Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 19, year 2016

from 09 MAY 2016 to 16 MAY 2016

1.0

1 General Comments

Activities scheduled for this week are those planned for the 19th calendar week of 2016:

09 MAY 2016 to 16 MAY 2016 (DoYs 130 to 137).

The following routine activities were planned this week (see Gantt chart on next page and CRF 569):

- One PMS Offset on 12 MAY 2016 (DoY 133), including three Short Calibrations at 10:05:00.0z, 10:05:34.8z, and 10:06:09.6z (orbit 34294).
- Local Oscillator Calibrations every 10 minutes.
- *X* band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

The *X* band passes listed below could not be acquired by the Svalbard GS because MIRAS suffered a CCU reset on 09 MAY 2.016:

Station	Start Pass	End Pass	Duration
Xband_SVAL	2016-05-09T04:26:12,571	2016-05-09T04:35:44,800	572
Xband_SVAL	2016-05-09T07:48:18,607	2016-05-09T07:55:03,570	404
Xband_SVAL	2016-05-09T09:30:47,306	2016-05-09T09:35:13,649	266
Xband_SVAL	2016-05-09T11:12:52,318	2016-05-09T11:16:23,761	211
Xband_SVAL	2016-05-09T12:53:37,934	2016-05-09T12:58:45,987	308

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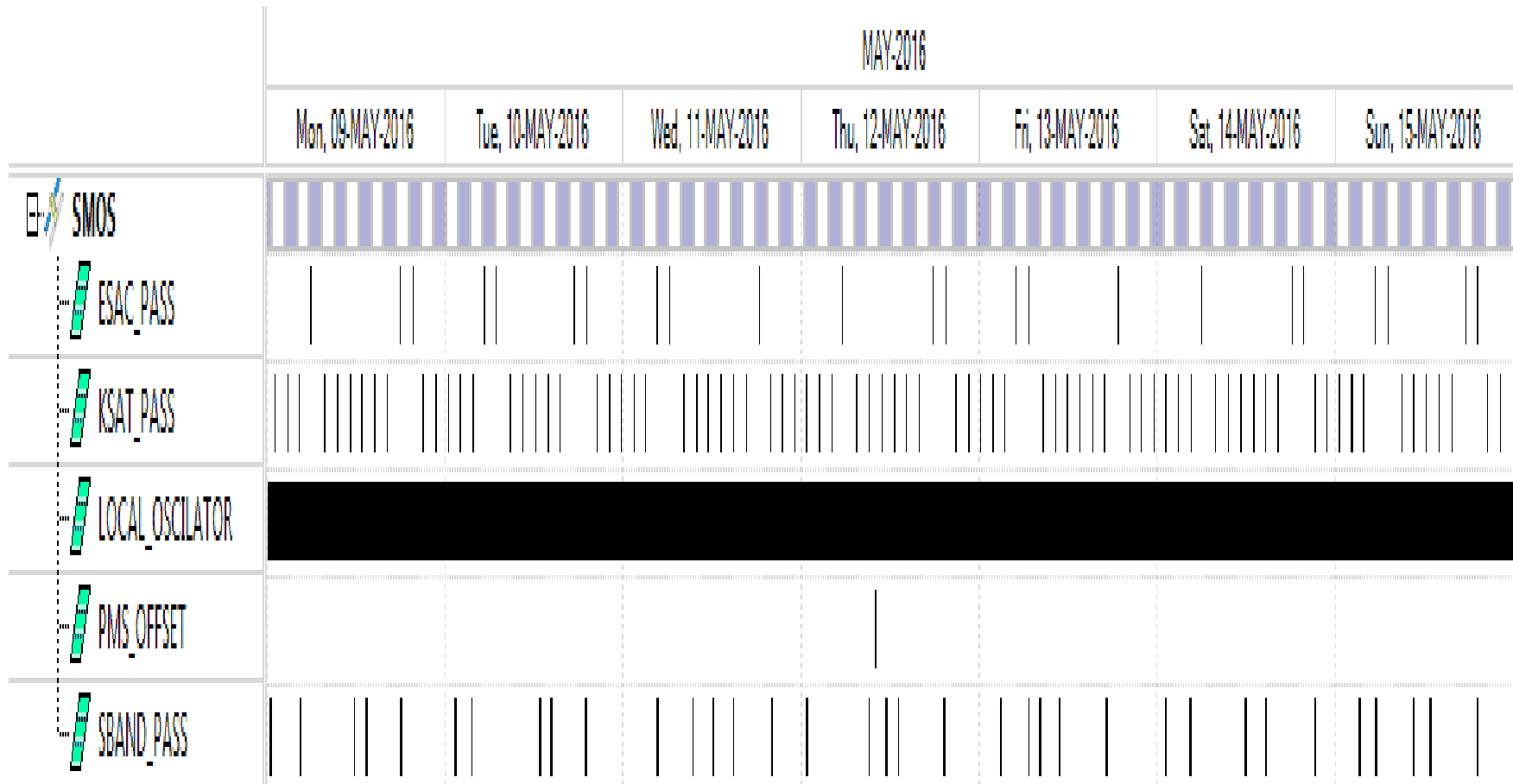Topic: **FOS Report for week 19, year 2016**

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3 TC Failures

None.

4 Unforeseen Out of Limits (OoLs)

Both the CCU reset and the MM latch-up this week 19 caused various OoLs, see Appendix A for details.

5 On Board Anomalies

- MIRAS suffered a new CCU reset on 09 MAY 2.016, at 02:50:59,315z. First indications of a possible CCU reset were initially triggered by a phone call from KSAT to the FOS hotline at 2016-05-09T05:15:00z. At that time the following X band GS pass over Svalbard had not been received:

  from 2016-05-09T04:26:12,571z to 2016-05-09T04:35:44,800z

  The reset befell in the middle of a Svalbard X band GS pass commencing on 2016-05-09T02:45:59,132z (transponder on). Said GS pass was scheduled for a duration of 625 seconds. The reset occurred 5,00305 minutes after AoS, and before the switch off of the X band antenna, scheduled on 2016-05-09T02:56:24,844z. The last TM packet received before the reset came on 2016-05-09T02:50:25,066z.

  MIRAS re-planning was issued by FOS in the morning via CRF No. 570, and uploaded by CNES, following the execution of PRO-CRP-100, during S band GS pass KER-17 on 2016-05-09T11:47:40z.

  As per this re-planning, nominal MIRAS X band GS dumps were resumed on 2016-05-09T14:34:28,241z.

  Because of this reset, 230 seconds of science data were lost (from 2016-05-09T02:47:13z to 2016-05-09T02:51:03z).

  The sequence of events leading to the CCU reset was as follows:
  2016-05-09T02:46:50,583z **==>** *XBand Powered On*
  2016-05-09T02:47:14,583z **==>** *MM Full Dump Start*

  No warnings or alarm packets were received prior to the reset event. At the time of the reset a Boot Report packet was issued by the instrument with the following cause for the SW Reset:

  SLOT_SCH_TASK_OVERRUN (identical to previous resets)

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

Read	**=** 702740, MM Partition P1
Write	**=** 962645, MM Partition P2

The anomaly was geolocated over Svalbard:

LAT.	**=** 76,332067°
LONG.	**=** 09,862768°

- A MM latch-up impacted partition P11 on 2016-05-11T22:09:13,678z.

The following parameters went OoL:

DMASME01	LU Switch P11
DMASME37	SDD LU Detected

No science data were lost due to this anomaly since it affected one of the MM spare partitions. At the time of the anomaly the MM pointers were as follows:

Read	**=** 2154712, MM Partition P4
Write	**=** 22444031, MM Partition P5

This anomaly was geolocated over northen Chile:

LAT.	**=** -25,875531°
LONG.	**=** 293,591774°

Recovery was initially planned for 2016-05-12T12:00:00z via CRF No. 572. CNES could not utilise this window and the recovery was eventually executed on 2016-05-12T14:00:00z.

6 On Board Events Telemetry

The following RAM Single Bit errors befell this week:

Event Description	Severity	Event Time	Parameters
RAM single Bit Error	WARN	2016.135.09.50.52,253	219AFE0
RAM single Bit Error	WARN	2016.134.20.39.15,790	226D970
RAM single Bit Error	WARN	2016.131.11.10.54,932	2299FB0
RAM single Bit Error	WARN	2016.130.02.50.59,815	229C5B8

7 FOS Systems Status

All FOS systems nominal.

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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

When MIRAS' CCU reset (09 MAY 2.016), the following parameters went OoL:

GS TIME	OB TIME	PARAMETER	DESCRIPTION	OoL Value	Check Value
2016.130.05.14.44	2016.130.02.50.59,315	XNIRCAST	NIR CA VALID ST	NOT-OK	OK
2016.130.05.14.44	2016.130.02.50.59,315	XNIRBCST	NIR BC VALID ST	NOT-OK	OK
2016.130.05.14.44	2016.130.02.50.59,315	XNIRABST	NIR AB VALID ST	NOT-OK	OK
2016.130.05.14.44	2016.130.02.50.59,315	SPC02106	Instrument_Mode	Inst Init	Calibration Dual Pol Full Pol Test
2016.130.05.14.44	2016.130.02.50.59,315	SPM13167	H3 LO_Locking	UNLOCK	LOCK
2016.130.05.14.44	2016.130.02.50.59,315	SPM12172	H2 LO_locking	UNLOCK	LOCK
2016.130.05.14.44	2016.130.02.50.59,315	SPM11167	H1 LO_Locking	UNLOCK	LOCK
2016.130.05.14.44	2016.130.02.50.59,315	SPM16167	A3 LO_Locking	UNLOCK	LOCK
2016.130.05.14.44	2016.130.02.50.59,315	SPM15167	A2 LO_Locking	UNLOCK	LOCK
2016.130.05.14.44	2016.130.02.50.59,315	SPM14167	A1 LO_Locking	UNLOCK	LOCK
2016.130.05.14.44	2016.130.02.50.59,315	SPM19167	B3 LO_Locking	UNLOCK	LOCK
2016.130.05.14.44	2016.130.02.50.59,315	SPM18167	B2 LO_Locking	UNLOCK	LOCK
2016.130.05.14.44	2016.130.02.50.59,315	SPM17167	B1 LO_Locking	UNLOCK	LOCK
2016.130.05.14.44	2016.130.02.50.59,315	SPM22167	C3 LO_Locking	UNLOCK	LOCK
2016.130.05.14.44	2016.130.02.50.59,315	SPM21167	C2 LO_Locking	UNLOCK	LOCK
2016.130.05.14.44	2016.130.02.50.59,315	SPM20167	C1 LO_Locking	UNLOCK	LOCK

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When the CCU was recovered (09 MAY 2.016), the following OoL indicated that the on-board ITL was disabled:

GS TIME	OB TIME	PARAMETER	DESCRIPTION	OoL Value	Check Value
2016.130.11.49.47,638	2016.130.13.59.23,327	NTLHK022	ITL Ena State	Disabled	Enabled

When the MM Partition 11 latched up (11 MAY 2.016) , the following parameters went OoL:

GS TIME	OB TIME	PARAMETER	DESCRIPTION	OoL Value	Check Value
2016.133.01.23.58,223	2016-05-11T22:09:13,678	DMASME01	LU Switch P11	OFF	ON
2016.133.01.23.58,221	2016-05-11T22:09:13,678	DMASME37	SDD LU Detected	FALSE	TRUE