



Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 13, year 2020

from 23 MAR 2020 to 06 APR 2020

1.0

1 General Comments

Activities scheduled for this week are those planned for the 13th calendar week of 2020:

23 MAR 2020 to 30 MAR 2020 (DOYs 083 to 090).

Mission Planning for this week was calculated together with that of week 14, year 2020. The current report contains only the events that occurred during week 13, year 2020. The Gantt chart included in this report is the one containing the two weeks combined.

The following routine activities were planned this week (see Gantt chart on next page and CRF 874).

- One PMS Offset on 26 MAR 2020 (DOY 086), including three Short Calibrations at 07:45:00.0z, 07:45:34.8z, and 07:46:09.6z (orbit 54639).
- Local Oscillator Calibrations every 10 minutes.
- X band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

As per ESA-CNES management agreement reached 16 MAR 2020 — in view of limited operations because of the ongoing COVID-19 pandemic— CRF 874 spanned —exceptionally— a two-week period.

Due to the CCU reset that happened on the 25th of March the following X band GS passes were not acquired:

PASS	AOS	LOS	Duration
Xband_SVAL	2020-03-25T04:07:56	2020-03-25T04:17:46	589
Xband_ESAC	2020-03-25T05:38:21	2020-03-25T05:46:38	496
Xband_SVAL	2020-03-25T07:29:48	2020-03-25T07:36:59	431
Xband_SVAL	2020-03-25T09:12:12	2020-03-25T09:17:03	291
Xband_SVAL	2020-03-25T10:54:28	2020-03-25T10:57:57	209
Xband_SVAL	2020-03-25T12:35:28	2020-03-25T12:40:10	281
Xband_SVAL	2020-03-25T14:15:34	2020-03-25T14:22:36	422



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Schedule Name: 2020_w13_w14_cr ### Display start: 23-03-2020 00:00:00.000 ### Display end: 24-03-2020 09:36:00.000





3 TC Failures

None.

4 On Board Anomalies

- MIRAS instrument MM, partition P10, latched up 2020-03-28T21:15:12,064z (DOY 088). The following parameters went out of limits in the PLPC system:

2020.088.21.15.12,064z DMASME02 LU Switch P10

2020.088.21.15.12,064z DMASME37 SDD LU Detected

This anomaly was geolocated over the Estuary of the Río de la Plata (Argentina-Uruguay):

Latitude = -36.93°

Longitude = 305.16°

There were no science data losses associated with this anomaly because it affected partition P10 (i.e. a spare partition), while the Read and Write pointers were on partitions P3 and P4 respectively. Recovery took place Monday 30 MAR 2020, at 11:30:00z (CRF 877). At the time of the anomaly the position of the MM pointers were as follows:

READ = 1710671 (partition P3)

WRITE = 1807208 (partition P4)

- The MIRAS instrument CCU reset 2020-03-25T02:31:59.657z (DOY 085). FOS had an early warning upon noticing that no TM had arrived from the latest X band GS pass. Reset was then confirmed via a phone call from CNES to FOS upon reception of S band GS pass STC-7 (AOS=2020-03-25T05:36:02z). Another call from KSAT followed. DPGS was notified in an email at 08:23z.

The reset befell in the middle of Svalbard X band GS pass commencing 2020-03-25T02:28:18z (transponder on). Said GS pass was scheduled for a duration of 607 seconds. The reset occurred 221 seconds after AOS, and before the switch off of the X band antenna, scheduled 2020-03-25T02:38:25z. The last TM packet received before the reset was time stamped 2020-03-25T02:31:59.657z. This reset was triggered by the standard “Task Overrun error” (Boot Report).

FOS re-planned activities for the remainder of week 13 and the full of week 14 (biweekly MP cycle because of world pandemia; see CRF 874) that same day, 25 MAR 2020. Included in CRF No. 876, it was



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uploaded by CNES, following the execution of PRO-CRP-100, during S band GS pass KER-27 on 2020-03-25T11:29:39z.

As per this re-planning, nominal MIRAS X band GS dumps resumed on 2020-03-25T15:55:35z.

Because of this reset, 226 seconds of science data were lost (from 2020-03-25T02:28:42z to 2020-03-25T02:32:28z).

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

OBT	ID	Severity	Event
2020.085.02:28:18	725	NORM	XBand Powered On
2020.085.02:28:42	695	NORM	MM Full Dump Star
2020.085.02:28:18	612	ERROR	Triggered_Task_Overrun
2020.030.06.22.25	687	ALARM	MM_Part_Config_Acqui_Failure

Immediately after the reset, the list of Out of Limits included in Appendix-A were displayed on the FOS PLPC system.

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

Read = 722993, *MM Partition P1*
Write = 983008, *MM Partition P2*

The anomaly was geolocated just southward of Svalbard, heading north:

Latitude = 73.93°
Longitude = 21.50°

5 On Board Events Telemetry

The following alarm and error packets were generated immediately before the CCU reset on the 25th of March:

Event Description	Pkt ID	Severity	Event Time
MM_Partition_Conf_Acquistion_Failur	687	ALARM	2020-03-25T02:31:54

Event Description	Packet ID	Severity	Event Time	Parameters
Triggered_Task_Overrun	612	ERROR	2020-03-25T02:31:54	Slot

The following RAM Single Bit errors befell this week:



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Event Description	Packet ID	Severity	Event Time	Parameters
RAM single Bit Error	730	WARN	2020-03-25T02:32:29	202CA54

6 FOS Systems Status

All FOS systems nominal.

7 Data Reception from CNES

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

8 X Band Data Reception in PXMF

None, all S band passes successfully received and processed.

9 Exceptional Activities

None.

10 AOB

None.



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APPENDIX A: OOLs

At the time of the Mass Memory Latch-up on the 28th of March the following two parameters went out of limits on the FOS PLPC system.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2020-03-28T22:54:22	2020-03-28T21:15:12	DMASME37	SDD LU Detected	FALSE	TRUE
2020-03-28T22:54:22	2020-03-28T21:15:12	DMASME02	LU Switch P10	OFF	ON

During the execution of the CCU recovery procedure and as expected, the following parameter went temporary out of limits indicating that the MIRAS ITL was disabled.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2020-03-25T14:29:29	2020-03-25T11:32:02	NTLHK022	ITL Ena State	Disabled	Enabled

The MIRAS CCU reset generated the following list of temporary out of limits:

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2020-03-25T06:08:18	2020-03-25T02:32:28	SPM22167	C3 LO_Locking	UNLOCK	LOCK
2020-03-25T06:08:18	2020-03-25T02:32:28	SPM21167	C2 LO_Locking	UNLOCK	LOCK
2020-03-25T06:08:18	2020-03-25T02:32:28	SPM20167	C1 LO_Locking	UNLOCK	LOCK
2020-03-25T06:08:18	2020-03-25T02:32:28	SPM19167	B3 LO_Locking	UNLOCK	LOCK
2020-03-25T06:08:18	2020-03-25T02:32:28	SPM18167	B2 LO_Locking	UNLOCK	LOCK
2020-03-25T06:08:18	2020-03-25T02:32:28	SPM17167	B1 LO_Locking	UNLOCK	LOCK
2020-03-25T06:08:18	2020-03-25T02:32:28	SPM16167	A3 LO_Locking	UNLOCK	LOCK



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2020-03-25T06:08:18	2020-03-25T02:32:28	SPM15167	A2 LO_Locking	UNLOCK	LOCK
2020-03-25T06:08:18	2020-03-25T02:32:28	SPM14167	A1 LO_Locking	UNLOCK	LOCK
2020-03-25T06:08:18	2020-03-25T02:32:28	SPM13167	H3 LO_Locking	UNLOCK	LOCK
2020-03-25T06:08:18	2020-03-25T02:32:28	SPM12172	H2 LO_locking	UNLOCK	LOCK
2020-03-25T06:08:18	2020-03-25T02:32:28	SPM11167	H1 LO_Locking	UNLOCK	LOCK
2020-03-25T06:08:18	2020-03-25T02:32:28	SPC02106	Instrument_Mode	Inst Init	Any Mode
2020-03-25T06:08:18	2020-03-25T02:32:28	XNIRABST	NIR AB VALID ST	NOT-OK	OK
2020-03-25T06:08:18	2020-03-25T02:32:28	XNIRBCST	NIR BC VALID ST	NOT-OK	OK
2020-03-25T06:08:18	2020-03-25T02:32:28	XNIRCAST	NIR CA VALID ST	NOT-OK	OK