

SOST

Rev 03

2005-047T09:00 - 2005-049T08:43

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SOST Rev 3 (Enceladus) Attitude Strategy

Request	Riders	Start(SCET)	Start(Epoch)	Duration	End(SCET)	Primary Pointing	Secondary Pointing	Comments
SP_003SA_WAYPTTURN047_PRIME		2005-047T09:00:00		000T00:20:00	2005-047T09:20:00	ISS_NAC to Saturn	POS_X to NSP	17.6 min turn
NEW WAYPOINT		2005-047T09:20:00		000T07:54:00	2005-047T17:14:00	ISS_NAC to Saturn	POS_X to NSP	
CIRS_003RF_FMOVIEA001_PRIME	M, V	2005-047T09:20:00		000T04:35:00	2005-047T13:55:00	CIRS_FP1 to L_ANSA_F	POS_X to NSP	
ISS_003EN_GEOLOG001_PRIME	C, M, U, V	2005-047T13:55:00		000T00:40:00	2005-047T14:35:00	ISS_NAC to Enceladus	POS_X to NSP	
CIRS_003RF_FMOVIEA002_PRIME	M, R, V	2005-047T14:35:00		000T01:14:00	2005-047T15:49:00	CIRS_FP1 to R_ANSA_F	POS_X to NSP	
ISS_003EN_GEOLOG002_PRIME	C, M, R, U, V	2005-047T15:49:00		000T00:40:00	2005-047T16:29:00	ISS_NAC to Enceladus	POS_X to NSP	
ISS_003EN_GEOLOG003_PRIME	C, M, R, U, V	2005-047T16:29:00		000T00:30:00	2005-047T16:59:00	ISS_NAC to Enceladus	POS_X to NSP	stare for CIRS
SP_003NA_DEADTIME047_PRIME	M, R	2005-047T16:59:00		000T00:15:34	2005-047T17:14:34	ISS_NAC to Saturn	POS_X to NSP	
RSS_003EN_GRAVITY001_PRIME	M	2005-047T17:14:34	GMB_E003_Enceladus-000T10:10:00	000T04:50:00	2005-047T22:04:34	XBAND to Earth	NEG_X to 204.0/2.5	Pointing agreement with CDA
SP_003DR_RAMAVOID047_PRIME	M	2005-047T22:04:34	GMB_E003_Enceladus-000T05:20:00	000T00:28:00	2005-047T22:32:34	NEG_Z to 165.0/-24.0	NEG_X to 237.84/33.54	17.5 min turn
MP_003DR_DUSTHAZR001_PRIME	M, U, V	2005-047T22:27:00		000T01:49:00	2005-048T00:16:00			
SP_003EN_WAYPTTURN447_PRIME	M	2005-047T23:30:34	GMB_E003_Enceladus-000T03:54:00	000T00:24:00	2005-047T23:54:34	ISS_NAC to Saturn	POS_X to NSP	17.5 min turn
Begin Custom		2005-047T23:54:34	GMB_E003_Enceladus-000T03:30:00	000T00:01:00	2005-047T23:55:34	ISS_NAC to Saturn	POS_X to NSP	
CIRS_003EN_FP1FP3MAP001_PRIME	M, U, V	2005-047T23:54:34	GMB_E003_Enceladus-000T03:30:00	000T01:30:00	2005-048T01:24:34	ISS_NAC to Enceladus	NEG_X to 198.0/-47.0	32.2 min turn from waypoint.
VIMS_003EN_ENCELADUS006_PRIME	C, M, U	2005-048T01:24:34	GMB_E003_Enceladus-000T02:00:00	000T00:45:00	2005-048T02:09:34	ISS_NAC to Enceladus	NEG_X to 198.0/-47.0	
ISS_003EN_LIMTOP004_PRIME	C, M, R, U, V	2005-048T02:09:34	GMB_E003_Enceladus-000T01:15:00	000T00:55:00	2005-048T03:04:34	ISS_NAC to Enceladus	NEG_X to 198.0/-47.0	
CDA_003EN_ENCDUST001_PRIME	I, M, R, U	2005-048T03:04:34	GMB_E003_Enceladus-000T00:20:00	000T00:50:00	2005-048T03:54:34	NEG_Y to 250.0/30.0	NEG_X to 198.0/-47.0	
CIRS_003EN_FP1DRKMAP001_PRIME	M, R, U, V	2005-048T03:54:34	GMB_E003_Enceladus+000T00:30:00	000T01:00:00	2005-048T04:54:34	CIRS_FP1 to Enceladus	NEG_X to 198.0/-47.0	CIRS pick up at CDA attitude, turn to EN;
RSS_003EN_GRAVITY002_PRIME	M	2005-048T04:54:34	GMB_E003_Enceladus+000T01:30:00	000T03:30:00	2005-048T08:24:34	XBAND to Earth	NEG_X to 235.9/53.6	Pointing agreement with CDA
RADAR_003EN_SCATTRAD001_PRIME	M	2005-048T08:24:34	GMB_E003_Enceladus+000T05:00:00	000T03:00:00	2005-048T11:24:34	NEG_Z to Enceladus	POS_X to NSP	RADAR must control both axes, PDT must be
ISS_003EN_PLUME001_PRIME	C, M, U	2005-048T11:24:34	GMB_E003_Enceladus+000T08:00:00	000T01:14:26	2005-048T12:39:00	ISS_NAC to Enceladus	POS_X to NSP	pick up at RADAR attitude; leave off at WP
End Custom		2005-048T12:39:00		000T00:01:00	2005-048T12:40:00	ISS_NAC to Saturn	POS_X to NSP	
SP_003NA_DEADTIME048_PRIME	M	2005-048T12:39:00		000T00:15:00	2005-048T12:54:00	ISS_NAC to Saturn	POS_X to NSP	
CIRS_003RH_AD4P5MRAD001_PRIME	U, V	2005-048T12:54:00		000T01:52:00	2005-048T14:46:00	CIRS_FPB to Rhea	POS_X to NSP	scans for first 45(?) min, stare for
VIMS_003SA_THRCYLMAP001_PRIME	C, U	2005-048T14:46:00		000T08:22:00	2005-048T23:08:00	ISS_NAC to Saturn	POS_X to NSP	
SP_003EA_DLTRUN048_PRIME		2005-048T23:08:00		000T00:35:00	2005-048T23:43:00	XBAND to Earth	POS_X to NSP	29.1 min turn
NEW WAYPOINT		2005-048T23:43:00		000T09:00:00	2005-049T08:43:00	XBAND to Earth	POS_X to NSP	
SP_003EA_G70METOTP048_PRIME	N	2005-048T23:43:00		000T09:00:00	2005-049T08:43:00	XBAND to Earth	Rolling	OTM-14

 SSR MANAGEMENT TOOL (SMT) VERSION: SMT-V02-D9.0
 REPORT FOR rev03_030403.apf
 USING DICTIONARY FILE /cas/msspath/MSS.D9.0/base/mss_sw/smt/dict/dict.txt
 AND SSR CONFIGURATION TABLE /cas/msspath/MSS.D9.0/base/mss_sw/smt/tables/double_ssr.conf

ACTIVITIES OUTSIDE EXECUTION PERIOD

ACTIVITY NAME	ACTIVITY TYPE	START TIME
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SPECIAL ACTIVITIES REPORT

ACTIVITY NAME	ACTIVITY TYPE	START TIME	DATA CLASS	NOTIFICATION
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TELEMETRY MODE REPORT

SCET	TELEMETRY MODE	REQUEST
2005-047T21:54:34	S_N_ER_3	SP_003NA_M34BWGRSS048_NA
2005-047T17:34:34	RTE_N_SPB_35550	SP_003EA_M34BWGRSS047_PRIME
2005-047T20:06:00	RTE_N_SPB_41475	SP_003EA_M34BWGRSS047_PRIME
2005-047T21:36:00	RTE_N_SPB_35550	SP_003EA_M34BWGRSS047_PRIME
2005-047T21:44:34	S_N_ER_3	SP_003NA_G70OBSNON048_NA
2005-048T04:54:34	RTE_N_SPB_165900	SP_003EA_G70METNON048_PRIME
2005-048T08:04:34	S_N_ER_3	SP_003NA_G70OBSOTP048_NA
2005-048T23:43:00	RTE_N_SPB_142200	SP_003EA_G70METOTP048_PRIME
2005-049T00:36:00	RTE_N_SPB_165900	SP_003EA_G70METOTP048_PRIME
2005-049T08:06:00	RTE_N_SPB_142200	SP_003EA_G70METOTP048_PRIME

DATA VOLUME SUMMARY

DOWNLINK PASS NAME	OBSERVATION_PERIOD										DOWNLINK_PASS					
	Start		End		P4					P5	RECORDED		PLAYBACK			
	Start	End	START	SCI	HK+E	TOTAL	CPACTY	MARGIN	OPNAV	SCI	ENGR	TOTAL	CPACTY	MARGIN	CAROVr	
do y hh:mm	do y hh:mm	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(%)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(%)	(Mb)	
SP_003EA_M34BWGRSS047_PRIME	047 17:34	047 21:44	0	684	29	713	3562	2849	80%	0	207	24	944	451	-492 -109%	492
SP_003EA_G70METNON048_PRIME	048 04:54	048 08:04	492	1687	24	2203	3567	1363	38%	0	105	19	2327	1582	-745 -47%	745
SP_003EA_G70METOTP048_PRIME	048 23:43	049 08:43	745	1934	53	2731	3569	837	23%	0	126	53	2910	3752	843 22%	0

SSR PARTITION SIZE SUMMARY - SELECTED SSR CONFIGURATION: DOUBLE

OBSERVATION PERIOD	SSR A/B		
	P4 Size (Frames)	P5 Size (Frames)	P6 Size (Frames)
SP_003NA_M34BWGRSS048_NA	202594	560	25596
SP_003NA_G70OBSNON048_NA	202594	560	25596

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	047 09:00	047 17:34	179.5	4.6	110.2	1.5	75.5	18.5	37.5	0.0	51.0	33.2	172.4	0.0	0.0	684.0
SP_003EA_M34BWGRSS047_PRIME	047 17:34	047 21:44	54.5	63.9	0.0	0.8	0.0	9.0	27.0	0.0	51.5	0.0	0.0	0.0	0.0	206.6
OBSERVATION_NOR	047 21:44	048 04:54	79.8	28.5	60.0	1.3	125.8	41.1	46.4	0.0	942.5	174.4	187.2	0.0	0.0	1687.0
SP_003EA_G70METNON048_PRIME	048 04:54	048 08:04	11.4	25.7	0.0	0.6	0.0	6.8	20.5	0.0	39.7	0.0	0.0	0.0	0.0	104.7
OBSERVATION_NOR	048 08:04	048 23:43	56.3	8.3	171.6	2.8	83.9	33.8	66.1	413.7	73.8	200.2	823.6	0.0	0.0	1934.0
SP_003EA_G70METOTP048_PRIME	048 23:43	049 08:43	28.1	4.9	0.0	1.6	0.0	19.4	29.2	0.0	42.4	0.0	0.0	0.0	0.0	125.6
TOTAL (OPNAV data not included)			409.6	135.7	341.8	8.6	285.2	128.7	226.7	413.7	1200.8	407.8	1183.2			

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_003NA_M34BWGRSS048_NA	047 09:00	047 17:34	5813.8	149.9	50.0	600.0	1215.8	1650.5	1075.7
SP_003EA_M34BWGRSS047_PRIME	047 17:34	047 21:44	3631.9	4257.9	50.0	600.0	1800.0	3430.9	0.0
SP_003NA_G70OBSNON048_NA	047 21:44	048 04:54	3093.0	1103.7	50.0	1592.0	1800.0	36530.4	6760.5
SP_003EA_G70METNON048_PRIME	048 04:54	048 08:04	1000.0	2250.4	50.0	600.0	1800.0	3482.5	0.0
SP_003NA_G70OBSOTP048_NA	048 08:04	048 23:43	1000.0	146.7	50.0	600.0	1173.7	1310.0	3555.1
SP_003EA_G70METOTP048_PRIME	048 23:43	049 08:43	867.2	149.9	50.0	600.0	900.0	1310.0	0.0

DATA POLICING TABLES

Event	Start doy hh:mm	End doy hh:mm	CAPS (Pkts)	CDA (Pkts)	CIRS (Pkts)	INMS (Pkts)	ISS (Pkts)	MAG (Pkts)	MIMI (Pkts)	RADAR (Pkts)	RPWS (Pkts)	UVIS (Pkts)	VIMS (Pkts)	DPT #
OBSERVATION_NOR	047 09:00	047 17:34	22500	1200	13800	500	10000	2400	4700	0	6700	3900	29300	1
SP_003EA_M34BWGRSS047_PRIME	047 17:34	047 21:44	6900	15300	0	300	0	1200	3400	0	6800	0	0	2
OBSERVATION_NOR	047 21:44	048 04:54	10000	6800	7500	400	16600	5200	5900	0	123800	20100	31800	3
SP_003EA_G70METNON048_PRIME	048 04:54	048 08:04	1500	6200	0	200	0	900	2600	0	5300	0	0	4
OBSERVATION_NOR	048 08:04	048 23:43	7100	2000	21500	900	11100	4300	8300	54500	9700	23000	139900	5
SP_003EA_G70METOTP048_PRIME	048 23:43	049 08:43	3600	1200	0	500	0	2500	3700	0	5600	0	0	6

CASSINI DSN COVERAGE SUMMARY for rev3_030408.apf generated on 2003-Apr-08 14:27:21
 (+ = pass overlaps with previous pass; * = in conflict with DSN weekly maintenance)

C ANT	ID	BOT_TO_EOT ERT	DUR hh:mm	XMT_AT ERT	2WAY_PERIOD ERT	DUR hh:mm	DL_PERIOD ERT	DL_PERIOD SCET	DUR hh:mm	NOT CALS min	RADIO_CONFIG UD D UD MAR	DATA_RATES kbps
M 34BWG	54	047T15:30-23:10	07:40	047T15:40	18:43-22:53	04:10	047T18:43-22:53	047T17:34-21:44	04:10	RSS 15/15	XX - - -	--0 35,41,35
G 70MET	14	048T03:50-09:30	05:40	048T04:00	06:18-09:13	02:56	048T06:03-09:13	048T04:54-08:04	03:10	--- 15/15	XX - - -	--0 165
G 34BWG	25	048T01:50-09:30	07:40	048T02:00	04:18-09:30	05:12	-----	-----	-----	--- 15/15	XX - - -	--0
G 70MET	14	049T00:50-09:55	09:05	049T01:00	03:18-09:52	06:34	049T00:52-09:52	048T23:43-08:43	09:00	OTP 15/15	XX - - -	--0 142,165,142

Issues

- The SOST Rev 3 timeline follows (as closely as possible) the guidelines set at the SWG meeting on 8/16/02:
 - RSS starting ~EN-07:00 (moved earlier to accommodate dust hazard turns),
 - ORS starting at ~EN-03:00,
 - CDA starting at EN-00:20,
 - CIRS starting at EN+00:30,
 - RSS starting at EN+01:30,
 - RADAR starting at EN+05:00,
 - ISS at EN+08:00.
- The attitude strategy allows for MAG-friendly pointing between the two RSS blocks, and CDA-friendly pointing during the two RSS blocks.
- The secondary axis during the second RSS block chosen by CDA may result in CIRS WB FR violations; these are OK with CIRS.
- The RSS block at EN+01:30:00 has a 34 BWG scheduled (for RSS, no downlink), as well as a 70 m (for downlink). The 70 m pass might be eliminated if following segment can accommodate the carryover data.
- NAV has agreed to the tracking strategy in the SPASS (4-hr, 3-hr, 6-hr of 2-way).
- DSN passes for RSS gravity requests are 15 min end 15 min after end of RSS activity to cover shift in movable block. The DSN pass requests can be refined during SOP Update.
- The movable block is a ground movable block; pointing uncertainties will not be updated after the Titan flyby in the previous segment.
- The turns to the safe S/C attitude during the dust crossing are within the movable block (may or may not be an issue)

Issues, cont'd

- The SOST Rev 3 timeline includes a custom handoff period. The teams involved have checked the turns using PDT:
 - __X__ CIRS (EN-03:30; turn from WP; leave off at CIRS attitude)
 - __X__ CDA (EN-00:20; turn from ISS attitude; leave off at CDA attitude)
 - __X__ CIRS (EN+00:30; turn from CDA attitude; leave off at RSS attitude)
 - __X__ RSS (EN+01:30; pick up at RSS attitude; leave off at RADAR attitude)
 - __X__ ISS (EN+08:00; turn from RADAR attitude; leave off at WP)