

INTEGRAL
Mission Report
INT-MOC-SYS-RP-1001-TOS-OF
No. 043
Week 29
21.07.03
Routine Phase

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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.

It addresses the activities from 12.07.03 until 18.07.03 (both dates inclusive) and covers the revolutions 91 to 93.

The summer eclipse season has completed nominally.

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 the Centaurus-Circinus region (RA 13:52:17.00; DEC -62:02:01.8), the galactic plane, 3C 273 (RA 12:29:6.70; DEC +02:03:09.0) and MCG-6-30-15 (RA 13:35:53.00; DEC -34:17:34.0). The activities performed consisted of raster dithering, staring and GPS observations.

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 unexpected behaviour / malfunction was identified.

3.1.1 AOCS

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

The YTIM threshold was updated based on the results of the thruster calibration, which was performed on 13/06/2003. According to the calibration results, the other TIM thresholds remain unchanged.

With the end of the eclipse season, the AMD thresholds were set to their Sunlight season values and the ACC, FDE and FCE Eclipse Timers were stopped.

One slew was missed during this period due to a ground station problem that caused termination of the AD commanding mode. We had also two separate instances of Pitch and Yaw errors that were caused by undetected SEUs in the Star Tracker. None of these errors were seen at BCP OTF level.

The fuel consumption over the period between 11/07/2003 and 18/07/2003 was 0.114Kg. The remaining propellant is in the order of 175.944 Kg on the 18th of July.

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 **2230W**. This means that there is no noticeable degradation of the solar arrays since launch.

14/07/2003 (DOY 195)

The MRU EOC timer threshold was adjusted to a value of 5415seconds (FCP_EPS_1260)

15/07/2003 (DOY 196)

Eclipse passage:

Eclipse #8 of the current eclipse season.

Total Eclipse Duration: 43m 50s

Umbra Duration: 40m 00s

ECD measured DOD Battery 1 16.25% (3.90Ah)

ECD measured DOD Battery 2 16.08% (3.86Ah)

(Note DOD calculation assumes nominal battery capacity rating of 24Ah)

Recharge time battery 1 2h 18m

Recharge time battery 2 2h 17m

The eclipse passage and subsequent battery recharge were completely outside ground coverage, all indications (ECD and OBM TM / OEMs) are that this operation executed nominally.

18/07/2003 (DOY 199)

Enable MRU timer EOC (FCP_EPS_1262)

Eclipse passage:

Eclipse #9 of the current eclipse season.

Total Eclipse Duration: 26m 42s

Umbra Duration: 20m 24s

ECD measured DOD Battery 1 7.79% (1.87Ah)

ECD measured DOD Battery 2 7.67% (1.84Ah)

(Note DOD calculation assumes nominal battery capacity rating of 24Ah)

Recharge time battery 1 1h 04m

Recharge time battery 2 1h 04m

The eclipse passage and subsequent battery recharge were completely outside ground coverage, all indications (ECD and OBM TM / OEMs) are that this operation executed nominally.

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.

During the reporting period the instrument was operating in photon-by-photon mode with Spectra telemetry disabled; The assigned TM bandwidth in the science window was 98 pkts/cycle; The cryo-cooler was working nominally changing the cold plate temperature from 85K to 90K, as requested by the PI in order to have a known reference point for camera performance evaluations prior to SPI annealing.

The SPI annealing was then started. The assigned TM bandwidth was reduced to 5 pkts/cycle in the science windows.

The last eclipse passage occurred in rev.92, during which, due to a problem in the BCP eclipse times setting, the management of the eclipse passage was not nominal and the manual recovery of the SPI configuration was necessary. All previous eclipse passages were done via the automatic timeline and were working well.

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 TM bandwidth assigned to IBIS is 134 pkts/8sec.

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 executed from the Automatic Timeline and JEM-X1 was dormant.

JEMX operations was interrupted once during the week, when high radiation readings from IREM, which triggered an instrument SAFE mode, there was also a sudden switch-off of the instrument on day 199, but that did not affect science operations.

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 once, due to a ground station interruption. There was also an unplanned instrument switch off, but this occurred during the perigee passage, and did not affect science operations.

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

3.2.5 IREM

The Status of the unit is Nominal.

The anomaly (SEU) occurred on DoY 2003.200.14.09Z will be reported in detail in the next issue of the weekly report.

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

4 Ground Facilities

There was a Mission Planning problem in the Flight Dynamic System, which caused incorrect Eclipse Time data to be loaded in the Broadcast Packet, and affected the configuration of the instruments after Perigee Passage on the 18th of July (see section on Anomalies).

The other problems during this week were a few short interruptions on the links to DSS-24, DSS-16 and Redu. The overall performance of the ground segment was excellent, with greater than 99% of pointings achieved.

4.1 Mission Operations Centre

There were no problems concerning the performance of the IMCS reported this week.

4.2 Ground Stations & Network

During this week, there were the following problems related to the ground stations:

- On DoY 193 at 09:52 there was a brief drop in TLM from DSS-16, which was put down to Radio Frequency Interference. The impact was that the star mapping had to be performed manually. The Closed Loop Slew was already executing on board at the time; no pointings were lost.
- On DoY 196 at 06:07, the TC link to DSS-24 dropped for about 30 seconds. Network reported that there was no log file created. There was no impact.
- On DoY 197 at 13:17, the AD service to Redu dropped out, causing pointing 00920028 to be lost. Pointing 00920029 was manually updated. The cause of this drop, was connected to a TMP swap performed at 12:50, and is under investigation.
- On DoY 198 at 01:06, there was a brief drop in the TLM from Redu. GFCC reported a 'hit on the line', the TLM returned at 10:07, without any impact.

4.3 Science Ground Segment

4.3.1 ISOC

No ISOC Input has been provided

4.3.2 ISDC

No ISDC Input has been provided.

5 Special Events

The Summer Eclipse Season ended on the 18th of July.

Star of SPI annealing activities.

6 Anomalies

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

On DoY 199 sometime between 11:15:34 (pen-umbra start) and 11:18:57 (umbra-start), outside ground contact, there was an eclipse for which the broadcast packet parameters had been incorrectly set. This caused a sudden switch-off of all the instruments. The problem was first observed on AOS at 14:04. The cause of this was determined after investigation to be a problem in the FD software. There was no impact to the science operations, as the spacecraft was in perigee passage at the time.

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 - 002384	2003/07/10	AD terminated on TC link	Ground	ESA Sta.	Open
INT - 002385	2003/07/12	Telemetry lost from DSS-16 due to RFI	Ground	NASA Sta.	Open
INT - 002386	2003/07/14	Telemetry Drop from Goldstone DR: G103032	Ground	NASA Sta.	Open
INT - 002387	2003/07/16	IREM anomaly: SEU (#4)	Space	IREM	Open
INT - 002388	2003/07/16	FDS failed to create TPF	Ground	FDS	Open
INT - 002389	2003/07/16	IBIS: PICsIT PDMs counters SET to 0 during nominal operation (#3-4)	Space	IBIS	Open
INT - 002390	2003/07/17	Goldstone station: re-play of previous pass VC7 TM at the beginning of a new pass	Ground	NASA Sta.	Open
INT - 002391	2003/07/18	TC problems following the TMP swap on DOY 197	Ground	ESA Sta.	Open
INT - 002392	2003/07/18	Broadcast Packet Eclipse Entry/Exit Times Incorrect	Ground	FDS	Open

7 Future Milestones

8 Appendix

The appendix includes various detailed information.

8.1 Overview of Revolutions

Revolution 91

Revolution 91 consisted of 9 pointings of a GPS lasting ~6 hours followed by an amalgamated raster dithering observation of the Centaurus-Circinus region (RA 13:52:17.00; DEC -62:02:01.8), performed for the remaining ~55 hours of observation time.

Revolution 92

Revolution 92 consisted of 10 pointings of a GPS lasting ~6 hours followed by an amalgamated raster dithering observation of the Centaurus-Circinus region (RA 13:52:17.00; DEC -62:02:01.8), performed for the remaining ~53 hours of observation time.

Revolution 93

Revolution 93 consisted of a staring observation of 3C 273 (RA 12:29:6.70; DEC +02:03:09.0) lasting ~6 hours, followed by a staring observation of MCG-6-30-15 (RA 13:35:53.00; DEC -34:17:34.0), which was performed for the remaining ~56 hours of observation time.

Throughout these revolutions, all instruments were in their nominal science modes, except for JEM-X1, which remained in Safe mode. During revolution 93 SPI was in Configuration mode and was undergoing annealing (annealing operations performed manually). The TM allocation during revolutions 91 and 92 was 134 IBIS, 98 SPI, 1 JEM-X1, 8 JEM-X2, 5 OMC, during revolution 93, it was 134 IBIS, 5 SPI, 1 JEM-X1, 8 JEM-X2, 5 OMC.

8.2 Consumables

8.2.1 Detailed Fuel Book-keeping

2003-06-29T03:14:14.000Z	176.2810	F	Automatic TM processing.
2003-06-30T16:38:26.000Z	176.2441	F	Automatic TM processing.
2003-07-01T02:02:03.000Z	176.2270	F	Automatic TM processing.
2003-07-01T04:29:23.000Z	176.2072	F	Automatic TM processing.
2003-07-02T02:39:17.000Z	176.1975	F	Automatic TM processing.
2003-07-03T16:26:49.000Z	176.1705	F	Automatic TM processing.
2003-07-06T08:08:47.000Z	176.1257	F	Automatic TM processing.
2003-07-06T16:05:44.000Z	176.1101	F	Automatic TM processing.
2003-07-09T15:52:55.000Z	176.0947	F	Automatic TM processing.
2003-07-10T11:22:33.000Z	176.0757	F	Automatic TM processing.
2003-07-11T02:09:30.000Z	176.0582	F	Automatic TM processing.
2003-07-12T15:37:18.000Z	176.0318	F	Automatic TM processing.
2003-07-15T15:20:54.000Z	175.9901	F	Automatic TM processing.
2003-07-16T00:47:11.000Z	175.9590	F	Automatic TM processing.
2003-07-17T01:26:57.000Z	175.9438	F	Automatic TM processing.

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, 39 Open Loop Slews, 110 Closed Loop Slews and 5 Momentum Bias were executed. 1 slew was executed manually. This is equivalent to a 0.7%.

12/07/03 (Day of Year 193, Revolution 90-91)

Nothing to report.

13/07/03 (Day of Year 194, Revolution 91)

Nothing to report.

14/07/03 (Day of Year 195, Revolution 91)

Nothing to Report.

15/07/03 (Day of Year 196, Revolution 91-92)

Pitch Error due to an undetected SEU: At 17:42:37, the ACC generated a Pitch Error message when the “y” coordinate of the guide star jumped by 162 CCD units (39.6 arc-seconds) during one cycle. This guide star was selected by the ACC after an Open-Loop Slew and had magnitude 8.45 and CCD coordinates (17339, 3159). This happened during stable pointing 00920004 at an altitude of about 49400 km. The Pitch error caused a flicker in the Pointing Bit for one cycle, but it was not seen at BCP OTF level.

16/07/03 (Day of Year 197, Revolution 92)

Slew missed due termination of AD service after swap of TMPs: At 13:17, termination of the AD service in the TC link from the REDU G/S caused stoppage of the execution of the automatic timeline and missing of slew 00920028. This happened after swap of the TMPs at the Redu G/S. Apparently a communication problem between the TCE and the TMP after the swap of TMPs causes the termination of the AD service (Ref. Integral Anomaly Reports INT-002391 and INT-002384). After reestablishment of the TC link at 13:20, the Timeline recovery tool was used to manually slew to the attitude of pointing 00920028 and then to update the parameters for slew 00920029.

Yaw Error due to an undetected SEU: At 23:39:34, the ACC generated a Yaw Error message when the “z” coordinate of the guide star jumped by –259 CCD units

(-63.45 arc-seconds) during one cycle. The dim guide star, which was selected by the ACC after and Open Loop Slew, was of magnitude 8.5 and had CCD coordinates (7138, 5584). This happened during stable pointing 00920038 and at an altitude of 152200 km. The Yaw error caused a flicker in the Pointing Bit for one cycle, but was not seen at BCP OTF level.

17/07/03 (Day of Year 198, Revolution 92)

Update of the YTIM threshold: The YTIM threshold was updated with the new value based on the results of the thruster calibration, which was performed on 13/06/2003. The new YTIM threshold is 31.31250s, which replaced the old value of 31.68750s. The calibration results showed slightly increased thruster torque levels compared to the previous thruster calibration that was done on 01/11/2002. This increase in the torque level contributes to the decrease of 12 LSBs in the YTIM value. Taking into account the LSB of 0.125s of the RTIM and PTIM thresholds, they remain unchanged with respect to their current values of 6.0s and 2.0s, respectively.

Compare the torque levels calculated from thruster calibration on 13/06/2003:

$$T = [4.171 \quad 12.773 \quad 15.380]^T Nm$$

with those calculated from the calibration on 01/11/2002:

$$T = [4.086 \quad 12.565 \quad 15.180]^T Nm$$

An estimated thrust force of 10.17N was considered in the calibration, which resulted in a TTIM threshold of 400s, also unchanged with respect to the actual value. The resolution of the TTIM is 16s.

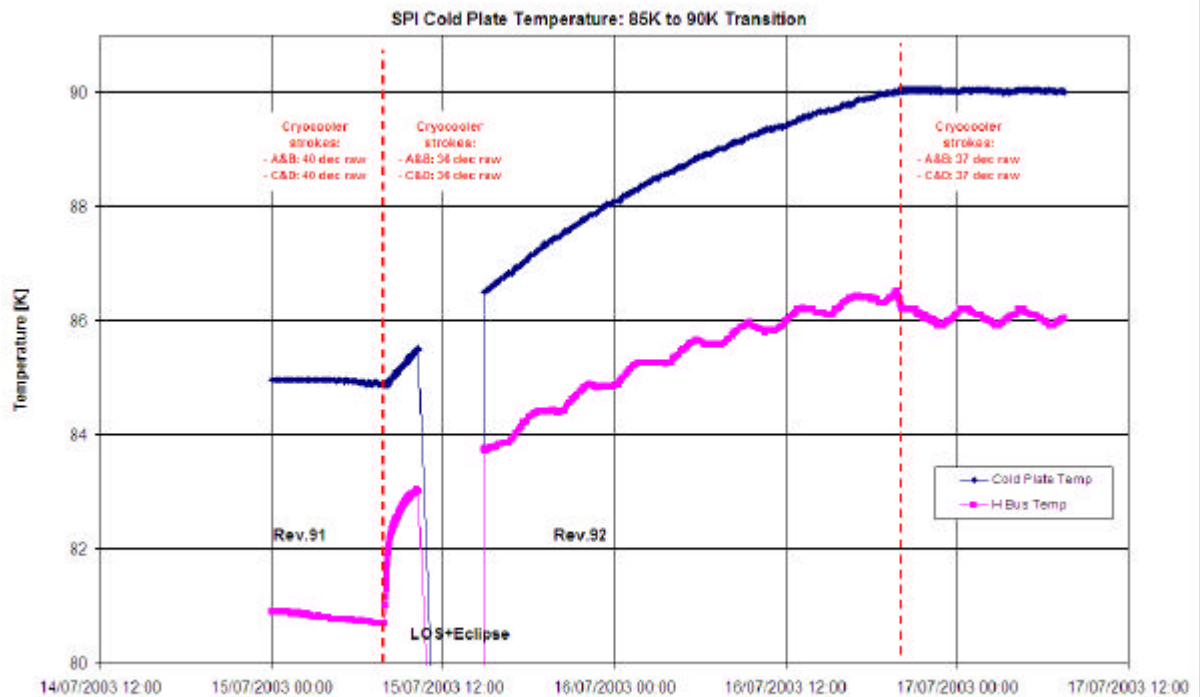
18/07/03 (Day of Year 199, Revolution 92-93)

Setting of the AMD thresholds to their sunlight season values: At the beginning of revolution 93, the first revolution after the recent Eclipse season, the AMD thresholds were set back to their sunlight season values. Moreover, the FDE and FCE Eclipse Timers were frozen and the ACC Eclipse Timer was stopped.

8.3.2 SPI Operations

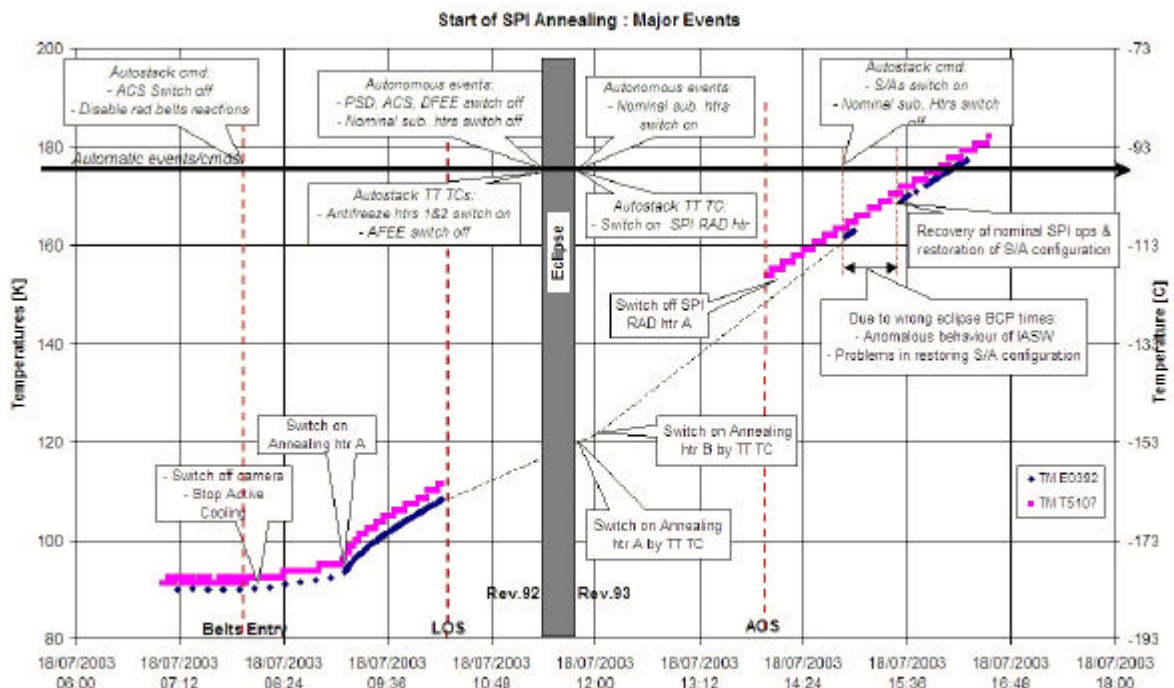
Cryo-cooler / Cold box assembly:

85K → 90K Operations: On 15 July 2003 at around 08:00Z, at the entry of rev.91 rad belts, the stroke of the compressors was decreased by 4LSBs, to 4x36dec raw, to increase the cold plate temperature from 85K to 90K. After about 1.5 days transient, the cold plate reached 90K, the stroke was then increased by 1LSB to 4x36dec raw, to level off at this temperature. Below is the plot of the cold plate and H-bus temperatures:

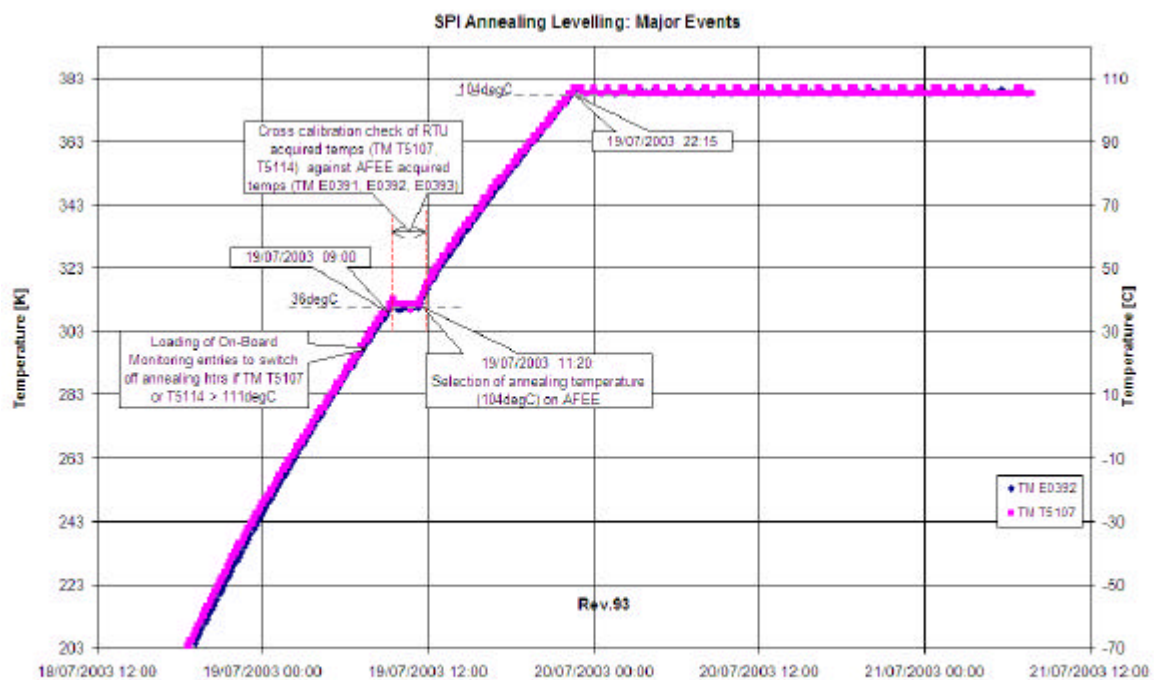


Start of 2nd SPI Annealing: On 18/07/2003 at about 07:30Z, at the entry of rev.92 rad belts, The annealing procedure was started, the compressors were stopped and the CDEs put in stand-by mode.

Below is the plot of the cold plate temperature with the main events indicated after commencement of the annealing.



Annealing temperature levelling: before selecting the final annealing temperature level (104degC), 4 entries in the on-board monitoring (OBM) function, were up-linked to the CDMU, to automatically turn off the annealing heaters should the regulator fail and the temperature climb beyond 111degC. The RTU cold plate temperature readings (on which the OBM relies) were cross-checked against the AFEE readings: the difference was within the expected range.



IASW/DPE:

Duplicated packets in VC7 TM : The SPI team recently reported some anomalies in the VC7 TM downlink: some packets are down-linked twice (same header and same body content) after a certain amount of hours, for a few seconds. The times reported by SPI are:

14/06/2003 12h35m07s -> 14/06/2003 12h35m26s (initial TM data)
 15/06/2003 05h27m58s -> 15/06/2003 05h28m04s (duplicated TM data)

Some investigations were performed, and it appears that this is a Ground Station problem, located at Goldstone, JPL, in the TM buffering system there, when the VC7 TM on-line complete transmission mode is active. Somehow the station re-plays a few seconds of old TM data, stored at the end of pass_i, at the beginning of pass_i+1, after the handover from Redu. This occurred in rev.81, where :

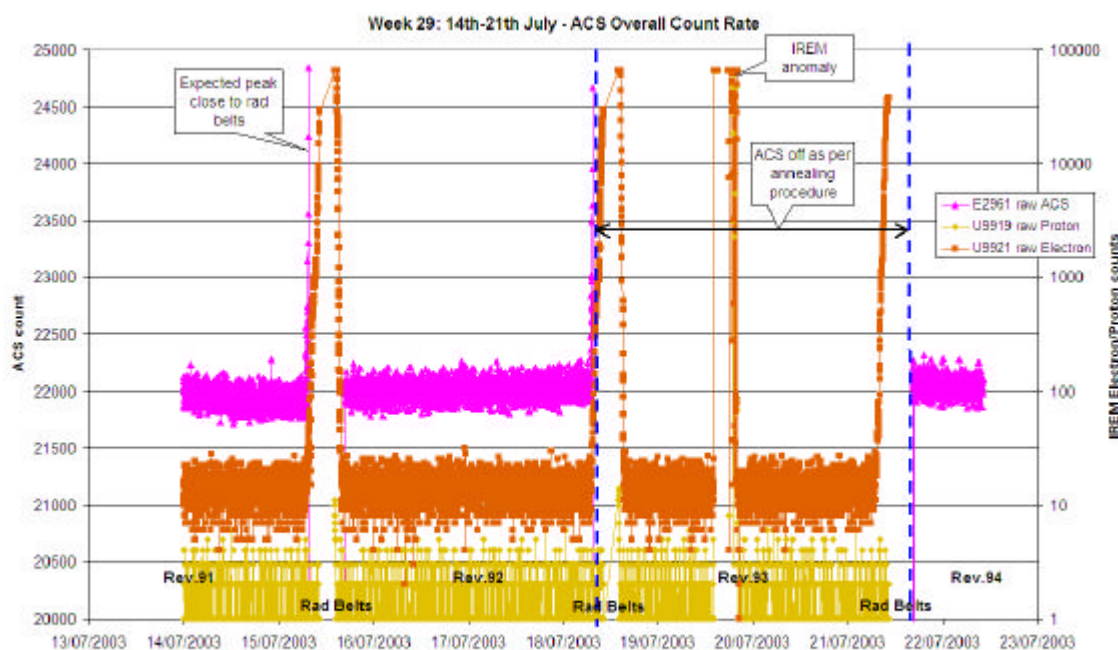
- at 14/06/2003 12h35m07s -> 14/06/2003 12h35m26s (initial TM data): it was toward the end of a Goldstone pass, just before the handover to Redu
- at 15/06/2003 05h27m58s -> 15/06/2003 05h28m04s (duplicated TM data): at the beginning of the next Goldstone pass, after a few minutes overlap with Redu.

An AR has been opened (see INT-002390).

IASW behavior with wrong BCP eclipse times: During the last eclipse passage (rev.92), due to an error in setting the BCP eclipse/exit times by the automatic timeline (see INT-002392), the IASW had some problems in re-establishing the communication with the SPI subassemblies, after the post eclipse switch-on. The communication and subsequent restoration of the S/A configuration had to be performed manually (at about 18/07/2003 15:30Z). Investigations are on-going at CNES to understand this behaviour, whether it is to be considered nominal or not.

ACS:

Count rate: The overall ACS count rate during the reporting period is here plotted (sampling at 1/80s) together with the IREM proton/electron count.

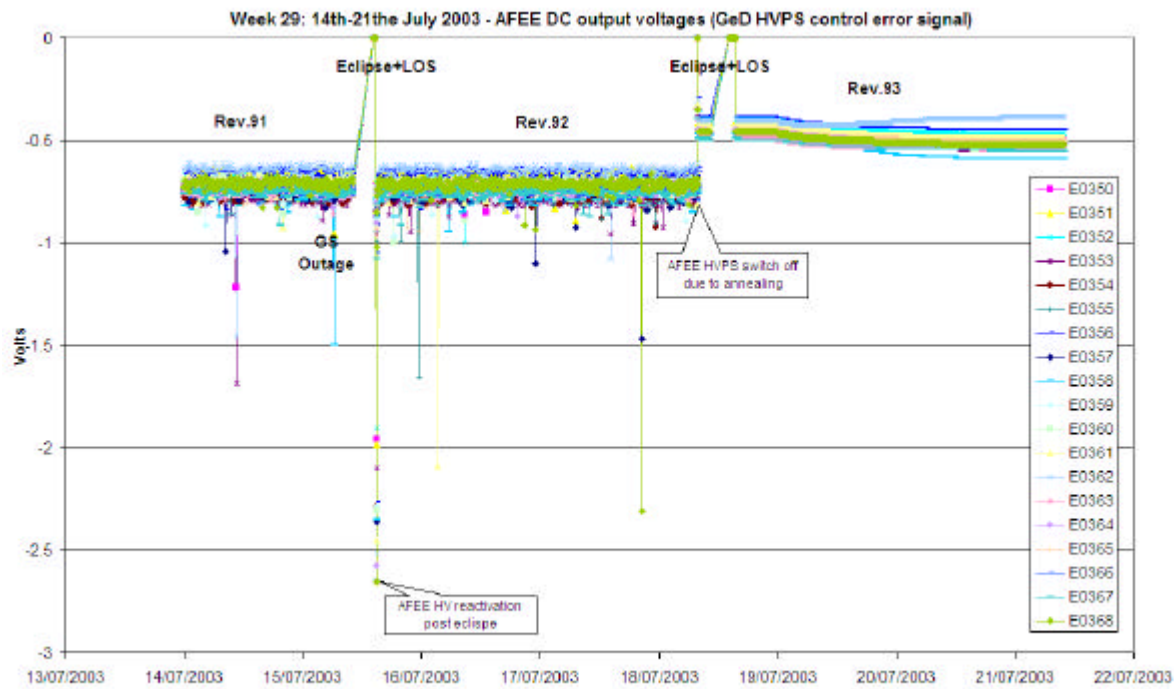


AFEE .:

PA temperatures: As expected, most of AFEE temperatures showed Out-Of-Limit for a few hours after reactivation post eclipse. The behaviour was expected and considered nominal. During rev.92, due to the BCP eclipse time problem and the consequent delayed S/A configuration restoration, more time was needed to recover.

GeD HV section: The AFEE dc output signal is shown below for the reporting period. These signals are the HV power supply control error, which is a measure of the health status of the Ge detectors HV section. The negative peaks just after the eclipses are nominal and due to the HV reactivation process post eclipse. Other peaks are due to heavy ionising particles hitting the detector.

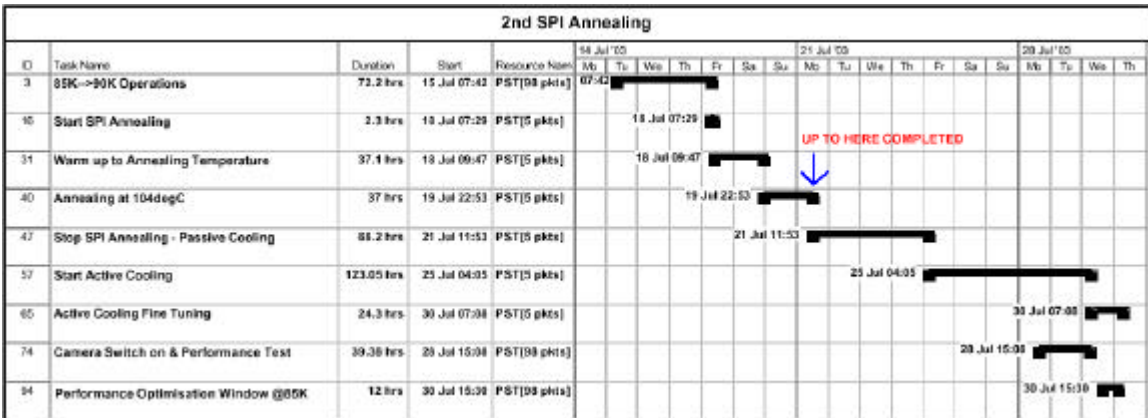
During the reporting period no OOL or anomalous oscillations were detected.



DFEE, PSD: Nothing to report.

SPI Annealing Operations:

All the annealing activities are in schedule.



8.3.3 IBIS Operations

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

On **DOY 2003.194 (13/07)** at 19.32Z the OEM ID 183 Class 2 <<IBIS1 VETO +5V VECU VOLTAGE OUT OF RANGE>> was reported. The relevant TM_para G6106 showed a value inside limits and therefore the problem was disregarded, as suggested by the nominal reaction to this OEM.

On **DOY 2003.195 (14/07)** at 19.32Z the OEM ID 183 Class 2 <<IBIS1 VETO +5V VECU VOLTAGE OUT OF RANGE>> was reported. The relevant TM_para G6106 showed a value inside limits and therefore the problem was disregarded, as suggested by the nominal reaction to this OEM.

At 07.47Z the following PICsIT semi-module FIFO error flags went OOL (SCC fail):

G5084-5100-5104-5120-5132-5136-5148-5152-5164-5184

at 08.15Z the PICsIT real time counters went OOLs to 0:

TM para G5002-3-7-8-12-13-17-18-22-23-27-28-32-33-37-38

Coincidentally an increasing of the dead time counters read by the PDMs was reported. The anomalous counting lasted until 08.19Z, when all the TM parameters returned within limits. At the same time the OEM APID 1280 ID 132 flagging a HEPI resynchronisation was received.

On **DOY 2003.196 (15/07)** at 20.43Z the following PICsIT semi-module FIFO error flags were reported to be OOL (SCC fail):

G5084-5100-5104-5120-5132-5136-5148-5152-5164-5184

at 21.06Z the PICsIT real time counters went OOLs to 0:

TM para G5002-3-7-8-12-13-17-18-22-23-27-28-32-33-37-38

Coincidentally an increase of the dead time counters read by the PDMs was reported. The anomalous counting lasted until 21.10Z, when all the TM parameters returned within limits. At the same time the OEM APID 1280 ID 132 flagging a HEPI resynchronisation was received. This problem was observed in the past and is due to a lost of synch between the HEPI and the peripherals (in this specific case PICsIT).

On **DOY 2003.198 (17/07)** at 11.05Z a problem with IBIS Histogram production was reported. Both Standard Hist and Calibration Hist processes had not been running since the last Ground Station handover. ISDC was informed and the recovery action foresaw the forcing of the last Hist accumulated on board by using FCP_IBIS1_0312. Investigation is on-going.

On **DOY 2003.199 (18/07)** at 14.05Z several OEM APID 1280 ID 129 Class 2 << IDPE1 IASW TIME OUT TRANSMITTING LSL DATA (NO ANSWER FROM CSSW)>> were reported, flagging a problem in communication between the DPE1 and the peripherals at AOS. The problem was due to a wrong status of the ECRs, which were left ON at Eclipse entry due to a problem in setting the Eclipse Entry time in the BCP (for more details see SVM/OBDH report). The problem was cured when the ECR was set OFF, and continuing with the Nominal reconfiguration after eclipse exit. No further impact was reported for the unit.

8.3.4 JEM-X Operations

12/07/2003, DOY 193, Revolution 90-91

At 05:37 a command was sent to disable the RMC, so that when the RMC flag in the broadcast packet was re-enabled, the instrument would not immediately switch to SAFE. However, the count-rates exceeded 20,000 per 8 seconds, and at 05:52 the instrument autonomously went into SAFE anyway. At 06:04 the RMC was re-enabled. The unit was left in SAFE, as the belt passage was due 2 hours later, and was re-activated in the Timeline after perigee.

13/07/2003, DOY 194, Revolution 91

Nothing to report

14/07/2003, DOY 195, Revolution 91

Nothing to report

15/07/2003, DOY 196, Revolution 91-92

Nothing to report

16/07/2003, DOY 197, Revolution 92

Nothing to report

17/07/2003, DOY 198, Revolution 92

Nothing to report

18/07/2003, DOY 199, Revolution 92-93

During the eclipse, there was a sudden switch-off of both JEMX-1 and JEMX-2, the instruments were recovered to SAFE mode using procedures CRP_JEM2_5050, and FCP_JEM1_5050 at 14:57 and 15:05 respectively, no science data was lost.

8.3.5 OMC Operations

During this period 133 OMC images were acquired with only 1 missed.

12/07/2003, DOY 193, Revolution 90-91

Nothing to report

13/07/2003, DOY 194, Revolution 91

Nothing to report

14/07/2003, DOY 195, Revolution 91

Nothing to report

15/07/2003, DOY 196, Revolution 91-92

Nothing to report

16/07/2003, DOY 197, Revolution 92

On this day at 13:23, a commanding problem at Redu caused pointing 00920028 to be missed.

17/07/2003, DOY 198, Revolution 92

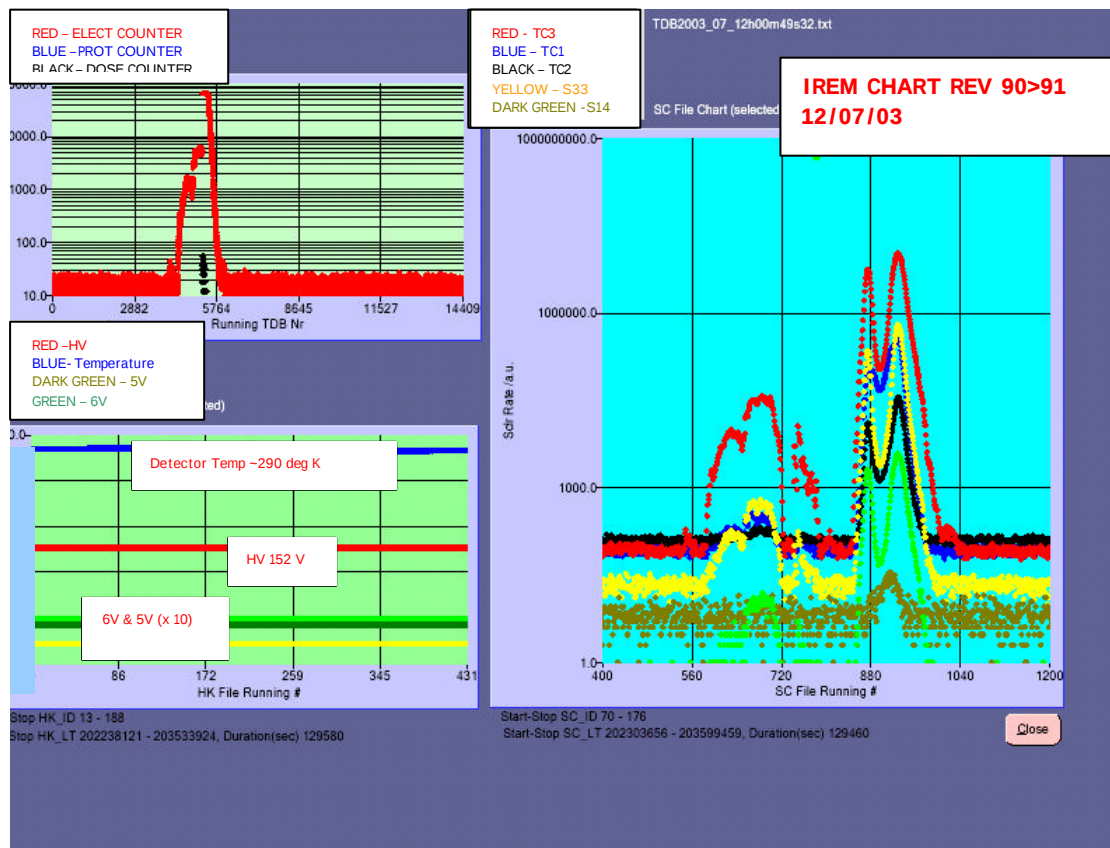
Nothing to report

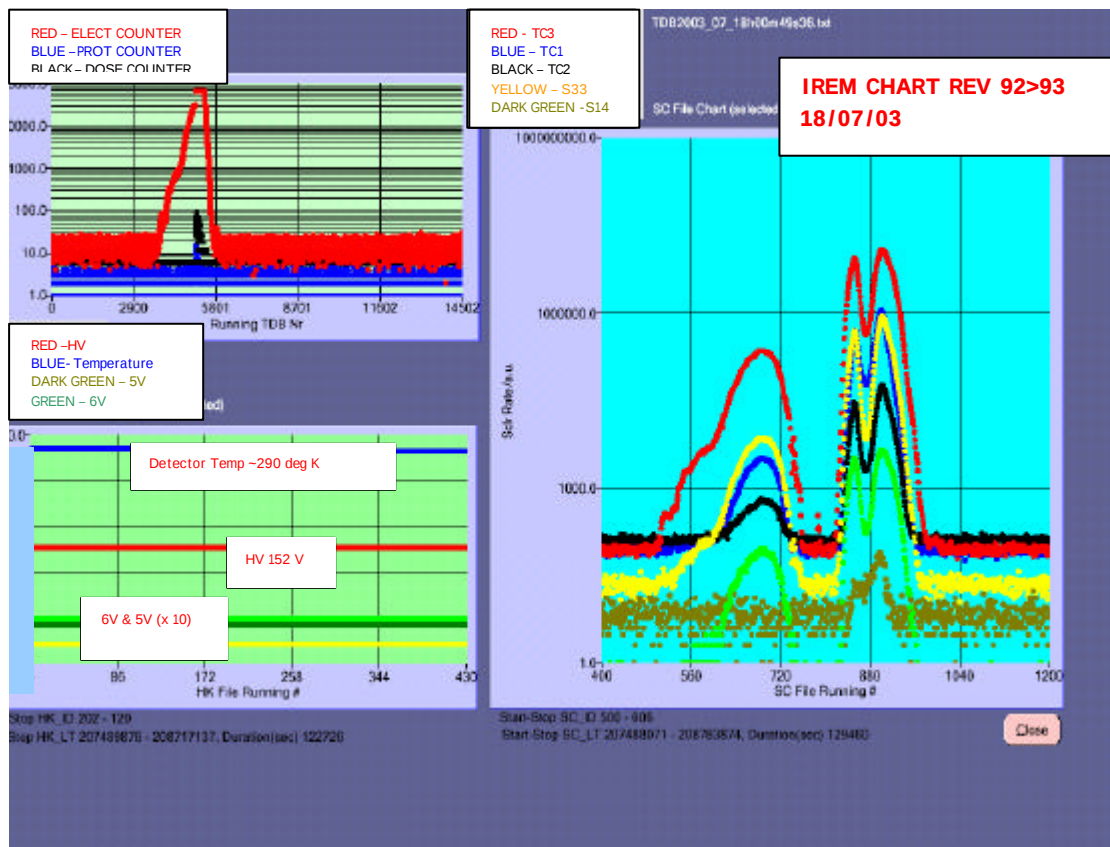
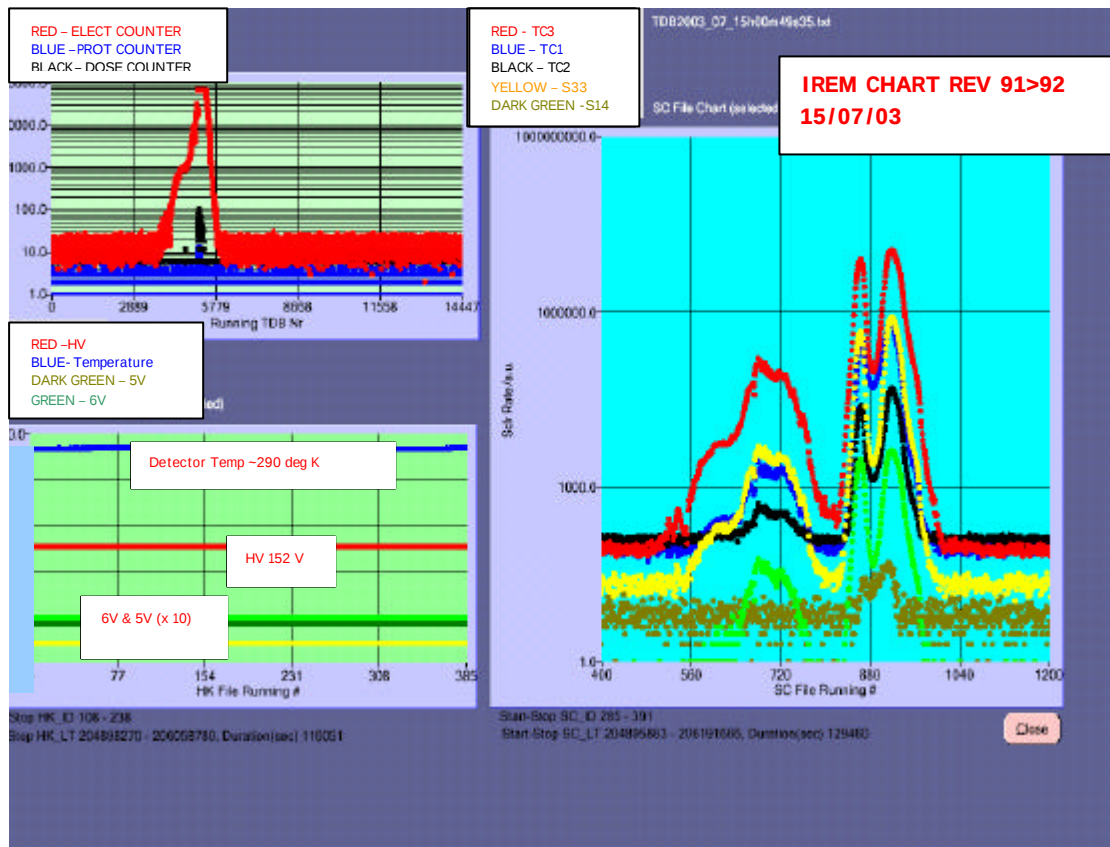
18/07/2003, DOY 199, Revolution 92-93

There was an unexpected instrument switch off during the eclipse. The instrument was recovered during the perigee passage without any science impact.

8.3.6 IREM Operations

The plots of the IREM count rates for the radiation belts passages in rev 91-92-93 are shown below.





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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 - 002010	2002/10/22	Time correlation not applied correctly to time parameters in TM type 8 reports.	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 - 002094	2002/11/19	TDRS does not work with super-commutated parameters	Ground	IMCS	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 - 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 - 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 - 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 - 002246	2003/03/05	Loss of Telemetry from DSS16	Ground	NASA 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 - 002259	2003/03/21	TDRS: Retrieval log is Meaningless.	Ground	IMCS	Pending

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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 - 002267	2003/03/25	Drop in link from ISDS to ISDC	Ground	I/F to SGS	Pending
INT - 002273	2003/03/27	Drop in VC7 via REDU	Ground	ESA Sta.	Pending
INT - 002279	2003/03/29	Telemetry lost from DSS-16. DR N109197	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 - 002302	2003/04/24	Telemetry loss via DSS-16 due to RFI	Ground	NASA Sta.	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 - 002311	2003/05/06	Drop in TM on MADDS-ISDSA link	Ground	ESA Sta.	Pending
INT - 002312	2003/05/06	Static PTV in "No Go" State for command A3189	Ground	IMCS	Pending
INT - 002318	2003/05/09	SUN workstation 128 rebooted itself.	Ground	IMCS	Pending
INT - 002314	2003/05/12	Wrong file displayed for Timeline Summary File	Ground	IMCS	Pending
INT - 002323	2003/05/19	Telemetry Drops from Goldstone (DR 109346)	Ground	NASA Sta.	Pending
INT - 002324	2003/05/19	Command A3084 not verified	Ground	IMCS	Pending
INT - 002326	2003/05/21	Hardware failure at DSS-16 during handover DR: GI02772	Ground	NASA Sta.	Pending
INT - 002329	2003/05/24	Late handover to DSS-16. DR: G102803	Ground	NASA Sta.	Pending
INT - 002327	2003/05/26	CLCW: change in ratio of the number of VC-0 / VC-7 CLCWs in VC-0 TM Frames	Space	Platform	Pending
INT - 002328	2003/05/27	TDRS queries for some SPI parameters fail before DOY 2003.034	Ground	IMCS	Pending
INT - 002330	2003/05/27	NCTRS CPU goes to 85% for a problem related with tracking data	Ground	NCTRS	Pending
INT - 002331	2003/05/27	Monitoring Task ASCII Printout, not in ASCII format	Ground	IMCS	Pending
INT - 002334	2003/05/30	Bad telemetry from Goldstone - DSS-16	Ground	NASA Sta.	Pending
INT - 002336	2003/06/02	VC-0 telemetry not being received from Goldstone	Ground	NASA Sta.	Pending
INT - 002333	2003/06/03	TM acquisition from MRU-B no longer possible.	Ground	Simulator	Pending

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INT - 002337	2003/06/03	Late handover to DSS-16 due to uplink bind problem	Ground	NCTRS	Pending
INT - 002338	2003/06/03	Error sending data to consolidator (VC-7)	Ground	IMCS	Pending
INT - 002339	2003/06/05	IREM anomaly: SEU (#3)	Space	IREM	Pending
INT - 002340	2003/06/05	IBIS anomaly: Histogram production stopped due to coincidence of GSHF=1 with the start of S5 process	Space	IBIS	Pending
INT - 002341	2003/06/05	IBIS anomaly: Histogram production stopped due to the combination of PDUR setting with IASW observation duration calculation during long staring	Space	IBIS	Pending
INT - 002342	2003/06/05	Telemetry Drops from Goldstone DR: AR109393	Ground	NASA Sta.	Pending
INT - 002343	2003/06/07	Error sending data to ISDC	Ground	IMCS	Pending
INT - 002344	2003/06/08	Telemetry drops from REDU	Ground	ESA Sta.	Pending
INT - 002345	2003/06/09	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002350	2003/06/12	Telemetry Drop from GoldStone DR: G102867	Ground	NASA Sta.	Pending
INT - 002351	2003/06/12	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002352	2003/06/14	Late handover to DSS-16, DR G102878 and G102879	Ground	NASA Sta.	Pending
INT - 002353	2003/06/14	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002355	2003/06/17	VC7 Frames received with a wrong order by ISDC	Ground	ESA Sta.	Pending
INT - 002356	2003/06/19	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002357	2003/06/20	Error sending data to ISDS	Ground	IMCS	Pending
INT - 002358	2003/06/22	Error sending data to ISDC	Ground	IMCS	Pending
INT - 002359	2003/06/22	NCTRSA application restart	Ground	NCTRS	Pending
INT - 002360	2003/06/22	Loss of telemetry due to NCTRSA and IMCSA errors	Ground	NCTRS	Pending
INT - 002361	2003/06/23	Late handover to DSS-16, DR pending	Ground	NASA Sta.	Pending
INT - 002362	2003/06/23	NCTRSA application restart	Ground	NCTRS	Pending
INT - 002363	2003/06/23	Error sending data to ISDC	Ground	IMCS	Pending
INT - 002364	2003/06/24	NCTRSA application restart	Ground	NCTRS	Pending
INT - 002365	2003/06/24	Telemetry Drops from Goldstone. DR G102942	Ground	NASA Sta.	Pending
INT - 002367	2003/06/25	SPI: Spikes in GeD count rates after HV switch on following 1st annealing	Space	SPI	Pending
INT - 002368	2003/06/25	IFTS Transfer on IMCS-A Failed	Ground	IMCS	Pending
INT - 002369	2003/06/26	Problems to establish VC0 and VC7 links on NCTRS-A	Ground	NCTRS	Pending
INT - 002370	2003/07/01	Static PTV conditions handled incorrectly.	Ground	IMCS	Pending
INT - 002373	2003/07/01	IFMS Hung up at REDU	Ground	ESA Sta.	Pending

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INT - 002374	2003/07/01	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002371	2003/07/02	PSS data mixed with S/C telemetry on DOY 2003.090.17.26.01	Ground	Procedure	Pending
INT - 002375	2003/07/02	Error sending data to ISDS	Ground	IMCS	Pending
INT - 002376	2003/07/03	Unexpected behaviour of IMCA	Ground	IMCS	Pending
INT - 002377	2003/07/03	Telemetry drop from Redu	Ground	ESA Sta.	Pending
INT - 002378	2003/07/03	VC0 drop when adding bad-frames on NCTRS-A	Ground	NCTRS	Pending
INT - 002379	2003/07/03	ISDS to ISDC link drop messages	Ground	IMCS	Pending
INT - 002381	2003/07/04	All TLM links on NCTRS-A dropped out	Ground	NCTRS	Pending
INT - 002382	2003/07/05	Telemetry Drops from Goldstone DR:G102997	Ground	NASA Sta.	Pending
INT - 002383	2003/07/09	Antenna stopped at REDU	Ground	ESA Sta.	Pending
INT - 002384	2003/07/10	AD terminated on TC link	Ground	ESA Sta.	Open
INT - 002385	2003/07/12	Telemetry lost from DSS-16 due to RFI	Ground	NASA Sta.	Open
INT - 002386	2003/07/14	Telemetry Drop from Goldstone DR: G103032	Ground	NASA Sta.	Open
INT - 002387	2003/07/16	IREM anomaly: SEU (#4)	Space	IREM	Open
INT - 002388	2003/07/16	FDS failed to create TPF	Ground	FDS	Open
INT - 002389	2003/07/16	IBIS: PICsIT PDMs counters SET to 0 during nominal operation (#3-4)	Space	IBIS	Open
INT - 002390	2003/07/17	Goldstone station: re-play of previous pass VC7 TM at the beginning of a new pass	Ground	NASA Sta.	Open
INT - 002391	2003/07/18	TC problems following the TMP swap on DOY 197	Ground	ESA Sta.	Open
INT - 002392	2003/07/18	Broadcast Packet Eclipse Entry/Exit Times Incorrect	Ground	FDS	Open