SOST: Delivery Package for Rev 50

Segment Boundary 2007-271T20:36:00 – 2007-274T12:51:00

October 24, 2003

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SOST Rev 50

- Science to be accomplished during this flyby:
  - This segment provides top priority ORS coverage of Dione, Tethys, Enceladus for key phase angle / longitude coverage.
  - UVIS will perform a solar occultation.
  - RADAR will measure the radar reflectivity of Dione and Enceladus and constrain the bulk density of the top decimeter of the surface.

Attitude Strategy

Request	Riders	Start(SCET)	Start(Epoch)	Duration	End(SCET)	Primary Pointing	Secondary Pointing	Comments
SP_050SA_WAYPTTURN271_PRIME	C, M	2007-271T20:36:00		000T00:24:00	2007-271T21:00:00	ISS_NAC to Saturn	POS_X to NSP	6 min turn from -Z to EA, +X to NEP; safe WP
NEW WAYPOINT		**2007-271T21:00:00**		**000T16:30:00**	**2007-272T13:30:00**	**ISS_NAC to Saturn**	**POS_X to NSP**	
VIMS_050RI_LATPHASE003_PRIME	C, M	2007-271T21:00:00		000T04:30:00	2007-272T01:30:00	VIMS_IR to Rings	POS_X to NSP	S&ER-3
UVIS_050RI_IMPACT001_PRIME	C, M	2007-272T01:30:00		000T02:00:00	2007-272T03:30:00	ISS_NAC to R_ANSA_C	POS_X to NSP	S&ER3
SP_050EA_DLTURN272_PRIME	C, M	2007-272T03:30:00		000T00:36:00	2007-272T04:06:00	XBAND to Earth	POS_X to NEP	6.1 min turn
SP_050EA_M34HEFOTB272_PRIME	C, M, N	2007-272T04:06:00		000T09:00:00	2007-272T13:06:00	XBAND to Earth	Rolling	
SP_050DI_WAYPTTURN272_PRIME	C, M	2007-272T13:06:00		000T00:24:00	2007-272T13:30:00	ISS_NAC to Dione	NEG_Z to NSP	18 min turn from -Z to EA, +X to NEP; safe WP
NEW WAYPOINT		**2007-272T13:30:00**		**000T19:55:00**	**2007-273T09:25:00**	**ISS_NAC to Dione**	**NEG_Z to NSP**	
CIRS_050RA_COMP001_PRIME	C, M, U	2007-272T13:30:00		000T05:00:00	2007-272T18:30:00	ISS_NAC to Rings	NEG_Z to NSP	
VIMS_050SA_FEATRACK001_PRIME	M, R, U	2007-272T18:30:00		000T05:00:00	2007-272T23:30:00	ISS_NAC to Saturn	NEG_Z to NSP	S&ER-3
ISS_050DI_REGMAPD001_PRIME	C, M, R, U, V	2007-272T23:30:00		000T01:00:00	2007-273T00:30:00	ISS_NAC to Dione	NEG_Z to NSP	S_N_ER_-3
RADAR_050DI_SCATTRAD001_PRIME	M	2007-273T00:30:00		000T03:00:00	2007-273T03:30:00	NEG_Z to Dione	PIC	RADAR must control both primary & secondary axes for polarization
ISS_050DI_REGMAPE001_PRIME	C, M, U, V	2007-273T03:30:00		000T00:30:00	2007-273T04:00:00	ISS_NAC to Dione	NEG_Z to NSP	S_N_ER_-3
CIRS_050DI_FP1FAZ0P5028_PRIME	M, U	2007-273T04:00:00		000T00:30:00	2007-273T04:30:00	ISS_NAC to Dione	NEG_Z to NSP	
VIMS_050DI_DIONE001_PRIME	C, M, U	2007-273T04:30:00		000T01:00:00	2007-273T05:30:00	ISS_NAC to Dione	NEG_Z to NSP	S&ER-3
CIRS_050DI_FP1FAZ0P5029_PRIME	M, U	2007-273T05:30:00		000T00:45:00	2007-273T06:15:00	ISS_NAC to Dione	NEG_Z to NSP	
ISS_050DI_REGMAPF001_PRIME	C, M, U, V	2007-273T06:15:00		000T00:45:00	2007-273T07:00:00	ISS_NAC to Dione	NEG_Z to NSP	S_N_ER_-3
VIMS_050DI_DIONE002_PRIME	C, M, U	2007-273T07:00:00		000T01:00:00	2007-273T08:00:00	ISS_NAC to Dione	NEG_Z to NSP	S&ER-3
UVIS_050SU_USUNOCC002_PRIME	M, V	2007-273T08:00:00		000T01:05:00	2007-273T09:05:00	UVIS_SOLAR to Sun	NEG_Z to NSP	S&ER3
SP_050DI_WAYPTTURN273_PRIME	C, M	2007-273T09:05:00		000T00:20:00	2007-273T09:25:00	ISS_NAC to Dione	POS_X to NSP	15.1 min turn; safe WP
NEW WAYPOINT		**2007-273T09:25:00**		**000T00:45:00**	**2007-273T10:10:00**	**ISS_NAC to Dione**	**POS_X to NSP**	
ISS_050DI_REGMAPG001_PRIME	C, M, U, V	2007-273T09:25:00		000T00:25:00	2007-273T09:50:00	ISS_NAC to Dione	POS_X to NSP	S_N_ER_-3
SP_050TE_WAYPTTURN273_PRIME	C, M	2007-273T09:50:00		000T00:20:00	2007-273T10:10:00	ISS_NAC to Tethys (0.086,0.0,0.086 deg. offset)	POS_X to NSP	16 min turn; safe WP
NEW WAYPOINT		**2007-273T10:10:00**		**000T01:45:00**	**2007-273T11:55:00**	**ISS_NAC to Tethys (0.086,0.0,0.086 deg. offset)**	**POS_X to NSP**	
CIRS_050TE_FP1SECLN001_PRIME	C, M, U	2007-273T10:10:00		000T00:40:00	2007-273T10:50:00	CIRS_FP3 to Tethys (-0.086,0.0,-0.086 deg. offset)	POS_X to NSP	
ISS_050EN_COLORF001_PRIME	C, M, U, V	2007-273T10:50:00		000T00:45:00	2007-273T11:35:00	ISS_NAC to Enceladus	POS_X to NSP	S_N_ER_-3
SP_050TE_WAYPTTURN473_PRIME	C, M	2007-273T11:35:00		000T00:20:00	2007-273T11:55:00	ISS_NAC to Tethys	POS_Z to NSP	15 min turn; safe WP
NEW WAYPOINT		**2007-273T11:55:00**		**000T10:35:00**	**2007-273T22:30:00**	**ISS_NAC to Tethys**	**POS_Z to NSP**	
ISS_050TE_COLORF002_PRIME	C, M, R, U, V	2007-273T11:55:00		000T00:45:00	2007-273T12:40:00	ISS_NAC to Tethys	POS_Z to NSP	
ISS_050EN_PHOTOM002_PRIME	C, M, R, U, V	2007-273T12:40:00		000T00:50:00	2007-273T13:30:00	ISS_NAC to Enceladus	POS_Z to NSP	S_N_ER_-3
ISS_050DI_GLOCOL001_PRIME	C, M, R, U, V	2007-273T13:30:00		000T00:50:00	2007-273T14:20:00	ISS_NAC to Dione	POS_Z to NSP	S_N_ER_-5
RADAR_050EN_SCATTRAD001_PRIME	M, R	2007-273T14:20:00		000T02:15:00	2007-273T16:35:00	NEG_Z to Enceladus	PIC	RADAR must control both primary & secondary axes for polarization orientations.
SP_050EA_DLTURN273_PRIME	M	2007-273T16:35:00		000T00:30:00	2007-273T17:05:00	XBAND to Earth	POS_X to NEP	17.3 min turn
SP_050EA_G70METNON285_PRIME	C, M	2007-273T17:05:00		000T04:55:00	2007-273T22:00:00	XBAND to Earth	Rolling	
SP_050SA_WAYPTTURN273_PRIME	C, M	2007-273T22:00:00		000T00:30:00	2007-273T22:30:00	ISS_NAC to Saturn	POS_Z to NSP	19.85 min turn from -Z to EA, +X to NEP; safe WP
NEW WAYPOINT		**2007-273T22:30:00**		**000T14:21:00**	**2007-274T12:51:00**	**ISS_NAC to Saturn**	**POS_Z to NSP**	
ISS_050RI_SHADSCAN001_PRIME	C, M, V	2007-273T22:30:00		000T00:50:00	2007-273T23:20:00	ISS_NAC to Rings	POS_Z to NSP	
CIRS_050RI_SUBMU04LP001_PRIME	C, M, V	2007-273T23:20:00		000T04:00:00	2007-274T03:20:00	ISS_NAC to Rings	POS_Z to NSP	
SP_050EA_DLTURN274_PRIME	C, M	2007-274T03:20:00		000T00:31:00	2007-274T03:51:00	XBAND to Earth	POS_X to NEP	18.9 min turn
SP_050EA_M70ARRCLS274_PRIME	M	2007-274T03:51:00		000T09:00:00	2007-274T12:51:00	XBAND to Earth	Rolling	

Telemetry Modes

TELEMETRY MODE REPORT

SCET	TELEMETRY MODE	REQUEST
2007-271T20:36:00.000	"S_N_ER_3"	SP_050NA_M34OBSOTP272_NA
2007-272T04:06:00.000	"RTE_N_SPB_22120"	SP_050EA_M34HEFOTB272_PRIME
2007-272T04:36:00.000	"RTE_N_SPB_27650"	SP_050EA_M34HEFOTB272_PRIME
2007-272T07:06:00.000	"RTE_N_SPB_33180"	SP_050EA_M34HEFOTB272_PRIME
2007-272T10:21:00.000	"RTE_N_SPB_27650"	SP_050EA_M34HEFOTB272_PRIME
2007-272T13:06:00.000	"S_N_ER_3"	SP_050NA_G70OBSOTB273_NA
2007-272T21:30:00.000	"S_N_ER_5A"	SP_050NA_G70OBSOTB273_NA
2007-272T21:45:00.000	"S_N_ER_3"	SP_050NA_G70OBSOTB273_NA
2007-273T00:30:00.000	"S_N_ER_8"	SP_050NA_G70OBSOTB273_NA
2007-273T03:30:00.000	"S_N_ER_3"	SP_050NA_G70OBSOTB273_NA
2007-273T13:30:00.000	"S_N_ER_5"	SP_050NA_G70OBSOTB273_NA
2007-273T14:20:00.000	"S_N_ER_8"	SP_050NA_G70OBSOTB273_NA
2007-273T17:05:00.000	"RTE_N_SPB_124425"	SP_050EA_G70METNON285_PRIME
2007-273T19:06:00.000	"RTE_N_SPB_110600"	SP_050EA_G70METNON285_PRIME
2007-273T20:06:00.000	"RTE_N_SPB_99540"	SP_050EA_G70METNON285_PRIME
2007-273T20:51:00.000	"RTE_N_SPB_66360"	SP_050EA_G70METNON285_PRIME
2007-273T21:51:00.000	"RTE_N_SPB_47400"	SP_050EA_G70METNON285_PRIME
2007-273T22:00:00.000	"S_N_ER_3"	SP_050NA_M70OBSNON273_NA
2007-274T03:51:00.000	"RTE_N_SPB_99540"	SP_050EA_M70ARRCLS274_PRIME
2007-274T04:51:00.000	"RTE_N_SPB_124425"	SP_050EA_M70ARRCLS274_PRIME
2007-274T06:06:00.000	"RTE_N_SPB_142200"	SP_050EA_M70ARRCLS274_PRIME
2007-274T11:21:00.000	"RTE_N_SPB_124425"	SP_050EA_M70ARRCLS274_PRIME
2007-274T12:21:00.000	"RTE_N_SPB_110600"	SP_050EA_M70ARRCLS274_PRIME

Op Modes

ENGR_050SC_DFPW471_PPS	2007-271T20:36:00
ENGR_050SC_DFPWTCM272_PPS	2007-272T04:05:22
ENGR_050SC_DFPW272_PPS	2007-272T13:06:00
ENGR_050SC_RADWU272_PPS	2007-272T21:30:00
ENGR_050SC_RADRWA273_PPS	2007-273T00:30:00
ENGR_050SC_ORSRWA273_PRIME	2007-273T03:29:23
ENGR_050SC_RADWU273_PPS	2007-273T12:30:00
ENGR_050SC_RADRWA373_PPS	2007-273T15:30:00
ENGR_050SC_DFPW273_PPS	2007-273T18:29:23
ENGR_050EA_MECVRCLS001_THERM	2007-274T04:01:00

Data Volume

DATA VOLUME SUMMARY

			OBSERVATION_PERIOD								DOWNLINK_PASS						
			P4						P5	RECORDED		PLAYBACK				
DOWNLINK PASS NAME	Start doy hh:mm	End doy hh:mm	START (Mb)	SCI (Mb)	HK+E (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGIN (Mb)	MARGIN (%)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGIN (Mb)	MARGIN (%)	CAROVR (Mb)
SP_050EA_M34HEFOTB272_PRIME	272 04:06	272 13:06	0	357	26	383	3566	3182	89%	0	188	53	625	625	0	0%	0
SP_050EA_G70METNON285_PRIME	273 17:05	273 22:00	0	3101	97	3199	3560	362	10%	0	325	29	3552	992	-2560	-258%	2560
SP_050EA_M70ARRCLS274_PRIME	274 03:51	274 12:51	2560	617	20	3198	3568	370	10%	0	154	53	3405	3589	184	5%	0

DATA VOLUME REPORT

Event	Start doy hh:mm	End doy hh:mm	CAPS (Mb)	CDA (Mb)	CIRS (Mb)	INMS (Mb)	ISS (Mb)	MAG (Mb)	MIMI (Mb)	RADAR (Mb)	RPWS (Mb)	UVIS (Mb)	VIMS (Mb)	PROBE (Mb)	ENGR (Mb)	TOTAL (Mb)
OBSERVATION_NOR	271 20:36	272 04:06	27.0	4.0	78.8	1.4	0.0	16.2	43.6	0.0	35.4	47.1	103.8	0.0	0.0	357.3
SP_050EA_M34HEFOTB272_PRIME	272 04:06	272 13:06	32.4	4.9	32.4	1.6	0.0	19.4	52.5	0.0	42.4	2.5	0.0	0.0	0.0	188.1
DAILY TOTAL SCIENCE	271 20:36	272 13:06	59.4	8.9	111.2	3.0	0.0	35.6	96.0	0.0	77.8	49.6	103.8	0.0		
OBSERVATION_NOR	272 13:06	273 17:05	369.9	52.9	190.9	12.9	620.1	149.2	138.1	393.1	519.7	172.4	469.2	0.0	0.0	3088.5
OBSERVATION_SI	272 13:06	273 17:05	0.0	0.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0
SP_050EA_G70METNON285_PRIME	273 17:05	273 22:00	141.6	13.1	7.2	0.9	0.0	24.0	22.0	0.0	115.0	0.8	0.0	0.0	0.0	324.5
DAILY TOTAL SCIENCE	272 13:06	273 22:00	511.5	65.9	211.1	13.7	620.1	173.2	160.1	393.1	634.7	173.3	469.2	0.0		
OBSERVATION_NOR	273 22:00	274 03:51	158.0	18.2	46.3	1.1	108.5	38.2	25.3	0.0	124.1	0.0	85.9	0.0	0.0	605.5
OBSERVATION_SI	273 22:00	274 03:51	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5
SP_050EA_M70ARRCLS274_PRIME	274 03:51	274 12:51	32.4	16.9	0.0	1.6	0.0	19.4	38.9	0.0	42.4	2.5	0.0	0.0	0.0	154.2
DAILY TOTAL SCIENCE	273 22:00	274 12:51	190.4	35.1	57.8	2.7	108.5	57.7	64.2	0.0	166.6	2.5	85.9	0.0		

Data Volume, cont'd

AVERAGE DATA RATE REPORT (calculated over observation periods and downlink passes)

Event	Start doy hh:mm	End doy hh:mm	CAPS (bps)	CDA (bps)	INMS (bps)	MAG (bps)	MIMI (bps)	RPWS (bps)	UVIS (bps)
SP_050NA_M34OBSOTP272_NA	271 20:36	272 04:06	1000.0	149.9	50.0	600.0	1613.4	1310.0	1746.0
SP_050EA_M34HEFOTB272_PRIME	272 04:06	272 13:06	1000.0	149.9	50.0	600.0	1620.0	1310.0	76.0
SP_050NA_G70OBSOTB273_NA	272 13:06	273 17:05	3672.3	524.6	127.6	1481.4	1371.1	5158.4	1711.6
SP_050EA_G70METNON285_PRIME	273 17:05	273 22:00	8000.0	737.4	50.0	1354.0	1240.7	6500.0	46.4
SP_050NA_M70OBSNON273_NA	273 22:00	274 03:51	7501.4	863.8	50.0	1815.3	1200.0	5893.8	0.0
SP_050EA_M70ARRCLS274_PRIME	274 03:51	274 12:51	1000.0	521.9	50.0	600.0	1200.0	1310.0	76.0

DSN Requests

CASSINI DOWNLINK/DSN COVERAGE SUMMARY for rev50_031024_v3.apf generated on 2003-Oct-24 08:43:29
(+ = pass overlaps with previous pass; * = in conflict with DSN weekly maintenance)

DOWNLINK PASS					DSN PASS					
NAME	START_TO_END SCET	START_TO_END ERT	DUR hh:mm	DATA_RATES kbps	ID	START_TO_END SCET	START_TO_END ERT	DUR hh:mm	CALS min	RADIO__CONFIG R UD D UD MAR
M34HEFOTB272	272T04:06-13:06	272T05:30-14:30	09:00	22,27,33,27	65	272T04:06-13:06	272T05:30-14:30	09:00	15/15	R XX - -- --0
G70METNON285	273T17:05-22:00	273T18:29-23:24	04:55	124,110,99,66,47	14	273T17:05-22:00	273T18:25-23:25	05:00	15/15	R XX - -- --0
M70ARRCLS274	274T03:51-12:51	274T05:15-14:15	09:00	99,124,142,124,110	54	274T03:51-12:51	274T05:15-14:15	09:00	15/15	- -X - -- --0
				^-- and also -->	63	274T03:51-12:51	274T05:15-14:15	09:00	15/15	R XX - -- --0

Open Issues

- RADAR will remain on between the two RADAR blocks and will warm-up blind for second block (no S&ER-5A). RADAR does not need a RADAR WU opmode for second block.

TWT/OST Integration Constraint and Guideline Checklist

Below are Target Working Team (TWT) and Orbiter Science Team (OST) constraints that must be followed during segment implementation. Any exceptions to constraint numbers 3, 4, 6, or 7 must be approved by the Science Planning Manager.

Constraint	C=Comply V=Violate N/A=Not Applicable	Comments	Disposition
1. A. SP has checked all waypoints turns to and from waypoints.	C		
B. All initial downlink attitudes have been checked as waypoints.	C		
2. All turns to and from waypoints checked for violations and margins. ☐CAPS ☐CDA ☐CIRS ☐INMS ☐ISS ☐MIMI ☐MAG ☐NAV ☐RADAR ☐RPWS ☐RSS ☐UVIS ☐VIMS Each Prime Instrument agrees to accept a reduction in observation time during implementation if problems arise.	C		
3. Custom handoffs limited to:			
A. ±3 hours from targeted Icy Satellite flyby	N/A		
B. ±3 hours from targeted Titan Flyby	N/A		
C. OpNavs preceding/following a downlink	N/A		
4. Minimum 30 min SPASS Prime request duration outside ±5 hours from targeted satellite flyby (5 min. integer duration if >30 min.)	C		
5. Live and Ground Movable Blocks include appropriate time margins.	N/A	K. Klaasen's margin for flyby is min. according to memo dated .	
6. Waypoints changes are ≤3 per day	C		
A. All turns that accomplish the waypoint strategy are requested by SP or OpNav.	C		
7. Live Movable Blocks limited to the following orbits: 7, 8, 9, 10, 12, 28, 51, 56, 57, 60, 63, 64	N/A		

Guideline	Yes / No	Comments
1. Were repeatable/reusable templates used where possible?	Yes	
2. During Pre-Integration: Was 30 min. used for 90º RWA turns and/or 10 min. for RCS turns?	Yes	

(DOUBLE-CLICK TO MAKE CHANGES)