

OMIS

Activity Definitions

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1 Introduction

1.1 Purpose

The purpose of this document is to present a list of the OMIS activity names that need to be under CM at launch. The activities are classified as *general activities*, *orbit-type activities*, *science activities*, *calibration activities*, *utility activities* and *contingency activities*, *LEO activities* and *commissioning activities*.

Contingency activities have been included as requested in the action item (Thursday, #5) from the Feb.01 MOWG in Leiden.

The general activities consist of the OMIS states that can occur in orbit. Of this list only 'Idle' will be scheduled on a regular basis during nominal operations.

The orbit-type activities cover the types of orbits OMIS will execute. Each type of orbit comprises a different combination of science and calibration measurements

The science activities cover all possible activities that will be scheduled to measure Earth radiance and solar irradiance spectra at the day-side of the orbit, for the purpose of science data product generation.

The calibration activities contain all possible activities that will be scheduled for maintaining the in-flight calibration, to derive instrument performance characteristics and to derive parameters needed for processing of the science measurements.

The utility activities contain all possible activities for configuring OMIS.

The contingency activities contain all possible activities that enable OMIS to recover from a non-nominal situation.

The LEO activities contain all activities (except commissioning activities) that, in principle, only will be used during the LEO phase.

The commissioning activities contain all activities that, in principle, only will be used during the commissioning phase of OMIS at the end of the LEO phase

Note that the duration of the activities still has to be optimised, based on the results of the performance tests and the development of the IMT.

1.2 Scope

The tables below define all currently foreseen activities, intended for nominal operations. However, in accordance with the nominal operations scenario, only the 'orbit type' activities will be contained in the BAP and scheduled accordingly on the IMT. If needed, one or more of the measurements within these 'orbit type' activities that appear on the IMT, can be replaced on an occasional basis by one of the other activities mentioned in these tables.

We plan on using part of the activities also during the LEO and commissioning phase.

Note that the provided figures for the duration of the activities still can change based on the outcome of the OMI performance measurements.

1.3 Abbreviations

BAP	Baseline Activity Profile
BF	Binning Factor



CM	Configuration Management
IAM	Interface Adapter Module
IMT	Integrated Mission Timeline
LEO	Launch and Early Orbit
MOWG	Mission Operations Working Group
OMI	Ozone Monitoring Instrument
OMIS	Ozone Monitoring Instrument System (OMI + IAM)
PRNU	Pixel Response Non Uniformity
ROD	Read-out Discipline

2 Document list

2.1 Applicable documents

- AD-1 OMIS Nominal Operations Baseline,
 RP-OMIE-KNMI-336, issue 1, 26 April 2002
- AD-2 Instrument Operations and In-Flight Calibration and Monitoring,
 PL-OMIE-KNMI-278, issue 6, 12 February 2002

2.2 Reference documents

- RD-1 OMI Launch and Early Operations Handbook,
 RP-OMIE-0000-FS-330, issue draft, 4 December 2000



3 Activity definitions

3.1 General activities

General Activities	Description	Frequency	Duration
Mode changes:			
OMI_ROD_Idle	Set ROD to Idle	TBD	One MCP
OMI_ROD_Image	Set ROD to Image	TBD	One MCP
OMI_ROD_Long	Set ROD to Long Exposure	TBD	One MCP
OMI_ROD_Cut	Set ROD to Cut	TBD	One MCP



3.2 Orbit-type activities

3.2.1 Global orbit-type activities

Activity ID/ Mnemonics	Ins. Conf. ID	'Orbit-type' Activities	Description	Typical Frequency	Duration
N1 OMI_Orbit_GlobN1	0,1,2,3,4,5,6	Global_Nominal_Orbit (N1)	Performs a series of global earth measurements (tropical, mid-latitude and arctic settings) and two times a series of 3 different darks (FM nominal) each.	14 orbits per day, 29 days per month	One orbit
N1_Ozone OMI_Orbit_GlobN1Ozon	0,1,2,3,4,5,6, 7	Global_Nominal_Ozone_Orbit (N1_Ozone)	As above but arctic measurement at southern hemisphere replaced by ozone hole measurement.	As above, but in Sept.-Nov. only	One orbit
D OMI_Orbit_GlobD	0,1,2,8,9,10,11, 12,13	Global_Daily_Orbit (D)	Performs a series of global earth measurements (tropical, mid-latitude and arctic settings), a solar science measurement using the volume diffuser, a LED source measurement (unbinned image) and two different long exposure darks (unbinned image) with 8 and 200 sec exposure time, respectively.	Once per day	One orbit
D_Ozone OMI_Orbit_GlobDOzon	0,1,2,8,9,10,11, 12,13,7	Global_Daily_Ozone_Orbit (D_Ozone)	As above but arctic measurement at southern hemisphere replaced by ozone hole measurement.	Once per day, but in Sept.-Nov. only	One orbit
W2 OMI_Orbit_GlobW2	0,1,2,18,19,20, 21,22,23,24,25	Global_Weekly_Orbit_#2 (W2)	Performs a series of global earth measurements (tropical, mid-latitude and arctic settings), a solar calibration using the regular diffuser, a WLS PRNU measurement (unbinned image) and two times a series of 3 different darks (FM calibration) each.	Once per week	One orbit
W2_Ozone OMI_Orbit_GlobW2Ozon	0,1,2,18,19,20, 21,22,23,24,25,7	Global_Weekly_Ozone_Orbit_#2 (W2_Ozone)	As above but arctic measurement at southern hemisphere replaced by ozone hole measurement.	Once per week, but in Sept.-Nov. only	One orbit
W1 OMI_Orbit_GlobW1	0,1,2,14,15,16, 17	Global_Weekly_Orbit_#1 (W1)	Performs a series of global earth measurements (tropical, mid-latitude and arctic settings), a solar calibration (unbinned image) using the volume diffuser and two different long exposure darks using 4 gains and one gain, respectively.	Once per week	One orbit
W1_Ozone OMI_Orbit_GlobW1Ozon	0,1,2,14,15,16, 17,7	Global_Weekly_Ozone_Orbit_#1 (W1_Ozone)	As above but arctic measurement at southern hemisphere replaced by ozone hole measurement.	Once per week, but in Sept.-Nov. only	One orbit



W3 OMI_Orbit_GlobW3	0,1,2,26,27,28, 29,22,23,24,25	Global_Weekly_Orbit_#3 (W3)	Performs a series of global earth measurements (tropical, mid-latitude and arctic settings), a LED stability measurement, a WLS radiometric stability measurement and two series of 3 different darks (FM calibration) each.	Once per week	One orbit
W3_Ozone OMI_Orbit_GlobW3Ozon	0,1,2,26,27,28, 29,22,23,24,25,7	Global_Weekly_Ozone_Orbit_#3 (W3_Ozone)	As above but arctic measurement at southern hemisphere replaced by ozone hole measurement.	Once per week, but in Sept.-Nov. only	One orbit
M2 OMI_Orbit_GlobM2	0,1,2,30,31,32, 33,34,35,36,37, 38,39,40,41	Global_Monthly_Orbit_#2 (M2)	Performs a series of global earth measurements (tropical, mid-latitude and arctic settings), a solar calibration using the backup diffuser, a LED gain ratio measurement, a WLS gain ratio measurement and a WLS linearity measurement.	Once per month	One orbit
M2_Ozone OMI_Orbit_GlobM2Ozon	0,1,2,30,31,32, 33,34,35,36,37, 38,39,40,41,7	Global_Monthly_Ozone_Orbit_#2 (M2_Ozone)	As above but arctic measurement at southern hemisphere replaced by ozone hole measurement.	Once per month, but in Sept.-Nov. only	One orbit
M3 OMI_Orbit_GlobM3	13	Global_Monthly_Orbit_#3 (M3)	Performs a series of 8 identical global long exposure darks (unbinned image), equally divided in time over the orbit.	Once per month	One orbit

3.2.2 Spatial zoom-in orbit-type activities

Activity ID/ Mnemonics	Ins. Conf. ID	Spatial orbit-type Activities	Description	Frequency	Duration
N2 OMI_Orbit_SpatN2	42,43,44,45,46, 47,48	Spatial_Nominal_Orbit (N2)	Performs a series of spatial zoom-in earth measurements (tropical, mid-latitude and arctic settings) and two times a series of 3 different spatial zoom-in darks (FM nominal) each.	Once per month, 14 consecutive orbits	One orbit
N2_Ozone OMI_Orbit_SpatN2Ozon	42,43,44,45,46, 47,48,49	Spatial_Nominal_Ozone_Orbit (N2_Ozone)	As above but arctic measurement at southern hemisphere replaced by ozone hole measurement.	As above but In Sept.-Nov. only	One orbit
M1 OMI_Orbit_SpatM1	42,43,44,50,51, 52,53,54,55	Spatial_Monthly_Orbit (M1)	Performs a series of spatial zoom-in earth measurements (tropical, mid-latitude and arctic settings), a spatial zoom-in solar calibration using the volume diffuser and two times a series of 3 different spatial zoom-in darks (FM calibration) each.	Once per month, after N2 sequence	One orbit
M1_Ozone OMI_Orbit_SpatM1Ozon	42,43,44,50,51, 52,53,54,55,49	Spatial_Monthly_Ozone_Orbit (M1_Ozone)	As above but arctic measurement at southern hemisphere replaced by ozone hole measurement.	Once per month, after N2_Ozone sequence but in Sept.-Nov. only	One orbit

3.2.3 Spectral zoom-in orbit-type activities

Activity ID/ Mnemonics	Ins. Conf. ID	Spectral orbit-type Activities	Description	Frequency	Duration
N3 OMI_Orbit_SpecN3	56,57,58,59,60, 61	Spectral_Nominal_Orbit (N3)	Performs a series of spectral zoom-in earth measurements (tropical, mid-latitude and arctic settings) and two times a series of 3 different spectral zoom-in darks (FM nominal) each.	Only occasionally, but then 14 consecutive orbits	One orbit
N4 OMI_Orbit_SpecN3Ozon	56,57,58,62,63, 64,65,66	Spectral_Nominal_Orbit (N4)	Performs a series of spectral zoom-in earth measurements (tropical, mid-latitude and arctic settings), a spectral zoom-in solar calibration using the volume diffuser and two times a series of 3 different spectral zoom-in darks (FM calibration) each.	Only occasionally, after N3 sequence	One orbit

3.3 Science (data collection) activities

Activity ID	Ins. Conf. ID	'Science_Dayside' measurements	Description	Frequency	Duration
A1	0	Global_Tropics	Global nadir observation, tropical radiance scenario for the sequence settings, binning factor 8	Once per orbit in N1,D,W1,W2,W3 and M2	10 min
A2	1	Global_Midlat	Global nadir observation, mid-latitude radiance scenario for the sequence settings, binning factor 8	Twice per orbit in N1,D,W1,W2,W3 and M2	15 min
A3	2	Global_Arctic	Global nadir observation, (ant)arctic radiance scenario for the sequence settings, binning factor 8	Twice per orbit in N1,D,W1,W2,W3 and M2	2.75 min
A5	7	Global_Ozonhole	Global nadir observation, ozon hole radiance scenario for the sequence settings, binning factor 8	Once per orbit in N1,D,W1,W2,W3 and M2; Sept.-Nov. period only	2.75 min
A21	42	Spatial_Tropics	Spatial zoom-in nadir observation, tropical radiance scenario for the sequence settings, binning factor 4	Once per orbit in N2 and M1	10 min
A22	43	Spatial_Midlat	Spatial zoom-in nadir observation, mid-latitude radiance scenario for the sequence settings, binning factor 4	Twice per orbit in N2 and M1	15 min
A23	44	Spatial_Arctic	Spatial zoom-in nadir observation, (ant)arctic radiance scenario for the sequence settings, binning factor 4	Twice per orbit in N2 and M1	2.75 min
A25	49	Spatial_Ozonhole	Spatial zoom-in nadir observation, ozon hole radiance scenario for the sequence settings, binning factor 4	Once per orbit in N2 and M1; Sept.-Nov. period only	2.75 min



Activity ID	Ins. Conf. ID	'Science_Dayside' measurements	Description	Frequency	Duration
A28	56	Spectral_Tropics	Spectral zoom-in nadir observation, tropical radiance scenario for the sequence settings, binning factor 4	Once per orbit in N3 and N4	10 min
A29	57	Spectral_Midlat	Spectral zoom-in nadir observation, mid-latitude radiance scenario for the sequence settings, binning factor 4	Twice per orbit in N3 and N4	15 min
A30	58	Spectral_Arctic	Spectral zoom-in nadir observation, (ant)arctic radiance scenario for the sequence settings, binning factor 4	Twice per orbit in N3 and N4	2.75 min
A6	8	Sun_Volume_Global	Global Solar Calibration, using volume diffuser and binning factor 8	Once per day in D	1 min
A26	50	Sun_Volume_Spatial	Spatial Solar calibration, using volume diffuser and binning factor 4	Once per month in M1	1 min
A32	62	Sun_Volume_Spectral	Spectral Solar Calibration, using volume diffuser and binning factor 4	Once per occasion in N4	1 min



3.4 Calibration (measurement) activities

3.4.1 Sun calibration activities

Activity ID	Ins. Conf. ID	'Sun Calibration' measurements	Description	Frequency	Duration
A9	14	Sun_Volume_Unbinned	Solar calibration, using volume diffuser and binning factor 1	Once per week in W1	1 min
A11	18	Sun_Regular_Global	Global Solar Calibration, using regular diffuser and binning factor 8	Once per week in W2	1 min
A16	30	Sun_Backup_Global	Global Solar Calibration, using backup diffuser and binning factor 8	Once per month in M2	1 min

3.4.2 WLS calibration activities

Activity ID	Ins. Conf. ID	'WLS Calibrat.' measurements	Description	Frequency	Duration ¹
A18	38	WLS_FourGains_BinningEight	WLS gain ratio calibration, using 4 gains (four areas, each 200 columns) and binning factor 8	Once per month in M2	20 sec
A18	39	WLS_OneGain_BinningEight	WLS gain ratio calibration, using 1 gain for entire CCD and binning factor 8	Once per month in M2	20 sec
A12	21	WLS_PRNU_Unbinned	Unbinned WLS PRNU measurement for determining the pixel-to-pixel gain factor	Once per week in W2	70 sec
A19	41	WLS_Linearity	WLS measurement to calibrate the detector linearity	Once per month in M2	20 sec
A15	29	WLS_Stability_BinningEight	WLS radiometric stability measurement using binning factor 8	Once per week in W3	70 sec

1) All durations for the WLS calibration activities include a 10 seconds WLS warming-up time, i.e. each WLS measurement starts with a 10 seconds WLS warming-up time followed by the actual WLS calibration measurement.

3.4.3 LED calibration activities

Activity ID	Ins. Conf. ID	'LED Calibrat.' measurements	Description	Frequency	Duration
A17	34	LED_FourGains_ BinningEight	LED gain ration calibration, using 4 gains (four areas, each 200 columns) and binning factor 8	Once per month in M2	20 sec
A17	35	LED_OneGain_ BinningEight	LED gain ratio calibration, using 1 gain for entire CCD and binning factor 8	Once per month in M2	20 sec
A7	11	LED_Unbinned	Unbinned LED measurement for CCD bad pixel identification	Once per day in D	3 min
A14	27	LED_Stability_ BinningEight	LED stability measurement using binning factor 8	Once per week in W3	30 sec

3.4.4 Dark calibration activities

Activity ID	Ins. Conf. ID	'Dark Calibrat.' measurements	Description	Frequency	Duration
A4	3	Dark_Global_Tropics_NoFM	Dark with identical settings as 'Global_Tropics' and FM in nominal position	Twice per orbit in N1	10 sec
A4	4	Dark_Global_Midlat_NoFM	Dark with identical settings as 'Global_Midlat' and FM in nominal position	Twice per orbit in N1	10 sec
A4	5	Dark_Global_Arctic_NoFM	Dark with identical settings as 'Global_Arctic' and FM in nominal position	Twice per orbit in N1	10 sec
A4	6	Dark_Global_Ozonhole_NoFM	Dark with identical settings as 'Global_Ozonhole' and FM in nominal position	Twice per orbit in N1	10 sec



Activity ID	Ins. Conf. ID	'Dark Calibrat.' measurements	Description	Frequency	Duration
A24	45	Dark_Spatial_Tropics_NoFM	Dark with identical settings as 'Spatial_Tropics' and FM in nominal position	Twice per orbit in N2	10 sec
A24	46	Dark_Spatial_Midlat_NoFM	Dark with identical settings as 'Spatial_Midlat' and FM in nominal position	Twice per orbit in N2	10 sec
A24	47	Dark_Spatial_Arctic_NoFM	Dark with identical settings as 'Spatial_Arctic' and FM in nominal position	Twice per orbit in N2	10 sec
A24	48	Dark_Spatial_Ozonhole_NoFM	Dark with identical settings as 'Spatial_Ozonhole' and FM in nominal position	Twice per orbit in N2	10 sec
A31	59	Dark_Spectral_Tropics_NoFM	Dark with identical settings as 'Spectral_Tropics' and FM in nominal position	Twice per orbit in N3	10 sec
A31	60	Dark_Spectral_Midlat_NoFM	Dark with identical settings as 'Spectral_Midlat' and FM in nominal position	Twice per orbit in N3	10 sec
A31	61	Dark_Spectral_Arctic_NoFM	Dark with identical settings as 'Spectral_Arctic' and FM in nominal position	Twice per orbit in N3	10 sec



Activity ID	Ins. Conf. ID	'Dark Calibrat.' measurements	Description	Frequency	Duration
A13	22	Dark_Global_Tropics_FM	Dark with identical settings as 'Global_Tropics' and FM in calibration position	Twice per orbit in W2 and W3	10 sec
A13	23	Dark_Global_Midlat_FM	Dark with identical settings as 'Global_Midlat' and FM in calibration position	Twice per orbit in W2 and W3	10 sec
A13	24	Dark_Global_Arctic_FM	Dark with identical settings as 'Global_Arctic' and FM in calibration position	Twice per orbit in W2 and W3	10 sec
A13	25	Dark_Global_Ozonhole_FM	Dark with identical settings as 'Global_Ozonhole' and FM in calibration position	Twice per orbit in W2 and W3	10 sec
A27	52	Dark_Spatial_Tropics_FM	Dark with identical settings as 'Spatial_Tropics' and FM in calibration position	Twice per orbit in M1	10 sec
A27	53	Dark_Spatial_Midlat_FM	Dark with identical settings as 'Spatial_Midlat' and FM in calibration position	Twice per orbit in M1	10 sec
A27	54	Dark_Spatial_Arctic_FM	Dark with identical settings as 'Spatial_Arctic' and FM in calibration position	Twice per orbit in M1	10 sec
A27	55	Dark_Spatial_Ozonhole_FM	Dark with identical settings as 'Spatial_Ozonhole' and FM in calibration position	Twice per orbit in M1	10 sec
A33	64	Dark_Spectral_Tropics_FM	Dark with identical settings as 'Spectral_Tropics' and FM in calibration position	Twice per orbit in N4	10 sec
A33	65	Dark_Spectral_Midlat_FM	Dark with identical settings as 'Spectral_Midlat' and FM in calibration position	Twice per orbit in N4	10 sec
A33	66	Dark_Spectral_Arctic_FM	Dark with identical settings as 'Spectral_Arctic' and FM in calibration position	Twice per orbit in N4	10 sec



Activity ID	Ins. Conf. ID	'Dark Calibrat.' measurements	Description	Frequency	Duration
A6	9	Dark_Sun_Volume_Global	Dark with identical settings as 'Sun_Volume_Global'	Once per orbit in D	1 min
A26	51	Dark_Sun_Volume_Spatial	Dark with identical settings as 'Sun_Volume_Spatial'	Once per month in M1	1 min
A32	63	Dark_Sun_Volume_Spectral	Dark with identical settings as 'Sun_Volume_Spectral'	Once per occasion in N4	1 min
A9	15	Dark_Sun_Volume_Unbinned	Dark with identical settings as 'Sun_Volume_Unbinned'	Once per week in W1	1 min
A11	19	Dark_Sun_Regular_Global	Dark with identical settings as 'Sun_Regular_Global'	Once per week in W2	1min
A16	31	Dark_Sun_Backup_Global	Dark with identical settings as 'Sun_Backup_Global'	Once per month in M2	1 min
A18	36	Dark_WLS_FourGains_BinningEight	Dark with identical settings as 'WLS_FourGains_BinningEight'	Once per month in M2	10 sec
A18	37	Dark_WLS_OneGain_BinningEight	Dark with identical settings as 'WLS_OneGain_BinningEight'	Once per month in M2	10 sec
A12	20	Dark_WLS_PRNU_Unbinned	Dark with identical settings as 'WLS_PRNU_Unbinned'	Once per week in W2	60 sec
A19	40	Dark_WLS_Linearity	Dark with identical settings as 'WLS_Linearity'	Once per month in M2	10 sec
A15	28	Dark_WLS_Stability_BinningEight	Dark with identical settings as 'WLS_Stability_BinningEight'	Once per week in W3	60 sec



Activity ID	Ins. Conf. ID	'Dark Calibrat.' measurements	Description	Frequency	Duration
A17	32	Dark_LED_FourGains_BinningEight	Dark with identical settings as 'LED_FourGains_BinningEight'	Once per month in M2	20 sec
A17	33	Dark_LED_OneGain_BinningEight	Dark with identical settings as 'LED_OneGain_BinningEight'	Once per month in M2	20 sec
A7	10	Dark_LED_Unbinned	Dark with identical settings as 'LED_Unbinned'	Once per day in D	3 min
A14	26	Dark_LED_Stability_BinningEight	Dark with identical settings as 'LED_Stability_BinningEight'	Once per week in W3	30 sec
A8, A20	13	Long_Dark_Unbinned_LongDuration	Long exposure dark, binning factor 1, FM in calibration position, exposure time 200 sec	Once per day in D, eight per month in M3	TBD
A8	12	Long_Dark_Unbinned_ShortDuration	Long exposure dark, binning factor 1, FM in calibration position, exposure time 8 sec	Once per day in D	TBD
A10	16	Long_Dark_FourGains_BinningEight	Long exposure dark, binning factor 8, four gains (four areas, each 200 columns)	Once per week in W1	3 min
A10	17	Long_Dark_OneGain_BinningEight	Long exposure dark, binning factor 8, 1 gain for entire CCD	Once per week in W1	3 min

3.5 Utility activities

Activity ID	'Utility' Activities	Description	Frequency	Duration
Mode transitions:				
A45	OMI_Mode_OffToInit	OMIS OFF/SAFE/SURVIVAL mode to INITIALIZATION mode	Nominally: a few times during OMIS lifetime	TBD
A46	OMI_Mode_InitToIdle	OMIS INITIALIZATION mode to MEASUREMENT mode with ROD = Idle	Nominally: a few times during OMIS lifetime	TBD
OPB heater settings:				
A47	OMI_OPBHeater_0	The OPB heater configuration is set to 0 W	2-8 /year	One MCP
A48	OMI_OPBHeater_1	The OPB heater configuration is set to 1 W	2-8 /year	One MCP
A49	OMI_OPBHeater_2	The OPB heater configuration is set to 2 W	2-8 /year	One MCP
A50	OMI_OPBHeater_3	The OPB heater configuration is set to 3 W	2-8 /year	One MCP
A51	OMI_OPBHeater_4	The OPB heater configuration is set to 4 W	2-8 /year	One MCP
A52	OMI_OPBHeater_5	The OPB heater configuration is set to 5 W	2-8 /year	One MCP
A53	OMI_OPBHeater_6	The OPB heater configuration is set to 6 W	2-8 /year	One MCP
A54	OMI_OPBHeater_7	The OPB heater configuration is set to 7 W	2-8 /year	One MCP
A55	OMI_OPBHeater_8	The OPB heater configuration is set to 8 W	2-8 /year	One MCP
A56	OMI_OPBHeater_9	The OPB heater configuration is set to 9 W	2-8 /year	One MCP
A57	OMI_OPBHeater_10	The OPB heater configuration is set to 10 W	2-8 /year	One MCP
A58	OMI_OPBHeater_11	The OPB heater configuration is set to 11 W	2-8 /year	One MCP
A59	OMI_OPBHeater_12	The OPB heater configuration is set to 12 W	2-8 /year	One MCP
A60	OMI_OPBHeater_13	The OPB heater configuration is set to 13 W	2-8 /year	One MCP
A61	OMI_OPBHeater_14	The OPB heater configuration is set to 14 W	2-8 /year	One MCP
A62	OMI_OPBHeater_15	The OPB heater configuration is set to 15 W	2-8 /year	One MCP
CCD temperature setpoints:				
A63	OMI_CCDSetpoint	The setpoint for both CCD1 and CCD2 is set		One MCP
Maneuvering:				
A64	OMI_DeltaVManeuver	Prepare OMIS for a Delta-V maneuver	Nominally: once every 30 to 150 days for an altitude raise	TBD



		(either altitude raise or inclination plane change)	Delta-V maneuver (depending on the solar activity level) or a few times during OMIS lifetime for an inclination plane change Delta-V maneuver.	
A65	OMI_FPManeuver	Prepare OMIS for a Fine Point maneuver	Related to GN&C sensor calibrations or instrument calibrations	TBD

Note that a lot of utility 'activities' like powering the IAM or the EA and OA power-up and initialisation are carried out during real-time contact only, hence via a CECIL proc. Therefore, these 'activities' are not defined in this document.

3.6 Contingency activities

Activity ID	'Contingency' Activities	Description	Frequency	Duration
A75	OMI_SafeRecovery	OMIS is commanded to go from any mode into the IDLE mode for S/C SAFE state. Mechanisms are commanded to the nominal position.	TBD	TBD
A76	OMI_SurvivalRecovery	OMIS is commanded from any mode into the SURVIVAL mode. The OMI and IAM quiet power buses are turned OFF and the survival buses are (turned) ON.	TBD	TBD
A77	OMI_SISAbortRecovery	An active SIS is aborted (it is not possible to abort the safe SIS)	TBD	TBD
A78	OMI_DeContamination	Power is applied to OMI survival bus A in addition to 'normal' operational power. Decontamination will be required in early mission and typically be completed after a period of 3 weeks, and later during the mission if needed, in which case a request will be made. Decontamination/outgassing is achieved via an elevated temperature level of the OA, which is controlled by the OA thermostats connected to Survival Bus A. T/S-Close temperature is 295 K, T/S-Open temperature is 305 K. The actual temperature will therefore cycle between approx. 295 K and 305 K. For scientific data collection purposes, the decontamination mode will also be utilized on several other occasions during LEOP. The decontamination mode will then be used for its higher temperature level and not for the purpose of decontamination/outgassing.	TBD	TBD
A79	OMI_IAMFuncCheckOut	IAM Functional Checkout (TBD)	TBD	TBD
A80	OMI_OMIFuncCheckOut	OMI Functional Checkout (TBD)	TBD	TBD



3.7 LEO phase activities

This section describes all activities performed during the LEO phase. Only activities with mnemonics OMI_LEO_xxxx are new, LEO specific activities. All other activities mentioned in this section were already defined as part of the nominal operations phase.



Activity ID	'LEO' Activities	Description	Frequency	Duration
Video channel testpattern:				
A100	OMI_LEO_VideoRamp	Generate video ramp testpattern (both UV and VIS)	A few times typical	TBD
A101	OMI_LEO_VideoRandom	Generate video random testpattern (both UV and VIS)	A few times typical	TBD
SIS checkout:				
A102	OMI_LEO_SISLED	LED calibration SIS check-out	A few times typical, after SIS update	TBD
A103	OMI_LEO_SISDark	Dark calibration SIS check-out	As above	TBD
A104	OMI_LEO_SISWLS	WLS calibration SIS check-out	As above	TBD
A105	OMI_LEO_SISSolar	Solar calibration SIS check-out	As above	TBD
Temperature setpoint:				
A106	OMI_LEO_SetTemp298	Set OA and detector temperature to 298K	Once before functional test part 1 at 298K Once before functional test part 3 at 298K Once before functional test part 6 at 298K	TBD
A107	OMI_LEO_SetTemp273	Set OA and detector temperature to 273K	Once before functional test part 4 at 273K Once before functional test part 7 at 273K	TBD
A108	OMI_LEO_SetTemp265	Set OA and detector temperature to 265K	Once before functional test part 2 at 265K Once before functional test part 5 at 265K Once before functional test part 8 at 265K	TBD
Functional test (3 consecutive orbits):				
A109	OMI_LEO_FuncOrbit1	First orbit (nominal orbit N1) out of three orbits of OA functional test	Once during functional test	One orbit



Activity ID	'LEO' Activities	Description	Frequency	Duration
			part 1 at 298K Once during functional test part 2 at 265K Once during functional test part 3 at 298K Once during functional test part 4 at 273K Once during functional test part 5 at 265K Once during functional test part 6 at 298K Once during functional test part 7 at 273K Once during functional test part 8 at 265K	
A110	OMI_LEO_FuncOrbit2	Second orbit (daily orbit D without solar calibration) out of three orbits of OA functional test	Once during functional test part 1 at 298K Once during functional test part 2 at 265K Once during functional test part 3 at 298K Once during functional test part 4 at 273K Once during functional test part 5 at 265K Once during functional test part 6 at 298K Once during functional test part 7 at 273K Once during functional test part 8 at 265K	One orbit

Activity ID	'LEO' Activities	Description	Frequency	Duration
A111	OMI_LEO_FuncOrbit3	Third orbit (weekly #3 orbit) out of three orbits of OA functional test	Once during functional test part 1 at 298K Once during functional test part 2 at 265K Once during functional test part 3 at 298K Once during functional test part 4 at 273K Once during functional test part 5 at 265K Once during functional test part 6 at 298K Once during functional test part 7 at 273K Once during functional test part 8 at 265K	One orbit
Earth view optimisation test (11 consecutive orbits):				
A112	OMI_LEO_EVOrbit1	First orbit (global tropical) out of 11 orbits of earth view (EV) optimisation test	Once during earth view optimisation Once during calibration and charact. part 1 Once during calibration and charact. part 2 Once during calibration and charact. part 3	One orbit
A113	OMI_LEO_EVOrbit2	Second orbit (global midlatitude) out of 11 orbits of earth view (EV) optimisation test	Once during earth view optimisation Once during calibration and charact. part 1 Once during calibration and charact. part 2	One orbit

Activity ID	'LEO' Activities	Description	Frequency	Duration
			Once during calibration and charact. part 3	
A114	OMI_LEO_EVOrbit3	Third orbit (global arctic) out of 11 orbits of earth view (EV) optimisation test	Once during earth view optimisation Once during calibration and charact. part 1 Once during calibration and charact. part 2 Once during calibration and charact. part 3	One orbit
A115	OMI_LEO_EVOrbit4	Fourth orbit (global ozone) out of 11 orbits of earth view (EV) optimisation test	Once during earth view optimisation Once during calibration and charact. part 1 Once during calibration and charact. part 2 Once during calibration and charact. part 3	One orbit
A116	OMI_LEO_EVOrbit5	Fifth orbit (spatial tropical) out of 11 orbits of earth view (EV) optimisation test	Once during earth view optimisation Once during calibration and charact. part 1 Once during calibration and charact. part 2 Once during calibration and charact. part 3	One orbit
A117	OMI_LEO_EVOrbit6	Sixth orbit (spatial midlatitude) out of 11 orbits of earth view (EV) optimisation test	Once during earth view optimisation Once during calibration and charact. part 1 Once during calibration and	One orbit

Activity ID	'LEO' Activities	Description	Frequency	Duration
			charact. part 2 Once during calibration and charact. part 3	
A118	OMI_LEO_EVOrbit7	Seventh orbit (spatial arctic) out of 11 orbits of earth view (EV) optimisation test	Once during earth view optimisation Once during calibration and charact. part 1 Once during calibration and charact. part 2 Once during calibration and charact. part 3	One orbit
A119	OMI_LEO_EVOrbit8	Eighth orbit (spatial ozone) out of 11 orbits of earth view (EV) optimisation test	Once during earth view optimisation Once during calibration and charact. part 1 Once during calibration and charact. part 2 Once during calibration and charact. part 3	One orbit
A120	OMI_LEO_EVOrbit9	Nineth orbit (spectral tropical) out of 11 orbits of earth view (EV) optimisation test	Once during earth view optimisation Once during calibration and charact. part 1 Once during calibration and charact. part 2 Once during calibration and charact. part 3	One orbit
A121	OMI_LEO_EVOrbit10	Tenth orbit (spectral midlatitude) out of 11 orbits of earth view (EV) optimisation test	Once during earth view optimisation Once during calibration and charact. part 1	One orbit

Activity ID	'LEO' Activities	Description	Frequency	Duration
			Once during calibration and charact. part 2 Once during calibration and charact. part 3	
A122	OMI_LEO_EVOrbit11	Eleventh orbit (spectral arctic) out of 11 orbits of earth view (EV) optimisation test	Once during earth view optimisation Once during calibration and charact. part 1 Once during calibration and charact. part 2 Once during calibration and charact. part 3	One orbit
Calibration and characterisation part 1 (16 consecutive orbits):				
A112-122	OMI_LEO_EVOrbit1 till OMI_LEO_EVOrbit11	see description above	Once	11 x One orbit
N1	OMI_Orbit_GlobN1		Once	One orbit
W1	OMI_Orbit_GlobW1		Once	One orbit
D	OMI_Orbit_GlobD		Once	One orbit
W2	OMI_Orbit_GlobW2		Once	One orbit
W3	OMI_Orbit_GlobW3		Once	One orbit
Calibration and characterisation part 2 (20 consecutive orbits):				
A112-122	OMI_LEO_EVOrbit1 till OMI_LEO_EVOrbit11	See description above		11 x One orbit
N2	OMI_Orbit_SpatN2		Once	One orbit
M1	OMI_Orbit_SpatM1		Once	One orbit
W1	OMI_Orbit_GlobW1		Once	One orbit
D	OMI_Orbit_GlobD		Once	One orbit
W2	OMI_Orbit_GlobW2		Once	One orbit
M2	OMI_Orbit_GlobM2		Once	One orbit
M3	OMI_Orbit_GlobM3		Once	One orbit

Activity ID	'LEO' Activities	Description	Frequency	Duration
W3	OMI_Orbit_GlobW3		Once	One orbit
N1	OMI_Orbit_GlobN1		Once	One orbit
Calibration and characterisation part 3 (22 consecutive orbits):				
A112-122	OMI_LEO_EVOrbit1 till OMI_LEO_EVOrbit11	See description above		11 x One orbit
N2	OMI_Orbit_SpatN2		Once	One orbit
M1	OMI_Orbit_SpatM1		Once	One orbit
W1	OMI_Orbit_GlobW1		Once	One orbit
D	OMI_Orbit_GlobD		Once	One orbit
W2	OMI_Orbit_GlobW2		Once	One orbit
M2	OMI_Orbit_GlobM2		Once	One orbit
M3	OMI_Orbit_GlobM3		Once	One orbit
W3	OMI_Orbit_GlobW3		Once	One orbit
N1	OMI_Orbit_GlobN1		Once	One orbit
A123	OMI_LEO_GlobD1	Same as the OMI_Orbit_GlobD activity but now with BF4 instead of BF8 for the solar calibration with regular diffuser	Once	One orbit
A124	OMI_LEO_GlobD2	Same as the OMI_Orbit_GlobD activity but now with BF1 instead of BF8 for the solar calibration with regular diffuser	Once	One orbit

3.8 Commissioning phase activities

This section describes all activities performed during the commissioning phase. Only activities with mnemonics OMI_COM_xxxx are new, commissioning phase specific activities. All other activities mentioned in this section were already defined as part of the nominal operations phase or LEO phase.

Activity ID	'Commissioning phase' Activities	Description	Frequency	Duration
Earth view optimisation (11 consecutive orbits):				
A112-122	OMI_LEO_EVOrbit1 till OMI_LEO_EVOrbit11	See description above	Once	11 x One orbit
Super spatial zoom-in mode (4 consecutive orbits):				
A150	OMI_COM_SSOorbit1	First orbit (tropical settings) out of 4 orbits with super spatial zoom-in mode	Once	One orbit
A151	OMI_COM_SSOorbit2	Second orbit (midlatitude settings) out of 4 orbits with super spatial zoom-in mode	Once	One orbit
A152	OMI_COM_SSOorbit3	Third orbit (arctic settings) out of 4 orbits with super spatial zoom-in mode	Once	One orbit
A153	OMI_COM_SSOorbit4	Fourth orbit (ozone settings) out of 4 orbits with super spatial zoom-in mode	Once	One orbit
Dark current measurement (4 consecutive orbits):				
A154	OMI_COM_DarkShort	Series of short exposure dark current measurements with folding mirror in optical beam	Twice	One orbit
A155	OMI_COM_DarkLong	Series of long exposure dark current measurements with folding mirror in optical beam	Twice	One orbit
WLS/LED measurements (6 consecutive orbits):				
A15	OMI_WLS_Stability	WLS radiometric stability measurement with BF8	Once	TBD
A14	OMI_LED_Stability	LED stability measurement with BF8	Once	TBD
A156	OMI_COM_WLSBF1	WLS PRNU BF1 (unbinned) measurement	Once	TBD
A157	OMI_COM_WLSBF4	WLS PRNU BF4 measurement for verification of the WLS PRNU BF1 measurement	Once	TBD
A158	OMI_COM_WLSBF8	WLS PRNU BF8 measurement for verification of the WLS PRNU BF1 measurement	Once	TBD
TBD	LED measurements ?	LED measurements (BF8) with various configurations	Once	One orbit
A162	OMI_COM_DarkShort	Short exposure dark current measurements with different exposure time: 100, 400, 800, 1200, 1600, 2000 and 6000 ms. FMM not blocking the nadir optical path	Once	½ orbit
A163	OMI_COM_DarkLong	Long exposure dark current measurements with different exposure times: 8, 100 and 200 s. FMM not blocking the nadir optical path.	Once	½ orbit



Activity ID	'Commissioning phase' Activities	Description	Frequency	Duration
A164	OMI_COM_GlobD1	Same as the OMI_Orbit_GlobD activity but now with BF4 instead of BF8 for the solar calibration with backup diffuser	Once	One orbit
A165	OMI_COM_GlobD2	Same as the OMI_Orbit_GlobD activity but now with BF1 instead of BF8 for the solar calibration with backup diffuser	Once	One orbit
A166	OMI_COM_SunVolGlob	Solar calibration, using volume diffuser with BF8, with longer duration (10 minutes) as compared to identical measurement-type activity OMI_Sun_Vol_Global (A6). Purpose: examining straylight behaviour.	Once	10 minutes
A167	OMI_COM_NadirEclips	Global nadir configuration (BF8) with long exposure time for nadir eclipse observations (aurora's, cities, lightning, fires).	Once	½ orbit



4 Appendix A

This appendix provides a list with all defined measurement-type activities ranging from A1 to A33. The order in which the measurement types are listed within each measurement-type activity is according to the order in which the measurement types are executed.

In this list also the mnemonics is defined for each measurement-type activity.

Note that the duration of some of the activities will change.



Activity ID/ Activity mnemonics	Ins. Cnf. ID	'Dark Calibrat.' measurements	Description	Frequency	Duration
A1 OMI_Global_Tropics	0	Global_Tropics	Global nadir observation, tropical radiance scenario for the sequence settings, binning factor 8	Once per orbit in N1,D,W1,W2,W3 and M2	10 min
A2 OMI_Global_Midlat	1	Global_Midlat	Global nadir observation, mid-latitude radiance scenario for the sequence settings, binning factor 8	Twice per orbit in N1,D,W1,W2,W3 and M2	15 min
A3 OMI_Global_Arctic	2	Global_Arctic	Global nadir observation, (ant)arctic radiance scenario for the sequence settings, binning factor 8	Twice per orbit in N1,D,W1,W2,W3 and M2	2.75 min
A4 OMI_Dark_GlobalNoFM	3	Dark_Global_Tropics_NoFM	Dark with identical settings as 'Global_Tropics' and FM in nominal position	Twice per orbit in N1	10 sec
	4	Dark_Global_Midlat_NoFM	Dark with identical settings as 'Global_Midlat' and FM in nominal position	Twice per orbit in N1	10 sec
	5	Dark_Global_Arctic_NoFM	Dark with identical settings as 'Global_Arctic' and FM in nominal position	Twice per orbit in N1	10 sec
	6	Dark_Global_Ozonhole_NoFM	Dark with identical settings as 'Global_Ozonhole' and FM in nominal position	Twice per orbit in N1	10 sec
A5 OMI_Global_Ozonhole	7	Global_Ozonhole	Global nadir observation, ozon hole radiance scenario for the sequence settings, binning factor 8	Once per orbit in N1,D,W1,W2,W3 and M2; Sept.-Nov. period only	2.75 min
A6 OMI_Sun_Vol_Global	8	Sun_Volume_Global	Global Solar Calibration, using volume diffuser and binning factor 8	Once per day in D	1 min
	9	Dark_Sun_Volume_Global	Dark with identical settings as 'Sun_Volume_Global'	Once per orbit in D	1 min
A7 OMI_LED_Unbinned	10	Dark_LED_Unbinned	Dark with identical settings as 'LED_Unbinned'	Once per day in D	3 min
	11	LED_Unbinned	Unbinned LED measurement for determining CCD bad pixel identification	Once per day in D	3 min



Activity ID/ Activity mnemonics	Ins. Cnf. ID	'Dark Calibrat.' measurements	Description	Frequency	Duration
A8 OMI_Dark_Unbinned	12	Long_Dark_Unbinned_ShortDuration	Long exposure dark, binning factor 1, FM in calibration position, exposure time 8 sec	Once per day in D	TBD
	13	Long_Dark_Unbinned_LongDuration	Long exposure dark, binning factor 1, FM in calibration position, exposure time 200 sec	Once per day in D	TBD
A9 OMI_Sun_Vol_Unbinned	14	Sun_Volume_Unbinned	Solar calibration, using volume diffuser and binning factor 1	Once per week in W1	1 min
	15	Dark_Sun_Volume_Unbinned	Dark with identical settings as 'Sun_Volume_Unbinned'	Once per week in W1	1 min
A10 OMI_Dark_Gains	16	Long_Dark_FourGains_BinningEight	Long exposure dark, binning factor 8, four gains (four areas, each 200 columns)	Once per week in W1	3 min
	17	Long_Dark_OneGain_BinningEight	Long exposure dark, binning factor 8, 1 gain for entire CCD	Once per week in W1	3 min
A11 OMI_Sun_Reg_Global	18	Sun_Regular_Global	Global Solar Calibration, using regular diffuser and binning factor 8	Once per week in W2	1 min
	19	Dark_Sun_Regular_Global	Dark with identical settings as 'Sun_Regular_Global'	Once per week in W2	1min
A12 OMI_WLS_PRNU	20	Dark_WLS_PRNU_Unbinned	Dark with identical settings as 'WLS_Unbinned'	Once per week in W2	60 sec
	21	WLS_PRNU_Unbinned	Unbinned WLS PRNU measurement for determining the pixel-to-pixel gain factor	Once per week in W2	70 sec
A13 OMI_Dark_GlobalFM	22	Dark_Global_Tropics_FM	Dark with identical settings as 'Global_Tropics' and FM in calibration position	Twice per orbit in W2 and W3	10 sec
	23	Dark_Global_Midlat_FM	Dark with identical settings as 'Global_Midlat' and FM in calibration position	Twice per orbit in W2 and W3	10 sec
	24	Dark_Global_Arctic_FM	Dark with identical settings as 'Global_Arctic' and FM in calibration position	Twice per orbit in W2 and W3	10 sec
	25	Dark_Global_Ozonhole_FM	Dark with identical settings as 'Global_Ozonhole' and FM in calibration position	Twice per orbit in W2 and W3	10 sec
A14	26	Dark_LED_Stability_BinningEight	Dark with identical settings as 'LED_Stability_BinningEight	Once per week in W3	30 sec



Activity ID/ Activity mnemonics	Ins. Cnf. ID	'Dark Calibrat.' measurements	Description	Frequency	Duration
OMI_LED_Stability	27	LED_Stability_ BinningEight	LED stability measurement using binning factor 8	Once per week in W3	30 sec
A15	28	Dark_WLS_Stability_ BinningEight	Dark with identical settings as 'WLS_Stability_BinningEight'	Once per week in W3	60 sec
OMI_WLS_Stability	29	WLS_Stability_ BinningEight	WLS radiometric stability measurement using binning factor 8	Once per week in W3	70 sec
A16	30	Sun_Backup_Global	Global Solar Calibration, using backup diffuser and binning factor 8	Once per month in M2	1 min
OMI_Sun_Back_Global	31	Dark_Sun_Backup_Global	Dark with identical settings as 'Sun_Backup_Global'	Once per month in M2	1 min
A17	32	Dark_LED_FourGains_ BinningEight	Dark with identical settings as 'LED_FourGains_BinningEight'	Once per month in M2	20 sec
OMI_LED_Gains	33	Dark_LED_OneGain_ BinningEight	Dark with identical settings as 'LED_OneGain_BinningEight'	Once per month in M2	20 sec
	34	LED_FourGains_ BinningEight	LED gain ration calibration, using 4 gains (four areas, each 200 columns) and binning factor 8	Once per month in M2	20 sec
	35	LED_OneGain_ BinningEight	LED gain ratio calibration, using 1 gain for entire CCD and binning factor 8	Once per month in M2	20 sec
A18	36	Dark_WLS_FourGains_ BinningEight	Dark with identical settings as 'WLS_FourGains_BinningEight'	Once per month in M2	10 sec
OMI_WLS_Gains	37	Dark_WLS_OneGain_ BinningEight	Dark with identical settings as 'WLS_OneGain_BinningEight'	Once per month in M2	10 sec
	38	WLS_FourGains_ BinningEight	WLS gain ratio calibration, using 4 gains (four areas, each 200 columns) and binning factor 8	Once per month in M2	20 sec
	39	WLS_OneGain_ BinningEight	WLS gain ratio calibration, using 1 gain for entire CCD and binning factor 8	Once per month in M2	20 sec
A19	40	Dark_WLS_Linearity	Dark with identical settings as 'WLS_Linearity'	Once per month in M2	10 sec



Activity ID/ Activity mnemonics	Ins. Cnf. ID	'Dark Calibrat.' measurements	Description	Frequency	Duration
OMI_WLS_Linearity	41	WLS_Linearity	WLS measurement to calibrate the detector linearity	Once per month in M2	20 sec
A20 OMI_Dark_Unbinn_Lng	13	Long_Dark_Unbinned_ LongDuration	Long exposure dark, binning factor 1, FM in calibration position, exposure time 200 sec	Eight per month in M3	TBD
A21 OMI_Spatial_Tropics	42	Spatial_Tropics	Spatial zoom-in nadir observation, tropical radiance scenario for the sequence settings, binning factor 4	Once per orbit in N2 and M1	10 min
A22 OMI_Spatial_Midlat	43	Spatial_Midlat	Spatial zoom-in nadir observation, mid-latitude radiance scenario for the sequence settings, binning factor 4	Twice per orbit in N2 and M1	15 min
A23 OMI_Spatial_Arctic	44	Spatial_Arctic	Spatial zoom-in nadir observation, (ant)arctic radiance scenario for the sequence settings, binning factor 4	Twice per orbit in N2 and M1	2.75 min
A24 OMI_Dark_SpatialNoFM	45	Dark_Spatial_Tropics_NoFM	Dark with identical settings as 'Spatial_Tropics' and FM in nominal position	Twice per orbit in N2	10 sec
	46	Dark_Spatial_Midlat_NoFM	Dark with identical settings as 'Spatial_Midlat' and FM in nominal position	Twice per orbit in N2	10 sec
	47	Dark_Spatial_Arctic_NoFM	Dark with identical settings as 'Spatial_Arctic' and FM in nominal position	Twice per orbit in N2	10 sec
	48	Dark_Spatial_Ozonhole_NoFM	Dark with identical settings as 'Spatial_Ozonhole' and FM in nominal position	Twice per orbit in N2	10 sec
A25 OMI_Spatial_Ozonhole	49	Spatial_Ozonhole	Spatial zoom-in nadir observation, ozon hole radiance scenario for the sequence settings, binning factor 4	Once per orbit in N2 and M1; Sept.-Nov. period only	2.75 min
A26 OMI_Sun_Vol_Spatial	50	Sun_Volume_Spatial	Spatial Solar calibration, using volume diffuser and binning factor 4	Once per month in M1	1 min
	51	Dark_Sun_Volume_Spatial	Dark with identical settings as 'Sun_Volume_Spatial'	Once per month in M1	1 min
A27	52	Dark_Spatial_Tropics_FM	Dark with identical settings as 'Spatial_Tropics' and FM in calibration position	Twice per orbit in M1	10 sec



Activity ID/ Activity mnemonics	Ins. Cnf. ID	'Dark Calibrat.' measurements	Description	Frequency	Duration
OMI_Dark_SpatialFM	53	Dark_Spatial_Midlat_FM	Dark with identical settings as 'Spatial_Midlat' and FM in calibration position	Twice per orbit in M1	10 sec
	54	Dark_Spatial_Arctic_FM	Dark with identical settings as 'Spatial_Arctic' and FM in calibration position	Twice per orbit in M1	10 sec
	55	Dark_Spatial_Ozonhole_FM	Dark with identical settings as 'Spatial_Ozonhole' and FM in calibration position	Twice per orbit in M1	10 sec
A28 OMI_Spectral_Tropics	56	Spectral_Tropics	Spectral zoom-in nadir observation, tropical radiance scenario for the sequence settings, binning factor 4	Once per orbit in N3 and N4	10 min
A29 OMI_Spectral_Midlat	57	Spectral_Midlat	Spectral zoom-in nadir observation, mid-latitude radiance scenario for the sequence settings, binning factor 4	Twice per orbit in N3 and N4	15 min
A30 OMI_Spectral_Arctic	58	Spectral_Arctic	Spectral zoom-in nadir observation, (ant)arctic radiance scenario for the sequence settings, binning factor 4	Twice per orbit in N3 and N4	2.75 min
A31 OMI_Dark_SpectNoFM	59	Dark_Spectral_Tropics_NoFM	Dark with identical settings as 'Spectral_Tropics' and FM in nominal position	Twice per orbit in N3	10 sec
	60	Dark_Spectral_Midlat_NoFM	Dark with identical settings as 'Spectral_Midlat' and FM in nominal position	Twice per orbit in N3	10 sec
	61	Dark_Spectral_Arctic_NoFM	Dark with identical settings as 'Spectral_Arctic' and FM in nominal position	Twice per orbit in N3	10 sec
A32 OMI_Sun_Vol_Spectral	62	Sun_Volume_Spectral	Spectral Solar Calibration, using volume diffuser and binning factor 4	Once per occasion in N4	1 min
	63	Dark_Sun_Volume_Spectral	Dark with identical settings as 'Sun_Volume_Spectral'	Once per occasion in N4	1 min
A33 OMI_Dark_SpectFM	64	Dark_Spectral_Tropics_FM	Dark with identical settings as 'Spectral_Tropics' and FM in calibration position	Twice per orbit in N4	10 sec
	65	Dark_Spectral_Midlat_FM	Dark with identical settings as 'Spectral_Midlat' and FM in calibration position	Twice per orbit in N4	10 sec
	66	Dark_Spectral_Arctic_FM	Dark with identical settings as 'Spectral_Arctic' and FM in calibration position	Twice per orbit in N4	10 sec