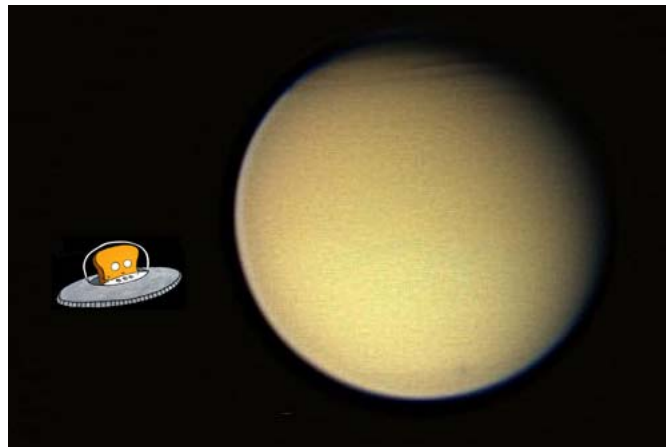




# TOST: Integration 112TI (T56) Wrap-Up



August 22, 2008

Kim Steadman, Trina Ray, Jo Pitesky, Nora Kelly



# Segment Basics

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Segment times:

BEG: 2009-157T05:12:00

END: 2009-159T06:57:00

Altitude: 965 km

Time of C/A: 2009-157T20:00:01

Epoch: GMB\_E112\_Titan56



At least 2 weeks prior to the Kickoff Meeting make sure that all requests are in CIMS

## Kickoff Meeting

### Present

Master Timeline

### Discuss

Timeline  
Op Modes  
Telem Modes  
Deadbands for RCS

### Homework

Custom Handoff Attitudes  
Unique Op Mode Requirements (SCO)  
Turn Assignments  
CCRs  
High Value Science

## Detailed Meeting

### Present

Master Timeline  
SMT Report  
Timeline Graphic  
TOL  
SPASS  
DSN Reports  
High Value Science

### Discuss

Data Volume Cuts

### Homework

CCRs  
High Level Science Objectives

## Wrap-up Meeting

### Present

Wrap-up Package  
Checklist  
High Level Science Objectives

### Discuss

N/A

### Homework

N/A



# High-level Science Objectives

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CIRS – Distant stratospheric composition and temperature mapping to search for seasonal changes.

ISS – Ride along with VIMS to observe eastern Tsegih and to monitor clouds over Titan's trailing hemisphere at mid-southern latitudes. (No illuminated prime observations.)

MIMI -Energetic ion and electron energy input to atmosphere.

RADAR – Radiometry, Scatterometry, altimetry, SAR. SAR runs parallel to T55, over Tortola Facula ('the snail') down through Shangri-La to south polar regions (70 deg latitude).

UVIS - 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.

VIMS – On the inbound, the phase angle is much larger than 90 degrees and VIMS ride along observations will provide information on Titan's atmosphere composition. After C/A, VIMS will ride along with UVIS for a stellar occultation that will provide information on the composition of Titan's atmosphere. The South Pole region will be observed as VIMS is riding along with UVIS (then CIRS) far from Titan.

INMS - INMS will be riding with RADAR on T56. This is the only dusk side observation at mid Southern latitudes. It's the only time in the mission the spacecraft will get simultaneous coverage of the dusk side while the in wake magnetospheric interaction region.



# Master Timeline for T56

**T56**                      965

Start Time	End Time	Prime Activity	Obs. Detail	Op Mode	TLM Mode	Comments
2009-157T05:12:00	2009-157T05:52:00	SP Turn to WP	-Y to Titan, -X to 67.0 / 16.0	DFPW Normal	S_N_ER_3	
2009-157T05:52:00	C/A - 13:52:12	OD Uncertainty Dead Time		DFPW Normal	S_N_ER_3	
C/A - 13:52:12	-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	-05:10	VIMS	Template Q	RADWU	S_N_ER_5a for 15 min then S_N_ER_3	
begin custom period						
-05:10	-02:00	RADAR	Template L	RADARRWA	S_N_ER_8	
-02:00	-01:12	RADAR	Scatterometry/Radiometry	RADARRWA	S_N_ER_8	
-01:12	-00:50	RWA to RCS Transition		RADARRCS	S_N_ER_8	
-00:50	-00:30	RADAR	Hi-SAR	RADRCS	S_N_ER_8	Deadband (0.5, 0.5, 0.5)
-00:30	-00:18	RADAR	Altimetry	RADRCS	S_N_ER_8	
-00:18	0	RADAR	SAR	RADRCS	S_N_ER_8	
2009-157T20:00:01		CLOSEST APPROACH	NEG_Z to Titan, NEG_X to RAM	RADRCS	S_N_ER_8	
0	+00:18	RADAR	SAR	RADRCS	S_N_ER_8	
+00:18	+00:24	RADAR	Altimetry (Hi-SAR?)	RADRCS	S_N_ER_8	
+00:24	+00:32	Turn to UVIS Stellar Occ	RADAR turns to UVIS occ attitude	RADRCS	S_N_ER_8	
+00:32	+00:56	RCS to RWA Transition		DFPW Normal	S_N_ER_3	Deadband (0.5, 0.5, 0.5) through the transition
+00:32	+01:41	UVIS Stellar Occ	Eta Ursa Majoris	DFPW Normal	S_N_ER_3	
end custom period						
+01:41	+05:00	UVIS	Template X	DFPW Normal	S_N_ER_3	
+05:00	+09:00	UVIS	Template X	DFPW Normal	S_N_ER_3	
+09:00	+14:00	CIRS	Template C	DFPW Normal	S_N_ER_3	
+14:00	C/A + 23:02:48	VIMS	Template B	DFPW Normal	S_N_ER_3	
C/A + 23:02:48	2009-158T19:17:00	OD Uncertainty Dead Time				
		SP Turn to Earth for downlink		DFPW Normal	S_N_ER_3	
2009-158T19:17:00	2009-158T19:57:00					
2009-158T19:57:00	2009-159T04:57:00	70-m Array	G70M	DFPW Normal	RTE_N_SPB	
2009-159T04:57:00	2009-159T06:57:00		G70M	DFPW Normal	RTE_N_SPB	

Deadband: 0.5, 0.5 , 0.5

Dual playback: -18 min to +18 min



# T56 Telemetry Mode Report

## TELEMETRY MODE REPORT

EPOCH RELATIVE	UTC	DURATION	TELEMETRY MODE	REQUEST
GMB_E112_Titan56-000T09:00:00	2009-157T05:12:00.000	05:48:01	S_N_ER_3	SP_112NA_G70OBSNON158_NA
GMB_E112_Titan56-000T08:45:00	2009-157T11:00:01.000	00:15:00	S_N_ER_5A	SP_112NA_G70OBSNON158_NA
GMB_E112_Titan56-000T05:10:00	2009-157T11:15:01.000	03:35:00	S_N_ER_3	SP_112NA_G70OBSNON158_NA
GMB_E112_Titan56+000T00:32:00	2009-157T14:50:01.000	05:42:00	S_N_ER_8	SP_112NA_G70OBSNON158_NA
	2009-157T20:32:01.000	23:24:59	S_N_ER_3	SP_112NA_G70OBSNON158_NA
	2009-158T19:57:00.000	00:15:00	RTE_N_SPB_110600	SP_112EA_G70METNON158_PRIME
	2009-158T20:12:00.000	00:45:00	RTE_N_SPB_124425	SP_112EA_G70METNON158_PRIME
	2009-158T20:57:00.000	07:15:00	RTE_N_SPB_142200	SP_112EA_G70METNON158_PRIME
	2009-159T04:12:00.000	00:45:00	RTE_N_SPB_124425	SP_112EA_G70METNON158_PRIME
	2009-159T04:57:00.000	00:15:00	RTE_N_SPB_124425	SP_112EA_C70METNON159_PRIME
	2009-159T05:12:00.000	01:45:00	RTE_N_SPB_142200	SP_112EA_C70METNON159_PRIME



# T56 SMT Report

DATA VOLUME SUMMARY --- TRANSFER FRAME OVERHEAD INCLUDED (80 BITS PER 8800-BIT FRAME)

DOWNLINK PASS NAME	Start		OBSERVATION_PERIOD							DOWNLINK_PASS							
	End		P4			P5	RECORDED		PLAYBACK								
	doy hh:mm	doy hh:mm	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_112EA_G70METNON158_PRIME	158 19:57	159 04:57	0	3310	177	3487	3496	9	0	237	53	3776	3792	15	121	3%	0
SP_112EA_C70METNON159_PRIME	159 04:57	159 06:57	0	0	684	684	3496	2812	0	49	12	745	850	105	105	12%	0

DATA VOLUME REPORT --- TRANSFER FRAME OVERHEAD NOT INCLUDED

Event	Start	End	CAPS	CDA	CIRS	INMS	ISS	MAG	MIMI	RADAR	RPWS	UVIS	VIMS	PROBE	ENGR	TOTAL
	doy hh:mm	doy hh:mm	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)
OBSERVATION_NOR	157 05:12	158 19:57	223.8	63.4	331.7	24.0	370.0	101.4	117.9	813.6	581.2	297.6	345.0	0.0	44.5	3314.1
OBSERVATION_SI	157 05:12	158 19:57	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_112EA_G70METNON158_PRIME	158 19:57	159 04:57	32.4	14.7	86.4	3.2	0.0	21.3	29.2	0.0	42.4	4.9	0.0	0.0	0.0	234.6
OBSERVATION_NOR	157 05:12	159 04:57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	684.1	684.1
SP_112EA_C70METNON159_PRIME	159 04:57	159 06:57	7.2	3.3	14.4	0.7	0.0	4.7	7.5	0.0	9.4	1.1	0.0	0.0	0.0	48.3
DAILY TOTAL SCIENCE	157 05:12	159 06:57	263.4	81.3	442.5	28.0	370.0	127.5	154.6	813.6	633.0	303.6	345.0	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)
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TOTAL RECORDED (OPNAV data not included)	263.4	81.3	442.5	28.0	370.0	127.5	154.6	813.6	633.0	303.6	345.0	0.0
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# T56 DSN Report

CASSINI DOWNLINK/DSN COVERAGE SUMMARY for 112TI\_T56\_080805.apf on 2008-Aug-06 09:56:25  
(+ = 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
G70METNON158	158T19:57-04:57	158T21:15-06:15	09:00	110,124,142,124	14	158T19:57-04:57	158T21:15-06:15	09:00	60 /15	TP	N003
+C70METNON159	159T04:57-06:57	159T06:15-08:15	02:00	124,142	43	159T04:37-06:57	159T05:55-08:15	02:20	60 /15	TP	N003



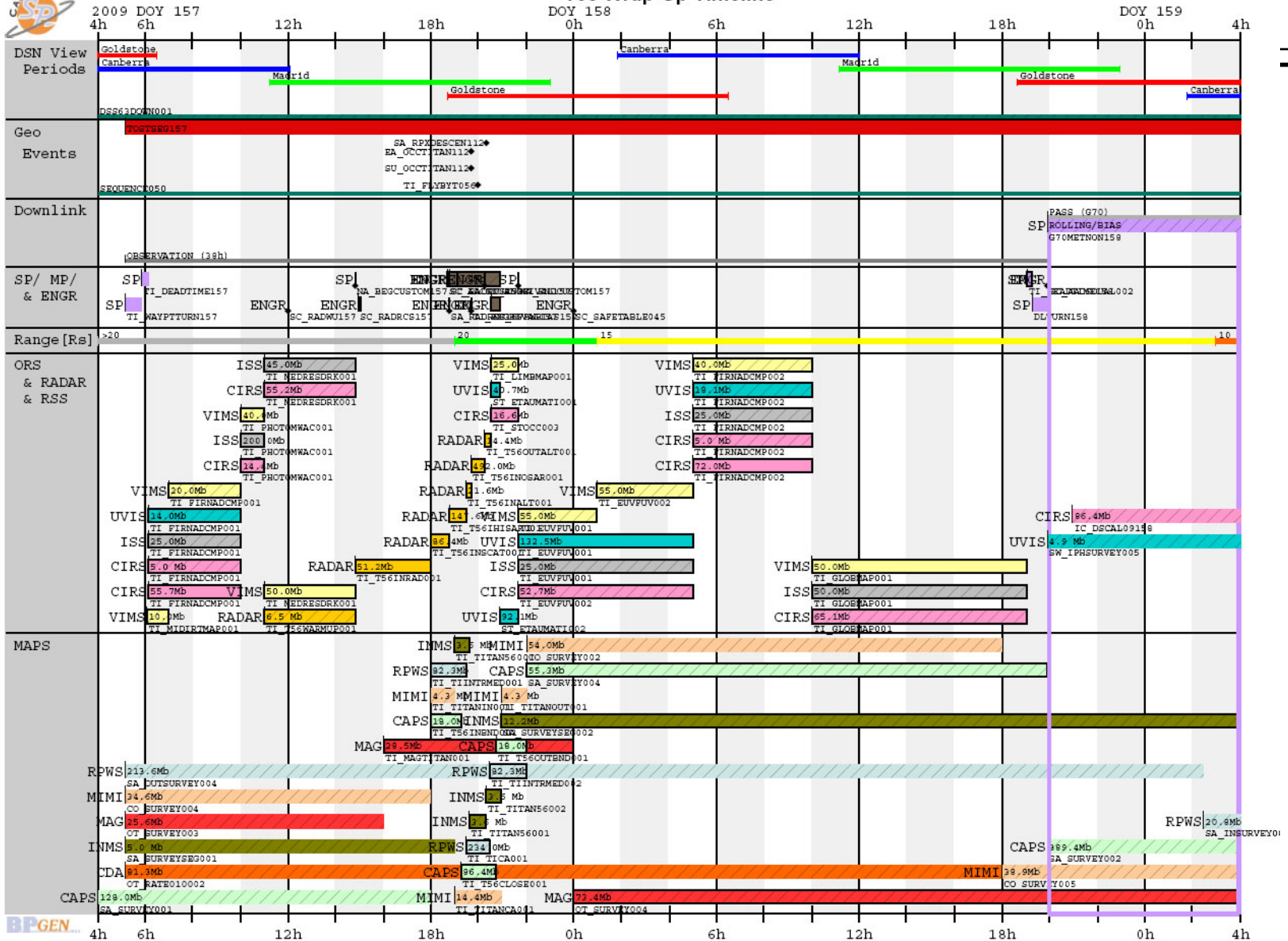
# T56 SPASS



Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S50, length = 39 days		2009-125T07:16:00		038T21:25:00	2009-164T04:41:00			
Titan Flyby T56 Segment		2009-157T05:12:00		002T01:45:00	2009-159T06:57:00			
SP_112TI_WAYPTTURN157_PRIME		2009-157T05:12:00		000T00:40:00	2009-157T05:52:00	NEG_Y to Titan	NEG_X to 67.0/16.0	
NEW WAYPOINT		2009-157T05:52:00		002T01:05:00	2009-159T06:57:00	NEG_Y to Titan	NEG_X to 67.0/16.0	
SP_112TI_DEADTIME157_PRIME	V	2009-157T05:52:00		000T00:15:49	2009-157T06:07:49	NEG_Y to Titan	NEG_X to 67.0/16.0	
CIRS_112TI_FIRNADCMP001_PRIME	C, I, U, V	2009-157T06:07:49	GMB_E112_Titan56-000T13:52:12	000T03:52:12	2009-157T10:00:01	CIRS_FP1 to Titan	PIC	
ISS_112TI_PHOTOMWAC001_PRIME	C, V	2009-157T10:00:01	GMB_E112_Titan56-000T10:00:00	000T01:00:00	2009-157T11:00:01	ISS_NAC to Titan	NEG_X to Sun	
VIMS_112TI_MEDRESDRK001_PRIME	C, I, R	2009-157T11:00:01	GMB_E112_Titan56-000T09:00:00	000T03:50:00	2009-157T14:50:01	VIMS_IR to Titan	NEG_X to Sun	
Begin Custom Period		2009-157T14:50:01	GMB_E112_Titan56-000T05:10:00	000T00:00:01	2009-157T14:50:02	NEG_Y to Titan	NEG_X to 67.0/16.0	
RADAR_112TI_T56INRAD001_PRIME		2009-157T14:50:01	GMB_E112_Titan56-000T05:10:00	000T03:10:00	2009-157T18:00:01	NEG_Z to Titan	NEG_X to NTP	Pick up at NEG_Y to Titan, NEG_X to 67.0/16.0; Hand off at NEG_Z to Titan, NEG_Y to NTP. Use 2ndary -X_NTP and -Y_NTP for polarizations.
RADAR_112TI_T56INSCAT001_PRIME	M	2009-157T18:00:01	GMB_E112_Titan56-000T02:00:00	000T00:48:00	2009-157T18:48:01	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.
ENGR_112SA_RADRCS157_PRIME	M	2009-157T18:48:01	GMB_E112_Titan56-000T01:12:00	000T00:01:00	2009-157T18:49:01	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. Deadband = ???
RADAR_112TI_T56IHISAR001_PRIME	M	2009-157T18:49:01	GMB_E112_Titan56-000T01:11:00	000T00:41:00	2009-157T19:30:01	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_X to NTP.
RADAR_112TI_T56INALT001_PRIME	M	2009-157T19:30:01	GMB_E112_Titan56-000T00:30:00	000T00:12:00	2009-157T19:42:01	NEG_Z to Titan	POS_Y to NTP	Pick up at NEG_Z to Titan, NEG_X to NTP; Hand off at NEG_Z to Titan (0.0,0.0,-20.0 deg. offset), NEG_X to Titan_SC_RAM.
Begin Dual Playback Science		2009-157T19:42:01	GMB_E112_Titan56-000T00:18:00	000T00:00:01	2009-157T19:42:02			
RADAR_112TI_T56INOSAR001_PRIME	M	2009-157T19:42:01	GMB_E112_Titan56-000T00:18:00	000T00:36:00	2009-157T20:18:01	NEG_Z to Titan	NEG_X to Titan_SC_RAM	Pick up at NEG_Z to Titan (0.0,0.0,-20.0 deg. offset), NEG_X to Titan_SC_RAM; Hand off at NEG_Z to Titan, NEG_X to Titan_SC_RAM.
112TI (t) T56 TITAN Inbou...		2009-157T20:00:01		000T00:00:01	2009-157T20:00:02			
Begin Dual Playback Science		2009-157T20:18:01	GMB_E112_Titan56+000T00:18:00	000T00:00:01	2009-157T20:18:02			
RADAR_112TI_T56OUTALT001_PRIME	M	2009-157T20:18:01	GMB_E112_Titan56+000T00:18:00	000T00:14:00	2009-157T20:32:01	NEG_Z to Titan (0.0,0.0,20.0 deg. c	NEG_X to NTP	Pick up at NEG_Z to Titan, NEG_X to Titan_SC_RAM; Hand off at UVIS_FUV to 206.885/49.313 (0.082,0.0,0.0 deg. offset), NEG_Z to NTP.
ENGR_112SC_DFPWBIAS157_PPS	C, M, U, V	2009-157T20:32:01	GMB_E112_Titan56+000T00:32:00	000T00:21:09	2009-157T20:53:10	UVIS_FUV to 206.885/49.313 (0.08	NEG_Z to NTP	Pick up at UVIS_FUV to 206.885/49.313 (0.082,0.0,0.0 deg. offset), NEG_Z to NTP; Hand off at UVIS_FUV to 206.885/49.313 (0.082,0.0,0.0 deg. offset), NEG_Z to NTP.
UVIS_112ST_ETEAUMATI002_PRIME	C, M, V	2009-157T20:53:10	GMB_E112_Titan56+000T00:53:09	000T00:47:51	2009-157T21:41:01	UVIS_FUV to 206.885/49.313 (0.08	NEG_Z to NTP	Pick up at UVIS_FUV to 206.885/49.313 (0.082,0.0,0.0 deg. offset), NEG_Z to NTP; Hand off at NEG_Y to Titan, NEG_X to 67.0/16.0.
End Custom Period		2009-157T21:41:01	GMB_E112_Titan56+000T01:41:00	000T00:00:01	2009-157T21:41:02	NEG_Y to Titan	NEG_X to 67.0/16.0	
UVIS_112TI_EUVFUV001_PRIME	C, I, M, V	2009-157T21:41:01	GMB_E112_Titan56+000T01:41:00	000T07:19:00	2009-158T05:00:01	UVIS_FUV to Titan	NEG_X to Sun	
CIRS_112TI_FIRNADCMP002_PRIME	C, I, U, V	2009-158T05:00:01	GMB_E112_Titan56+000T09:00:00	000T05:00:00	2009-158T10:00:01	CIRS_FP1 to Titan	PIC	
VIMS_112TI_GLOBMAP001_PRIME	C, I	2009-158T10:00:01	GMB_E112_Titan56+000T14:00:00	000T09:02:48	2009-158T19:02:49	VIMS_IR to Titan	NEG_X to Sun	
SP_112TI_DEADTIME158_PRIME		2009-158T19:02:49	GMB_E112_Titan56+000T23:02:48	000T00:14:11	2009-158T19:17:00	NEG_Y to Titan	NEG_X to 67.0/16.0	
SP_112EA_DLTURN158_PRIME		2009-158T19:17:00		000T00:40:00	2009-158T19:57:00	XBAND to Earth	NEG_X to NEP	
SP_112EA_G70METNON158_PRIME	C	2009-158T19:57:00		000T09:00:00	2009-159T04:57:00	XBAND to Earth	Rolling/Bias	NEG_X to NEP
Pointer Reset in preparatio...		2009-159T04:57:00		000T00:00:01	2009-159T04:57:01			
SP_112EA_C70METNON159_PRIME	C	2009-159T04:57:00		000T02:00:00	2009-159T06:57:00	XBAND to Earth	Rolling	NEG_X to NEP



# T56 Wrap-Up Timeline



BP GEN

printed on 8/20/2008

# T56 TOL page 1



Request	AGPEN	Start Time	Epoch	Duration	End Time	Rate	Data Volume	SPASS Type	Primary Pointing	Secondary Pointing
MP_110NA_DSS63DOWN001_NA	MILESTONE	2009-123T22:46:27		090T23:47	2009-214T22:34:07	0	0	Non-SPASS		
MP_110NA_SEQUENCE050_NA	MILESTONE	2009-125T07:16:00		038T21:25	2009-164T04:41:00	0	0	SPASS Note		
CAPS_112SA_SURVEY001_PRIME	CAPS_16000	2009-156T06:27:00		001T11:33	2009-157T18:00:01	1000	127.981	Non-SPASS		
CDA_112OT_RATE010002_RIDER	CDA_524	2009-157T05:12:00		002T01:45	2009-159T06:57:00	454.2	81.348	Non-SPASS		
INMS_112SA_SURVEYSEG001_INMS	INMS_1498	2009-157T05:12:00		002T13:48	2009-157T19:00:01	100	4.968	Non-SPASS		
MAG_112OT_SURVEY003_PRIME	MAG_1976	2009-157T05:12:00		000T10:48	2009-157T16:00:01	658.7	25.61	Non-SPASS		
MIMI_112CO_SURVEY004_RIDER	MIMI_8000	2009-157T05:12:00		000T12:48	2009-157T18:00:01	750	34.561	Non-SPASS		
RPWS_112SA_OUTSURVEY004_PRIME	RPWS_30464	2009-157T05:12:00		001T21:18	2009-159T02:30:00	1310	213.637	Non-SPASS		
SP_112NA_G7OBSNON158_NA	OBSERVATION	2009-157T05:12:00		001T14:45	2009-158T19:57:00	0	0	Non-SPASS		
SP_112NA_TOSTSEG157_NA	MILESTONE	2009-157T05:12:00		002T01:45	2009-159T06:57:00	0	0	SPASS Note		
SP_112TI_WAYPTTURN157_PRIME	MILESTONE	2009-157T05:12:00		000T00:40	2009-157T05:52:00	0	0	New Waypoint	NEG_Y to Titan	NEG_X to 67.0/16.0
SP_112TI_DEADTIME157_PRIME	MILESTONE	2009-157T05:52:00		000T00:15	2009-157T06:07:49	0	0	Prime	NEG_Y to Titan	NEG_X to 67.0/16.0
VIMS_112TI_MIDIRTMAP001_CIRS	VIMS_18432	2009-157T06:07:00	GMB_E112_Titan56-000T13:53:01	000T00:53	2009-157T07:00:01	3143.7	10	SPASS Rider		
CIRS_112TI_FIRNADCMP001_PRIME	CIRS_4000	2009-157T06:07:49	GMB_E112_Titan56-000T13:52:12	000T03:52	2009-157T10:00:01	4000	55.728	Prime	CIRS_FP1 to Titan	PIC
CIRS_112TI_FIRNADCMP001_SI	ISS_SUPPORT	2009-157T06:07:49	GMB_E112_Titan56-000T13:52:12	000T03:52	2009-157T10:00:01	0	5	SPASS Rider		
ISS_112TI_FIRNADCMP001_CIRS	ISS_Phot_1_by_1	2009-157T06:07:49	GMB_E112_Titan56-000T13:52:12	000T03:52	2009-157T10:00:01	0	25	SPASS Rider		
UVIS_112TI_FIRNADCMP001_CIRS	UVIS_5032	2009-157T06:07:49	GMB_E112_Titan56-000T13:52:12	000T03:52	2009-157T10:00:01	1006.4	14.021	SPASS Rider		
VIMS_112TI_FIRNADCMP001_CIRS	VIMS_18432	2009-157T07:00:01	GMB_E112_Titan56-000T13:00:00	000T03:00	2009-157T10:00:01	1851.9	20	SPASS Rider		
CIRS_112TI_PHOTOMWAC001_ISS	CIRS_4000	2009-157T10:00:01	GMB_E112_Titan56-000T10:00:00	000T01:00	2009-157T11:00:01	4000	14.4	SPASS Rider		
ISS_112TI_PHOTOMWAC001_PRIME	ISS_Phot_1_by_1	2009-157T10:00:01	GMB_E112_Titan56-000T10:00:00	000T01:00	2009-157T11:00:01	0	200	Prime	ISS_NAC to Titan	NEG_X to Sun
VIMS_112TI_PHOTOMWAC001_ISS	VIMS_18432	2009-157T10:00:01	GMB_E112_Titan56-000T10:00:00	000T01:00	2009-157T11:00:01	11111.1	40	SPASS Rider		
CIRS_112TI_MEDRESDRK001_VIMS	CIRS_4000	2009-157T11:00:01	GMB_E112_Titan56-000T09:00:00	000T03:50	2009-157T14:50:01	4000	55.2	SPASS Rider		
ISS_112TI_MEDRESDRK001_VIMS	ISS_Phot_1_by_1	2009-157T11:00:01	GMB_E112_Titan56-000T09:00:00	000T03:50	2009-157T14:50:01	0	45	SPASS Rider		
RADAR_112TI_T56WARMUP001_RIDER	RADAR_364800	2009-157T11:00:01	GMB_E112_Titan56-000T09:00:00	000T03:50	2009-157T14:50:01	474.2	6.545	SPASS Rider		
VIMS_112TI_MEDRESDRK001_PRIME	VIMS_18432	2009-157T11:00:01	GMB_E112_Titan56-000T09:00:00	000T03:50	2009-157T14:50:01	3623.2	50	Prime	VIMS_IR to Titan	NEG_X to Sun
ENGR_112SC_RADWU157_PPS	OpMode	2009-157T12:00:01	GMB_E112_Titan56-000T08:00:00	000T00:00	2009-157T12:00:08	0	0	Non-SPASS		
RADAR_112TI_T56INRAD001_PRIME	RADAR_364800	2009-157T14:50:01	GMB_E112_Titan56-000T05:10:00	000T03:10	2009-157T18:00:01	4487	51.152	Prime	NEG_Z to Titan	NEG_X to NTP
SP_112NA_BEGCUSTOM157_NA	MILESTONE	2009-157T14:50:01	GMB_E112_Titan56-000T05:10:00	000T00:00	2009-157T14:50:02	0	0	SPASS Note		
ENGR_112SC_RADRCS157_PPS	OpMode	2009-157T15:00:01	GMB_E112_Titan56-000T05:00:00	000T00:00	2009-157T15:00:45	0	0	Non-SPASS		
MAG_112TI_MAGTITAN001_PRIME	MAG_1976	2009-157T16:00:01	GMB_E112_Titan56-000T04:00:00	000T08:00	2009-158T00:00:01	988	28.454	Non-SPASS		
CAPS_112TI_T56INBND001_PRIME	CAPS_16000	2009-157T18:00:01	GMB_E112_Titan56-000T02:00:00	000T01:15	2009-157T19:15:01	4000	18	SPASS Rider		
MIMI_112TI_TITANIN001_RIDER	MIMI_8000	2009-157T18:00:01	GMB_E112_Titan56-000T02:00:00	000T01:00	2009-157T19:00:01	1200	4.32	SPASS Rider		
RADAR_112TI_T56INSCAT001_PRIME	RADAR_364800	2009-157T18:00:01	GMB_E112_Titan56-000T02:00:00	000T00:48	2009-157T18:48:01	30001.2	86.403	Prime	NEG_Z to Titan	NEG_Y to NTP
RPWS_112TI_TIINTRMED001_PRIME	RPWS_30464	2009-157T18:00:01	GMB_E112_Titan56-000T02:00:00	000T01:30	2009-157T19:30:01	15232	82.253	Non-SPASS		
ENGR_112SC_AACSDUAL001_CDS	ENGR_1638	2009-157T18:45:01	GMB_E112_Titan56-000T01:15:00	000T02:11	2009-157T20:56:01	1638	12.875	Non-SPASS		
ENGR_112SA_RADRCS157_PRIME	MILESTONE	2009-157T18:48:01	GMB_E112_Titan56-000T01:12:00	000T00:01	2009-157T18:49:01	0	0	Prime	NEG_Z to Titan	NEG_Y to NTP
ENGR_112SC_RADRCS158_PPS	OpMode	2009-157T18:48:01	GMB_E112_Titan56-000T01:12:00	000T00:21	2009-157T19:09:16	0	0	Non-SPASS		
RADAR_112TI_T56IHISAR001_PRIME	RADAR_364800	2009-157T18:49:01	GMB_E112_Titan56-000T01:11:00	000T00:41	2009-157T19:30:01	60009.6	147.624	Prime	NEG_Z to Titan	NEG_Y to NTP
INMS_112TI_TITAN56001_INMS	INMS_1498	2009-157T19:00:01	GMB_E112_Titan56-000T01:00:00	000T00:40	2009-157T19:40:01	1498	3.595	Non-SPASS		
MIMI_112TI_TITANCA001_RIDER	MIMI_8000	2009-157T19:00:01	GMB_E112_Titan56-000T01:00:00	000T02:00	2009-157T21:00:01	2000	14.4	SPASS Rider		
CAPS_112TI_T56CLOSE001_PRIME	CAPS_16000	2009-157T19:15:01	GMB_E112_Titan56-000T00:45:00	000T01:30	2009-157T20:45:01	16000	86.4	SPASS Rider		
RADAR_112TI_T56INALT001_PRIME	RADAR_364800	2009-157T19:30:01	GMB_E112_Titan56-000T00:30:00	000T00:12	2009-157T19:42:01	30001.2	21.601	Prime	NEG_Z to Titan	POS_Y to NTP
RPWS_112TI_TICA001_PRIME	RPWS_182784	2009-157T19:30:01	GMB_E112_Titan56-000T00:30:00	000T01:00	2009-157T20:30:01	64998	233.993	Non-SPASS		
INMS_112TI_TITAN56001_RIDER	INMS_1498	2009-157T19:40:01	GMB_E112_Titan56-000T00:20:00	000T00:40	2009-157T20:20:01	1498	3.595	Non-SPASS		
MP_112EA_OCCTITAN112_NA	MILESTONE	2009-157T19:40:52		000T00:00	2009-157T19:40:53	0	0	Non-SPASS		
ENGR_112TI_BEHIVAL157_CDS	MILESTONE	2009-157T19:42:01	GMB_E112_Titan56-000T00:18:00	000T00:00	2009-157T19:42:02	0	0	SPASS Note		
MP_112SU_OCCTITAN112_NA	MILESTONE	2009-157T19:42:01		000T00:00	2009-157T19:42:02	0	0	Non-SPASS		

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Request	AGPEN	Start Time	Epoch	Duration	End Time	Rate	Data Volume	SPASS Type	Primary Pointing	Secondary Pointing
RADAR 112TI T56INOSAR001 PRIME	RADAR 364800	2009-157T19:42:01	GMB E112 Titan56-000T00:18:00	000T00:36	2009-157T20:18:01	227781.1	492.007	Prime	NEG Z to Titan	NEG X to Titan SC F
MP 112TI FLYBYT056 NA	MILESTONE	2009-157T20:00:01		000T00:00	2009-157T20:00:02	0	0	SPASS Note		
ENGR 112TI ENHIVAL157 CDS	MILESTONE	2009-157T20:18:01	GMB E112 Titan56+000T00:18:00	000T00:00	2009-157T20:18:02	0	0	SPASS Note		
RADAR 112TI T56OUTALT001 PRIME	RADAR 364800	2009-157T20:18:01	GMB E112 Titan56+000T00:18:00	000T00:14	2009-157T20:32:01	17145.6	14.402	Prime	NEG Z to Titan (0	NEG X to NTP
INMS 112TI TITAN56002 INMS	INMS 1498	2009-157T20:20:01	GMB E112 Titan56+000T00:20:00	000T00:40	2009-157T21:00:01	1498	3.595	Non-SPASS		
MP 112SA RXPDESCEN112 NA	MILESTONE	2009-157T20:20:01		000T00:00	2009-157T20:20:02	0	0	Non-SPASS		
RPWS 112TI TIINTRMED002 PRIME	RPWS 30464	2009-157T20:30:01	GMB E112 Titan56+000T00:30:00	000T01:30	2009-157T22:00:01	15232	82.253	Non-SPASS		
CIRS 112TI STOCC003 UVIS	CIRS 4000	2009-157T20:32:01	GMB E112 Titan56+000T00:32:00	000T01:09	2009-157T21:41:01	4000	16.56	SPASS Rider		
ENGR 112SC DFPWBIAS157 PPS	OpMode	2009-157T20:32:01	GMB E112 Titan56+000T00:32:00	000T00:21	2009-157T20:53:10	0	0	Prime	UVIS_FUV to 206.8	NEG_Z to NTP
UVIS 112ST ETAUMATI001 ENGR	UVIS 32096	2009-157T20:32:01	GMB E112 Titan56+000T00:32:00	000T00:21	2009-157T20:53:10	32096	40.73	SPASS Rider		
VIMS 112TI LIMBMAP001 UVIS	VIMS 18432	2009-157T20:32:01	GMB E112 Titan56+000T00:32:00	000T01:09	2009-157T21:41:01	6038.6	25	SPASS Rider		
CAPS 112TI T56OUTBND001 PRIME	CAPS 16000	2009-157T20:45:01	GMB E112 Titan56+000T00:45:00	000T01:15	2009-157T22:00:01	4000	18	SPASS Rider		
UVIS 112ST ETAUMATI002 PRIME	UVIS 32096	2009-157T20:53:10	GMB E112 Titan56+000T00:53:09	000T00:47	2009-157T21:41:01	32096	92.148	Prime	UVIS_FUV to 206.8	NEG_Z to NTP
INMS 112SA SURVEYSEG002 INMS	INMS 1498	2009-157T21:00:01	GMB E112 Titan56+000T00:00:00	001T09:56	2009-159T06:57:00	100	12.222	Non-SPASS		
MIMI 112TI TITANOUT001 RIDER	MIMI 8000	2009-157T21:00:01		000T01:00	2009-157T22:00:01	1200	4.32	SPASS Rider		
CIRS 112TI EUVFUV002 UVIS	CIRS 4000	2009-157T21:41:01	GMB E112 Titan56+000T01:41:00	000T07:19	2009-158T05:00:01	2000	52.68	SPASS Rider		
ISS 112TI EUVFUV001 UVIS	ISS Phot 1 by 1	2009-157T21:41:01	GMB E112 Titan56+000T01:41:00	000T07:19	2009-158T05:00:01	0	25	SPASS Rider		
SP 112NA ENDCUSTOM157 NA	MILESTONE	2009-157T21:41:01	GMB E112 Titan56+000T01:41:00	000T00:00	2009-157T21:41:02	0	0	SPASS Note		
UVIS 112TI EUVFUV001 PRIME	UVIS 5032	2009-157T21:41:01	GMB E112 Titan56+000T01:41:00	000T07:19	2009-158T05:00:01	5032	132.543	Prime	UVIS_FUV to Titan	NEG_X to Sun
VIMS 112TI EUVFUV001 UVIS	VIMS 18432	2009-157T21:41:01	GMB E112 Titan56+000T01:41:00	000T03:19	2009-158T01:00:01	4606.4	55	SPASS Rider		
CAPS 112SA SURVEY004 PRIME	CAPS 16000	2009-157T22:00:01	GMB E112 Titan56+000T02:00:00	000T21:56	2009-158T19:57:00	700	55.313	Non-SPASS		
MIMI 112CO SURVEY002 RIDER	MIMI 8000	2009-157T22:00:01		000T19:59	2009-158T18:00:00	750	53.999	Non-SPASS		
ENGR 112SC SAFETABLE045 AACs	MILESTONE	2009-158T00:00:00		000T00:01	2009-158T00:01:00	0	0	Non-SPASS		
MAG 112OT SURVEY004 PRIME	MAG 1976	2009-158T00:00:01	GMB E112 Titan56+000T04:00:00	001T06:56	2009-159T06:57:00	658.7	73.388	Non-SPASS		
VIMS 112TI EUVFUV002 UVIS	VIMS 18432	2009-158T01:00:01	GMB E112 Titan56+000T05:00:00	000T04:00	2009-158T05:00:01	3819.4	55	SPASS Rider		
CIRS 112TI FIRNADCMPO02 PRIME	CIRS 4000	2009-158T05:00:01	GMB E112 Titan56+000T09:00:00	000T05:00	2009-158T10:00:01	4000	72	Prime	CIRS_FP1 to Titan	PIC
CIRS 112TI FIRNADCMPO02 SI	ISS SUPPORT II	2009-158T05:00:01	GMB E112 Titan56+000T09:00:00	000T05:00	2009-158T10:00:01	0	5	SPASS Rider		
ISS 112TI FIRNADCMPO02 CIRS	ISS Phot 1 by 1	2009-158T05:00:01	GMB E112 Titan56+000T09:00:00	000T05:00	2009-158T10:00:01	0	25	SPASS Rider		
UVIS 112TI FIRNADCMPO02 CIRS	UVIS 5032	2009-158T05:00:01	GMB E112 Titan56+000T09:00:00	000T05:00	2009-158T10:00:01	1006.4	18.115	SPASS Rider		
VIMS 112TI FIRNADCMPO02 CIRS	VIMS 18432	2009-158T05:00:01	GMB E112 Titan56+000T09:00:00	000T05:00	2009-158T10:00:01	2222.2	40	SPASS Rider		
CIRS 112TI GLOBMAP001 VIMS	CIRS 4000	2009-158T10:00:01	GMB E112 Titan56+000T14:00:00	000T09:02	2009-158T19:02:49	2000	65.136	SPASS Rider		
ISS 112TI GLOBMAP001 VIMS	ISS Phot 1 by 1	2009-158T10:00:01	GMB E112 Titan56+000T14:00:00	000T09:02	2009-158T19:02:49	0	50	SPASS Rider		
VIMS 112TI GLOBMAP001 PRIME	VIMS 18432	2009-158T10:00:01	GMB E112 Titan56+000T14:00:00	000T09:02	2009-158T19:02:49	1535.2	50	Prime	VIMS_IR to Titan	NEG_X to Sun
MIMI 112CO SURVEY005 RIDER	MIMI 8000	2009-158T18:00:00		000T12:01	2009-159T06:01:07	900	38.94	Non-SPASS		
SP 112TI DEADTIME158 PRIME	MILESTONE	2009-158T19:02:49	GMB E112 Titan56+000T23:02:48	000T00:14	2009-158T19:17:00	0	0	Prime	NEG_Y to Titan	NEG_X to 67.0/16.0
SP 112EA DLTURN158 PRIME	MILESTONE	2009-158T19:17:00		000T00:40	2009-158T19:57:00	0	0	Prime	XBAND to Earth	NEG_X to NEP
ENGR 112SC AACSDUAL002 CDS	MILESTONE	2009-158T19:56:47		000T00:00	2009-158T19:56:49	0	0	Non-SPASS		
CAPS 112SA SURVEY002 PRIME	CAPS 16000	2009-158T19:57:00		004T12:10	2009-163T08:07:00	1000	389.4	Non-SPASS		
SP 112EA G70METNON158 PRIME	DOWNLINK PAS	2009-158T19:57:00		000T09:00	2009-159T04:57:00	0	0	Prime	XBAND to Earth	Rolling/Bias
SP 112NA G70METNON158 SP	DSN PASS	2009-158T19:57:00		000T09:00	2009-159T04:57:00	0	0	Non-SPASS		
UVIS 112SW IPHSURVEY005 RIDER	UVIS 5032	2009-158T19:57:00		000T09:00	2009-159T04:57:00	152.5	4.94	Non-SPASS		
CIRS 112IC DSCAL09158 SP	CIRS 4000	2009-158T20:57:00		000T08:00	2009-159T04:57:00	3000	86.4	SPASS Rider		
RPWS 112SA INSURVEY001 PRIME	RPWS 30464	2009-159T02:30:00		000T04:27	2009-159T06:57:00	1300	20.826	Non-SPASS		
SP 112NA C70METNON159 SP	DSN PASS	2009-159T04:57:00		000T02:20	2009-159T06:57:00	0	0	Non-SPASS		
ENGR 112TI DUALPB157 CDS	ENGR 1638	2009-159T04:57:00		000T00:00	2009-159T04:57:01	6.84E+08	684.107	SPASS Note		
SP 112EA C70METNON159 PRIME	DOWNLINK PAS	2009-159T04:57:00		000T02:00	2009-159T06:57:00	0	0	Prime	XBAND to Earth	Rolling
UVIS 112SW IPHSURVEY006 RIDER	UVIS 5032	2009-159T04:57:00		000T02:00	2009-159T06:57:00	152.5	1.098	Non-SPASS		
CIRS 112IC DSCAL09159 SP	CIRS 4000	2009-159T05:57:00		000T01:00	2009-159T06:57:00	4000	14.4	SPASS Rider		
MIMI 112SA MAGDYN001 RIDER	MIMI 8000	2009-159T06:01:07		001T14:07	2009-160T20:08:32	1200	164.694	Non-SPASS		



# T56 Open Issues and Notes

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## Notes for Sequence Leads:

- Clean Segment.
  - Dual Playback is +/- 18 minutes.
  - RCS deadband is (0.5, 0.5, 0.5) and must be kept through the transition back to wheels.
- Telemetry mode change during an ISS observation. Telemetry mode change is needed for RADAR warm-up. ISS is aware of this telemetry change.