

INTEGRAL
Mission Report
INT-MOC-SYS-RP-1001-TOS-OF
No. 075
Week 09
01.03.04
Routine Phase

Prepared by: M. Walker (TOS-OFI)

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1 General

The Flight Control Team at MOC has compiled this report with some input provided by the Flight Dynamics Team, ISOC and ISDC.

It addresses the activities from 21.02.04 until 27.02.04 (both dates inclusive) and covers the revolutions 166 & 167.

2 Summary of Activities

The operations were performed according to the planning inputs from ISOC combined with some manual commanding by MOC.

The targets of these revolutions were GX 339-4 (RA 17:02:49.50; DEC -48:47:23.0), the Galactic Centre and the OMC Flat Field target (RA 17:12:48.00; DEC -06:24:00.0). The activities consisted of GCDE, raster dithering and staring observations. In addition, OMC Flat Field and Dark Current Calibrations were performed.

Note: Some further information concerning the activities is provided in the Appendix.

3 Satellite Status

3.1 Platform

The performance of the platform was good. No new unexpected behaviour / malfunction was identified.

3.1.1 AOCS

The AOCS operations were performed from the timeline during this period.

There was a flickering of the Pointing Bit (not seen at BCP level) after an Open Loop slew. This error was introduced by the attitude determination after the preceding slew. The reason for the detected roll error in the attitude determination process is being investigated.

There were two cases of loss of Guide Star. One was during the perigee passage and caused by detected False Events on the STR. In the second case, the dim Guide star, which was picked by the ACC after an Open loop Slew, was lost during the pointing.

One slew was lost on 24/02/2004. The reason was interruptions in the telemetry, caused by RFI at the station – Goldstone, DSS-16.

The fuel consumption over the period between 20/02/2004 and 27/02/2004 was 0.096 kg. The remaining propellant is in the order of 172.191 Kg on the 27th of February.

Note: Some more information concerning the AOCS operations and the fuel budget is provided in the Appendix.

3.1.2 Power

The power subsystem is working as specified. The available power from the arrays is in the order of **2200W**.

3.1.3 Thermal

The thermal control of the satellite is working well. The temperatures are currently all within the specified operational limits.

3.1.4 OBDH

The OBDH subsystem is working flawlessly. No on-board communications problem was identified

3.1.5 RFS

The RF subsystem is working properly. The link margin is sufficient to ensure proper TM reception and execution of commands with the ranging channel enabled.

3.2 Payload

3.2.1 SPI

The overall status of the instrument is nominal.

During the reporting period the instrument was in photon-by-photon mode with spectra TM enabled and an assigned TM bandwidth in the science windows of 98 pkts/cycle, except during the OMC Flat Field calibration, where it was 87 pkts/cycle.

The cryocooler is working well, keeping the Ge detector cold plate temperature within 85+/-1K.

Note: Some more information concerning the SPI operations is provided in the Appendix.

3.2.2 IBIS

The status of the unit is Nominal.

The IBIS TM allocation was as follows:

From	To	IBIS TM allocation pkts/cycle
2004-02-20T00:00:00Z	2004-02-25T12:16:04Z	134
2004-02-25T12:16:04Z	2004-02-25T17:50:49Z	90
	(OMC Flat Field Calibration)	
2004-02-25T17:50:49Z	end of revolution 167	134

No occurrence of anomalous OEM generation (ID 183-184-179-180, Class 2) was reported after the VETO S/W patch.

Note: Some more information concerning the IBIS operations is provided in the Appendix.

3.2.3 JEM-X

The status of both JEM-X units is nominal.

During the OMC Flat Field observation in revolution 167 (2004-02-25T12:18:48Z - 2004-02-25T16:51:22Z), the JEM-X1 DFEE SW patch and manual activation of the unit was performed, with JEM-X1 having a TM allocation of 4 packets/cycle and JEM-X2 an allocation of 5 packets/cycle. Apart from during this period, JEM-X1 was dormant with a TM allocation of 1 packet/cycle and JEM-X2 had a TM allocation of 8 packets/cycle during science observations. JEM-X2 operations were performed by the automatic Timeline.

JEM-X2 made two autonomous transitions to Safe mode; before radiation belt entry of revolution 165 (~30 minutes earlier than planned in the Timeline) and revolution 166 (~7 minutes earlier than planned). In the first case it was triggered by the IREM electron count parameter and in the second it was triggered by the JEM-X2 SW Ratemeter.

On 2004-02-24 there were also several occurrences of out of limits on the parameter L5136 Buffer Loss.

Further information on the JEM-X operations can be found in the Appendix Section 8.3.4.

3.2.4 OMC

The status of OMC is nominal.

During the reporting period OMC operations were performed by the automatic timeline, with the TM allocation to OMC of 5 packets/cycle during normal science operations.

There were 211 OMC pointings executed nominally, none were lost.

Note: Some more information concerning the OMC operations is provided in the Appendix Section 8.3.5.

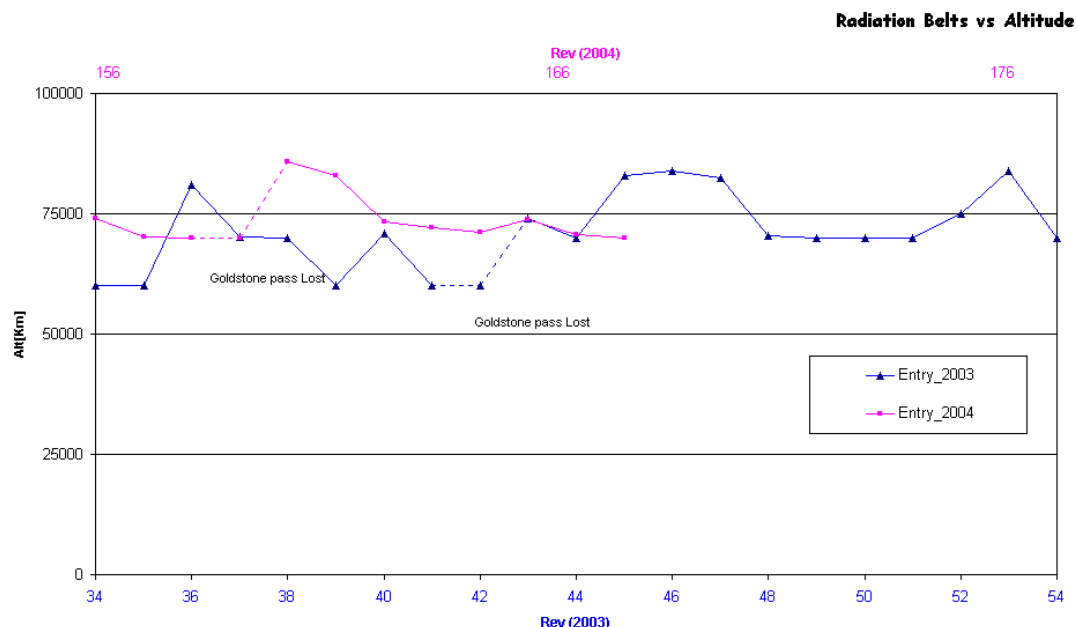
3.2.5 IREM

The overall status of the unit is Nominal.

The observation period was characterized by low solar activity but with the presence of a few single electron (<0.5 MeV) spikes, that in two cases

- 2004.052.15.42Z
- 2004.055.15.08Z

caused the transition of JEM-X2 to Safe Mode. A comparison between the Radiation Belt Entries in 2003 and 2004, for the same observation period winter->spring, shows evidence of an increase in the entry altitudes, over that observed in 2003. The Radiation Belt Entry is determined by the electron cut-off threshold (see definition below) based on JEM-X2 on-board radiation automatism.



The reported Electron Belts Entry/Exit for revs 158-->159, as defined by a cut-off flux of $3.76\text{E}+02$ e/cm²/sec ($E>0.5$ MeV) and the predicted Proton Belts Entry/Exit, as defined by a cut-off flux of $1.25\text{E}+03$ p/cm²/sec ($E>8$ MeV) are not available this week.

Note: Some more information concerning the IREM operations is provided in the Appendix Section 8.3.6.

4 Ground Facilities

The performance of the Operational ground facilities was in general good in the reporting period. The main problems this week, are briefly described in section 6.

4.1 Mission Operations Centre

The performance of the MOC was in general good in the reporting period, with only minor problems reported, see below for details. A problem was found during the week concerning the 29th February. This date was not properly handled by the S2K infrastructure. A patch has been developed but there was insufficient time to validate the patch. To avoid potential problems a staring observation with no slew activity was performed on the 29th.

4.2 Ground Stations & Network

There were several instances this week of RFI, and Reed-Solomon errors. On one occasion, this led to the loss of four pointings.

4.3 Science Ground Segment

The hacking incidents on the PI workstations appear to have ceased since the installation of anti-virus software on the affected machines.

4.3.1 ISOC

1. Mission planning

PSF's: Received up to rev. 175 (no change)

POS and POD generated: up to rev 170

TSF's: Received up to rev 167

Due to switch of JEM-X instrument from rev 171 the subsequent revolutions will be planned later than normal to minimize the risk of complications in the case of TOO or other re-planning necessary. In order for Flight Dynamics to be able to optimise wheel profiles rev 171 to 174 have been sent to MOC. Moreover rev 175 is waiting for input from XMM-Newton for a coordinated observation. The final scheduling with the

correct JEM X configuration and telemetry allocations will only be done during rev 169.(1 and 2 March).

This week has seen several re-planning activities:

Rev 168 was re-planned on request from MOC to avoid open loop slewing during the leap day.

Rev 170 was re-planned to optimise the science return by allowing simultaneous observation with a ground-based telescope.

Rev 174 was re-planned due to a misunderstanding of the long-term plan.

One TOO request was rejected.

2. Observation status

ECS 149 received and corresponding OCS sent to ISDC. No extra time credited.

3. ISOC science archive

Trials with magneto-optical storage medium revealed no performance problems. The ingest software received from ISDC is difficult to install. Work is performed to make this easier. Reception of tapes from ISDC is taken too long time. Alternative approach via FTP is being negotiated. This should not replace the use of tapes.

4. ISOC system

The ISOC system version 10.2 has been used without any problems. A new release is targeted for Mid March.

5. Problems

None

4.3.2 ISDC

On 01/03/2004, the status of ISDC observation processing is:

- Latest Standard Analysis completed: observation 01201250002 (Cassiopeia A, Revolution 144-148) on 29/02/2004
- Latest products archived: observation 01100090008 (Vela region, Revolution 138) on 27/01/2004
- Latest observation products sent to the observer: 01202070003 (X1916-053, Revolution 131-134) on 09/01/2004

5 Special Events

Nothing to report

6 Anomalies

There were a number of problems related to the ground segment that impacted the operations:

- On DoY 052, at 00:47, seven bad frames were received from Redu, no impact.
- On DoY 054, at 12:15, sun128 was showing yellow due to disc space problems, this was corrected by the purging of unwanted files.
- On DoY 055, from 18:17 to 19:17, there were drops in the TM bad frame link due to RFI on DSS-16, the impact was pointing 01660081 had to be manually performed.
- On DoY 056, at 14:11, there was a drop in the TM bad frame link from Redu.
- Later, at 19:45, the IDDA was in a yellow state (cpu 21%) due to the on-going retrieval activity.
- On DoY 057, at 12:41, a 'hit on the X-25 line' from Redu to INCTRS-A, caused the TM & TC to drop. The TM returned at 12:45, and the TC at 12:50. There was no impact.
- Later, at 18:35, there was a loss of TM from DSS-16 due to severe RFI. Bad frames and TM drops continued until 18:42, when the TM was switched to Redu. The OMC OEM for pointing 01670066 indicating start of science was missed, but the pointing appears to have gone ahead anyway.
- On DoY 058, at 11:51, the sequence DEBP4200 failed due to a TM drop caused by an early carrier from DSS-16.
- From 17:46 to 18:21, there were 240 frames lost due to RFI.

The following new anomaly reports have been entered into the Anomaly Reporting and Tracking System. Repeats of existing anomalies are not shown in this table.

AR id	Date Occurrence	Subject	Segment	Status
INT-2556	25/02/2004	Status of TC link on AutoStk not showing red.	IMCS	Pending
INT-2557	26/02/2004	MMIapplicationL Memory Leakage	IMCS	Pending

7 Future Milestones

The planned date for the JEMX2 DFEE patch has been postponed until after revolution 170.

8 Appendix

The appendix includes various detailed information.

8.1 Overview of Revolutions

Revolution 166

The observations in revolution 166 consisted of a raster dithering observation of GX 339-4 (RA 17:02:49.50; DEC -48:47:23.0) lasting ~59 hours, followed by a GCDE which was performed for the remaining ~2 hours of observation time.

During these observations all instruments were in their nominal science modes, except for JEM-X1, which remained in Safe mode, and the TM allocation was 134 IBIS, 98 SPI, 1 JEM-X1, 8 JEM-X2, 5 OMC.

Revolution 165

The observations in revolution 167 consisted of a GCDE performed for the first ~8.5 hours, followed by a 4.5 hour staring observation at the OMC Flat Field target (RA 17:12:48.00; DEC -06:24:00.0), during which OMC Flat Field and Dark Current Calibrations were performed. In addition, a JEM-X1 DFEE SW patch and activation of the unit was performed during this time. The GCDE observation was then resumed and was performed for the remaining ~47 hours of observation time.

During the GCDE observation all instruments were in their nominal science modes, except for JEM-X1 which remained in Safe mode, and the TM allocation was 134 IBIS, 98 SPI, 1 JEM-X1, 8 JEM-X2, 5 OMC. During the OMC Flat Field observation, SPI, IBIS and JEM-X2 were in their nominal science modes, OMC was in FFCalibration followed by DCCalibration modes and JEM-X1 spent the latter 2.5 hours in Data Taking mode. The TM allocation during this observation was 90 IBIS, 87 SPI, 4 JEM-X1, 5 JEM-X2, 60 OMC.

8.2 Consumables

8.2.1 Detailed Fuel Book-keeping

2004-02-10T10:47:24.000Z	172.5000	F	Automatic TM processing.
2004-02-11T11:42:47.000Z	172.4853	F	Automatic TM processing.
2004-02-12T19:02:26.000Z	172.4617	F	Automatic TM processing.
2004-02-13T01:36:19.000Z	172.4529	F	Automatic TM processing.
2004-02-14T11:31:42.000Z	172.4362	F	Automatic TM processing.
2004-02-15T17:56:41.000Z	172.3993	F	Automatic TM processing.
2004-02-16T01:28:34.000Z	172.3637	F	Automatic TM processing.
2004-02-18T19:08:18.000Z	172.3517	F	Automatic TM processing.
2004-02-19T01:17:23.000Z	172.3153	F	Automatic TM processing.
2004-02-19T09:49:39.000Z	172.2873	F	Automatic TM processing.
2004-02-21T18:55:21.000Z	172.2701	F	Automatic TM processing.
2004-02-22T01:04:26.000Z	172.2656	F	Automatic TM processing.

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2004-02-24T17:30:48.000Z	172.2463	F	Automatic TM processing.
2004-02-25T00:58:49.000Z	172.2159	F	Automatic TM processing.
2004-02-25T11:23:06.000Z	172.1911	F	Automatic TM processing.

This report was generated Fri Feb 27 08:00:10 GMT 2004

8.3 Detailed Satellite Information

This section contains some detailed information concerning the various subsystems of the satellite and instruments.

8.3.1 AOCS Operations

AOCS operations were executed from the Automatic Timeline.

During this period, 86 Open Loop Slews, 136 Closed Loop Slews and 6 Momentum Bias were executed. 1 slew was missed. This is equivalent to a 0.5%.

21/02/04 (Day of Year 052, Revolution 165-166)

Release of Guide Star during the perigee passage due to False Events: During the perigee passage, the Guide Star was released two times by the STR SEU Filter of the ACC. These happened at 23:19:11 and 23:49:23. At LOS the Guide Star was at CCD location [-17235 16753] with 6.1 Mi. At AOS (DoY 0530) the new Guide had CCD coordinates [2577 -3708] and 7.7 Mi.

22/02/04 (Day of Year 053, Revolution 166)

Nothing to report.

23/02/04 (Day of Year 054, Revolution 166)

Nothing to report.

24/02/04 (Day of Year 055, Revolution 166-167)

Slew lost due drops in TM, caused by RFI at the Ground Station (Goldstone, DSS-16): At 18:17:20, the AOCS command to report the loaded slew parameters failed execution verification. This was caused by drops in TM, which, according to the station, were due to RFI. The AOCS commanding from the Autostack was stopped and execution of slew 01660081 interrupted. To rejoin the Timeline, a manual Close Loop Slew was then performed to the attitude of Pointing 01660081.

25/02/04 (Day of Year 056, Revolution 167)

Loss of Guide Star: At 10:52:21 the 8.35 Mi Guide Star, which was picked by the ACC after and Open Loop Slew, was lost. At the time of its loss, the star was located

at CCD [-18761 –21984]. An automatic mapping was performed and a new guide star was selected: [3338 –1249], 6.8 Mi. The OTF dropped as a result of this event.

26/02/04 (Day of Year 057, Revolution 167)

Flickering of the Pointing Bit at the end of Open Loop Slew due to roll error: At the end of Open Loop Slew 01670049, the error in roll with respect to the SSL assumed value was –157 arc-seconds, which is greater than the OTF threshold. This error caused the flickering of the Pointing Bit, but was not seen at BCP (OTF) level. Looking into the origin of this error, it is clear that the error was already there at the beginning of the slew. The attitude determination after Open Loop Slew 01670048 (0167_0050.attd_log) reported a roll error of +154 arc-seconds, which was then introduced in the next slew. The mapping that was used for attitude determination was the second mapping after the slew and was started after the SSL was enabled. Moreover, slews 49 and 48 both had amplitudes in the order of 2.5 arc-minutes. The reason for the detected error in roll during the attitude determination process is being investigated.

27/02/04 (Day of Year 058, Revolution 167-168)

Nothing to report.

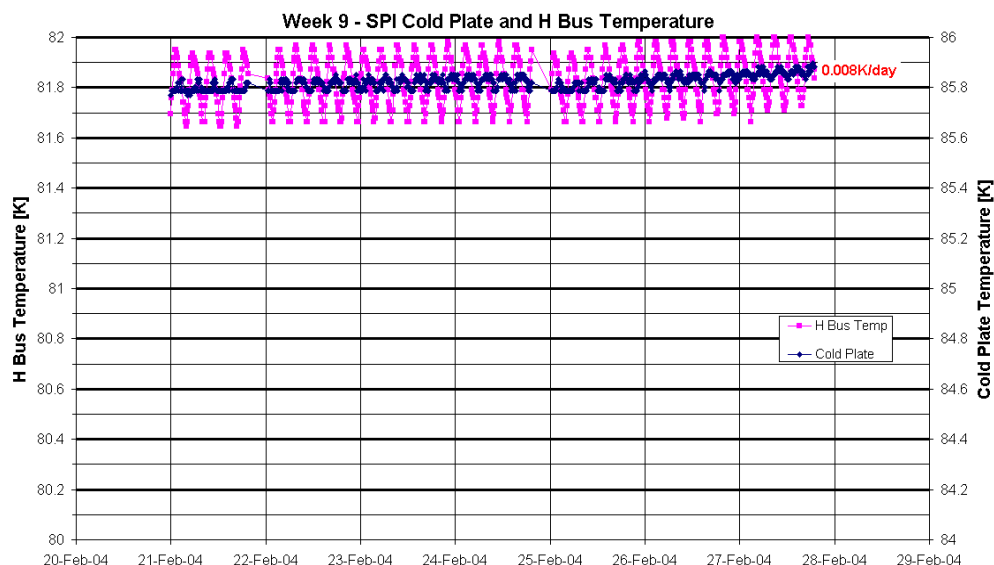
8.3.2 SPI Operations

Cryocooler / Detector Cold-Plate:

The performance of the cryocooler is nominal.

The cold-plate temperature is leveled at around 85.82K with a small positive drift of 0.008K/day, which is within the expected range. It is expected to increase the four compressors stroke amplitude by one lsb at some point in next week, in order to compensate for the accumulated drift during the last two months.

The following plot shows the evolution of the cold-plate and H bus temperatures during the reporting period.

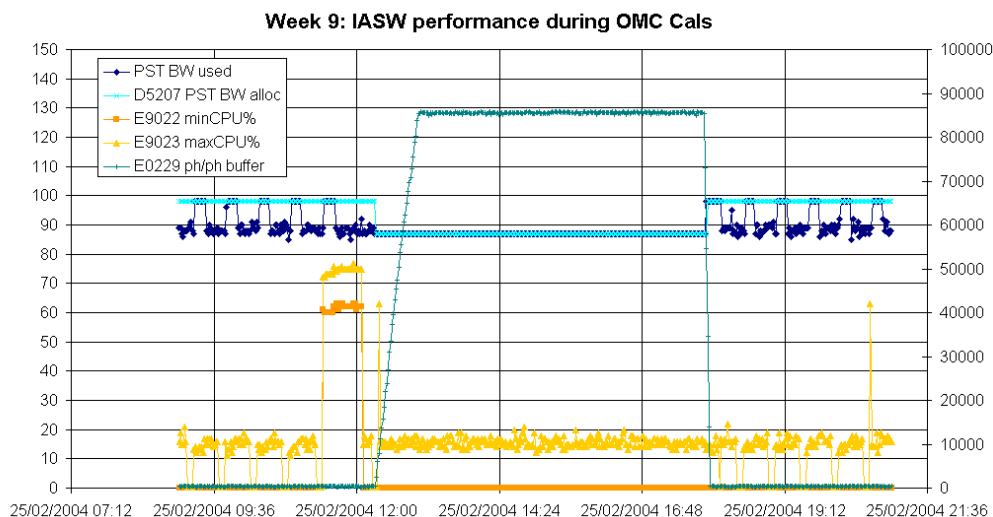


IASW/DPE:

Between 2004-02-25T12:16:04Z - 2004-02-25T17:50:49Z (OMC Flat Field Calibration - Exposure Id: 01670002 - followed by an OMC Dark Current Calibration - Exposure Id: 01670003), the PST was re-programmed to reflect the following TM bandwidth distribution: IBIS 90; SPI 87; JEM-X1 4; JEM-X2 5; OMC 60.

This caused the IASW to immediately saturate the allocated TM bandwidth, followed by the photon event buffer saturation in a few minutes. Operations returned nominal when the bandwidth was re-assigned to 97 pkts/cycle.

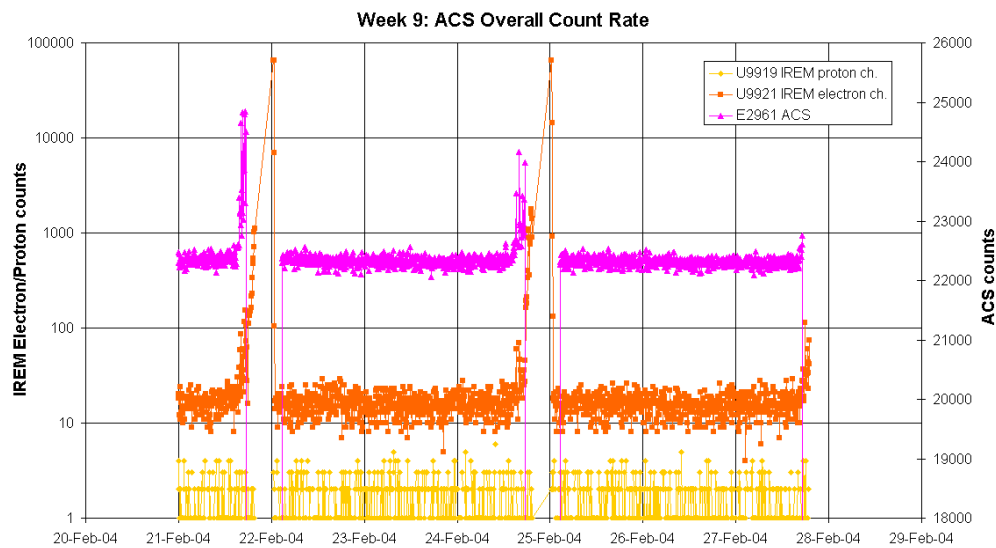
The following diagram shows the IASW performance during these two exposures:



ACS:

The performance of the ACS is nominal.

The following plot shows the ACS overall count rate evolution during the reporting period.

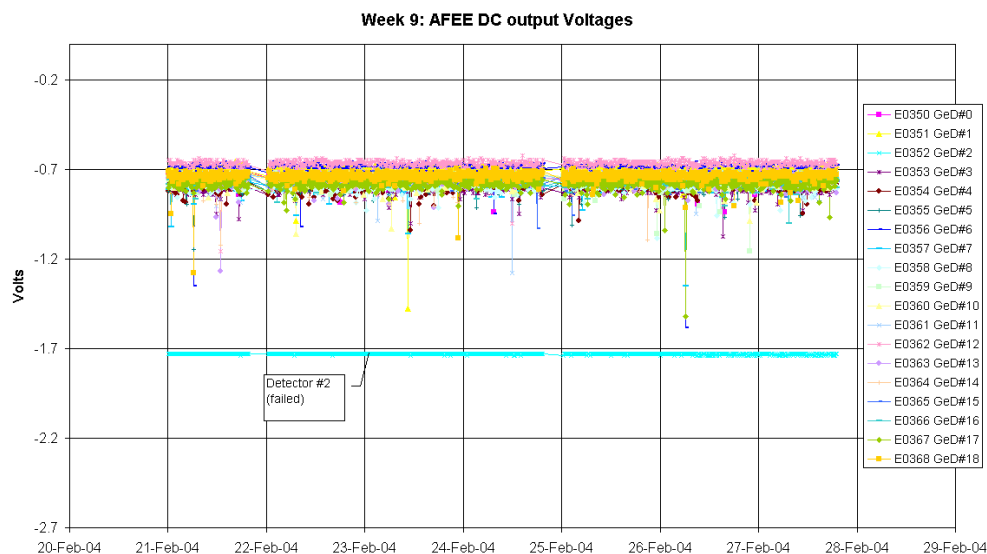


AFEE:

The performance of the detectors is nominal except for the detector #2 failed since 06.12.2003 (see anomaly report INT_SC-72).

The AFEE dc output signals are here after plotted during the reporting period.

These signals represent the DC component of the current flowing through the Ge detector crystals polarised at 4kV; they provide a measure of the health status of both the detectors and the HV section.

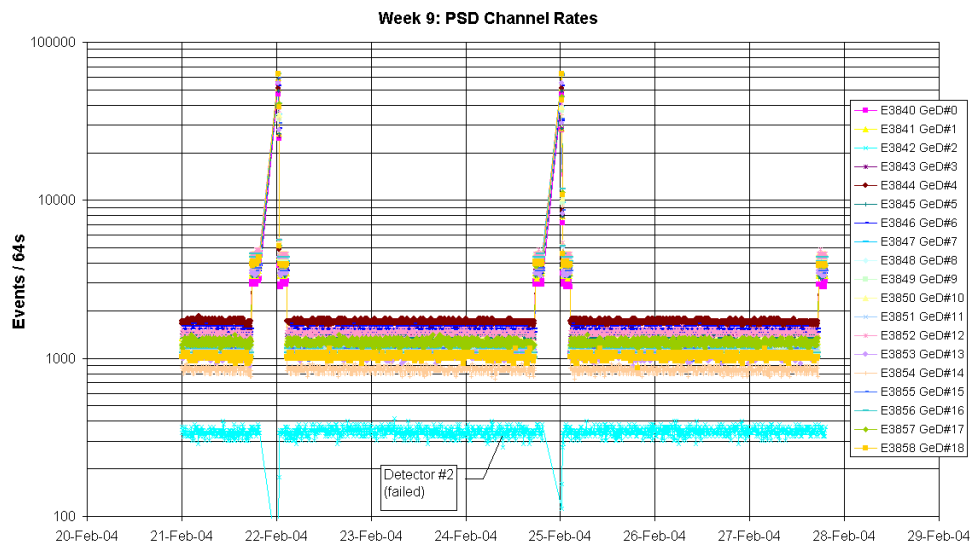


DFEE:

Nothing to report.

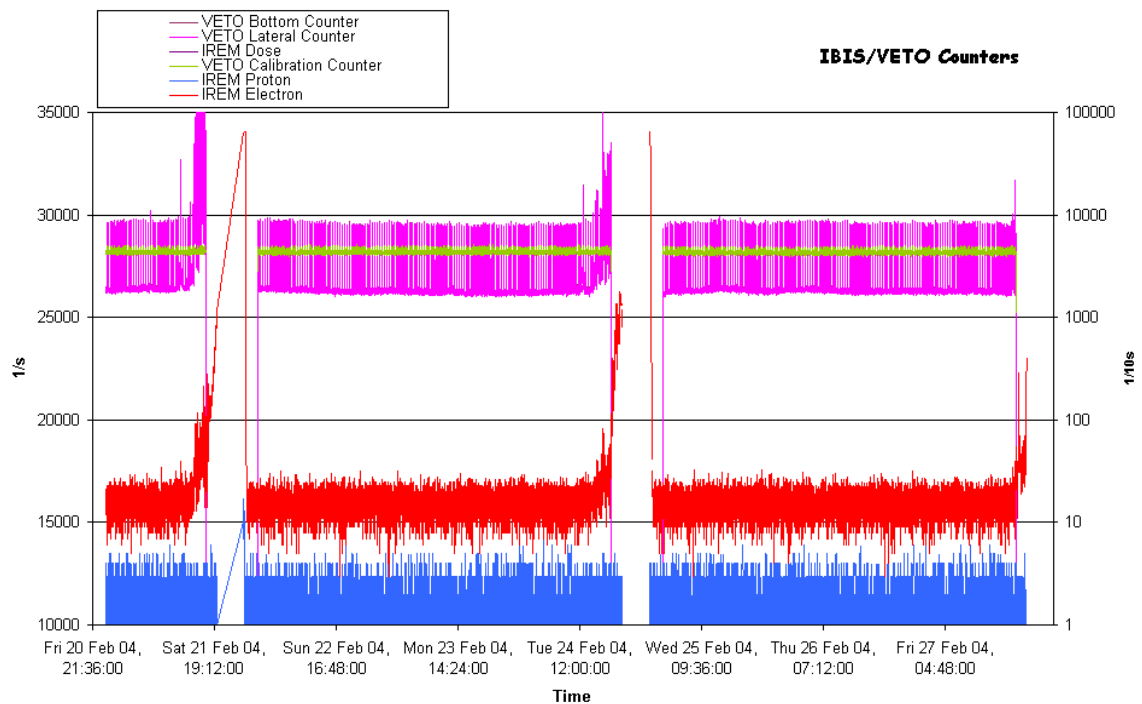
PSD:

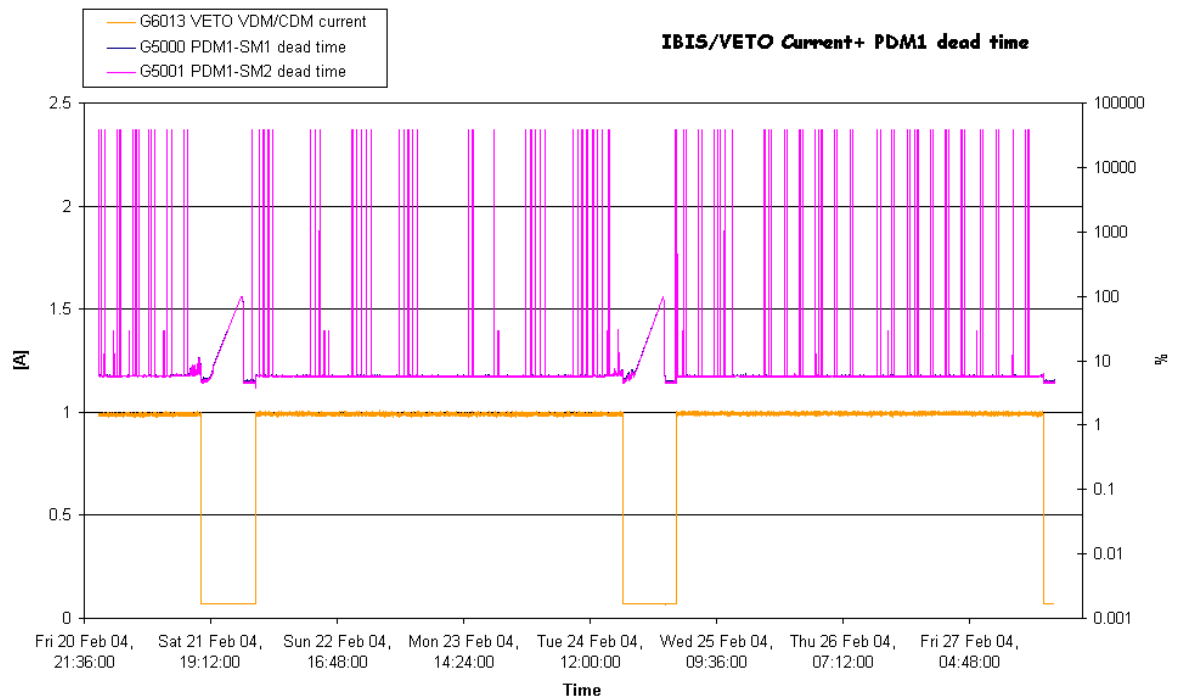
The following plot shows the GeD channel rates detected by the PSD during the reporting period. The count rate of each detector is within the expected range, except for the failed detector #2, whose residual counts are triggered by noise.



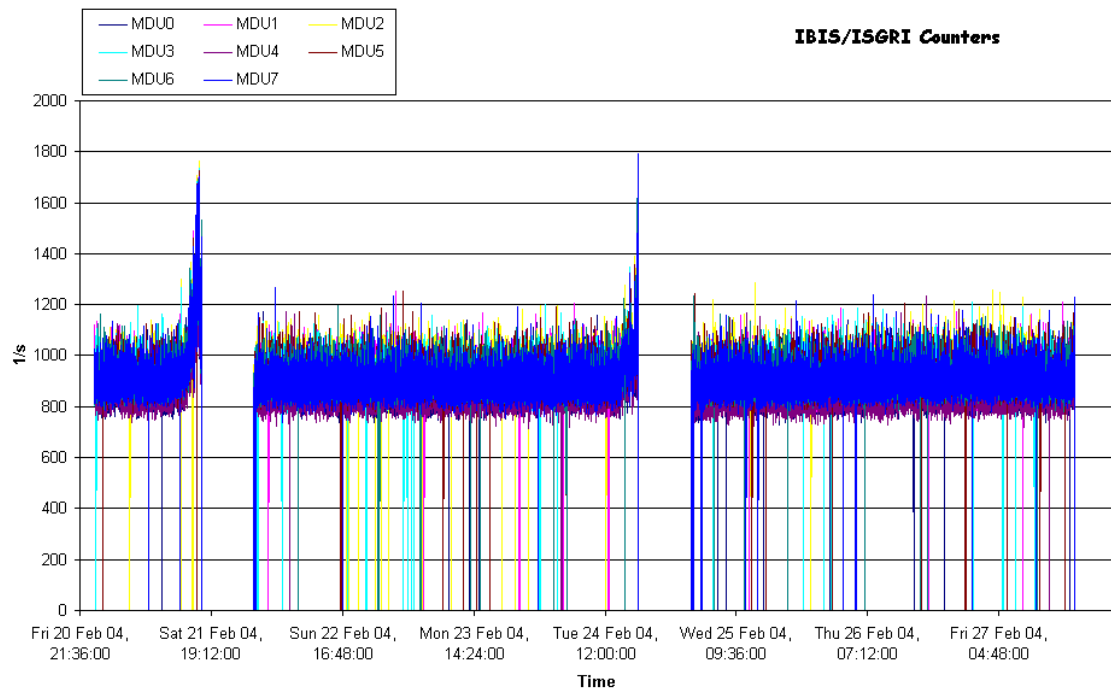
8.3.3 IBIS Operations

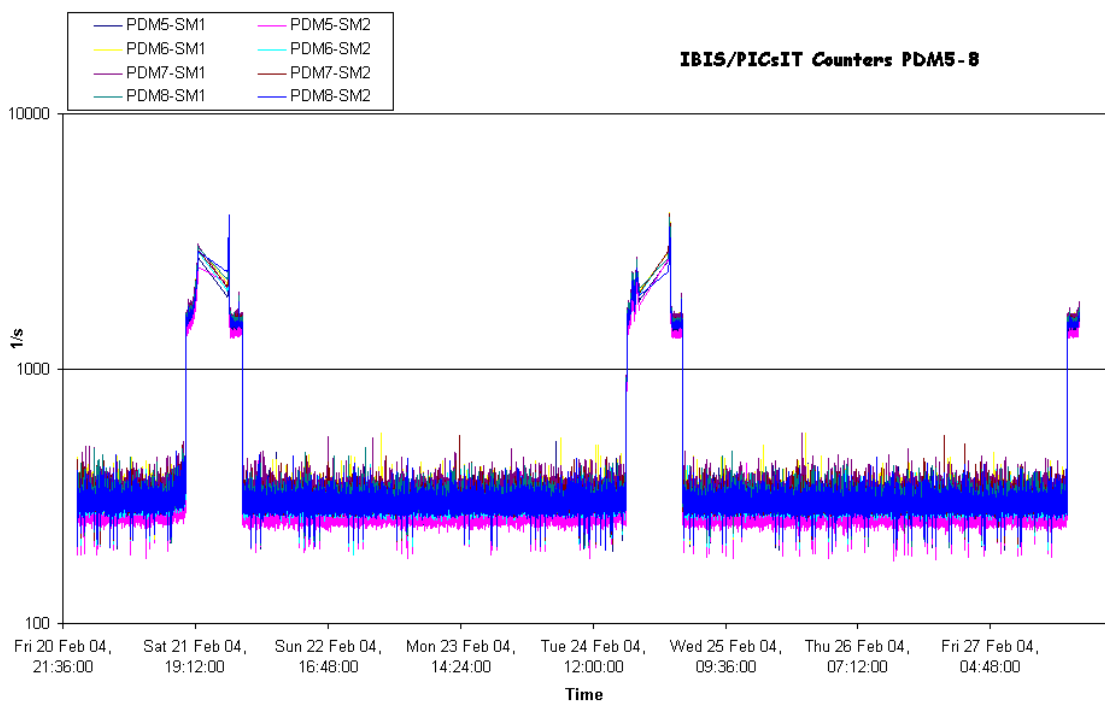
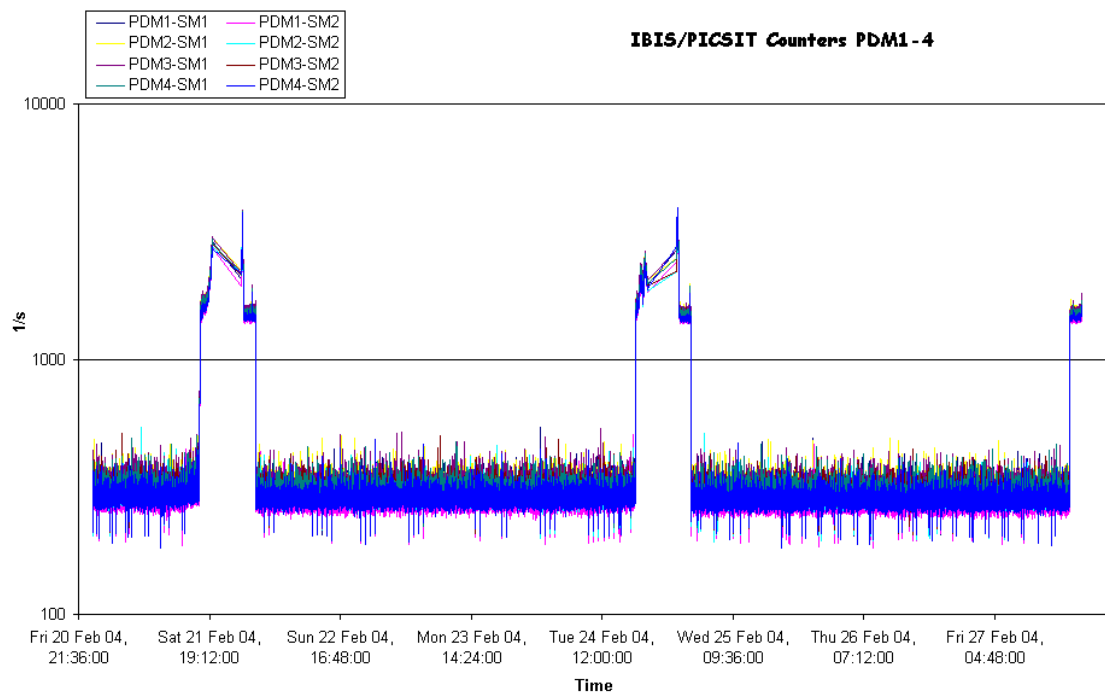
Plots of the VETO VDM/CDM current, the VETO bottom and lateral counter and the PICsIT PDM#1 SM1-2 dead times are shown below:





Plots of ISGRI and PICsIT counters, during the observation period are shown below.





DOY 2004.052 (21/02/04)

At 17:14Z the parameters G6062(VETO Bottom Counter) - G6063 (VETO Lateral Counter) reported out of Soft High limits (went in/out limit for fewTM cycles) due to the incoming Radiation Belt Entry. No action was taken, as suggested by FDIR doc.

DOY 2004.053 (22/02/04)

At 2:16 and 2:37Z the OEM APID 1280 ID 169 Class 0 << HK OUT OF SYNCH>> flagging a temporary loss of synchronization between the HEPI and peripherals was reported. Due to the isolated occurrence no further action was taken, as suggested by FDIR.

There were a few reported during the Belt passage the OEM APID 1280 ID 167 Class 2 <<IBIS1 PICsIT NOISY SEMIMODULE SIGNALLING>> due to the PICsIT detectors being ON without the VETO anticoincidence system, as required by the PIs.

DOY 2004.054 (23/02/04)

Nothing to report.

DOY 2004.055 (24/02/04)

Nothing to report

DOY 2004.056 (25/02/04)

At 2:05 and 2:28Z the OEM APID 1280 ID 169 Class 0 << HK OUT OF SYNCH>> flagging a temporary loss of synchronization between the HEPI and peripherals was reported. Due to the isolated occurrence no further action was taken, as suggested by FDIR.

At 2:45, two OEMs APID 1280 ID 132 Class 0 << IBIS1 IASW HEPI RESYNCH>> flagging an autonomous re-synch between the HEPI and the peripherals due to the loss of synch reported above.

There were a few reported during the Belt passage the OEM APID 1280 ID 167 Class 2 <<IBIS1 PICsIT NOISY SEMIMODULE SIGNALLING>> due to the PICsIT detectors being ON without the VETO anticoincidence system, as required by the PIs.

DOY 2004.057 (26/02/04)

Nothing to report

DOY 2004.058 (27/02/04)

Nothing to report.

8.3.4 JEM-X Operations

2004-02-21 (DOY 052, Rev 165-166)

At 15:40:57Z, about 35 minutes before it was planned to put JEM-X2 into Safe mode before radiation belt entry of revolution 165, the parameter L5119 SOFTWARE TRIGGER went soft out of limits (value = 21170). It reached a maximum value of 24543 at 15:41:45Z but then returned within limits at 15:42:25Z.

However at 15:42:17Z the following radiation monitoring parameters from IREM had gone out of limits:

K5317 RAD MONITOR 3 (Electron Counter), value = 75

L5317 RAD MONITOR 3 (Electron Counter), value = 75,

causing JEM-X2 to transition to Safe mode autonomously (issuing OEM 231 JEM-X2 AUTO EVENT 1).

At 16:08Z JEM-X2 performed an autonomous recovery to Setup mode (issuing OEM 233 JEM-X2 AUTO EVENT 3) after the IREM RMCR values had remained below the JEM-X2 thresholds for exiting from Safe mode for more than 10 minutes.

At 16:10Z the parameters K5317 and L5317 went out of limits again (value = 85) and JEM-X2 returned to Safe mode (issuing OEM 231 JEM-X2 AUTO EVENT 1). Commanding to JEM-X2 from the automatic Timeline had not been disabled, allowing the ED LESAFE01 to be executed from the Timeline at 16:16:10Z, such that JEM-X2 would remain in Safe mode as planned for the remainder of the revolution. At this time another OEM 231 JEM-X2 AUTO EVENT 1 was received.

2004-02-22 (DOY 053, Rev 166)

Nothing to report

2004-02-23 (DOY 054, Rev 166)

Nothing to report

2004-02-24 (DOY 055, Rev 166-167)

The TM parameter L5136 BUFFER LOSS went out of limits several times as follows:

- 08:01:37Z (value = 129)
- 09:30:56Z (value = 107)
- 14:40:08Z (value = 137)
- 15:00:16Z (value = 395), remaining out of limits for 6 TM cycles and reaching a maximum of 906 at 15:00:24Z
- 15:11:44Z (value = 175), remaining out of limits until 15:13:44Z and reaching a maximum of 1307 at 15:13:20Z. This was during slew 01660076, in which ED LEDATA01 was uplinked.
- 15:44:32Z (value = 927), remaining out of limits for 7 TM cycles and reaching a maximum of 3811 at 15:44:56Z

Starting about 1 hour before it was planned to put JEM-X2 into Safe mode before radiation belt entry of revolution 166, the parameter L5119 SOFTWARE TRIGGER went soft out of limits and then returned within limits on several occasions as follows:

- OOL at 15:08:25Z (value = 20331) back with limits at 15:10:41Z
- OOL at 15:13:53Z (value = 20779) back with limits at 15:18:25Z
- OOL at 15:43:45Z (value = 20377) back with limits at 15:44:33Z
- OOL at 15:45:53Z (value = 21186) back with limits at 15:55:53Z. During this time this parameter also crossed the hard limit threshold.

At 15:59:05Z this parameter went out of limits again (value = 20679) and at 15:59:45Z it exceeded the JEM-X2 safe threshold (reporting value = 25001) and JEM-X2 made an autonomous transition to Safe mode. OEM189 JEM-X2 PROB DFEE 9 was then received, as the parameter L5462 DFEE STATE IASW was reporting state Setup. At 16:00:25Z the IREM electron counter parameters K/L5317 RAD MONITOR 3 also went out of limits (value = 68) and at 16:00:41Z the parameter L5462 DFEE STATE IASW began to report state Safe. The following OEMs were then issued:

OEM 231 JEM-X2 AUTO EVENT 1
OEM 254 ERROR OFF

At 16:07:15Z the ED LESAFE01 was executed as planned from the Timeline and another OEM 231 JEM-X2 AUTO EVENT 1 was received.

2004-02-25 (DOY 056, Rev 167)

The JEM-X1 DFEE SW patch version 5.3 (ref: INTGSCCR-45 and INTGSCCR-46), to update the on-board background rejection criteria as well as the on-board safety limits for HV commanding, was performed during the OMC Flat Field observation. Following the patch, JEM-X1 was activated to allow verification of the patch and the performance of JEM-X1 prior to its planned use during and after the next Crab calibration.

The operations were performed according to the plan detailed in Operational Request INT_OR_0132 except that, for the anode calibration and diagnostic at (HVnominal - 3LSB), the timings were adjusted to allow all the events to be downlinked. (The events could not be downlinked in the time planned in the automatic TC sequences due to lower than nominal TM allocation of 4 packets/cycle. In particular, it took over 12 minutes to downlink the Diagnostic events instead of the 5 minutes planned in the TC sequence.)

The JEM-X1 DFEE patch operations were performed between 12:30Z and 13:10Z. The electronic anode calibration and high voltage activation were then performed. JEM-X1 operated in Data Taking mode with nominal HV between 14:22Z and 16:50Z, when it was commanded back to Safe mode.

The status of the unit throughout these activities was nominal.

2004-02-26 (DOY 057, Rev 167)

Nothing to report

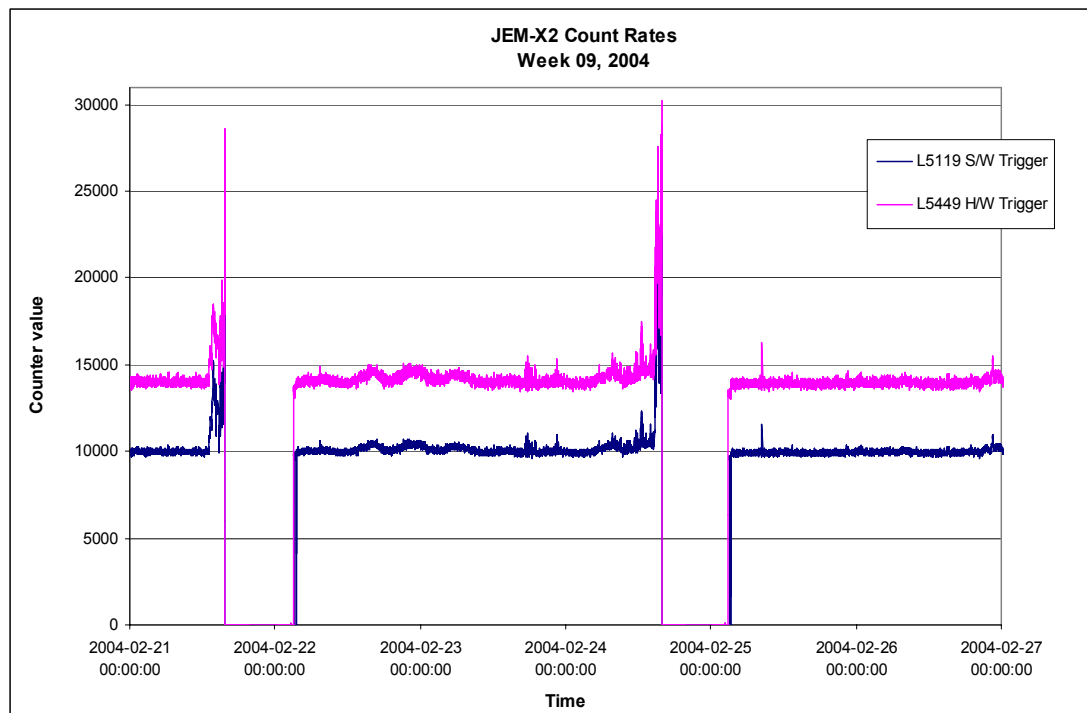
2004-02-27 (DOY 058, Rev 167-168)

No anomalies or special operations to report.

JEM-X2 was commanded into Safe mode as planned by the Timeline before radiation belt entry of revolution 167.

8.3.4.1 JEM-X2 Count Rates

JEM-X2 count rates over the reporting period are displayed in the following graph¹.



8.3.5 OMC Operations

On DoY 056, between 12:17:01 and 15:13:00, a Flat Field, and from 15:41:01 to 15:56:30, a Dark Current calibrations were performed.

On DoY 057, at 18:35, due to RFI from DSS-16, the OEM indicating the start of pointing 01670066 was not received, but the pointing appears to have gone ahead as planned.

On DoY 052, at 17:37:38, DoY 055, at 17:28:37, and DoY 058, at 17:18:34, OMC was switched by the Timeline to SAFE mode, at the nominal time.

8.3.6 IREM Operations

Plots of the evolution of the IREM counters from rev 166-167 are shown below:

The corresponding predictions for the Belts passages (as calculated with AP8Max and AE8Max models by using the RADMON tool) are not available this week.

¹ Data sampled (1 frame in 4) and smoothed to remove spikes in S/W Trigger due to flushing of buffer during slews.

