European Space Agency

XMM-Newton and INTEGRAL weekly Mission Operations Report

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Issue 1

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1. Weekly report

	XMM	Integral
Main activities	▪ Nominal operations ▪ Goldstone testing and preparation – time correlation tests successful ▪ Eclipse preparation on-going ▪ AGO Cortex 2 operational passes taken 20th and 21st October ▪ MCS SW 11.2.0 release delayed due to problems found during testing by FCT. Back-up plan is in operation patch SPR/CCR critical for Eclipse operations. ▪ Chang'e 5 pre-cursor was launched 23rd October. Latest pass information is that this will not impact MSP support 31st October	▪ Nominal Science Operations ▪ DB release on B chain: 13.10. ▪ Eclipse preparation ▪ CLCW adjustment & antenna ED change (21.10.) ▪ Eclipse Season #26 (24.10 – 17.11)
Status and performance of S/C	▪ Nominal for platform and all instruments	▪ Nominal for platform and payload
Status and performance of Ground segment	▪ Numerous problems with uplink bit-lock during AGO support (back-up station during Kourou maintenance).	▪ Ongoing occasional RFI at all stations, some sources identified ▪
S/C Anomalies	▪ None.	▪ None
G/S Anomalies	▪ XMM-1221 General Problems During Santiago Support ▪ XMM-1225 TC A3189 Start Guide Star PTV failure	▪ INT-3478: Loss of on board lock due to configuration error during testing at KIR
Future activities planned	▪ CDMU patch (J3) TDC/TCL function testing postponed to after MCS SW release. ▪ MCS SW release will be 11.1.1 + patches for SPR/CCR critical for Eclipse operations. ▪ Goldstone testing and preparation – next tests 29th and 31st October ▪ KRU IFMS IP updates to be validated before Eclipse ▪ Eclipse season starts 6th November ▪ Automation test 18th November (although SW 11.2.0 will not be operational at this time)	▪ Automation of some repetitive tasks ▪ Development of detailed proposal for Integral disposal. ▪ NNO validation in second half of November (after ROSETTA Philae landing) ▪ KIR power outage 18.-20.11. ▪ SAS calibration: 20.11. ▪ Battery reconditioning postponed

2. Detailed weekly operational events

note: all times are Zulu

2.1. XMM

2014-10-21 00:16:00 (294)	G/S: data gap on VC-0 + frame out of sequence from AGO. Repeats at 02:15z, 02:17z, 03:22z, 03:23z, 03:31z, 04:04z, 06:19z. ***See AR XMM-1221 (this pass was on Cortex-2)***
2014-10-21 06:19:53 (294)	EV: TC: AD status set to: Terminated for VC id 0 OOL DU907 RETRANSMIT -VC0 OOL DU957 RETRANSMIT
2014-10-21 06:20:00 (294)	OSL failed; reason: Missed from the T/L due to A/S stopped impacts / recovery actions: FD on call informed
2014-10-21 06:24:00 (294)	CRP_SYS_0010 AD Service error condition recovery Uplinked in BD mode UNLOCK and SETVR
2014-10-21 06:39:00 (294)	FCP_AOC_0106 STR-A Mapping
2014-10-21 06:45:00 (294)	FCP_AOC_2002 Perform Open Loop Slew: 2722_50_M.OSL
2014-10-21 07:11:00 (294)	ED HE0540 failed from T/L --> NO BITLOCK CRP_OPM_1500 OM Re-join Timeline S/S 9 Disabled. ***No Bitlock also on Cortex-2***
2014-10-21 07:19:00 (294)	CRP_SYS_0010 AD Service error condition recovery Uplinked in BD mode UNLOCK and SETVR
2014-10-21 08:49:00 (294)	FCP_AOC_2006 Perform Close Loop Slew: 2722_51_M.CSL
2014-10-21 17:18:00 (294)	Toggling of param DD022 between soft and hard low. CRP_DHS_1000 says that no action is needed.
2014-10-21 17:41:00 (294)	Call SOE for advice concerning para DD022 which is still toggling, He suggests that maybe a re-sweep is needed to try and cure problem. Spacon to look for a commanding gap
2014-10-21 17:47:00 (294)	Estrack advice to connect cortex 2 for TM and compare to see if there is a time-stamping issue with both cortex's or just cortex 1
2014-10-21 17:59:00 (294)	Spacon switches to cortex 2 for TM to check if we still get ool on DD022
2014-10-21 18:14:00 (294)	No error messages since taking tm from cortex2. AGO configure cortex2 for TC. Carrier is brought down
2014-10-21 18:18:00 (294)	Now using cortex2 for both TC+TM
2014-10-21 20:33:00 (294)	Lost TM from AGO
2014-10-21 20:37:00 (294)	Q-dump TCs to RGS's failed due to lack of TM
2014-10-22 23:13:00 (295)	G/S: loss of on-board lock over AGO ***See AR XMM-1221 (this pass was on Cortex-1)***
2014-10-23 05:54:00 (296)	RFS: LOST RF LOCK (AGO) Requested ECC to Re-sweep. ***See AR XMM-1221 (this pass was on Cortex-1)***
2014-10-23 05:59:00 (296)	RG1/2: QDUMP GE1601 & LE9111 were missed due to G/S outage
2014-10-23 06:19:00 (296)	RFS:LOST RF LOCK (AGO) Requested ECC to Re-sweep
2014-10-23 09:13:00 (296)	RFS:LOST RF LOCK (AGO) Requested to re-sweep

2014-10-23 13:27:00 (296)	OOL P1112 LCL STA IMU1 CLOSE 140081 SEU OVER THRESH at the end of the OSL --> No action
2014-10-23 13:38:00 (296)	IMU1 OFF
2014-10-23 17:08:00 (296)	AD Service established, D3831 Link Test CMD successful For VC id=0 multiple test commands were sent because they were timing out and the counter was not incrementing. After resending the SETVR command the test command was successful.
2014-10-23 18:08:00 (296)	VC7 -->BLOCKED for a few secs
2014-10-23 18:09:00 (296)	Limit checker is not alive-->Alive again S/S 8 TCs failed--> Missed one Q-dump and re-enabled
2014-10-23 18:11:00 (296)	Data gaps from AGO VC7 (multiple times)
2014-10-23 19:56:00 (296)	missing frames from AGO. Repeats 21:52z, 21:58z, 22:21z, 22:35z,23:02z
2014-10-24 02:40:00 (297)	At the end of OSL 2724_02 spacon noticed that status of str 1 is Blemish s/s 1 + 9 are disabled and manual mapping + spacon tool. ***See AR XMM-1225.***
2014-10-24 02:54:00 (297)	Start CSL 2724_50 uplinked with both start guide str cmds within seq, PTV disabled.
2014-10-24 03:09:00 (297)	Spacecraft on target
2014-10-24 03:11:00 (297)	STR2 not found, str in slot 2 indicates as blemish.
2014-10-24 03:12:00 (297)	Spacecraft only using guide str as none of the SST could be uplinked due to slot2 indicating as blemish. This particular occurrence is not covered in OCR 3392. OCR will be updated.
2014-10-24 03:29:00 (297)	s/s 1 is enabled
2014-10-24 12:43:00 (297)	HFA TM Restarted on xmca (SWS)
2014-10-24 19:09:00 (297)	update fails for slew id 9272400004
2014-10-24 19:10:00 (297)	man mapping + spacon tool
2014-10-24 19:20:00 (297)	2 attempts have been made to recover slew but attitude determination fails, FD are called in
2014-10-24 19:39:00 (297)	Step 2.7 of CRP_SYS_5004 also carried out to place PN into safe config.
2014-10-24 19:52:00 (297)	All GTPs have been restarted as they seem to have been frozen. Another manual mapping is sent + spacon tool. GTP crash related to HFA TM restart at 12:43z.
2014-10-24 20:01:00 (297)	2724_54_M.CSL uplinked to slew to id 9272400004
2014-10-24 20:15:00 (297)	Spacecraft on target
2014-10-24 22:35:00 (297)	G/S handover from per to ago
2014-10-25 00:08:00 (298)	missing frames from AGO. Repeats at 00:17z and 01:29z. ***See AR XMM-1221 (this pass was on Cortex-1)***
2014-10-25 12:54:00 (298)	TC: A3189 START GUIDE STAR FAILED , Static PTV NO GO S/S: 1 Disabled and timeline re-dispatched
2014-10-25 12:55:00 (298)	Spacon noticed that GS is BLEMISH with MAG 5 .90 Y=23033 & Z=-10336 There is not enough time to recover CSL as per OR#3395 , before the exe. of OSL#01. ***See AR XMM-1225.***
2014-10-25 13:00:00 (298)	2725_01_M.OSL missed from timeline Informed FD on call as per

	OSL recovery actions
2014-10-25 13:19:00 (298)	FCP_AOC_0106 STR-A Mapping
2014-10-25 13:26:00 (298)	FCP_AOC_2002 Perform Open Loop Slew: 2725_50_M.OSL , Generated by FD On-call
2014-10-25 14:46:00 (298)	S/C on target
2014-10-26 22:27:00 (299)	G/S handover from PER to AGO
2014-10-26 22:29:00 (299)	OOL OBTVAL "OBT VALIDITY" =INVALID CRP_DHS_1001
2014-10-26 22:38:00 (299)	Re-initialise time correlation
2014-10-27 01:31:00 (300)	Data gap on VC7 from AGO. Repeats at 02:03z, 03:28z, 05:29z, 07:44z. ***See AR XMM-1221 (this pass was on Cortex-1)***
2014-10-27 03:10:00 (300)	No RF from AGO S/S 7, 8 in T/L DISABLED. Repeats at 03:53z, 04:02z, 06:28z
2014-10-27 03:53:00 (300)	No RF from AGO

2.2. INTEGRAL

- 20/10/2014 (293)
  - 22:16:00 OEM: "ACC ROLL ERROR OOL" - during manoeuvre
  - 23:23:00 TM: G6174 'VDE-VDM09VM5M' S/L-OOL (value= -5.406 V) → recovered itself after via VETO switch off during perigee

- 21/10/2014 (294)
  - 00:25:00 More than 100 rpm discrepancy on wheel # 2
  - 07:10:00 INT_OPS_1025: Change of RF Switch & CLCW Adjustment to SWA & VC-7
    - 07:10:00 AOS TM @ PERTH
    - 07:20:00 AOS TC @ PERTH
    - 07:26:00 FCP_RFS_1110 - R3322 SWA to = sent 3x as time-tag TC
    - 07:30:00 FCP_RFS_1101 - R3321 SWA to X sent
    - 07:58:00 FCP_SYS_1130 - Select Low TM Bit Rate
    - 08:03:00 FCP_SYS_1120 - Select High TM Bit Rate
    - 08:10:00 JC_VCID "Expected VC ID" - set to 7
    - 08:15:00 30 Link Test commands sent with IL set to SO
    - 08:30:00 FCP_DHS_1232 - Load OBM Entries for Eclipse
    - 08:44:00 LOS TC @ PERTH
    - 08:45:00 LOS TM @ PERTH
  - 12:00:00 OOL LD/KD5020D EQ DFEE state value = false; spacon to monitor for next 5 mins then no action
    - 12:03:00 Both LD/KD5020D back in limits, no further action
  - 13:16:00 TPF update failed for SlewID #0006; AOCS is disabled & recovery delayed as there also an on-going AOCS recovery at XMM at this time

        - 14:15:00 Recovery tool started
        - 14:22:00 slew cannot be done with current wheel speeds, FD is called
        - 14:46:00 Manual slew 1468_0501_M.OSL from PID #0005 to #0010
        - 15:05:00 Recovery tool started
        - 15:11:00 TPF 1468_0502_A.osl applied on A/S to update slew #0011
        - 15:14:00 AOCS is enabled
    - 15:55:00 Eclipse season preparation
        - 15:55:00 INT_OPS_1024: FCP_AOC_0524 - Set new subset 1 AMD thresholds

- 2014-10-22 (295)
    - 16:17:00 Uplink of IMU1/2/3/4 calibration data for ACC (1468_0001_M.DRA)

- 23/10/2014 (296)
    - 08:39:00 INT_OPS_1022 - Eclipse season preparation – Charge rate selection & Battery EOC Timer: Charge rate selection to full charge C/13 applying FCP_EPS_1271/1272. FCP_EPS_1260 MRU timer left at 0 for first eclipse & TC P2430 Enable HW EOC detection send again
    - 13:41:00 Drop VC-0 & VC-7 from KIR for few sec; loss of on board lock due to a configuration error during testing with the Kiruna ground station

- 24/10/2014 (297)
    - 03:46:04 OEM: "ACC AIMU ON"
    - 04:28:00 Eclipse 1 of eclipse season #25
        - 04:28:00 OEM: "ACC ECLIPSE START"
        - 04:42:36 ECLIPSE START
        - 04:57:13 ECLIPSE END
        - 05:07:00 OEM: "ACC ECLIPSE END" (stored)
        - 05:07:00 OEM: "ACC AIMU OFF" (stored)
    - 11:12:00 OOL G6107 "V1E-H4-MOD28V"=29.60 since 10:04:55 until this time
    - 11:53:00 FCP_EPS_1260 STEP 7

- 2014-10-25 (298)
    - 20:28:00 Drop VC-0 & VC-7 from KIR for few sec (RFI on both D/L chains)

- 26/10/2014 (299)
    - 05:20:00 Data gaps on VC-0 & VC-7 from KIR + missing source packets (RFI on both D/L chains)
    - 07:55:00 TPF update failed for SlewID #0079
        - 07:58:00 AOCS disabled in T/L & recovery tool started
        - 08:05:00 FDS: Error message; 'Slew cannot be performed with current wheel speeds'. RWB is generated instead.
        - 08:07:00 Called FD on call support (MR)
        - 08:30:00 FD support on site
        - 08:46:46 OSL #0079 missed from T/L
        - 09:00:00 Manual RWB 1469_0501_M.RWB executed generated by FD support. FD support informed that we need to execute a RWB then a slew and again a RWB to catch up the wheel profile again.
        - 09:09:00 PID #0079 lost

- 09:18:32 AESAM_00 uplinked generated by FD support
- 09:19:36 OSL #0080 missed from T/L
- 09:25:00 Manual slew 1469_0503_M.OSL from PID #0078 to #0079
- 09:25:57 PID #0080 lost
- 09:58:39 Manual slew 1469_0504_M.CSL from PID #0079 to #0081 generated by FD support
- 10:04:00 OSL #0081 missed from T/L
- 10:11:28 AESAM_00 uplinked on FD support request
- 10:15:00 1469_0505_M.CGS uplinked generated by FD support
- 10:20:00 Manual RWB 1469_0502_M.RWB uplinked generated by FD support
- 10:37:54 AESAM_00 uplinked on FD support request
- 10:42:00 TPF 1469_0506_A.OSL applied on A/S to update slew #0082
- 10:42:11 AOCS enabled in timeline + IL reset

- 27/10/2014 (300)
  - 00:03:00 Data gaps from Kiruna (RFI from COSMOS-2436)
  - 03:14:00 OEM: "ACC AIMU ON"
  - 03:56:00 OEM: "ACC ECLIPSE START"
  - 04:14:00 Eclipse 2 of eclipse season #25; ECLIPSE START