EUROPEAN SPACE AGENCY
DIRECTORATE OF TECHNICAL & OPERATIONAL SUPPORT
MISSION OPERATIONS DEPARTMENT

INTEGRAL
Mission Report

INT-MOC-SYS-RP-1001-TOS-OF

No. 033
Week 19

12.05.03

Routine Phase

Prepared by: M. Walker (TOS-OFI)

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1 General

The Flight Control Team at MOC has compiled this report considering a couple of inputs provided by the Flight Dynamics Team.

It addresses the activities from 03.05.03 until 09.05.03 (both dates inclusive) and covers the revolutions 68 and 69.

2 Summary of Activities

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

This week's science observations consisted of raster dithering observations of SS 433 (RA 19:11:50.0; DEC +04:58:60.0) and hexagonal dithering observations of GRS 1915+105 (RA 19:15:11.5; DEC +10:56:44.0), a potential black hole.

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 during this week. An anomaly was detected that had actually occurred on the 6 of April. The anomaly was a spurious change in the Failure Detection Electronics IMU selection. This function is not used for Integral in nominal operations, and therefore had no impact.

3.1.1 AOCS

During this period, the AOCS operations were affected in a number of occasions by ground problems, which caused 16 slews to be lost.

On the S/C side, the anomaly mentioned in the previous section (spurious change in the Failure Detection Electronics IMU selection) was noticed on the 09 of May. The relevant ARTS entry has been produced, and Industry informed.

The fuel consumption over the period between 30/04/2003 and 06/05/2003 was 0.082 Kg. The remaining propellant is in the order of 177.77 Kg on the 06th of May.

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 is in the order of 2380 W as since the beginning of the mission, i.e. no degradation has been identified so far.

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 identified.

3.1.5 RF

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 status is nominal.
The instrument is operating in photon-by-photon mode with Spectra telemetry disabled. The TM bandwidth assigned to SPI was 74 pkts for all the period.
The Cryo-cooler is working nominally maintaining 85K temperature in the detector cold plate.

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

3.2.2 IBIS

Status Nominal.

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

3.2.3 JEM-X

During the reporting period, JEM-X2 operations were performed as planned in the timeline and JEM-X1 was dormant.

The Radiation Monitoring thresholds and delays of both units were updated according to the new IREM scales. However, the failure of a calibration sequence and a closer look into the behaviour of IREM counters showed that the value set for the 'RAD#3 Exit' is very low and that of the 'RAD Delay Exit' is very high. The combination can considerably delay the recovery of JEM-X from a shutdown caused by a high Radiation Monitoring Count Rate. It has been decided to change these parameters and to introduce some changes in the timing of the calibration sequence to prevent future failures.

Note: Some more information concerning the JEM-X operations is provided in the Appendix.

3.2.4 OMC

During the reporting period, OMC operations were interrupted several times when the timeline was stopped due to different problems, mostly at ground stations.

The OMC Radiation Monitoring Threshold for RMC#3 was changed in accordance with the new IREM scales.

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

3.2.5 IREM

The status of the unit after the patch is nominal.

4 Ground Facilities

The overall performance of the ground segment was not too good during this week. A total of 16 slews were missed or had to be executed manually. Most of the problems were related with Ground Stations.

4.1 Mission Operations Centre

The performance of the MOC was good during this week

4.2 Ground Stations & Network

During this week, there were quite a few problems related to the ground stations:

- On DoY 123 at 16:11 some frames were lost from DSS-16, possibly due to some anticipated RFI.
- On DoY 124, at 11:28 for 2 minutes there was a drop in VC0 TM data, but VC7 remained ok.
- On DoY 125 at 22:36 TM & TC dropped out due to line problems from Redu.
- On DoY 126, at 02:00, command A8119 failed completion, and A3161 failed release, the impact was than pointing 46 was missed, pointing 47 was manually recovered, with the timeline resuming with pointing 48.
- Later on the same day, at 08:57 the TC link to Redu dropped, A3084 failed, causing pointing 56 of revolution 68 to be lost pointing 57 was manually recovered. Then at 10:29 command A3189 failed, causing pointings 58 and 59 to be lost, with pointing 60 manually recovered.
- On DoY 129 at 09:28 the TC link failed to lock after the handover from Redu to DSS-16, and at 09:38 the TM failed as well, due to the antenna being stuck. At 09:39 the TM link was recovered using Redu, at 10:26 after an intervention by an engineer, the full TM/TC links were recovered from DSS-16.
- Later on that day at 12:49, the TM link was lost followed by the TC link at 12:52, they were recovered at 12:55 and 12:57 respectively, no impact.
- At 15:59, there was a late handover to Redu, which caused pointing 69 of revolution 69 to be lost. Pointing 70 was manually recovered.

4.3 Science Ground Segment

4.3.1 ISOC

No ISOC Input has been provided

4.3.2 ISDC

There were a few problems this week connected with the TM link to ISDC.

- On DoY 124 at 06:15:52 there was an error sending data to the ISDC, which recovered after 1 second.
- On DoY 126 at 14:23 for 14 minutes there were errors sending data to ISDC.
- On DoY 127 at 09:58 for 1 minute were errors sending data to ISDC.

The data from all of these drops will be recovered by ISDC from the CDs produced by ESOC.

5 Special Events

The SVT-G, to test the implementation of the higher TM bit rate on the EM was performed successfully on 7th May 2003.

The date currently set for the swap to the higher TM bit rate is 21st May. The work concerning the upgrade of the Operational Ground Segment regarding the envisaged increase of the TM data rate is ongoing.

- The link to ISDC will be upgraded on 16th May.
- The Redu Ground station upgrade is complete.
- The Goldstone ground station upgrade is outstanding, but will be done before the 21st May.

6 Anomalies

The problems related to the ground segments are already mentioned in chapter 4.

A list of the pending anomalies since Launch is presented in the Appendix. New anomalies raised during the past week are listed below:

ARid	Date Occurrence	Subject	Segment	Element	Status
INT - 002305	**2003/05/04**	**Telemetry Drops from Goldstone. DR GI02720**	**Ground**	**NASA Sta.**	**Pending**
INT - 002308	**2003/05/05**	**Loss of TM/TC link due to hit on line**	**Ground**	**COMMS**	**Pending**
INT - 002307	**2003/05/06**	**Wrong sign applied in the S/C delay in the correlator.**	**Ground**	**IMCS**	**Pending**
INT - 002309	**2003/05/06**	**Command release delayed**	**Ground**	**ESA Sta.**	**Pending**
INT - 002310	**2003/05/06**	**TC-1 dropped off line at REDU**	**Ground**	**ESA Sta.**	**Pending**

7 Future Milestones

The patch to increase the TM data rate has been postponed and is now planned for the 21st of May.

8 Appendix

The appendix includes various detailed information.

8.1 Overview of Revolutions

Revolution 68
The observations in revolution 68 consisted of 182 pointing of Spectral observations of SS433 lasting approximately 182 hours and to study the spectral properties of four Atoll and/or bursting Low Mass X-ray Binaries in the hard X-ray and Gamma-ray domains, SER X-1, with 91 pointings lasting approximately 56 hours.

Revolution 69
The observations in revolution 69 consisted of 106 pointing of Spectral observations of SS433 lasting approximately 66 hours and to study the spectral properties of four Atoll and/or bursting Low Mass X-ray Binaries in the hard X-ray and Gamma-ray domains, SER X-1, with 53 pointings lasting approximately 32 hours. This was followed by 40 pointings of GRS 1915+105 and is one of the most enigmatic objects in our Galaxy for approximately 25 hours. These later observations are classified as a black hole candidate and exhibits extreme variability at all wavelengths.

Throughout the observations, the TM allocation was 69 SPI; 97 IBIS; 0 JEM-X1; 7 JEM-X2; 1 OMC and all instruments were in their nominal science modes, except for JEM-X1, which remained in Safe mode for the entire period.

8.2 Consumables

8.2.1 Detailed Fuel Book-keeping

```
2003-04-19T14:10:16.000Z     178.1451    F   Automatic TM processing.
2003-04-19T21:39:44.000Z     178.1259    F   Automatic TM processing.
2003-04-20T06:49:45.000Z     178.0994    F   Automatic TM processing.
2003-04-20T12:37:46.000Z     178.0688    F   Automatic TM processing.
2003-04-21T07:50:04.000Z     178.0524    F   Automatic TM processing.
2003-04-22T21:24:25.000Z     178.0303    F   Automatic TM processing.
2003-04-25T21:03:52.000Z     178.0178    F   Automatic TM processing.
2003-04-27T07:26:27.000Z     177.9942    F   Automatic TM processing.
2003-04-28T14:12:39.000Z     177.9593    F   Automatic TM processing.
2003-04-28T20:52:55.000Z     177.9135    F   Automatic TM processing.
2003-04-29T06:01:44.000Z     177.9051    F   Automatic TM processing.
2003-04-29T10:31:45.000Z     177.8556    F   Automatic TM processing.
2003-05-01T20:41:27.000Z     177.8195    F   Automatic TM processing.
2003-05-03T10:54:50.000Z     177.7981    F   Automatic TM processing.
2003-05-04T20:35:26.000Z     177.7735    F   Automatic TM processing.

This report was generated Wed May 7 08:00:08 GMT 2003
```

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.
An anomaly was detected on the 9th of May, which had actually occurred on the 6 of April. The anomaly was a spurious change in the Failure Detection Electronics IMU selection. This function is not used for Integral in nominal operations, and therefore had no impact.

During this period, 46 Open Loop Slews, 186 Closed Loop Slews and 4 Momentum Bias were executed. 16 slews were missed; this is about 7 % of the total.

03/05/03 (Day of Year 123, Revolution 67)

Nothing to Report.

04/05/03 (Day of Year 124, Revolution 67-68)

Guide Star Lost during the Perigee Passage (SEU Filter): At AOS it was seen in the OEM Buffer dump that the SEU Filter had been exceeded at 19:50:09.633. The lost star had characteristics: mg. 5.55, coordinates (3753, 18658). The altitude in the orbit was around 13800 Km. The problem had no impact, since the new star found was adequate for the RWB scheduled after AOS.

05/05/03 (Day of Year 125, Revolution 68)

Nothing to Report.

06/05/03 (Day of Year 126, Revolution 68)

Slews missed due to ground station problem (Redu): During the uplink of the slew to 00680046, commands started arriving to the S/C with a lot of delay. This caused the failure of the CEV for command A8119 (to load the Manoeuvre Timer), and the AOCS commanding to stop. As a result slew 00680046 was lost, and 00680049 was executed manually.

Slews missed due to ground station problem (Redu): At 08:57 the Tele-command Encoder failed at Redu, interrupting the command capability. Slew 00680056 was lost, and 00680057 done manually. Unfortunately while updating manually the next slew in the timeline (this is the last step of the Recover Schedule operation), there was an operator error, and a wrong mapping was used. This made the updated slew (Close Loop Slew 00680058) fail since the new guide star was not found, and Recover Schedule was needed again. The total impact of these problems was that slews 00680056, 00680057, 00680058 and 00680059 were lost, and 00680060 performed manually.

Slews missed due to control system problem: At 16:47 the command A3189 to swap guide stars failed PTV, even if all the conditions were fulfilled. This is an open IMCS SPR. The impact of this problem was that slew 00680067 was lost, and 00680068 done manually.

07/05/03 (Day of Year 127, Revolution 68-69)

Nothing to Report.

08/05/03 (Day of Year 128, Revolution 69)

Nothing to Report.

09/05/03 (Day of Year 129, Revolution 69)

FDE IMU Selection Spurious Change detected: In this day it was noticed that on the 2003-04-06 at 16:26:09 the value of parameter A9302 "IMU YAW CHANNEL" had changed from "Z NOT SELECT" to "IMU / 3 Z", without ground command. Other indications (accumulation in A9231 "TM IAAD Z" frozen instead of the usual slow drift) confirmed that it was a real change of status, and not a TM failure.

The FDE IMU selection is not used on Integral, with the exception of special operations like SSA mode of Delta-V, and this failure has had no effect. The command to select again the nominal configuration was sent and verified successfully.

Slews lost due to Ground Station problem (DSS-16): At the H/O from Redu to DSS-16, there was a hardware failure in the antenna, which prevented operations from 09:26 to 10:24. The impact of this problem was that slews 00690059, 00690060, 00690061 and 00690062 were lost, and pointing 00690063 was acquired manually.

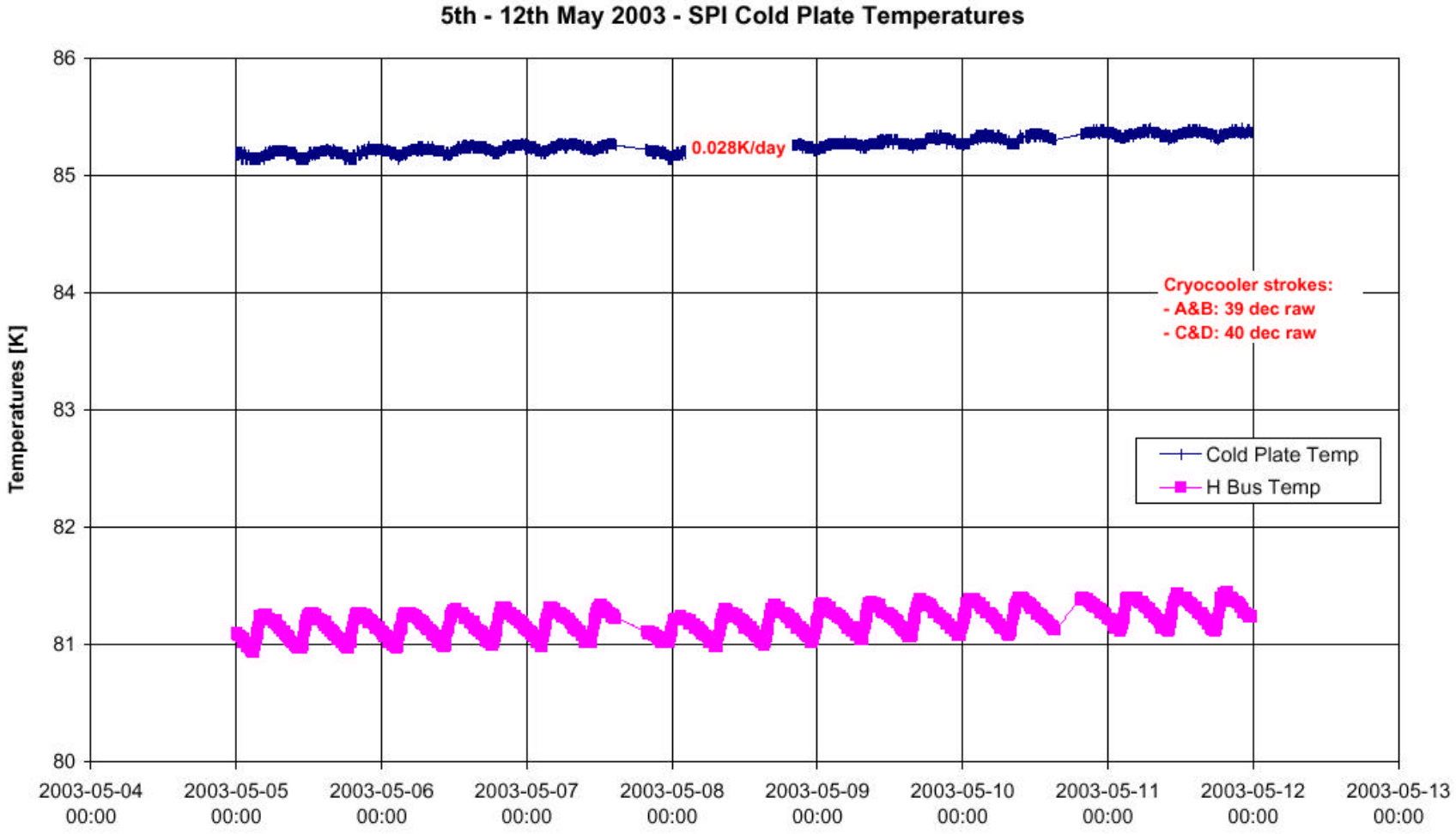
Slews lost due to Ground Station problem (Redu): At the H/O from DSS-16 to Redu, the TC link could not be acquired. This prevented the commands for the first slew to go. The impact of this problem was that slew 00690069 was lost, and 00690070 performed manually.

8.3.2 SPI Operations

Cryo-cooler:
After stroke adjustment in the previous week, the cold plate temperature is now stabilized and the drift of the cold plate temperature has started again at about 0.028K/day, see the plot below.

IASW/DPE:
During the reporting period the Change Request FCT-OPS-079 - SPI DFEE Spectra off - has been implemented:
- Between pointing 00690023 and 00690024 (2003-05-08T10:20:00), the instrument has been commanded into configuration mode, the DFEE spectra generation disabled and the photon by photon mode re-established. The spectra accumulation was in fact already disabled on the SPI IASW side. With this CR it has been disabled on the DFEE side also (generation + transmission to DPE), in order to offload the DPE CPU.

After these operations, for the following science window time in rev.69, the instrument TM downlink resulted taking advantage of this new configuration: it increased by 2 packets in the VC7 (it changed from 71 to 73 used TM packets out of 74 allocated TM packets).
At the next rev., however, after automatic transition to photon-by-photon mode, the exploited TM bandwidth came back to 71, without any apparent reason, see the following plot:


5th - 12th May 2003 - SPI Cold Plate Temperatures
Temperatures [K]
86
85
84
83
82
81
80
0.028K/day
Cryocooler strokes:
- A&B: 39 dec raw
- C&D: 40 dec raw
Cold Plate Temp
H Bus Temp
2003-05-04 00:00
2003-05-05 00:00
2003-05-06 00:00
2003-05-07 00:00
2003-05-08 00:00
2003-05-09 00:00
2003-05-10 00:00
2003-05-11 00:00
2003-05-12 00:00
2003-05-13 00:00

8.3.3 IBIS Operations

On DoY 2003. 124 at 13:42Z the new set of IBIS radiation thresholds (Elect_count + Prot_Count), was up-linked after the IREM patch of the rescaling factors. The values have been set in agreement with the PIs request (see mail from R. Much on 7/04/2003) as following:

Elect_Count = 384
Dose_Count = unchanged(60)
Prot_Count = 200

On DoY 2003. 126 at 07.55Z the OEM ID 184 Class 2 <<IBIS1 VETO +28V VDM/CDM VOLTAGE OUT OF RANGE>> was reported. The relevant TM_para G6062 reported values inside limits and therefore the problem has been disregarded, as suggested by the nominal reaction to this OEM.

On DoY 2003. 127 during the GEISCL03 (IBIS calibration) the TC G0110 (Restore of MDU7 CTX) failed the CEV (status " X" unverified) due to a problem with the update of the TM in the verification window. The status of the unit was verified correct and no action has been taken.

At 21:50Z the TM para G2070 was reported to be OOL: this parameter was flagging an overflow condition for the address of the noisy pixels in MDU 5. After few seconds the parameter was back in limits and no action has been taken.

On DOY 2003. 129 at 07.28Z the OEM ID 183 Class 2 <<IBIS1 VETO +5V VECU VOLTAGE OUT OF RANGE>> was reported. The relevant TM_para G6106 reported a value inside limits and therefore the problem has been disregarded, as suggested by the nominal reaction to this OEM.

At 11:35Z due to a problem with the antenna of station DSS16 the instrument configuration was not completed as required for the incoming new pointing. The operator enabled the CCCF at 11:35 Z to recover the correct configuration.

8.3.4 JEM-X Operations

03/05/2003, DOY 123, Revolution 67
Nothing to report

04/05/2003, DOY 124, Revolution 67-68

- **Change of JEM-X1 & 2 Radiation Monitoring Thresholds and Delays:** In view of the new IREM patch, the Radiation Monitoring Thresholds and Delays of both JEM-X units were changed. The current settings of the thresholds and delays are:
  RAD1 TH Enter = 20
  RAD1 TH Exit = 10
  RAD2 TH Enter = 60
  RAD2 TH Exit = 50
  RAD3 TH Enter = 64
  RAD3 TH Exit = 25

  RAD Delay Enter = 16 seconds
  RAD Delay Exit = 1800 seconds

The procedures to set the new values were executed near the end of revolution 67 and after the execution of JEM-X2 SAFE TC from the timeline, hence no impact on JEM-X science operations.

05/05/2003, DOY 125, Revolution 68
Nothing to report

06/05/2003, DOY 126, Revolution 68
Nothing to report

07/05/2003, DOY 127, Revolution 68-69

- **JEM-X2 went to SAFE mode because of high S/W Trigger rate:** At 11:43:07, JEM-X2 went to SAFE mode when the Software Trigger rate reached the HV switch OFF threshold of 20000. This was in a descending altitude of about 70500 km. The execution time of JEM-X2 SAFE TC was at 11:51:00 in the timeline. No attempt was made to reactivate the high voltage.

- **JEM-X2 anode calibration sequence failed execution:** At the beginning of the anode calibration operations (execution of LEACAL01 in revolution 69), the recovery from "Radiation Belt Shutdown Level" to "Normal Shutdown Level" did not take place after the first BCP override TC was sent. This caused the on-board rejection of the SETUP command and consequently rejection of the HV OFF command. The rest of the calibration sequence commands all failed PTV and did not release except the last BCP override TC, which was up-linked and re-enabled the radiation belt time protection. The reason for this failure was the new behavior of the IREM counters after the new patch and the new settings of the JEM-X RMCR thresholds and delays. Before the start of the calibration sequence, the high electron count rates (RAD #3) had caused the activation of the JEM-X reaction to BCP RMCR flags. When the BCP override TC of the calibration sequence was sent the radiation monitoring delay was still ticking. This prevented the initiation of recovery from "Radiation Belt Shutdown" and consequently failing of the calibration. A more detailed report on this anomaly has been issued and is available at MOC (contact M. Rezazad for a copy of the report).

  After the delay time expired and the recovery initiated, JEM-X2 High Voltage was manually activated and the unit was set to data taking mode with the same settings as the timeline. JEM-X2 rejoined the timeline at 23:48.

  Reviewing the IREM counters during the radiation belt passage showed that the new value of the RAD3 TH Exit (electrons) was simply too low. The RAD3 counter frequently exceeds this threshold even above the radiation belts. This can considerably delay the recovery of JEM-X in case of Shutdown due to high Radiation Monitoring Count Rates.

  The behavior of the RMCRs during revolution 68 is shown in the following plot:

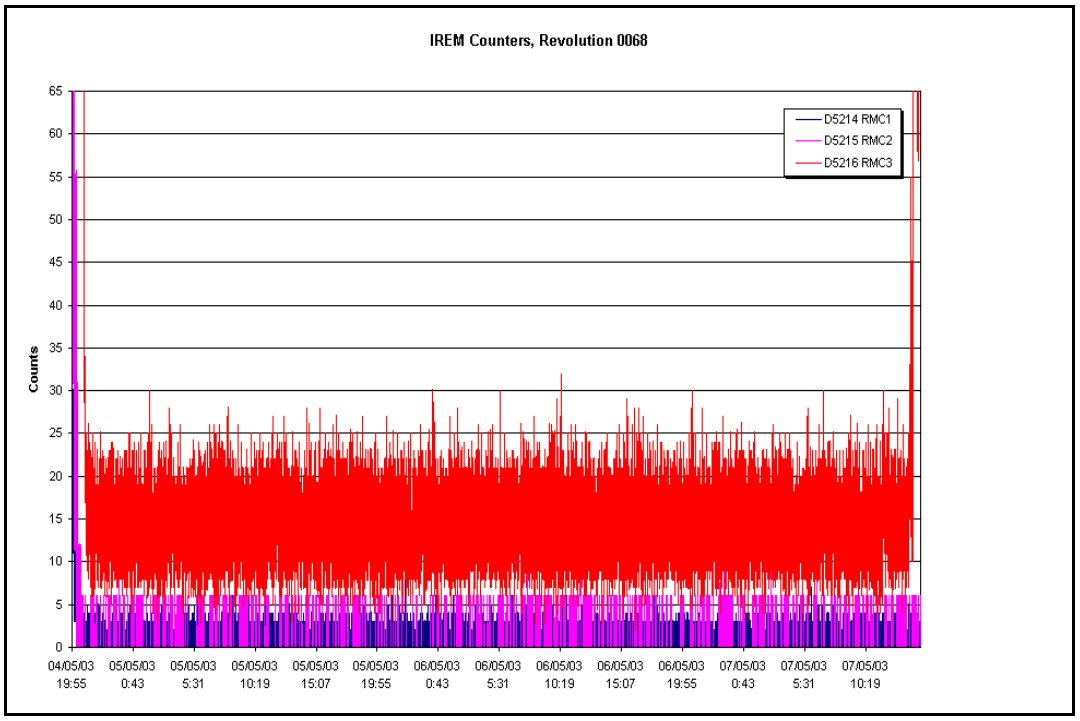


Figure 1: Radiation Monitoring Count Rates throughout revolution 68

Considering the new behavior of IREM counters, it has been decided to make the following changes in order to reduce the failure risk of calibration and high voltage activation sequences:

1- Increase the lower RMCR threshold for RAD3 (electron) to 50
2- Decrease the 'RAD Delay Exit' from 1800 to 600 seconds
3- With the first "BCP Override" TC of the calibration sequence, disable reactions to RAD1, RAD2 and RAD3 in addition to the OTF and Rad Belt Time flags
4- Increase the relative release time between the first TC (BCP Override TC) and the second TC (SETUP TC) of K/LEACAL01 event designators from 10 seconds to 620 seconds

08/05/2003, DOY 128, Revolution 69
Nothing to report

09/05/2003, DOY 129, Revolution 69
Nothing to report

8.3.5 OMC Operations

During this period, 13 out of the 210 originally planned OMC pointings were missed.

03/05/2003, DOY 123, Revolution 67
Nothing to report

04/05/2003, DOY 124, Revolution 67-68

- **Change of OMC Radiation Monitoring Threshold:** In view of the new IREM patch, the OMC Radiation Monitoring Threshold for RMCR#3 was changed. The current settings for the RMCR thresholds are: RAD1 TH = 16, RAD2 TH = 256, RAD 3 TH = 2048

The operations were started during a slew to have the minimum loss of science time. The only impact was that the OMC science acquisition of pointing 00670094 started at 12:38:20, a few minutes later than originally planned in the timeline.

05/05/2003, DOY 125, Revolution 68
Nothing to report

06/05/2003, DOY 126, Revolution 68

- **Loss of pointings 00680046 and 00680047:** At 02:00:13, a ground segment problem (reported as reboot of TC Controller at the Redu station) caused an excessive delay between the release of an AOCS TC and its uplink. The delay resulted in the failing of the verification stage of this TC and stopping of the timeline. Slew 00680046 failed. Manual slew was done to the attitude of pointing 00680047 and from pointing 00680048 OMC resumed normal operations.

- **Loss of pointings 00680056 to 00680059:** At 08:57:00, reboot of the TC Controller at Redu ground station caused loss of TC link. Slew 00680056 was lost and manual slew to the attitude of pointing 00680057 was done. In the process of manually updating the parameters of slew 00680058, a wrong Star Tracker mapping was used as input to the Flight Dynamics system, which then caused slew 00680058 to fail as well. Timeline Recovery tool was used again to slew to the attitude of pointing 00680060. The slew was completed in time for the OMC imaging TCs for pointing 00680060 to be up-linked. OMC image acquisition resumed from pointing 00680060.

- **Loss of pointing 00680067:** At 16:42, a false pre-transmission “NO GO” condition (false PTV), caused release failure of an AOCS command and the loss of slew 00680067. The FD Timeline Recovery tool was used to manually slew to the attitude of pointing 00680068. The slew completed in time for the uplink of OMC imaging TCs for pointing 00680068 and OMC operations resumed from this pointing.

07/05/2003, DOY 127, Revolution 68-69
Nothing to report

08/05/2003, DOY 128, Revolution 69
Nothing to report

09/05/2003, DOY 129, Revolution 69

- **Loss of pointings 00690059 to 00690063:** Due to technical problems at the Goldstone ground station (DSS-16), TM/TC was lost from 09:38 to 10:26. After reestablishment of the links, the FD Timeline Recovery tool was used to recover the schedule. Slews 00690059 to 00690062 were missed and manual slew was done to the attitude of pointing 00690063. OMC timeline driven operations resumed from pointing 00690064.

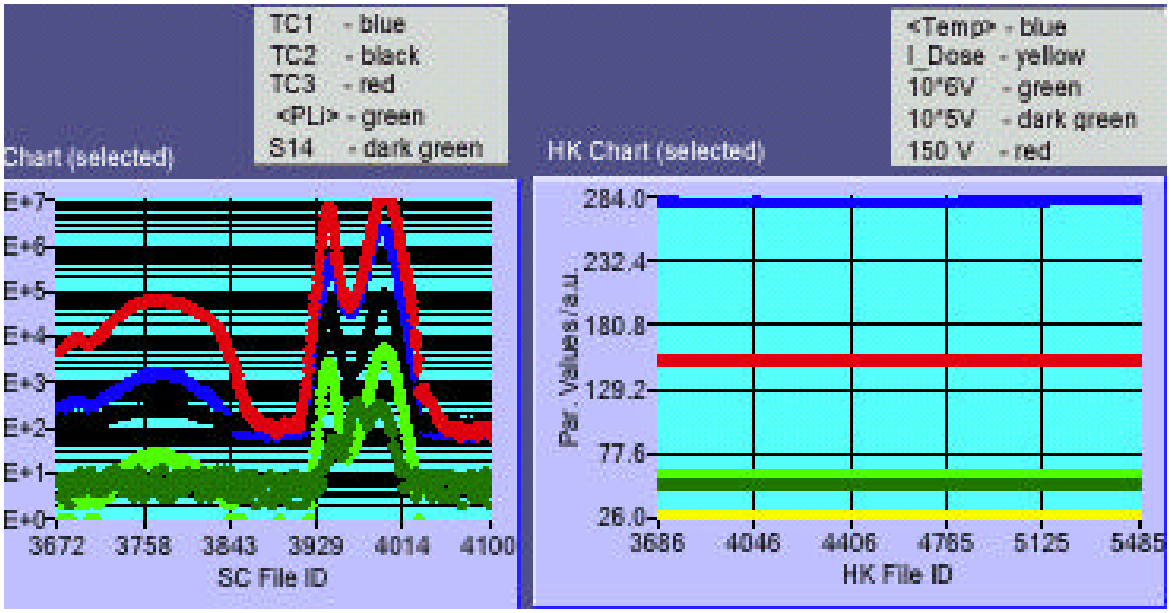
  After recovering the timeline, the CCCF was enabled to set the instruments in their correct configuration. The CCCF caused OMC transition to STANDBY mode at 13:15:25, during pointing 00690065. OMC imaging TCs for the pointing were re-uplinked manually and OMC science operations resumed at 13:35:40.

- **Loss of pointing 00690069:** Due to problems at station handover from Goldstone to Redu and late establishment of TM/TC links, slew 00690069 was missed. Manual slew was done to the attitude of pointing 00690070. The slew completed in time for the uplink of OMC imaging TCs for pointing 00690070. OMC operations resumed from this pointing.

8.3.6 IREM Operations

The monitoring of the unit after the patch continued, during revolutions (68-70).

A Radiation Belt passage with the new patch can be found in the graph below (reproduced courtesy of IREM Team). The RED and DARK GREEN curves are referring to the new selected scalers; the TC3 (RED) is mainly sensitive to protons + electrons while the S14 (DARK GREEN) is mainly sensitive to protons. The mean value for the electron counter is around 20 cts/10 sec, this could require in the next future some changes in the radiation thresholds set for some of the payloads.



8.4 List of Anomalies since Launch

The following table presents the list of all identified anomalies that have been registered since Launch and that are still pending. Though these Anomaly Reports still have a pending status most of the problems have been analysed and solutions or at least workarounds are already in place.

ARid	Date Occurrence	Subject	Segment	Element	Status
INT - 002003	2002/10/19	Command failure from TCE2 at Redu1.	Ground	ESA Sta.	Pending
INT - 002010	2002/10/22	Time correlation not applied correctly to time parameters in TM type 8 reports.	Ground	IMCS	Pending
INT - 002024	2002/10/28	OEM: SPI1 Fixed print overflow	Space	SPI	Pending
INT - 002055	2002/11/09	IBIS VETO anomalous count rates.	Space	IBIS	Pending
INT - 002061	2002/11/12	TM Desktop performance collapses when de-selecting super-commutated processing.	Ground	IMCS	Pending
INT - 002066	2002/11/13	Data routing to ISDS	Ground	I/F to SGS	Pending
INT - 002082	2002/11/13	TM packet production lower than allocation.	Space	SPI	Pending
INT - 002070	2002/11/14	TDRS: data Retrievals cancelled	Ground	IMCS	Pending
INT - 002079	2002/11/14	Timing Problem with Tele-commands	Ground	ESA Sta.	Pending
INT - 002083	2002/11/16	SPI DPE Crash	Space	SPI	Pending
INT - 002092	2002/11/19	Load-Dump comparison uses also non-released load commands	Ground	IMCS	Pending
INT - 002094	2002/11/19	TDRS does not work with super-commutated parameters	Ground	IMCS	Pending
INT - 002121	2002/11/26	ISGRI count-rates increase up to 8000 counts/sec in one module	Space	IBIS	Pending
INT - 002122	2002/12/02	IBIS VDM4 HV broke down	Space	IBIS	Pending
INT - 002142	2002/12/11	TDRS Time Interval Setting	Ground	IMCS	Pending
INT - 002145	2002/12/15	Commands failing PTV for no reason	Ground	IMCS	Pending
INT - 002169	2003/01/03	IREM S/W local resets due to SEU (twice)	Space	IREM	Pending
INT - 002194	2003/01/16	Wrong handling of the OTF after Open Loop Slew	Space	Spacecraft	Pending
INT - 002199	2003/01/17	Incorrect handling of CLCW wraparound in CLTU mode	Ground	ESA Sta.	Pending
INT - 002197	2003/01/20	Lost Tele-commanding via REDU	Ground	IMCS	Pending

INT - 002208	2003/01/27	Auto-stack: Commands that fail release do not apply any further interlock.	Ground	IMCS	Pending
INT - 002212	2003/01/29	TDRS Interval-by-Interval TM Retrieval Problem	Ground	IMCS	Pending
INT - 002213	2003/01/29	SCOS 2000 Interval-by-Interval TM Retrieval Problem	Ground	IMCS	Pending
INT - 002214	2003/01/29	Drop in telemetry from REDU	Ground	ESA Sta.	Pending
INT - 002217	2003/02/06	TC link drop	Ground	NASA Sta.	Pending
INT - 002219	2003/02/10	IBIS: PICsIT PDMs counters SET to 0 (twice) during nominal operation	Space	IBIS	Pending
INT - 002220	2003/02/10	Wrong Scrolling Display definitions on IMCS following Import	Ground	IMCS	Pending
INT - 002221	2003/02/10	IBIS: SCI sub-mode table loaded only if forcing the sub-mode	Space	IBIS	Pending
INT - 002228	2003/02/21	STR 1750 Processor Fault in the presence of Saturn in the FoV	Space	Spacecraft	Pending
INT - 002233	2003/02/24	Time Calibration not Coherent among Ground Stations	Ground		Pending
INT - 002234	2003/02/24	S2K unable to access READ ONLY disk in IDDA.	Ground	IMCS	Pending
INT - 002235	2003/02/25	Too narrow window for RMU cal in PSF of rev 49	Ground	I/F to SGS	Pending
INT - 002242	2003/03/02	TM &TC Drop on DSS 16	Ground	NASA Sta.	Pending
INT - 002243	2003/03/04	CDS Failed to Lock at Redu - H/O Postponed	Ground	ESA Sta.	Pending
INT - 002246	2003/03/05	Loss of Telemetry from DSS16	Ground	NASA Sta.	Pending
INT - 002245	2003/03/06	TDRS: Retrieval of packet 60602 or contained parameters does not work	Ground	IMCS	Pending
INT - 002252	2003/03/10	CDS out of Lock at Redu - TM&TC Loss	Ground	ESA Sta.	Pending
INT - 002253	2003/03/10	RX1 and RX2 Locked at the same time	Ground	NASA Sta.	Pending
INT - 002255	2003/03/10	Late AOS at DSS-24	Ground	NASA Sta.	Pending
INT - 002256	2003/03/14	Late AOS at DSS-16	Ground	NASA Sta.	Pending
INT - 002257	2003/03/17	Late AOS at DSS-24	Ground	NASA Sta.	Pending
INT - 002258	2003/03/20	IBIS: stop downloading HIST during GCDE	Space	IBIS	Pending
INT - 002259	2003/03/21	TDRS: Retrieval log is Meaningless.	Ground	IMCS	Pending
INT - 002260	2003/03/21	Monitoring task Printout, sample time	Ground	IMCS	Pending
INT - 002262	2003/03/21	TDRS: FEN Retrievals containing status parameters always fail.	Ground	IMCS	Pending
INT - 002264	2003/03/23	Loss of bit-lock + TLM problems on DSS-16	Ground	NASA Sta.	Pending
INT - 002265	2003/03/24	Loss of TC & TM Link	Ground	ESA Sta.	Pending
INT - 002267	2003/03/25	Drop in link from ISDS to ISDC	Ground	I/F to SGS	Pending

INT - 002268	2003/03/25	No bit lock via DSS-16	Ground	NASA Sta.	Pending
INT - 002269	2003/03/25	Telemetry lost from DSS-16	Ground	NASA Sta.	Pending
INT - 002270	2003/03/26	Late uplink via DSS-16	Ground	NASA Sta.	Pending
INT - 002271	2003/03/26	Drops in telemetry from DSS-16	Ground	NASA Sta.	Pending
INT - 002272	2003/03/26	TC link via DSS-16 lost	Ground	NASA Sta.	Pending
INT - 002273	2003/03/27	Drop in VC7 via REDU	Ground	ESA Sta.	Pending
INT - 002274	2003/03/28	IFTS MCS instance not working	Ground	IMCS	Pending
INT - 002275	2003/03/28	Constraint Error Exception in the OMCAS on DOY081	Space	OMC	Pending
INT - 002276	2003/03/28	Crash of OMCAS on DOY083	Space	OMC	Pending
INT - 002277	2003/03/28	Telemetry lost from DSS-16. DR N100888	Ground	NASA Sta.	Pending
INT - 002278	2003/03/28	FEC failure in REDU	Ground	ESA Sta.	Pending
INT - 002279	2003/03/29	Telemetry lost from DSS-16. DR N109197	Ground	NASA Sta.	Pending
INT - 002280	2003/03/30	Telemetry lost from REDU	Ground	ESA Sta.	Pending
INT - 002281	2003/03/31	TC outage via REDU	Ground	ESA Sta.	Pending
INT - 002282	2003/03/31	Bad data being received from DSS-16	Ground	NASA Sta.	Pending
INT - 002283	2003/04/01	ISDS-A and IDDA services stopped	Ground	IMCS	Pending
INT - 002284	2003/04/01	Reed Solomon alarms from REDU	Ground	ESA Sta.	Pending
INT - 002285	2003/04/02	Redu Antenna Uplink switch goes off bus	Ground	ESA Sta.	Pending
INT - 002286	2003/04/02	Reboot of ESOC Firewall	Ground	I/F to SGS	Pending
INT - 002288	2003/04/03	TM/TC lost via REDU	Ground	ESA Sta.	Pending
INT - 002289	2003/04/03	Delayed handover to DSS-16	Ground	NASA Sta.	Pending
INT - 002290	2003/04/03	Bad frames and TLM drop from DSS-16. Possible RFI	Ground	NASA Sta.	Pending
INT - 002291	2003/04/08	Archiving lost on A chain	Ground	IMCS	Pending
INT - 002292	2003/04/09	Telemetry Drops from Goldstone (DR 6102621)	Ground	NASA Sta.	Pending
INT - 002293	2003/04/13	Science data CDs produced with no TM inside.	Ground	IMCS	Pending
INT - 002294	2003/04/15	DSS-16 missed coverage period	Ground	NASA Sta.	Pending
INT - 002295	2003/04/15	Telemetry Drops from Goldstone	Ground	NASA Sta.	Pending
INT - 002298	2003/04/20	ISDS - ISDC link outage	Ground	I/F to SGS	Pending
INT - 002299	2003/04/21	Telemetry loss from DSS-24	Ground	NASA Sta.	Pending
INT - 002297	2003/04/23	Star Tracker 1750 Processor Fault on 21/04/2003 (DoY 111)	Space	Spacecraft	Pending

INT - 002300	2003/04/23	ISDC not receivi ng ASF files.	Ground	IMCS	Pending
INT - 002301	2003/04/23	Link between NCTRS-A and IMCS-A down for 10 seconds	Ground	NCTRS	Pending
INT - 002302	2003/04/24	Telemetry loss via DSS-16 due to RFI	Ground	NASA Sta.	Pending
INT - 002303	2003/04/25	Loss of Packets during OMC FF Calibration with 90 pkts/cycle TM bandwidth	Space	OMC	Pending
INT - 002304	2003/04/26	IFTS MCS instance not working	Ground	IMCS	Pending
INT - 002305	2003/05/04	Telemetry Drops from Goldstone. DR GI02720	Ground	NASA Sta.	Pending
INT - 002308	2003/05/05	Loss of TM/TC link due to hit on line	Ground	COMMS	Pending
INT - 002307	2003/05/06	Wrong sign applied in the S/C delay in the correlator.	Ground	IMCS	Pending
INT - 002309	2003/05/06	Command release delayed	Ground	ESA Sta.	Pending
INT - 002310	2003/05/06	TC-1 dropped off line at REDU	Ground	ESA Sta.	Pending
INT - 002311	2003/05/06	Drop in TM on MADDS-ISDSA link	Ground	IMCS	Pending
INT - 002312	2003/05/06	Static PTV in "No Go" State for command A3189	Ground	IMCS	Pending