



Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón
C. Mosquera

Topic:

Date:

Issue:

FOS Report for week 14, year 2017

from 03 APR 2017 to 10 APR 2017

1.0

1 General Comments

Activities scheduled for this week are those planned for the 14th calendar week of 2017:

03 APR 2017 to 10 APR 2017 (DOYs 093 to 100).

The following routine activities were planned this week (see Gantt chart on next page and CRF 650):

- One PMS Offset on 06 APR 2017 (DOY 096), including three Short Calibrations at 06:38:30.0z, 06:39:04.8z, and 06:39:39.6z (orbit 39026).
- Local Oscillator Calibrations every 10 minutes.
- X band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

Due to a MIRAS CCU reset that happened on the 5th of April at 18:15:16z, the PMS Offset short calibrations scheduled on 6 APR 2017 were not executed. Also the following X-Band passes did not take place and were not acquired on ground:

Type	Start Time	Stop Time	Duration (s)
Xband_SVAL	2017-04-05T21:26:19.138000	2017-04-05T21:36:39.083000	619
Xband_SVAL	2017-04-05T23:05:02.909000	2017-04-05T23:15:18.675000	615
Xband_SVAL	2017-04-06T00:43:43.178000	2017-04-06T00:54:05.221000	622
Xband_SVAL	2017-04-06T02:22:39.658000	2017-04-06T02:33:06.728000	627
Xband_SVAL	2017-04-06T04:02:25.666000	2017-04-06T04:12:23.433000	597
Xband_ESAC	2017-04-06T05:33:01.564000	2017-04-06T05:41:15.987000	494
Xband_SVAL	2017-04-06T07:24:18.794000	2017-04-06T07:31:35.769000	436
Xband_SVAL	2017-04-06T09:06:41.656000	2017-04-06T09:11:38.184000	296
Xband_SVAL	2017-04-06T10:49:00.200000	2017-04-06T10:52:29.832000	209
Xband_SVAL	2017-04-06T12:30:03.458000	2017-04-06T12:34:40.214000	276



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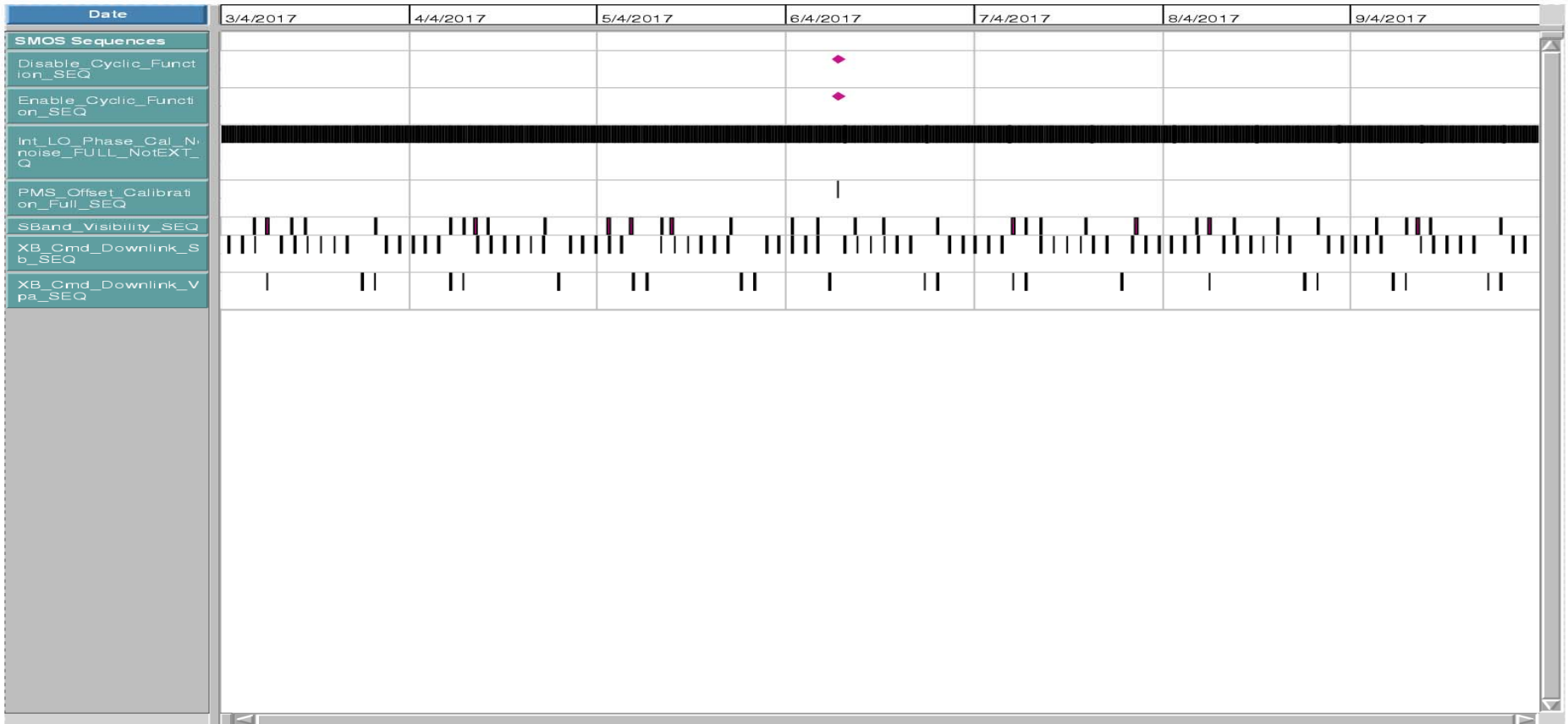
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Schedule Name: 2017_w14_cr ### Display start: 03-04-2017 00:00:00.000 ### Display end: 10-04-2017 00:00:00.000





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3 TC Failures

None.

4 Unforeseen Out of Limits (OOLs)

Several unforeseen Out of Limits were received at the time of the MIRAS CCU reset on the 5th of April. Further details of this anomaly and the list of received Out of Limits can be seen in section 5 and Appendix-A of this report.

5 On Board Anomalies

- The MIRAS instrument CCU reset on 2017-04-05T18:25:16,024z (DOYY 095). KSAT operator phoned the FOS on-call engineer at 23:15z alerting that two X band passes had not been received. Further, CNES called at 01:22z alerting about this anomaly, once the reset had been confirmed on reception of S band GS pass KRX-5 (AOS = 2017-04-06T00:41:54z; LOS = 2017-04-06T00:55:29z).

The reset befell in the middle of an ESAC X band GS pass commencing on 2017-04-05T18:21:32,822z (transponder on). Said GS pass was scheduled for a duration of 466 seconds. The reset occurred 223 seconds after AOS, and before the switch off of the X band antenna, scheduled on 2017-04-05T18:29:17,456z. The last TM packet received before the reset was time stamped at 2017-04-05T18:25:16,904z (OBT).

MIRAS re-planning was issued by FOS the following morning (06 APR 2017) via CRF No. 652 and uploaded by CNES, following the execution of PRO-CRP-100, during S band GS pass KUX-8 on 2017-04-06T08:42:32z. As per this re-planning, nominal MIRAS X band GS dumps resumed on 2017-04-05T14:11:45,447z.

Because of this reset, 240 seconds of science data were lost (from 2017-04-05T18:21:54z to 2017-04-05T18:25:54z

The sequence of events leading to the CCU reset was as follows:

*2017.095.18.21.32,822-XBand Powered On
2017.095.18.21.56,822-MM Full Dump Start
2017.095.18.25.16,024-MM_Partition_Configuration_Acquisition_Failure
2017.095.18.25.16,044-MM_Error_Counters_Acquisition_Failure
2017.095.18.25.16,064-MM_Scrub_Frequency_Acquisition_Failure
2017.095.18.25.16,104-MM_Address_Acquisition_Failure
2017.095.18.25.16,104-MM Dump Ended
2017.095.18.25.16,344-MM_Science_Write_Failure*



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Immediately after it, several Out of Limits did appear on PLPC system (see Appendix-A for further details)

The values of the READ and WRITE pointers at the time of the reset were:

Read= 3356965, *MM Partition P7*

Write= 3648893, *MM Partition P8*

The anomaly was geolocated over Northwestern Algeria:

Latitude = +35.143°

Longitude = 359.653°

6 On Board Events Telemetry

The following Alarm Packets were received immediately before the MIRAS CCU reset of the 5th of April 2017:

Event Description	Packet ID	Severity	Event Time
MM_Partition_Configuration_Acquisition_Failure	687	ALARM	2017-04-05T18:25:16
MM_Error_Counters_Acquisition_Failure	689	ALARM	2017-04-05T18:25:16
MM_Scrub_Frequency_Acquisition_Failure	690	ALARM	2017-04-05T18:25:16
MM_Address_Acquisition_Failure	684	ALARM	2017-04-05T18:25:16
MM_Science_Write_Failure	692	ALARM	2017-04-05T18:25:16

The following RAM Single Bit errors befell this week:

Event Description	Packet ID	Severity	Event Time	Parameters
RAM single Bit Error	730	WARN	2017-04-05T18:25:50	20001D8
RAM single Bit Error	730	WARN	2017-04-06T09:07:34	2245850

7 FOS Systems Status

- On the 7th of April a new backup system named *COMMVAULT* was operationally deployed for FOS. The system is owned by DPGS and management lies with them.

8 Data Reception from CNES

All S band passes were correctly received from CNES and successfully processed by the FOS PLPC system, with the following exception:

- S-Band pass HBX-1 (AOS = 2017-04-01T03:28:20z; LOS = 2017-04-01T03:41:48z) could not be acquired due to a Ground Station anomaly. This anomaly produced a MIRAS PUS TM gap from 2017-04-01T02:16:45.375z to 2017-04-01T03:30:08.214z that was later on recovered from the X-Band system but E_HKTM from 2017-04-01T02:16:35z to 2017-04-01T03:30:11z was definitely lost.



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9 X Band Data Reception in PXMF

- Due to the S-Band GS problem reported in section 8 and to achieve telemetry data completion, MIRAS PUS TM was recovered from the X band PXMF system and ingested into the MUST-SMTA system on 04 APR 2017. The PUS TM gap recovered went from 2017-04-01T02:16:45.375z to 2017-04-01T03:30:08.214z.

10 Exceptional Activities

The ones related with the CCU recovery and the execution of recovery procedure PRO-CRP-100 on the 6th of April (see section 5 for further details)

11 AOB

None.



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APPENDIX A: OOLs

The following Out of Limits were issued on the FOS PLPC system at the time of the CCU reset that took place on the 5th of April at 18:25:49 UTC.

GS_TIME	OBTIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2017-04-06T01:17:07	2017-04-05T18:25:49	SPM22167	C3 LO_Locking	UNLOCK	LOCK
2017-04-06T01:17:07	2017-04-05T18:25:49	SPM21167	C2 LO_Locking	UNLOCK	LOCK
2017-04-06T01:17:07	2017-04-05T18:25:49	SPM20167	C1 LO_Locking	UNLOCK	LOCK
2017-04-06T01:17:07	2017-04-05T18:25:49	SPM19167	B3 LO_Locking	UNLOCK	LOCK
2017-04-06T01:17:07	2017-04-05T18:25:49	SPM18167	B2 LO_Locking	UNLOCK	LOCK
2017-04-06T01:17:07	2017-04-05T18:25:49	SPM17167	B1 LO_Locking	UNLOCK	LOCK
2017-04-06T01:17:07	2017-04-05T18:25:49	SPM16167	A3 LO_Locking	UNLOCK	LOCK
2017-04-06T01:17:07	2017-04-05T18:25:49	SPM15167	A2 LO_Locking	UNLOCK	LOCK
2017-04-06T01:17:07	2017-04-05T18:25:49	SPM14167	A1 LO_Locking	UNLOCK	LOCK
2017-04-06T01:17:07	2017-04-05T18:25:49	SPM13167	H3 LO_Locking	UNLOCK	LOCK
2017-04-06T01:17:07	2017-04-05T18:25:49	SPM12172	H2 LO_locking	UNLOCK	LOCK
2017-04-06T01:17:07	2017-04-05T18:25:49	SPM11167	H1 LO_Locking	UNLOCK	LOCK
2017-04-06T01:17:07	2017-04-05T18:25:49	SPC02106	Instrument_Mode	Inst Init	Dual Pol; Full Pol; Calibration; Test
2017-04-06T01:17:07	2017-04-05T18:25:49	XNIRABST	NIR AB VALID ST	NOT-OK	OK
2017-04-06T01:17:07	2017-04-05T18:25:49	XNIRBCST	NIR BC VALID ST	NOT-OK	OK
2017-04-06T01:17:07	2017-04-05T18:25:49	XNIRCAST	NIR CA VALID ST	NOT-OK	OK
2017-04-06T12:54:18	2017-04-06T08:44:50	NTLHK022	ITL Ena State	Disabled	Enabled



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As part of the execution of the CCU recovery procedure, PRO-CRP-100, the following parameter went nominally OOL on PLPC system indicating the temporary disable of the onboard ITL queue.

GS_TIME	OBTIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2017-04-06T12:54:18	2017-04-06T08:44:50	NTLHK022	ITL Ena State	Disabled	Enabled