1 General Comments

Activities scheduled for this week are those planned for the 39th calendar week of 2020:

21 SEP 2020 to 28 SEP 2020 (DOYs 265 to 272).

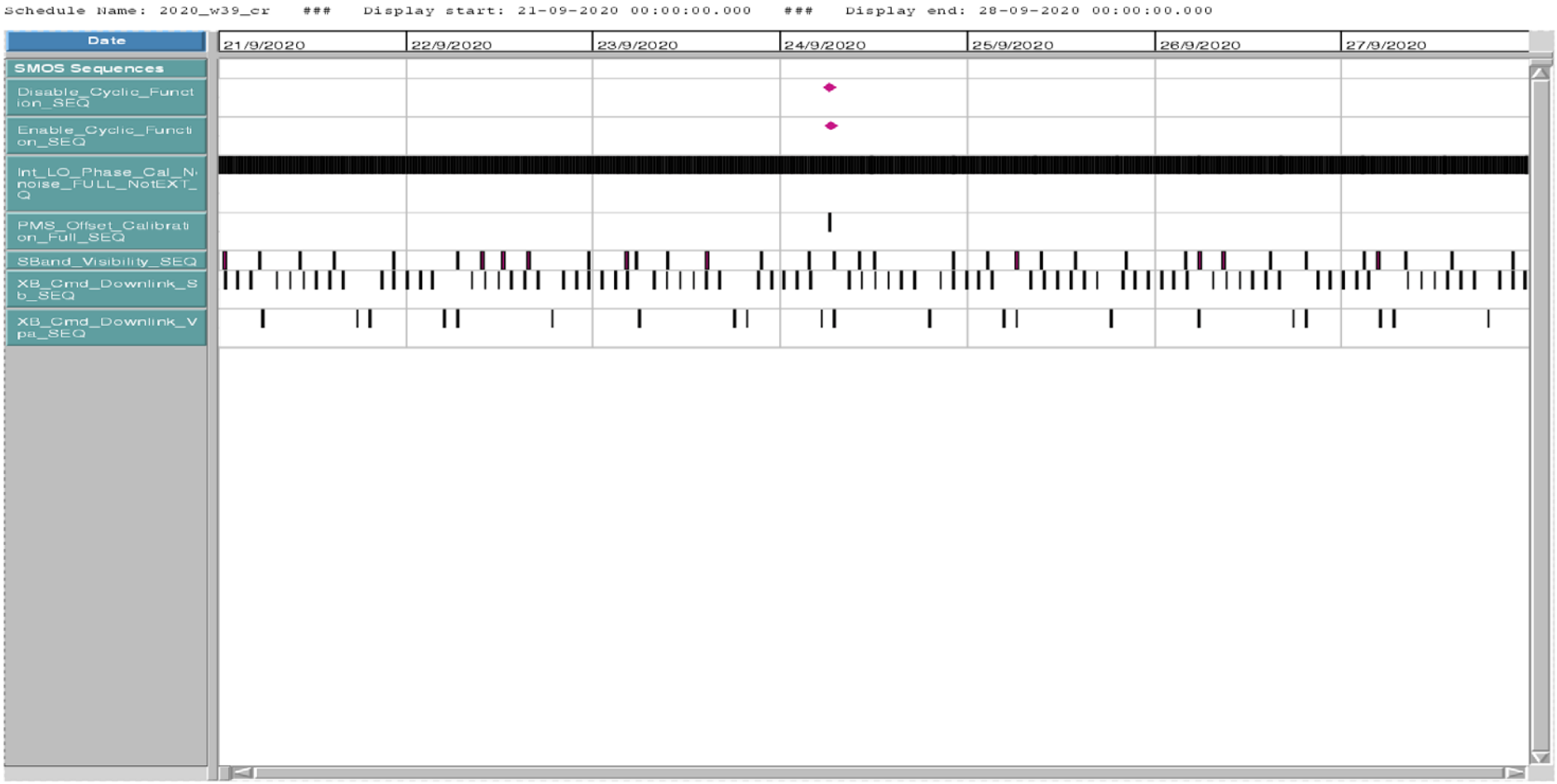
The following routine activities were planned this week (see Gantt chart on next page and CRF 914).

- One PMS Offset on 24 SEP 2020 (DOY 268), including three Short Calibrations at 06:20:30.0z, 06:21:04.8z, and 06:21:39.6z (orbit 57257).
- Local Oscillator Calibrations every 10 minutes.
- *X* band Passes over ESAC and Svalbard.

2 Mission Planning Deviations

Due to the MIRAS CCU reset on the 22sd of September the following X-Band passes were not executed and the data not received on ground:

Xband_SVAL	2020-09-22T08:25:19	2020-09-22T08:31:14	355
Xband_SVAL	2020-09-22T10:07:49	2020-09-22T10:11:39	230
Xband_SVAL	2020-09-22T11:49:27	2020-09-22T11:53:19	231


Schedule Name: 2020_w39_cr ### Display start: 21-09-2020 00:00:00.000 ### Display end: 28-09-2020 00:00:00.000
Date
21/9/2020
22/9/2020
23/9/2020
24/9/2020
25/9/2020
26/9/2020
27/9/2020
SMOS Sequences
Disable_Cyclic_Function_SEQ
Enable_Cyclic_Function_SEQ
Int_LO_Phase_Cal_Noise_FULL_NotEXT_Q
PMS_Offset_Calibration_Full_SEQ
SBand_Visibility_SEQ
XB_Cmd_Downlink_Sb_SEQ
XB_Cmd_Downlink_Vpa_SEQ

3 TC Failures

None.

4 On Board Anomalies

- The MIRAS CMN, unit H3, unlocked 2020-09-24T21:03:05.614z (DOY 268). This anomaly was geolocated over (Brazil):

  Latitude = *-17.85°*
  Longitude = *311.82°*

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

- A new MIRAS CCU reset happened on the 22sd of September at 03:25:24z. The reset took place at the end of the X-Band Svalbard pass with AOS at 03:21:48z. First suspicions of the anomaly were triggered by the FOS X-Band data model SW since only 28% of the expected data packets for the first ESAC morning pass with AOS at 04:54:03z were acquired on ground. Also for the second ESAC morning pass with AOS at 06:32:44z, the X-Band data model triggered an alarm since again only 28% of the expected TM packets were then received. Confirmation of the CCU reset was checked by the FOS operator after local reprocessing of the first ESAC morning pass and the phone call received from CNES at 07:02z after reception at their side of S-Band pass with AOS 06:30:23z
  After the reset and while the spacecraft was flying over ESAC, the on-board auto-downlink function triggered the switch on of the X-Band transmitter for the two scheduled passes over ESAC. Recovery took place on the 22 of September according with CRF-916 and uploaded during S-Band pass IVK-29 with AOS at 09:39:16z. Resume of X-Band activities took place on the 22 of September at 13:29:40z.
  The list of on-board events packets received immediately before the reset was as follows:

Onboard Time	Severity	TM Packet event
2020.266.03.21.48.064	NORM	XBand Powered On
2020.266.03.22.12.064	NORM	MM Full Dump Start
2020.266.03.25.07.026	NORM	LO Cal NoUN FULL NoEXT OBOP 29 Started
2020.266.03.25.10.676	NORM	Mode Change To Full Polarisation
2020.266.03.25.11.866	NORM	Mode Change To Full Polarisation
2020.266.03.25.13.026	NORM	LO Cal NoUN FULL NoEXT OBOP 29 Completed
2020.266.03.25.24.056	ALARM	MM_Error_Counters_Acquisition_Failure
2020.266.03.25.24.076	ALARM	MM_Scrub_Frequency_Acquisition_Failure
2020.266.03.25.24.116	ALARM	MM_Address_Acquistion_Failure
2020.266.03.25.24.116	NORM	MM Dump Ended

2020.266.03.25.24.366	ALARM	MM_Science_Write_Failure

and intermediately after, the instrument reset. As reported in the instrument Boot report packet, the reason for the reset was the usual Task Overrun error. The two following ESAC X-Band passes:

Xband_ESAC	2020-09-22T04:54:03	2020-09-22T05:00:56	413
Xband_ESAC	2020-09-22T06:32:44	2020-09-22T06:39:49	424

Were executed through the on-board auto-downlink function.
At the time of the anomaly, the position of the MM write and read pointers ware located as follows:

Write Pointer= 323636, P0
Read Pointer= 3815232, P8

The anomaly took place over Arctic regions at the following geographical coordinates:

Latitude = 69.8°
Longitude = 15.3°

5 On Board Events Telemetry

At the time of the MIRAS CCU reset on the 22sd of September, the following Alarm packets were received on the FOS PLPC system:

Event Description	ID	Severity	Event Time	Parame
MM_Error_Counters_Acquisition_Fail	689	ALARM	2020-09-22T03:25:24	No
MM_Scrub_Frequency_Acquisition_Fai	690	ALARM	2020-09-22T03:25:24	No
MM_Address_Acquistion_Failure	684	ALARM	2020-09-22T03:25:24	No
MM_Science_Write_Failure	692	ALARM	2020-09-22T03:25:24	Link

The following RAM Single Bit errors befell this week:

Event Description	Packet ID	Severity	Event Time	Parameters
RAM single Bit Error	730	WARN	2020-09-22T03:25:58	21305D8
RAM single Bit Error	730	WARN	2020-09-21T10:00:28	21305D8

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.

APPENDIX A: OOLs

The H3 CMN unlock, generated the two following temporary out of limits on the FOS PLPC system

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2020-09-24T22:57:30	2020-09-24T21:03:05	SPM13162	H3 LO_Out_Power	NOT-OK	OK
2020-09-24T22:57:30	2020-09-24T21:03:10	SPM13167	H3 LO_Locking	UNLOCK	LOCK

During the recovery of the MIRAS CCU reset, the following expected OOL was received on the FOS PLPC system indicating that the MIRAS on-board ITL was temporary made disabled.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2020-09-22T12:48:07	2020-09-22T09:41:25	NTLHK022	ITL Ena State	Disabled	Enabled

At the time of the CCU reset the following TM parameters went temporary out of limits on the FOS PLPC system.

GS_TIME	OB_TIME	PARAMETER	DESCRIPTION	OOL Value	Check Value
2020-09-22T07:12:14	2020-09-22T03:25:57	SPM22167	C3 LO_Locking	UNLOCK	LOCK
2020-09-22T07:12:14	2020-09-22T03:25:57	SPM21167	C2 LO_Locking	UNLOCK	LOCK
2020-09-22T07:12:14	2020-09-22T03:25:57	SPM20167	C1 LO_Locking	UNLOCK	LOCK
2020-09-22T07:12:14	2020-09-22T03:25:57	SPM19167	B3 LO_Locking	UNLOCK	LOCK
2020-09-22T07:12:14	2020-09-22T03:25:57	SPM18167	B2 LO_Locking	UNLOCK	LOCK
2020-09-22T07:12:14	2020-09-22T03:25:57	SPM17167	B1 LO_Locking	UNLOCK	LOCK
2020-09-22T07:12:14	2020-09-22T03:25:57	SPM16167	A3 LO_Locking	UNLOCK	LOCK

2020-09-22T07:12:14	2020-09-22T03:25:57	SPM15167	A2 LO_Locking	UNLOCK	LOCK
2020-09-22T07:12:14	2020-09-22T03:25:57	SPM14167	A1 LO_Locking	UNLOCK	LOCK
2020-09-22T07:12:14	2020-09-22T03:25:57	SPM13167	H3 LO_Locking	UNLOCK	LOCK
2020-09-22T07:12:14	2020-09-22T03:25:57	SPM12172	H2 LO_locking	UNLOCK	LOCK
2020-09-22T07:12:14	2020-09-22T03:25:57	SPM11167	H1 LO_Locking	UNLOCK	LOCK
2020-09-22T07:12:14	2020-09-22T03:25:57	SPC02106	Instrument_Mode	Inst Init	Any
2020-09-22T07:12:14	2020-09-22T03:25:57	XNIRABST	NIR AB VALID ST	NOT-OK	OK
2020-09-22T07:12:14	2020-09-22T03:25:57	XNIRBCST	NIR BC VALID ST	NOT-OK	OK
2020-09-22T07:12:14	2020-09-22T03:25:57	XNIRCAST	NIR CA VALID ST	NOT-OK	OK
2020-09-22T12:48:07	2020-09-22T09:41:25	NTLHK022	ITL Ena State	Disabled	Enabled