



## 1 General Comments

The activities scheduled for this week are those planned for calendar week 18 of year 2015, from 27/04/2015 to 04/05/2015 (DOYs 117/2015 to 124/2015).

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

- X-band passes over ESAC and Svalbard.
- One PMS offset including three Short Calibrations on day 30/04/2015 (orbit 28858 ) at 17:01:51.000z, 17:02:25.800z and 17:03:00.000.
- Local oscillator calibration every 10 minutes.

## 2 Mission Planning Deviation

Due to a CCU reset that happened on day 28/04/2015 at 17:46:47z, the MIRAS instrument went into auto downlink mode downloading only data over ESAC station. The instrument was reconfigured in the morning of the 29/04/2015 and the replanning for week 18 uploaded again as part of this recovery. The following XBand GS passes over Svalbard were lost:

STATION	START TIME	END TIME	DURATI
Xband_SVAL	2015-04-28T20:46:30.206000	2015-04-28T20:56:53.696000	623
Xband_SVAL	2015-04-28T22:25:18.928000	2015-04-28T22:35:35.099000	616
Xband_SVAL	2015-04-29T00:03:58.668000	2015-04-29T00:14:17.292000	618
Xband_SVAL	2015-04-29T01:42:45.889000	2015-04-29T01:53:12.431000	626
Xband_SVAL	2015-04-29T03:22:02.868000	2015-04-29T03:32:23.251000	620
Xband_SVAL	2015-04-29T08:25:24.463000	2015-04-29T08:31:17.781000	353
Xband_SVAL	2015-04-29T10:07:54.670000	2015-04-29T10:11:43.912000	229
Xband_SVAL	2015-04-29T11:49:31.738000	2015-04-29T11:53:24.653000	232
Xband_SVAL	2015-04-29T13:29:55.599000	2015-04-29T13:35:55.238000	359



# Operations Notes

FOS Team @ ESAC

Reported by: J. Fauste

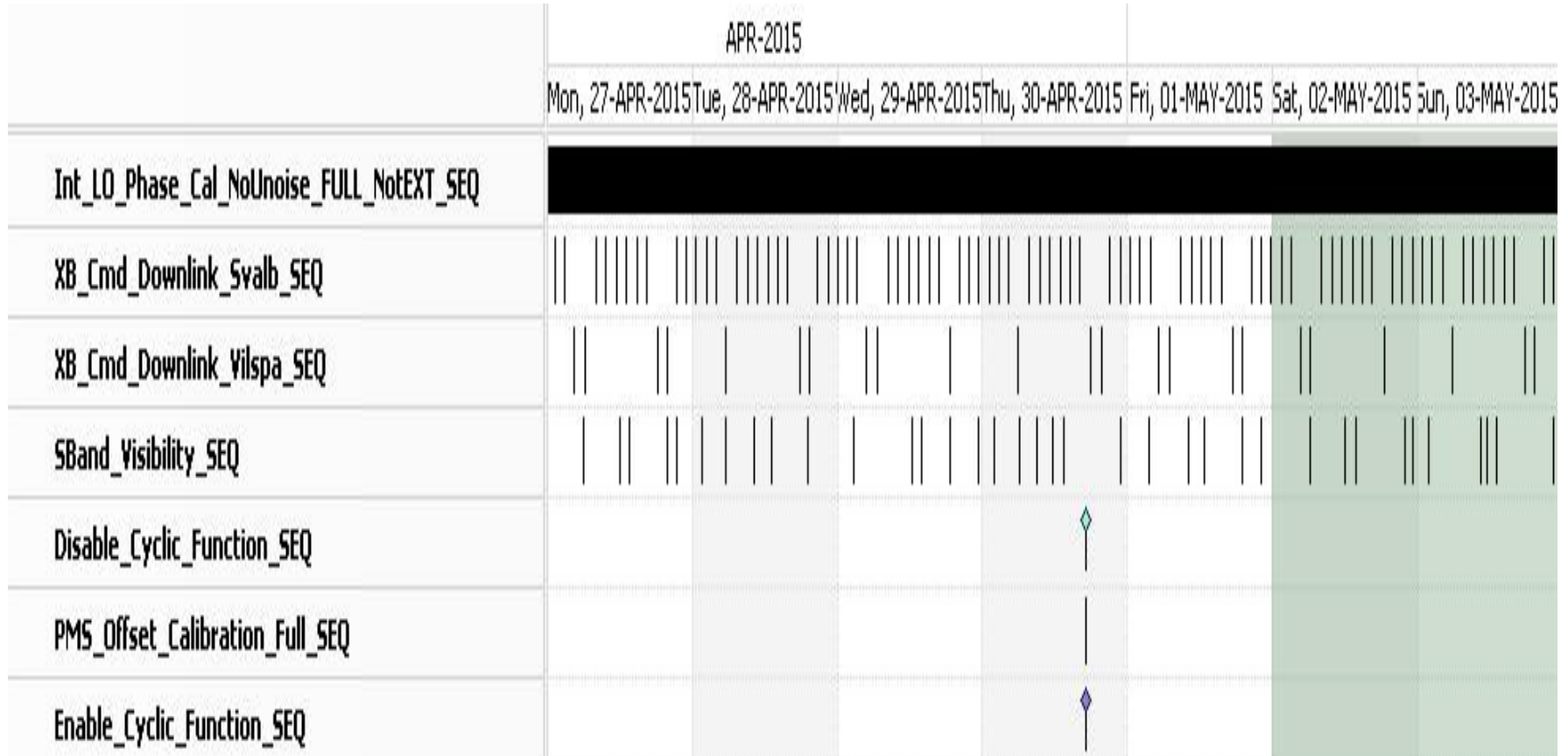
Topic:

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### 3 TC Failures

None.

### 4 Unforeseen Out of Limits (OOLs)

The ones related with the two CMN unlocks and the CCU reset and its recovery procedure that happened on this week (see Appendix-A for further details)

### 5 On Board Anomalies

The following payload anomalies happened during this reporting period:

- A new CMN unlock on H1 unit happened on day 27/04/2015 at 22:04:34. Both parameters locking status, SPM11167, and output power SPM11162, triggered an Out of limit in PLPC system. The geolocation of the event took place over South America with the following geographical coordinates:

Longitude= 292.233682

Latitude= -38.002568

The instrument recovered successfully of this event in 13 epochs

- A new CCU reset happened on day 28/04/2015 at 17:46:47z during the XBand pass over ESAC that started at 17:42:05z. The scheduled duration of that pass was 450 seconds and the reset happened 201 seconds after the start of the pass. The reset happened before the scheduled switch off of the Xband antenna at 17:47:40.962z. Data download finished at 17:46:46.639z. First MIRAS housekeeping packet after the reset was issued at 17:47:20.25z. The CCU recovery procedure was performed the following day by CNES, 29/04/2015, and during GS pass KER-56 at 12:23z. A new planning program, CRF 494, was also sent by FOS on 29/04/2015 and uploaded to the spacecraft by CNES during the same previous pass.

The sequence of events prior to the CCU was as follows:

2015-04-28T17:43:01.926 *XBand Transmitter on*

2015-04-28T17:43:25.926 *Start of Mass Memory data*

2015-04-28T17:46:46.329 *MM Error Counter Acq Failure*

2015-04-28T17:46:46.349 *MM Scrub Frequenc Acq Failure*

2015-04-28T17:46:46.380 *MM Address Acq Failure*

2015-04-28T17:46:46.389 *MM Dump Ended*

2015-04-28T17:46:36.639 *MM Science Write Failure*

After this last event the CCU reset took place and the *Boot Report* packet received on ground indicating as SW Reset reason



SLOT\_SCH\_TASK\_OVERRUN, which is the same reason as other previous resets. The values of the READ and WRITE pointers at the time of the reset were:

WRITE=2469510 READ=2172005

and the geolocation of the event was over North Africa:

Longitude= 7.941947

Latitude= 28.686370

- A new CMN unlock on H3 unit happened on day 01/05/2015 at 19:48:08. Both parameters locking status, SPM13167, and output power SPM13162, triggered an Out of limit in PLPC system. The geolocation of the event took place over Antarctica region with the following coordinates:

Longitude= 177.454244

Latitude= -70.386791

The instrument recovered successfully of this event.

## 6 Telemetry On Board Events in the period.

The following RAM single bit errors happened during the present reporting period, the second one here below appeared just after the CCU reset.

Event Description	Severity	Event Time	Parameters
RAM Single Bit Error	WARN	2015.117.18.51.48.124	23A06A4
RAM Single Bit Error	WARN	2015.118.17.47.20.758	20B6660

Also the following Alarm Event packets were received few seconds just before the CCU reset event:

Event Description	Severity	Event Time	Parameters
MM_Error_Counters_Acquisition_Failure	alarm	2015.118.17.46.46.329	No response
MM_Scrub_Frequency_Acquisition_Failure	alarm	2015.118.17.46.46.349	No response
MM_Address_Acquisition_Failure	alarm	2015.118.17.46.46.389	No response
MM_Science_Write_Failure	alarm	2015.118.17.46.46.689	Link Problem

## 7 FOS System Status

All FOS systems behaved nominal during this period with the exception of:

- The PLPC Time Correlation task, TCO, failed on day 01/04/2015 at 04:07:10z due to a problem with Ground Station pass AUS-1 (see section 6 of this report for further details). At the start of that pass, lots of PLPC error messages *Time Couple OBET lower than expected* were received from that time onwards on the PLPC system and telemetry packets stored under SCOS Data Stream 4. The problem was noticed by the DPGS operator on side and the FOS on-call contacted for that problem. The



SCOS TCO task was restarted with the *cold* option and the problem fixed after a while. As consequence of this problem, PUS telemetry data from 2015-05-01T04:07:09 (DOY 121) to 2015-05-01T12:12:03, was wrongly stored on SMTA-MUST system. PLPC data for that period and stored under Data Stream 4, was later on removed from the system and SMTA-MUST data also deleted and reingested again from the XBand (see section 9)

## 8 Data Reception from CNES

All SBand passes of the week were correctly received from CNES and successfully processed by FOS PLPC system except:

- Reception of TM data at ESAC for Kerguelen pass KER-55 was delayed by a SW problem on CNES side. Data was finally received at ESAC after previous notification from the FOS team.
- Two wrong telemetry files from the 29<sup>th</sup> of April were delivered together with the ones coming from GS pass AUS-1 on day 01/05/2015 at 03:36z.

The following TM files were received on PLPCEXT system on day 01/05/2015 at 04:06z and 04:07z:

- SMO\_PLTM1\_P\_2015\_04\_29\_18\_39\_27
- SMO\_PLTM1\_P\_2015\_04\_29\_18\_41\_39
- SMO\_PLTM1\_P\_2015\_05\_01\_10\_05\_20
- SMO\_PLTM1\_P\_2015\_05\_01\_10\_07\_31

The first two files were the ones containing data for the wrong time period and causing the Time Correlation problems reported in section 7 of this report.

## 9 X-Band Data Reception in PXMF

The PXMF system was used on the 4<sup>th</sup> of May in order to fill the gap on the SMTA machine from 2015-05-01T04:07:09 (DOY 121) to 2015-05-01T12:12:03 and caused by the PLPC TCO problem.

## 10 Exceptional Activities

The ones related with the CCU recovered and replanning process on the 29<sup>th</sup> of April of 2015.

## 11 AOB

None.



### APPENDIX A: OOL's

The following Out of Limits were received on FOS PLPC. The first two ones were related with the H3 CMN unlock, the third one corresponds with the disable of the MIRAS ITL included as part of the CCU recovery procedure and the remaining ones are all related with the CCU reset that happened on the 29<sup>th</sup> of April. The last two OOL were related with the H1 CMN unlock on the 27<sup>th</sup> of April.

GS_TIME	OBTIME	PARAMETER	DESCRIPTION
2015.121.22.34.29.669	2015.121.19.48.13.137	SPM13167	H3 LO_Locking
2015.121.22.34.29.530	2015.121.19.48.08.337	SPM13162	H3 LO_Out_Power
2015.119.13.25.07.660	2015.119.12.25.22.088	NTLHK022	ITL Ena State
2015.118.19.43.42.590	2015.118.17.47.20.258	XNIRCAST	NIR CA VALID ST
2015.118.19.43.42.590	2015.118.17.47.20.258	XNIRBCST	NIR BC VALID ST
2015.118.19.43.42.589	2015.118.17.47.20.258	XNIRABST	NIR AB VALID ST
2015.118.19.43.42.586	2015.118.17.47.20.258	SPC02106	Instrument_Mode
2015.118.19.43.42.585	2015.118.17.47.20.258	SPM13167	H3 LO_Locking
2015.118.19.43.42.585	2015.118.17.47.20.258	SPM12172	H2 LO_locking
2015.118.19.43.42.585	2015.118.17.47.20.258	SPM11167	H1 LO_Locking
2015.118.19.43.42.584	2015.118.17.47.20.258	SPM16167	A3 LO_Locking
2015.118.19.43.42.584	2015.118.17.47.20.258	SPM15167	A2 LO_Locking
2015.118.19.43.42.584	2015.118.17.47.20.258	SPM14167	A1 LO_Locking
2015.118.19.43.42.583	2015.118.17.47.20.258	SPM19167	B3 LO_Locking
2015.118.19.43.42.583	2015.118.17.47.20.258	SPM18167	B2 LO_Locking
2015.118.19.43.42.583	2015.118.17.47.20.258	SPM17167	B1 LO_Locking



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2015.118.19.43.42.582	2015.118.17.47.20.258	SPM22167	C3 LO_Locking
2015.118.19.43.42.582	2015.118.17.47.20.258	SPM21167	C2 LO_Locking
2015.118.19.43.42.582	2015.118.17.47.20.258	SPM20167	C1 LO_Locking
2015.118.02.35.38.967	2015.117.22.04.40.536	SPM11167	H1 LO_Locking
2015.118.02.35.38.840	2015.117.22.04.34.536	SPM11162	H1 LO_Out_Power