

TOST: Handoff 005TI (T4)

Segment Boundary 2005-089T19:22 – 2005-092T00:22
Titan C/A=2005-090T20:08:06, Altitude=2509km
Epoch = GMB_E005_Titan4

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Candy Hansen, Trina Ray, Amanda Hendrix, Doug Equils, Jerod
Gross and Dave Mohr

T4 Science Objectives

UVIS - UVIS EUVFUV observations to map airglow emission lines from nitrogen and carbon and measure reflected sunlight from Titan's haze which carries information about particle size and properties.

RADAR - Radiometry, complementary coverage to Ta

VIMS - Evolution of clouds and other transient features on Titan. High resolution compositional mapping of the northern hemisphere.

RPWS - General RPWS objectives near all Titan closest approaches are to determine thermal plasma parameters (electron temperature and density), investigate the interaction between the magnetosphere and Titan's ionosphere, search for lightning on Titan, and look for new phenomena, such as radio emissions from the Titan-magnetosphere interaction.

Start Time	End Time	Prime Activity	Obs. Detail	Op Mode	TLM Mode	Comments
090T05:50	090T06:20	SP Turn to WP	NAC Titan, NEG_X Sun	ORS RWAF	S_N_ER_3	
090T06:20	090T06:35	OD Deadtime		ORS RWAF	S_N_ER_3	
-12:30	-08:30	CIRS	FP1	ORS RWAF	S_N_ER_3	
-08:30	-05:30	ISS	Combined	ORS RWAF	S_N_ER_3	RADAR_WU at -8:45 & SNER_5a at -8:45, then ER_3 at -8:30
-05:30	-00:30	RADAR	Radiometry	RADAR_RWA	S_N_ER_8	Use 30 and 90 deg offsets for the 2nd & 3rd polarizations
-00:30	C/A	ISS	High Res	ORS RWAF	S_N_ER_3	
C/A	+2:00	CIRS	FIR Limb Int	ORS RWAF	S_N_ER_3	
+2:00	+4:30	UVIS	EUVFUV	ORS RWAF	S_N_ER_3	
+4:30	+8:00	CIRS	MIDIR Limb Map	ORS RWAF	S_N_ER_3	
+8:00	+12:00	CIRS	FIR Limb Map	ORS RWAF	S_N_ER_3	
+12:00	+18:30	CIRS	MIDIR Limb Map	ORS RWAF	S_N_ER_3	
091T14:38	091T14:53	OD Deadtime		ORS RWAF	S_N_ER_3	Template B (modified)
091T14:53	091T15:22	SP Turn to Earth	XBAND Earth, POS_X to NEP	ORS RWAF	S_N_ER_3	
091T15:22	092T00:22	Madrid 70-m		DFPW N	RTE_N_SPB	

T4 SPASS

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S009, length = 41 ...		2005-058T00:36:00	E003_SEQUENCE_009+000T00:0	041T04:39:00	2005-099T05:15:00			
NAV_005SK_OPNAV891_PRIME	N	2005-089T18:00:00		000T03:07:42	2005-089T21:07:42	ISS_NAC to Satellites (0,0,20,0,0 deg. offset)	POS_X to NSP	Starts at waypoint, ends at Earth point
TOST rev 5 Segment		2005-089T19:22:00		002T05:00:00	2005-092T00:22:00			
NAV_005EA_DLTURN891_PRIME		2005-089T21:07:42		000T00:01:00	2005-089T21:08:42	XBAND to Earth	NEG_X to 303.8/67.6	
SP_005EA_G70METNON89_PRIME	C	2005-089T21:08:42		000T08:41:18	2005-090T05:50:00	XBAND to Earth	NEG_X to 303.8/67.6	Secondary axis specified by CDA
SP_005TI_WAYPTTURN090_PRIME		2005-090T05:50:00		000T00:30:00	2005-090T06:20:00	ISS_NAC to Titan	NEG_X to Sun	SP Turn to Waypoint
NEW WAYPOINT		2005-090T06:20:00		001T18:02:00	2005-092T00:22:00	ISS_NAC to Titan	NEG_X to Sun	
SP_005TI_DEADTIME090_PRIME		2005-090T06:20:00		000T00:15:00	2005-090T06:35:00	ISS_NAC to Titan	NEG_X to Sun	
CIRS_005TI_FIRNADCMP002_PRIME	C,U,V	2005-090T07:38:06	GMB_E005_Titan4-000T12:30:00	000T04:00:00	2005-090T11:38:06	CIRS_FP1 to Titan	NEG_X to Sun	
ISS_005TI_COMBINED001_PRIME	C,R,V	2005-090T11:38:06	GMB_E005_Titan4-000T08:30:00	000T03:00:00	2005-090T14:38:06			
RADAR_005TI_T4RADIOM001_PRIME	C,M	2005-090T14:38:06	GMB_E005_Titan4-000T05:30:00	000T05:00:00	2005-090T19:38:06	NEG_Z to Titan (0,0,0,0,-30,0 deg. offset)	NEG_X to Titan_SC_RAM	Use (0,0,30 deg) and (0,0,90 deg) offsets for the 2nd and 3rd polarizations, pick up from/hand off to waypoint.
ISS_005TI_HIGHRESNA001_PRIME	C,M,V	2005-090T19:38:06	GMB_E005_Titan4-000T00:30:00	000T00:30:00	2005-090T20:08:06			
CIRS_005TI_FIRLMBT002_PRIME	C,I,M,V	2005-090T20:08:06	GMB_E005_Titan4+000T00:00:00	000T00:45:00	2005-090T20:53:06	CIRS_FP1 to Titan	NEG_X to Sun	
CIRS_005TI_FIRLMBAPER002_PRIME	C,I,M,V	2005-090T20:53:06	GMB_E005_Titan4+000T00:45:00	000T00:30:00	2005-090T21:23:06	CIRS_FP1 to Titan	NEG_X to Sun	
CIRS_005TI_FIRLMBINT002_PRIME	C,I,M,V	2005-090T21:23:06	GMB_E005_Titan4+000T01:15:00	000T00:45:00	2005-090T22:08:06	CIRS_FP1 to Titan	NEG_X to Sun	
UVIS_005TI_EUVFUV001_PRIME	C,I,V	2005-090T22:08:06	GMB_E005_Titan4+000T02:00:00	000T02:30:00	2005-091T00:38:06	UVIS_EUV to Titan	POS_X to North_Pole_Dir	
CIRS_005TI_MIRLMBMAP002_PRIME	C,I,V	2005-091T00:38:06	GMB_E005_Titan4+000T04:30:00	000T03:30:00	2005-091T04:08:06	CIRS_FP3 to Titan	NEG_X to Sun	
CIRS_005TI_FIRNADCMP003_PRIME	C,I,U,V	2005-091T04:08:06	GMB_E005_Titan4+000T08:00:00	000T04:00:00	2005-091T08:08:06	CIRS_FP1 to Titan	NEG_X to Sun	
CIRS_005TI_MIDIRMAP003_PRIME	C,I,V	2005-091T08:08:06	GMB_E005_Titan4+000T12:00:00	000T06:30:00	2005-091T14:38:06	CIRS_FP3 to Titan	POS_X to North_Pole_Dir	
SP_005TI_DEADTIME091_PRIME	C,V	2005-091T14:38:00		000T00:15:00	2005-091T14:53:00	ISS_NAC to Titan	NEG_X to Sun	
SP_005EA_DLTURN091_PRIME	V	2005-091T14:53:00		000T00:29:00	2005-091T15:22:00	XBAND to Earth	POS_X to NEP	SP Turn to Earth
SP_005EA_M70METNON091_PRIME	C	2005-091T15:22:00		000T09:00:00	2005-092T00:22:00	XBAND to Earth	Rolling	

Data Volume Report

DOWNLINK PASS NAME	OBSERVATION_PERIOD		DOWNLINK_PASS														
	Start doy hh:mm	End doy hh:mm	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_005EA_G70METNON089_PRIME	089 21:08	090 05:50	0	87	87	174	3498	3323	9	218	51	453	4168	3716	3798	46%	0
SP_005EA_M70METNON091_PRIME	091 15:22	092 00:22	0	3294	121	3415	3498	83	0	248	53	3716	4027	312	311	8%	0

OK!

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	088 19:30	089 21:08	29.3	25.0	0.0	0.3	0.0	17.6	5.8	0.0	8.4	0.0	0.0	0.0	0.0	86.4
OBSERVATION_OPN	088 19:30	089 21:08	0.0	0.0	0.0	0.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7
SP_005EA_G70METNON089_PRIME	089 21:08	090 05:50	31.3	6.6	86.4	1.6	0.0	18.8	28.2	0.0	41.0	2.4	0.0	0.0	0.0	216.2
DAILY TOTAL SCIENCE	088 19:30	090 05:50	60.6	31.7	86.4	1.9	0.0	36.4	33.9	0.0	49.4	2.4	0.0	0.0		
OBSERVATION_NOR	090 05:50	091 15:22	250.3	29.5	296.1	20.4	1100.0	112.1	180.3	91.8	320.4	74.3	761.0	0.0	0.0	3236.2
OBSERVATION_SI	090 05:50	091 15:22	0.0	0.0	28.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0
SP_005EA_M70METNON091_PRIME	091 15:22	092 00:22	32.4	4.9	86.4	1.6	0.0	19.4	58.3	0.0	41.3	1.7	0.0	0.0	0.0	246.0
DAILY TOTAL SCIENCE	090 05:50	092 00:22	282.7	34.4	410.5	22.0	1100.0	131.5	238.6	91.8	361.7	76.0	761.0	0.0		

Telemetry Rates

TELEMETRY MODE REPORT

SCET	TELEMETRY MODE	REQUEST
2005-088T19:30:00.000	S_N_ER_3	SP_005NA_G70METOBS089_NA
2005-089T18:00:00.000	S_N_ER_5	SP_005NA_G70METOBS089_NA
2005-089T21:08:42.000	RTE_N_SPB_142200	SP_005EA_G70METNON089_PRIME
2005-089T22:46:00.000	RTE_N_SPB_165900	SP_005EA_G70METNON089_PRIME
2005-090T04:16:00.000	RTE_N_SPB_142200	SP_005EA_G70METNON089_PRIME
2005-090T05:50:00.000	S_N_ER_3	SP_005NA_M70OBSRV091_NA
2005-090T12:38:06.000	S_N_ER_5A	SP_005NA_M70OBSRV091_NA
2005-090T19:38:06.000	S_N_ER_3	SP_005NA_M70OBSRV091_NA
2005-091T15:22:00.000	RTE_N_SPB_165900	SP_005EA_M70METNON091_PRIME
2005-091T20:46:00.000	RTE_N_SPB_142200	SP_005EA_M70METNON091_PRIME
2005-091T22:31:00.000	RTE_N_SPB_124425	SP_005EA_M70METNON091_PRIME
2005-091T23:16:00.000	RTE_N_SPB_82950	SP_005EA_M70METNON091_PRIME
2005-092T00:07:00.000	RTE_N_SPB_66360	SP_005EA_M70METNON091_PRIME

DSN Report

CASSINI DOWNLINK/DSN COVERAGE SUMMARY for T4.apf generated on 2004-Aug-12 10:04:03

(+ = pass overlaps with previous pass; * = conflicts with DSN weekly 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	RADIO_CONFIG R UD D UD MAR
G70METNON089	089T21:08-05:50	089T22:22-07:04	08:41	142,165,142	14	089T21:08-05:50	089T22:20-07:05	08:45	60/15	R XX - -- --0
M70METNON091	091T15:22-00:22	091T16:36-01:36	09:00	165,142,124,82,66	63	091T15:22-00:22	091T16:35-01:40	09:05	60/15	R XX - -- --0

NAV Report

CASSINI NAVIGATION SUMMARY for T4.apf generated on 2004-Aug-12 10:04:33

(+ = pass overlaps with previous pass; * = conflicts with DSN weekly maintenance; o = overlaps occultation)

ON EARTH-LINE FOR DOWNLINK			TRACKING SUPPORT							
NAME	START_TO_END SCET	DUR hh:mm	ID	BOT_TO_EOT UTC	GND_UPLINK UTC	ARRIV_SC SCET	RCV_GND ERT	2-WAY hh:mm	DOP OK?	RNG ON?
G70METNON089	089T21:08-05:50	08:41	14	089T22:20-07:05	22:30-07:00	23:44-05:50	00:58-07:04	06:06	YES	YES
-(missing)--	-----	-----		gap in doppler data of 36 hours			-----	-----	NO	NO
M70METNON091	091T15:22-00:22	09:00	63	091T16:35-01:40	16:45-23:17	17:59-00:22	19:13-01:36	06:23	YES	YES

T4 Open Issues

- o **Segment boundary** – The segment boundary between the start of T4 and the end of MAG005 was moved to 090T05:50 to line up with the D/L. The timeline, data volume, SPASS, etc is still fine, it has just been truncated from what is in this package.