



CASSINI TOST TWT SEGMENT

185TI_T90Handoff Package

Segment Boundary 2013-095T05:01:00 – 2013-097T07:01:00

24 September 2012

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SMT report and SPASS

Science Highlights

Notes & Liens

T90 Master Timeline

TOST T90

Start Time	End Time	Prime Activity	Obs. Detail	Op Mode	TLM Mode	Comments
185TI_T90	1400					
2013-095T05:01:00	2013-095T05:41:00	SP Turn to WP	NEG_Y to Titan, NEG_X to NTP			
2013-095T05:41:00	C/A-15:47:31	OD Uncertainty Dead Time				
begin custom period						
C/A-15:47:31	-13:00	CIRS	M3 (Tc1b)	DFPW Normal	S_N_ER_3	ISS rider
-13:00	-09:00	CIRS	N1 (Tc1b, TN1c aerosol)	DFPW Normal	S_N_ER_3	
-09:00	-05:00	CIRS	R (TN1c or Tc1b, decided in implementation)	DFPW Normal	S_N_ER_3	
-05:00	-02:15	CIRS	TN2c (surface temperature)	DFPW Normal	S_N_ER_3	
-02:15	-00:15	CIRS	CIRS turn to VIMS attitude TN1c	DFPW Normal	S_N_ER_3	FIRLMB at 40S, 14N; best south between T82 and T100
-00:15	0	VIMS	TC1a, TN1a	DFPW Normal	S_N_ER_3	Tui + Xanadu highres + South NT2 25 km/pixel
2013-095T21:43:31		CLOSEST APPROACH	NEG_Y to Titan, on wheels (Tc2a)			
0	+02:15	VIMS	TC1a, TN1a	DFPW Normal	S_N_ER_3	
+02:15	+05:00	VIMS	Y (TC1a, TN1a (depending on pointing) and TN2c)	DFPW Normal	S_N_ER_3	
+05:00	+09:00	VIMS	I (TC1a and TN2c)	DFPW Normal	S_N_ER_3	ISS rider
end custom period						
+09:00	+14:00	CIRS	C (TN1c)	DFPW Normal	S_N_ER_3	VIMS rider
+14:00	C/A+19:52:29	CIRS	A3 (Tc1b)	DFPW Normal	S_N_ER_3	ISS rider
C/A+19:52:29	2013-096T17:51:00	OD Uncertainty Dead Time				
2013-096T17:51:00	2013-096T18:31:00	SP Turn to Earth for downlink		DFPW Normal	S_N_ER_3	
2013-096T18:31:00	2013-096T20:01:00	Y-Bias window		DFPW Normal	S_N_ER_3	
2013-096T20:01:00	2013-097T05:01:00	Madrid 70M		DFPW Normal	RTE_N_SPB	
2013-097T05:01:00	2013-097T07:01:00	Goldstone 70M		DFPW Normal	RTE_N_SPB	Dual playback for VIMS, -00:15 to +02:15

Deadband: n/a

Walking Deadband: n/a

Dual Playback: -00:15 to +02:15

SMT report

TOST T90

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 (%)	
SP_185EA_M70METNON096_PRIME	096 20:01	097 05:01	0	2916	165	3081	3322	241	0	192	53	3326	3230	-96	104	3%	95
SP_185EA_G70METNON097_PRIME	097 05:01	097 07:01	95	0	0	95	3322	3227	0	660	12	767	870	103	104	12%	0

T90 SPASS

TOST T90

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S78, length = 72 days		2013-085T13:15:00		072T11:30:00	2013-158T00:45:00			
Titan Flyby T90 Segment		2013-095T05:01:00		002T02:00:00	2013-097T07:01:00			
SP_185TI_WAYPTTURN095_PRIME		2013-095T05:01:00		000T00:40:00	2013-095T05:41:00	NEG_Y to Titan	NEG_X to NTP	
NEW WAYPOINT		2013-095T05:41:00		001T12:50:00	2013-096T18:31:00	NEG_Y to Titan	NEG_X to NTP	
SP_185NA_DEADTIME095_PRIME		2013-095T05:41:00		000T00:14:59	2013-095T05:55:59	NEG_Y to Titan	NEG_X to NTP	
Begin custom period		2013-095T05:55:59	GMB_E185_TITAN_T90-000T15:47:32	000T00:00:01	2013-095T05:56:00			
CIRS_185TI_MIDIRMAP001_PRIME	I, V	2013-095T05:55:59	GMB_E185_TITAN_T90-000T15:47:32	000T02:47:32	2013-095T08:43:31	CIRS_FPB to Titan	PIC	Pick up at NEG_Y to Titan, NEG_X to NTP; Hand off at CIRS_FPB to Titan, PIC. Template M4?
CIRS_185TI_FIRNADCMP001_PRIME	I, U, V	2013-095T08:43:31	GMB_E185_TITAN_T90-000T13:00:00	000T04:00:00	2013-095T12:43:31	CIRS_FP1 to Titan	PIC	Pick up at CIRS_FPB to Titan, PIC; Hand off at CIRS_FPB to Titan, PIC.
CIRS_185TI_MIRLMBINT001_PRIME	I, V	2013-095T12:43:31	GMB_E185_TITAN_T90-000T09:00:00	000T04:00:00	2013-095T16:43:31	CIRS_FPB to Titan	PIC	Pick up at CIRS_FPB to Titan, PIC; Hand off at CIRS_FP1 to Titan, PIC.
CIRS_185TI_FIRNADMAP001_PRIME	I, V	2013-095T16:43:31	GMB_E185_TITAN_T90-000T05:00:00	000T02:45:00	2013-095T19:28:31	CIRS_FP1 to Titan	PIC	Pick up at CIRS_FP1 to Titan, PIC; Hand off at CIRS_FP1 to Titan, PIC.
CIRS_185TI_FIRLMBINT001_PRIME	I, M, V	2013-095T19:28:31	GMB_E185_TITAN_T90-000T02:15:00	000T01:00:00	2013-095T20:28:31	CIRS_FP1 to Titan	PIC	Pick up at CIRS_FP1 to Titan, PIC; Hand off at CIRS_FP1 to Titan, PIC.
CIRS_185TI_FIRLMBAR001_PRIME	I, M, V	2013-095T20:28:31	GMB_E185_TITAN_T90-000T01:15:00	000T00:30:00	2013-095T20:58:31	CIRS_FP1 to Titan	PIC	Pick up at CIRS_FP1 to Titan, PIC; Hand off at CIRS_FP1 to Titan, PIC.
CIRS_185TI_FIRLMBT001_PRIME	I, M, V	2013-095T20:58:31	GMB_E185_TITAN_T90-000T00:45:00	000T00:30:00	2013-095T21:28:31	CIRS_FP1 to Titan	PIC	Pick up at CIRS_FP1 to Titan, PIC; Hand off at VIMS_IR to Titan, POS_Z to SC_RAM. Handoff to VIMS at VIMS_IR to Titan, 20.1N, 87.2W; POS_Z to Titan SC_RAM.
Begin Dual Playback Science		2013-095T21:28:31	GMB_E185_TITAN_T90-000T00:15:00	000T00:00:01	2013-095T21:28:32			
VIMS_185TI_HIRES001_PRIME	C, I, M	2013-095T21:28:31	GMB_E185_TITAN_T90-000T00:15:00	000T02:30:00	2013-095T23:58:31	VIMS_IR to Titan	POS_Z to SC_RAM	Pick up at VIMS_IR to Titan, POS_Z to SC_RAM; Hand off at VIMS_IR to Titan, POS_Z to SC_RAM. Pick-up from CIRS at - Y to Titan (20.1N 87.2 W), +Z to SC_RAM
185TI (t) T90 TITAN Outbou...		2013-095T21:43:31		000T00:00:01	2013-095T21:43:32			
End Dual Playback Science		2013-095T23:58:31	GMB_E185_TITAN_T90+000T02:15:00	000T00:00:01	2013-095T23:58:32			
VIMS_185TI_REGMAP001_PRIME	C, I	2013-095T23:58:31	GMB_E185_TITAN_T90+000T02:15:00	000T02:45:00	2013-096T02:43:31	VIMS_IR to Titan	POS_Z to SC_RAM	Pick up at VIMS_IR to Titan, POS_Z to SC_RAM; Hand off at VIMS_IR to Titan, POS_Z to SC_RAM.
VIMS_185TI_GLOBMAP001_PRIME	C, I	2013-096T02:43:31	GMB_E185_TITAN_T90+000T05:00:00	000T04:00:00	2013-096T06:43:31	VIMS_IR to Titan	POS_Z to SC_RAM	Pick up at VIMS_IR to Titan, POS_Z to SC_RAM; Hand off at NEG_Y to Titan, NEG_X to NTP.
End custom period		2013-096T06:43:31	GMB_E185_TITAN_T90+000T09:00:00	000T00:00:01	2013-096T06:43:32			
CIRS_185TI_FIRNADCMP002_PRIME	I, U, V	2013-096T06:43:31	GMB_E185_TITAN_T90+000T09:00:00	000T05:00:00	2013-096T11:43:31	CIRS_FP1 to Titan	PIC	
CIRS_185TI_MIDIRMAP002_PRIME	I, V	2013-096T11:43:31	GMB_E185_TITAN_T90+000T14:00:00	000T05:52:28	2013-096T17:35:59	CIRS_FPB to Titan	PIC	Template M3?
SP_185NA_DEADTIME096_PRIME		2013-096T17:35:59	GMB_E185_TITAN_T90+000T19:52:28	000T00:15:00	2013-096T17:50:59	NEG_Y to Titan	NEG_X to NTP	
SP_185EA_DLTURN096_PRIME		2013-096T17:51:00		000T00:40:00	2013-096T18:31:00	XBAND to Earth	NEG_Y to 114.0/-48.0	
NEW WAYPOINT		2013-096T18:31:00		000T12:30:00	2013-097T07:01:00	XBAND to Earth	NEG_Y to 114.0/-48.0	
SP_185EA_YGAP096_PRIME	E	2013-096T18:31:00		000T01:30:00	2013-096T20:01:00	XBAND to Earth	NEG_Y to 114.0/-48.0	
SP_185EA_M70METNON096_PRIME	C	2013-096T20:01:00		000T09:00:00	2013-097T05:01:00	XBAND to Earth	Rolling	MIMI. NEG_Y to 114/-48
Pointer Reset in preparatio...		2013-097T05:01:00		000T00:00:01	2013-097T05:01:01			
SP_185EA_G70METNON097_PRIME	C	2013-097T05:01:00		000T02:00:00	2013-097T07:01:00	XBAND to Earth	Rolling	MIMI. NEG_Y to 114/-48.

Science Highlights

TOST T90

DOY 095: CIRS makes a detailed sampling of the atmosphere near 42S to monitor the changes at southern mid-latitudes during southern fall.

On the inbound, VIMS will ride along with CIRS and will be able to image the Northern Pole area of Titan and monitor the evolution of the large mare (TC1a and TN1a). During its prime observation, VIMS will image Mnerva (20.1, 87.2 W), the western part of Xanadu, including Tui regio (TN1a), with a sampling of less than 5 km / pixel. Then a challenging observation of Ontario Lacus will be made before realizing a mid-res (10 km / pixel) mosaic centered at southern mid-latitude South of Adiri looking for surface and cloud evolution.

ISS will ride along with CIRS' and VIMS' observations, inbound and outbound, to image Titan's surface and atmosphere.

T90 is another high inclination (1302 km) flyby in the post noon sector of Saturn's magnetosphere. With closest approach in the nightside, Cassini will be able to study the diffusion of the external magnetic field at low altitudes and high solar zenith angles. A comparison with T83, T84, T85, T86, T87, T88 and T89 will be very useful.

DOY 096: The VIMS instrument will also be looking at clouds at northern mid-latitudes that are expected to form during Titan's Spring according to Global Circulation Models.

CIRS makes a detailed sampling of the atmosphere near 42S to monitor the changes at southern mid-latitudes during southern fall.

The ISS outbound leg includes the region where extensive surface changes were observed in Fall 2010 and an area at mid-southern latitudes on the trailing hemisphere that has only been imaged at lower resolution.

T90 Data begins playback over Madrid 70M.

Dual playbacks

- A Dual Playback for 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?
T90	VIMS	T90-15 min	T90+02:15:00	609 Mb	Yes	nope

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

Notes

TOST T90

- Pointing:
 - none
- Data Volume:
 - No smt warnings.
- DSN:
 - none
- Resource checker:
 - CIRS Custom period request is using PIC in secondary BV of handoff pointing is ok.
- Opmodes:
 - none
- Hydrazine:
 - none
- Special Activities:
 - none

Liens

TOST T90

Sequence Liens (should all be SPLAT items):

- List any Liens to be worked in SIP, ie
 - T90 has dual playback for VIMS from – 15min to +2hr 15 min.