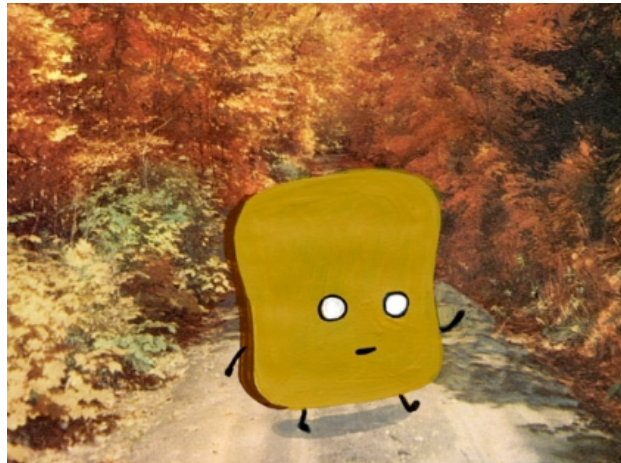


TOST: Integration 129TI (T67) Wrap-up



Official wrap-up: June 12, but
no significant changes from “Detailed” version
from May 29, 2009

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

Segment Basics

Segment times:

BEG: 2010-095T02:49:00

END: 2010-096T16:34:00

Altitude: 7461.9 km

Time of C/A: 2010-095T15:50:38 (080806 ref. traj.)

Epoch: GMB_E129_Titan67

Sequence: S59

<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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T67 High-level Science Objectives

CIRS – Composition and temperature profile at 70N, possibly observe the break up of winter/spring vortex. Furthest north vertical profiles of XM.

ISS – On this high-altitude encounter, ISS will perform high-resolution observations during and after closest-approach along the equator from eastern Belet across the trailing hemisphere to western Senkyo, imaging Senkyo at very low phase angles ($<5^\circ$). ISS will also acquire a low-phase-angle global-scale mosaic of western Senkyo.

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.

VIMS – During this flyby, VIMS will be ridealong with ISS at closest approach and will mosaic the equatorial terrains from Belet to Senkyo with a resolution from 4 to 20 km/pixel. It will allow VIMS to get higher resolution images on a circular feature about 500 km in diameter observed during T34.

RADAR - None.

INMS - This flyby is higher than usually desired for INMS, but INMS will be riding to take data.

MAG – Second 'blind flyby' since MAG is unlikely to detect Titan's induced magnetosphere. Occurring in the same SLT sector as T52-T62, it will be used to characterize Saturn's background magnetic field variation with SKR longitude at a fixed SLT.

MIMI – Excellent ENA.

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.

Master Timeline for T67

T67 (rev 129)		7461.9 km					
Start Time	End Time	Prime Activity	Obs. Detail	Op Mode	TLM Mode	Comments	
2010-095T02:49:00	2010-095T02:55:00	S59 I/P Gap	6 min. (Xband to Earth, +X to NEP)	DFPW Normal	S_N_ER_3	match DL attitude of S58 end (Saturn_128_129)	
2010-095T02:55:00	2010-095T03:29:00	SP Turn to WP	NEG_Y to Titan, NEG_X to Sun	DFPW Normal	S_N_ER_3	23.6 min., no FR violations, safe WP for entire segment	
2010-095T03:29:00	C/A - 12:08:21	OD Uncertainty Dead Time		DFPW Normal	S_N_ER_3		
C/A - 12:06:21	-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	-05:00	CIRS	Template R	DFPW Normal	S_N_ER_3		
-05:00	-02:15	CIRS	Template T	DFPW Normal	S_N_ER_3		
-02:15	-01:15	CIRS	Northern	DFPW Normal	S_N_ER_3		
-01:15	-00:45	CIRS	Northern	DFPW Normal	S_N_ER_3		
-00:45	-00:15	CIRS	Northern	DFPW Normal	S_N_ER_3		
-00:15	-00:10	Turn to ISS attitude	NEG_Y to Titan, NEG_X to SUN	DFPW Normal	S_N_ER_3		
-00:10	0	ISS		DFPW Normal	S_N_ER_3		
2010-095T15:50:38		CLOSEST APPROACH					
0	+02:00	ISS		DFPW Normal	S_N_ER_3		
+02:00	+04:00	ISS	Template J	DFPW Normal	S_N_ER_3		
+04:00	+05:00	CIRS	Template J	DFPW Normal	S_N_ER_3		
+05:00	+09:00	ISS	Template H	DFPW Normal	S_N_ER_3		
+09:00	+14:00	VIMS	Template V	DFPW Normal	S_N_ER_3		
+14:00	C/A + 14:48:39	VIMS	Template B	DFPW Normal	S_N_ER_3		
C/A + 14:48:39	2010-096T06:54:00	OD Uncertainty Dead Time		DFPW Normal	S_N_ER_3		
2010-096T06:54:00	2010-096T07:22:00	SP Turn to Earth for downlink	Part 1: Turn to Xband to Earth, NEG_Y to Saturn (0,0,-45)	DFPW Normal	S_N_ER_3	Safe, 25.6 min. (need to break up DL turn to avoid ORS FR violations)	
2010-096T07:22:00	2010-096T07:34:00	SP Turn to Earth for downlink	Part 2: Turn to DL attitude secondary (NEG_Y to Saturn (0,0,-9.5) for MMI = NEG_Y to 270.5/-10.9)	DFPW Normal	S_N_ER_3	Safe, 6.14 min.	
2010-096T07:34:00	2010-096T16:34:00	Canberra 70-m	Xband to Earth, -Y to 270.5/-10.9	DFPW Normal	RTE_N_SPB	safe DL attitude	

- No dual playback
- Flyby on RWA (no thruster transitions/deadbands needed)

T67 Telemetry Mode Report

TELEMETRY MODE REPORT

EPOCH RELATIVE	UTC	DURATION	TELEMETRY MODE	REQUEST
	2010-095T02:49:00.000	001T04:45:00	S_N_ER_3	SP_129NA_C70OBSNON096_NA
	2010-096T07:34:00.000	00:45:00	RTE_N_SPB_110600	SP_129EA_C70METNON096_PRIME
	2010-096T08:19:00.000	01:45:00	RTE_N_SPB_142200	SP_129EA_C70METNON096_PRIME
	2010-096T10:04:00.000	03:15:00	RTE_N_SPB_165900	SP_129EA_C70METNON096_PRIME
	2010-096T13:19:00.000	02:15:00	RTE_N_SPB_142200	SP_129EA_C70METNON096_PRIME
	2010-096T15:34:00.000	01:00:00	RTE_N_SPB_110600	SP_129EA_C70METNON096_PRIME

Current warnings:

NONE

T67 SMT Report and Data Volume by Instrument

05/27/09 SMT report after teams have cut data volume: 238 Mb total.
(Thanks!)

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

DOWNLINK PASS NAME	OBSERVATION_PERIOD									DOWNLINK_PASS							
	Start	End	P4			P5			RECORDED			PLAYBACK					
	doy hh:mm	doy hh:mm	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)	MARGN (%)	CAROVR (Mb)
SP_129EA_C70METNON096_PRIME	096 07:34	096 16:34	0	3198	121	3319	3550	230	0	587	53	3959	3960	0	1	0%	0

DATA VOLUME REPORT --- TRANSFER FRAME OVERHEAD NOT INCLUDED

Event	Start	End	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	095 02:49	096 07:34	344.9	65.1	327.6	24.1	790.0	146.4	130.0	0.0	683.9	90.6	560.0	0.0	120.2	3282.8
OBSERVATION_SI	095 02:49	096 07:34	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0
SP_129EA_C70METNON096_PRIME	096 07:34	096 16:34	162.2	135.8	86.4	3.2	0.0	29.4	38.9	0.0	120.6	4.9	0.0	0.0	0.0	581.5
DAILY TOTAL SCIENCE	095 02:49	096 16:34	507.1	200.9	420.0	27.4	790.0	175.9	168.8	0.0	804.5	95.5	560.0	0.0	120.2	

	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)	507.1	200.9	420.0	27.4	790.0	175.9	168.8	0.0	804.5	95.5	560.0	0.0

T67 DSN Report

CASSINI DOWNLINK/DSN COVERAGE SUMMARY for 129TI_T67_090527.apf on 2009-May-27 13:10:36
 (+ = 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
C70METNON096	096T07:34-16:34	096T08:45-17:45	09:00	110,142,165,142,110	34*	096T07:34-16:34	096T08:45-17:45	09:00	90 /15	RSS GSE	N748
				^-- and also -->	43	096T07:34-16:34	096T08:45-17:45	09:00	60 /15	TP	N003

* RSS pass [SP_129NA_C34BWGRSS096_SP](#) overlaps major downtime [MP_125NA_DSS34DOWN001_NA](#). RSS is investigating a possible earlier end time to the DSN downtime. If we can't get DSS-34, RSS will use X-band only for their GSE and we will request only DSS-43 (Canberra 70m).

T67 SPASS

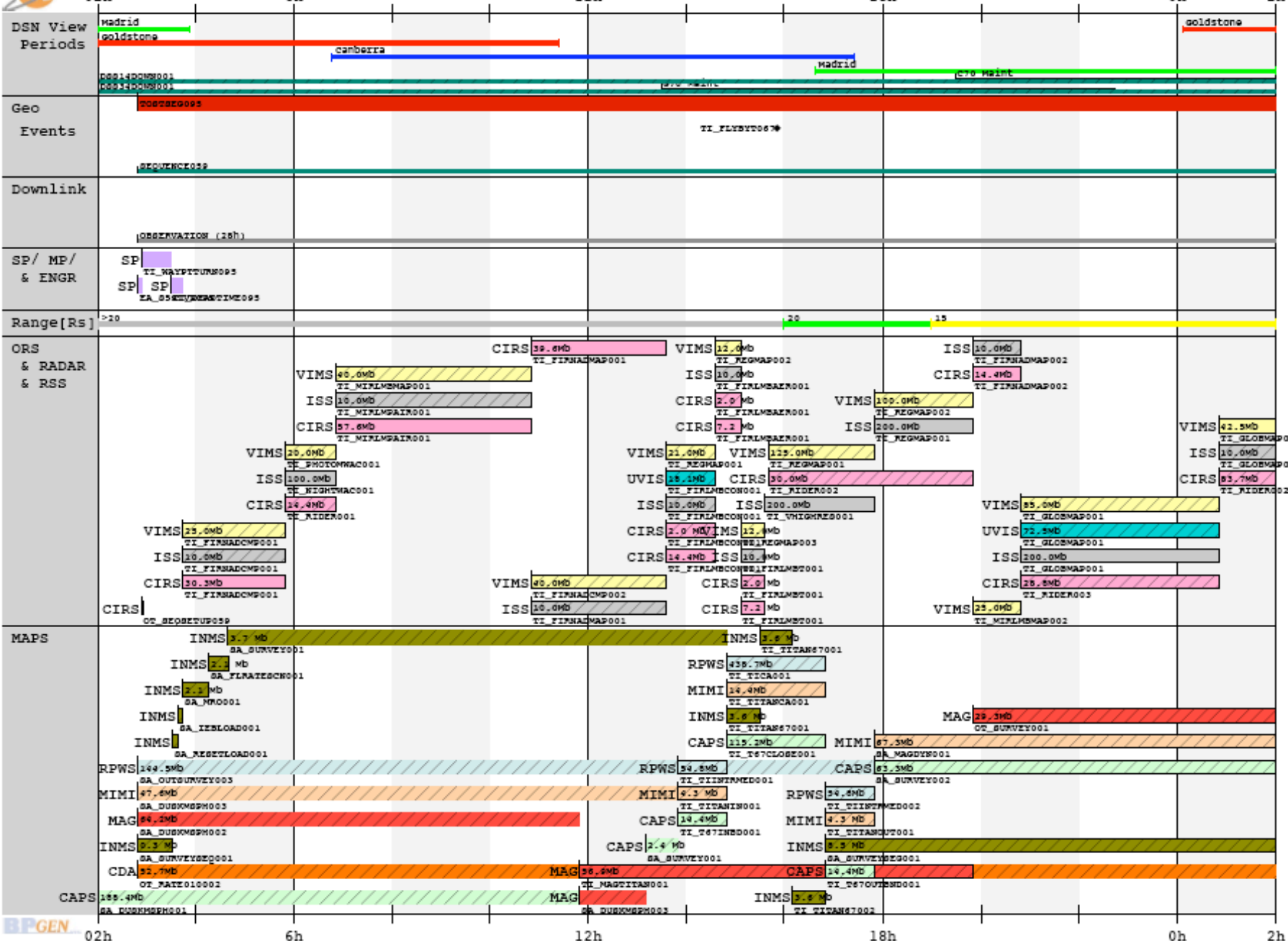
Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S59, length = 42 days		2010-095T02:49:00		042T10:42:00	2010-137T13:31:00			
Titan Flyby T67 Segment		2010-095T02:49:00		001T13:45:00	2010-096T16:34:00			
SP_129EA_S59IVP095_PRIME	M	2010-095T02:49:00		000T00:06:00	2010-095T02:55:00	XBAND to Earth	POS_X to NEP	S59 IVP Gap
SP_129TI_WAYPTTURN095_PRIME	M	2010-095T02:55:00		000T00:34:00	2010-095T03:29:00	NEG_Y to Titan	NEG_X to Sun	
NEW WAYPOINT		2010-095T03:29:00		001T13:05:00	2010-096T16:34:00	NEG_Y to Titan	NEG_X to Sun	
SP_129TI_DEADTIME095_PRIME	M	2010-095T03:29:00		000T00:15:18	2010-095T03:44:18	NEG_Y to Titan	NEG_X to Sun	
CIRS_129TI_FIRNADCOMP001_PRIME	I, M, V	2010-095T03:44:18	GMB_E129_Titan67-000T12:06:21	000T02:06:21	2010-095T05:50:39	CIRS_FP1 to Titan	PIC	
ISS_129TI_NIGHTWAC001_PRIME	C, M, V	2010-095T05:50:39	GMB_E129_Titan67-000T10:00:00	000T01:00:00	2010-095T06:50:39	ISS_NAC to Titan	NEG_X to Sun	
CIRS_129TI_MIRLMPAIR001_PRIME	I, M, V	2010-095T06:50:39	GMB_E129_Titan67-000T09:00:00	000T04:00:00	2010-095T10:50:39	CIRS_FP1 to Titan	PIC	
CIRS_129TI_FIRNADMAP001_PRIME	I, M, V	2010-095T10:50:39	GMB_E129_Titan67-000T05:00:00	000T02:45:00	2010-095T13:35:39	CIRS_FP1 to Titan	POS_X to North_Pole_Dir	
CIRS_129TI_FIRLMBCON001_PRIME	C, I, M, U, V	2010-095T13:35:39	GMB_E129_Titan67-000T02:15:00	000T01:00:00	2010-095T14:35:39	CIRS_FP1 to Titan	PIC	
CIRS_129TI_FIRLMBAR001_PRIME	C, I, M, V	2010-095T14:35:39	GMB_E129_Titan67-000T01:15:00	000T00:30:00	2010-095T15:05:39	CIRS_FP1 to Titan	PIC	
CIRS_129TI_FIRLMBT001_PRIME	C, I, M, V	2010-095T15:05:39	GMB_E129_Titan67-000T00:45:00	000T00:30:00	2010-095T15:35:39	CIRS_FP1 to Titan	PIC	
ISS_129TI_VHIGHRES001_PRIME	C, M, V	2010-095T15:35:39	GMB_E129_Titan67-000T00:15:00	000T02:15:00	2010-095T17:50:39	ISS_NAC to Titan	NEG_X to Sun	
129TI (t) T67 TITAN Inbou...		2010-095T15:50:38		000T00:00:01	2010-095T15:50:39			
ISS_129TI_REGMAP001_PRIME	C, V	2010-095T17:50:39	GMB_E129_Titan67+000T02:00:00	000T02:00:00	2010-095T19:50:39	ISS_NAC to Titan	NEG_X to Sun	
CIRS_129TI_FIRNADMAP002_PRIME	I, V	2010-095T19:50:39	GMB_E129_Titan67+000T04:00:00	000T01:00:00	2010-095T20:50:39	CIRS_FP1 to Titan	POS_X to North_Pole_Dir	
ISS_129TI_GLOBMAP001_PRIME	C, U, V	2010-095T20:50:39	GMB_E129_Titan67+000T05:00:00	000T04:00:00	2010-096T00:50:39	ISS_NAC to Titan	NEG_X to Sun	
VIMS_129TI_GLOBMAP001_PRIME	C, I	2010-096T00:50:39	GMB_E129_Titan67+000T09:00:00	000T05:00:00	2010-096T05:50:39	VIMS_IR to Titan	NEG_X to Sun	
VIMS_129TI_GLOBMAP002_PRIME	C, I	2010-096T05:50:39	GMB_E129_Titan67+000T14:00:00	000T00:48:39	2010-096T06:39:18	VIMS_IR to Titan	NEG_X to Sun	
SP_129TI_DEADTIME096_PRIME		2010-096T06:39:18	GMB_E129_Titan67+000T14:48:39	000T00:14:42	2010-096T06:54:00	NEG_Y to Titan	NEG_X to Sun	
SP_129EA_DLTURN096_PRIME		2010-096T06:54:00		000T00:28:00	2010-096T07:22:00	XBAND to Earth (0.0,0.0,-45.0 deg. offset)	NEG_Y to Saturn	Part 1 of 2
SP_129EA_DLTURN496_PRIME		2010-096T07:22:00		000T00:12:00	2010-096T07:34:00	XBAND to Earth	NEG_Y to 270.5/-10.9	Part 2 of 2
SP_129EA_C70METNON096_PRIME	C, M, R	2010-096T07:34:00		000T09:00:00	2010-096T16:34:00	XBAND to Earth	NEG_Y to 270.5/-10.9	2ry RA/Dec is NEG_Y to Saturn (0,0,-9.5) for MIMI



T67 - May 27, 2009

2010 DOY 095
02h

DOY 096
0h 2h



02h

6h

12h

18h

0h

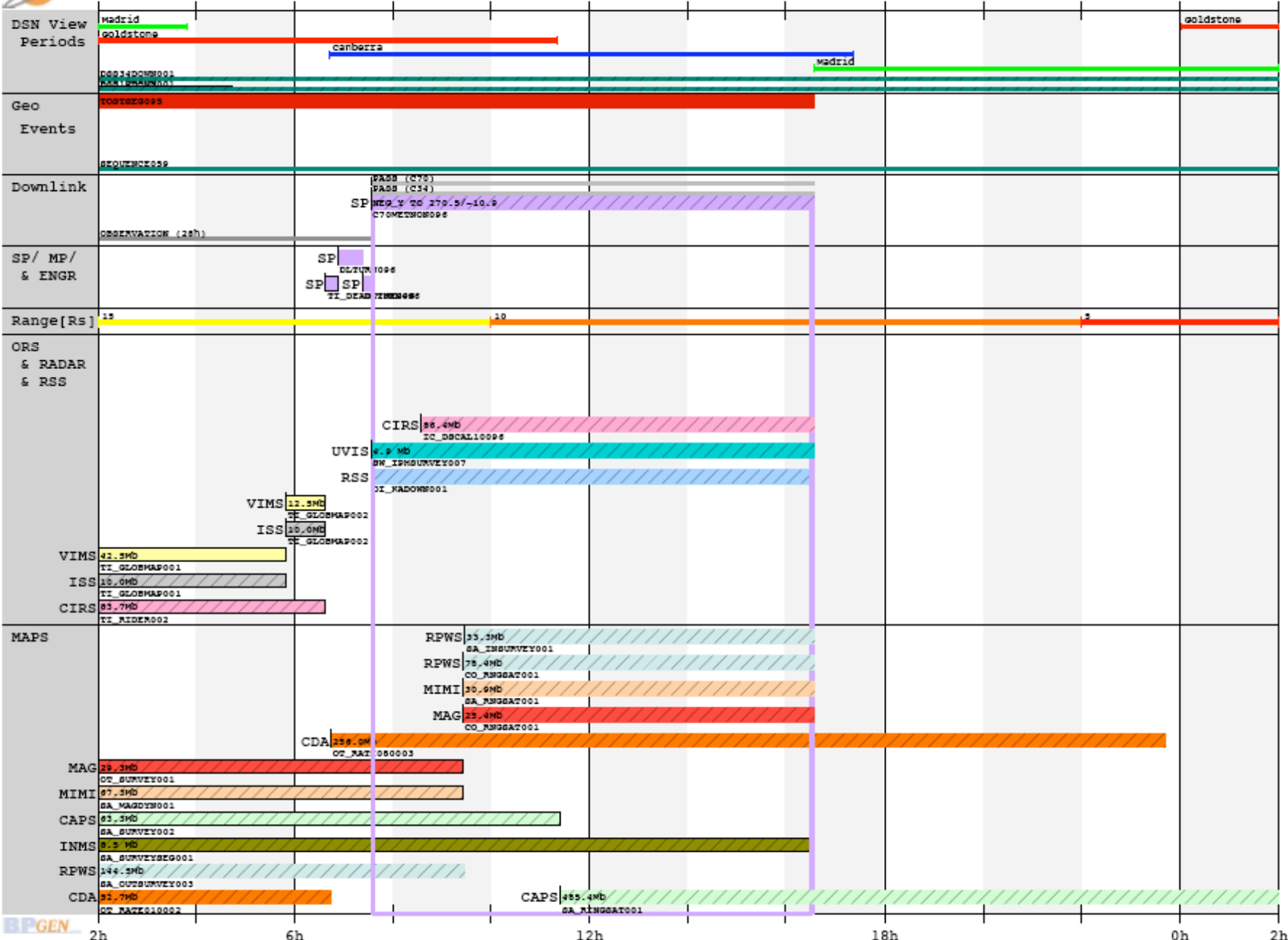
2h



T67 - May 27, 2009

2010 DOY 096
2h

DOY 097
0h 2h



2h

12h

18h 0h 2h

TOL for T67 (before C/A)

UVIS has added a couple riders (net DV change = 0) since this TOL was published.

Request	Start Time	Epoch	Duration	End Time	Rate	Data Volume	SPASS Type	Primary Pointing	Secondary Pointing	Pointing Agreement
MP 125NA DSS34DOWN001 NA	2010-031T22:46:24		070T00:01:20	2010-101T22:47:44	0	0	Non-SPASS			
MP 127NA DSS14DOWN001 NA	2010-066T22:49:02		117T23:50:11	2010-184T22:39:13	0	0	Non-SPASS			
CAPS 129SA DUSKMSPH001 PRIME	2010-095T00:05:00		000T13:05:00	2010-095T13:10:00	4000	188.4	SPASS Rider			
CDA 129OT RATE010002 RIDER	2010-095T02:49:00		001T03:55:46	2010-096T06:44:46	524	52.686	Non-SPASS			
INMS 129SA SURVEYSEQ001 INMS	2010-095T02:49:00	E129 SEQUENCE 059+000T00:00:00	000T00:43:00	2010-095T03:32:00	100	0.258	Non-SPASS			
MAG 129SA DUSKMSPH002 MAPS	2010-095T02:49:00		000T09:01:39	2010-095T11:50:39	1976	64.218	Non-SPASS			
MIMI 129SA DUSKMSPH003 RIDER	2010-095T02:49:00		000T11:01:39	2010-095T13:50:39	1200	47.639	SPASS Rider			
MP 129NA SEQUENCE059 NA	2010-095T02:49:00		042T10:42:00	2010-137T13:31:00	0	0	SPASS Note			
RPWS 129SA OUTSURVEY003 PRIME	2010-095T02:49:00		001T06:39:00	2010-096T09:28:00	1310	144.547	Non-SPASS			
SP 129EA S59IVP095 PRIME	2010-095T02:49:00		000T00:06:00	2010-095T02:55:00	0	0	Prime	XBAND to Earth	POS X to NEP	S59 IVP Gap
SP 129NA C70OBSNON096 NA	2010-095T02:49:00		001T04:45:00	2010-096T07:34:00	0	0	Non-SPASS			
SP 129NA TOSTSEG095 NA	2010-095T02:49:00		001T13:45:00	2010-096T16:34:00	0	0	SPASS Note			
CIRS 129OT SEQSETUP059 PRIME	2010-095T02:54:00	E129 SEQUENCE 059+000T00:05:00	000T00:02:00	2010-095T02:56:00	0	0	Non-SPASS			
SP 129TI WAYPTTURN095 PRIME	2010-095T02:55:00		000T00:34:00	2010-095T03:29:00	0	0	New Waypoint	NEG Y to Titan	NEG X to Sun	
SP 129TI DEADTIME095 PRIME	2010-095T03:29:00		000T00:15:18	2010-095T03:44:18	0	0	Prime	NEG Y to Titan	NEG X to Sun	
INMS 129SA RESETLOAD001 INMS	2010-095T03:32:00	E129 SEQUENCE 059+000T00:43:00	000T00:07:00	2010-095T03:39:00	1	0	Non-SPASS			
INMS 129SA [E]LOAD001 INMS	2010-095T03:39:00	E129 SEQUENCE 059+000T00:50:00	000T00:05:00	2010-095T03:44:00	1	0	Non-SPASS			
INMS 129SA MRO001 INMS	2010-095T03:44:00	E129 SEQUENCE 059+000T00:55:00	000T00:33:00	2010-095T04:17:00	1044	2.067	Non-SPASS			
CIRS 129TI FIRNADCMP001 PRIME	2010-095T03:44:18	GMB E129 Titan67-000T12:06:21	000T02:06:21	2010-095T05:50:39	4000	30.324	Prime	CIRS FP1 to Titan	PIC	
ISS 129TI FIRNADCMP001 CIRS	2010-095T03:44:18	GMB E129 Titan67-000T12:06:21	000T02:06:21	2010-095T05:50:39	0	10	SPASS Rider			
VIMS 129TI FIRNADCMP001 CIRS	2010-095T03:44:18	GMB E129 Titan67-000T12:06:21	000T02:06:21	2010-095T05:50:39	3297.7	25	SPASS Rider			
INMS 129SA FLRATESCN001 INMS	2010-095T04:17:00	E129 SEQUENCE 059+000T01:28:00	000T00:22:59	2010-095T04:39:59	1498	2.066	Non-SPASS			
INMS 129SA SURVEY001 INMS	2010-095T04:39:59		000T10:10:40	2010-095T14:50:39	100	3.664	Non-SPASS			
CIRS 129TI RIDER001 ISS	2010-095T05:50:39	GMB E129 Titan67-000T10:00:00	000T01:00:00	2010-095T06:50:39	4000	14.4	SPASS Rider			
ISS 129TI NIGHTWAC001 PRIME	2010-095T05:50:39	GMB E129 Titan67-000T10:00:00	000T01:00:00	2010-095T06:50:39	0	100	Prime	ISS NAC to Titan	NEG X to Sun	
VIMS 129TI PHOTOMWAC001 ISS	2010-095T05:50:39	GMB E129 Titan67-000T10:00:00	000T01:00:00	2010-095T06:50:39	5555.6	20	SPASS Rider			
CIRS 129TI MIRLMPAIR001 PRIME	2010-095T06:50:39	GMB E129 Titan67-000T09:00:00	000T04:00:00	2010-095T10:50:39	4000	57.6	Prime	CIRS FPB to Titan	PIC	
ISS 129TI MIRLMPAIR001 CIRS	2010-095T06:50:39	GMB E129 Titan67-000T09:00:00	000T04:00:00	2010-095T10:50:39	0	10	SPASS Rider			
VIMS 129TI MIRLMBMAP001 CIRS	2010-095T06:50:39	GMB E129 Titan67-000T09:00:00	000T04:00:00	2010-095T10:50:39	2777.8	40	SPASS Rider			
CIRS 129TI FIRNADMAP001 PRIME	2010-095T10:50:39	GMB E129 Titan67-000T05:00:00	000T02:45:00	2010-095T13:35:39	4000	39.6	Prime	CIRS FP1 to Titan	POS X to North Pole Dir	
ISS 129TI FIRNADMAP001 CIRS	2010-095T10:50:39	GMB E129 Titan67-000T05:00:00	000T02:45:00	2010-095T13:35:39	0	10	SPASS Rider			
VIMS 129TI FIRNADCMP002 CIRS	2010-095T10:50:39	GMB E129 Titan67-000T05:00:00	000T02:45:00	2010-095T13:35:39	4040.4	40	SPASS Rider			
MAG 129SA DUSKMSPH003 MAPS	2010-095T11:50:39		000T01:19:21	2010-095T13:10:00	0	0	Non-SPASS			
MAG 129TI MAGTITAN001 PRIME	2010-095T11:50:39	GMB E129 Titan67-000T04:00:00	000T08:00:00	2010-095T19:50:39	1976	56.909	Non-SPASS			
CAPS 129SA SURVEY001 PRIME	2010-095T13:10:00		000T00:40:39	2010-095T13:50:39	1000	2.439	Non-SPASS			
CIRS 129TI FIRLMBCON001 PRIME	2010-095T13:35:39	GMB E129 Titan67-000T02:15:00	000T01:00:00	2010-095T14:35:39	4000	14.4	Prime	CIRS FP1 to Titan	PIC	
CIRS 129TI FIRLMBCON001 SI	2010-095T13:35:39	GMB E129 Titan67-000T02:15:00	000T01:00:00	2010-095T14:35:39	0	2	SPASS Rider			
ISS 129TI FIRLMBCON001 CIRS	2010-095T13:35:39	GMB E129 Titan67-000T02:15:00	000T01:00:00	2010-095T14:35:39	0	10	SPASS Rider			
UVIS 129TI FIRLMBCON001 CIRS	2010-095T13:35:39	GMB E129 Titan67-000T02:15:00	000T01:00:00	2010-095T14:35:39	5032	18.115	SPASS Rider			
VIMS 129TI REGMAP001 CIRS	2010-095T13:35:39	GMB E129 Titan67-000T02:15:00	000T01:00:00	2010-095T14:35:39	5833.3	21	SPASS Rider			
CAPS 129TI T67INBD001 PRIME	2010-095T13:50:39	GMB E129 Titan67-000T02:00:00	000T01:00:00	2010-095T14:50:39	4000	14.4	SPASS Rider			
MIMI 129TI TITANIN001 RIDER	2010-095T13:50:39	GMB E129 Titan67-000T02:00:00	000T01:00:00	2010-095T14:50:39	1200	4.32	SPASS Rider			
RPWS 129TI TIINTRMED001 PRIME	2010-095T13:50:39	GMB E129 Titan67-000T02:00:00	000T01:00:00	2010-095T14:50:39	15232	54.835	Non-SPASS			
CIRS 129TI FIRLMBBAER001 PRIME	2010-095T14:35:39	GMB E129 Titan67-000T01:15:00	000T00:30:00	2010-095T15:05:39	4000	7.2	Prime	CIRS FP1 to Titan	PIC	
CIRS 129TI FIRLMBBAER001 SI	2010-095T14:35:39	GMB E129 Titan67-000T01:15:00	000T00:30:00	2010-095T15:05:39	0	2	SPASS Rider			
ISS 129TI FIRLMBBAER001 CIRS	2010-095T14:35:39	GMB E129 Titan67-000T01:15:00	000T00:30:00	2010-095T15:05:39	0	10	SPASS Rider			
VIMS 129TI REGMAP002 CIRS	2010-095T14:35:39	GMB E129 Titan67-000T01:15:00	000T00:30:00	2010-095T15:05:39	6666.7	12	SPASS Rider			
CAPS 129TI T67CLOSE001 PRIME	2010-095T14:50:39	GMB E129 Titan67-000T01:00:00	000T02:00:00	2010-095T16:50:39	16000	115.2	SPASS Rider			
INMS 129TI TITAN67001 INMS	2010-095T14:50:39	GMB E129 Titan67-000T01:00:00	000T00:40:00	2010-095T15:30:39	1498	3.595	Non-SPASS			
MIMI 129TI TITANCA001 RIDER	2010-095T14:50:39	GMB E129 Titan67-000T01:00:00	000T02:00:00	2010-095T16:50:39	2000	14.4	SPASS Rider			
RPWS 129TI TICAD001 PRIME	2010-095T14:50:39	GMB E129 Titan67-000T01:00:00	000T02:00:00	2010-095T16:50:39	60927.4	438.677	Non-SPASS			
CIRS 129TI FIRLMBT001 PRIME	2010-095T15:05:39	GMB E129 Titan67-000T00:45:00	000T00:30:00	2010-095T15:35:39	4000	7.2	Prime	CIRS FP1 to Titan	PIC	
CIRS 129TI FIRLMBT001 SI	2010-095T15:05:39	GMB E129 Titan67-000T00:45:00	000T00:30:00	2010-095T15:35:39	0	2	SPASS Rider			
ISS 129TI FIRLMBT001 CIRS	2010-095T15:05:39	GMB E129 Titan67-000T00:45:00	000T00:30:00	2010-095T15:35:39	0	10	SPASS Rider			
VIMS 129TI REGMAP003 CIRS	2010-095T15:05:39	GMB E129 Titan67-000T00:45:00	000T00:30:00	2010-095T15:35:39	6666.7	12	SPASS Rider			
INMS 129TI TITAN67001 RIDER	2010-095T15:30:39	GMB E129 Titan67-000T00:20:00	000T00:40:00	2010-095T16:10:39	1498	3.595	Non-SPASS			
ISS 129TI VHIGHRES001 PRIME	2010-095T15:35:39	GMB E129 Titan67-000T00:15:00	000T02:15:00	2010-095T17:50:39	0	200	Prime	ISS NAC to Titan	NEG X to Sun	
CIRS 129TI RIDER002 ISS	2010-095T15:40:39	GMB E129 Titan67-000T00:10:00	000T04:10:00	2010-095T19:50:39	2000	30	SPASS Rider			
VIMS 129TI REGMAP001 ISS	2010-095T15:40:39	GMB E129 Titan67-000T00:10:00	000T02:10:00	2010-095T17:50:39	16025.6	125	SPASS Rider			
MP 129TI FLYBYT067 NA	2010-095T15:50:38		000T00:00:01	2010-095T15:50:39	0	0	SPASS Note			

TOL for T67 (after C/A)

UVIS has added a couple riders (net DV change = 0) since this TOL was published.

Request	Start Time	Epoch	Duration	End Time	Rate	Data Volume	SPASS Type	Primary Pointing	Secondary Pointing	Pointing Agreement
MP 129TI FLYBYT067_NA	2010-095T15:50:38		000T00:00:01	2010-095T15:50:39	0	0	SPASS Note			
INMS 129TI TITAN67002_INMS	2010-095T16:10:39	GMB E129 Titan67+000T00:20:00	000T00:40:00	2010-095T16:50:39	1498	3.595	Non-SPASS			
CAPS 129TI T67OUTBND001_PRIME	2010-095T16:50:39	GMB E129 Titan67+000T01:00:00	000T01:00:00	2010-095T17:50:39	4000	14.4	SPASS Rider			
INMS 129SA SURVEYSEG001_INMS	2010-095T16:50:39	GMB E129 Titan67+000T01:00:00	000T23:43:21	2010-096T16:34:00	100	8.54	Non-SPASS			
MIMI 129TI TITANOUT001_RIDER	2010-095T16:50:39	GMB E129 Titan67+000T01:00:00	000T01:00:00	2010-095T17:50:39	1200	4.32	SPASS Rider			
RPWS 129TI TIINTRMED002_PRIME	2010-095T16:50:39	GMB E129 Titan67+000T01:00:00	000T01:00:00	2010-095T17:50:39	15232	54.835	Non-SPASS			
CAPS 129SA SURVEY002_PRIME	2010-095T17:50:39	GMB E129 Titan67+000T02:00:00	000T17:34:21	2010-096T11:25:00	1000	63.261	Non-SPASS			
ISS 129TI REGMAP001_PRIME	2010-095T17:50:39	GMB E129 Titan67+000T02:00:00	000T02:00:00	2010-095T19:50:39	0	200	Prime	ISS NAC to Titan	NEG X to Sun	
MIMI 129SA MAGDYN001_RIDER	2010-095T17:50:39	GMB E129 Titan67+000T02:00:00	000T15:34:21	2010-096T09:25:00	1200	67.273	Non-SPASS			
VIMS 129TI REGMAP002_ISS	2010-095T17:50:39	GMB E129 Titan67+000T02:00:00	000T02:00:00	2010-095T19:50:39	13888.9	100	SPASS Rider			
CIRS 129TI FIRNADMAP002_PRIME	2010-095T19:50:39	GMB E129 Titan67+000T04:00:00	000T01:00:00	2010-095T20:50:39	4000	14.4	Prime	CIRS FP1 to Titan	POS_X to North Pole Dir	
ISS 129TI FIRNADMAP002_CIRS	2010-095T19:50:39	GMB E129 Titan67+000T04:00:00	000T01:00:00	2010-095T20:50:39	0	10	SPASS Rider			
MAG 129OT SURVEY001_PRIME	2010-095T19:50:39	GMB E129 Titan67+000T04:00:00	000T13:34:21	2010-096T09:25:00	600	29.317	Non-SPASS			
VIMS 129TI MIRLMBMAP002_CIRS	2010-095T19:50:39	GMB E129 Titan67+000T04:00:00	000T01:00:00	2010-095T20:50:39	6944.4	25	SPASS Rider			
CIRS 129TI RIDER003_ISS	2010-095T20:50:39	GMB E129 Titan67+000T05:00:00	000T04:00:00	2010-096T00:50:39	2000	28.8	SPASS Rider			
ISS 129TI GLOBMAP001_PRIME	2010-095T20:50:39	GMB E129 Titan67+000T05:00:00	000T04:00:00	2010-096T00:50:39	0	200	Prime	ISS NAC to Titan	NEG X to Sun	
UVIS 129TI GLOBMAP001_ISS	2010-095T20:50:39	GMB E129 Titan67+000T05:00:00	000T04:00:00	2010-096T00:50:39	5032	72.461	SPASS Rider			
VIMS 129TI GLOBMAP001_ISS	2010-095T20:50:39	GMB E129 Titan67+000T05:00:00	000T04:00:00	2010-096T00:50:39	5902.8	85	SPASS Rider			
CIRS 129TI RIDER002_VIMS	2010-096T00:50:39	GMB E129 Titan67+000T09:00:00	000T05:48:39	2010-096T06:39:18	4000	83.676	SPASS Rider			
ISS 129TI GLOBMAP001_VIMS	2010-096T00:50:39	GMB E129 Titan67+000T09:00:00	000T05:00:00	2010-096T05:50:39	0	10	SPASS Rider			
VIMS 129TI GLOBMAP001_PRIME	2010-096T00:50:39	GMB E129 Titan67+000T09:00:00	000T05:00:00	2010-096T05:50:39	2361.1	42.5	Prime	VIMS_IR to Titan	NEG X to Sun	
ISS 129TI GLOBMAP002_VIMS	2010-096T05:50:39	GMB E129 Titan67+000T14:00:00	000T00:48:39	2010-096T06:39:18	0	10	SPASS Rider			
VIMS 129TI GLOBMAP002_PRIME	2010-096T05:50:39	GMB E129 Titan67+000T14:00:00	000T00:48:39	2010-096T06:39:18	4282.3	12.5	Prime	VIMS_IR to Titan	NEG X to Sun	
SP 129TI DEADTIME096_PRIME	2010-096T06:39:18	GMB E129 Titan67+000T14:48:39	000T00:14:42	2010-096T06:54:00	0	0	Prime	NEG Y to Titan	NEG X to Sun	
CDA 129OT RATE080003_RIDER	2010-096T06:44:46		000T16:58:00	2010-096T23:42:46	4192	256.047	Non-SPASS			
SP 129EA DLTURN096_PRIME	2010-096T06:54:00		000T00:28:00	2010-096T07:22:00	0	0	Prime	XBAND to Earth (0.0,0.0,-45.0 deg. offset)	NEG Y to Saturn	Part 1 of 2
SP 129EA DLTURN496_PRIME	2010-096T07:22:00		000T00:12:00	2010-096T07:34:00	0	0	Prime	XBAND to Earth	NEG Y to 270.5/-10.9	Part 2 of 2
RSS 129DI KADOWN001_RSS	2010-096T07:34:00		000T09:00:00	2010-096T16:34:00	0	0	SPASS Rider			
SP 129EA C70METNON096_PRIME	2010-096T07:34:00		000T09:00:00	2010-096T16:34:00	0	0	Prime	XBAND to Earth	NEG Y to 270.5/-10.9	2ry RA/Dec is NEG_Y to Saturn (0,0,-9.5) for MIMI
SP 129NA C34BWGRSS096_SP	2010-096T07:34:00		000T09:00:00	2010-096T16:34:00	0	0	Non-SPASS			
SP 129NA C70METNON096_SP	2010-096T07:34:00		000T09:00:00	2010-096T16:34:00	0	0	Non-SPASS			
UVIS 129SW IPHSURVEY007_RIDER	2010-096T07:34:00		000T09:00:00	2010-096T16:34:00	152.5	4.94	Non-SPASS			
CIRS 129IC DSCAL10096_SP	2010-096T08:34:00		000T08:00:00	2010-096T16:34:00	3000	86.4	SPASS Rider			
MAG 129CO RINGSAT001_MAPS	2010-096T09:25:00		000T07:09:00	2010-096T16:34:00	988	25.431	Non-SPASS			
MIMI 129SA RINGSAT001_RIDER	2010-096T09:25:00		000T07:09:00	2010-096T16:34:00	1200	30.888	SPASS Rider			
RPWS 129CO RINGSAT001_CAPS	2010-096T09:25:00		000T07:09:00	2010-096T16:34:00	3046.4	78.414	Non-SPASS			
RPWS 129SA INSURVEY001_PRIME	2010-096T09:28:00		000T07:06:30	2010-096T16:34:30	1300	33.267	Non-SPASS			
CAPS 129SA RINGSAT001_PRIME	2010-096T11:25:00		000T16:51:11	2010-097T04:16:11	8000	485.368	SPASS Rider			

Open Issues

- None except to work out whether RSS can use DSS-34 for their DOY 096 GSE. (see p.8 for details)