



Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 19, year 2021

from 10 MAY 2021 to 17 MAY 2021

1.0

1 General Comments

Activities scheduled for this week are those planned for the 19th calendar week of 2021:

10 MAY 2021 to 17 MAY 2021 (DOYs 130 to 137).

The following routine activities were planned this week (see Gantt chart on next page and CRF 966).

- One Warm NIR Calibration on 12 MAY 2021 (DOY 132) with ETO 04:55:30z (orbit 60566; DESCENDING: thermally UNSTABLE) and with the following expected calibration values:

B.T.	=	3.55°
R.M.S.	=	0.13
Sun elevation	=	4.13°
Moon elevation	=	7.03°
R.A.	=	144.69°
DEC.	=	31.88°
- One PMS Offset on 13 MAY 2021 (DOY 133), including three Short Calibrations at 06:30:30.0z, 06:31:04.8z, and 06:31:39.6z (orbit 60581).
- Local Oscillator Calibrations every 10 minutes.
- X band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

None.



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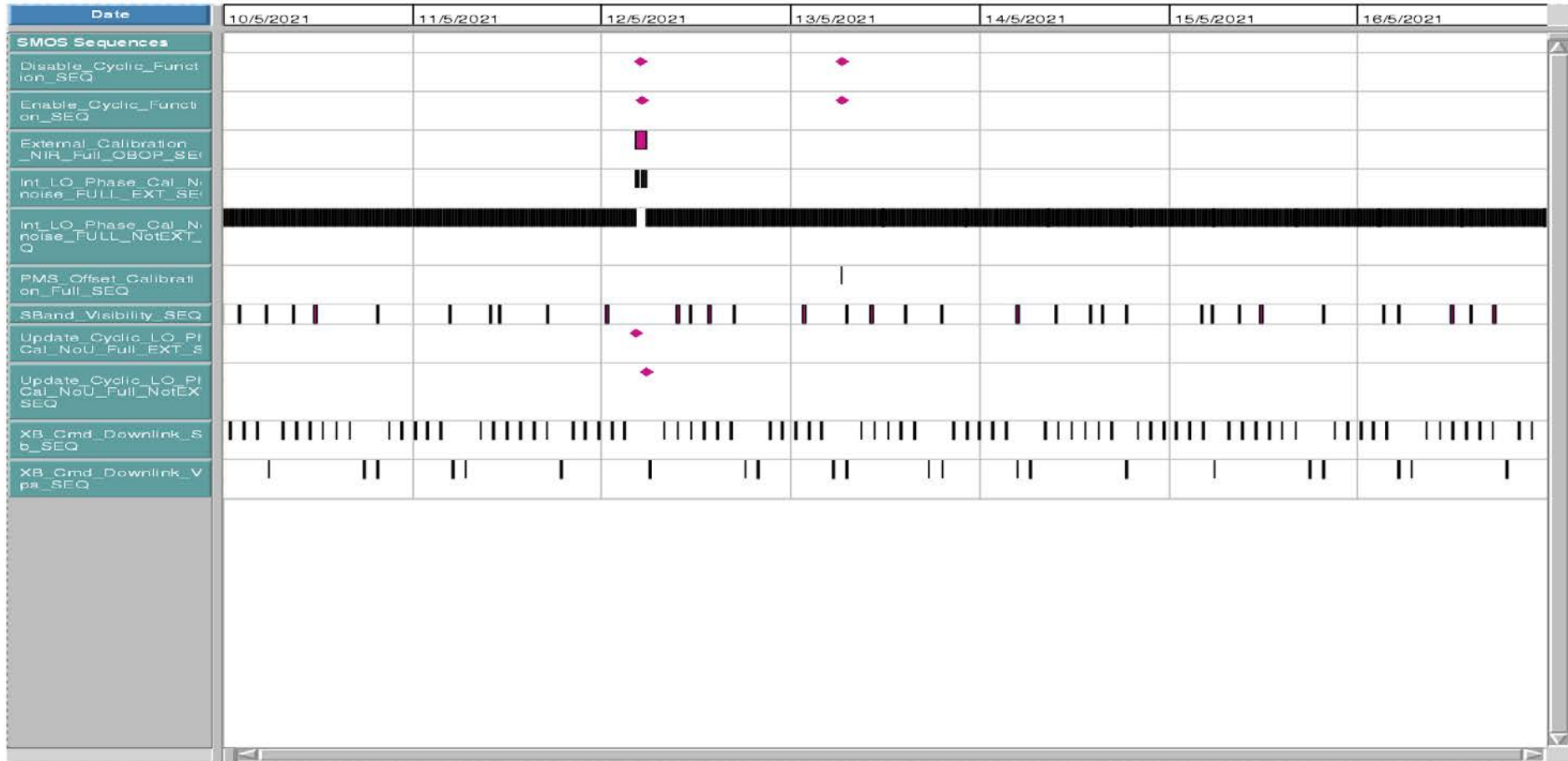
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Schedule Name: 2021_w19_cr ### Display start: 10-05-2021 00:00:00.000 ### Display end: 17-05-2021 00:00:00.000





3 TC Failures

None.

4 On Board Anomalies

- The MIRAS CMN, unit C3, unlocked 2021-05-16T22:36:59,327z (DOY 136). This anomaly was geolocated just off the coast of northern Chile:

Latitude = -26.94°

Longitude = 286.77°

Only locking status parameter SPM22167, went out of limits in the FOS PLPC system. The anomaly recovered in 3 epochs.

- MIRAS instrument MM, partition P3, latched up 2021-05-16T20:53:37,651z (DOY 136). The following parameters went out of limits in the PLPC system:

2021.136.20.53.37,651z DMASME09 LU Switch P3

2021.136.20.53.37,651z DMASME37 SDD LU Detected

This anomaly was geolocated over the northern area of Estado de Minas Gerais (Brazil):

Latitude = -15.23°

Longitude = 314.61°

There were no science data losses associated with this anomaly because it affected partition P3 while both, Read and Write, pointers were in partition P4. Recovery took place Monday 17 MAY 2021, at 16:00:00z (CRF 968). At the time of the anomaly the position of the MM pointers were as follows:

READ = 2066779 (*partition P4*)

WRITE = 2147309 (*partition P4*)

- The MIRAS CMN, unit H3, unlocked 2021-05-12T21:45:43.055z (DOY 132). This anomaly was geolocated over central Brazil:

Latitude = -0.58°

Longitude = 303.92°

Both parameters, output power SPM13162 and locking status SPM13167, went out of limits in the FOS PLPC system. The anomaly recovered in 12 epochs.

5 On Board Events Telemetry

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	2021-05-10T00:04:56	22B6AD0
RAM single Bit Error	730	WARN	2021-05-10T11:28:54	2232244
RAM single Bit Error	730	WARN	2021-05-11T21:10:48	239C834
RAM single Bit Error	730	WARN	2021-05-12T11:46:50	21AFE7C
RAM single Bit Error	730	WARN	2021-05-15T10:39:51	23B37F4

6 FOS Systems Status

Two new PLPCEXT machines were configured as new operational machines on the 12th of May. Machines were previously installed on the 4 of May. A first connectivity test with CNES was successfully performed on the 11 of May. Configuration of new machines was performed in the morning of the 12 of May just before reception of SBand pass IVK-9 with AOS at 09:32:18.

New PLPCEXT2 machine was also configured as redundant machine although the swap from new PLPCEXT1 to PLPCEXT2 was not exercised on that day.

The reception of the second pass of the day over new PLPCEXT1 machine did not work (AOS, 11:09z). Reason for the problem was related with the restart of the ssh protocol performed on that machine between the first and second pass. This restart was pointing to the default OS settings and not to the specific ones for the new machine. After changing this, CNES could finally connect to the new machine and the pass was nominally received. Nevertheless, it was observed that the orbit prediction file that is nominally received from CNES on Wednesday at 12:00z was not correctly converted into the final ORBPRES file used by DPGS and FOS FlexPlan system.

First checks on this problem seemed related to the lack of 32 bits C libraries used by the *PFCTconverter* tool. After copying the required libraries from the old machine, a different problem did then appear on the conversion, since an error message was obtained in the orbit file conversion process saying GPS time out of range.

Further investigations showed that the problem was related with the fact that the EOFCFI libraries were compiled for a 32 bits machine old PLPCEXT architecture while the new machine is based on a 64 bits architecture. Then the problem could not be fixed and GMV needed to recompile the conversion tool using proper 64 bits CFI libraries.

This problem was clearly a showstopper to set up the new machine as operational. Nevertheless, and since the next two following working days were public holidays at CNES, it was not possible to revert the



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change until next week either 16th or 17th of May. In the meantime, a workaround was found which consisted to manually process the input ORBPRES file on the old machine and to transfer it manually the output ORBPRES to DPGS and SPGF. Finally a new patch including EOCSI libraries based on 64 bits machine was produced and successfully installed by GMV on the 17th of May.

7 Data Reception from CNES

All S band passes were correctly received from CNES and successfully processed by the FOS PLPC system, with the following exception:

- Because of an issue with the receiving station, for S band GS pass STC-11 (AoS = 04:04:49z; LoS = 04:17:49z) the following PUS TM gap was detected in the PLPC system:

from 2021-05-14T18:29:17.423z to 2021-05-15T00:56:03.334z; 9593 packets lost.

To achieve completion MIRAS PUS TM was recovered from the X band PXMF system and ingested into the MUST-SMTA system on 17th MAY 2021. The corresponding E_HKTM from 2021-05-14T18:28:57z to 2021-05-15T01:21:13z was lost.

8 X Band Data Reception in PXMF

PXMF system was used to fill PUS TM gap reported in section 7 of this report.

9 Exceptional Activities

None.

10 AOB

None.



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APPENDIX A: OOLs

CMN unlock of C3 unit on the 16th of May generated the single and temporary out of limits on the FOS PLPC system

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2021-05-16T22:36:59	2021-05-16T02:58:03	SPM22167	C3 LO_Locking	UNLOCK	LOCK

Mass Memory latch-up anomaly also on the 16th of May generated the two following out of limits on the FOS PLPC system

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2021-05-16T02:53:02	2021-05-16T20:53:37	DMASME37	SDD LU Detected	True	False
2021-05-16T02:53:02	2021-05-16T20:53:37	DMASME09	LU Switch P3	OFF	ON

The two following temporary out of limits were generated at the time of the H3 CMN unlock on the 13th of May.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2021-05-13T02:12:59	2021-05-12T21:45:38	SPM13162	H3 LO_Out_Power	NOT-OK	OK
2021-05-13T02:13:00	2021-05-12T21:45:43	SPM13167	H3 LO_Locking	UNLOCK	LOCK