Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 30, year 2017

from 24 JUL 2017 to 31 JUL 2017

1.0

1 General Comments

Activities scheduled for this week are those planned for the 30th calendar week of 2017:

```
24 JUL 2017 to 31 JUN 2017 (DOYs 205 to 212).
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The following routine activities were planned this week (see Gantt chart on next page and CRF 674):

- One PMS Offset on 27 JUL 2017 (DOY 208), including three Short Calibrations at 09:00:00.0z, 09:00:34.8z, and 09:01:09.6z (orbit 40639).
- Local Oscillator Calibrations every 10 minutes.
- *X* band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

Due to the MIRAS CCU reset that happened on the 25th of July, the following XBand passes were not acquired at ground station level:

Station	AOS	LOS	Duration
Xband_SVAL	2017-07-25T04:21:50	2017-07-25T04:31:25	575
Xband_SVAL	2017-07-25T07:43:50	2017-07-25T07:50:42	412
Xband_SVAL	2017-07-25T09:26:18	2017-07-25T09:30:51	272
Xband_SVAL	2017-07-25T11:08:26	2017-07-25T11:11:56	210
Xband_SVAL	2017-07-25T12:49:16	2017-07-25T12:54:16	300
Xband_SVAL	2017-07-25T14:29:17	2017-07-25T14:36:38	440
Xband_SVAL	2017-07-25T16:08:59	2017-07-25T16:18:10	550

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Schedule Name: 2017_w30_cr   ###   Display start: 24-07-2017 00:00:00.000   ###   Display end: 31-07-2017 00:00:00.000

Date	24/7/2017	25/7/2017	26/7/2017	27/7/2017	28/7/2017	29/7/2017	30/7/2017

SMOS Sequences

- Disable_Cyclic_Function_SEQ
- Enable_Cyclic_Function_SEQ
- Int_LO_Phase_Cal_Noise_FULL_NotEXT_Q
- PMS_Offset_Calibration_Full_SEQ
- SBand_Visibility_SEQ
- XB_Cmd_Downlink_Sb_SEQ
- XB_Cmd_Downlink_Vpa_SEQ

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3 TC Failures

None.

4 Unforeseen Out of Limits (OOLs)

- Due to the unexpected CCU reset that happened on the 25th of July, a set of MIRAS parameters went out of limits on the PLPC system. This group of parameters and their OOL values can be seen in Appendix-A of this document.

5 On Board Anomalies

- The MIRAS instrument CCU reset on 2017-07-25T02:45:06z (DOY 206). First indications of the reset were observed by the FOS on call Engineer around 05:00z of that day because data for the last Svalbard pass of that night (AOS=04:21:50z, LOS=04:31:25z), was not received on ground and also because the previous Svalbard pass dumped less packets than nominally expected. The CCU reset was confirmed upon the reception of the first S band morning pass on the 25 of July (AUS-22 AOS=05:49z, LOS=06:04z) followed by a telephone call from the CNES hotline support to the FOS on call engineer.

  The reset happened at the end of the Svalbard X band GS pass commencing on 2017-07-25T02:41:40z. Said GS pass was scheduled for a theoretical duration of 626 seconds. The reset occurred 176 seconds after AOS, and before the switch off of the X band antenna, scheduled on 2017-07-25T02:52:06z. The last TM packet received before the reset was time stamped at 2017-07-25T02:45:06.608z. As detailed on the instrument boot report packet, issued immediately after the reset, the cause of the anomaly as in all previous cases was a Task Overrun error.

  MIRAS re-planning for that day was prepared in advanced by FOS due to the foreseen public ESAC public holiday on the 25 of July and included as part of the nominal planning of CRF 674. That replanning was uploaded by CNES, following the execution of PRO-CRP-100, during S band GS pass KUX-31 on 2017-06-21T09:22:22z. As per this re-planning, nominal MIRAS X band GS dumps were resumed on 2017-07-25 at 18:00:45z (first ESAC XBand pass). The sequence of events packets leading to the CCU reset was as follows:

On Board Time	Type	TM Packet Description
2017.206.02.41.46,525	EVENT	XBand Powered On
2017.206.02.42.10,535	EVENT	MM Full Dump Start

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176 seconds after this last on board event, the reset took place. The list of Out of Limits received on PLPC system at the time of the reset are detailed in Appendix-A of this report.

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

Read = 3814425, MM Partition P8
Write = 69402, MM Partition P0

The anomaly was geolocated over Svalbard:

Latitude = 73.38°
Longitude = 19.19°

6 On Board Events Telemetry

The following RAM Single Bit errors befell this week:

Event Description	Packet ID	Severity	Event Time	Parameters
RAM single Bit Error	730	WARN	2017-07-25T02:45:40	23B6A00

7 FOS Systems Status

- The problem on the FOS ISDN line initiated on the 18[th] of July, was finally fixed on the 24[th] of July. The problem was identified on the HISSEN router connected to the ISDN TX box and because its hostname was changed without any notification to either FOS or CNES. Since the incoming calls are trusted again the router name, the router itself was rejecting the calls that were using the old router name. CNES aligned the remote username with the new one and then calls were again accepted.

8 Data Reception from CNES

All *S* band passes were correctly received from CNES and successfully processed by the FOS PLPC system.

9 *X* Band Data Reception in PXMF

None, all *S* band passes successfully received and processed.

10 Exceptional Activities

None.

11 AOB

None.

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APPENDIX A: OOLs

The following Out of Limits were received at the time of the MIRAS CCU reset on the 25th of July 2017

OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2017-07-25T02:45:39	SPM22167	C3 LO_Locking	UNLOCK	LOCK
2017-07-25T02:45:39	SPM21167	C2 LO_Locking	UNLOCK	LOCK
2017-07-25T02:45:39	SPM20167	C1 LO_Locking	UNLOCK	LOCK
2017-07-25T02:45:39	SPM19167	B3 LO_Locking	UNLOCK	LOCK
2017-07-25T02:45:39	SPM18167	B2 LO_Locking	UNLOCK	LOCK
2017-07-25T02:45:39	SPM17167	B1 LO_Locking	UNLOCK	LOCK
2017-07-25T02:45:39	SPM16167	A3 LO_Locking	UNLOCK	LOCK
2017-07-25T02:45:39	SPM15167	A2 LO_Locking	UNLOCK	LOCK
2017-07-25T02:45:39	SPM14167	A1 LO_Locking	UNLOCK	LOCK
2017-07-25T02:45:39	SPM13167	H3 LO_Locking	UNLOCK	LOCK
2017-07-25T02:45:39	SPM12172	H2 LO_locking	UNLOCK	LOCK
2017-07-25T02:45:39	SPM11167	H1 LO_Locking	UNLOCK	LOCK
2017-07-25T02:45:39	SPC02106	Instrument_Mode	Inst Init	Dual Pol; Full Pol; Calibration; Test
2017-07-25T02:45:39	XNIRABST	NIR AB VALID ST	NOT-OK	OK
2017-07-25T02:45:39	XNIRBCST	NIR BC VALID ST	NOT-OK	OK
2017-07-25T02:45:39	XNIRCAST	NIR CA VALID ST	NOT-OK	OK

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At the time of the instrument recovery, the following Out of Limit was received indicating the fact that the onboard ITL was temporary disabled.

OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2017-07-25T09:01:48	NTLHK022	ITL Ena State	Disabled	Enabled