



Operations Notes

FOS Team @ ESAC

Reported by:

J. Fauste/J.M. Castro Cerón

Topic:

Date:

Issue:

FOS Report for week 11, year 2021

from 15 MAR 2021 to 22 MAR 2021

1.0

1 General Comments

Activities scheduled for this week are those planned for the 11th calendar week of 2021:

15 MAR 2021 to 22 MAR 2021 (DOYs 074 to 081).

The following routine activities were planned this week (see Gantt chart on next page and CRF 954).

- One Warm NIR Calibration on 17 MAR 2021 (DOY 076) with ETO 03:16:18z (orbit 59759; DESCENDING: thermally UNSTABLE) and with the following expected calibration values:
 - B.T. = 3.81°
 - R.M.S. = 0.38
 - Sun elevation = 8.00°
 - Moon elevation = 23.18°
 - R.A. = 76.71°
 - DEC. = -43.18°
- One PMS Offset on 18 MAR 2021 (DOY 077), including three Short Calibrations at 06:08:30.0z, 06:09:04.8z, and 06:09:39.6z (orbit 59775).
- Local Oscillator Calibrations every 10 minutes.
- X band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

Because of the CCU reset that happened on the 20th of March the following X-band passes were not acquired on ground:

Xband_SVAL	2021-03-20T08:58:20	2021-03-20T09:03:30	309
Xband_SVAL	2021-03-20T10:40:43	2021-03-20T10:44:15	211
Xband_SVAL	2021-03-20T12:21:54	2021-03-20T12:26:19	265
Xband_SVAL	2021-03-20T14:02:04	2021-03-20T14:08:48	403
Xband_SVAL	2021-03-20T15:41:50	2021-03-20T15:50:36	525
Xband_ESAC	2021-03-20T19:12:24	2021-03-20T19:20:12	467
Xband_SVAL	2021-03-20T20:39:49	2021-03-20T20:50:13	624
Xband_SVAL	2021-03-20T22:18:39	2021-03-20T22:28:55	616
Xband_SVAL	2021-03-20T23:57:19	2021-03-21T00:07:37	618
Xband_SVAL	2021-03-21T01:36:04	2021-03-21T01:46:31	626
Xband_SVAL	2021-03-21T03:15:18	2021-03-21T03:25:40	621
Xband_ESAC	2021-03-21T04:48:19	2021-03-21T04:54:09	349
Xband_SVAL	2021-03-21T08:18:26	2021-03-21T08:24:31	364



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Xband_SVAL	2021-03-21T10:00:57	2021-03-21T10:04:53	236
Xband_SVAL	2021-03-21T11:42:41	2021-03-21T11:46:27	226
Xband_SVAL	2021-03-21T13:23:09	2021-03-21T13:28:57	348
Xband_SVAL	2021-03-21T15:03:02	2021-03-21T15:11:05	482
Xband_SVAL	2021-03-21T16:42:40	2021-03-21T16:52:16	575



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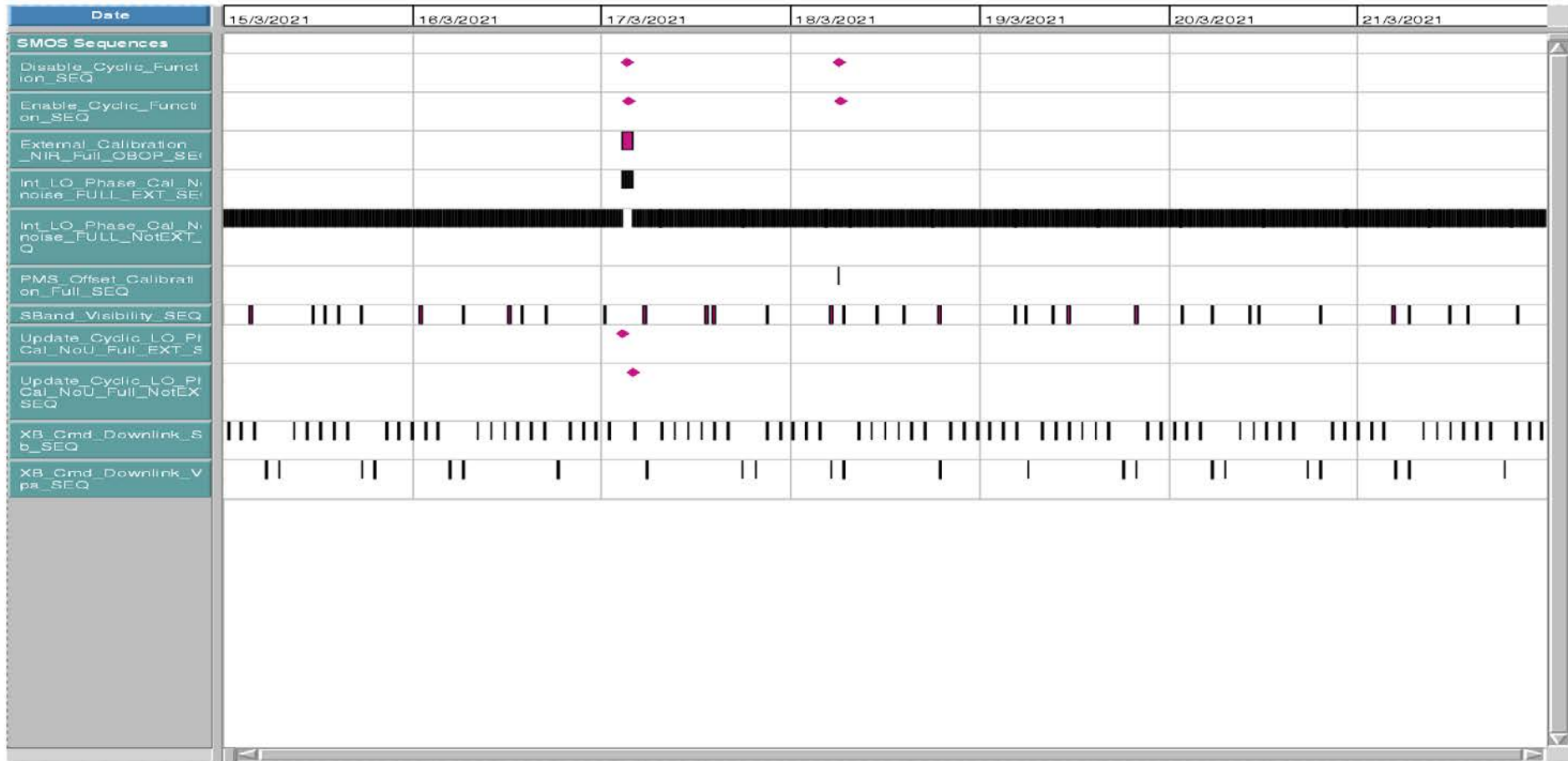
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Schedule Name: 2021_w11_cr ### Display start: 15-03-2021 00:00:00.000 ### Display end: 22-03-2021 00:00:00.000





3 TC Failures

None.

4 On Board Anomalies

- A new MIRAS CCU reset happened on 2021-03-20T07:10:08.986z (DOY 079). The first symptoms of the reset were firstly noticed by KSAT team after the failure of two consecutive X-passes over Svalbard with AOS at 2021-03-20T08:58:20z and 2021-03-20T10:40:43z. After this second failure, KSAT operator notified by phone the problem to the FOS on call engineer at 10:59z. Following this, FOS oncall engineer called CNES oncall Ops manager at 11:32z informing about the possibility to have a CCU reset. During the conversation CNES also confirmed the reset verified after the reception of S band pass with AOS 10:11:37z. Since the following S-Band pass where the recovery could be applied was too close to the one where the reset was seen, AOS at 11:16:04z, there was not enough time for the CNES ops engineer to come on site and to apply the recovery procedure. As consequence of that, CNES oncall manager notified to the FOS on call engineer that the MIRAS recovery procedure and replanning would be uplinked during the first evening pass at 19:08:22z (ASX-16). After the call further checks were performed by the FOS oncall engineer concluding that the execution of the recovery during the selected pass may have unforeseen consequences on the instrument configuration because of the two following reasons:
 - As detailed on CRF-956 that has to be applied for the present week, the first MIRAS TC contained on the replanning TC group started at 18:33:54z i.e. these commands would have failed onboard because of their past time respect the present uplink time.
 - Second and more important, the S-Band pass would have coincided with a long X-Band pass triggered by the payload auto-downlink function. It is very well known from past mission operations, that MIRAS Mass Memory reconfiguration while a X-band pass is performed can trigger some unknown effects on the payload and for sure big data losses that FOS wished to avoid.

As consequence of that, FOS on call engineer contacted again CNES Ops oncall manager at 15:38z requesting the cancellation of the execution of the CCU recovery procedure over the agreed pass ASX-16. FOS oncall engineer also requested the execution of the recovery



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procedure the following day 21st of March. To reinforce and detail this communication, FOS Operations manager sent an email explaining the reason behind the change at 17:42z. After this final agreement, the recovery procedure and payload replanning was successfully performed on the 21st of March over S-Band pass IVK-11 (AOS at 11:33:08).

The reset took place at the end of ESAC X band pass with AOS at 07:06:23z. Last TM packet received before the reset was time stamped at 2021-03-20T07:10:09z. This reset was triggered by the standard Task Overrun error (information included on the Boot Report packet).

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

Read = 1294251, MM partition P2

Write = 1559616, MM partition P3

The anomaly was geolocated over north west side of the Atlantic Ocean

Latitude = 43.17°

Longitude = 334.93°

5 On Board Events Telemetry

Just few seconds before the CCU reset the following alarm packets were issue by the payload:

OB Time	Event	Severity	ID
2021.079.07.10.08.986	MM_Science_Write_Failure	ALARM	692
2021.079.07.10.08.886	MM_Science_Write_Failure	ALARM	692
2021.079.07.10.08.786	MM_Science_Write_Failure	ALARM	692
2021.079.07.10.08.736	MM_Address_Acquistion_Failure	ALARM	684
2021.079.07.10.08.696	MM_Scrub_Frequency_Acquisition_Failure	ALARM	690
2021.079.07.10.08.676	MM_Error_Counters_Acquisition_Failure	ALARM	689

The following RAM Single Bit errors befell this week:

Event Description	Packet ID	Severity	Event Time	Param
MM_Error_Counters_Acquisition_Failure	689	ALARM	2021-03-20t07:10:08	No
MM_Scrub_Frequency_Acquisition_Failure	690	ALARM	2021-03-20t07:10:08	No
MM_Address_Acquistion_Failure	684	ALARM	2021-03-20t07:10:08	No



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MM_Science_Write_Failure	692	ALARM	2021-03-20t07:10:08	Link
MM_Science_Write_Failure	692	ALARM	2021-03-20t07:10:08	Link
MM_Science_Write_Failure	692	ALARM	2021-03-20t07:10:08	Link

6 FOS Systems Status

- Installation of new SMTA machine was performed along the 16th of March 2020. Old machine will remain for several weeks power up but disconnected from the network. In case any problem is detected on the new one, old machine can be reconnected temporary taking into account that IP for that machine ends on 174.
- On the 16th of March, old FOSVIRT02 and FOSVIRT04 servers were shut down and permanently disconnected from the FOS network. Those two machines were respectively hosting old virtual servers PLPCPRM/PXMFPRM and PLPCBKP/PXMFBKP.

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

During the execution of the CCU recovery procedure the following temporary OOL was issued by the FOS PLPC system indicating that the onboard ITL was disabled.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOl Value	Check Value
2021-03-21T14:18:12	2021-03-21T11:35:19	NTLHK022	ITL Ena State	Disabled	Enabled

The CCU reset on the 20th of March generated the following list of temporary out of limits:

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOl Value	Check Value
2021-03-20T10:38:54	2021-03-20T07:10:42	SPM22167	C3 LO_Locking	UNLOCK	LOCK
2021-03-20T10:38:54	2021-03-20T07:10:42	SPM21167	C2 LO_Locking	UNLOCK	LOCK
2021-03-20T10:38:54	2021-03-20T07:10:42	SPM20167	C1 LO_Locking	UNLOCK	LOCK
2021-03-20T10:38:54	2021-03-20T07:10:42	SPM19167	B3 LO_Locking	UNLOCK	LOCK
2021-03-20T10:38:54	2021-03-20T07:10:42	SPM18167	B2 LO_Locking	UNLOCK	LOCK
2021-03-20T10:38:54	2021-03-20T07:10:42	SPM17167	B1 LO_Locking	UNLOCK	LOCK
2021-03-20T10:38:54	2021-03-20T07:10:42	SPM16167	A3 LO_Locking	UNLOCK	LOCK
2021-03-20T10:38:54	2021-03-20T07:10:42	SPM15167	A2 LO_Locking	UNLOCK	LOCK
2021-03-20T10:38:54	2021-03-20T07:10:42	SPM14167	A1 LO_Locking	UNLOCK	LOCK
2021-03-20T10:38:54	2021-03-20T07:10:42	SPM13167	H3 LO_Locking	UNLOCK	LOCK
2021-03-20T10:38:54	2021-03-20T07:10:42	SPM12172	H2 LO_locking	UNLOCK	LOCK
2021-03-20T10:38:54	2021-03-20T07:10:42	SPM11167	H1 LO_Locking	UNLOCK	LOCK
2021-03-20T10:38:54	2021-03-20T07:10:42	SPC02106	Instrument_Mode	Inst Init	Any



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2021-03-20T10:38:54	2021-03-20T07:10:42	XNIRABST	NIR AB VALID ST	NOT-OK	OK
2021-03-20T10:38:54	2021-03-20T07:10:42	XNIRBCST	NIR BC VALID ST	NOT-OK	OK
2021-03-20T10:38:54	2021-03-20T07:10:42	XNIRCAST	NIR CA VALID ST	NOT-OK	OK