



CASSINI TOST_273 SEGMENT

Rev 273 Handoff Package

Segment Boundary 2017-127T04:19:00 – 2017-128T18:13:00

26 Oct 2016

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SMT Report, Timeline, SPASS

Science Highlights

Notes & Liens

This document has been reviewed and determined not to contain export controlled technical data

SMT Report

TOST 273

DATA VOLUME SUMMARY --- TRANSFER FRAME OVERHEAD INCLUDED (80 BITS PER 8800-BIT FRAME)

DOWNLINK PASS NAME	Start doy hh:mm	End doy hh:mm	OBSERVATION_PERIOD							DOWNLINK_PASS							
			P4				P5	RECORDED		PLAYBACK							
			START (Mb)	SCI (Mb)	HK+E (Mb)	TOTAL CPACTY (Mb)	MARGN (Mb)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGN (Mb)	NET_MARGN (Mb)	(%)	CAROVR (Mb)	
SP_273EA_C70METNON128_PRIME	128 09:56	128 18:13	0	2220	125	2345	3322	977	0	498	49	2892	3461	568	569	16%	0

Note: 105 Mb carryover expected from preceding XD_272/273

SSR PARTITION SIZE SUMMARY - SELECTED SSR CONFIGURATION: DOUBLE

OBSERVATION PERIOD	SSR A/B		
	P4 Size (Frames)	P5 Size (Frames)	P6 Size (Frames)
SP_273NA_OBSERV127_NA	188954	10	38863

DATA VOLUME REPORT --- TRANSFER FRAME OVERHEAD NOT INCLUDED

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	127 04:19	128 09:56	0.0	55.9	381.4	10.7	1080.0	105.3	90.6	0.0	416.0	0.0	60.0	0.0	123.8	2323.6
SP_273EA_C70METNON128_PRIME	128 09:56	128 18:13	0.0	15.6	78.7	3.0	0.0	29.5	25.3	0.0	337.0	4.5	0.0	0.0	0.0	493.6
DAILY TOTAL SCIENCE	127 04:19	128 18:13	0.0	71.5	460.0	13.6	1080.0	134.8	116.0	0.0	753.0	4.5	60.0	0.0	123.8	
TOTAL RECORDED (OPNAV data not included)			0.0	71.5	460.0	13.6	1080.0	134.8	116.0	0.0	753.0	4.5	60.0	0.0		

TOST_273 Master Timeline

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273TI	496011					
Start Time	End Time	Prime Activity	Obs. Detail	Op Mode	TLM Mode	Comments
2017-127T04:19:00	2017-127T04:59:00	SP Turn to WP	NEG_Y to Titan / NEG_Z to Sun	DFPW Normal	S_N_ER_3	
2017-127T04:59:00	2017-127T09:59:00	ISS - Long Range Monitoring	TC1a, TC1b, TN1a, TN2c, TN2d	DFPW Normal	S_N_ER_3	
2017-127T09:59:00	2017-127T14:59:00	ISS - Long Range Monitoring	TC1a, TC1b, TN1a, TN2c, TN2d	DFPW Normal	S_N_ER_3	CIRS (collaborative 1 hour FP3 then 1 hour FP4 on north pole) and VIMS (non-collaborative) riders during this segment--good view of North Pole
2017-127T14:59:00	2017-127T19:02:00	ISS - Long Range Monitoring	TC1a, TC1b, TN1a, TN2c, TN2d	DFPW Normal	S_N_ER_3	CIRS (collaborative 1 hour FP3 then 1 hour FP4 on north pole) and VIMS (non-collaborative) riders during this segment--good view of North Pole
2017-127T19:02:00	2017-127T22:02:00	CIRS - MIDIRT Maps	TC1b	DFPW Normal	S_N_ER_3	Temperature Maps
2017-127T20:32:14		CLOSEST APPROACH				
2017-127T22:02:00	2017-128T02:02:00	ISS - Long Range Monitoring	TC1a, TC1b, TN1a, TN2c, TN2d	DFPW Normal	S_N_ER_3	CIRS (collaborative 1 hour FP3 then 1 hour FP4 on north pole) and VIMS (non-collaborative) riders during this segment--good view of North Pole
2017-128T02:02:00	2017-128T06:46:00	ISS - Long Range Monitoring	TC1a, TC1b, TN1a, TN2c, TN2d	DFPW Normal	S_N_ER_3	CIRS (collaborative 1 hour FP3 then 1 hour FP4 on north pole) and VIMS (non-collaborative) riders during this segment--good view of North Pole
2017-128T06:46:00	2017-128T07:46:00	ISS_273TI_TIPHA001_PIE	TN1a	DFPW Normal	S_N_ER_3	TOST priority 1: northern latitudes, monitoring of cloud activity, low phase angle 7.9°
2017-128T07:46:00	2017-128T08:26:00	SP Turn to Earth for downlink	XBAND to Earth / NEG_Y to 127.0/-37.0	DFPW Normal	S_N_ER_3	Secondary selected by following segment (MAPS_273)
2017-128T08:26:00	2017-128T09:56:00	Ybias Gap		DFPW Normal	S_N_ER_3	
2017-128T09:56:00	2017-128T18:13:00	Canberra 70M		RSSKRWAF	RTE_N_SPB	Following segment (MAPS_273) begins with RSS Gravity

TOST_273 SPASS

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Request	Riders	Start (SCET)	Start (Epoch)	Duration	End	Primary	Secondary	Comments
Sequence 599, length = 41 days		2017-104T14:55:00		040T18:02:00	2017-145T08:57:00			
TOST_273_IN Segment		2017-127T04:19:00		001T13:54:00	2017-128T18:13:00			
SP_273TI_WAYPTTURN127_PRIME		2017-127T04:19:00		000T00:40:00	2017-127T04:59:00	NEG_Y to Titan	NEG_Z to Sun	
NEW WAYPOINT		2017-127T04:59:00		001T03:27:00	2017-128T08:26:00	NEG_Y to Titan	NEG_Z to Sun	
ISS_273TI_LRMONITOR001_PRIME	C, V	2017-127T04:59:00		000T05:00:00	2017-127T09:59:00	ISS_NAC to Titan	NEG_Z to Sun	
ISS_273TI_LRMONITOR002_PRIME	C, V	2017-127T09:59:00		000T05:00:00	2017-127T14:59:00	ISS_NAC to Titan	NEG_Z to Sun	Collaborative Rider(s): CIRS
ISS_273TI_LRMONITOR003_PRIME	C, V	2017-127T14:59:00		000T04:03:00	2017-127T19:02:00	ISS_NAC to Titan	NEG_Z to Sun	Collaborative Rider(s): CIRS. NEG_Z to Sun for CIRS
CIRS_273TI_MIDIRTMAP001_PRIME	I	2017-127T19:02:00		000T03:00:00	2017-127T22:02:00	CIRS_FP8 to Titan	NEG_Z to Sun	Template A2: CIRS-ISS
273TI (nt) TITAN Inbound, 496010.9 km		2017-127T20:32:14		000T00:00:01	2017-127T20:32:15			
ISS_273TI_LRMONITOR004_PRIME	C, V	2017-127T22:02:00		000T04:00:00	2017-128T02:02:00	ISS_NAC to Titan	NEG_Z to Sun	Collaborative Rider(s): CIRS. NEG_Z to Sun for CIRS
ISS_273TI_LRMONITOR005_PRIME	C, V	2017-128T02:02:00		000T04:44:00	2017-128T06:46:00	ISS_NAC to Titan	NEG_Z to Sun	Collaborative Rider(s): CIRS. NEG_Z to Sun for CIRS
ISS_273TI_TIPHA001_PIE	C, V	2017-128T06:46:00		000T01:00:00	2017-128T07:46:00	ISS_NAC to Titan	NEG_Z to Sun	NEG_Z to Sun for CIRS
SP_273EA_DLTURN128_PRIME		2017-128T07:46:00		000T00:40:00	2017-128T08:26:00	XBAND to Earth	NEG_Y to 127.0/-37.0	
NEW WAYPOINT		2017-128T08:26:00		000T09:47:00	2017-128T18:13:00	XBAND to Earth	NEG_Y to 127.0/-37.0	
SP_273EA_YGAP128_PRIME	E, R	2017-128T08:26:00		000T01:30:00	2017-128T09:56:00	XBAND to Earth	NEG_Y to 127.0/-37.0	
SP_273EA_C70METNON128_PRIME	C, R	2017-128T09:56:00		000T08:17:00	2017-128T18:13:00	XBAND to Earth	NEG_Y to 127.0/-37.0	MIMI. NEG_Y to Saturn (0,0,-9.5) RA/DEC

TOST_273 High-Priority Observations

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TOST_273: Summary of PIEs and Other High Priority Observations							
Discipline	CIMS Request Name	Start Time	End Time	Flexibility in secondary pointing	Comments (e.g., pointing tolerance, uniqueness; relative priority)	Science Traceability Matrix Code(s)	Pointing designer POC
Titan	ISS_273TI_TIPHA001_PIE	2017-128T06:46:00	2016-128T07:46:00	Flexible		TN1a	Jason Perry <volcano@pele@gmail.com>

May 7 (DOY 127) – TOST_273 is a Titan 496,011 km flyby with ISS and CIRS as Prime observers. ISS will be the Prime observer for the first 14 hours on inbound and the last 10 hours on outbound – acquiring a series of medium-resolution (~3 km) global-scale images and mosaics to observe Titan's surface and atmosphere at northern mid-latitudes over the leading and sub-Saturnian hemispheres, receding outbound near Elpis Macula, and the Forseti impact crater. This series of observations over the full ~27 hour observation period will allow ISS to monitor Titan to track clouds and the evolution thereof, of particular scientific interest as Titan's northern summer equinox approaches.

CIRS and VIMS will each ride along with ISS. CIRS, as a collaborative rider, will continue monitoring the evolution of the global temperature and wind field, as the northern hemisphere approaches summer solstice. VIMS will monitor the evolution of cloud coverage at the North Pole.

For 3 hours at closest approach, CIRS will take over as Prime observer, creating a distant mid-infrared temperature map in nadir mode, which will cover the entire visible hemisphere and complement its later, and closer-altitude, limb-sounding data. ISS will ride along as well.

May 8 (DOY 128) – ISS will continue with its series of observations on the outbound, as noted on DOY 127. The final hour of the observation duration is devoted to a Low Phase Angle (7.9 deg) PIE observation of Titan’s mid-northern latitudes on the sub-Saturnian hemisphere. Again, CIRS and VIMS will ride along with ISS – CIRS is collaborative on all ISS primes except the Low Phase Angle PIE.

Playback of the observation data will occur over the Canberra 70M downlink. Note that RSS is powering Ka-band on and requesting a shadow 34M track for warmup in advance of their Saturn Gravity campaign in the following MAPS segment.

Notes (1/2)

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- Pointing:
 - Waypoint secondary chosen per science request, but close to RBOT-friendly RA/DECs
 - Downlink secondary requested by subsequent MAPS segment for its RSS Saturn Gravity campaign
- Data Volume:
 - No carryover to next segment
 - Accepting 105 Mb carryover from previous segment, XD_272/273
 - No SMT warnings
- DSN:
 - JUNO contention on DSS-43 (only downlink pass of segment) for full request duration: PJ-5d.
 - RSS requesting DSS-35 shadow track during DSS-43 downlink for Gravity Warmup
 - No extended DSN maintenances
 - No ap_downlink report check warnings
- Resource checker:
 - No open items

Notes (2/2)

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- Opmodes:
 - No RWA-slow or unique opmodes requested
 - RSSKRWAF requested during downlink (Gravity warmup) – no issues (no RADAR or MAG SCAS)
- Hydrazine:
 - No RCS, not applicable
- Special Activities:
 - None

Sequence Liens (should all be SPLAT items):

- None