Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic: **FOS Report for week 15, year 2017**

Date: from 10 APR 2017 to 17 APR 2017

Issue: **1.0**

1 General Comments

Activities scheduled for this week are those planned for the 15th calendar week of 2017:

```
10 APR 2017 to 17 APR 2017 (DOYs 100 to 107).
```

The following routine activities were planned this week (see Gantt chart on next page and CRF 651):

- One Warm NIR Calibration on 12 APR 2017 (DOY 102) with ETO 05:40:50z (orbit 39112) and with the following expected calibration values:

```
B.T.            =    3,8229°
R.M.S.          =    0,5370
Sun Elevation   =    0,2157°
Moon elevation  =  -13,0644°
R.A.            =  111,03°
DEC.            =    4,50°
```

- One PMS Offset on 13 APR 2017 (DOY 103), including three Short Calibrations at 07:06:00,0z, 07:06:34,8z, and 07:07:09,6z (orbit 39127).
- Local Oscillator Calibrations every 10 minutes.
- *X* band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

The following *X* band passes were not acquired because of the CCU reset of 10 APR 2017:

Type	Start Time	Stop Time	Duration (s)
Xband_SVAL	2017-04-10T08:09:35,632	2017-04-10T08:15:51,136	375
Xband_SVAL	2017-04-10T09:52:06,454	2017-04-10T09:56:09,707	243
Xband_SVAL	2017-04-10T11:33:56,171	2017-04-10T11:37:37,401	221
Xband_SVAL	2017-04-10T13:14:28,450	2017-04-10T13:20:05,897	337
Xband_SVAL	2017-04-10T14:54:23,440	2017-04-10T15:02:17,538	474

Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 15, year 2017

from 10 APR 2017 to 17 APR 2017

1.0

Schedule Name: 2017_w15_cr   ###   Display start: 10-04-2017 00:00:00.000   ###   Display end: 17-04-2017 00:00:00.000

Operations Notes
FOS Team @ ESAC

Reported by:
J. Fauste/J.M. Castro Cerón

Topic: **FOS Report for week 15, year 2017**
Date: from 10 APR 2017 to 17 APR 2017
Issue: **1.0**

3 TC Failures

None.

4 Unforeseen Out of Limits (OOLs)

Several parameters went OOL as the CCU reset on 10 APR 2017. (See Appendix A for further details).

5 On Board Anomalies

- The MIRAS instrument CCU reset on 2017-04-10T06:20:40.495z (DOY 100). First symptoms of the reset were observed by the FOS on call Engineer since the number of MIRAS TM packets received during the second ESAC X-band pass of the day was less than normal. Following that, the first two morning Svalbard passes were also not received on ground and as result of that the KSAT operator called the FOS oncall Engineer around 09:58z. In order to warn in advance to the CNES ops team on the possibility of a CCU reset, the FOS on call Engineer called the CNES on call around 08:37z and prepared and sent the corresponding MIRAS replanning for week 15. The CCU reset was later on confirmed by CNES around 11:45z by checking the playback of the real time telemetry acquired during SBand pass AUS-16 (AOS=06:16z, LOS=06:30). This type of telemetry is not nominally delivered to ESAC therefore the reset was only seen at FOS during the reception of the following S-band pass KER-3 (AOS=12:08z, LOS=12:23z)

  The reset happened in the middle of an ESAC X band GS pass commencing on 2017-04-10T06:17:07z. Said GS pass was scheduled for duration of 463 seconds. The reset occurred 119 seconds after AOS, and before the switch off of the X band antenna, scheduled on 2017-04-10T06:24:51z. The last TM packet received before the reset was time stamped at 2017-04-10T06:20:40.495z. 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. Since the scheduled duration of the affected pass was very long, 463 seconds, the OBSW immediately after the reboot, detected the visibility of the ESAC station and switch it on again the transmitter for about 47 seconds.

  MIRAS re-planning was issued by FOS in the same morning of the 10th of April via CRF No. 653 and uploaded by CNES, following the execution of PRO-CRP-100, during S band GS pass KER-3 on

Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 15, year 2017

from 10 APR 2017 to 17 APR 2017

1.0

2017-04-10T12:08:40z. As per this re-planning, nominal MIRAS X band GS dumps resumed on 2017-04-10T16:35:35z.

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

On Board Time	Type	TM Packet Description
2017.100.06.18.40.824	EVENT	XBand Powered On
2017.100.06.19.04.824	EVENT	MM Full Dump Start
2017.100.06.20.39.625	ALARM	MM_Partition_Configuration_Acq_Failure
2017.100.06.20.39.645	ALARM	MM_Error_Counters_Acq_Failure
2017.100.06.20.39.665	ALARM	MM_Scrub_Frequency_Acq_Failure
2017.100.06.20.39.705	ALARM	MM_Address_Acq_Failure
2017.100.06.20.39.705	EVENT	MM Dump Ended
2017.100.06.20.39.935	ALARM	MM_Science_Write_Failure

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

```
Read   =170478,   MM Partition P0
Write  =422045,   MM Partition P0
```

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	2017.102.19.48.59,377	229BBF0
RAM Single Bit Error	WARN	2017.100.08.42.02,140	20D5830
RAM Single Bit Error	WARN	2017.100.06.21.14,062	2245850

7 FOS Systems Status

All FOS systems nominal.

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.

Operations Notes
FOS Team @ ESAC
Reported by:
J. Fauste/J.M. Castro Cerón

Topic:
Date:
Issue:

FOS Report for week 15, year 2017
from 10 APR 2017 to 17 APR 2017
1.0

11 AOB

None.

Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 15, year 2017

from 10 APR 2017 to 17 APR 2017

1.0

APPENDIX A: OOLs

The following OOLs befell at the time the CCU reset on 2017-04-10T06:20:40,495z (DOY 100):

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2017-04-10T06:21:1	2017-04-10T12:44:27	SPM22167	C3 LO_Locking	UNLOCK	LOCK
2017-04-10T06:21:1	2017-04-10T12:44:27	SPM21167	C2 LO_Locking	UNLOCK	LOCK
2017-04-10T06:21:1	2017-04-10T12:44:27	SPM20167	C1 LO_Locking	UNLOCK	LOCK
2017-04-10T06:21:1	2017-04-10T12:44:27	SPM19167	B3 LO_Locking	UNLOCK	LOCK
2017-04-10T06:21:1	2017-04-10T12:44:27	SPM18167	B2 LO_Locking	UNLOCK	LOCK
2017-04-10T06:21:1	2017-04-10T12:44:27	SPM17167	B1 LO_Locking	UNLOCK	LOCK
2017-04-10T06:21:1	2017-04-10T12:44:27	SPM16167	A3 LO_Locking	UNLOCK	LOCK
2017-04-10T06:21:1	2017-04-10T12:44:27	SPM15167	A2 LO_Locking	UNLOCK	LOCK
2017-04-10T06:21:1	2017-04-10T12:44:27	SPM14167	A1 LO_Locking	UNLOCK	LOCK
2017-04-10T06:21:1	2017-04-10T12:44:27	SPM13167	H3 LO_Locking	UNLOCK	LOCK
2017-04-10T06:21:1	2017-04-10T12:44:27	SPM12172	H2 LO_locking	UNLOCK	LOCK
2017-04-10T06:21:1	2017-04-10T12:44:27	SPM11167	H1 LO_Locking	UNLOCK	LOCK
2017-04-10T06:21:1	2017-04-10T12:44:27	SPC02106	Instrument_Mode	Inst Init	Any
2017-04-10T06:21:1	2017-04-10T12:44:27	XNIRABST	NIR AB VALID ST	NOT-OK	OK
2017-04-10T06:21:1	2017-04-10T12:44:27	XNIRBCST	NIR BC VALID ST	NOT-OK	OK
2017-04-10T06:21:1	2017-04-10T12:44:27	XNIRCAST	NIR CA VALID ST	NOT-OK	OK
2017-04-10T06:21:1	2017-04-10T12:44:27	NTLHK022	ITL Ena State	Disabled	Enabled