     | 0.468     | 0.691     | 1.584     | 0.872     | 1.951     |
| 2009/06/12 02:32:42 |     |     |     |     | 170 |        |      | 2       | 2        | 13.6    | 0.409     | 0.389     | 0.439     | 0.466     | 0.691     | 1.584     | 0.872     | 1.951     |
| 2009/06/12 02:34:44 |     |     |     |     | 255 |        |      | 2       | 2        | 13.6    | 0.000     | 0.405     | 0.462     | 0.000     | 0.000     | 1.715     | 0.000     | 0.000     |
| 2009/06/12 02:34:46 |     |     |     |     |     |        | 0    | 2       | 2        | 13.6    | 0.000     | 0.403     | 0.458     | 0.000     | 0.000     | 1.164     | 1.384     | 0.000     |
| 2009/06/12 02:34:48 |     |     |     |     |     | 0      |      | 2       | 2        | 13.4    | 0.510     | 0.986     | 0.539     | 1.310     | 0.681     | 1.520     | 0.848     | 1.847     |

### Channel M2

Results for feed horn 22, channel M2 (test PEGASO). The analysis has been done in the range [1623461897., 1623466233.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/12 01:38:20 | 0   | 0   | 0   | 0   | 0   | 0         | 0    | 0          | 0           | -0.1       | 0.000        | 0.005        | -0.007       | 0.000        | 0.000        | 0.055        | 0.077        | 0.000        |
| 2009/06/12 01:55:12 |     |     |     |     |     |           |      | 2          | 0           | -0.1       | -0.003       | -0.003       | -0.012       | -0.013       | 0.557        | 0.996        | 0.823        | 0.751        |
| 2009/06/12 02:12:08 |     |     |     |     |     | 1         | 2    | 2          | 0           | -0.1       | -0.003       | 0.000        | 0.000        | -0.012       | 0.762        | 0.000        | 0.000        | 2.120        |
| 2009/06/12 02:14:10 |     |     |     |     |     |           | 1    | 2          | 0           | -0.1       | -0.003       | -0.003       | -0.012       | -0.012       | 0.740        | 1.683        | 0.930        | 2.067        |
| 2009/06/12 02:20:20 |     |     |     |     |     |           | 0    | 2          | 0           | -0.1       | 0.000        | -0.003       | -0.012       | 0.000        | 0.000        | 1.232        | 1.453        | 0.000        |
| 2009/06/12 02:20:22 |     |     |     |     |     |           | 0    | 2          | 0           | -0.1       | 0.414        | 0.339        | 0.380        | 0.472        | 0.708        | 1.592        | 0.890        | 1.932        |
| 2009/06/12 02:36:54 | 178 | 176 | 125 | 255 | 255 |           |      | 2          | 2           | 16.0       | 1.177        | 1.227        | 0.575        | 0.553        | 1.502        | 1.497        | 0.834        | 0.836        |
| 2009/06/12 02:41:00 |     |     |     |     |     | 1         |      | 2          | 2           | 15.7       | 0.505        | 0.504        | 1.320        | 1.324        | 0.671        | 0.672        | 1.865        | 1.861        |
| 2009/06/12 02:43:02 |     |     |     |     |     |           | 1    | 2          | 2           | 15.7       | 0.494        | 1.166        | 0.543        | 1.314        | 0.668        | 1.508        | 0.836        | 1.859        |
| 2009/06/12 02:45:04 |     |     |     | 170 |     |           |      | 2          | 2           | 15.7       | 0.490        | 1.163        | 0.542        | 1.301        | 0.669        | 1.509        | 0.837        | 1.860        |

## **1.6 pegaso\_bscope\_mini\_report\_00006**

### **Bscope\_00006**

### 1.6.1 Bias status for PEGASO

This section provides an overall view of the bias settings used in a number of tests. It is used as an useful way to check the set up used during a tuning/calibration test.

### 1.6.2 Test PEGASO, Feed Horn 24

#### Channel M2

Results for feed horn 24, channel M2 (test PEGASO). The analysis has been done in the range [1623512700., 1623518552.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/12 15:45:06 | 227 | 204 | 183 | 126 | 253 | 0         | 0    | 2          | 0           | 7.4        | 0.057        | 0.058        | 0.066        | 0.065        | -0.001       | -0.001       | -0.001       | -0.001       |
| 2009/06/12 15:49:21 |     |     |     |     |     | 1         |      | 2          |             | 7.4        | 0.058        | 0.059        | 0.067        | 0.067        | -0.001       | -0.001       | -0.001       | -0.001       |
| 2009/06/12 15:51:12 |     |     |     |     |     |           | 1    | 2          |             | 7.4        | 0.057        | 0.058        | 0.067        | 0.065        | -0.001       | -0.001       | -0.001       | -0.001       |
| 2009/06/12 15:53:14 |     |     |     | 84  |     |           |      | 2          |             | 7.5        | 0.057        | 0.058        | 0.066        | 0.065        | -0.001       | -0.001       | -0.001       | -0.001       |
| 2009/06/12 16:35:00 |     |     |     | 126 |     |           |      | 2          |             | 7.5        | 0.057        | 0.059        | 0.067        | 0.064        | -0.001       | -0.001       | -0.001       | -0.001       |
| 2009/06/12 16:35:02 |     |     |     |     | 168 |           |      | 2          |             | 7.5        | 0.056        | 0.059        | 0.067        | 0.064        | -0.001       | -0.001       | -0.001       | -0.001       |
| 2009/06/12 16:37:04 |     |     |     |     | 253 |           |      | 2          |             | 7.5        | 0.058        | 0.000        | 0.000        | 0.066        | -0.001       | 0.000        | 0.000        | -0.001       |
| 2009/06/12 16:37:06 |     |     |     |     |     |           | 0    | 2          |             | 7.5        | 0.058        | 0.000        | 0.000        | 0.066        | -0.001       | 0.000        | 0.000        | -0.001       |
| 2009/06/12 16:37:08 |     |     |     |     |     | 0         |      | 2          |             | 7.4        | 0.070        | 0.152        | 0.077        | 0.146        | 0.041        | -0.001       | -0.001       | 0.042        |
| 2009/06/12 16:57:46 |     |     |     |     |     | 1         |      | 2          |             | 7.3        | 0.000        | 0.152        | 0.075        | 0.000        | 0.000        | 0.160        | 0.166        | 0.000        |
| 2009/06/12 16:59:48 |     |     |     |     |     |           | 1    | 2          |             | 7.3        | 0.072        | 0.152        | 0.075        | 0.157        | 0.156        | 0.159        | 0.165        | 0.160        |
| 2009/06/12 17:05:58 |     |     |     |     |     |           | 0    | 2          |             | 7.3        | 0.108        | 0.000        | 0.000        | 0.120        | 0.158        | 0.000        | 0.000        | 0.163        |
| 2009/06/12 17:06:00 |     |     |     |     |     | 0         |      | 2          |             | 7.3        | 0.072        | 0.149        | 0.075        | 0.155        | 0.144        | 0.283        | 0.152        | 0.274        |

#### Channel M1

Results for feed horn 24, channel M1 (test PEGASO). The analysis has been done in the range [1623512700., 1623518552.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/12 15:45:06 | 171 | 171 | 0   | 0   | 0   | 0         | 0    | 2          | 0           | -0.2       | 0.057        | 0.058        | 0.066        | 0.065        | -0.001       | -0.001       | -0.001       | -0.001       |
| 2009/06/12 16:39:14 | 226 | 204 | 200 | 152 | 252 | 1         | 0    | 2          |             | 10.2       | 0.072        | 0.072        | 0.160        | 0.160        | -0.001       | -0.001       | -0.001       | -0.001       |
| 2009/06/12 16:43:20 |     |     |     |     |     |           | 1    | 2          |             | 10.3       | 0.154        | 0.154        | 0.076        | 0.076        | -0.001       | -0.001       | -0.001       | -0.001       |
| 2009/06/12 16:45:22 |     |     |     |     |     |           | 1    | 2          |             | 10.3       | 0.072        | 0.153        | 0.075        | 0.159        | -0.001       | -0.001       | -0.001       | -0.001       |

| Time [s]            | Vg1 | Vg2 | Vd | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/12 16:47:24 |     |     |    | 101 |     |        |      | 2       |          | 10.3    | 0.072     | 0.152     | 0.075     | 0.159     | -0.001    | -0.001    | -0.001    | -0.001    |
| 2009/06/12 16:49:26 |     |     |    | 152 |     |        |      | 2       |          | 10.3    | 0.072     | 0.153     | 0.075     | 0.159     | -0.001    | -0.001    | -0.001    | -0.001    |
| 2009/06/12 16:49:28 |     |     |    |     | 168 |        |      | 2       |          | 10.3    | 0.072     | 0.153     | 0.075     | 0.158     | -0.001    | -0.001    | -0.001    | -0.001    |
| 2009/06/12 16:51:30 |     |     |    |     | 252 |        |      | 2       |          | 10.3    | 0.134     | 0.153     | 0.075     | 0.095     | -0.001    | -0.001    | -0.001    | -0.001    |
| 2009/06/12 16:51:32 |     |     |    |     |     |        | 0    | 2       |          | 10.3    | 0.111     | 0.000     | 0.000     | 0.120     | -0.001    | 0.000     | 0.000     | -0.001    |
| 2009/06/12 16:51:34 |     |     |    |     |     |        |      | 2       |          | 10.2    | 0.072     | 0.152     | 0.075     | 0.157     | 0.131     | 0.159     | 0.165     | 0.177     |
| 2009/06/12 17:12:16 |     |     |    |     |     | 1      |      | 2       |          | 10.1    | 0.000     | 0.150     | 0.074     | 0.000     | 0.000     | 0.284     | 0.152     | 0.000     |
| 2009/06/12 17:14:18 |     |     |    |     |     |        | 1    | 2       |          | 10.1    | 0.071     | 0.149     | 0.074     | 0.154     | 0.140     | 0.284     | 0.151     | 0.301     |
| 2009/06/12 17:20:28 |     |     |    |     |     |        | 0    | 2       |          | 10.1    | 0.108     | 0.000     | 0.000     | 0.117     | 0.207     | 0.000     | 0.000     | 0.231     |
| 2009/06/12 17:20:30 |     |     |    |     |     | 0      |      | 2       |          | 10.1    | 0.071     | 0.000     | 0.000     | 0.155     | 0.140     | 0.000     | 0.000     | 0.302     |

### Channel S2

Results for feed horn 24, channel S2 (test PEGASO). The analysis has been done in the range [1623512700., 1623518552.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/12 15:45:06 | 171 | 171 | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.2    | 0.057     | 0.058     | 0.066     | 0.065     | -0.001    | -0.001    | -0.001    | -0.001    |
| 2009/06/12 15:49:21 |     |     |     |     |     | 1      |      | 2       |          | -0.2    | 0.058     | 0.059     | 0.067     | 0.067     | -0.001    | -0.001    | -0.001    | -0.001    |
| 2009/06/12 15:51:12 |     |     |     |     |     |        | 1    | 2       |          | -0.2    | 0.057     | 0.058     | 0.066     | 0.065     | -0.001    | -0.001    | -0.001    | -0.001    |
| 2009/06/12 16:37:06 |     |     |     |     |     |        | 0    | 2       |          | -0.2    | 0.058     | 0.000     | 0.000     | 0.066     | -0.001    | 0.000     | 0.000     | -0.001    |
| 2009/06/12 16:37:08 |     |     |     |     |     |        |      | 2       |          | -0.2    | 0.070     | 0.152     | 0.077     | 0.142     | -0.001    | -0.001    | -0.001    | -0.001    |
| 2009/06/12 16:53:40 | 219 | 225 | 152 | 126 | 249 |        |      | 2       |          | 15.5    | 0.072     | 0.000     | 0.000     | 0.158     | 0.157     | 0.000     | 0.161     | 0.161     |
| 2009/06/12 16:57:46 |     |     |     |     |     | 1      |      | 2       |          | 15.5    | 0.000     | 0.152     | 0.075     | 0.000     | 0.000     | 0.160     | 0.166     | 0.000     |
| 2009/06/12 16:59:48 |     |     |     |     |     |        | 1    | 2       |          | 15.5    | 0.071     | 0.152     | 0.075     | 0.157     | 0.156     | 0.160     | 0.166     | 0.161     |
| 2009/06/12 17:01:50 |     |     |     | 84  |     |        |      | 2       |          | 15.5    | 0.072     | 0.152     | 0.075     | 0.157     | 0.156     | 0.157     | 0.163     | 0.161     |
| 2009/06/12 17:03:52 |     |     |     | 126 |     |        |      | 2       |          | 15.5    | 0.072     | 0.152     | 0.075     | 0.157     | 0.155     | 0.160     | 0.166     | 0.160     |
| 2009/06/12 17:03:54 |     |     |     |     | 166 |        |      | 2       |          | 15.5    | 0.072     | 0.152     | 0.075     | 0.157     | 0.155     | 0.160     | 0.166     | 0.159     |
| 2009/06/12 17:05:56 |     |     |     |     | 249 |        |      | 2       |          | 15.5    | 0.134     | 0.000     | 0.000     | 0.093     | 0.159     | 0.000     | 0.000     | 0.165     |
| 2009/06/12 17:05:58 |     |     |     |     |     |        | 0    | 2       |          | 15.5    | 0.108     | 0.000     | 0.000     | 0.120     | 0.158     | 0.000     | 0.000     | 0.163     |
| 2009/06/12 17:06:00 |     |     |     |     |     | 0      |      | 2       |          | 15.4    | 0.072     | 0.149     | 0.075     | 0.155     | 0.144     | 0.283     | 0.152     | 0.274     |

### Channel S1

Results for feed horn 24, channel S1 (test PEGASO). The analysis has been done in the range [1623512700., 1623518552.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/12 15:45:06 | 171 |     | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.2    | 0.059     | 0.058     | 0.066     | 0.079     | -0.001    | -0.001    | -0.001    | -0.001    |
| 2009/06/12 16:43:20 |     | 171 |     |     |     | 1      |      | 2       |          | -0.2    | 0.154     | 0.154     | 0.076     | 0.076     | -0.001    | -0.001    | -0.001    | -0.001    |
| 2009/06/12 16:45:22 |     |     |     |     |     |        | 1    | 2       |          | -0.2    | 0.072     | 0.153     | 0.075     | 0.159     | -0.001    | -0.001    | -0.001    | -0.001    |
| 2009/06/12 16:51:32 |     |     |     |     |     |        | 0    | 2       |          | -0.2    | 0.111     | 0.000     | 0.000     | 0.120     | -0.001    | 0.000     | 0.000     | -0.001    |
| 2009/06/12 16:51:34 |     |     |     |     |     | 0      |      | 2       |          | -0.2    | 0.072     | 0.152     | 0.075     | 0.157     | 0.128     | 0.159     | 0.165     | 0.132     |
| 2009/06/12 17:08:02 |     | 213 |     |     |     |        |      | 2       |          | -0.2    | 0.072     | 0.000     | 0.000     | 0.157     | 0.156     | 0.000     | 0.000     | 0.162     |
| 2009/06/12 17:08:04 |     |     | 157 |     |     |        |      | 2       |          | -0.2    | 0.071     | 0.000     | 0.000     | 0.156     | 0.154     | 0.000     | 0.000     | 0.165     |
| 2009/06/12 17:08:06 |     |     |     |     |     |        |      | 2       |          | -0.2    | 0.071     | 0.000     | 0.000     | 0.156     | 0.152     | 0.000     | 0.000     | 0.168     |
| 2009/06/12 17:08:08 |     | 219 |     |     |     |        |      | 2       |          | -0.2    | 0.071     | 0.000     | 0.000     | 0.156     | 0.145     | 0.000     | 0.000     | 0.239     |
| 2009/06/12 17:08:10 |     |     |     | 127 | 252 |        |      | 2       |          | 10.7    | 0.071     | 0.000     | 0.000     | 0.156     | 0.139     | 0.000     | 0.000     | 0.302     |
| 2009/06/12 17:12:16 |     |     |     |     |     | 1      |      | 2       |          | 10.7    | 0.000     | 0.150     | 0.074     | 0.000     | 0.000     | 0.284     | 0.152     | 0.000     |
| 2009/06/12 17:14:18 |     |     |     |     |     |        | 1    | 2       |          | 10.7    | 0.071     | 0.149     | 0.074     | 0.155     | 0.139     | 0.284     | 0.151     | 0.303     |
| 2009/06/12 17:16:20 |     |     |     | 84  |     |        |      | 2       |          | 10.7    | 0.071     | 0.149     | 0.074     | 0.155     | 0.139     | 0.283     | 0.151     | 0.303     |
| 2009/06/12 17:18:22 |     |     |     | 127 |     |        |      | 2       |          | 10.7    | 0.071     | 0.149     | 0.074     | 0.155     | 0.139     | 0.284     | 0.151     | 0.302     |
| 2009/06/12 17:18:24 |     |     |     |     | 168 |        |      | 2       |          | 10.7    | 0.072     | 0.149     | 0.074     | 0.153     | 0.141     | 0.284     | 0.151     | 0.299     |
| 2009/06/12 17:20:26 |     |     |     |     | 252 |        |      | 2       |          | 10.7    | 0.132     | 0.000     | 0.000     | 0.092     | 0.252     | 0.000     | 0.000     | 0.185     |
| 2009/06/12 17:20:28 |     |     |     |     |     |        | 0    | 2       |          | 10.7    | 0.108     | 0.000     | 0.000     | 0.117     | 0.207     | 0.000     | 0.000     | 0.231     |
| 2009/06/12 17:20:30 |     |     |     |     |     | 0      |      | 2       |          | 10.7    | 0.071     | 0.000     | 0.000     | 0.155     | 0.140     | 0.000     | 0.000     | 0.302     |

## 1.7 pegaso\_bscope\_mini\_report\_00007

### Bscope\_00007

### 1.7.1 Bias status for PEGASO

This section provides an overall view of the bias settings used in a number of tests. It is used as an useful way to check the set up used during a tuning/calibration test.

### 1.7.2 Test PEGASO, Feed Horn 27

#### Channel M1

Results for feed horn 27, channel M1 (test PEGASO). The analysis has been done in the range [1623518852., 1623522556.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/12 17:28:33 | 171 | 171 | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.1    | 0.005     | 0.000     | 0.000     | 0.008     | 0.022     | 0.000     | 0.000     | 0.026     |
| 2009/06/12 17:31:36 | 240 | 108 | 100 | 153 | 205 | 0      | 0    | 2       | 0        | 4.2     | 0.611     | 0.578     | 0.662     | 0.699     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:35:42 |     |     |     |     |     | 1      | 1    | 2       |          | 3.8     | 0.570     | 0.576     | 0.657     | 0.650     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:37:44 |     |     |     |     |     |        |      | 2       |          | 3.7     | 0.558     | 0.564     | 0.643     | 0.639     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:39:46 |     |     |     | 102 |     |        |      | 2       |          | 3.7     | 0.550     | 0.544     | 0.620     | 0.630     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:41:48 |     |     |     | 153 |     |        |      | 2       |          | 3.7     | 0.543     | 0.553     | 0.631     | 0.621     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:41:50 |     |     |     |     | 136 |        |      | 2       |          | 3.7     | 0.536     | 0.550     | 0.627     | 0.613     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:43:52 |     |     |     |     | 205 |        |      | 2       |          | 3.7     | 0.546     | 0.000     | 0.000     | 0.624     | 0.022     | 0.000     | 0.000     | 0.026     |
| 2009/06/12 17:43:54 |     |     |     |     |     |        | 0    | 2       |          | 3.7     | 0.545     | 0.000     | 0.000     | 0.623     | 0.022     | 0.000     | 0.000     | 0.026     |
| 2009/06/12 17:43:56 |     |     |     |     |     | 0      |      | 2       |          | 3.6     | 1.226     | 2.540     | 1.370     | 2.383     | 0.436     | 0.041     | 0.041     | 0.373     |
| 2009/06/12 18:04:34 |     |     |     |     |     | 1      |      | 2       |          | 3.6     | 2.525     | 2.526     | 1.336     | 1.335     | 1.630     | 1.631     | 1.364     | 1.364     |
| 2009/06/12 18:06:36 |     |     |     |     |     |        | 1    | 2       |          | 3.6     | 1.322     | 2.521     | 1.335     | 2.634     | 1.614     | 1.614     | 1.349     | 1.333     |
| 2009/06/12 18:12:46 |     |     |     |     |     |        | 0    | 2       |          | 3.6     | 1.885     | 0.000     | 0.000     | 2.020     | 1.611     | 0.000     | 0.000     | 1.352     |
| 2009/06/12 18:12:48 |     |     |     |     |     | 0      |      | 2       |          | 3.5     | 1.319     | 2.485     | 1.364     | 2.609     | 1.598     | 3.555     | 1.336     | 2.723     |

#### Channel M2

Results for feed horn 27, channel M2 (test PEGASO). The analysis has been done in the range [1623518852., 1623522556.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/12 17:28:33 | 171 | 171 | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.2    | 0.436     | 0.562     | 0.641     | 0.499     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:46:02 | 245 | 108 | 157 | 178 | 204 | 1      |      | 2       |          | 7.8     | 1.326     | 0.000     | 0.000     | 2.684     | 0.022     | 0.000     | 0.000     | 0.026     |
| 2009/06/12 17:50:08 |     |     |     |     |     |        | 1    | 2       |          | 7.8     | 0.000     | 2.573     | 1.355     | 0.000     | 0.000     | 0.022     | 0.026     | 0.000     |
| 2009/06/12 17:52:10 |     |     |     | 118 |     |        |      | 2       |          | 7.9     | 1.323     | 2.563     | 1.353     | 2.667     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:54:12 |     |     |     | 178 |     |        |      | 2       |          | 7.9     | 1.324     | 2.532     | 1.331     | 2.664     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:56:14 |     |     |     |     |     |        |      | 2       |          | 7.9     | 1.312     | 2.557     | 1.353     | 2.647     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:56:16 |     |     |     |     | 136 |        |      | 2       |          | 7.9     | 1.317     | 2.557     | 1.353     | 2.621     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:58:18 |     |     |     |     | 204 |        |      | 2       |          | 7.9     | 2.285     | 0.000     | 0.000     | 1.640     | 0.022     | 0.000     | 0.000     | 0.026     |
| 2009/06/12 17:58:20 |     |     |     |     |     |        | 0    | 2       |          | 7.9     | 1.907     | 0.000     | 0.000     | 2.045     | 0.022     | 0.000     | 0.000     | 0.026     |
| 2009/06/12 17:58:22 |     |     |     |     |     | 0      |      | 2       |          | 7.8     | 1.328     | 2.499     | 1.361     | 2.627     | 1.398     | 1.620     | 1.357     | 1.640     |
| 2009/06/12 18:19:00 |     |     |     |     |     | 1      |      | 2       |          | 7.8     | 2.512     | 2.512     | 1.343     | 1.343     | 3.599     | 3.600     | 1.307     | 1.307     |
| 2009/06/12 18:21:02 |     |     |     |     |     |        | 1    | 2       |          | 7.8     | 1.312     | 2.489     | 1.355     | 2.603     | 1.587     | 3.560     | 1.324     | 3.066     |
| 2009/06/12 18:27:12 |     |     |     |     |     |        | 0    | 2       |          | 7.8     | 1.874     | 0.000     | 0.000     | 2.007     | 2.537     | 0.000     | 0.000     | 2.241     |
| 2009/06/12 18:27:14 |     |     |     |     |     | 0      |      | 2       |          | 7.8     | 1.314     | 0.000     | 0.000     | 2.604     | 1.593     | 0.000     | 0.000     | 3.075     |

### Channel S1

Results for feed horn 27, channel S1 (test PEGASO). The analysis has been done in the range [1623518852., 1623522556.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/12 17:28:33 | 171 | 171 | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.2    | 0.354     | 0.578     | 0.662     | 0.406     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:35:42 |     |     |     |     |     | 1      |      | 2       |          | -0.2    | 0.570     | 0.576     | 0.657     | 0.650     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:37:44 |     |     |     |     |     |        | 0    | 2       |          | -0.2    | 0.548     | 0.553     | 0.630     | 0.627     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 17:43:54 |     |     |     |     |     |        |      | 2       |          | -0.2    | 0.545     | 0.000     | 0.000     | 0.623     | 0.022     | 0.000     | 0.000     | 0.026     |
| 2009/06/12 17:43:56 |     |     |     |     |     | 0      |      | 2       |          | -0.2    | 1.191     | 2.555     | 1.355     | 2.288     | 0.022     | 0.022     | 0.026     | 0.026     |
| 2009/06/12 18:00:28 |     |     |     |     |     |        | 1    | 2       |          | 8.6     | 1.322     | 1.322     | 2.643     | 2.646     | 1.601     | 1.600     | 1.346     | 1.347     |
| 2009/06/12 18:04:34 |     |     |     |     |     |        |      | 2       |          | 8.6     | 2.525     | 2.526     | 1.335     | 1.335     | 1.631     | 1.631     | 1.364     | 1.364     |
| 2009/06/12 18:06:36 | 238 | 86  | 157 | 151 | 179 |        |      | 2       |          | 8.6     | 1.322     | 2.523     | 1.336     | 2.637     | 1.598     | 1.629     | 1.363     | 1.345     |
| 2009/06/12 18:08:38 |     |     |     | 100 |     |        |      | 2       |          | 8.6     | 1.322     | 2.520     | 1.335     | 2.634     | 1.597     | 1.587     | 1.323     | 1.344     |
| 2009/06/12 18:10:40 |     |     |     | 151 |     |        |      | 2       |          | 8.6     | 1.322     | 2.520     | 1.336     | 2.634     | 1.577     | 1.627     | 1.362     | 1.325     |
| 2009/06/12 18:10:42 |     |     |     |     | 119 |        |      | 2       |          | 8.6     | 1.321     | 2.519     | 1.335     | 2.632     | 1.561     | 1.627     | 1.362     | 1.310     |
| 2009/06/12 18:12:44 |     |     |     |     | 179 |        |      | 2       |          | 8.6     | 2.254     | 0.000     | 0.000     | 1.621     | 0.000     | 0.000     | 0.000     | 1.358     |
| 2009/06/12 18:12:46 |     |     |     |     |     |        | 0    | 2       |          | 8.6     | 1.885     | 0.000     | 0.000     | 2.020     | 1.611     | 0.000     | 0.000     | 1.352     |
| 2009/06/12 18:12:48 |     |     |     |     |     | 0      |      | 2       |          | 8.5     | 1.319     | 2.485     | 1.364     | 2.609     | 1.598     | 3.555     | 1.336     | 2.723     |

### Channel S2

Results for feed horn 27, channel S2 (test PEGASO). The analysis has been done in the range [1623518852., 1623522556.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/12 17:28:33 | 171 | 171 | 0   | 0   | 0   | 0         | 0    | 2          | 0           | -0.2       | 0.658        | 0.562        | 0.641        | 1.043        | 0.022        | 0.022        | 0.026        | 0.026        |
| 2009/06/12 17:50:08 |     |     |     |     |     | 1         |      | 2          |             | -0.1       | 0.000        | 2.573        | 1.355        | 0.000        | 0.000        | 0.022        | 0.026        | 0.000        |
| 2009/06/12 17:52:10 |     |     |     |     |     |           | 1    | 2          |             | -0.1       | 1.328        | 2.551        | 1.345        | 2.644        | 0.022        | 0.022        | 0.026        | 0.026        |
| 2009/06/12 17:58:20 |     |     |     |     |     |           | 0    | 2          |             | -0.1       | 1.907        | 0.000        | 0.000        | 2.045        | 0.022        | 0.000        | 0.000        | 0.026        |
| 2009/06/12 17:58:22 |     |     |     |     |     | 0         |      | 2          |             | -0.2       | 1.333        | 2.501        | 1.359        | 2.631        | 1.327        | 1.620        | 1.355        | 1.117        |
| 2009/06/12 18:14:54 | 250 | 126 | 156 | 153 | 179 |           |      | 2          |             | 8.7        | 1.316        | 1.315        | 2.613        | 2.615        | 1.592        | 1.592        | 3.080        | 3.081        |
| 2009/06/12 18:19:00 |     |     |     |     |     | 1         |      | 2          |             | 8.7        | 2.512        | 2.512        | 1.343        | 1.343        | 3.599        | 3.600        | 1.307        | 1.307        |
| 2009/06/12 18:21:02 |     |     |     |     |     |           | 1    | 2          |             | 8.7        | 1.312        | 2.505        | 1.340        | 2.605        | 1.592        | 3.597        | 1.308        | 3.076        |
| 2009/06/12 18:23:04 |     |     |     | 102 |     |           |      | 2          |             | 8.7        | 1.312        | 2.503        | 1.340        | 2.603        | 1.592        | 3.560        | 1.292        | 3.075        |
| 2009/06/12 18:25:06 |     |     |     | 153 |     |           |      | 2          |             | 8.7        | 1.311        | 2.502        | 1.340        | 2.601        | 1.584        | 3.595        | 1.308        | 3.059        |
| 2009/06/12 18:25:08 |     |     |     |     | 119 |           |      | 2          |             | 8.7        | 1.311        | 2.477        | 1.366        | 2.601        | 1.577        | 3.553        | 1.344        | 3.045        |
| 2009/06/12 18:27:10 |     |     |     |     | 179 |           |      | 2          |             | 8.7        | 0.000        | 2.239        | 1.617        | 0.000        | 0.000        | 3.154        | 1.697        | 0.000        |
| 2009/06/12 18:27:12 |     |     |     |     |     |           | 0    | 2          |             | 8.7        | 1.874        | 0.000        | 0.000        | 2.007        | 2.537        | 0.000        | 0.000        | 2.241        |
| 2009/06/12 18:27:14 |     |     |     |     |     | 0         |      | 2          |             | 8.7        | 1.314        | 0.000        | 0.000        | 2.604        | 1.583        | 0.000        | 0.000        | 3.075        |

## **1.8 pegaso\_bscope\_mini\_report\_00008**

### **Bscope\_00008**

### 1.8.1 Bias status for PEGASO

This section provides an overall view of the bias settings used in a number of tests. It is used as an useful way to check the set up used during a tuning/calibration test.

#### 1.8.2 Test PEGASO, Feed Horn 21

##### Channel S2

Results for feed horn 21, channel S2 (test PEGASO). The analysis has been done in the range [1623523214., 1623526918.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/12 18:40:14 | 201 | 213 | 132 | 255 | 255 | 0         | 0    | 2          | 0           | 17.8       | 0.000        | 0.001        | 0.000        | 0.000        | 0.000        | 0.910        | 0.925        | 0.000        |
| 2009/06/12 18:44:16 |     |     |     |     |     | 1         |      | 2          |             | 17.8       | 0.001        | 0.000        | 0.000        | 0.000        | 0.921        | 0.000        | 0.000        | 0.932        |
| 2009/06/12 18:46:18 |     |     |     |     |     |           | 1    | 2          |             | 17.8       | 0.001        | 0.001        | 0.000        | 0.000        | 0.915        | 0.905        | 0.917        | 0.923        |
| 2009/06/12 18:48:20 |     |     |     | 170 |     |           |      | 2          |             | 17.8       | 0.001        | 0.001        | 0.000        | 0.001        | 0.900        | 0.904        | 0.916        | 0.907        |
| 2009/06/12 18:50:22 |     |     |     | 255 |     |           |      | 2          |             | 17.8       | 0.001        | 0.001        | 0.001        | 0.000        | 0.914        | 0.896        | 0.907        | 0.923        |
| 2009/06/12 18:50:24 |     |     |     |     | 170 |           |      | 2          |             | 17.8       | 0.001        | 0.001        | 0.000        | 0.000        | 0.914        | 0.889        | 0.899        | 0.922        |
| 2009/06/12 18:52:26 |     |     |     |     | 255 |           |      | 2          |             | 17.8       | 0.000        | 0.001        | 0.000        | 0.000        | 0.000        | 0.913        | 0.924        | 0.000        |
| 2009/06/12 18:52:28 |     |     |     |     |     | 0         | 0    | 2          |             | 17.8       | 0.000        | 0.001        | 0.000        | 0.000        | 0.000        | 0.913        | 0.926        | 0.000        |
| 2009/06/12 18:52:30 |     |     |     |     |     |           |      | 2          |             | 17.5       | 0.001        | 0.001        | 0.000        | 0.000        | 1.004        | 1.528        | 0.966        | 1.563        |
| 2009/06/12 19:13:08 |     |     |     |     |     | 1         |      | 2          |             | 17.3       | 0.616        | 0.617        | 0.631        | 0.629        | 0.928        | 0.927        | 1.477        | 1.478        |
| 2009/06/12 19:15:10 |     |     |     |     |     |           | 1    | 2          |             | 17.3       | 0.612        | 0.602        | 0.612        | 0.626        | 0.933        | 1.550        | 0.893        | 1.464        |
| 2009/06/12 19:21:20 |     |     |     |     |     |           | 0    | 2          |             | 17.3       | 0.000        | 0.612        | 0.624        | 0.000        | 0.000        | 1.258        | 1.170        | 0.000        |
| 2009/06/12 19:21:22 |     |     |     |     |     | 0         |      | 2          |             | 17.1       | 0.000        | 1.249        | 0.770        | 0.000        | 0.000        | 1.511        | 0.876        | 0.000        |

##### Channel S1

Results for feed horn 21, channel S1 (test PEGASO). The analysis has been done in the range [1623523214., 1623526918.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/12 18:40:14 | 0   | 0   | 0   | 0   | 0   | 0         | 0    | 2          | 0           | -0.1       | 0.001        | 0.001        | 0.000        | 0.000        | 0.914        | 0.906        | 0.920        | 0.923        |
| 2009/06/12 18:54:36 | 196 | 197 | 136 | 255 | 255 | 1         | 2    | 2          | 0           | 20.0       | 0.001        | 0.001        | 0.000        | 0.000        | 1.675        | 1.703        | 0.980        | 0.968        |
| 2009/06/12 18:58:42 |     |     |     |     |     |           | 2    | 2          |             | 19.9       | 0.001        | 0.001        | 0.001        | 0.000        | 0.994        | 0.993        | 1.579        | 1.581        |
| 2009/06/12 19:00:44 |     |     |     |     |     |           | 1    | 2          |             | 19.9       | 0.001        | 0.001        | 0.000        | 0.000        | 0.993        | 1.664        | 0.961        | 1.576        |

| Time [s]            | Vg1 | Vg2 | Vd | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/12 19:02:46 |     |     |    | 170 |     |        | 2    |         |          | 19.9    | 0.001     | 0.001     | 0.000     | 0.000     | 0.987     | 1.660     | 0.959     | 1.563     |
| 2009/06/12 19:04:48 |     |     |    | 255 |     |        | 2    |         |          | 19.9    | 0.001     | 0.001     | 0.001     | 0.000     | 0.991     | 1.654     | 0.958     | 1.573     |
| 2009/06/12 19:04:50 |     |     |    |     | 170 |        | 2    |         |          | 19.9    | 0.001     | 0.001     | 0.000     | 0.000     | 0.991     | 1.650     | 0.956     | 1.571     |
| 2009/06/12 19:06:52 |     |     |    |     | 255 |        | 2    |         |          | 19.9    | 0.000     | 0.001     | 0.000     | 0.000     | 0.000     | 1.138     | 1.438     | 0.000     |
| 2009/06/12 19:06:54 |     |     |    |     |     | 0      | 2    |         |          | 19.9    | 0.000     | 0.001     | 0.000     | 0.000     | 0.000     | 1.346     | 1.251     | 0.000     |
| 2009/06/12 19:06:56 |     |     |    |     |     | 0      | 2    |         |          | 19.6    | 0.613     | 0.771     | 0.571     | 0.627     | 0.933     | 1.552     | 0.900     | 1.467     |

### Channel M1

Results for feed horn 21, channel M1 (test PEGASO). The analysis has been done in the range [1623523214., 1623526918.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/12 18:40:14 | 0   | 0   | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.1    | 0.000     | 0.001     | 0.000     | 0.000     | 0.000     | 0.910     | 0.925     | 0.000     |
| 2009/06/12 18:44:16 |     |     |     |     |     | 1      | 2    |         |          | -0.1    | 0.001     | 0.000     | 0.000     | 0.000     | 0.921     | 0.000     | 0.000     | 0.932     |
| 2009/06/12 18:46:18 |     |     |     |     |     |        | 1    | 2       |          | -0.1    | 0.001     | 0.001     | 0.000     | 0.000     | 0.909     | 0.899     | 0.911     | 0.918     |
| 2009/06/12 18:52:28 |     |     |     |     |     |        | 0    | 2       |          | -0.1    | 0.000     | 0.001     | 0.000     | 0.000     | 0.000     | 0.913     | 0.926     | 0.000     |
| 2009/06/12 18:52:30 |     |     |     |     |     | 0      | 2    |         |          | -0.1    | 0.001     | 0.001     | 0.000     | 0.000     | 1.004     | 1.528     | 0.966     | 1.563     |
| 2009/06/12 19:09:02 | 201 | 207 | 141 | 255 | 255 |        | 2    |         |          | 19.4    | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     |
| 2009/06/12 19:13:08 |     |     |     |     |     | 1      | 2    |         |          | 19.5    | 0.616     | 0.617     | 0.631     | 0.629     | 0.928     | 0.927     | 1.477     | 1.478     |
| 2009/06/12 19:15:10 |     |     |     |     |     |        | 2    |         |          | 19.4    | 0.613     | 0.604     | 0.614     | 0.627     | 0.926     | 1.550     | 0.893     | 1.470     |
| 2009/06/12 19:17:12 |     |     |     | 170 |     |        | 2    |         |          | 19.5    | 0.608     | 0.605     | 0.615     | 0.622     | 0.927     | 1.551     | 0.894     | 1.472     |
| 2009/06/12 19:19:14 |     |     |     | 255 |     |        | 2    |         |          | 19.5    | 0.614     | 0.600     | 0.610     | 0.628     | 0.926     | 1.551     | 0.894     | 1.471     |
| 2009/06/12 19:19:16 |     |     |     |     | 170 |        | 2    |         |          | 19.4    | 0.614     | 0.597     | 0.607     | 0.628     | 0.937     | 1.549     | 0.893     | 1.459     |
| 2009/06/12 19:21:18 |     |     |     |     | 255 |        | 2    |         |          | 19.4    | 0.614     | 0.000     | 0.000     | 0.627     | 1.063     | 0.000     | 0.000     | 1.344     |
| 2009/06/12 19:21:20 |     |     |     |     |     |        | 2    |         |          | 19.4    | 0.000     | 0.612     | 0.624     | 0.000     | 0.000     | 0.000     | 1.170     | 0.000     |
| 2009/06/12 19:21:22 |     |     |     |     |     | 0      | 2    |         |          | 19.2    | 0.000     | 1.249     | 0.770     | 0.000     | 0.000     | 1.511     | 0.876     | 0.000     |

### Channel M2

Results for feed horn 21, channel M2 (test PEGASO). The analysis has been done in the range [1623523214., 1623526918.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd | I1 | I2 | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|----|----|----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/12 18:40:14 | 0   | 0   | 0  | 0  | 0  | 0         | 0    | 2          | 0           | -0.1       | 0.001        | 0.001        | 0.000        | 0.000        | 0.922        | 1.148        | 0.938        | 0.924        |
| 2009/06/12 18:58:42 |     |     |    |    |    | 1         | 1    | 2          |             | -0.1       | 0.001        | 0.001        | 0.001        | 0.000        | 0.994        | 0.993        | 1.579        | 1.581        |
| 2009/06/12 19:00:44 |     |     |    |    |    |           | 0    | 2          |             | -0.1       | 0.001        | 0.001        | 0.000        | 0.000        | 0.990        | 1.658        | 0.958        | 1.570        |
| 2009/06/12 19:06:54 |     |     |    |    |    |           | 0    | 2          |             | -0.1       | 0.000        | 0.001        | 0.000        | 0.000        | 0.000        | 1.346        | 1.251        | 0.000        |

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/12 19:06:56 |     |     |     |     |     | 0         |      | 2          |             | -0.1       | 0.613        | 0.476        | 0.484        | 0.627        | 0.933        | 1.574        | 0.913        | 1.467        |
| 2009/06/12 19:23:28 | 210 | 187 | 136 | 255 | 255 |           |      | 2          |             | 20.6       | 0.000        | 2.237        | 1.003        | 0.000        | 0.000        | 1.445        | 0.838        | 0.000        |

## **1.9 pegaso\_bscope\_mini\_report\_00009**

### **Bscope\_00009**

### 1.9.1 Bias status for PEGASO

This section provides an overall view of the bias settings used in a number of tests. It is used as an useful way to check the set up used during a tuning/calibration test.

### 1.9.2 Test PEGASO, Feed Horn 19

#### Channel S2

Results for feed horn 19, channel S2 (test PEGASO). The analysis has been done in the range [1623600318., 1623604022.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/13 16:05:22 | 0   | 0   | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.2    | 0.000     | 0.004     | 0.010     | 0.000     | 0.000     | -0.016    | 0.008     | 0.000     |
| 2009/06/13 16:09:22 | 220 | 201 | 125 | 255 | 255 | 0      | 0    | 2       | 0        | 20.3    | 0.004     | 0.004     | 0.010     | 0.010     | 0.706     | 0.750     | 0.925     | 0.867     |
| 2009/06/13 16:13:28 |     |     |     |     |     | 1      | 1    | 2       | 0        | 20.0    | 0.004     | 0.004     | 0.010     | 0.010     | 0.699     | 0.693     | 0.838     | 0.846     |
| 2009/06/13 16:15:30 |     |     |     |     |     |        |      | 2       | 0        | 20.0    | 0.004     | 0.004     | 0.010     | 0.010     | 0.683     | 0.672     | 0.824     | 0.825     |
| 2009/06/13 16:17:32 |     |     |     | 170 |     |        |      | 2       | 0        | 20.0    | 0.005     | 0.005     | 0.010     | 0.010     | 0.665     | 0.664     | 0.812     | 0.803     |
| 2009/06/13 16:19:34 |     |     |     | 255 |     |        |      | 2       | 0        | 20.0    | 0.005     | 0.005     | 0.010     | 0.010     | 0.672     | 0.655     | 0.801     | 0.810     |
| 2009/06/13 16:19:36 |     |     |     |     | 170 |        |      | 2       | 0        | 20.0    | 0.005     | 0.005     | 0.010     | 0.010     | 0.669     | 0.647     | 0.792     | 0.806     |
| 2009/06/13 16:21:38 |     |     |     |     | 255 |        |      | 2       | 0        | 20.0    | 0.000     | 0.005     | 0.010     | 0.000     | 0.000     | 0.666     | 0.805     | 0.000     |
| 2009/06/13 16:21:40 |     |     |     |     |     |        | 0    | 2       | 0        | 20.0    | 0.000     | 0.005     | 0.010     | 0.000     | 0.000     | 0.667     | 0.809     | 0.000     |
| 2009/06/13 16:21:42 |     |     |     |     |     | 0      |      | 2       | 0        | 19.7    | 0.018     | 0.294     | 0.333     | 0.026     | 1.081     | 1.606     | 1.292     | 2.230     |
| 2009/06/13 16:42:20 |     |     |     |     |     | 1      |      | 2       | 0        | 19.4    | 1.059     | 1.056     | 1.165     | 1.168     | 0.985     | 0.986     | 2.070     | 2.068     |
| 2009/06/13 16:44:22 |     |     |     |     |     |        | 1    | 2       | 0        | 19.5    | 1.049     | 1.034     | 1.159     | 1.157     | 0.980     | 1.633     | 1.267     | 2.063     |
| 2009/06/13 16:50:32 |     |     |     |     |     |        | 0    | 2       | 0        | 19.5    | 0.000     | 1.053     | 1.170     | 0.000     | 0.000     | 1.332     | 1.649     | 0.000     |
| 2009/06/13 16:50:34 |     |     |     |     |     | 0      |      | 2       | 0        | 19.2    | 1.397     | 2.085     | 1.481     | 2.518     | 0.938     | 1.547     | 1.200     | 1.908     |

#### Channel S1

Results for feed horn 19, channel S1 (test PEGASO). The analysis has been done in the range [1623600318., 1623604022.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/13 16:05:22 | 0   | 0   | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.2    | 0.004     | 0.004     | 0.010     | 0.010     | 0.684     | 0.488     | 0.607     | 0.826     |
| 2009/06/13 16:23:48 | 215 | 204 | 120 | 255 | 255 |        |      | 2       | 0        | 19.7    | 0.000     | 0.005     | 0.010     | 0.000     | 0.000     | 1.861     | 1.457     | 0.000     |
| 2009/06/13 16:27:54 |     |     |     |     |     | 1      |      | 2       |          | 19.4    | 0.005     | 0.000     | 0.000     | 0.010     | 1.077     | 0.000     | 0.000     | 2.285     |
| 2009/06/13 16:29:56 |     |     |     | 170 |     |        | 1    | 2       |          | 19.4    | 0.005     | 0.005     | 0.010     | 0.010     | 1.062     | 1.774     | 1.380     | 2.257     |
| 2009/06/13 16:31:58 |     |     |     | 255 |     |        |      | 2       |          | 19.4    | 0.005     | 0.005     | 0.010     | 0.010     | 1.049     | 1.762     | 1.370     | 2.224     |
| 2009/06/13 16:34:00 |     |     |     |     |     |        |      | 2       |          | 19.4    | 0.005     | 0.005     | 0.010     | 0.010     | 1.054     | 1.752     | 1.362     | 2.235     |
| 2009/06/13 16:34:02 |     |     |     |     | 170 |        |      | 2       |          | 19.4    | 0.005     | 0.005     | 0.010     | 0.010     | 1.062     | 1.743     | 1.355     | 2.215     |
| 2009/06/13 16:36:04 |     |     |     |     | 255 |        |      | 2       |          | 19.4    | 0.005     | 0.000     | 0.000     | 0.010     | 1.209     | 0.000     | 0.000     | 2.041     |
| 2009/06/13 16:36:06 |     |     |     |     |     |        | 0    | 2       |          | 19.4    | 0.005     | 0.005     | 0.010     | 0.010     | 1.057     | 1.586     | 1.570     | 2.233     |
| 2009/06/13 16:36:08 |     |     |     |     |     | 0      |      | 2       |          | 19.0    | 1.057     | 1.285     | 1.147     | 1.163     | 0.997     | 1.615     | 1.260     | 2.046     |
| 2009/06/13 16:56:46 |     |     |     |     |     | 1      |      | 2       |          | 18.8    | 1.388     | 1.884     | 2.550     | 2.560     | 0.927     | 0.928     | 1.925     | 1.924     |
| 2009/06/13 16:58:48 |     |     |     |     |     |        | 1    | 2       |          | 18.8    | 1.384     | 2.273     | 1.504     | 2.511     | 0.932     | 1.534     | 1.182     | 1.912     |
| 2009/06/13 17:04:58 |     |     |     |     |     |        | 0    | 2       |          | 18.8    | 0.000     | 1.848     | 1.987     | 0.000     | 0.000     | 1.248     | 1.534     | 0.000     |
| 2009/06/13 17:05:00 |     |     |     |     |     | 0      |      | 2       |          | 18.8    | 0.000     | 2.274     | 1.508     | 0.000     | 0.000     | 1.535     | 1.184     | 0.000     |

### Channel M1

Results for feed horn 19, channel M1 (test PEGASO). The analysis has been done in the range [1623600318., 1623604022.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/13 16:05:22 | 0   | 0   | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.2    | 0.004     | 0.004     | 0.010     | 0.010     | 0.706     | 0.373     | 0.473     | 0.867     |
| 2009/06/13 16:13:28 |     |     |     |     |     | 1      |      | 2       |          | -0.2    | 0.004     | 0.004     | 0.010     | 0.010     | 0.699     | 0.693     | 0.838     | 0.846     |
| 2009/06/13 16:15:30 |     |     |     |     |     |        | 1    | 2       |          | -0.2    | 0.005     | 0.005     | 0.010     | 0.010     | 0.672     | 0.661     | 0.809     | 0.812     |
| 2009/06/13 16:21:40 |     |     |     |     |     |        | 0    | 2       |          | -0.2    | 0.000     | 0.005     | 0.010     | 0.000     | 0.000     | 0.667     | 0.809     | 0.000     |
| 2009/06/13 16:21:42 |     |     |     |     |     | 0      |      | 2       |          | -0.2    | 0.005     | 0.005     | 0.010     | 0.010     | 1.074     | 1.598     | 1.302     | 2.243     |
| 2009/06/13 16:38:14 |     |     |     |     | 255 |        |      | 2       |          | 18.9    | 1.058     | 1.103     | 1.236     | 1.183     | 1.637     | 1.631     | 1.263     | 1.269     |
| 2009/06/13 16:42:20 |     |     |     |     |     | 1      |      | 2       |          | 18.7    | 1.059     | 1.056     | 1.165     | 1.168     | 0.985     | 0.986     | 2.070     | 2.068     |
| 2009/06/13 16:44:22 |     |     |     |     |     |        | 1    | 2       |          | 18.7    | 1.054     | 1.040     | 1.165     | 1.163     | 0.979     | 1.633     | 1.265     | 2.062     |
| 2009/06/13 16:46:24 |     | 198 | 124 | 255 |     |        |      | 2       |          | 18.8    | 1.038     | 1.040     | 1.165     | 1.145     | 0.980     | 1.634     | 1.266     | 2.062     |
| 2009/06/13 16:48:26 |     |     |     |     | 170 |        |      | 2       |          | 18.8    | 1.055     | 1.031     | 1.155     | 1.165     | 0.981     | 1.634     | 1.267     | 2.063     |
| 2009/06/13 16:48:28 |     |     |     |     | 255 |        |      | 2       |          | 18.8    | 1.055     | 1.023     | 1.145     | 1.164     | 0.981     | 1.635     | 1.267     | 2.064     |
| 2009/06/13 16:50:30 |     |     |     |     |     | 255    |      | 2       |          | 18.8    | 0.000     | 1.054     | 1.166     | 0.000     | 0.000     | 1.128     | 1.891     | 0.000     |
| 2009/06/13 16:50:32 |     |     |     |     |     |        | 0    | 2       |          | 18.8    | 0.000     | 1.053     | 1.170     | 0.000     | 0.000     | 1.332     | 1.649     | 0.000     |
| 2009/06/13 16:50:34 |     |     |     |     |     | 0      |      | 2       |          | 18.6    | 1.397     | 2.085     | 1.481     | 2.518     | 0.938     | 1.547     | 1.200     | 1.908     |

### Channel M2

Results for feed horn 19, channel M2 (test PEGASO). The analysis has been done in the range [1623600318., 1623604022.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/13 16:05:22 | 0   | 0   | 0   | 0   | 0   | 0         | 0    | 2          | 0           | -0.2       | 0.004        | 0.004        | 0.010        | 0.010        | 0.684        | 0.812        | 0.808        | 0.826        |
| 2009/06/13 16:27:54 |     |     |     |     |     | 1         | 0    | 2          | 0           | -0.2       | 0.005        | 0.000        | 0.000        | 0.010        | 1.077        | 0.000        | 0.000        | 2.285        |
| 2009/06/13 16:29:56 |     |     |     |     |     |           | 1    | 2          | 0           | -0.2       | 0.005        | 0.005        | 0.010        | 0.010        | 1.061        | 1.760        | 1.369        | 2.227        |
| 2009/06/13 16:36:06 |     |     |     |     |     |           | 0    | 2          | 0           | -0.2       | 0.005        | 0.005        | 0.010        | 0.010        | 1.057        | 1.586        | 1.570        | 2.233        |
| 2009/06/13 16:36:08 |     |     |     |     |     | 0         |      | 2          | 0           | -0.2       | 1.053        | 0.879        | 0.985        | 1.162        | 0.995        | 1.650        | 1.291        | 2.049        |
| 2009/06/13 16:52:40 | 220 | 196 | 126 | 255 | 255 |           |      | 2          | 0           | 20.5       | 2.323        | 2.413        | 1.595        | 1.536        | 1.529        | 1.521        | 1.174        | 1.179        |
| 2009/06/13 16:56:46 |     |     |     |     |     | 1         |      | 2          | 0           | 20.2       | 1.388        | 1.384        | 2.550        | 2.560        | 0.927        | 0.928        | 1.925        | 1.924        |
| 2009/06/13 16:58:48 |     |     |     |     |     |           | 1    | 2          | 0           | 20.2       | 1.380        | 2.287        | 1.513        | 2.540        | 0.923        | 1.533        | 1.181        | 1.920        |
| 2009/06/13 17:00:50 |     |     |     | 170 |     |           |      | 2          | 0           | 20.2       | 1.366        | 2.276        | 1.506        | 2.512        | 0.924        | 1.534        | 1.182        | 1.922        |
| 2009/06/13 17:02:52 |     |     |     | 255 |     |           |      | 2          | 0           | 20.2       | 1.373        | 2.264        | 1.500        | 2.525        | 0.924        | 1.534        | 1.182        | 1.922        |
| 2009/06/13 17:02:54 |     |     |     |     | 170 |           |      | 2          | 0           | 20.2       | 1.393        | 2.254        | 1.494        | 2.497        | 0.940        | 1.534        | 1.183        | 1.904        |
| 2009/06/13 17:04:56 |     |     |     |     | 255 |           |      | 2          | 0           | 20.2       | 1.568        | 0.000        | 0.000        | 2.288        | 1.062        | 0.000        | 0.000        | 1.763        |
| 2009/06/13 17:04:58 |     |     |     |     |     |           | 0    | 2          | 0           | 20.2       | 0.000        | 1.848        | 1.987        | 0.000        | 0.000        | 1.248        | 1.534        | 0.000        |
| 2009/06/13 17:05:00 |     |     |     |     |     | 0         |      | 2          | 0           | 20.2       | 0.000        | 2.274        | 1.508        | 0.000        | 0.000        | 1.535        | 1.184        | 0.000        |

## **1.10 pegaso\_bscope\_mini\_report\_00010**

### **Bscope\_00010**

### 1.10.1 Bias status for PEGASO

This section provides an overall view of the bias settings used in a number of tests. It is used as an useful way to check the set up used during a tuning/calibration test.

#### 1.10.2 Test PEGASO, Feed Horn 20

##### Channel S2

Results for feed horn 20, channel S2 (test PEGASO). The analysis has been done in the range [1623604322., 1623611626.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/13 17:12:34 | 0   | 0   | 0   | 0   | 0   | 0         | 0    | 2          | 0           | -0.1       | 0.000        | 0.010        | 0.011        | 0.000        | 0.000        | 0.012        | 0.006        | 0.000        |
| 2009/06/13 17:16:06 | 189 | 201 | 123 | 255 | 255 | 1         | 0    | 2          | 0           | 20.0       | 0.011        | 0.011        | 0.011        | 0.011        | 1.129        | 1.264        | 1.275        | 1.143        |
| 2009/06/13 17:20:12 |     |     |     |     |     |           | 1    | 2          |             | 19.7       | 0.011        | 0.011        | 0.011        | 0.011        | 1.149        | 1.147        | 1.161        | 1.164        |
| 2009/06/13 17:22:14 |     |     |     |     |     |           |      | 2          |             | 19.7       | 0.011        | 0.011        | 0.011        | 0.011        | 1.139        | 1.112        | 1.126        | 1.154        |
| 2009/06/13 17:24:16 |     |     |     | 170 |     |           |      | 2          |             | 19.6       | 0.011        | 0.011        | 0.011        | 0.011        | 1.118        | 1.104        | 1.117        | 1.132        |
| 2009/06/13 17:26:18 |     |     |     | 255 |     |           |      | 2          |             | 19.6       | 0.011        | 0.011        | 0.011        | 0.011        | 1.128        | 1.094        | 1.107        | 1.142        |
| 2009/06/13 17:26:20 |     |     |     |     | 170 |           |      | 2          |             | 19.6       | 0.011        | 0.011        | 0.011        | 0.011        | 1.125        | 1.086        | 1.098        | 1.140        |
| 2009/06/13 17:28:22 |     |     |     |     | 255 |           |      | 2          |             | 19.6       | 0.000        | 0.011        | 0.011        | 0.000        | 0.000        | 1.120        | 1.134        | 0.000        |
| 2009/06/13 17:28:24 |     |     |     |     |     |           | 0    | 2          |             | 19.6       | 0.000        | 0.011        | 0.011        | 0.000        | 0.000        | 1.113        | 1.128        | 0.000        |
| 2009/06/13 17:28:26 |     |     |     |     |     | 0         |      | 2          |             | 19.3       | 0.025        | 0.226        | 0.221        | 0.025        | 1.133        | 1.488        | 1.121        | 1.583        |
| 2009/06/13 17:49:04 |     |     |     |     |     | 1         |      | 2          |             | 19.1       | 0.811        | 0.794        | 0.768        | 0.785        | 1.021        | 1.022        | 1.444        | 1.443        |
| 2009/06/13 17:51:06 |     |     |     |     |     |           | 1    | 2          |             | 19.1       | 0.751        | 0.735        | 0.715        | 0.728        | 1.020        | 1.394        | 1.027        | 1.443        |
| 2009/06/13 17:57:16 |     |     |     |     |     |           | 0    | 2          |             | 19.1       | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        |
| 2009/06/13 17:57:18 |     |     |     |     |     | 0         |      | 2          |             | 18.5       | 1.169        | 1.642        | 0.995        | 1.814        | 0.922        | 1.196        | 0.897        | 1.284        |

##### Channel S1

Results for feed horn 20, channel S1 (test PEGASO). The analysis has been done in the range [1623604322., 1623611626.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/13 17:12:34 | 0   | 0   | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.2    | 0.011     | 0.011     | 0.011     | 0.011     | 1.136     | 0.855     | 0.862     | 1.151     |
| 2009/06/13 17:30:32 | 189 | 201 | 129 | 255 | 255 | 1      |      | 2       |          | 15.2    | 0.011     | 0.011     | 0.011     | 0.011     | 1.608     | 1.665     | 1.175     | 1.154     |
| 2009/06/13 17:34:38 |     |     |     |     |     |        |      | 2       |          | 14.8    | 0.011     | 0.011     | 0.011     | 0.011     | 1.124     | 1.123     | 1.610     | 1.616     |
| 2009/06/13 17:36:40 |     |     |     | 170 |     |        | 1    | 2       |          | 14.7    | 0.011     | 0.011     | 0.011     | 0.011     | 1.119     | 1.586     | 1.147     | 1.603     |
| 2009/06/13 17:38:42 |     |     |     | 255 |     |        |      | 2       |          | 14.7    | 0.011     | 0.011     | 0.011     | 0.011     | 1.113     | 1.576     | 1.143     | 1.587     |
| 2009/06/13 17:40:44 |     |     |     |     |     |        |      | 2       |          | 14.7    | 0.011     | 0.011     | 0.011     | 0.011     | 1.115     | 1.570     | 1.142     | 1.591     |
| 2009/06/13 17:40:46 |     |     |     |     | 170 |        |      | 2       |          | 14.7    | 0.011     | 0.011     | 0.011     | 0.011     | 1.125     | 1.563     | 1.139     | 1.574     |
| 2009/06/13 17:42:48 |     |     |     |     | 255 |        |      | 2       |          | 14.7    | 0.011     | 0.011     | 0.011     | 0.011     | 1.206     | 0.000     | 0.000     | 1.490     |
| 2009/06/13 17:42:50 |     |     |     |     |     |        | 0    | 2       |          | 14.7    | 0.000     | 0.011     | 0.011     | 0.000     | 0.000     | 1.383     | 1.318     | 0.000     |
| 2009/06/13 17:42:52 |     |     |     |     |     |        |      | 2       |          | 14.3    | 0.813     | 0.798     | 0.813     | 0.813     | 1.028     | 1.378     | 1.020     | 1.419     |
| 2009/06/13 18:03:46 |     |     |     |     |     |        |      | 2       |          | 14.0    | 1.180     | 0.000     | 0.000     | 1.862     | 0.916     | 0.000     | 0.000     | 1.287     |
| 2009/06/13 18:05:32 |     |     |     |     |     |        | 1    | 2       |          | 14.1    | 1.142     | 1.839     | 1.107     | 1.797     | 0.918     | 1.269     | 0.945     | 1.291     |
| 2009/06/13 18:11:44 |     |     |     |     |     |        | 0    | 2       |          | 13.8    | 0.000     | 1.635     | 0.983     | 0.000     | 0.000     | 1.184     | 0.889     | 0.000     |

### Channel M1

Results for feed horn 20, channel M1 (test PEGASO). The analysis has been done in the range [1623604322., 1623611626.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/13 17:12:34 | 0   | 0   | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.2    | 0.011     | 0.010     | 0.011     | 0.011     | 1.129     | 0.688     | 0.691     | 1.143     |
| 2009/06/13 17:20:12 |     |     |     |     |     | 1      |      | 2       |          | -0.2    | 0.011     | 0.011     | 0.011     | 0.011     | 1.149     | 1.147     | 1.161     | 1.164     |
| 2009/06/13 17:22:14 |     |     |     |     |     |        | 1    | 2       |          | -0.2    | 0.011     | 0.011     | 0.011     | 0.011     | 1.128     | 1.101     | 1.114     | 1.142     |
| 2009/06/13 17:28:24 |     |     |     |     |     |        | 0    | 2       |          | -0.2    | 0.000     | 0.011     | 0.011     | 0.000     | 0.000     | 1.113     | 1.128     | 0.000     |
| 2009/06/13 17:28:26 |     |     |     |     |     |        |      | 2       |          | -0.2    | 0.011     | 0.011     | 0.011     | 0.011     | 1.129     | 1.521     | 1.153     | 1.593     |
| 2009/06/13 17:44:58 |     |     |     |     |     |        |      | 2       |          | 22.1    | 0.821     | 0.885     | 0.862     | 0.799     | 1.395     | 1.390     | 1.025     | 1.029     |
| 2009/06/13 17:49:04 |     |     |     |     |     | 1      |      | 2       |          | 21.7    | 0.811     | 0.794     | 0.768     | 0.785     | 1.021     | 1.022     | 1.444     | 1.443     |
| 2009/06/13 17:51:06 | 225 | 204 | 121 | 255 | 255 |        |      | 2       |          | 21.6    | 0.778     | 0.761     | 0.740     | 0.753     | 1.019     | 1.394     | 1.027     | 1.442     |
| 2009/06/13 17:53:08 |     |     |     |     |     |        |      | 2       |          | 21.6    | 0.744     | 0.737     | 0.716     | 0.721     | 1.020     | 1.394     | 1.027     | 1.442     |
| 2009/06/13 17:55:10 |     |     |     |     |     |        |      | 2       |          | 21.6    | 0.742     | 0.721     | 0.701     | 0.718     | 1.021     | 1.395     | 1.028     | 1.443     |
| 2009/06/13 17:55:12 |     |     |     |     | 170 |        |      | 2       |          | 21.5    | 0.733     | 0.709     | 0.690     | 0.710     | 1.022     | 1.395     | 1.028     | 1.444     |
| 2009/06/13 17:57:14 |     |     |     |     | 255 |        |      | 2       |          | 21.5    | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     |
| 2009/06/13 17:57:16 |     |     |     |     |     |        |      | 2       |          | 21.5    | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     |
| 2009/06/13 17:57:18 |     |     |     |     |     |        | 0    | 2       |          | 21.0    | 1.169     | 1.642     | 0.995     | 1.814     | 0.922     | 1.196     | 0.897     | 1.284     |

### Channel M2

Results for feed horn 20, channel M2 (test PEGASO). The analysis has been done in the range [1623604322., 1623611626.] s. The format for the time values (first column) is 'utc'.



| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/13 17:12:34 | 0   | 0   | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.2    | 0.011     | 0.011     | 0.011     | 0.011     | 1.137     | 1.050     | 0.938     | 1.151     |
| 2009/06/13 17:34:38 |     |     |     |     |     | 1      |      | 2       |          | -0.2    | 0.011     | 0.011     | 0.011     | 0.011     | 1.124     | 1.123     | 1.610     | 1.616     |
| 2009/06/13 17:36:40 |     |     |     |     |     |        | 1    | 2       |          | -0.2    | 0.011     | 0.011     | 0.011     | 0.011     | 1.122     | 1.575     | 1.143     | 1.585     |
| 2009/06/13 17:42:50 |     |     |     |     |     | 0      | 0    | 2       |          | -0.2    | 0.000     | 0.011     | 0.011     | 0.000     | 0.000     | 1.383     | 1.318     | 0.000     |
| 2009/06/13 17:42:52 |     |     |     |     |     | 0      |      | 2       |          | -0.2    | 0.778     | 0.662     | 0.638     | 0.753     | 1.030     | 1.420     | 1.049     | 1.432     |
| 2009/06/13 17:59:30 | 231 | 206 | 127 | 255 | 255 |        |      | 2       |          | 21.2    | 1.358     | 2.078     | 1.253     | 1.736     | 0.989     | 1.256     | 0.936     | 1.211     |
| 2009/06/13 18:03:46 |     |     |     |     |     | 1      |      | 2       |          | 21.0    | 1.180     | 0.000     | 0.000     | 1.862     | 0.916     | 0.000     | 0.000     | 1.287     |
| 2009/06/13 18:05:32 |     |     |     |     |     |        | 1    | 2       |          | 21.0    | 1.160     | 1.868     | 1.123     | 1.824     | 0.916     | 1.267     | 0.943     | 1.288     |
| 2009/06/13 18:07:34 |     |     |     | 170 |     |        |      | 2       |          | 21.0    | 1.136     | 1.840     | 1.106     | 1.787     | 0.918     | 1.270     | 0.946     | 1.292     |
| 2009/06/13 18:09:36 |     |     |     | 255 |     |        |      | 2       |          | 21.0    | 1.136     | 1.823     | 1.097     | 1.786     | 0.918     | 1.270     | 0.945     | 1.292     |
| 2009/06/13 18:09:38 |     |     |     |     | 170 |        |      | 2       |          | 21.0    | 1.130     | 1.807     | 1.089     | 1.775     | 0.919     | 1.271     | 0.947     | 1.293     |
| 2009/06/13 18:11:44 |     |     |     |     | 255 | 0      | 0    | 2       |          | 20.8    | 0.000     | 1.635     | 0.983     | 0.000     | 0.000     | 1.184     | 0.889     | 0.000     |

## **1.11 pegaso\_bscope\_mini\_report\_00011**

### **Bscope\_00011**

### 1.11.1 Bias status for PEGASO

This section provides an overall view of the bias settings used in a number of tests. It is used as an useful way to check the set up used during a tuning/calibration test.

### 1.11.2 Test PEGASO, Feed Horn 28

#### Channel M1

Results for feed horn 28, channel M1 (test PEGASO). The analysis has been done in the range [1623608326., 1623612078.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Skv00<br>[V] | Ref00<br>[V] | Skv01<br>[V] | Ref01<br>[V] | Skv10<br>[V] | Ref10<br>[V] | Skv11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/13 18:19:46 | 171 | 171 | 0   | 0   | 0   | 0         | 0    | 2          | 0           | -0.2       | 0.010        | 0.000        | 0.000        | 0.004        | 0.008        | 0.000        | 0.000        | 0.017        |
| 2009/06/13 18:22:50 | 193 | 89  | 155 | 127 | 181 | 0         | 0    | 2          | 0           | -0.2       | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        |
| 2009/06/13 18:23:56 |     |     |     |     |     |           |      | 2          |             | 7.2        | 1.487        | 0.000        | 0.000        | 1.085        | 0.008        | 0.000        | 0.000        | 0.017        |
| 2009/06/13 18:23:08 | 243 |     |     |     |     | 1         |      | 2          |             | 9.5        | 1.185        | 0.000        | 0.000        | 1.572        | 0.008        | 0.000        | 0.000        | 0.017        |
| 2009/06/13 18:27:20 |     |     |     |     |     |           | 1    | 2          |             | 9.6        | 0.000        | 1.186        | 1.574        | 0.000        | 0.000        | 0.008        | 0.017        | 0.000        |
| 2009/06/13 18:29:22 |     |     |     |     |     |           |      | 2          |             | 9.6        | 1.193        | 1.186        | 1.574        | 1.601        | 0.008        | 0.008        | 0.017        | 0.017        |
| 2009/06/13 18:31:24 |     |     |     | 84  |     |           |      | 2          |             | 9.6        | 1.194        | 1.110        | 1.470        | 1.601        | 0.008        | 0.008        | 0.017        | 0.017        |
| 2009/06/13 18:33:26 |     |     |     | 127 |     |           |      | 2          |             | 9.6        | 1.174        | 1.187        | 1.575        | 1.575        | 0.008        | 0.008        | 0.017        | 0.017        |
| 2009/06/13 18:33:28 |     |     |     |     | 120 |           |      | 2          |             | 9.6        | 1.158        | 1.186        | 1.575        | 1.552        | 0.008        | 0.008        | 0.017        | 0.017        |
| 2009/06/13 18:35:30 |     |     |     |     | 181 |           |      | 2          |             | 9.6        | 1.188        | 0.000        | 0.000        | 1.580        | 0.008        | 0.000        | 0.000        | 0.017        |
| 2009/06/13 18:35:32 |     |     |     |     |     |           |      | 2          |             | 9.6        | 1.190        | 0.000        | 0.000        | 1.589        | 0.008        | 0.000        | 0.000        | 0.017        |
| 2009/06/13 18:35:34 |     |     |     |     |     | 0         |      | 2          |             | 9.6        | 1.176        | 0.000        | 0.000        | 1.578        | 0.008        | 0.000        | 0.000        | 0.017        |
| 2009/06/13 18:37:40 | 171 | 171 | 0   | 0   | 0   | 0         |      | 2          |             | 9.6        | 0.010        | 0.000        | 0.000        | 0.005        | 0.008        | 0.000        | 0.000        | 0.017        |
| 2009/06/13 18:37:46 | 193 | 89  | 155 | 127 | 181 |           |      | 2          |             | 9.6        | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        | 0.000        |
| 2009/06/13 18:37:52 |     |     |     |     |     |           |      | 2          |             | 7.3        | 0.831        | 0.000        | 0.000        | 1.889        | 0.008        | 0.000        | 0.000        | 0.017        |
| 2009/06/13 18:38:04 | 243 |     |     |     |     |           |      | 2          |             | 9.5        | 1.901        | 1.151        | 2.810        | 1.878        | 0.262        | 0.010        | 0.019        | 0.230        |
| 2009/06/13 18:56:36 |     |     |     |     |     | 1         |      | 2          |             | 9.5        | 2.225        | 2.225        | 1.454        | 1.454        | 0.839        | 0.838        | 0.713        | 0.713        |
| 2009/06/13 18:58:38 |     |     |     |     |     |           | 1    | 2          |             | 9.5        | 1.149        | 2.211        | 1.471        | 2.834        | 0.838        | 0.826        | 0.702        | 0.716        |
| 2009/06/13 19:04:48 |     |     |     |     |     |           | 0    | 2          |             | 9.5        | 1.656        | 0.000        | 0.000        | 2.183        | 0.841        | 0.000        | 0.000        | 0.718        |
| 2009/06/13 19:04:50 |     |     |     |     |     | 0         |      | 2          |             | 9.5        | 1.589        | 1.144        | 2.800        | 2.255        | 1.487        | 1.079        | 1.941        | 1.305        |

#### Channel M2

Results for feed horn 28, channel M2 (test PEGASO). The analysis has been done in the range [1623608326., 1623612078.] s. The format for the time values (first column) is 'utc'.



| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/13 18:19:46 | 171 | 171 | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.2    | 0.010     | 0.000     | 0.000     | 0.004     | 0.008     | 0.000     | 0.000     | 0.017     |
| 2009/06/13 18:22:50 | 112 | 156 | 128 | 180 | 180 |        |      | 2       |          | -0.2    | 0.725     | 0.000     | 0.000     | 0.755     | 0.008     | 0.000     | 0.000     | 0.017     |
| 2009/06/13 18:22:58 | 192 |     |     |     |     |        |      | 2       |          | 7.6     | 1.653     | 0.000     | 0.000     | 1.167     | 0.008     | 0.000     | 0.000     | 0.017     |
| 2009/06/13 18:23:08 | 240 |     |     |     |     |        |      | 2       |          | 7.6     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     | 0.000     |
| 2009/06/13 18:23:14 | 171 | 171 | 0   | 0   | 0   |        |      | 2       |          | -0.2    | 1.170     | 1.171     | 1.553     | 1.561     | 0.008     | 0.008     | 0.017     | 0.017     |
| 2009/06/13 18:37:46 | 112 | 156 | 128 | 180 | 180 |        |      | 2       |          | -0.2    | 0.524     | 0.000     | 0.000     | 0.907     | 0.008     | 0.000     | 0.000     | 0.017     |
| 2009/06/13 18:37:54 | 192 |     |     |     |     |        |      | 2       |          | 7.6     | 0.904     | 0.000     | 0.000     | 2.106     | 0.008     | 0.000     | 0.000     | 0.017     |
| 2009/06/13 18:38:04 | 240 |     |     |     |     |        |      | 2       |          | 9.2     | 1.153     | 1.153     | 2.845     | 2.845     | 0.008     | 0.008     | 0.017     | 0.017     |
| 2009/06/13 18:42:10 |     |     |     |     |     | 1      |      | 2       |          | 9.3     | 1.151     | 1.151     | 2.821     | 2.822     | 0.008     | 0.008     | 0.017     | 0.017     |
| 2009/06/13 18:44:12 |     |     |     |     |     |        | 1    | 2       |          | 9.2     | 2.233     | 1.151     | 2.821     | 1.458     | 0.008     | 0.008     | 0.017     | 0.017     |
| 2009/06/13 18:46:14 |     |     |     | 85  |     |        |      | 2       |          | 9.3     | 2.233     | 1.138     | 2.777     | 1.458     | 0.008     | 0.008     | 0.017     | 0.017     |
| 2009/06/13 18:48:16 |     |     |     | 128 |     |        |      | 2       |          | 9.3     | 2.219     | 1.151     | 2.820     | 1.453     | 0.008     | 0.008     | 0.017     | 0.017     |
| 2009/06/13 18:48:18 |     |     |     |     | 120 |        |      | 2       |          | 9.3     | 2.208     | 1.152     | 2.821     | 1.449     | 0.008     | 0.008     | 0.017     | 0.017     |
| 2009/06/13 18:50:20 |     |     |     |     | 180 |        |      | 2       |          | 9.3     | 1.390     | 0.000     | 0.000     | 2.521     | 0.008     | 0.000     | 0.000     | 0.017     |
| 2009/06/13 18:50:22 |     |     |     |     |     |        | 0    | 2       |          | 9.3     | 1.723     | 0.000     | 0.000     | 2.101     | 0.008     | 0.000     | 0.000     | 0.017     |
| 2009/06/13 18:50:24 |     |     |     |     |     | 0      |      | 2       |          | 9.2     | 1.582     | 2.197     | 1.489     | 2.277     | 0.794     | 0.835     | 0.726     | 0.951     |
| 2009/06/13 19:11:02 |     |     |     |     |     | 1      |      | 2       |          | 9.2     | 1.144     | 1.144     | 2.800     | 2.800     | 1.084     | 1.083     | 1.949     | 1.949     |
| 2009/06/13 19:13:04 |     |     |     |     |     |        | 1    | 2       |          | 9.2     | 2.210     | 1.144     | 2.799     | 1.454     | 2.157     | 1.076     | 1.935     | 0.951     |
| 2009/06/13 19:19:14 |     |     |     |     |     |        | 0    | 2       |          | 9.2     | 1.710     | 0.000     | 0.000     | 2.086     | 1.656     | 0.000     | 0.000     | 1.423     |
| 2009/06/13 19:19:16 |     |     |     |     |     | 0      |      | 2       |          | 9.2     | 2.214     | 0.000     | 0.000     | 1.449     | 2.168     | 0.000     | 0.000     | 0.952     |

### Channel S1

Results for feed horn 28, channel S1 (test PEGASO). The analysis has been done in the range [1623608326., 1623612078.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS pos | 4kHz | DAE ofs | DAE gain | Id [mA] | Sky00 [V] | Ref00 [V] | Sky01 [V] | Ref01 [V] | Sky10 [V] | Ref10 [V] | Sky11 [V] | Ref11 [V] |
|---------------------|-----|-----|-----|-----|-----|--------|------|---------|----------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2009/06/13 18:19:46 | 171 | 171 | 0   | 0   | 0   | 0      | 0    | 2       | 0        | -0.2    | 0.713     | 0.000     | 0.000     | 0.911     | 0.008     | 0.000     | 0.000     | 0.017     |
| 2009/06/13 18:27:20 |     |     |     |     |     | 1      |      | 2       |          | -0.2    | 0.000     | 1.186     | 1.574     | 0.000     | 0.000     | 0.008     | 0.017     | 0.000     |
| 2009/06/13 18:29:22 |     |     |     |     |     |        | 1    | 2       |          | -0.2    | 1.182     | 1.161     | 1.539     | 1.585     | 0.008     | 0.008     | 0.017     | 0.017     |
| 2009/06/13 18:35:32 |     |     |     |     |     | 0      |      | 2       |          | -0.2    | 1.190     | 0.000     | 0.000     | 1.589     | 0.008     | 0.000     | 0.000     | 0.017     |
| 2009/06/13 18:35:34 |     |     |     |     |     |        |      | 2       |          | -0.2    | 1.604     | 1.149     | 2.813     | 1.945     | 0.008     | 0.008     | 0.017     | 0.017     |
| 2009/06/13 18:52:30 |     |     |     |     |     |        |      | 2       |          | 8.8     | 2.226     | 2.225     | 1.454     | 1.454     | 0.836     | 0.838     | 0.713     | 0.711     |
| 2009/06/13 18:56:36 | 235 | 88  | 157 | 127 | 255 | 1      |      | 2       |          | 8.8     | 2.225     | 1.454     | 1.454     | 2.835     | 0.839     | 0.838     | 0.713     | 0.713     |
| 2009/06/13 18:58:38 |     |     |     |     |     |        | 1    | 2       |          | 8.8     | 1.149     | 2.224     | 1.454     | 2.835     | 0.843     | 0.838     | 0.713     | 0.721     |
| 2009/06/13 19:00:40 |     |     |     | 84  |     |        |      | 2       |          | 8.8     | 1.149     | 2.224     | 1.454     | 2.834     | 0.843     | 0.801     | 0.679     | 0.721     |
| 2009/06/13 19:02:42 |     |     |     | 127 |     |        |      | 2       |          | 8.8     | 1.149     | 2.224     | 1.454     | 2.834     | 0.834     | 0.838     | 0.713     | 0.713     |
| 2009/06/13 19:02:44 |     |     |     |     | 170 |        |      | 2       |          | 8.8     | 1.149     | 2.201     | 1.484     | 2.834     | 0.828     | 0.838     | 0.713     | 0.707     |
| 2009/06/13 19:04:46 |     |     |     |     | 255 |        |      | 2       |          | 8.8     | 0.000     | 1.987     | 1.757     | 0.000     | 0.000     | 0.840     | 0.715     | 0.000     |
| 2009/06/13 19:04:48 |     |     |     |     |     |        | 0    | 2       |          | 8.8     | 1.656     | 0.000     | 0.000     | 2.183     | 0.000     | 0.000     | 0.000     | 0.718     |
| 2009/06/13 19:04:50 |     |     |     |     |     | 0      |      | 2       |          | 8.8     | 1.589     | 1.144     | 2.800     | 2.255     | 1.487     | 1.079     | 1.941     | 1.305     |

### Channel S2

Results for feed horn 28, channel S2 (test PEGASO). The analysis has been done in the range [1623608326., 1623612078.] s. The format for the time values (first column) is 'utc'.

| Time [s]            | Vg1 | Vg2 | Vd  | I1  | I2  | PS<br>pos | 4kHz | DAE<br>ofs | DAE<br>gain | Id<br>[mA] | Sky00<br>[V] | Ref00<br>[V] | Sky01<br>[V] | Ref01<br>[V] | Sky10<br>[V] | Ref10<br>[V] | Sky11<br>[V] | Ref11<br>[V] |
|---------------------|-----|-----|-----|-----|-----|-----------|------|------------|-------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 2009/06/13 18:19:46 | 171 | 171 | 0   | 0   | 0   | 0         | 0    | 2          | 0           | -0.2       | 0.951        | 1.171        | 1.568        | 1.569        | 0.008        | 0.008        | 0.017        | 0.017        |
| 2009/06/13 18:42:10 |     |     |     |     |     | 1         | 0    | 2          |             | -0.2       | 1.151        | 1.151        | 2.821        | 2.822        | 0.008        | 0.008        | 0.017        | 0.017        |
| 2009/06/13 18:44:12 |     |     |     |     |     |           | 1    | 2          |             | -0.2       | 2.224        | 1.147        | 2.806        | 1.455        | 0.008        | 0.008        | 0.017        | 0.017        |
| 2009/06/13 18:50:22 |     |     |     |     |     |           | 0    | 2          |             | -0.2       | 1.738        | 0.000        | 0.000        | 2.101        | 0.008        | 0.000        | 0.000        | 0.017        |
| 2009/06/13 18:50:24 |     |     |     |     |     | 0         |      | 2          |             | -0.2       | 1.738        | 2.213        | 1.468        | 2.082        | 0.689        | 0.831        | 0.706        | 0.590        |
| 2009/06/13 19:06:56 | 245 | 121 | 158 | 128 | 255 |           |      | 2          |             | 10.4       | 1.146        | 1.146        | 2.823        | 2.824        | 1.090        | 1.972        | 1.971        |              |
| 2009/06/13 19:11:02 |     |     |     |     |     | 1         |      | 2          |             | 10.5       | 1.144        | 1.144        | 2.800        | 2.800        | 1.084        | 1.083        | 1.949        | 1.949        |
| 2009/06/13 19:13:04 |     |     |     |     |     |           | 1    | 2          |             | 10.5       | 2.214        | 1.145        | 2.799        | 1.449        | 2.167        | 1.084        | 1.948        | 0.951        |
| 2009/06/13 19:15:06 |     |     |     | 85  |     |           |      | 2          |             | 10.5       | 2.214        | 1.144        | 2.799        | 1.449        | 2.167        | 1.059        | 1.908        | 0.952        |
| 2009/06/13 19:17:08 |     |     |     | 128 |     |           |      | 2          |             | 10.5       | 2.214        | 1.145        | 2.799        | 1.449        | 2.156        | 1.084        | 1.948        | 0.944        |
| 2009/06/13 19:17:10 |     |     |     |     | 170 |           |      | 2          |             | 10.5       | 2.214        | 1.144        | 2.799        | 1.449        | 2.148        | 1.084        | 1.949        | 0.939        |
| 2009/06/13 19:19:12 |     |     |     |     | 255 |           |      | 2          |             | 10.5       | 1.380        | 0.000        | 0.000        | 2.502        | 1.323        | 0.000        | 0.000        | 1.730        |
| 2009/06/13 19:19:14 |     |     |     |     |     |           | 0    | 2          |             | 10.5       | 1.710        | 0.000        | 0.000        | 2.086        | 1.656        | 0.000        | 0.000        | 1.423        |
| 2009/06/13 19:19:16 |     |     |     |     |     | 0         |      | 2          |             | 10.5       | 2.214        | 0.000        | 0.000        | 1.449        | 2.168        | 0.000        | 0.000        | 0.952        |