



## 1 General Comments

The activities scheduled for this week are those planned for calendar week 26 of year 2015, from 29/06/2015 to 06/07/2015 (DOYs 179 to 186.)

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

- One Flat Target (FTTR) with Inertial Pointing scheduled, ETO, on 2015-06-29T13:21:37z and with the following calibration values:
  - Brightness Temperature= 3.65
  - RMS= 0.05
  - Sun Elevation above MIRAS=-9
  - RA=12.873652
  - DEC=-34.043
- One PMS offset including three Short Calibrations on day 2015-02-07 (orbit 29765) at 16:09:00.000z, 16:09:34.800z and 15:10:09:600.
- Local oscillator calibration every 10 minutes.
- X-Band Passes over ESAC and Svalbard.

## 2 Mission Planning Deviation

Due to the MIRAS CCU reset that happened on day 2015-06-30T06:21:17z, a new replanning for week 27 was again sent on day 30/06/2015 during pass KER-66 at 13:50z. As consequence of this reset the following XBand passes were lost:

Station	Start Pass	End Pass	Duration
Xband_SVAL	2015-06-30T08:11:39.503000	2015-06-30T08:17:52.122000	372
Xband_SVAL	2015-06-30T09:54:10.357000	2015-06-30T09:58:11.614000	241
Xband_SVAL	2015-06-30T11:35:58.470000	2015-06-30T11:39:41.024000	222
Xband_SVAL	2015-06-30T13:16:29.582000	2015-06-30T13:22:09.915000	340
Xband_SVAL	2015-06-30T14:56:24.127000	2015-06-30T15:04:20.653000	476



# Operations Notes

FOS Team @ ESAC

Reported by:

Topic:

Date:

Issue:

**FOS Report for week 27**  
from the 29/06/15 to the 06/07/15

**1.0**

	JUL-2015						
	Mon, 29-JUN-2015	Tue, 30-JUN-2015	Wed, 01-JUL-2015	Thu, 02-JUL-2015	Fri, 03-JUL-2015	Sat, 04-JUL-2015	Sun, 05-JUL-2015
Int_LO_Phase_Cal_NoUnoise_FULL_NotEXT_SEQ	[Solid black bar]						
XB_Cmd_Downlink_Svalb_SEQ	[Vertical tick marks]						
SBand_Visibility_SEQ	[Vertical tick marks]						
XB_Cmd_Downlink_Vilspa_SEQ	[Vertical tick marks]						
External_Calibration_Full_OBOP_SEQ	[Cyan bar]						
Update_Cyclic_LO_Ph_Cal_NoU_Full_EXT_SEQ	[Upward arrow]						
Int_LO_Phase_Cal_NoUnoise_FULL_EXT_SEQ	[Vertical tick marks]						
Disable_Cyclic_Function_SEQ	[Upward arrow]			[Upward arrow]			
Enable_Cyclic_Function_SEQ	[Upward arrow]			[Upward arrow]			
Update_Cyclic_LO_Ph_Cal_NoU_Full_NotEXT_SEQ	[Upward arrow]						
PMS_Offset_Calibration_Full_SEQ				[Vertical tick mark]			



### 3 TC Failures

None.

### 4 Unforeseen Out Of Limits (OOLs)

Several out of limits related with the MIRAS CCU reset that happened on day 2015-06-30T06:21:17z were received on PLPC system. Details on these out of limits can be found in Appendix-A of this report.

### 5 On Board Anomalies

The following payload anomalies happened during this reporting period:

- A new CCU reset happened on day 30/06/2015 at 06:21:17z during the XBand pass over ESAC that started at 06:19:09z. The scheduled duration of that pass was 459 seconds and the reset happened 96 seconds after the start of the pass. The reset happened before the scheduled switch off of the Xband antenna at 06:26:49.124z. Data download finished at 06:21:17.845z. First MIRAS housekeeping packet after the reset was issued at 06:21:52.093z. The CCU recovery procedure was performed on the same day by CNES 30/06/2015, and during GS pass KER-66 at 13:50z. A new planning program, CRF 506, was also sent by FOS on 30/06/2015 and uploaded to the spacecraft by CNES during the same previous pass. An additional Telecommanding pass was booked by CNES at 15:23Z over HBK station.

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

2015-06-30T06:19:40.973 *XBand Transmitter on*

2015-06-30T06:20:04.974 *Start of Mass Memory data*

No other Event Error or Alarm packet was received before the CCU reset took place.

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=510780 Read=260485

and the geolocation of the event was over North Africa:

Longitude= 349.172582

Latitude= 33.057152



## 6 Telemetry On Board Events in the period.

The following RAM Single bit errors were received during this week:

Event Description	Severity	Event Time	Parameters
RAM single Bit Error	WARN	2015.182.22.22.50.588	226E3E8
RAM single Bit Error	WARN	2015.181.06.21.52.593	20D1590
RAM single Bit Error	WARN	2015.180.23.27.00.09	20D1590

On top of that, the following expected Warning packets were also received at the time of the execution of the Flat Target calibrations on the 29<sup>th</sup> of June (one warning per calibration execution)

Event Description	Severity	Event Time	Parameters
OBOP_Already_Active	WARN	2015.180.13.30.12.533	
OBOP_Already_Active	WARN	2015.180.13.14.01.71	

## 7 FOS System Status

All FOS systems behaved nominal during this reporting period with the following exceptions:

- As part of the leap second activities performed on day 2015-06-30, it was checked that PLPCPRM machine did not response around 22:15z and as consequence of that the Main Control System was not working. All the attempts to remotely connect to the host did not work and did not find any response from the host. The machine was rebooted around 22:42z and the system nominally recovered at that time. Further analysis on the different machines involved on the PLPCPRM connections showed the following:
  - Linux log files on host PLPCPRM: there were messages until 16:36 UTC. From that moment on, no activity was logged. No anomaly was reported to the log files.
  - Linux log files on host PLPCDIS: normal activity, also after 16:36 UTC.
  - Linux log files on host PLPCEXT: normal activity. The SSH connections from PLPCPRM stop at 15:36 UTC.
  - SCOS logs on PLPCPRM: they appear to stop at 15:36 UTC. The contents of the log files appear to be nominal.

In summary, PLPCPRM appears to have stopped working without further notice at 16:36 UTC. If it underwent an anomaly (e.g. hardware) this has not been reported to the Linux log files under /var/log. It has agreed that in case the problem might again repeat, a swap to the backup machine PLPCBKP will be then performed.



## 8 Data Reception from CNES

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

- Ground station passes SKRN01-5 and AUS-4 on day 2015-07-05 were not delivered on time and only delivered the following day coinciding with GS pass AUS-5 on day 2015-07-06 around 04:40z.

## 9 X-Band Data Reception in PXMF

The PXMF system was extensively used during this week due to the CCU reset anomaly on the 30<sup>th</sup> of June. It was also used to verify the data consistency of the Svalbard passes after the leap second activity.

## 10 Exceptional Activities

Leap Second activities:

- A new leap second was introduced on the 1<sup>st</sup> of July 2015. As consequence of that several extra activities were required on the FOS and CNES side to cope with this situation. On the FOS side the following activities took place:
  - A new Orbit Scenario File was generated on the SPGF system and transferred to DPGS team.
  - The script in charge on the PLCEXT to convert the Ephemerids file received from CNES into the ORBPRES file was updated to include the new OSF and the required delta time of 36 seconds between the TAI and UTC scales.
  - The correct synchronization of all the FOS servers was carefully monitored around the midnight of the 30<sup>th</sup> of June to 1<sup>st</sup> of July.

On the CNES side the new Ephemerid files including the new leap second was late delivered at 11:10z instead of 10:00z. The file was manually delivered after a warning call from FOS side.

Several problems derived from this second activity happened in the acquisition of the XBand passes on Svalbard station. In particular the following three ground station passes failed or partially failed:

2015-07-01T07:31:51z Pass with many internal gaps

2015-07-01T09:14:16z Missing telemetry files

2015-07-01T10:56:30z Pass with many internal gaps

## 11 AOB

None.



## APPENDIX A: OOL's

The following Out of Limits were received at the time of MIRAS CCU reset. The first OOL in the list reflects the moment when the MIRAS ITL was disabled at the time of the instrument CCU recover procedure

GS_TIME	OBTIME	PARAMETER	DESCRIPTION
2015.181.14.28.23.671	2015.181.13.51.43.958	NTLHK022	ITL Ena State
2015.181.12.55.07.742	2015.181.06.21.52.093	XNIRCAST	NIR CA VALID ST
2015.181.12.55.07.738	2015.181.06.21.52.093	XNIRBCST	NIR BC VALID ST
2015.181.12.55.07.735	2015.181.06.21.52.093	XNIRABST	NIR AB VALID ST
2015.181.12.55.07.730	2015.181.06.21.52.093	SPC02106	Instrument_Mode
2015.181.12.55.07.728	2015.181.06.21.52.093	SPM11167	H1 LO_Locking
2015.181.12.55.07.727	2015.181.06.21.52.093	SPM12172	H2 LO_locking
2015.181.12.55.07.725	2015.181.06.21.52.093	SPM13167	H3 LO_Locking
2015.181.12.55.07.717	2015.181.06.21.52.093	SPM14167	A1 LO_Locking
2015.181.12.55.07.715	2015.181.06.21.52.093	SPM15167	A2 LO_Locking
2015.181.12.55.07.714	2015.181.06.21.52.093	SPM16167	A3 LO_Locking
2015.181.12.55.07.711	2015.181.06.21.52.093	SPM17167	B1 LO_Locking
2015.181.12.55.07.710	2015.181.06.21.52.093	SPM18167	B2 LO_Locking
2015.181.12.55.07.708	2015.181.06.21.52.093	SPM19167	B3 LO_Locking
2015.181.12.55.07.707	2015.181.06.21.52.093	SPM20167	C1 LO_Locking
2015.181.12.55.07.706	2015.181.06.21.52.093	SPM21167	C2 LO_Locking
2015.181.12.55.07.702	2015.181.06.21.52.093	SPM22167	C3 LO_Locking