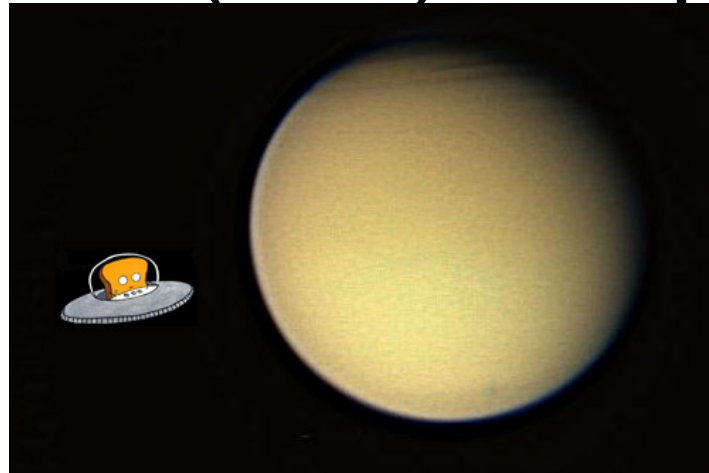


TOST: Integration 113TI (T57) Wrapup



September 5, 2008

Jo Pitesky, Nora Kelly, Trina Ray, Kim Steadman,

Segment Basics

Segment times:

BEG: 2009-173T04:10:00

END: 2009-175T05:40:00

Altitude: 955 km

Time of C/A: 2009-173T18:32:35

Note change in epoch from kickoff

Epoch: GMB_E113_Titan57

Sequence: S51

<p>At least 2 weeks prior to the Kickoff Meeting make sure that all requests are in CIMS</p>	<p>Kickoff Meeting</p> <p><u>Present</u> Master Timeline Draft Op Modes Draft Telem Modes Draft RCS Deadband</p> <p><u>Discuss</u> Timeline Op Modes Telem Modes Deadbands for RCS</p> <p><u>Homework</u> Custom Handoff Attitudes Unique Op Mode Requirements (SCO) Turn Assignments CCRs High Level Science</p>	<p>Detailed Meeting</p> <p><u>Present</u> Master Timeline SMT Report Timeline Graphic TOL SPASS DSN Reports Dual Playback Science Draft Data Volume Cuts</p> <p><u>Discuss</u> Data Volume Cuts</p> <p><u>Homework</u> CCRs High Level Science Objectives</p>	<p>Wrap-up Meeting</p> <p><u>Present</u> Wrap-up Package Checklist High Level Science Objectives</p> <p><u>Discuss</u> N/A</p> <p><u>Homework</u> N/A</p>
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High-level Science Objectives (1)

- INMS - prime observation of the night side outer flank at mid Southern latitudes *DOY 173*
- RADAR - ridealong SAR on INMS, outbound altimetry, scatterometry, radiometry SAR runs parallel to T55, T56 in S hemisphere mapping sequence *DOY 173*
- RSS - RSS observes an ingress only Titan ionospheric/atmospheric occultation on T57 . The occultation probes a northern latitude of 78.7 degrees, the highest in both the nominal and extended missions. The occultations will shed more light on Titan's polar vortex, and together with previous occultations, on the latitudinal variability of the electron density profile of the ionosphere, temperature/pressure profile, absorptivity profile, and small scale-structure of the neutral atmosphere. *DOY 173*
- CIRS – Mid-southern latitude far (*DOY 173*) and mid (*DOY 174*) infrared vertical composition section.
- ISS –(0.5-hour illuminated prime observation primarily for photometry. (*DOY 174*) ISS will ride along with VIMS to observe Titan's trailing hemisphere at mid-southern latitudes and relatively low phase angle and with CIRS to monitor clouds. (*DOY 108*)
- VIMS –On the inbound, the phase angle is much larger than 90 degrees and VIMS ridealong observations will provide information on the composition of Titan's atmosphere. *DOY 173* After radar observations, VIMS will be ridealong and will map a new area in the southern hemisphere between 60 and 30 degrees south latitude and 60 and 120 East longitude at a resolution of 60 km/pixel. *DOY 174*

High-level Science Objectives (2)

UVIS – UVIS will obtain an image cube of Titan's atmosphere at EUV and FUV wavelengths by sweeping its slit across the disk. These cubes provide spectral and spatial information on nitrogen emissions, H emission and absorption, absorption by simple hydrocarbons, and the scattering properties of haze aerosols. This is one of many such cubes gathered over the course of the mission to provide latitude and seasonal coverage of Titan's middle atmosphere and stratosphere. *DOY 173-174*

MIMI– Energetic ion and electron energy input to atmosphere *DOY 173-174*

MAG – T57 is another flank-out, post-dusk flyby, with a minimum altitude of 1000 km. As in T55 and T56 MAG measurements will provide a description of the draping and the pileup of the external magnetic field around Titan on the nightside hemisphere. It will be also a good complement to T52, T53, T54, T55 and T56 in order to characterize the background field for a similar local time with respect to Saturn and different SKR longitudes. *DOY 173-174*

RPWS - Measure thermal plasmas in Titan's ionosphere and surrounding environment; search for lightning in Titan's atmosphere; investigate the interaction of Titan with Saturn's magnetosphere. *DOY 173-174*

Master Timeline for T57

T57	1000
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Start Time	End Time	Prime Activity	Obs. Detail	Op Mode	TLM Mode	Comments
2009-173T04:10:00	2009-173T04:50:00	SP Turn to WP	NEG_Y to Titan, NEG_X to NTP	DFPW Normal	S_N_ER_3	
2009-173T04:50:00	C/A - 13:26:47	OD Uncertainty Dead Time		DFPW Normal	S_N_ER_3	
C/A - 13:26:47	-13:00	CIRS	Template M4	DFPW Normal	S_N_ER_3	
-13:00	-10:00	CIRS	Template N	DFPW Normal	S_N_ER_3	
-10:00	-09:00	ISS	Template N	DFPW Normal	S_N_ER_3	
-09:00	-03:27	UVIS	Template X	DFPW Normal	S_N_ER_3	Impact of transition TBD
-03:27	-03:26	RWA to RCS Transition		RSS3RCS	S_N_ER_3	(.5, .5, .5) deadband
-03:26	-02:15	UVIS	Template X	RSS3RCS	S_N_ER_3	RSS3RCS at -03:05
-02:15	-01:10	CIRS		RSS3RCS	S_N_ER_3	
Begin custom period						
-01:10	-00:20:48	RSS Occ	XBAND to Earth, NEG_X to TITAN_SC_RAM	RSS3RCS	S_N_ER_3	09:40 turn from WP, 10 second margin
-00:20:48	0	INMS (RADAR-designed)	RADAR @ C/A +/- 3 min Ridealong	RADRCS	S_N_ER_8	Check turn (SP estimates 00:04:04 duration)
2009-173T18:31:47		CLOSEST APPROACH	Neg_X to Titan_SC_RAM, NEG_Z to Titan	RADRCS	S_N_ER_8	
0	+00:12:30	INMS (RADAR-designed)		RADRCS	S_N_ER_8	
+00:12:30	+00:30	RADAR	Altimetry	RADRCS	S_N_ER_8	
+00:30	+00:50	RADAR	Hi-SAR	RADRCS	S_N_ER_8	
+00:50	+01:14	RCS to RWA Transition		RADRWA	S_N_ER_8	Use RADAR attitude
+01:14	+02:00	RADAR	Scatterometry/Radiometry	RADRWA	S_N_ER_8	
+02:00	+5:30	RADAR	Template L	RADRWA	S_N_ER_8	31 minute turn to ORS waypoint
End custom period						
+05:30	+08:30	UVIS	Template G	DFPW Normal	S_N_ER_3	
+08:30	+09:00	ISS	Template G	DFPW Normal	S_N_ER_3	
+09:00	+14:00	VIMS	Template V	DFPW Normal	S_N_ER_3	
+14:00	C/A + 22	CIRS	Template A	DFPW Normal	S_N_ER_3	
C/A + 22	2009-174T17:00:00	OD Uncertainty Dead Time		DFPW Normal	S_N_ER_3	
2009-174T17:00:00	2009-174T17:40:00	SP Turn to Earth for downlink		DFPW Normal	S_N_ER_3	
2009-174T17:40:00	2009-175T03:40:00	70-m Array		RSSK	RTE_N_SPB	
2009-175T03:40:00	2009-175T05:40:00			DFPW Normal	RTE_N_SPB	

Waypoint strategy reduced to ONE ORS waypoint
 OK to have “bad” waypoint during custom periods

Dual Playback: +/- 00:05:00

Deadband: (0.5, 0.5, 0.5) for UVIS. No need to hold through outbound transition.

Walking deadband to be managed.

T57 Wrap-Up Telemetry Mode Report

TELEMETRY MODE REPORT

EPOCH RELATIVE	UTC	DURATION	TELEMETRY MODE	REQUEST
	2009-173T04:10:00.000	14:01:47	S_N_ER_3	SP_113NA_G70OBSNON174_NA
GMB_E113_Titan57-000T00:20:48	2009-173T18:11:47.000	05:50:48	S_N_ER_8	SP_113NA_G70OBSNON174_NA
GMB_E113_Titan57+000T05:30:00	2009-174T00:02:35.000	17:37:25	S_N_ER_3	SP_113NA_G70OBSNON174_NA
	2009-174T17:40:00.000	00:45:00	RTE_N_SPB_47400	SP_113EA_G70METNON174_PRIME
	2009-174T18:25:00.000	01:00:00	RTE_N_SPB_99540	SP_113EA_G70METNON174_PRIME
	2009-174T19:25:00.000	01:45:00	RTE_N_SPB_124425	SP_113EA_G70METNON174_PRIME
	2009-174T21:10:00.000	04:30:00	RTE_N_SPB_142200	SP_113EA_G70METNON174_PRIME
	2009-175T01:40:00.000	02:00:00	RTE_N_SPB_110600	SP_113EA_G70METNON174_PRIME
	2009-175T03:40:00.000	02:00:00	RTE_N_SPB_124425	SP_113EA_C70METNON175_PRIME

T57 Wrap-Up SMT Report

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_113EA_G70METNON174_PRIME	174 17:40	175 03:40	0	3376	175	3551	3552	1	0	253	59	3864	3700	-164	94	2%	164
SP_113EA_C70METNON175_PRIME	175 03:40	175 05:40	164	0	120	284	3552	3268	0	370	12	666	760	93	94	12%	0

T57 Wrap-Up SMT Report (continued)

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	173 04:10	174 17:40	264.6	70.7	426.2	23.6	500.0	120.6	131.6	424.0	701.3	181.5	491.0	0.0	47.1	3382.3
OBSERVATION_SI	173 04:10	174 17:40	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
SP_113EA_G70METNON174_PRIME	174 17:40	175 03:40	36.0	18.9	86.4	3.6	0.0	21.6	32.4	0.0	46.8	5.5	0.0	0.0	0.0	251.2
OBSERVATION_NOR	173 04:10	175 03:40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	120.2	120.2
SP_113EA_C70METNON175_PRIME	175 03:40	175 05:40	7.2	3.8	14.4	0.7	0.0	4.3	6.5	0.0	329.0	1.1	0.0	0.0	0.0	367.0
DAILY TOTAL SCIENCE	173 04:10	175 05:40	307.8	93.4	537.0	27.9	500.0	146.5	170.5	424.0	1077.2	188.1	491.0	0.0		

	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)	307.8	93.4	537.0	27.9	500.0	146.5	170.5	424.0	1077.2	188.1	491.0	0.0

T57 Wrap-Up DSN Report

CASSINI DOWNLINK/DSN COVERAGE SUMMARY for 113TI_T57_081106.apf on 2008-Nov-06 13:57:13
 (+ = pass overlaps with previous pass; * = conflicts with DSN maintenance; o = overlaps occultation)

DOWNLINK PASS					DSN PASS						
NAME	START_TO_END SCET	START_TO_END ERT	DUR hh:mm	DATA_RATES kbps	ID	START_TO_END SCET	START_TO_END ERT	DUR hh:mm	CALS min	LABEL	CNFG
M34BWGNON173	-----	-----	----	(no downlink)	55	173T16:41-19:11	173T17:59-20:34	02:35	90 /15	RSS T57	N750
M70METNON173	-----	-----	----	(no downlink)	63	173T16:41-19:11	173T17:59-20:34	02:35	60 /15	RSS T57	1639
G70METNON273	-----	-----	----	(no downlink)	14*	173T17:46-19:11	173T19:04-20:34	01:30	60 /15	RSS T57	1639
G70METNON174	174T17:40-03:40	174T19:00-05:00	10:00	47,99,124,142,110 ^-- and also -->	25	174T17:40-03:41	174T18:59-05:04	10:05	90 /15	RSS GSE	N748
					14	174T17:40-03:41	174T18:59-05:04	10:05	60 /15	TP	N003
+C70METNON175	175T03:40-05:40	175T05:00-07:00	02:00	124	43	175T03:20-05:41	175T04:39-07:04	02:25	60 /15	TP	N003

TOL for T57 (1 of 2)

Request	Start Time	Epoch	Duration	End Time	Rate	Data Volume	SPASS Type	Pointing	Pointing	Agreement
MP_112NA_SEQUENCE051_NA	2009-164T04:41:00		040T17:10:00	2009-204T21:51:00	0	0	SPASS Note			
CDA_113OT_RATE010001_RIDER	2009-168T14:08:00		007T23:35:59	2009-176T13:43:59	524	361.434	Non-SPASS			
CAPS_113SA_SURVEY001_PRIME	2009-172T04:17:00		001T12:15:35	2009-173T16:32:35	1000	130.535	Non-SPASS			
INMS_113SA_SURVEYSEG001_INMS	2009-173T04:10:00		000T13:22:35	2009-173T17:32:35	100	4.816	Non-SPASS			
MAG_113OT_SURVEY002_PRIME	2009-173T04:10:00		000T10:22:35	2009-173T14:32:35	600	22.413	Non-SPASS			
MIMI_113CO_SURVEY004_RIDER	2009-173T04:10:00		000T12:22:35	2009-173T16:32:35	900	40.099	Non-SPASS			
RPWS_113SA_OUTSURVEY003_PRIME	2009-173T04:10:00		001T14:43:00	2009-174T18:53:00	1310	182.59	Non-SPASS			
SP_113NA_G700BSNON174_NA	2009-173T04:10:00		001T13:30:00	2009-174T17:40:00	0	0	Non-SPASS			
SP_113NA_TOSTSEG173_NA	2009-173T04:10:00		002T01:30:00	2009-175T05:40:00	0	0	SPASS Note			
SP_113TI_WAYPTTURN173_PRIME	2009-173T04:10:00		000T00:40:00	2009-173T04:50:00	0	0	New Waypoint	NEG_Y to Titan	NEG_X to NTP	
SP_113NA_DEADTIME001_PRIME	2009-173T04:50:00		000T00:15:48	2009-173T05:05:48	0	0	Prime	NEG_Y to Titan	Epimetheus	
CIRS_113TI_FIRNADCOMP001_PRIME	2009-173T05:05:48	GMB_E113_Titan57-000T13:26:47	000T03:26:47	2009-173T08:32:35	4000	49.628	Prime	Titan	PIC	
CIRS_113TI_FIRNADCOMP001_SI	2009-173T05:05:48	GMB_E113_Titan57-000T13:26:47	000T03:26:47	2009-173T08:32:35	0	4	SPASS Rider			
ISS_113TI_FIRNADCOMP001_CIRS	2009-173T05:05:48	GMB_E113_Titan57-000T13:26:47	000T03:26:47	2009-173T08:32:35	0	50	SPASS Rider			
VIMS_113TI_MIDIRMAP001_CIRS	2009-173T05:05:48	GMB_E113_Titan57-000T13:26:47	000T03:26:47	2009-173T05:32:35	6222.8	10	SPASS Rider			
VIMS_113TI_FIRNADCOMP001_CIRS	2009-173T05:32:35	GMB_E113_Titan57-000T13:00:00	000T03:00:00	2009-173T08:32:35	3703.7	40	SPASS Rider			
CIRS_113TI_DUMMY001_ISS	2009-173T08:32:35	GMB_E113_Titan57-000T10:00:00	000T01:00:00	2009-173T09:32:35	4000	14.4	SPASS Rider			
ISS_113TI_NIGHTNACO01_PRIME	2009-173T08:32:35	GMB_E113_Titan57-000T10:00:00	000T01:00:00	2009-173T09:32:35	0	100	Prime	ISS_NAC to Titan	NEG_X to Sun	
VIMS_113TI_PHOTOMWAC001_ISS	2009-173T08:32:35	GMB_E113_Titan57-000T10:00:00	000T01:00:00	2009-173T09:32:35	13888.9	50	SPASS Rider			
CIRS_113TI_EUVFUV001_UVIS	2009-173T09:32:35	GMB_E113_Titan57-000T09:00:00	000T06:45:00	2009-173T16:17:35	4000	97.2	SPASS Rider			
UVIS_113TI_EUVFUV001_PRIME	2009-173T09:32:35	GMB_E113_Titan57-000T09:00:00	000T05:33:00	2009-173T15:05:35	5032	100.539	Prime	Titan	NEG_X to Sun	
VIMS_113TI_EUVFUV001_UVIS	2009-173T09:32:35	GMB_E113_Titan57-000T09:00:00	000T06:45:00	2009-173T16:17:35	4115.2	100	SPASS Rider			
MAG_113TI_MAGTITAN001_PRIME	2009-173T14:32:35	GMB_E113_Titan57-000T04:00:00	000T08:00:00	2009-173T22:32:35	1976	56.909	Non-SPASS			
ENGR_113SC_WALKDEAD001_AACS	2009-173T14:55:35	GMB_E113_Titan57-000T03:37:00	000T00:00:02	2009-173T14:55:37	0	0	Non-SPASS			
ENGR_113SC_AACSDUAL001_CDS	2009-173T15:02:35	GMB_E113_Titan57-000T03:30:00	000T04:42:00	2009-173T19:44:35	1638	27.715	Non-SPASS			
ENGR_113SC_ORSRCS173_PRIME	2009-173T15:05:35	GMB_E113_Titan57-000T03:27:00	000T00:01:00	2009-173T15:06:35	0	0	Prime	NEG_Y to Titan	NEG_X to NTP	
ENGR_113SC_URSSKSRCS173_PPS	2009-173T15:05:35	GMB_E113_Titan57-000T03:27:00	000T00:20:51	2009-173T15:26:26	0	0	Non-SPASS			
UVIS_113TI_EUVFUV001_ENGR	2009-173T15:05:35	GMB_E113_Titan57-000T03:27:00	000T00:01:00	2009-173T15:06:35	5032	0.302	SPASS Rider			
RSS_113TI_THERMAL001_RSS	2009-173T15:05:36	LUB_E113_Titan57-000T03:26:59	000T02:16:59	2009-173T17:22:35	0	0	SPASS Rider			
UVIS_113TI_EUVFUV003_PRIME	2009-173T15:06:35	GMB_E113_Titan57-000T03:26:00	000T01:11:00	2009-173T16:17:35	5032	21.436	Prime	Titan	NEG_X to Sun	
ENGR_113SC_URSS3RCS173_PPS	2009-173T15:26:28	GMB_E113_Titan57-000T03:06:07	000T00:00:03	2009-173T15:26:31	0	0	Non-SPASS			
CIRS_113TI_FIRLMBINT001_PRIME	2009-173T16:17:35	GMB_E113_Titan57-000T02:15:00	000T01:05:00	2009-173T17:22:35	4000	15.6	Prime	Titan	PIC	
CIRS_113TI_FIRLMBINT001_SI	2009-173T16:17:35	GMB_E113_Titan57-000T02:15:00	000T01:05:00	2009-173T17:22:35	0	2	SPASS Rider			
ISS_113TI_FIRLMBINT001_CIRS	2009-173T16:17:35	GMB_E113_Titan57-000T02:15:00	000T01:05:00	2009-173T17:22:35	0	50	SPASS Rider			
UVIS_113TI_MIRLMBINT001_CIRS	2009-173T16:17:35	GMB_E113_Titan57-000T02:15:00	000T01:05:00	2009-173T17:22:35	1258	4.906	SPASS Rider			
VIMS_113TI_REGMAP001_CIRS	2009-173T16:17:35	GMB_E113_Titan57-000T02:15:00	000T01:05:00	2009-173T17:22:35	15384.6	60	SPASS Rider			
CAPS_113TI_T57INBND001_PRIME	2009-173T16:32:35	GMB_E113_Titan57-000T02:00:00	000T01:00:00	2009-173T17:32:35	4000	14.4	SPASS Rider			
MIMI_113TI_TITANIN001_RIDER	2009-173T16:32:35	GMB_E113_Titan57-000T02:00:00	000T01:00:00	2009-173T17:32:35	1200	4.32	SPASS Rider			
RPWS_113TI_TIIINTRMED001_PRIME	2009-173T16:32:35	GMB_E113_Titan57-000T02:00:00	000T01:30:00	2009-173T18:02:35	15232	82.253	Non-SPASS			
SP_113NA_M34BWGNON173_SP	2009-173T16:41:00		000T02:30:00	2009-173T19:11:00	0	0	SPASS Rider			
SP_113NA_M70METNON173_SP	2009-173T16:41:00		000T02:30:00	2009-173T19:11:00	0	0	SPASS Rider			
CIRS_113TI_OCC001_RSS	2009-173T17:22:35	GMB_E113_Titan57-000T01:10:00	000T00:49:12	2009-173T18:11:47	4000	11.808	SPASS Rider			
RSS_113TI_OCC001_PRIME	2009-173T17:22:35	LUB_E113_Titan57-000T01:10:00	000T00:49:12	2009-173T18:11:47	0	0	Prime	XBAND to Earth	NEG_X to Titan_SC_RAM	1. Pointing driven with ivd file.
SP_113TI_BEGCUSTOM001_NA	2009-173T17:22:35	GMB_E113_Titan57-000T01:10:00	000T00:00:01	2009-173T17:22:36	0	0	SPASS Note			
CAPS_113TI_T57CLOSE001_PRIME	2009-173T17:32:35	GMB_E113_Titan57-000T01:00:00	000T02:00:00	2009-173T19:32:35	16000	115.2	SPASS Rider			
INMS_113TI_TITAN57001_INMS	2009-173T17:32:35	GMB_E113_Titan57-000T01:00:00	000T00:46:00	2009-173T18:18:35	1498	4.134	Non-SPASS			
MIMI_113TI_TITANCA001_RIDER	2009-173T17:32:35	GMB_E113_Titan57-000T01:00:00	000T02:00:00	2009-173T19:32:35	2000	14.4	SPASS Rider			
SP_113NA_G70METNON273_SP	2009-173T17:46:00		000T01:25:00	2009-173T19:11:00	0	0	Non-SPASS			
RPWS_113TI_TICA001_PRIME	2009-173T18:02:35	GMB_E113_Titan57-000T00:30:00	000T01:00:00	2009-173T19:02:35	99982.8	359.938	Non-SPASS			
MP_113EA_OCCTITAN113_NA	2009-173T18:08:41		000T00:00:01	2009-173T18:08:42	0	0	Non-SPASS			
MP_113SU_OCCTITAN113_NA	2009-173T18:10:16		000T00:00:01	2009-173T18:10:17	0	0	Non-SPASS			
ENGR_113SC_RADRCS173_PPS	2009-173T18:11:47	GMB_E113_Titan57-000T00:20:48	000T00:00:17	2009-173T18:12:04	0	0	Non-SPASS			
RADAR_113TI_T57RASAR001_PRIME	2009-173T18:11:47	GMB_E113_Titan57-000T00:20:48	000T00:33:18	2009-173T18:45:05	75075.8	150.002	Prime	NEG_X to Titan_SC_RAM	NEG_Z to Titan	Ride-along at c/a.

TOL for T57 (2 of 2)

Request	Start Time	Epoch	Duration	End Time	Rate	Data Volume	SPASS Type	Pointing	Pointing	Agreement
RADAR_113TI_T57WARMUP001_RID	2009-173T18:11:47	GMB_E113_Titan57-000T00:20:48	000T00:15:00	2009-173T18:26:47	474.2	0.427	SPASS Rider			
INMS_113TI_TITAN57001_PRIME	2009-173T18:18:35	GMB_E113_Titan57-000T00:14:00	000T00:26:30	2009-173T18:45:05	1498	2.382	SPASS Rider			
ENGR_113TI_BEGHIVAL173_CDS	2009-173T18:27:35	GMB_E113_Titan57-000T00:05:00	000T00:00:01	2009-173T18:27:36	0	0	SPASS Note			
MP_113TI_FLYBYT057_NA	2009-173T18:32:35		000T00:00:01	2009-173T18:32:36	0	0	SPASS Note			
ENGR_113TI_ENDHIVAL173_CDS	2009-173T18:37:35	GMB_E113_Titan57+000T00:05:00	000T00:00:01	2009-173T18:37:36	0	0	SPASS Note			
INMS_113TI_TITAN57002_INMS	2009-173T18:45:05	GMB_E113_Titan57+000T00:12:30	000T00:47:30	2009-173T19:32:35	1498	4.269	Non-SPASS			
RADAR_113TI_T57OUTALT001_PRI	2009-173T18:45:05	GMB_E113_Titan57+000T00:12:30	000T00:17:30	2009-173T19:02:35	27433	28.805	Prime	NEG_Z to Titan	NEG_X to NTP	
MP_113SA_RPXDESCEN113_NA	2009-173T18:53:35		000T00:00:01	2009-173T18:53:36	0	0	Non-SPASS			
RADAR_113TI_T57OHISAR001_PRI	2009-173T19:02:35	GMB_E113_Titan57+000T00:30:00	000T00:20:00	2009-173T19:22:35	87001.1	104.401	Prime	NEG_Z to Titan	NEG_X to NTP	
RPWS_113TI_TIIINTRMED002_PRIM	2009-173T19:02:35	GMB_E113_Titan57+000T00:30:00	000T01:30:00	2009-173T20:32:35	15232	82.253	Non-SPASS			
ENGR_113SC_RADRWBIAS173_PPS	2009-173T19:22:35	GMB_E113_Titan57+000T00:50:00	000T00:21:41	2009-173T19:44:16	0	0	Prime	NEG_Z to Titan	NEG_X to NTP	
CAPS_113TI_T57OUTBND001_PRIM	2009-173T19:32:35	GMB_E113_Titan57+000T01:00:00	000T01:00:00	2009-173T20:32:35	4000	14.4	SPASS Rider			
INMS_113SA_SURVEYSEG002_INMS	2009-173T19:32:35	GMB_E113_Titan57+000T01:00:00	001T10:07:24	2009-175T05:39:59	100	12.284	Non-SPASS			
MIMI_113TI_TITANOUT001_RIDER	2009-173T19:32:35	GMB_E113_Titan57+000T01:00:00	000T01:00:00	2009-173T20:32:35	1200	4.32	SPASS Rider			
RADAR_113TI_T57OUTSC001_PRI	2009-173T19:44:35	GMB_E113_Titan57+000T01:12:00	000T00:48:00	2009-173T20:32:35	30001.2	86.403	Prime	NEG_Z to Titan	NEG_X to NTP	
ENGR_113SC_WALKDEAD002_AACS	2009-173T19:54:16	GMB_E113_Titan57+000T01:21:41	000T00:00:02	2009-173T19:54:18	0	0	Non-SPASS			
CAPS_113SA_SURVEY002_PRIME	2009-173T20:32:35	GMB_E113_Titan57+000T02:00:00	000T12:04:24	2009-176T08:36:59	1000	216.264	Non-SPASS			
MIMI_113CO_SURVEY002_RIDER	2009-173T20:32:35	GMB_E113_Titan57+000T02:00:00	001T09:07:25	2009-175T05:40:00	900	107.32	Non-SPASS			
RADAR_113TI_T57OUTRAD001_PRI	2009-173T20:32:35	GMB_E113_Titan57+000T02:00:00	000T03:30:00	2009-174T00:02:35	4286.4	54.009	Prime	NEG_Z to Titan	NEG_X to NTP	Use 2ndary -X_NTP and +Y_NTP for polarizations.
MAG_113OT_SURVEY003_PRIME	2009-173T22:32:35	GMB_E113_Titan57+000T04:00:00	001T07:07:25	2009-175T05:40:00	600	67.227	Non-SPASS			
ENGR_113SC_DFPW184_PPS	2009-174T00:01:58	GMB_E113_Titan57+000T05:29:21	000T00:00:37	2009-174T00:02:35	0	0	Non-SPASS			
CIRS_113TI_EUVFUV002_UVIS	2009-174T00:02:35	GMB_E113_Titan57+000T05:30:00	000T03:00:00	2009-174T03:02:35	4000	43.2	SPASS Rider			
ISS_113TI_EUVFUV002_UVIS	2009-174T00:02:35	GMB_E113_Titan57+000T05:30:00	000T03:00:00	2009-174T03:02:35	0	50	SPASS Rider			
SP_113TI_ENDCUSTOM001_NA	2009-174T00:02:35	GMB_E113_Titan57+000T05:30:00	000T00:00:01	2009-174T00:02:36	0	0	SPASS Note			
UVIS_113TI_EUVFUV002_PRIME	2009-174T00:02:35	GMB_E113_Titan57+000T05:30:00	000T03:00:00	2009-174T03:02:35	5032	54.346	Prime	Titan	NEG_X to Sun	
VIMS_113TI_EUVFUV002_UVIS	2009-174T00:02:35	GMB_E113_Titan57+000T05:30:00	000T03:00:00	2009-174T03:02:35	7870.4	85	SPASS Rider			
CIRS_113TI_PHOTOMWAC001_ISS	2009-174T03:02:35	GMB_E113_Titan57+000T08:30:00	000T00:30:00	2009-174T03:32:35	4000	7.2	SPASS Rider			
ISS_113TI_PHOTOMWAC001_PRIM	2009-174T03:02:35	GMB_E113_Titan57+000T08:30:00	000T00:30:00	2009-174T03:32:35	0	100	Prime	ISS_NAC to Titan	NEG_X to Sun	
VIMS_113TI_GLOBMAP001_ISS	2009-174T03:02:35	GMB_E113_Titan57+000T08:30:00	000T00:30:00	2009-174T03:32:35	23888.9	43	SPASS Rider			
CIRS_113TI_GLOBMAP001_VIMS	2009-174T03:32:35	GMB_E113_Titan57+000T09:00:00	000T05:00:00	2009-174T08:32:35	4000	72	SPASS Rider			
ISS_113TI_GLOBMAP001_VIMS	2009-174T03:32:35	GMB_E113_Titan57+000T09:00:00	000T05:00:00	2009-174T08:32:35	0	50	SPASS Rider			
VIMS_113TI_GLOBMAP001_PRIME	2009-174T03:32:35	GMB_E113_Titan57+000T09:00:00	000T05:00:00	2009-174T08:32:35	2388.9	43	Prime	VIMS_IR to Titan	NEG_X to Sun	
CIRS_113TI_MIDIRTMAP002_PRIME	2009-174T08:32:35	GMB_E113_Titan57+000T14:00:00	000T08:00:00	2009-174T16:32:35	4000	115.2	Prime	CIRS_FPBP to Titan	POS_X to North_Pole_Dir	
CIRS_113TI_MIDIRTMAP002_SI	2009-174T08:32:35	GMB_E113_Titan57+000T14:00:00	000T08:00:00	2009-174T16:32:35	0	4	SPASS Rider			
ISS_113TI_MIDIRTMAP002_CIRS	2009-174T08:32:35	GMB_E113_Titan57+000T14:00:00	000T08:00:00	2009-174T16:32:35	0	50	SPASS Rider			
VIMS_113TI_MIDIRTMAP002_CIRS	2009-174T08:32:35	GMB_E113_Titan57+000T14:00:00	000T08:00:00	2009-174T16:32:35	2083.3	60	SPASS Rider			
SP_113NA_DEADTIME003_PRIME	2009-174T16:32:35	GMB_E113_Titan57+000T22:00:00	000T00:27:24	2009-174T16:59:59	0	0	Prime	NEG_Y to Titan	NEG_X to NTP	
SP_113EA_DLTURN174_PRIME	2009-174T17:00:00		000T00:40:00	2009-174T17:40:00	0	0	Prime	XBAND to Earth	NEG_X to NEP	
ENGR_113SC_AACSDUAL002_CDS	2009-174T17:39:47		000T00:00:02	2009-174T17:39:49	0	0	Non-SPASS			
RSS_113TI_KADOWN002_RSS	2009-174T17:40:00		000T10:00:00	2009-175T03:40:00	0	0	SPASS Rider			
SP_113EA_G70METNON174_PRIME	2009-174T17:40:00		000T10:00:00	2009-175T03:40:00	0	0	Prime	XBAND to Earth	6_Hr_Rolling	NEG_X to NEP
SP_113NA_G34BWGNON174_SP	2009-174T17:40:00		000T10:01:00	2009-175T03:41:00	0	0	SPASS Rider			
SP_113NA_G70METNON174_SP	2009-174T17:40:00		000T10:01:00	2009-175T03:41:00	0	0	Non-SPASS			
UVIS_113SW_IPHSURVEY005_RIDE	2009-174T17:40:00		000T10:00:00	2009-175T03:40:00	152.5	5.489	Non-SPASS			
ENGR_113SC_RSSKRWAS173_PPS	2009-174T17:40:05		000T00:05:08	2009-174T17:45:13	0	0	Non-SPASS			
CIRS_113IC_DSCAL09174_SP	2009-174T18:40:00		000T09:00:00	2009-175T03:40:00	2666.7	86.4	SPASS Rider			
RPWS_113SA_INSURVEY001_PRIME	2009-174T18:53:00		000T08:47:00	2009-175T03:40:00	5453.1	172.426	Non-SPASS			
SP_113NA_C70METNON175_SP	2009-175T03:20:00		000T02:00:00	2009-175T05:41:00	0	0	Non-SPASS			
ENGR_113SC_DFPW175_PPS	2009-175T03:39:38		000T00:00:12	2009-175T03:39:50	0	0	Non-SPASS			
ENGR_113TI_DUALPB173_CDS	2009-175T03:40:00		000T00:00:01	2009-175T03:40:01	120203008	120.203	SPASS Note			
RPWS_113SA_INSURVEY003_PRIME	2009-175T03:40:00		000T02:00:00	2009-175T05:40:00	45696	329.011	Non-SPASS			
SP_113EA_C70METNON175_PRIME	2009-175T03:40:00		000T02:00:00	2009-175T05:40:00	0	0	Prime	XBAND to Earth	NEG_X to NEP	
UVIS_113SW_IPHSURVEY006_RIDE	2009-175T03:40:00		000T02:00:00	2009-175T05:40:00	152.5	1.098	Non-SPASS			
CIRS_113IS_DSCAL09175_SF	2009-175T04:19:00		000T01:00:00	2009-175T05:40:00	4000	14.4	SPASS Rider			

T57 Wrapup SPASS

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S51, length = 41 days		2009-164T04:41:00		040T17:10:00	2009-204T21:51:00			
Titan Flyby T57 Segment		2009-173T04:10:00		002T01:30:00	2009-175T05:40:00			
SP_113TI_WAYPTTURN173_PRIME		2009-173T04:10:00		000T00:40:00	2009-173T04:50:00	NEG_Y to Titan	NEG_X to NTP	
NEW WAYPOINT		2009-		002T00:50:0	2009-	NEG_Y to Titan	NEG_X to NTP	
SP_113NA_DEADTIME001_PRIM		2009-		000T00:15:4	2009-	NEG_Y to Titan	NEG_X to NTP	
CIRS_113TI_FIRNADCMP001_PRIME	C, I, V	2009-173T05:05:48	GMB_E113_Titan57-000T13:26:47	000T03:26:47	2009-173T08:32:35	CIRS_FP1 to Titan	PIC	
ISS_113TI_NIGHTNAC001_PRIME	C, V	2009-173T08:32:35	GMB_E113_Titan57-000T10:00:00	000T01:00:00	2009-173T09:32:35	ISS_NAC to Titan	NEG_X to Sun	
UVIS_113TI_EUVFUV001_PRIME	C, V	2009-173T09:32:35	GMB_E113_Titan57-000T09:00:00	000T05:33:00	2009-173T15:05:35	UVIS_FUV to Titan	NEG_X to Sun	
ENGR_113SC_ORSRCS173_PRIME	C, R, U,	2009-173T15:05:35	GMB_E113_Titan57-000T03:27:00	000T00:01:00	2009-173T15:06:35	NEG_Y to Titan	NEG_X to NTP	
UVIS_113TI_EUVFUV003_PRIME	C, R, V	2009-173T15:06:35	GMB_E113_Titan57-000T03:26:00	000T01:11:00	2009-173T16:17:35	UVIS_FUV to Titan	NEG_X to Sun	
CIRS_113TI_FIRLMBINT001_PRIME	C, I, M, R, U, V,	2009-173T16:17:35	GMB_E113_Titan57-000T02:15:00	000T01:05:00	2009-173T17:22:35	CIRS_FP1 to Titan	PIC	
Begin custom period		2009-	GMB_E113_Titan57-	000T00:00:0	2009-			
RSS_113TI_OCC001_PRIME	C, M, X	2009-173T17:22:35	LUB_E113_Titan57-000T01:10:00	000T00:49:12	2009-173T18:11:47	XBAND to Earth	NEG_X to Titan_SC_RAM	Pick up at NEG_Y to Titan, NEG_X to NTP; Hand off at XBAND to Earth, NEG_X to Titan_SC_RAM. 1. Pointing driven with ivd file.
RADAR_113TI_T57RASAR001_PRIME	M, R, X	2009-173T18:11:47	GMB_E113_Titan57-000T00:20:48	000T00:33:18	2009-173T18:45:05	NEG_X to Titan_SC_RAM	NEG_Z to Titan	Pick up at XBAND to Earth, NEG_X to Titan_SC_RAM; Hand off at NEG_Z to Titan, NEG_X to NTP. Ride-along at c/a.
Begin dual playback science		2009-173T18:27:35	GMB_E113_Titan57-000T00:05:00	000T00:00:01	2009-173T18:27:36			
113TI (t) T57 TITAN Inbou...		2009-173T18:32:35		000T00:00:01	2009-173T18:32:36			
End Dual Playback Science		2009-173T18:37:35	GMB_E113_Titan57+000T00:05:00	000T00:00:01	2009-173T18:37:36			
RADAR_113TI_T57OUTALT001_PRIM	M, X E	2009-173T18:45:05	GMB_E113_Titan57+000T00:12:30	000T00:17:30	2009-173T19:02:35	NEG_Z to Titan	NEG_X to NTP	Pick up at NEG_Z to Titan, NEG_X to NTP; Hand off at NEG_Z to Titan, NEG_X to NTP.
RADAR_113TI_T57OHISAR001_PRIM	M, X E	2009-173T19:02:35	GMB_E113_Titan57+000T00:30:00	000T00:20:00	2009-173T19:22:35	NEG_Z to Titan	NEG_X to NTP	Pick up at NEG_Z to Titan, NEG_X to NTP; Hand off at NEG_Z to Titan, NEG_X to NTP.
ENGR_113SC_RADRWBIAS173_PPS	M	2009-173T19:22:35	GMB_E113_Titan57+000T00:50:00	000T00:21:41	2009-173T19:44:16	NEG_Z to Titan	NEG_X to NTP	Pick up at NEG_Z to Titan, NEG_X to NTP; Hand off at NEG_Z to Titan, NEG_X to NTP.
RADAR_113TI_T57OUTSCT001_PRI	M ME	2009-173T19:44:35	GMB_E113_Titan57+000T01:12:00	000T00:48:00	2009-173T20:32:35	NEG_Z to Titan	NEG_X to NTP	Pick up at NEG_Z to Titan, NEG_X to NTP; Hand off at NEG_Z to Titan, NEG_X to NTP.
RADAR_113TI_T57OUTRAD001_PRI	M ME	2009-173T20:32:35	GMB_E113_Titan57+000T02:00:00	000T03:30:00	2009-174T00:02:35	NEG_Z to Titan	NEG_X to NTP	Pick up at NEG_Z to Titan, NEG_X to NTP; Hand off at NEG_Y to Titan, NEG_X to NTP. Use 2ndary -X_NTP and +Y_NTP for polarizations.
End custom period		2009-	GMB_E113_Titan57+000T05:30:	000T00:00:0	2009-			
UVIS_113TI_EUVFUV002_PRIME	C, I, V	2009-174T00:02:35	GMB_E113_Titan57+000T05:30:00	000T03:00:00	2009-174T03:02:35	UVIS_FUV to Titan	NEG_X to Sun	
ISS_113TI_PHOTOMWAC001_PRIME	C, V	2009-174T03:02:35	GMB_E113_Titan57+000T08:30:00	000T00:30:00	2009-174T03:32:35	ISS_NAC to Titan	NEG_X to Sun	
VIMS_113TI_GLOBMAP001_PRIME	C, I	2009-174T03:32:35	GMB_E113_Titan57+000T09:00:00	000T05:00:00	2009-174T08:32:35	VIMS_IR to Titan	NEG_X to Sun	
CIRS_113TI_MIDIRTMAP002_PRIME	C, I, V	2009-174T08:32:35	GMB_E113_Titan57+000T14:00:00	000T08:00:00	2009-174T16:32:35	CIRS_FP1 to Titan	POS_X to	
SP_113NA_DEADTIME003_PRIM		2009-	GMB_E113_Titan57+000T22:00:	000T00:27:2	2009-	NEG_Y to Titan	NEG_X to NTP	
SP_113EA_DLTURN174_PRIME		2009-174T17:00:00		000T00:40:00	2009-174T17:40:00	XBAND to Earth	NEG_X to NEP	
SP_113EA_G70METNON174_PRIME	C, R, X	2009-174T17:40:00		000T10:00:00	2009-175T03:40:00	XBAND to Earth	6_Hr_Rolling	NEG_X to NEP
Pointer Reset in preparatio...		2009-175T03:40:00		000T00:00:01	2009-175T03:40:01			
SP_113EA_C70METNON175_PRIME	C, X	2009-175T03:40:00		000T02:00:00	2009-175T05:40:00	XBAND to Earth	NEG_X to NEP	

T57 Wrapup Open Issues

- RSS using LUB timing
 - Needed to support live updates (not possible with GMB)
 - CRC complains; not an issue
- DSS-14 request falls within maintenance period
 - RSS requested keeping request and asking for a waiver; 70m needed for occultation and DSS-63 is down.