



CASSINI TOST T93 SEGMENT

Rev 195 Handoff Package

Segment Boundary 2013-206T12:39:00 – 2013-209T11:09:00

10 Dec 2012

J. Pitesky

SMT report and SPASS

Science Highlights

Notes & Liens

SMT report

TOST rev 195

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)	MGRN (Mb)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGN (Mb)	NET_MARGN (Mb)	(%)	CAROVR (Mb)
SP_195EA_C70METNON208_PRIME	208 03:09	208 12:15	0	3116	163	3279	3322	43	0	348	54	3681	3462	-219	112	2%	219
SP_195EA_M34BWGNON208_PRIME	208 12:15	208 14:39	219	0	0	219	3322	3103	0	502	14	735	126	-609	112	6%	609
SP_195EA_C34BWGNON209_PRIME	209 02:09	209 08:09	609	602	49	1259	3322	2063	0	142	35	1437	518	-920	112	7%	919
SP_195EA_C70METNON209_PRIME	209 08:09	209 11:09	919	0	0	919	3322	2403	0	77	18	1013	1125	112	112	10%	0

SPASS

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Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S79, length = 68 days		2013-158T00:45:00		068T09:06:00	2013-226T09:51:00			
Titan Flyby T93 Segment		2013-206T12:39:00		002T22:30:00	2013-209T11:09:00			
SP_195TI_WAYPTTURN206_PRIME		2013-206T12:39:00		000T00:40:00	2013-206T13:19:00	NEG_Y to Titan	NEG_X to NTP	
NEW WAYPOINT		2013-206T13:19:00		001T12:20:00	2013-208T01:39:00	NEG_Y to Titan	NEG_X to NTP	
SP_195TI_DEADTIME206_PRIME		2013-206T13:19:00		000T00:14:59	2013-206T13:33:5	NEG_Y to Titan	NEG_X to NTP	
CIRS_195TI_MIDIRMAP001_PRIM I, V		2013-206T13:33:59	GMB_E195_TITAN_T93-000T22:22:23	000T08:22:23	2013-206T21:56:22	CIRS_FP1 to Titan	POS_X to 217.3/-83.7	
ISS_195TI_MONITORNA001_PRIME C, V		2013-206T21:56:22	GMB_E195_TITAN_T93-000T14:00:00	000T02:00:00	2013-206T23:56:22	ISS_NAC to Titan	NEG_X to Sun	
CIRS_195TI_FIRNADCMP001_PRIM I, U, V		2013-206T23:56:22	GMB_E195_TITAN_T93-000T12:00:00	000T03:00:00	2013-207T02:56:22	CIRS_FP1 to Titan	PIC	
UVIS_195TI_EUVFUV001_PRIME C, I, V		2013-207T02:56:22	GMB_E195_TITAN_T93-000T09:00:00	000T06:45:00	2013-207T09:41:22	UVIS_FUV to Titan	NEG_X to NTP	
Begin Custom		2013-207T09:41:2	GMB_E195_TITAN_T93-000T02:15:0	000T00:00:01	2013-207T09:41:23			
ISS_195TI_REGMAP001_PRIME C, M, V		2013-207T09:41:22	GMB_E195_TITAN_T93-000T02:15:00	000T01:15:00	2013-207T10:56:22	ISS_NAC to Titan	NEG_X to NTP	Pick up at NEG_Y to Titan, NEG_X to NTP; Hand off at VIMS_IR to Titan, NEG_Z to Titan_SC_RAM.
VIMS_195TI_HIRES001_PRIME C, I, M		2013-207T10:56:22	GMB_E195_TITAN_T93-000T01:00:00	000T00:30:00	2013-207T11:26:22	VIMS_IR to Titan	NEG_Z to Titan_SC_RAM	Pick up at VIMS_IR to Titan, NEG_Z to Titan_SC_RAM; Hand off at VIMS_IR to Titan, NEG_Z to Titan_SC_RAM.
VIMS_195TI_HIRES002_PRIME C, I, M		2013-207T11:26:22	GMB_E195_TITAN_T93-000T00:30:00	000T00:40:00	2013-207T12:06:22	VIMS_IR to Titan	NEG_Z to Titan_SC_RAM	Pick up at VIMS_IR to Titan, NEG_Z to Titan_SC_RAM; Hand off at VIMS_IR to Titan, NEG_Z to Titan_SC_RAM.
Begin Dual Playback Science		2013-207T11:47:22	GMB_E195_TITAN_T93-000T00:09:00	000T00:00:01	2013-207T11:47:23			
195TI (t) T93 TITAN Outbou...		2013-207T11:56:22		000T00:00:01	2013-207T11:56:23			
VIMS_195TI_HIRES003_PRIME C, I, M		2013-207T12:06:22	GMB_E195_TITAN_T93+000T00:10:00	000T00:50:00	2013-207T12:56:22	VIMS_IR to Titan	NEG_Z to Titan_SC_RAM	Pick up at VIMS_IR to Titan, NEG_Z to Titan_SC_RAM; Hand off at ISS_NAC to Titan, NEG_X to Sun.
End Dual Playback Science		2013-207T12:56:22	GMB_E195_TITAN_T93+000T01:00:00	000T00:00:01	2013-207T12:56:23			
ISS_195TI_REGMAP002_PRIME C, M, V		2013-207T12:56:22	GMB_E195_TITAN_T93+000T01:00:00	000T01:15:00	2013-207T14:11:22	ISS_NAC to Titan	NEG_X to Sun	Pick up at ISS_NAC to Titan, NEG_X to Sun; Hand off at ISS_NAC to Titan, NEG_X to Sun.
ISS_195TI_REGMAP003_PRIME C, V		2013-207T14:11:22	GMB_E195_TITAN_T93+000T02:15:00	000T01:45:00	2013-207T15:56:22	ISS_NAC to Titan	NEG_X to Sun	Pick up at ISS_NAC to Titan, NEG_X to Sun; Hand off at NEG_Y to Titan, NEG_X to NTP.
End Custom		2013-207T15:56:2	GMB_E195_TITAN_T93+000T04:00:0	000T00:00:01	2013-207T15:56:23			
CIRS_195TI_MIRLMBMAP002_PRIM V		2013-207T15:56:22	GMB_E195_TITAN_T93+000T04:00:00	000T05:00:00	2013-207T20:56:22	CIRS_FP1 to Titan	PIC	
VIMS_195TI_GLOBMAP001_PRIME C, I		2013-207T20:56:22	GMB_E195_TITAN_T93+000T09:00:00	000T03:47:37	2013-208T00:43:59	VIMS_IR to Titan	NEG_X to Sun	Collaborative Rider(s): ISS
SP_195TI_DEADTIME208_PRIME		2013-208T00:43:5	GMB_E195_TITAN_T93+000T12:47:0	000T00:15:01	2013-208T00:59:0	NEG_Y to Titan	NEG_X to NTP	
SP_195EA_DLTURN208_PRIME		2013-208T00:59:00		000T00:40:00	2013-208T01:39:00	XBAND to Earth (0.0,0.0,-45.0 deg. offset)	NEG_Y to Saturn	
NEW WAYPOINT		2013-208T01:39:00		000T13:40:00	2013-208T15:19:0	XBAND to Earth (0.0,0.0,-45.0 deg. of)	NEG_Y to Saturn	
SP_195EA_YGAP208_PRIME E		2013-208T01:39:00		000T01:30:00	2013-208T03:09:00	XBAND to Earth (0.0,0.0,-45.0 deg. offset)	NEG_Y to Saturn	
SP_195EA_C70METNON208_PRIME C, M, R		2013-208T03:09:00		000T09:06:00	2013-208T12:15:00	XBAND to Earth (0.0,0.0,-45.0 deg. offset)	Rolling	Collaborative Rider(s): CAPS. MIMI. NEG_Y to Saturn (0,0,-45). CIRS heating
Pointer Reset in preparatio...		2013-208T12:15:00		000T00:00:01	2013-208T12:15:01			
SP_195EA_M34BWGNON208_PRIM C, R		2013-208T12:15:00		000T02:24:00	2013-208T14:39:00	XBAND to Earth	Rolling	MIMI. NEG_Y to Saturn (0,0,-45). CIRS heating
SP_195TI_WAYPTTURN209_PRIME		2013-208T14:39:00		000T00:40:00	2013-208T15:19:00	NEG_Y to Titan	NEG_X to NTP	
NEW WAYPOINT		2013-208T15:19:00		000T09:20:00	2013-209T00:39:0	NEG_Y to Titan	NEG_X to NTP	
ISS_195TI_CLOUD001_PRIME C, V		2013-208T15:19:00		000T04:00:00	2013-208T19:19:00	ISS_NAC to Titan	NEG_X to Sun	
ISS_195TI_CLOUD002_PRIME C, V		2013-208T19:19:00		000T03:40:00	2013-208T22:59:00	ISS_NAC to Titan	NEG_X to Sun	
ISS_195TI_CLOUD003_PRIME C, V		2013-208T22:59:00		000T01:00:00	2013-208T23:59:00	ISS_NAC to Titan	NEG_X to Sun	
SP_195EA_DLTURN209_PRIME		2013-208T23:59:00		000T00:40:00	2013-209T00:39:00	XBAND to Earth (0.0,0.0,-45.0 deg. offset)	NEG_Y to Saturn	
NEW WAYPOINT		2013-209T00:39:00		000T10:30:00	2013-209T11:09:0	XBAND to Earth (0.0,0.0,-45.0 deg. of)	NEG_Y to Saturn	
SP_195EA_YGAP209_PRIME E		2013-209T00:39:00		000T01:30:00	2013-209T02:09:00	XBAND to Earth (0.0,0.0,-45.0 deg. offset)	NEG_Y to Saturn	
SP_195EA_C34BWGNON209_PRIM C		2013-209T02:09:00		000T06:00:00	2013-209T08:09:00	XBAND to Earth (0.0,0.0,-45.0 deg. offset)	Rolling/SRU	MIMI. NEG_Y to Saturn (0,0,-45). SID suspend. CIRS heating. CAREFUL: dual playback data carried over to this
SP_195EA_C70METNON209_PRIME C		2013-209T08:09:00		000T03:00:00	2013-209T11:09:00	XBAND to Earth (0.0,0.0,-45.0 deg. offset)	Rolling	MIMI. NEG_Y to Saturn (0,0,-45). SID suspend. CIRS heating

Science Highlights

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DOY 206: ISS will acquire a mosaic of high northern latitudes on Titan's leading hemisphere, approaching northern summer. This area of Titan's surface has not yet been well observed (multiple observations of high northern latitudes may be needed in case of cloud cover obscuring the surface). CIRS focuses on mid-infrared limb sounding, to determine atmospheric vertical structure and trace gas abundances during seasonal transition to southern winter. ISS will ride along with CIRS on approach to track clouds at high northern latitudes

DOY 207: CIRS carries out a far infrared compositional study. ISS will acquire high-resolution images of high northern latitudes on the terminator as the Sun sets for southern winter. VIMS is prime at closest approach and will acquire images of Punga Mare and Ligeia Mare on the inbound. Earlier in this flyby, observation of specular reflection will be possible if liquid bodies are present in the area between (57.3N, 131.2W) and (58.4 N, 151.7W). A pushbroom mode will be used to acquire high resolution images of the Belet dune fields. T93 is slightly more inclined but otherwise identical to T92. With closest approach in the dayside, Cassini will be able to study the diffusion of the external magnetic field at low altitudes and low solar zenith angles. Outbound, VIMS will acquire a mosaic along meridian 270 W which has not been well covered so far. It will also monitor the formation of clouds at northern mid-latitudes as predicted by Global Circulation Models. After closest approach, ISS will acquire high-resolution images of Ontario Lacus on the terminator as the Sun sets for southern winter.

DOY 208: Flyby data is downlinked. ISS will also monitor Titan's high southern latitudes, approaching winter, to track clouds and the evolution thereof for an extra day after the Titan encounter. RSS runs an occultation orbital readiness test.

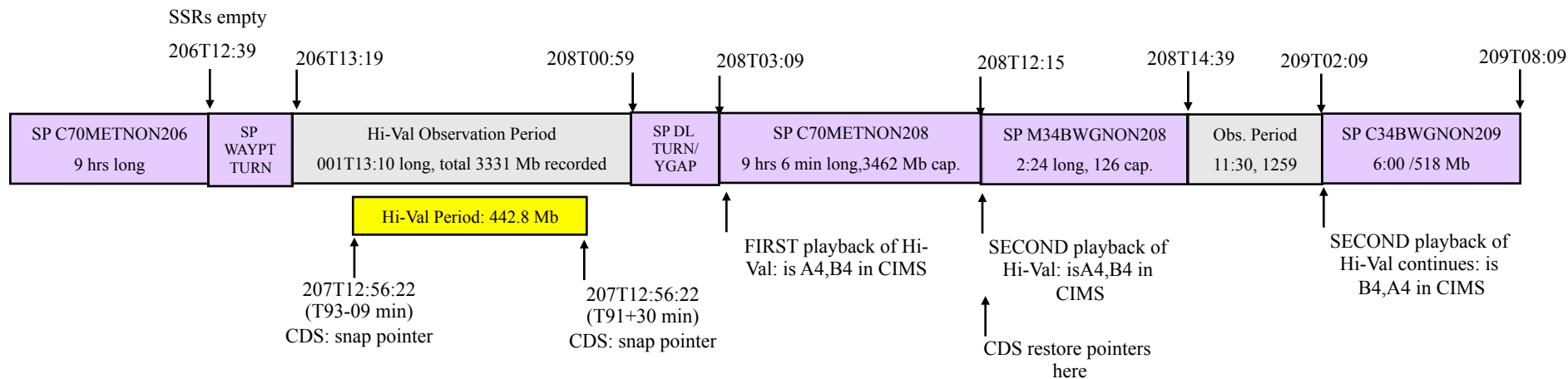
DOY 209: Data is downlinked.

Dual Playback

TOST T93

Flyby	BEGHIVAL	ENDHIVAL	P4 Dual Playback Data Volume	SSR empty before hi-val observation period? (if not verify any carryover on A fits with Hi-Val data)	SSR-A empty after first playback?	PPL set to A4,B4 for first AND second playbacks?	SSRs empty after second playback? (if not does any Hi-Val data carry over?)
T93	T93-09 min	T93+60 min	442.8 Mb	Yes	Yes	No	Yes/Yes

Playbacks contiguous BUT second playback carries over to discontinuous pass:



Reminder - ALL instruments' data is played back twice during P4 dual playback periods

Notes

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- Pointing:
 - Waypoint not valid during custom period.
 - No RBOT-friendly waypoint could be found
- Data Volume:
 - Note weird dual PB structure; dual PB return is carried over to post-caboose downlink.
 - Carrying over dual PB data to different *antenna* (dual pb finishes on C34).
- New dual PB procedure requires P4 priority table of A/B on both dual PB downlink blocks, leading to complaint about nonstandard PB table. **NOTE THAT DUAL PB FINISHES ON A THIRD DOWNLINK (POSSIBLY FOURTH?), BUT THOSE DOWNLINK BLOCKS ARE NOT SET TO A/B. CDS NEEDS TO CHECK THIS!!!!**
- DSN:
 - Level 3 request for RSS OCCORT on DOY 208 for DSS-55

Scheduled downtime at M70:

- DOY 208 downgrade from 70M to BWG (DSS-55, for RSS ORT; HEF doesn't support ORT)
- DOY 209 partial upgrade to 70M
- Resource checker:
 - No problems
- Opmodes:
 - No problems
- Hydrazine:
 - Flyby on wheels
- Special Activities:
 - Nothing other than weird dual PB

Liens

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Sequence Liens (should all be SPLAT items):

- Dual Playback: extends over three (possibly four!) downlink passes.