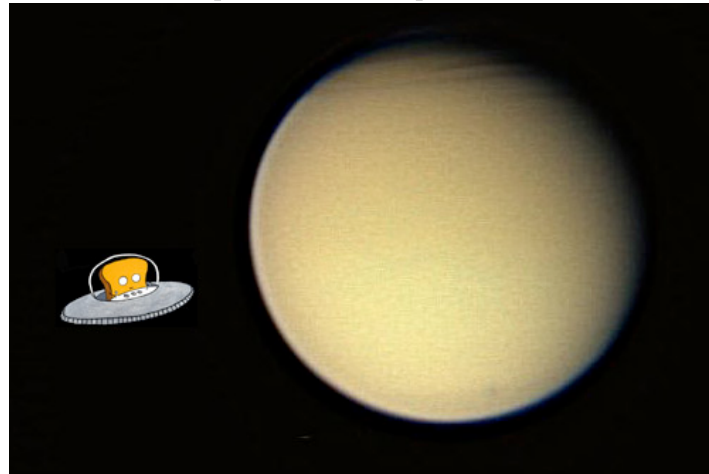


TOST: Integration 108TI (T52) Wrapup



May 2, 2008

Jo Pitesky, Douglas Equils, Trina Ray, Kim Steadman

Segment Basics

Segment times:

BEG: 2009-093T09:34:00

END: 2009-095T09:19:00

APOAPSE: 2009-094T01:29:38

*Heads up: T52 has requests in Revs107 **and** 108*

Altitude: 4150 km

Time of C/A: 2009-094T01:47:48

Epoch: GMB_E108_Titan52

Sequence: S49

<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

CIRS – Surface temperature mapping on outbound, and far-infrared stratosphere composition study.

ISS – ISS will acquire full-disk and global- to regional-mapping mosaics of Titan's trailing hemisphere at high southern latitudes and will ride along with CIRS to monitor clouds.

VIMS – T52 is not a high-priority flyby for VIMS. Day-time observations occur with CIRS ridealong 2 hours after closest approach. A monitoring of tropical clouds will be achieved and we may get images at 20 km/pixel resolution of an area located in the southern hemisphere close to the South pole (30-90 South, 240 ^ 300 W).

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.

RADAR – Radiometry inbound

RSS – RSS observations on T52 include ionospheric/atmospheric occultations and bistatic surface scattering on both the inbound and outbound sides. The T52 egress atmospheric occultation will be the first Cassini occultation to probe near-equatorial latitude (~0 degs), while the ingress occultation probes mid-northern latitude (~57 degs). The occultations will shed more light on latitudinal variability of the electron density profile of the ionosphere, temperature/pressure profile, extinction profile, and small scale-structure of the neutral atmosphere. The T52 inbound bistatic scattering observation will probe for the first time high-northern latitude regions of Titan's surface (55-70 degs; ~0-10 degs west longitude) and the outbound bistatic will probe mid-southern latitude region (~40 degs; ~260-300 degs west longitude). The incidence angle for both sides is close to the Brewster angle range for likely surface compositions. Same- and cross-polarized components of the quasi-specular surface echo, if detectable, provide information about the dielectric constant and physical state of the surface region probed.

MAG – T52 is a flank-out, post-dusk, high altitude (>4000 km) flyby that will be useful to characterize the background field in which Titan sits in.

MIMI – Energetic ion and electron energy input to atmosphere

Master Timeline for T52

T52	4150
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Start Time	End Time	Prime Activity	Obs. Detail	Op Mode	TLM Mode	Comments
2009-093T09:34:00	2009-093T10:14:00	SP Turn to WP	NEG_Y to Titan, NEG_X to RA/Dec (54,24.8)	DFPW Normal	S_N_ER_3	
2009-093T10:14:00	C/A - 15:18:13	OD Uncertainty Dead Time		DFPW Normal	S_N_ER_3	
C/A - 15:18:13	-13:30	CIRS	Template M2	DFPW Normal	S_N_ER_3	
-13:30	-13:00	ISS	Template M2	DFPW Normal	S_N_ER_3	
-13:00	-09:00	VIMS	Template O	DFPW Normal	S_N_ER_3	
-09:00	-06:20	VIMS	Template Q*	RADWU	S_N_ER_5a for 00:15, then S_N_ER_3	
-06:20		Begin custom period				
-06:20	-05:50	Turn to RADAR attitude		RADROW	S_N_ER_8	
-05:50	-4:20	RADAR	Template L	RADROW	S_N_ER_8	
-4:20	-04:19	RWA to RCS Transition	RSS Bistatic + Occ requires RCS because of turn times	RADRCS	S_N_ER_8	(.5, .5, .5) deadband
-04:19	-03:20	RADAR	Template L	RADRCS	S_N_ER_8	Turn on both Ka and S band at -03:20
-3:20	-01:20	UVIS Stellar Occ		RSS3RCS	S_N_ER_3	Up to 3 minutes to be absorbed by UVIS if RSS turn is >5 minutes
-01:20	-00:22	RSS Bistat		RSS3RCS	S_N_ER_2	
-00:22	0	RSS Occ		RSS3RCS	S_N_ER_2	
2009-094T01:47:48		CLOSEST APPROACH		RSS3RCS	S_N_ER_2	
0	+00:12	RSS Occ		RSS3RCS	S_N_ER_2	Leave on Ka-band for GSE.
+00:12	+01:28	RSS Bistat		RSS3RCS	S_N_ER_2	
+1:28		End custom period				
+01:28	+01:52	RCS to RWA Transition	VIMS pointing (waypoint is fine)	RSSK	S_N_ER_3	(2,2,2) deadband during transition
+01:50	+3:30	CIRS	Template S2	RSSK	S_N_ER_3	
+3:30	+5:00	ISS	Template S2	RSSK	S_N_ER_3	
+5:00	+09:00	ISS	Template H	RSSK	S_N_ER_3	
+09:00	+12:00	CIRS	Template D2	RSSK	S_N_ER_3	
+12:00	+14:00	ISS	Template D2	RSSK	S_N_ER_3	
+14:00	C/A + 21:36:47	CIRS	Template A	RSSK	S_N_ER_3	
C/A + 21:36:47	2009-094T23:39:00	OD Uncertainty Dead Time		RSSK	S_N_ER_3	
2009-094T23:39:00	2009-095T00:19:00	SP Turn to Earth for downlink		RSSK	S_N_ER_3	
2009-095T00:19:00	2009-095T09:19:00	70-m Array		RSSK_SLOW	RTE_N_SPB	GSE; Ka-band on. CDA can articulate

Changes: RSS outbound bistat and custom period extended to +01:28

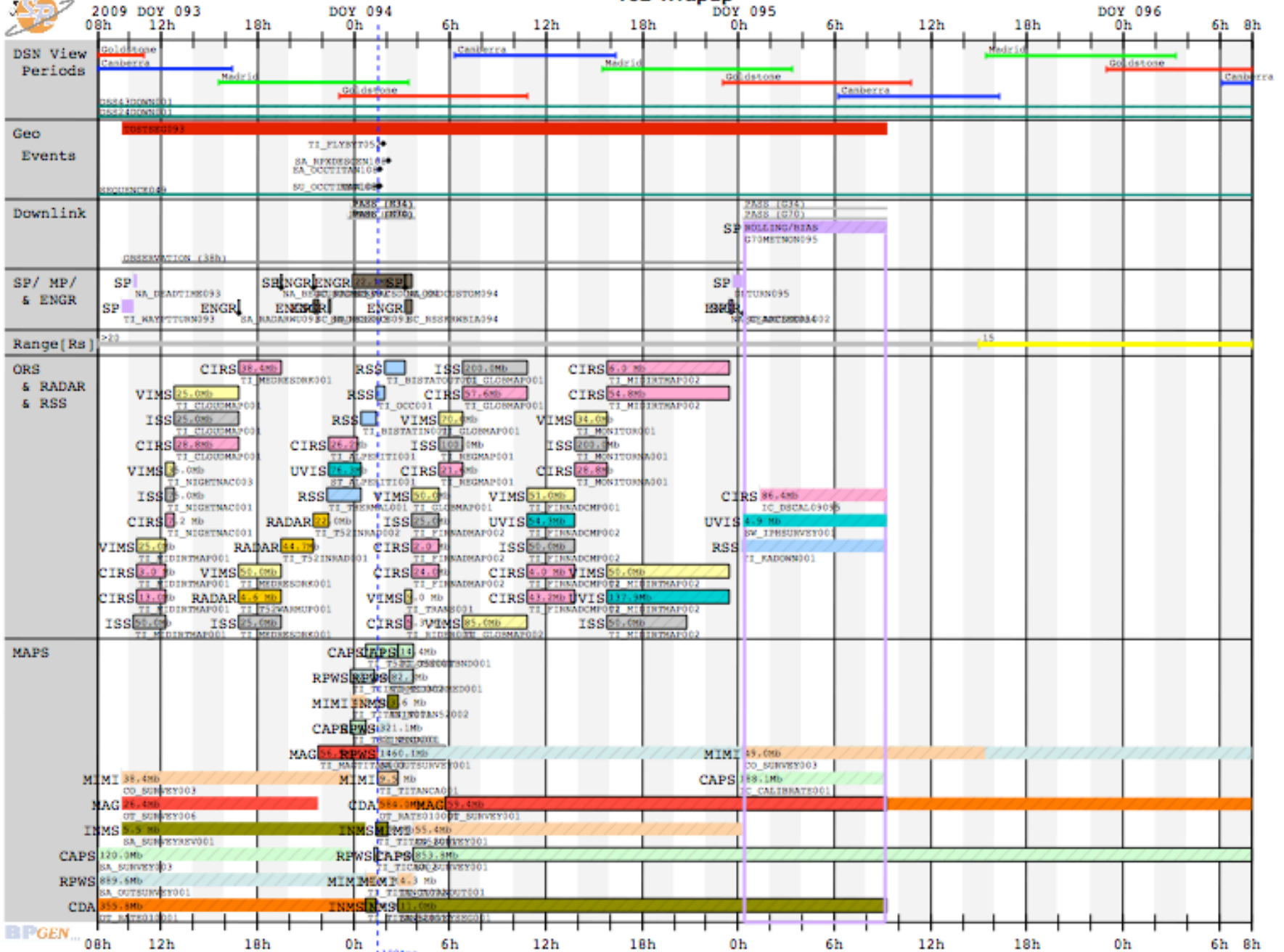
Ka and S band warmup both start at -03:20

No Dual Playback

Deadband: (0.5, 0.5, 0.5) (for UVIS Occ and RSS; can be (2,2,2) during transition)



T52-Wrapup



BP GEN

T52 Wrapup Telemetry Mode Report

TELEMETRY MODE REPORT

EPOCH RELATIVE	UTC	DURATION	TELEMETRY MODE	REQUEST
	2009-093T09:34:00.000	07:13:48	S_N_ER_3	SP_107NA_G70OBSNON095_NA
GMB_E108_Titan52-000T09:00:00	2009-093T16:47:48.000	00:15:00	S_N_ER_5A	SP_107NA_G70OBSNON095_NA
GMB_E108_Titan52-000T08:45:00	2009-093T17:02:48.000	02:25:00	S_N_ER_3	SP_107NA_G70OBSNON095_NA
GMB_E108_Titan52-000T06:20:00	2009-093T19:27:48.000	03:01:00	S_N_ER_8	SP_107NA_G70OBSNON095_NA
GMB_E108_Titan52-000T03:19:00	2009-093T22:28:48.000	01:51:00	S_N_ER_3	SP_107NA_G70OBSNON095_NA
GMB_E108_Titan52-000T01:28:00	2009-094T00:19:48.000	02:48:00	S_N_ER_2	SP_107NA_G70OBSNON095_NA
GMB_E108_Titan52+000T01:20:00	2009-094T03:07:48.000	21:11:12	S_N_ER_3	SP_107NA_G70OBSNON095_NA
	2009-095T00:19:00.000	01:00:00	RTE_N_SPB_142200	SP_108EA_G70METNON095_PRIME
	2009-095T01:19:00.000	07:15:00	RTE_N_SPB_165900	SP_108EA_G70METNON095_PRIME
	2009-095T08:34:00.000	00:45:00	RTE_N_SPB_142200	SP_108EA_G70METNON095_PRIME

T52 Wrapup SMT Report

P5 set to 30 Mb

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)	(%)	CAROVR (Mb)
SP_108EA_G70METNON095_PRIME	095 00:19	095 09:19	0	3362	186	3548	3521	-26	0	420	53	3995	4435	440	440	10%	0

T52 Wrapup 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	093 09:34	095 00:19	275.6	73.1	348.8	24.0	800.0	123.3	116.9	67.0	742.1	261.5	484.0	0.0	53.8	3370.2
OBSERVATION_SI	093 09:34	095 00:19	0.0	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0
SP_108EA_G70METNON095_PRIME	095 00:19	095 09:19	214.0	17.0	86.4	3.2	0.0	19.4	29.2	0.0	42.4	4.9	0.0	0.0	0.0	416.6
DAILY TOTAL SCIENCE	093 09:34	095 09:19	489.6	90.1	450.2	27.3	800.0	142.8	146.0	67.0	784.5	266.5	484.0	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)	489.6	90.1	450.2	27.3	800.0	142.8	146.0	67.0	784.5	266.5	484.0	0.0

T52 Wrapup DSN Report

CASSINI DOWNLINK/DSN COVERAGE SUMMARY for T52_080430.apf on 2008-Apr-30 10:40:09
 (+ = 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
G70METRSS093	-----	-----	----	(no downlink)	14	093T23:34-03:49	094T00:45-05:00	04:15	180/60	RSS TI B 9	
G34BWG2ND093	-----	-----	----	(no downlink)	26	093T23:49-03:49	094T01:00-05:00	04:00	180/60	RSS TI B N750	
G34BWGRSS093	-----	-----	----	(no downlink)	25	093T23:49-03:49	094T01:00-05:00	04:00	180/60	RSS TI B N748	
M34BWGRSS093	-----	-----	----	(no downlink)	55	093T23:49-03:09	094T01:00-04:20	03:20	180/100	RSS TI B N750	
M70METRSS093	-----	-----	----	(no downlink)	63	093T23:49-03:19	094T01:00-04:30	03:30	180/90	RSS TI B 9	
G70METNON095	095T00:19-09:19	095T01:30-10:30	09:00	142,165,142	25	095T00:19-09:19	095T01:30-10:30	09:00	90 /15	RSS Ka-d N748	
				^-- and also -->	14	095T00:19-09:19	095T01:30-10:30	09:00	60 /15	TP N003	

TOL for T52 (1 of 2)

Request	Start Time	Epoch	Duration	End Time	Rate	Data Volume	SPASS Type	Primary Pointing	Secondary Pointing	Pointing Agreement	EDITS
CAPS 1075A SURVEY003 PRIME	2009-092T14:27:00		001T09:20:48	2009-093T23:47:48	1000	120.048	Non-SPASS				
CAPS 1077I T52INBND001 PRIME	2009-093T23:47:48	GMB E108 Titan52-000T02:00:00	000T01:00:00	2009-094T00:47:48	4000	14.4	SPASS Rider				
CAPS 1077I T52CLOSE001 PRIME	2009-094T00:47:48	GMB E108 Titan52-000T01:00:00	000T02:00:00	2009-094T02:47:48	16000	115.2	SPASS Rider				
CAPS 1087I T52OUTBND001 PRIME	2009-094T02:47:48	GMB E108 Titan52+000T01:00:00	000T01:00:00	2009-094T03:47:48	4000	14.4	SPASS Rider				
CAPS 1085A SURVEY001 PRIME	2009-094T03:47:48	GMB E108 Titan52+000T02:00:00	009T21:09:12	2009-104T00:57:00	1000	853.752	Non-SPASS				
CAPS 1081C CALIBRATE001 PRIME	2009-095T00:00:00		000T09:10:00	2009-095T09:00:00	5700	188.1	Non-SPASS				
CDA 1070T RATE010001 RIDER	2009-086T04:51:00		007T20:38:00	2009-094T01:29:00	524	355.838	Non-SPASS				
CDA 1080T RATE010001 RIDER	2009-094T01:29:00		012T21:36:00	2009-106T23:05:00	524	584.029	Non-SPASS				
CIRS 1077I MIDIRTMAP001 PRIME	2009-093T10:29:35	GMB E108 Titan52-000T15:18:13	000T01:48:13	2009-093T12:17:48	2000	12.986	Prime	CIRS FPB to Titan	POS X to North Pole Dir		
CIRS 1077I MIDIRTMAP001 SI	2009-093T10:29:35	GMB E108 Titan52-000T15:18:13	000T01:48:13	2009-093T12:17:48	0	3	SPASS Rider				
CIRS 1077I NIGHTNAC001 ISS	2009-093T12:17:48	GMB E108 Titan52-000T13:30:00	000T00:30:00	2009-093T12:47:48	4000	7.2	SPASS Rider				
CIRS 1077I CLOUDMAP001 VIMS	2009-093T12:47:48	GMB E108 Titan52-000T13:00:00	000T04:00:00	2009-093T16:47:48	2000	28.8	SPASS Rider				
CIRS 1077I MEDRESDRK001 VIMS	2009-093T16:47:48	GMB E108 Titan52-000T09:00:00	000T02:40:00	2009-093T19:27:48	4000	38.4	SPASS Rider				
CIRS 1077I ALPERITIO01 UVIS	2009-093T22:28:48	GMB E108 Titan52-000T03:19:00	000T01:49:00	2009-094T00:17:48	4000	26.16	SPASS Rider				Align w/PRIME
CIRS 1087I RIDER001 ENGR	2009-094T03:15:48	GMB E108 Titan52+000T01:28:00	000T00:22:00	2009-094T03:37:48	4000	5.28	SPASS Rider				
CIRS 1087I FIRNADMAP002 PRIME	2009-094T03:37:48	GMB E108 Titan52+000T01:50:00	000T01:40:00	2009-094T05:17:48	4000	24	Prime	CIRS FP1 to Titan	POS X to North Pole Dir		
CIRS 1087I FIRNADMAP002 SI	2009-094T03:37:48	GMB E108 Titan52+000T01:50:00	000T01:40:00	2009-094T05:17:48	0	2	SPASS Rider				
CIRS 1087I REGMAP001 ISS	2009-094T05:17:48	GMB E108 Titan52+000T03:30:00	000T01:30:00	2009-094T06:47:48	4000	21.6	SPASS Rider				
CIRS 1087I GLOBMAP001 ISS	2009-094T06:47:48	GMB E108 Titan52+000T05:00:00	000T04:00:00	2009-094T10:47:48	4000	57.6	SPASS Rider				
CIRS 1087I FIRNADCMPO02 PRIME	2009-094T10:47:48	GMB E108 Titan52+000T09:00:00	000T03:00:00	2009-094T13:47:48	4000	43.2	Prime	CIRS FP1 to Titan	PIC		
CIRS 1087I FIRNADCMPO02 SI	2009-094T10:47:48	GMB E108 Titan52+000T09:00:00	000T03:00:00	2009-094T13:47:48	0	4	SPASS Rider				
CIRS 1087I MONITORNA001 ISS	2009-094T13:47:48	GMB E108 Titan52+000T12:00:00	000T02:00:00	2009-094T15:47:48	4000	28.8	SPASS Rider				
CIRS 1087I MIDIRTMAP002 PRIME	2009-094T15:47:48	GMB E108 Titan52+000T14:00:00	000T07:36:47	2009-094T23:24:35	2000	54.814	Prime	CIRS FPB to Titan	POS X to North Pole Dir		
CIRS 1087I MIDIRTMAP002 SI	2009-094T15:47:48	GMB E108 Titan52+000T14:00:00	000T07:36:47	2009-094T23:24:35	0	6	SPASS Rider				
CIRS 1081C DSCAL09095 SP	2009-095T01:19:00		000T08:00:00	2009-095T09:19:00	3000	86.4	SPASS Rider				
ENGR 1075A RADARWU093 PRIME	2009-093T16:47:48	GMB E108 Titan52-000T09:00:00	000T00:00:07	2009-093T16:47:55	0	0	Non-SPASS				
ENGR 1075C RADRC093 PPS	2009-093T21:27:48	GMB E108 Titan52-000T04:20:00	000T00:20:50	2009-093T21:28:48	0	0	Non-SPASS				
ENGR 1075C RADRC093 PRIME	2009-093T21:27:48	GMB E108 Titan52-000T04:20:00	000T00:01:00	2009-093T21:28:48	0	0	Prime	NEG Y to Titan	POS X to NTP		
ENGR 1075A RSS3RCS093 PPS	2009-093T22:27:48	GMB E108 Titan52-000T03:20:00	000T00:05:12	2009-093T22:33:00	0	0	Non-SPASS				
ENGR 1075C AACSDUAL001 CDS	2009-093T23:54:48	GMB E108 Titan52-000T01:53:00	000T03:45:00	2009-094T03:39:48	1638	22.113	Non-SPASS				
ENGR 1085C RSSKRWBIA094 PRIME	2009-094T03:15:48	GMB E108 Titan52+000T01:28:00	000T00:22:00	2009-094T03:37:48	0	0	Prime	NEG Y to Titan	NEG X to 54.0/24.8		
ENGR 1085C AACSDUAL002 CDS	2009-095T00:18:47		000T00:00:02	2009-095T00:18:49	0	0	Non-SPASS				
INMS 1075A SURVEYREV001 INMS	2009-093T09:34:00		000T15:13:48	2009-094T00:47:48	100	5.483	Non-SPASS				
INMS 1077I TITAN52001 INMS	2009-094T00:47:48	GMB E108 Titan52-000T01:00:00	000T00:40:00	2009-094T01:27:48	1498	3.595	Non-SPASS				
INMS 1077I TITAN52001 RIDER	2009-094T01:27:48	GMB E108 Titan52-000T00:20:00	000T00:40:00	2009-094T02:07:48	1498	3.595	Non-SPASS				
INMS 1087I TITAN52002 INMS	2009-094T02:07:48	GMB E108 Titan52+000T00:20:00	000T00:40:00	2009-094T02:47:48	1498	3.595	Non-SPASS				
INMS 1085A SURVEYSEG001 INMS	2009-094T02:47:48	GMB E108 Titan52+000T01:00:00	001T06:31:12	2009-095T09:19:00	100	10.987	Non-SPASS				
ISS 1077I MIDIRTMAP001 CIRS	2009-093T10:17:48	GMB E108 Titan52-000T15:30:00	000T02:00:00	2009-093T12:17:48	0	50	SPASS Rider				
ISS 1077I NIGHTNAC001 PRIME	2009-093T12:17:48	GMB E108 Titan52-000T13:30:00	000T00:30:00	2009-093T12:47:48	0	75	Prime	ISS NAC to Titan	NEG X to Sun		
ISS 1077I CLOUDMAP001 VIMS	2009-093T12:47:48	GMB E108 Titan52-000T13:00:00	000T04:00:00	2009-093T16:47:48	0	25	SPASS Rider				
ISS 1077I MEDRESDRK001 VIMS	2009-093T16:47:48	GMB E108 Titan52-000T09:00:00	000T02:40:00	2009-093T19:27:48	0	25	SPASS Rider				
ISS 1087I FIRNADMAP002 CIRS	2009-094T03:39:48	GMB E108 Titan52+000T01:52:00	000T01:38:00	2009-094T05:17:48	0	25	SPASS Rider				Align w/PRIME
ISS 1087I REGMAP001 PRIME	2009-094T05:17:48	GMB E108 Titan52+000T03:30:00	000T01:30:00	2009-094T06:47:48	0	100	Prime	ISS NAC to Titan	NEG X to Sun		
ISS 1087I GLOBMAP001 PRIME	2009-094T06:47:48	GMB E108 Titan52+000T05:00:00	000T04:00:00	2009-094T10:47:48	0	200	Prime	ISS NAC to Titan	NEG X to Sun		
ISS 1087I FIRNADCMPO02 CIRS	2009-094T10:47:48	GMB E108 Titan52+000T09:00:00	000T03:00:00	2009-094T13:47:48	0	50	SPASS Rider				
ISS 1087I MONITORNA001 PRIME	2009-094T13:47:48	GMB E108 Titan52+000T12:00:00	000T02:00:00	2009-094T15:47:48	0	200	Prime	ISS NAC to Titan	NEG X to Sun		
ISS 1087I MIDIRTMAP002 CIRS	2009-094T15:47:48	GMB E108 Titan52+000T14:00:00	000T05:00:00	2009-094T20:47:48	0	50	SPASS Rider				Align w/PRIME
MAG 1070T SURVEY006 PRIME	2009-093T09:34:00		000T12:13:48	2009-093T21:47:48	600	26.417	Non-SPASS				
MAG 1077I MAGTITAN001 PRIME	2009-093T21:47:48	GMB E108 Titan52-000T04:00:00	000T08:00:00	2009-094T05:47:48	1976	56.909	Non-SPASS				
MAG 1080T SURVEY001 PRIME	2009-094T05:47:48	GMB E108 Titan52+000T04:00:00	001T03:31:12	2009-095T09:19:00	600	59.443	Non-SPASS				
MIMI 107CO SURVEY003 RIDER	2009-093T09:34:00		000T14:13:48	2009-093T23:47:48	750	38.421	Non-SPASS				
MIMI 1077I TITANIN001 RIDER	2009-093T23:47:48		000T01:00:00	2009-094T00:47:48	1200	4.32	SPASS Rider				
MIMI 1077I TITANCA002 RIDER	2009-094T00:47:48		000T00:41:12	2009-094T01:29:00	2000	4.944	SPASS Rider				
MIMI 1087I TITANCA001 RIDER	2009-094T01:29:00	E108 Apo+000T00:00:00	000T01:18:48	2009-094T02:47:48	2000	9.456	SPASS Rider				
MIMI 1087I TITANOUT001 RIDER	2009-094T02:47:48		000T01:00:00	2009-094T03:47:48	1200	4.32	SPASS Rider				
MIMI 108CO SURVEY001 RIDER	2009-094T03:47:48		000T20:31:12	2009-095T00:19:00	750	55.404	Non-SPASS				
MIMI 108CO SURVEY003 RIDER	2009-095T00:19:00		000T15:07:06	2009-095T15:26:06	900	48.983	Non-SPASS				

TOL for T52 (2 of 2)

Request	Start Time	Epoch	Duration	End Time	Rate	Data Volume	SPASS Type	Primary Pointing	Secondary Pointing	Pointing Agreement	EDITS
MP_106NA_SEQUENCE049_NA	2009-085T10:05:00		039T21:11:00	2009-125T07:16:00	0	0	SPASS Note				
MP_107NA_DSS4DOWNO01_NA	2009-088T22:49:39		062T23:52:11	2009-151T22:41:50	0	0	Non-SPASS				
MP_107NA_DSS4DOWNO01_NA	2009-088T22:49:39		013T23:58:03	2009-102T22:47:42	0	0	Non-SPASS				
MP_108SA_APOAPSE108_NA	2009-094T01:29:38		000T00:00:01	2009-094T01:29:39	0	0	SPASS Note				
MP_108SA_REV108_NA	2009-094T01:29:38		000T00:00:01	2009-094T01:29:39	0	0	Non-SPASS				
MP_108EA_OCCITTAN108_NA	2009-094T01:36:55		000T00:00:01	2009-094T01:36:56	0	0	Non-SPASS				
MP_108SU_OCCITTAN108_NA	2009-094T01:38:55		000T00:00:01	2009-094T01:38:56	0	0	Non-SPASS				
MP_108TI_FLYBYT052_NA	2009-094T01:47:48		000T00:00:01	2009-094T01:47:49	0	0	SPASS Note				
MP_108SA_RPXDESCEN108_NA	2009-094T02:09:48		000T00:00:01	2009-094T02:09:49	0	0	Non-SPASS				
RADAR_107TI_T52WARMUP001_RIDER	2009-093T19:27:48	GMB E108 Titan52-000T09:00:00	000T02:40:00	2009-093T19:27:48	474.2	4.553	SPASS Rider				
RADAR_107TI_T52INRAD001_PRIME	2009-093T19:27:48	GMB E108 Titan52-000T06:20:00	000T02:00:00	2009-093T21:27:48	6201.6	44.652	Prime	NEG_Z to Titan	NEG_X to NTP	Use -X_NTP and -Y_NTP for the 2ndary axis for polarizations.	
RADAR_107TI_T52INRAD002_PRIME	2009-093T21:28:48	GMB E108 Titan52-000T04:19:00	000T00:59:00	2009-093T22:27:48	6201.6	21.954	Prime	NEG_Z to Titan	NEG_Y to NTP	Use -X_NTP and -Y_NTP for the 2ndary axis for polarizations.	
RPWS_107SA_OUTSURVEY001_PRIME	2009-086T04:51:00		007T20:38:00	2009-094T01:29:00	1310	889.604	Non-SPASS				
RPWS_107TI_TIIINTRMED002_PRIME	2009-093T23:47:48	GMB E108 Titan52-000T02:00:00	000T01:30:00	2009-094T01:17:48	15232	82.253	Non-SPASS				
RPWS_107TI_TICA002_PRIME	2009-094T01:17:48	GMB E108 Titan52-000T00:30:00	000T00:11:12	2009-094T01:29:00	109670.4	73.699	Non-SPASS				
RPWS_108SA_OUTSURVEY001_PRIME	2009-094T01:29:00		012T21:36:00	2009-106T23:05:00	1310	1460.088	Non-SPASS				
RPWS_108TI_TICA001_PRIME	2009-094T01:29:00		000T00:48:48	2009-094T02:17:48	109670.4	321.115	Non-SPASS				
RPWS_108TI_TIIINTRMED001_PRIME	2009-094T02:17:48	GMB E108 Titan52+000T00:30:00	000T01:30:00	2009-094T03:47:48	15232	82.253	Non-SPASS				
RSS_107TI_THERMAL001_RSS	2009-093T22:22:48	GMB E108 Titan52-000T03:25:00	000T02:05:00	2009-094T00:27:48	0	0	SPASS Rider				
RSS_107TI_BISTATIN001_PRIME	2009-094T00:27:48	GMB E108 Titan52-000T01:20:00	000T00:58:00	2009-094T01:25:48	0	0	Prime	XBAND to Titan			
RSS_107TI_OCC001_PRIME	2009-094T01:25:48	GMB E108 Titan52-000T00:22:00	000T00:34:00	2009-094T01:59:48	0	0	Prime	XBAND to Earth			
RSS_108TI_BISTATOUT001_PRIME	2009-094T01:59:48	GMB E108 Titan52+000T00:12:00	000T01:16:00	2009-094T03:15:48	0	0	Prime	XBAND to Titan		1. Pointing driven with ivd file.	
RSS_108TI_KADOWN001_RSS	2009-095T00:14:00		000T09:05:00	2009-095T09:19:00	0	0	SPASS Rider			1. Pointing, driven with ivd file, to specular point on Titan.	
SP_107NA_G70OBSNON095_NA	2009-093T09:34:00		001T14:45:00	2009-095T00:19:00	0	0	Non-SPASS				
SP_107NA_TOSTSEG093_NA	2009-093T09:34:00		001T23:45:00	2009-095T09:19:00	0	0	SPASS Note				
SP_107TI_WAYPTURN093_PRIME	2009-093T09:34:00		000T00:40:00	2009-093T10:14:00	0	0	New Waypoint	NEG_Y to Titan	NEG_X to 54.0/24.8		
SP_107NA_DEADTIME093_PRIME	2009-093T10:14:00		000T00:15:35	2009-093T10:29:35	0	0	Prime	NEG_Y to Titan	NEG_X to 54.0/24.8		
SP_107NA_BEGCUSTOM093_NA	2009-093T19:27:48	GMB E108 Titan52-000T06:20:00	000T00:00:01	2009-093T19:27:49	0	0	SPASS Note				
SP_107NA_G70METRSS093_SP	2009-093T23:34:00		000T04:15:00	2009-094T03:49:00	0	0	Non-SPASS				
SP_107NA_G34BWG2ND093_SP	2009-093T23:49:00		000T04:00:00	2009-094T03:49:00	0	0	Non-SPASS				
SP_107NA_G34BWGRSS093_SP	2009-093T23:49:00		000T04:00:00	2009-094T03:49:00	0	0	Non-SPASS				
SP_107NA_M34BWGRSS093_SP	2009-093T23:49:00		000T03:20:00	2009-094T03:09:00	0	0	Non-SPASS				
SP_107NA_M70METRSS093_SP	2009-093T23:49:00		000T03:30:00	2009-094T03:19:00	0	0	Non-SPASS				
SP_108NA_ENDCUSTOM094_NA	2009-094T03:15:48	GMB E108 Titan52+000T01:28:00	000T00:00:01	2009-094T03:15:49	0	0	SPASS Note				
SP_108NA_DEADTIME094_PRIME	2009-094T23:24:35	GMB E108 Titan52+000T21:36:47	000T00:14:25	2009-094T23:39:00	0	0	Prime	NEG_Y to Titan	NEG_X to 54.0/24.8		
SP_108EA_DLTURN095_PRIME	2009-094T23:39:00		000T00:40:00	2009-095T00:19:00	0	0	Prime	XBAND to Earth	NEG_X to NEP		
SP_108EA_G70METNON095_PRIME	2009-095T00:19:00		000T09:00:00	2009-095T09:19:00	0	0	Prime	XBAND to Earth	Rolling/Bias	NEG_X to NEP to avoid FR violations	
SP_108NA_G34BWGRSS095_SP	2009-095T00:19:00		000T09:00:00	2009-095T09:19:00	0	0	Non-SPASS				
SP_108NA_G70METNON095_SP	2009-095T00:19:00		000T09:00:00	2009-095T09:19:00	0	0	Non-SPASS				
UVIS_107ST_ALPERITI001_PRIME	2009-093T22:27:48	GMB E108 Titan52-000T03:20:00	000T02:00:00	2009-094T00:27:48	10591.7	76.26	Prime	UVIS_FUV to 24.429/-57.237 (0.258,0.0,0.0 deg. offset)	NEG_X to Sun		
UVIS_108TI_FIRNADCMP002_CIRS	2009-094T10:47:48	GMB E108 Titan52+000T09:00:00	000T03:00:00	2009-094T13:47:48	5032	54.346	SPASS Rider				
UVIS_108TI_MIDIRTMAP002_CIRS	2009-094T15:47:48	GMB E108 Titan52+000T14:00:00	000T07:36:47	2009-094T23:24:35	5032	137.912	SPASS Rider				
UVIS_108SW_IPHSURVEY001_RIDER	2009-095T00:19:00		000T09:00:00	2009-095T09:19:00	152.5	4.94	Non-SPASS				
VIMS_107TI_MIDIRTMAP001_CIRS	2009-093T10:29:35	GMB E108 Titan52-000T15:18:13	000T01:48:13	2009-093T12:17:48	3850.3	25	SPASS Rider				
VIMS_107TI_NIGHTNAC003_ISS	2009-093T12:17:48	GMB E108 Titan52-000T13:30:00	000T00:30:00	2009-093T12:47:48	19444.4	35	SPASS Rider				
VIMS_107TI_CLOUDMAP001_PRIME	2009-093T12:47:48	GMB E108 Titan52-000T13:00:00	000T04:00:00	2009-093T16:47:48	1736.1	25	Prime	VIMS_IR to Titan	NEG_X to Sun		
VIMS_107TI_MEDRESOR001_PRIME	2009-093T16:47:48	GMB E108 Titan52-000T09:00:00	000T02:40:00	2009-093T19:27:48	5208.3	50	Prime	VIMS_IR to Titan	NEG_X to Sun		
VIMS_108TI_TRANS001_ENGR	2009-094T03:15:48	GMB E108 Titan52+000T01:28:00	000T00:22:00	2009-094T03:37:48	6818.2	9	SPASS Rider				
VIMS_108TI_GLOBMAP001_CIRS	2009-094T03:39:48	GMB E108 Titan52+000T01:52:00	000T01:38:00	2009-094T05:17:48	8503.4	50	SPASS Rider				
VIMS_108TI_GLOBMAP001_ISS	2009-094T05:17:48	GMB E108 Titan52+000T03:30:00	000T01:30:00	2009-094T06:47:48	12963	70	SPASS Rider				
VIMS_108TI_GLOBMAP002_ISS	2009-094T06:47:48	GMB E108 Titan52+000T05:00:00	000T04:00:00	2009-094T10:47:48	5902.8	85	SPASS Rider				
VIMS_108TI_FIRNADCMP001_CIRS	2009-094T10:47:48	GMB E108 Titan52+000T09:00:00	000T03:00:00	2009-094T13:47:48	4722.2	51	SPASS Rider				
VIMS_108TI_MONITOR001_ISS	2009-094T13:47:48	GMB E108 Titan52+000T12:00:00	000T02:00:00	2009-094T15:47:48	4722.2	34	SPASS Rider				
VIMS_108TI_MIDIRTMAP002_CIRS	2009-094T15:47:48	GMB E108 Titan52+000T14:00:00	000T07:36:47	2009-094T23:24:35	1824.4	50	SPASS Rider				

T52 Wrapup SPASS

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S49, length = 40 days		2009-085T10:05:00		039T21:11:00	2009-125T07:16:00			
Titan Flyby T52 Segment		2009-093T09:34:00		001T23:45:00	2009-095T09:19:00			
SP_107TI_WAYPTTURN093_PRIME		2009-093T09:34:00		000T00:40:00	2009-093T10:14:00	NEG_Y to Titan	NEG_X to 54.0/24.8	
NEW WAYPOINT		2009-093T10:14:00		001T23:05:00	2009-095T09:19:00	NEG_Y to Titan	NEG_X to 54.0/24.8	
SP_107NA_DEADTIME093_PRIME	I	2009-093T10:14:00		000T00:15:35	2009-093T10:29:35	NEG_Y to Titan	NEG_X to 54.0/24.8	
CIRS_107TI_MIDIRTMAP001_PRIME	C, I, V	2009-093T10:29:35	GMB_E108_Titan52-000T15:18:13	000T01:48:13	2009-093T12:17:48	CIRS_FP1 to Titan	POS_X to North_Pole_Dir	
ISS_107TI_NIGHTNAC001_PRIME	C, V	2009-093T12:17:48	GMB_E108_Titan52-000T13:30:00	000T00:30:00	2009-093T12:47:48	ISS_NAC to Titan	NEG_X to Sun	
VIMS_107TI_CLOUDMAP001_PRIME	C, I	2009-093T12:47:48	GMB_E108_Titan52-000T13:00:00	000T04:00:00	2009-093T16:47:48	VIMS_IR to Titan	NEG_X to Sun	
VIMS_107TI_MEDRESDRK001_PRIME	C, I, R	2009-093T16:47:48	GMB_E108_Titan52-000T09:00:00	000T02:40:00	2009-093T19:27:48	VIMS_IR to Titan	NEG_X to Sun	
Begin custom period		2009-093T19:27:48	GMB_E108_Titan52-000T06:20:00	000T00:00:01	2009-093T19:27:49			
RADAR_107TI_T52INRAD001_PRIME		2009-093T19:27:48	GMB_E108_Titan52-000T06:20:00	000T02:00:00	2009-093T21:27:48	NEG_Z to Titan	NEG_X to NTP	Pick up at NEG_Y to Titan, NEG_X to 54.0/24.8; Hand off at NEG_Z to Titan, NEG_Y to NTP. Use -X_NTP and -Y_NTP for the 2ndary axis for polarizations.
ENGR_107SC_RADRCS093_PRIME		2009-093T21:27:48	GMB_E108_Titan52-000T04:20:00	000T00:01:00	2009-093T21:28:48	NEG_Y to Titan	POS_X to NTP	Pick up at unknown, unknown; Hand off at unknown, unknown.
RADAR_107TI_T52INRAD002_PRIME	R	2009-093T21:28:48	GMB_E108_Titan52-000T04:19:00	000T00:59:00	2009-093T22:27:48	NEG_Z to Titan	NEG_Y to NTP	Pick up at NEG_Z to Titan, NEG_Y to NTP; Hand off at NEG_Z to Titan, NEG_Y to NTP. Use -X_NTP and -Y_NTP for the 2ndary axis for polarizations.
UVIS_107ST_ALPERITI001_PRIME	C, M, R	2009-093T22:27:48	GMB_E108_Titan52-000T03:20:00	000T02:00:00	2009-094T00:27:48	UVIS_FUV to 24.429/-57.237 (0.258,0 NEG_X to Sun)		Pick up at NEG_Y to Titan, NEG_X to Sun; Hand off at UVIS_FUV to 24.429/-57.237 (0.258,0,0,0 deg_offset), NEG_X to Sun.
RSS_107TI_BISTATIN001_PRIME	M	2009-094T00:27:48	GMB_E108_Titan52-000T01:20:00	000T00:58:00	2009-094T01:25:48	XBAND to Titan		Pick up at UVIS_FUV to 24.429/-57.237 (0.258,0,0,0 deg_offset), unknown; Hand off at unknown, unknown.
RSS_107TI_OCC001_PRIME	M	2009-094T01:25:48	GMB_E108_Titan52-000T00:22:00	000T00:34:00	2009-094T01:59:48	XBAND to Earth		Pick up at unknown, unknown; Hand off at unknown, unknown. 1. Pointing driven with ivd file.
Apoapse Per = 16.8 d, inc ...		2009-094T01:29:38		000T00:00:01	2009-094T01:29:39			
108TI (t) T52 TITAN Inbou...		2009-094T01:47:48		000T00:00:01	2009-094T01:47:49			
RSS_108TI_BISTATOUT001_PRIME	M	2009-094T01:59:48	GMB_E108_Titan52+000T00:12:00	000T01:16:00	2009-094T03:15:48	XBAND to Titan		Pick up at unknown, unknown; Hand off at NEG_Y to Titan, NEG_X to 54.0/24.8. 1. Pointing, driven with ivd file, to specular point on Titan.
End custom period		2009-094T03:15:48	GMB_E108_Titan52+000T01:28:00	000T00:00:01	2009-094T03:15:49			
ENGR_108SC_RSSKRWBIA094_PRIME	C, M, V	2009-094T03:15:48	GMB_E108_Titan52+000T01:28:00	000T00:22:00	2009-094T03:37:48	NEG_Y to Titan	NEG_X to 54.0/24.8	
CIRS_108TI_FIRNADMAP002_PRIME	C, I, M, V	2009-094T03:37:48	GMB_E108_Titan52+000T01:50:00	000T01:40:00	2009-094T05:17:48	CIRS_FP1 to Titan	POS_X to North_Pole_Dir	
ISS_108TI_REGMAP001_PRIME	C, V	2009-094T05:17:48	GMB_E108_Titan52+000T03:30:00	000T01:30:00	2009-094T06:47:48	ISS_NAC to Titan	NEG_X to Sun	
ISS_108TI_GLOBMAP001_PRIME	C, V	2009-094T06:47:48	GMB_E108_Titan52+000T05:00:00	000T04:00:00	2009-094T10:47:48	ISS_NAC to Titan	NEG_X to Sun	
CIRS_108TI_FIRNADCMPO02_PRIME	C, I, U, V	2009-094T10:47:48	GMB_E108_Titan52+000T09:00:00	000T03:00:00	2009-094T13:47:48	CIRS_FP1 to Titan	PIC	
ISS_108TI_MONITORNA001_PRIME	C, V	2009-094T13:47:48	GMB_E108_Titan52+000T12:00:00	000T02:00:00	2009-094T15:47:48	ISS_NAC to Titan	NEG_X to Sun	
CIRS_108TI_MIDIRTMAP002_PRIME	C, I, U, V	2009-094T15:47:48	GMB_E108_Titan52+000T14:00:00	000T07:36:47	2009-094T23:24:35	CIRS_FP1 to Titan	POS_X to North_Pole_Dir	
SP_108NA_DEADTIME094_PRIME		2009-094T23:24:35	GMB_E108_Titan52+000T21:36:47	000T00:14:25	2009-094T23:39:00	NEG_Y to Titan	NEG_X to 54.0/24.8	
SP_108EA_DLTURN095_PRIME	R	2009-094T23:39:00		000T00:40:00	2009-095T00:19:00	XBAND to Earth	NEG_X to NEP	
SP_108EA_G70METNON095_PRIME	C, R	2009-095T00:19:00		000T09:00:00	2009-095T09:19:00	XBAND to Earth	Rolling/Bias	NEG_X to NEP to avoid FR violations

T52 Wrapup Open Issues

- Custom Period Handoffs/Designs need to be completed
 - UVIS handoff from RADAR: UVIS to update custom fields
- RSS to complete pointing information for SPASS
- UVIS to RSS handoff issue
 - UVIS Occ extends to -01:20, but RSS has claim on 3 minutes if turn design extends beyond the 5 minutes RSS has budgeted.
- (Optional) CCRs for riders to align with primes

LIENS: NONE

- Notes for Handoff:
 - ISS is aware of telemetry mode switch during ISS_107TI_MEDRESDRK001_PRIME, will handle this internally