SOST: Delivery Package for Rev 52

Segment Boundary 2007-318T17:56:00 – 2007-320T17:41:00

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SOST Rev 52

- Science to be accomplished during this flyby:
  - The MAPS instruments will make combined observations of Saturn's middle magnetosphere. In this region, plasma originating from Titan diffusing inward mixes with the plasma transported outward from the Tethys-Dione torus.
  - VIMS will measure spatially resolved spectra of the Rings of Saturn, Rhea and Enceladus, which will be used to map the composition of these objects.
  - ISS will provide color photometry / polarization of the Enceladus smooth plains materials at 67-deg. phase. About 40% of the visible disk contains a region that was not imaged by Voyager.

Attitude Strategy

Request	Riders	Start(SCET)	Start(Epoch)	Duration	End(SCET)	Primary Pointing	Secondary Pointing	Comments
SP_052SA_WAYPTTURN318_PRIME	R	2007-318T17:56:00		000T00:34:00	2007-318T18:30:00	ISS_NAC to Saturn	POS_X to NSP	8.5 min turn from +X to NEP; safe WP
NEW WAYPOINT		**2007-318T18:30:00**		**001T00:00:00**	**2007-319T18:30:00**	**ISS_NAC to Saturn**	**POS_X to NSP**	
RADAR_052RI_PO8RINGS001_PRIME	C	2007-318T18:30:00		000T10:00:00	2007-319T04:30:00	NEG_Z to Rings	POS_X to NSP	RADAR must control primary and secondary axes to obtain correct polarization.
VIMS_052RI_LATPHASE002_PRIME	C, U	2007-319T04:30:00		000T04:00:00	2007-319T08:30:00	ISS_NAC to Rings	POS_X to NSP	
SP_052EA_DLTURN319_PRIME	C	2007-319T08:30:00		000T00:26:00	2007-319T08:56:00	XBAND to Earth	POS_X to NEP	7.65 min turn
SP_052EA_G34BWGOTP319_PRIME	M, N	2007-319T08:56:00		000T09:00:00	2007-319T17:56:00	XBAND to Earth	POS_X to NEP	
SP_052RH_WAYPTTURN319_PRIME	C, M	2007-319T17:56:00		000T00:34:00	2007-319T18:30:00	ISS_NAC to Rhea	POS_X to NSP	5.5 min turn; safe WP
NEW WAYPOINT		**2007-319T18:30:00**		**000T23:11:00**	**2007-320T17:41:00**	**ISS_NAC to Rhea**	**POS_X to NSP**	
ISS_052EN_PHOTOM001_PRIME	C, M, U, V	2007-319T18:30:00		000T01:00:00	2007-319T19:30:00	ISS_NAC to Enceladus	POS_X to NSP	
VIMS_052RI_LATPHASE003_PRIME	C, M, R, U	2007-319T19:30:00		000T07:30:00	2007-320T03:00:00	ISS_NAC to Rings	POS_X to NSP	
RADAR_052TI_PHASE3CAL001_PRIME	C, M	2007-320T03:00:00		000T01:30:00	2007-320T04:30:00	NEG_Z to Titan	PIC	RADAR must control primary and secondary axes to obtain correct polarization.
CAPS_052CO_DTORUSPTG001_PRIME	C, M, V	2007-320T04:30:00		000T03:15:00	2007-320T07:45:00	ISS_NAC to Rhea	NEG_Z to NSP	
ISS_052RH_REGGEODB001_PRIME	C, M, U, V	2007-320T07:45:00		000T02:45:00	2007-320T10:30:00	ISS_NAC to Rhea	POS_X to NSP	
CIRS_052RH_RHEA101_PRIME	C, I, M, U, V	2007-320T10:30:00		000T00:40:00	2007-320T11:10:00	ISS_NAC to Rhea	POS_X to NSP	
SP_052EA_DLTURN320_PRIME	C, M	2007-320T11:10:00		000T00:31:00	2007-320T11:41:00	XBAND to Earth	POS_X to NEP	8.33 min turn
SP_052EA_G70METNON320_PRIME	C, M	2007-320T11:41:00		000T06:00:00	2007-320T17:41:00	XBAND to Earth	3_Hr_Rolling to N/A	CIRS caution period; roll only 3 hr

Telemetry Modes

TELEMETRY MODE REPORT

SCET	TELEMETRY MODE	REQUEST
2007-318T17:56:00.000	"S_N_ER_8"	SP_052NA_G34OBSOTP319_NA
2007-319T04:30:00.000	"S_N_ER_3"	SP_052NA_G34OBSOTP319_NA
2007-319T08:56:00.000	"RTE_N_SPB_27650"	SP_052EA_G34BWGOTP319_PRIME
2007-319T12:41:00.000	"RTE_N_SPB_33180"	SP_052EA_G34BWGOTP319_PRIME
2007-319T14:26:00.000	"RTE_N_SPB_27650"	SP_052EA_G34BWGOTP319_PRIME
2007-319T17:56:00.000	"S_N_ER_3"	SP_052NA_G34OBSNON320_NA
2007-320T00:00:00.000	"S_N_ER_5A"	SP_052NA_G34OBSNON320_NA
2007-320T00:15:00.000	"S_N_ER_3"	SP_052NA_G34OBSNON320_NA
2007-320T03:00:00.000	"S_N_ER_8"	SP_052NA_G34OBSNON320_NA
2007-320T04:30:00.000	"S_N_ER_3"	SP_052NA_G34OBSNON320_NA
2007-320T11:41:00.000	"RTE_N_SPB_142200"	SP_052EA_G70METNON320_PRIME
2007-320T16:11:00.000	"RTE_N_SPB_124425"	SP_052EA_G70METNON320_PRIME
2007-320T17:11:00.000	"RTE_N_SPB_110600"	SP_052EA_G70METNON320_PRIME

Op Modes

Request	Start Time	Epoch Relative Start Time	Duration
ENGR_052SC_RADRWA318_PPS	2007-318T18:29:16		000T00:00:44
ENGR_052SC_DFPW328_PPS	2007-319T04:29:23		000T00:00:37
ENGR_052SC_DFPWTCM319_PPS	2007-319T08:55:02		000T00:00:58
ENGR_052SC_DFPW319_PPS	2007-319T17:56:00		000T00:00:47
ENGR_052SC_RADWU320_PPS	2007-320T00:00:00		000T00:00:07
ENGR_052SC_RADRWA320_PPS	2007-320T02:59:16		000T00:00:44

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_052EA_G34BWGOTP319_PRIME	319 08:56	319 17:56	0	389	52	441	3569	3128	88%	0	119	53	613	607	-6	-1%	6
SP_052EA_G70METNON320_PRIME	320 11:41	320 17:41	6	1076	62	1143	3568	2425	68%	0	167	35	1346	2479	1133	46%	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	318 17:56	319 08:56	54.0	8.1	63.8	2.7	0.0	32.4	0.0	73.2	70.7	14.5	69.2	0.0	0.0	388.7
SP_052EA_G34BWGOTP319_PRIME	319 08:56	319 17:56	32.4	5.0	0.0	1.6	0.0	19.4	15.9	0.0	42.4	2.5	0.0	0.0	0.0	119.3
DAILY TOTAL SCIENCE	318 17:56	319 17:56	86.4	13.1	63.8	4.3	0.0	51.8	15.9	73.2	113.2	17.0	69.2	0.0		
OBSERVATION_NOR	319 17:56	320 11:41	145.8	33.3	192.0	3.2	69.7	54.4	76.7	7.6	109.3	107.2	274.0	0.0	0.0	1073.2
OBSERVATION_SI	319 17:56	320 11:41	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5
SP_052EA_G70METNON320_PRIME	320 11:41	320 17:41	21.6	11.2	72.0	1.1	0.0	13.0	18.6	0.0	28.3	1.6	0.0	0.0	0.0	167.4
DAILY TOTAL SCIENCE	319 17:56	320 17:41	167.4	44.5	266.5	4.3	69.7	67.4	95.3	7.6	137.6	108.8	274.0	0.0		

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_052NA_G34OBSOTP319_NA	318 17:56	319 08:56	1000.0	149.9	50.0	600.0	0.0	1310.0	268.4
SP_052EA_G34BWGOTP319_PRIME	319 08:56	319 17:56	1000.0	153.9	50.0	600.0	491.1	1310.0	76.0
SP_052NA_G34OBSNON320_NA	319 17:56	320 11:41	2281.7	521.1	50.0	851.9	1200.0	1711.0	1677.3
SP_052EA_G70METNON320_PRIME	320 11:41	320 17:41	1000.0	518.2	50.0	600.0	863.4	1310.0	76.0

DSN Requests

CASSINI DOWNLINK/DSN COVERAGE SUMMARY for rev52_031016_v3.apf generated on 2003-Oct-16 18:09:23
(+ = 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
G34BWGOTP319	319T08:56-17:56	319T10:15-19:15	09:00	27,33,27	25	319T08:56-17:56	319T10:15-19:15	09:00	15/15	R XX - -- --0
G70METNON320	320T11:41-17:41	320T13:00-19:00	06:00	142,124,110	14	320T11:41-17:41	320T13:00-19:00	06:00	15/15	R XX - -- --0

Open Issues

- None at this time.

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)