



CASSINI TOST SEGMENT

Rev 174 Handoff Package

Segment Boundary 2012-317T14:01:00 – 2012-319T21:46:00

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Jo Pitesky

SMT report and SPASS

Science Highlights

Notes & Liens

SMT report

TOST Rev 174

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_174EA_M34BWGNON318_PRIME	318 06:02	318 12:17	0	1002	68	1070	3322	2252	0	849	37	1956	356	-1600	844	17%	1600
SP_174EA_G34BWGNON318_PRIME	318 12:17	318 14:52	1600	0	0	1600	3322	1722	0	98	15	1714	117	-1597	844	18%	1597
SP_174EA_M70METNON319_PRIME	319 06:31	319 12:13	1597	815	66	2479	3322	844	0	408	34	2920	1819	-1102	1327	29%	1101
SP_174EA_G70METNON319_PRIME	319 12:13	319 21:46	1101	0	0	1101	3322	2221	0	246	56	1404	2730	1326	1327	49%	0

SPASS

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S76, length = 72 days		2012-307T14:30:00		072T03:21:00	2013-013T17:51:00			
Titan Flyby T87 Segment		2012-317T14:01:00		002T07:45:00	2012-319T21:46:00			
SP_174TI_WAYPTTURN317_PRIME		2012-317T14:01:00		000T00:40:00	2012-317T14:41:00	NEG_Y to Titan	NEG_X to NTP	
NEW WAYPOINT		2012-317T14:41:00		001T00:41:00	2012-318T15:22:0	NEG_Y to Titan	NEG_X to NTP	
SP_174NA_DEADTIME317_PRIME		2012-317T14:41:00		000T00:14:59	2012-317T14:55:5	NEG_Y to Titan	NEG_X to NTP	
CIRS_174TI_MIDIRTMAP001_PRIMI, V		2012-317T14:55:59	GMB_E174_TITAN_T87-000T19:26:09	000T06:26:09	2012-317T21:22:08	CIRS_FPB to Titan	PIC	Template M4: CIRS-ISS
VIMS_174TI_GLOBMAP001_PRIME C, I		2012-317T21:22:08	GMB_E174_TITAN_T87-000T13:00:00	000T04:00:00	2012-318T01:22:08	VIMS_IR to Titan	NEG_X to Sun	
VIMS_174TI_MEDRES001_PRIME C, I		2012-318T01:22:08	GMB_E174_TITAN_T87-000T09:00:00	000T01:55:00	2012-318T03:17:08	VIMS_IR to Titan	NEG_X to Sun	
VIMS_174TI_MEDRES002_PRIME C, I		2012-318T03:17:08	GMB_E174_TITAN_T87-000T07:05:00	000T02:05:00	2012-318T05:22:08	VIMS_IR to Titan	NEG_X to Sun	
SP_174EA_DLTURN318_PRIME C, M		2012-318T05:22:08	GMB_E174_TITAN_T87-000T05:00:00	000T00:40:00	2012-318T06:02:08	XBAND to Earth	NEG_X to Titan_SC_RAM	
SP_174EA_M34BWGNON318_PRIMI, C, E, M		2012-318T06:02:08	GMB_E174_TITAN_T87-000T04:20:00	000T06:15:51	2012-318T12:17:59	XBAND to Earth	NEG_X to Titan_SC_RAM	
Begin Dual Playback Science		2012-318T09:52:08	GMB_E174_TITAN_T87-000T00:30:00	000T00:00:01	2012-318T09:52:09			
174TI (t) T87 TITAN Outbou...		2012-318T10:22:08		000T00:00:01	2012-318T10:22:09			
End Dual Playback Science		2012-318T10:52:08	GMB_E174_TITAN_T87+000T00:30:00	000T00:00:01	2012-318T10:52:09			
SP_174EA_G34BWGNON318_PRIMI, C, M		2012-318T12:17:59	GMB_E174_TITAN_T87+000T01:55:51	000T02:34:09	2012-318T14:52:08	XBAND to Earth	NEG_X to Titan_SC_RAM	
SP_174TI_WAYPTTURN318_PRIME C, M		2012-318T14:52:08	GMB_E174_TITAN_T87+000T04:30:00	000T00:30:00	2012-318T15:22:08	NEG_Y to Titan	NEG_X to NTP	
NEW WAYPOINT		2012-318T15:22:08		000T15:08:52	2012-319T06:31:0	NEG_Y to Titan	NEG_X to NTP	
VIMS_174TI_MEDRES003_PRIME I		2012-318T15:22:08	GMB_E174_TITAN_T87+000T05:00:00	000T04:00:00	2012-318T19:22:08	VIMS_IR to Titan	NEG_X to Sun	
CIRS_174TI_FIRNADCP002_PRIM I, U, V		2012-318T19:22:08	GMB_E174_TITAN_T87+000T09:00:00	000T05:00:00	2012-319T00:22:08	CIRS_FP1 to Titan	PIC	
CIRS_174TI_MIDIRTMAP002_PRIMI, V		2012-319T00:22:08	GMB_E174_TITAN_T87+000T14:00:00	000T05:13:51	2012-319T05:35:59	CIRS_FPB to Titan	PIC	
SP_174NA_DEADTIME319_PRIME		2012-319T05:35:5	GMB_E174_TITAN_T87+000T19:13:	000T00:15:00	2012-319T05:50:5	NEG_Y to Titan	NEG_X to NTP	
SP_174EA_DLTURN319_PRIME		2012-319T05:51:00		000T00:40:00	2012-319T06:31:00	XBAND to Earth (0.0,0.0,-9.5 deg. offset	NEG_Y to Saturn	
NEW WAYPOINT		2012-319T06:31:00		000T15:15:00	2012-319T21:46:0	XBAND to Earth (0.0,0.0,-9.5 deg. off	NEG_Y to Saturn	
SP_174EA_M70METNON319_PRIME R		2012-319T06:31:00		000T05:42:00	2012-319T12:13:00	XBAND to Earth (0.0,0.0,-9.5 deg. offset	Rolling	MIMI. NEG_Y to Saturn (0,0,-
Pointer Reset in preparatio...		2012-319T12:01:00		000T00:00:01	2012-319T12:01:01			
SP_174EA_G70METNON319_PRIME C, R		2012-319T12:13:00		000T09:33:00	2012-319T21:46:00	XBAND to Earth (0.0,0.0,-9.5 deg. offset	Rolling	MIMI. NEG_Y to Saturn (0,0,-

Science Highlights

TOST Rev 174

DOY 317 - CIRS performs mapping of Titan's stratospheric temperatures to continue monitoring seasonal change. VIMS detection of clouds to monitor climatic changes after the equinox. Look for specular reflection on the Northern lakes. ISS will ride along with CIRS' and VIMS' observations, to image Titan's atmosphere.

DOY 318 - VIMS detection of clouds to monitor climatic changes after the equinox. T87 is one of two passes in the Solstice Mission where INMS and the navigation team will simultaneously measure Titan's atmosphere. This is critical to understanding the differences in the atmospheric density calculated by INMS, Nav, AACS and UVIS. Navigation will determine Titan's atmospheric density by measuring the acceleration of drag on the spacecraft with Doppler shift observations. Look for specular reflection on the Northern lakes. CIRS performs mapping of Titan's stratospheric temperatures to continue monitoring seasonal change. ISS will ride along with CIRS' and VIMS' observations, to image Titan's atmosphere. The outbound leg includes the region where extensive surface changes were observed in Fall 2010.

DOY 319 - CIRS performs mapping of Titan's stratospheric temperatures to continue monitoring seasonal change. Data from the flyby is played back to Earth.

Y bias windows & data volume

TOST Rev 174

We have no Y bias windows in this segment, because the flyby is on thrusters.

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?
T87	INMS	T87-30 min	T87+30 min	316.8 Mb	Yes BUT WATCH THIS LIKE A HAWK	Carryover coming in from Rings, mostly played back over C/A downlinks.

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 Rev 174

- Pointing:
 - No known waypoint issues or hand edits needed.
 - SID issues on first DL turn and during M34 BWG pass on DOY 318
 - No YGAP window as this is a flyby on thrusters.
 - Secondary for pointing to earth near C/A is designed to accommodate the NAV/AACS/INMS experiment. Don't change it without consulting with those teams, though they are not prime!!!!
- Data Volume:
 - Rings carries over into this segment, and downlinks over C/A. Carryover was allowed with the understanding that it not impact successful dual playback. If data volume must be cut to ensure SSR-A is cleared, look first to Rings data.
- DSN:
 - Level 3 requests identified by RSS.
 - M70METNON319 overlaps start of DSS-63 weekly maintenance, but we need it for the dual playback.
 - DSN changes made after initial DSN request went to MP:
 - M70METNON319 duration changed from 05:45 to 05:42
 - G70METNON319 start time changed from 2012-319T12:01 to T11:58; end time stays the same
- Resource checker:
 - Opmodes appear to mismatch but are OK
- Opmodes:
 - Unusual changes in support of NAV/INMS/AACS joint flyby + RSS support
- Hydrazine:
 - Estimate 500g
 - Deadband (.5, .5, 2)
- Special Activities:
 - NAV/INMS/AACS joint flyby
 - RSS provides a backup for the closed-loop receiver in case the closed-loop receiver drops lock. Additionally, it provides higher resolution data.
 - CDA cannot articulate from -05:00 to +05:00
 - AACS to turn on accelerometer and record data, to be implemented in sequence development.

Liens

TOST Rev 174

Sequence Liens (should all be SPLAT items):

- Liens:
 - dual playback
 - No CDA articulation from -05:00 to +05:00