



CASSINI TOST T85 SEGMENT

Rev 169 Handoff Package

Segment Boundary 2012-205T20:38:00 – 2012-208T06:38:00

22 Dec 2011

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SMT report and SPASS

Science Highlights

Notes & Liens

SMT report

TOST rev 169

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 (Mb)	CPACTY (Mb)	MRGN (Mb)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGN (Mb)	NET_MARGN (Mb)	NET_MARGN (%)	CAROVR (Mb)
SP_169EA_G70METNON207_PRIME	207 18:38	208 04:38	0	3088	206	3294	3322	28	0	259	59	3612	3366	-247	18	0%	246
SP_169EA_C70METNON208_PRIME	208 04:38	208 06:38	246	0	0	246	3322	3076	0	484	12	742	760	18	18	2%	0

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	205 20:38	207 18:38	249.9	86.8	466.3	26.6	800.0	124.5	112.3	0.0	559.7	19.0	615.0	0.0	203.5	3263.6
SP_169EA_G70METNON207_PRIME	207 18:38	208 04:38	36.0	18.9	97.2	3.6	0.0	17.8	30.6	0.0	47.2	5.5	0.0	0.0	0.0	256.7
SP_169EA_C70METNON208_PRIME	208 04:38	208 06:38	7.2	3.8	21.6	0.7	0.0	3.6	6.1	0.0	9.4	1.1	0.0	0.0	425.9	479.4
DAILY TOTAL SCIENCE	205 20:38	208 06:38	293.1	109.4	585.1	30.9	800.0	145.8	149.0	0.0	616.3	25.6	615.0	0.0	629.4	

	CAPS (Mb)	CDA (Mb)	CIRS (Mb)	INMS (Mb)	ISS (Mb)	MAG (Mb)	MIMI (Mb)	RADAR (Mb)	RPWS (Mb)	UVIS (Mb)	VIMS (Mb)	PROBE (Mb)
TOTAL RECORDED (OPNAV data not included)	293.1	109.4	585.1	30.9	800.0	145.8	149.0	0.0	616.3	25.6	615.0	0.0

SPASS

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Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S74, length = 67 days		2012-170T22:58:00		067T03:21:00	2012-238T02:19:00			
Titan Flyby T85 Segment		2012-205T20:38:00		002T10:00:00	2012-208T06:38:00			
SP_169TI_WAYPTTURN205_PRIME		2012-205T20:38:00		000T00:40:00	2012-205T21:18:00	NEG_Y to Titan		NEG_X to NTP
NEW WAYPOINT		2012-205T21:18:00		001T21:20:00	2012-207T18:38:00	NEG_Y to Titan		NEG_X to NTP
SP_169TI_DEADTIME205_PRIME		2012-205T21:18:00		000T00:15:00	2012-205T21:33:00	NEG_Y to Titan		NEG_X to NTP
CIRS_169TI_MIDIRTMAP001_PRIMI, V		2012-205T21:33:00	GMB_E169_TITAN_T85-000T22:30:08	000T09:30:08	2012-206T07:03:08	CIRS_FP8 to Titan	PIC	Template M4: CIRS-ISS
CIRS_169TI_FIRNADCOMP001_PRIMI, V		2012-206T07:03:08	GMB_E169_TITAN_T85-000T13:00:00	000T04:00:00	2012-206T11:03:08	CIRS_FP1 to Titan	PIC	
VIMS_169TI_MEDRES001_PRIME C, I		2012-206T11:03:08	GMB_E169_TITAN_T85-000T09:00:00	000T04:00:00	2012-206T15:03:08	VIMS_IR to Titan		NEG_X to Sun
VIMS_169TI_REGMAP001_PRIME C, I		2012-206T15:03:08	GMB_E169_TITAN_T85-000T05:00:00	000T02:30:00	2012-206T17:33:08	VIMS_IR to Titan		NEG_X to Sun
Begin custom period		2012-206T17:33:00	GMB_E169_TITAN_T85-000T02:30:00	000T00:00:00	2012-206T17:33:09			
CIRS_169TI_FIRLMBINT001_PRIMEI, M, V		2012-206T17:33:08	GMB_E169_TITAN_T85-000T02:30:00	000T01:15:00	2012-206T18:48:08	CIRS_FP1 to Titan	PIC	Pick up at NEG_Y to Titan, NEG_X to North_Pole_Dir; Hand off at CIRS_FP1 to Titan, PIC. Point VIMS_IR to 87N, 121W between 18:17:46 and 18:21:46 (for specular reflection).
CIRS_169TI_FIRLMBBAER001_PRIMI, M, V		2012-206T18:48:08	GMB_E169_TITAN_T85-000T01:15:00	000T00:30:00	2012-206T19:18:08	CIRS_FP1 to Titan	PIC	Pick up at CIRS_FP1 to Titan, PIC; Hand off at CIRS_FP1 to
ENGR_169SC_ORSRCS206_PRIME M		2012-206T19:18:08	GMB_E169_TITAN_T85-000T00:45:00	000T00:01:00	2012-206T19:19:08	CIRS_FP1 to Titan	PIC	Pick up at CIRS_FP1 to Titan, PIC; Hand off at CIRS_FP1 to Titan, PIC. deadband =(0.5,2,0.5)
CIRS_169TI_FIRLMBT001_PRIME I, M, V		2012-206T19:19:08	GMB_E169_TITAN_T85-000T00:44:00	000T00:34:00	2012-206T19:53:08	CIRS_FP1 to Titan	PIC	Pick up at CIRS_FP1 to Titan, PIC; Hand off at NEG_Y to Titan (-20.5,0.0,-16.0 deg. offset), POS_Z to SC_RAM. Handoff to VIMS at NEG_Y to Titan (-20.5, 0, -16.0) degrees offset, POS_Z to Titan SC_RAM
Begin dual playback science		2012-206T19:53:08	GMB_E169_TITAN_T85-000T00:10:00	000T00:00:01	2012-206T19:53:09			
VIMS_169TI_HIRES001_PRIME C, I, M		2012-206T19:53:08	GMB_E169_TITAN_T85-000T00:10:00	000T00:55:00	2012-206T20:48:08	VIMS_IR to Titan		NEG_X to Sun Pick up at NEG_Y to Titan (-20.5,0.0,-16.0 deg. offset), POS_Z to Titan_SC_RAM; Hand off at NEG_Y to Titan, POS_Z
169TI (t) T85 TITAN Outbou...		2012-206T20:03:08		000T00:00:01	2012-206T20:03:09			
ENGR_169SC_DFPWBIAS206_PPS C, M, V		2012-206T20:48:08	GMB_E169_TITAN_T85+000T00:45:00	000T00:21:05	2012-206T21:09:13	NEG_Y to Titan		POS_Z to Titan_SC_RAM Pick up at NEG_Y to Titan, POS_Z to Titan_SC_RAM; Hand off at NEG_Y to Titan, POS_Z to Titan_SC_RAM.
End dual playback science		2012-206T20:56:08	GMB_E169_TITAN_T85+000T00:53:00	000T00:00:01	2012-206T20:56:09			
VIMS_169TI_HIRES002_PRIME C, I, M		2012-206T21:10:08	GMB_E169_TITAN_T85+000T01:07:00	000T01:08:00	2012-206T22:18:08	VIMS_IR to Titan		NEG_X to Sun Pick up at NEG_Y to Titan, POS_Z to Titan_SC_RAM; Hand off at NEG_Y to Titan, NEG_X to NTP.
End custom period		2012-206T22:18:00	GMB_E169_TITAN_T85+000T02:15:00	000T00:00:00	2012-206T22:18:09			
CIRS_169TI_FIRNADMAP002_PRIMI, V		2012-206T22:18:08	GMB_E169_TITAN_T85+000T02:15:00	000T02:45:00	2012-207T01:03:08	CIRS_FP1 to Titan	PIC	
CIRS_169TI_MIRLMBMAP002_PRIMI, V		2012-207T01:03:08	GMB_E169_TITAN_T85+000T05:00:00	000T04:00:00	2012-207T05:03:08	CIRS_FP8 to Titan	PIC	
VIMS_169TI_GLOBMAP001_PRIME C, I		2012-207T05:03:08	GMB_E169_TITAN_T85+000T09:00:00	000T05:00:00	2012-207T10:03:08	VIMS_IR to Titan		NEG_X to Sun Collaborative Rider(s): ISS
VIMS_169TI_GLOBMAP002_PRIME C, I		2012-207T10:03:08	GMB_E169_TITAN_T85+000T14:00:00	000T07:39:52	2012-207T17:43:00	VIMS_IR to Titan		NEG_X to Sun Collaborative Rider(s): ISS
SP_169TI_DEADTIME207_PRIME		2012-207T17:43:00	GMB_E169_TITAN_T85+000T21:39:00	000T00:15:00	2012-207T17:58:00	NEG_Y to Titan		NEG_X to NTP
SP_169EA_DLTURN207_PRIME		2012-207T17:58:00		000T00:40:00	2012-207T18:38:00	XBAND to Earth (0.0,0.0,-25.0 deg. offset)		NEG_Y to Saturn
NEW WAYPOINT		2012-207T18:38:00		000T12:00:00	2012-208T06:38:00	XBAND to Earth (0.0,0.0,-25.0 deg. of)		NEG_Y to Saturn
SP_169EA_G70METNON207_PRIME C		2012-207T18:38:00		000T10:00:00	2012-208T04:38:00	XBAND to Earth (0.0,0.0,-25.0 deg. offset)	Rolling	MIMI. NEG_Y to Saturn (0,0,-25). CIRS heating
Pointer reset in preparatio...		2012-208T04:38:00		000T00:00:01	2012-208T04:38:01			
SP_169EA_C70METNON208_PRIME C		2012-208T04:38:00		000T02:00:00	2012-208T06:38:00	XBAND to Earth (0.0,0.0,-25.0 deg. offset)	Rolling	MIMI. NEG_Y to Saturn (0,0,-25). CIRS heating

Science Highlights

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DOY 205: At the end of the day, CIRS carries out an infrared temperature mapping of Titan's atmosphere.

DOY 206: CIRS performs far-infrared limb-sounding to retrieve vertical temperature, aerosol and gas distribution near 36N. VIMS looks for specular reflection on Kivu Lacus, one of the Northern small lakes. At closest approach, VIMS will acquire a 1km/pix image of Kivu Lacus and Punga Mare. Then, it will acquire a 2 km/pixel image of the Huygens landing site in order to look for geological changes. These observations will be compared with previous observations (VIMS and Radar) to study Titan's orbital characteristics. ISS will ride along with CIRS' and VIMS' observations, inbound and outbound, to image Titan's atmosphere. These observations include Adiri and the region where extensive surface changes were observed in Fall 2010. With closest approach in the dayside ionosphere, the magnetometer will be able to study the diffusion of the external magnetic field at low altitudes and mid solar zenith angles. A comparison with the T83 and T84 flybys will be very useful.

DOY 207: Medium resolution capability will allow VIMS to detect clouds and to monitor climatic changes after the equinox. ISS will ride along with CIRS' and VIMS' observations to image Titan's atmosphere. The day ends with downlinking the flyby data to Earth.

Y bias windows & data volume

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There is no Y bias window for this segment, since the flyby is on thrusters.

Dual playbacks

- A Dual Playback for VIMS High Value Science has been planned
- Based on DSN requests, SMT results indicate it will fit within this segment
- A SPLAT item has been opened until the DSN negotiations for this time period are complete

Flyby	Driving Instrument	BEGHIVAL	ENDHIVAL	P4 Dual Playback	SSR-A empty after first playback?	Anything nonstandard?
T85	VIMS	T85-10 min	T85+53 min	203.5 Mb	Yes	N/A

A “standard” dual playback: no carryover coming in, single observation period, first downlink empties SSR, no caboose observation period, second downlink empties SSR

Notes

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- Pointing:
 - CIRS heating during downlink attitude.
 - No Ybias window in flyby since flyby is on thrusters
 - SID suspend warning on waypoint turn
 - Didn't use RBOT-friendly waypoint as flyby is on thrusters
- Data Volume:
 - No Issues
- DSN:
 - No issues
- Resource checker:
 - CIRS to change custom handoff secondary in CIRS_169TI_FIRLMBT001_PRIME
 - Use of PIC in SPASS is for CIRS handing off to itself, or SCO holding attitude during transition to thrusters
- Opmodes:
 - Nothing unusual
- Hydrazine:
 - TOST estimates 383g
- Special Activities:
 - N/A

Liens

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Sequence Liens (should all be SPLAT items):

- Liens to be worked in SIP:
 - dual playback
 - CIRS secondary edit