



TOST: Integration 095TI (T48) Wrap-Up Meeting

February 22, 2008

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T48 Segment Basics

Segment times:

BEG: 2008-339T17:26:00

END: 2008-341T21:27:00

Altitude: 1000km

Time of C/A: 2008-340T14:25:35

Epoch: GMB_E095_Titan48



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



T48 High-level Science Objectives

CIRS – Vertical sounding of stratospheric compounds on Titan, including H₂O. Integrations at 2 locations on the limb displaced vertically.

VIMS – Global mapping of Titan

UVIS – UVIS FUV Occultation slit boresite on star for the entire time. Note: Start time may change depending on trajectory updates. Duration includes half hour turns on each end. Over the course of the mission and XM UVIS stellar occultations will sample about 12 latitudes and this sampling will help constrain photochemistry, dynamics and aerosol microphysical processes in the upper stratosphere and mesosphere.

MIMI – Part of TI MAPS Campaign. Investigate micro-scale and near aspects of the Titan interaction by observing during about one hour period around an encounter. With -Y pointed toward Titan, when within 30 minutes of the targeted flyby, optimize secondary axis for corotation flow as close to the S/C -X, +/- Z plane as works with the other constraints on pointing. Also, measure Titan exosphere/magnetosphere interaction by imaging in ENA with INCA (when sun is not in INCA FOV).



Master Timeline for T48

T48		1000					
Start Time	End Time	Prime Activity	Obs. Detail	Op Mode	TLM Mode	Comments	
2008-339T17:26:00	2008-339T18:06:00	SP Turn to WP	Ney-Y to Titan, Neg-X to Sun (0,-40,0)				
C/A - 20:19:12	C/A - 20:04:12	OD Uncertainty Dead Time					
C/A - 0T20:04:12	-13:00	VIMS	Template B	DFPW Normal	S_N_ER3		
-13:00	-09:00	CIRS	Template C	RADWU@9:15	S_N_ER_5a for 15 mins		
-09:00	-05:00	ISS	Template H	RADWU	S_N_ER3		
-05:00	-03:00	ISS	Template S2	RADWU	S_N_ER3		
-03:00	-02:00	CIRS	Template S2	RADWU	S_N_ER3		
-02:00	-01:12	ISS		RADWU	S_N_ER3		
-01:12	-01:11	RWA to RCS Transition		RADRWA->RADRCS	S_N_ER3		
-01:11	-00:50	ISS	sit/stare	RADRCS	S_N_ER3		
		begin custom period					
-00:50	-00:42	SP Turn to RADAR attitude	NEW WAYPOINT	RADRCS	S_N_ER_8		
-00:42	-00:18	RADAR	HiSAR + Altimetry	RADRCS	S_N_ER_8		
-00:18	-00:09:40	RADAR	SAR over Tui Regio	RADRCS	S_N_ER_8		
-00:09:40	-00:05	SP Turn to INMS attitude	TURN TIME IS 4:50 - NEW WAYPOINT	RADRCS	S_N_ER_8		
-00:05	0	INMS	Must be at INMS attitude by -00:06 (1600km),	RADRCS	S_N_ER_8		
2008-340T14:25:12		CLOSEST APPROACH	Neg_X to RAM, Neg_Z to Titan Need to look at the heating....	RADRCS	S_N_ER_8		
0	+00:15	INMS	Need to worry about CIRS/VIMS cool down	RADRCS	S_N_ER_8		
+00:15	+00:20	SP Turn to UVIS Stellar Occ	NEW WAYPOINT	RADRCS	S_N_ER3		
+00:20	+00:44	RCS to RWA Transition		DFPW Normal	S_N_ER3		
+00:20	+00:55	UVIS Stellar Occ	Epsilon Canis Majoris	DFPW Normal	S_N_ER3		
		end custom period					
+00:55	+01:00	SP Turn to CIRS attitude	NEW WAYPOINT	DFPW Normal	S_N_ER3		
+01:00	+02:15	CIRS Limb Integration	Far IR	DFPW Normal	S_N_ER3		
+02:15	+09:00	UVIS EUV FUV	Template X	DFPW Normal	S_N_ER3		
+09:00	+13:00	VIMS	Template O	DFPW Normal	S_N_ER3		
+13:00	+14:00	ISS	Template M2	DFPW Normal	S_N_ER3		
+14:00	C/A + 17:6:48	CIRS	Template M2	DFPW Normal	S_N_ER3		
C/A + 17:6:48	2008-341T7:47:00	OD Uncertainty Dead Time					
2008-341T7:47:00	2008-341T08:27:00	SP Turn to Earth for downlink			S_N_ER3		
2008-341T08:27:00	2008-341T17:27:00	Goldstone 70M		DFPW Normal	RTE_N_SPB		
2008-341T17:27:00	2008-341T21:27:00	Canberra 34M					

Deadband: (0.5,0.5,0.5)



T48 Telemetry Mode Report

TELEMETRY MODE REPORT

EPOCH RELATIVE	UTC	DURATION	TELEMETRY MODE	REQUEST
	2008-339T17:26:00.000	11:44:45	S_N_ER_3	SP_095NA_G70OBSNON341_NA
GMB_E095_Titan48-000T09:15:00	2008-340T05:10:45.000	00:15:00	S_N_ER_5A	SP_095NA_G70OBSNON341_NA
GMB_E095_Titan48-000T09:00:00	2008-340T05:25:45.000	08:10:00	S_N_ER_3	SP_095NA_G70OBSNON341_NA
GMB_E095_Titan48-000T00:50:00	2008-340T13:35:45.000	01:10:00	S_N_ER_8	SP_095NA_G70OBSNON341_NA
GMB_E095_Titan48+000T00:20:00	2008-340T14:45:45.000	17:41:15	S_N_ER_3	SP_095NA_G70OBSNON341_NA
	2008-341T08:27:00.000	00:15:00	RTE_N_SPB_110600	SP_096EA_G70METNON341_PRIME
	2008-341T08:42:00.000	00:45:00	RTE_N_SPB_124425	SP_096EA_G70METNON341_PRIME
	2008-341T09:27:00.000	07:00:00	RTE_N_SPB_142200	SP_096EA_G70METNON341_PRIME
	2008-341T16:27:00.000	00:45:00	RTE_N_SPB_124425	SP_096EA_G70METNON341_PRIME
	2008-341T17:12:00.000	00:15:00	RTE_N_SPB_110600	SP_096EA_G70METNON341_PRIME
	2008-341T17:27:00.000	03:45:00	RTE_N_SPB_33180	SP_096EA_C34BWGNON341_PRIME
	2008-341T21:12:00.000	00:15:00	RTE_N_SPB_27650	SP_096EA_C34BWGNON341_PRIME



T48 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)	(%)	CAROVR (Mb)
SP_096EA_G70METNON341_PRIME	341 08:27	341 17:27	0	3467	177	3643	3552	-90	0	241	53	3846	3762	-84	0	0%	84
SP_096EA_C34BWGNON341_PRIME	341 17:27	341 21:27	84	0	582	665	3552	2887	0	111	24	800	382	-419	0	0%	418

We can't carry-over DV into the following segment. We have 7 options:

- Cut back on the Dual Playback DV
- Cut back on the MAPS rates
- Move the DSCAL into the first downlink (increase chance compression will help)
- Cut more DV from the Observation period
- Upgrade Canberra to a 70M (currently being investigated)
- Start G70MET 30 minutes earlier (looks like we have enough viewperiod)
- Ask the following TWT to accept some carryover



T48 SMT Report (continued)

DATA VOLUME REPORT --- TRANSFER FRAME OVERHEAD NOT INCLUDED

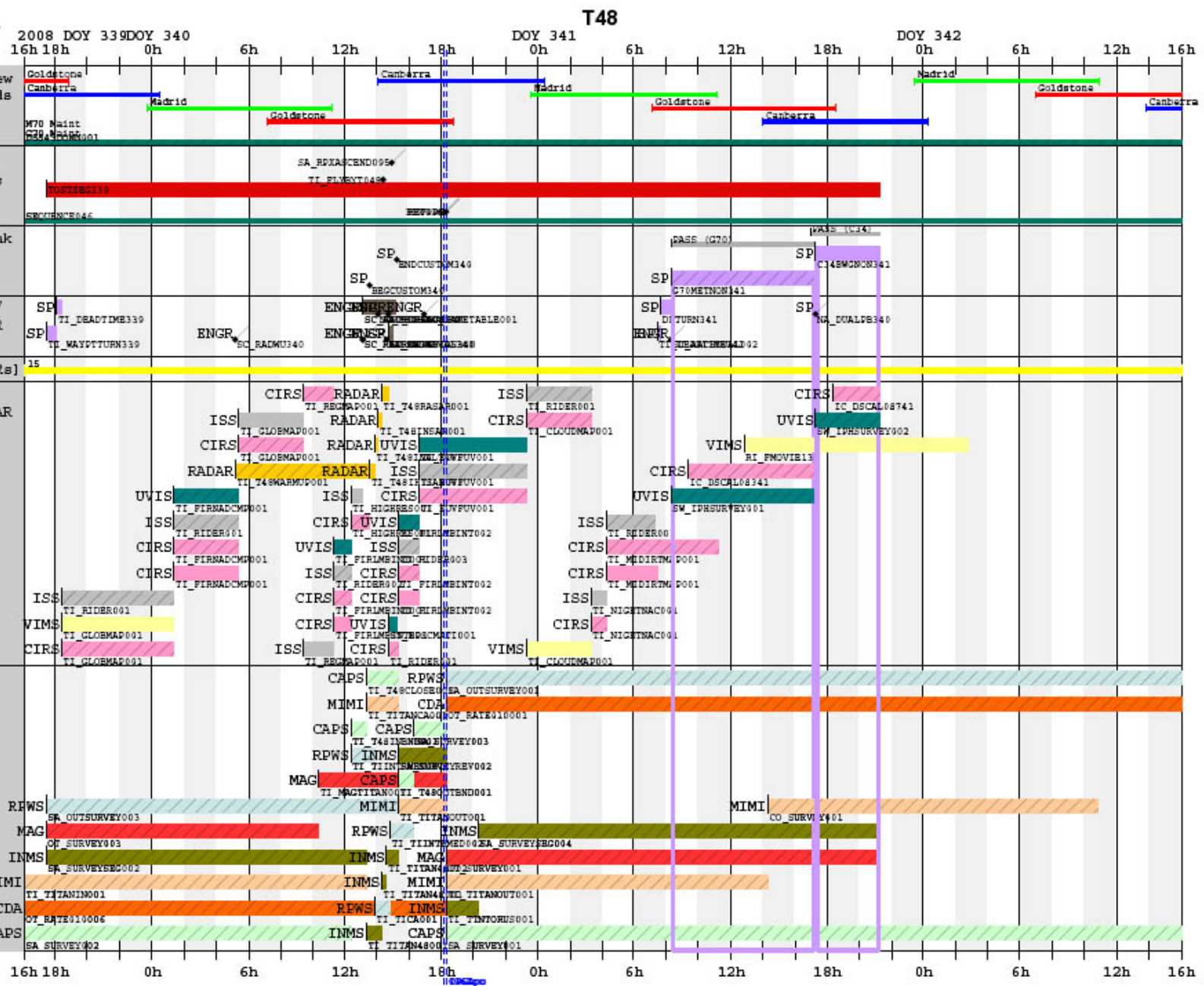
Event	Start doy hh:mm	End doy hh:mm	CAPS (Mb)	CDA (Mb)	CIRS (Mb)	INMS (Mb)	ISS (Mb)	MAG (Mb)	MIMI (Mb)	RADAR (Mb)	RPWS (Mb)	UVIS (Mb)	VIMS (Mb)	PROBE (Mb)	ENGR (Mb)	TOTAL (Mb)
OBSERVATION_NOR	339 17:26	341 08:27	270.1	73.6	304.9	34.2	800.0	102.0	136.5	399.1	586.5	209.5	503.8	0.0	43.6	3463.8
OBSERVATION_SI	339 17:26	341 08:27	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_096EA_G70METNON341_PRIME	341 08:27	341 17:27	32.4	17.0	86.4	3.2	0.0	21.3	35.6	0.0	42.4	0.0	0.0	0.0	0.0	238.4
OBSERVATION_NOR	339 17:26	341 17:27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	581.8	581.8
SP_096EA_C34BWGNON341_PRIME	341 17:27	341 21:27	14.4	7.5	43.2	1.4	0.0	9.5	13.0	0.0	18.9	2.2	0.0	0.0	0.0	110.1
DAILY TOTAL SCIENCE	339 17:26	341 21:27	316.9	98.1	449.5	38.9	800.0	132.8	185.1	399.1	647.8	211.7	503.8	0.0		



DSN Report

CASSINI DOWNLINK/DSN COVERAGE SUMMARY for 095TI_T48_2008-02-21.apf on 2008-Feb-22 10:09:31
(+ = 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
G70METNON341	341T08:27-17:27	341T09:45-18:45	09:00	110,124,142,124,110	14	341T08:27-17:27	341T09:45-18:45	09:00	60 /15	TP	N003
+C34BWGNON341	341T17:27-21:27	341T18:45-22:45	04:00	33,27	34	341T17:07-21:27	341T18:25-22:45	04:20	60 /15	TP	N003





TOL for T48 (1 of 3)

Request	Start Time	Epoch	Duration	End Time	Rate	Data Volume	SPASS Type	Primary Pointing	Secondary Pointing	Pointing Agreement
MP_087NA_DSS43DOWN001_NA	2008-273T00:00:00		181T23:59:59	2009-088T23:59:59	0	0	Non-SPASS			
MP_094NA_SEQUENCE046_NA	2008-331T17:55:00		043T21:21:00	2009-009T15:16:00	0	0	SPASS Note			
CAPS_095SA_SURVEY002_PRIME	2008-337T20:40:00		002T15:45:35	2008-340T12:25:35	1000	229.535	Non-SPASS			
CDA_095OT_RATE010006_RIDER	2008-338T08:26:00		002T09:55:00	2008-340T18:21:00	524	109.254	Non-SPASS			
MIMI_095CO_SURVEY002_RIDER	2008-339T00:00:00		001T12:25:00	2008-340T12:25:00	900	117.99	Non-SPASS			
INMS_095SA_SURVEYSEG002_INMS	2008-339T17:26:00		000T19:59:45	2008-340T13:25:45	100	7.199	Non-SPASS			
MAG_095OT_SURVEY003_PRIME	2008-339T17:26:00		000T16:59:45	2008-340T10:25:45	658.7	40.301	Non-SPASS			
RPWS_095SA_OUTSURVEY003_PRIME	2008-339T17:26:00		001T00:55:00	2008-340T18:21:00	1310	117.508	Non-SPASS			
SP_095NA_G7OBSNON341_NA	2008-339T17:26:00		001T15:01:00	2008-341T08:27:00	0	0	Non-SPASS			
SP_095NA_TOSTSEG339_NA	2008-339T17:26:00		002T04:01:00	2008-341T21:27:00	0	0	SPASS Note			
SP_095TI_WAYPTTURN339_PRIME	2008-339T17:26:00		000T00:40:00	2008-339T18:06:00	0	0	Prime	NEG_Y to Titan	NEG_X to 30.0/50.0	
SP_095TI_DEADTIME339_PRIME	2008-339T18:06:00		000T00:15:33	2008-339T18:21:33	0	0	Prime	NEG_Y to Titan	NEG_X to 30.0/50.0	
CIRS_095TI_GLOBMAP001_VIMS	2008-339T18:21:33	GMB_E095_Titan48-000T20:04:12	000T07:04:12	2008-340T01:25:45	2000	50.904	SPASS Rider			
VIMS_095TI_GLOBMAP001_PRIME	2008-339T18:21:33	GMB_E095_Titan48-000T20:04:12	000T07:04:12	2008-340T01:25:45	2436	62	Prime	VIMS_IR to Titan	NEG_X to Sun	
ISS_095TI_RIDER001_VIMS	2008-339T18:25:45	GMB_E095_Titan48-000T20:00:00	000T07:00:00	2008-340T01:25:45	0	20	SPASS Rider			
CIRS_095TI_FIRNADCMP001_PRIME	2008-340T01:25:45	GMB_E095_Titan48-000T13:00:00	000T04:00:00	2008-340T05:25:45	4000	57.6	Prime	CIRS_FP1 to Titan	PIC	
CIRS_095TI_FIRNADCMP001_SI	2008-340T01:25:45	GMB_E095_Titan48-000T13:00:00	000T04:00:00	2008-340T05:25:45	0	4	SPASS Rider			
ISS_095TI_RIDER001_CIRS	2008-340T01:25:45	GMB_E095_Titan48-000T13:00:00	000T04:00:00	2008-340T05:25:45	0	20	SPASS Rider			
UVIS_095TI_FIRNADCMP001_CIRS	2008-340T01:25:45	GMB_E095_Titan48-000T13:00:00	000T04:00:00	2008-340T05:25:45	513.3	7.391	SPASS Rider			
VIMS_095TI_FIRNADCMP001_CIRS	2008-340T01:25:45	GMB_E095_Titan48-000T13:00:00	000T04:00:00	2008-340T05:25:45	4166.7	60	SPASS Rider			
ENGR_095SC_RADWU340_PPS	2008-340T05:10:45	GMB_E095_Titan48-000T09:15:00	000T00:00:07	2008-340T05:10:52	0	0	Non-SPASS			
RADAR_095TI_T48WARMUP001_RIDER	2008-340T05:10:45	GMB_E095_Titan48-000T09:15:00	000T08:25:00	2008-340T13:35:45	474.2	14.369	SPASS Rider			
CIRS_095TI_GLOBMAP001_ISS	2008-340T05:25:45	GMB_E095_Titan48-000T09:00:00	000T04:00:00	2008-340T09:25:45	2000	28.8	SPASS Rider			
ISS_095TI_GLOBMAP001_PRIME	2008-340T05:25:45	GMB_E095_Titan48-000T09:00:00	000T04:00:00	2008-340T09:25:45	0	240	Prime	ISS_NAC to Titan	NEG_X to Sun	
VIMS_095TI_GLOBMAP001_ISS	2008-340T05:25:45	GMB_E095_Titan48-000T09:00:00	000T04:00:00	2008-340T09:25:45	4722.2	68	SPASS Rider			
CIRS_095TI_REGMAP001_ISS	2008-340T09:25:45	GMB_E095_Titan48-000T05:00:00	000T02:00:00	2008-340T11:25:45	2000	14.4	SPASS Rider			
ISS_095TI_REGMAP001_PRIME	2008-340T09:25:45	GMB_E095_Titan48-000T05:00:00	000T02:00:00	2008-340T11:25:45	0	100	Prime	ISS_NAC to Titan	NEG_X to Sun	
VIMS_095TI_GLOBMAP002_ISS	2008-340T09:25:45	GMB_E095_Titan48-000T05:00:00	000T02:00:00	2008-340T11:25:45	7083.3	51	SPASS Rider			
MAG_095TI_MAGTITAN001_PRIME	2008-340T10:25:45	GMB_E095_Titan48-000T04:00:00	000T08:00:00	2008-340T18:25:45	988	28.454	Non-SPASS			
CIRS_095TI_FIRLMBINT001_PRIME	2008-340T11:25:45	GMB_E095_Titan48-000T03:00:00	000T01:00:00	2008-340T12:25:45	4000	14.4	Prime	CIRS_FP1 to Titan	PIC	
CIRS_095TI_FIRLMBINT001_SI	2008-340T11:25:45	GMB_E095_Titan48-000T03:00:00	000T01:00:00	2008-340T12:25:45	0	2	SPASS Rider			
ISS_095TI_RIDER002_CIRS	2008-340T11:25:45	GMB_E095_Titan48-000T03:00:00	000T01:00:00	2008-340T12:25:45	0	40	SPASS Rider			
UVIS_095TI_FIRLMBINT001_CIRS	2008-340T11:25:45	GMB_E095_Titan48-000T03:00:00	000T01:00:00	2008-340T12:25:45	3019.2	10.869	SPASS Rider			
VIMS_095TI_GLOBMAP001_CIRS	2008-340T11:25:45	GMB_E095_Titan48-000T03:00:00	000T01:00:00	2008-340T12:25:45	5555.6	20	SPASS Rider			
MIMI_095TI_TITANIN001_RIDER	2008-340T12:25:00		000T01:00:00	2008-340T13:25:00	1200	4.32	SPASS Rider			
RPWS_095TI_TINTRMED001_PRIME	2008-340T12:25:00		000T01:30:00	2008-340T13:55:00	10601.5	57.248	Non-SPASS			
CAPS_095TI_T48INBN001_PRIME	2008-340T12:25:45	GMB_E095_Titan48-000T02:00:00	000T01:00:00	2008-340T13:25:45	4000	14.4	SPASS Rider			
CIRS_095TI_HIGHRES001_ISS	2008-340T12:25:45	GMB_E095_Titan48-000T02:00:00	000T01:10:00	2008-340T13:35:45	2000	8.4	SPASS Rider			
ISS_095TI_HIGHRES001_PRIME	2008-340T12:25:45	GMB_E095_Titan48-000T02:00:00	000T00:48:00	2008-340T13:13:45	0	100	Prime	ISS_NAC to Titan	NEG_X to Sun	



TOL for T48 (2 of 3)

VIMS_095TI_REGMAP001_ISS	2008-340T12:25:45	GMB_E095_Titan48-000T02:00:00	000T00:48:00	2008-340T13:13:45	24305.6	70	SPASS Rider			
ENGR_095SC_AACSDUAL001_CDS	2008-340T13:10:45	GMB_E095_Titan48-000T01:15:00	000T01:59:00	2008-340T15:09:45	1638	11.695	Non-SPASS			
ENGR_095SC_RADRWA340_PPS	2008-340T13:11:45	GMB_E095_Titan48-000T01:14:00	000T00:00:44	2008-340T13:12:29	0	0	Non-SPASS			
ENGR_095SC_RADRCS340_PPS	2008-340T13:13:45	GMB_E095_Titan48-000T01:12:00	000T00:21:13	2008-340T13:34:58	0	0	Non-SPASS			
ENGR_095SC_RADRCS340_PRIME	2008-340T13:13:45	GMB_E095_Titan48-000T01:12:00	000T00:01:00	2008-340T13:14:45	0	0	Prime	NEG_Y to Titan (0.0,-40.0,0.0 deg. offset)	NEG_X to Sun	
ISS_095TI_TRANSITION001_PRIME	2008-340T13:14:45	GMB_E095_Titan48-000T01:11:00	000T00:21:00	2008-340T13:35:45	0	25	Prime	ISS_NAC to Titan	NEG_X to Sun	
MIMI_095TI_TITANCA001_RIDER	2008-340T13:25:00		000T02:00:00	2008-340T15:25:00	2000	14.4	SPASS Rider			
CAPS_095TI_T48CLOSE001_PRIME	2008-340T13:25:45	GMB_E095_Titan48-000T01:00:00	000T02:00:00	2008-340T15:25:45	16000	115.2	SPASS Rider			
INMS_095TI_TITAN48001_INMS	2008-340T13:25:45	GMB_E095_Titan48-000T01:00:00	000T00:54:00	2008-340T14:19:45	1498	4.854	Non-SPASS			
RADAR_095TI_T48IHISAR001_PRIME	2008-340T13:35:45	GMB_E095_Titan48-000T00:50:00	000T00:20:00	2008-340T13:55:45	50014.1	60.017	Prime	NEG_Z to Titan	PIC	
SP_095NA_BEGCUSTOM340_NA	2008-340T13:35:45	GMB_E095_Titan48-000T00:50:00	000T00:00:01	2008-340T13:35:46	0	0	SPASS Note			
RPWS_095TI_TICA001_PRIME	2008-340T13:55:00		000T01:00:00	2008-340T14:55:00	80004.6	288.016	Non-SPASS			
RADAR_095TI_T48INALT001_PRIME	2008-340T13:55:45	GMB_E095_Titan48-000T00:30:00	000T00:12:00	2008-340T14:07:45	30001.2	21.601	Prime	NEG_Z to Titan	PIC	
RADAR_095TI_T48INSAR001_PRIME	2008-340T14:07:45	GMB_E095_Titan48-000T00:18:00	000T00:13:00	2008-340T14:20:45	240403.2	187.514	Prime	NEG_Z to Titan	NEG_X to Titan_SC_RAM	Must be at INMS attitude by -0:05:00.
SP_095NA_BEGHIVAL340_NA	2008-340T14:07:45	GMB_E095_Titan48-000T00:18:00	000T00:00:01	2008-340T14:07:46	0	0	SPASS Note			
INMS_095TI_TITAN48001_PRIME	2008-340T14:19:45	GMB_E095_Titan48-000T00:06:00	000T00:21:00	2008-340T14:40:45	1498	1.887	Non-SPASS			
RADAR_095TI_T48RASAR001_PRIME	2008-340T14:20:45	GMB_E095_Titan48-000T00:05:00	000T00:25:00	2008-340T14:45:45	86384.6	129.577	Prime	NEG_X to Titan_SC_RAM	NEG_Z to Titan	Ride-along.
MP_095TI_FLYBYT048_NA	2008-340T14:25:45		000T00:00:01	2008-340T14:25:46	0	0	SPASS Note			
INMS_095TI_TITAN48002_INMS	2008-340T14:40:45	GMB_E095_Titan48+000T00:15:00	000T00:45:00	2008-340T15:25:45	1498	4.045	Non-SPASS			
SP_095NA_ENDHIVAL340_NA	2008-340T14:40:45	GMB_E095_Titan48+000T00:15:00	000T00:00:01	2008-340T14:40:46	0	0	SPASS Note			
ENGR_095SC_ORSRCS340_PPS	2008-340T14:44:45	GMB_E095_Titan48+000T00:19:00	000T00:00:06	2008-340T14:44:51	0	0	Non-SPASS			
VIMS_095TI_TRANS001_ENGR	2008-340T14:45:12		000T00:24:00	2008-340T15:09:12	6250	9	SPASS Rider			
CIRS_095TI_RIDER001_UVIS	2008-340T14:45:45	GMB_E095_Titan48+000T00:20:00	000T00:35:00	2008-340T15:20:45	2000	4.2	SPASS Rider			
ENGR_095SC_DFPWBIAS340_PPS	2008-340T14:45:45	GMB_E095_Titan48+000T00:20:00	000T00:22:42	2008-340T15:08:27	0	0	Prime			
UVIS_095ST_EPSCMATI001_PRIME	2008-340T14:45:45	GMB_E095_Titan48+000T00:20:00	000T00:35:00	2008-340T15:20:45	32096	67.402	Prime	UVIS_FUV to 104.656/-28.972 (0.258,0.0,0.0 deg. offset)	NEG_X to Sun	
VIMS_095TI_LMBMAP001_UVIS	2008-340T14:45:45	GMB_E095_Titan48+000T00:20:00	000T00:33:00	2008-340T15:18:45	4545.5	9	SPASS Rider			
RPWS_095TI_TIINTRMED002_PRIME	2008-340T14:55:00		000T01:30:00	2008-340T16:25:00	10601.5	57.248	Non-SPASS			
MP_095SA_RPXASCEND095_NA	2008-340T14:56:57		000T00:00:01	2008-340T14:56:58	0	0	Non-SPASS			
CIRS_095TI_FIRLMBINT002_PRIME	2008-340T15:20:45	GMB_E095_Titan48+000T00:55:00	000T01:20:00	2008-340T16:40:45	4000	19.2	Prime	CIRS_FP1 to Titan	PIC	
CIRS_095TI_FIRLMBINT002_SI	2008-340T15:20:45	GMB_E095_Titan48+000T00:55:00	000T01:20:00	2008-340T16:40:45	0	2	SPASS Rider			
SP_095NA_ENDCUSTOM340_NA	2008-340T15:20:45	GMB_E095_Titan48+000T00:55:00	000T00:00:01	2008-340T15:20:46	0	0	SPASS Note			
MIMI_095TI_TITANOUT001_RIDER	2008-340T15:25:00		000T01:00:00	2008-340T16:25:00	1200	4.32	SPASS Rider			
CAPS_095TI_T48OUTBND001_PRIME	2008-340T15:25:45	GMB_E095_Titan48+000T01:00:00	000T01:00:00	2008-340T16:25:45	4000	14.4	SPASS Rider			
INMS_095SA_SURVEYREV002_INMS	2008-340T15:25:45	GMB_E095_Titan48+000T01:00:00	000T02:56:15	2008-340T18:22:00	100	1.058	Non-SPASS			
ISS_095TI_RIDER003_CIRS	2008-340T15:25:45	GMB_E095_Titan48+000T01:00:00	000T01:15:00	2008-340T16:40:45	0	40	SPASS Rider			
UVIS_095TI_FIRLMBINT002_CIRS	2008-340T15:25:45	GMB_E095_Titan48+000T01:00:00	000T01:15:00	2008-340T16:40:45	3019.2	13.586	SPASS Rider			
VIMS_095TI_LMBMAP001_CIRS	2008-340T15:25:45	GMB_E095_Titan48+000T01:00:00	000T01:15:00	2008-340T16:40:45	4444.4	20	SPASS Rider			
MIMI_095CO_SURVEY003_RIDER	2008-340T16:25:00		000T01:57:00	2008-340T18:22:00	900	6.318	Non-SPASS			
CAPS_095SA_SURVEY003_PRIME	2008-340T16:25:35		000T01:56:25	2008-340T18:22:00	1000	6.985	Non-SPASS			
CIRS_095TI_EUVFUV001_UVIS	2008-340T16:40:45	GMB_E095_Titan48+000T02:15:00	000T06:45:00	2008-340T23:25:45	2000	48.6	SPASS Rider			



TOL for T48 (3 of 3)

ISS_095TI_EUVFUV001_UVIS	2008-340T16:40:45	GMB_E095_Titan48+000T02:15:00	000T06:45:00	2008-340T23:25:45	0	40	SPASS Rider			
UVIS_095TI_EUVFUV001_PRIME	2008-340T16:40:45	GMB_E095_Titan48+000T02:15:00	000T06:45:00	2008-340T23:25:45	4537.9	110.27	Prime	UVIS_FUV to Titan	NEG_X to Sun	
VIMS_095TI_EUVFUV001_UVIS	2008-340T16:40:45	GMB_E095_Titan48+000T02:15:00	000T06:45:00	2008-340T23:25:45	2469.1	60	SPASS Rider			
ENGR_095SC_SAFETABLE001_AACS	2008-340T17:00:00		000T00:01:00	2008-340T17:01:00	0	0	Non-SPASS			
MP_095SA_APOAPSE096_NA	2008-340T18:19:32		000T00:00:01	2008-340T18:19:33	0	0	SPASS Note			
MP_095SA_REV096_NA	2008-340T18:19:32		000T00:00:01	2008-340T18:19:33	0	0	Non-SPASS			
CDA_096OT_RATE010001_RIDER	2008-340T18:21:00		003T22:37:59	2008-344T16:58:59	524	178.516	Non-SPASS			
RPWS_096SA_OUTSURVEY001_PRIME	2008-340T18:21:00		002T05:39:00	2008-343T00:00:00	1310	253.016	Non-SPASS			
CAPS_096SA_SURVEY001_PRIME	2008-340T18:22:00	E096_Apo+000T00:00:00	003T12:48:00	2008-344T07:10:00	1000	305.28	Non-SPASS			
INMS_096TI_TINTORUS001_INMS	2008-340T18:22:00	E096_Apo+000T00:00:00	000T02:00:00	2008-340T20:22:00	1498	10.786	Non-SPASS			
MIMI_096CO_SURVEY003_RIDER	2008-340T18:22:00	E096_Apo+000T00:00:00	000T14:05:00	2008-341T08:27:00	900	45.63	Non-SPASS			
MAG_096OT_SURVEY001_PRIME	2008-340T18:25:45	GMB_E095_Titan48+000T04:00:00	001T03:01:15	2008-341T21:27:00	658.7	64.072	Non-SPASS			
INMS_096SA_SURVEYSEG004_INMS	2008-340T20:22:00	E096_Apo+000T02:00:00	001T01:05:00	2008-341T21:27:00	100	9.03	Non-SPASS			
CIRS_096TI_CLOUDMAP001_VIMS	2008-340T23:25:45	GMB_E095_Titan48+000T09:00:00	000T04:00:00	2008-341T03:25:45	2000	28.8	SPASS Rider			
ISS_096TI_RIDER001_VIMS	2008-340T23:25:45	GMB_E095_Titan48+000T09:00:00	000T04:00:00	2008-341T03:25:45	0	50	SPASS Rider			
VIMS_096TI_CLOUDMAP001_PRIME	2008-340T23:25:45	GMB_E095_Titan48+000T09:00:00	000T04:00:00	2008-341T03:25:45	1562.5	22.5	Prime	VIMS_IR to Titan	NEG_X to Sun	
CIRS_096TI_NIGHTNAC001_ISS	2008-341T03:25:45	GMB_E095_Titan48+000T13:00:00	000T01:00:00	2008-341T04:25:45	2000	7.2	SPASS Rider			
ISS_096TI_NIGHTNAC001_PRIME	2008-341T03:25:45	GMB_E095_Titan48+000T13:00:00	000T01:00:00	2008-341T04:25:45	0	100	Prime	ISS_NAC to Titan	NEG_X to Sun	
VIMS_096TI_NIGHTNAC001_ISS	2008-341T03:25:45	GMB_E095_Titan48+000T13:00:00	000T01:00:00	2008-341T04:25:45	8333.3	30	SPASS Rider			
CIRS_096TI_MIDIRTMAP001_PRIME	2008-341T04:25:45	GMB_E095_Titan48+000T14:00:00	000T03:06:48	2008-341T07:32:33	2000	22.416	Prime	CIRS_FPB to Titan	POS_X to North_Pole_Dir	
CIRS_096TI_MIDIRTMAP001_SI	2008-341T04:25:45	GMB_E095_Titan48+000T14:00:00	000T03:06:48	2008-341T07:32:33	0	7	SPASS Rider			
ISS_096TI_RIDER001_CIRS	2008-341T04:25:45	GMB_E095_Titan48+000T14:00:00	000T03:00:00	2008-341T07:25:45	0	25	SPASS Rider			
VIMS_096TI_MIDIRTMAP001_CIRS	2008-341T04:25:45	GMB_E095_Titan48+000T14:00:00	000T03:06:48	2008-341T07:32:33	2007.5	22.5	SPASS Rider			
SP_096TI_DEADTIME341_PRIME	2008-341T07:32:33	GMB_E095_Titan48+000T17:06:48	000T00:14:27	2008-341T07:47:00	0	0	Prime	NEG_Y to Titan	NEG_X to 30.0/50.0	
SP_096EA_DLTUR341_PRIME	2008-341T07:47:00		000T00:40:00	2008-341T08:27:00	0	0	Prime	XBAND to Earth	POS_X to NEP	
ENGR_096SC_AACS_DUAL002_CDS	2008-341T08:26:47		000T00:00:02	2008-341T08:26:49	0	0	Non-SPASS			
MIMI_096SA_MAGDYN003_RIDER	2008-341T08:27:00		000T05:58:00	2008-341T14:25:00	1200	25.776	Non-SPASS			
SP_096EA_G70METNON341_PRIME	2008-341T08:27:00		000T09:00:00	2008-341T17:27:00	0	0	Prime	XBAND to Earth	Rolling	NEG_X to NEP
SP_096NA_G70METNON341_SP	2008-341T08:27:00		000T09:00:00	2008-341T17:27:00	0	0	Non-SPASS			
CIRS_096IC_DSCAL08341_SP	2008-341T09:27:00		000T08:00:00	2008-341T17:27:00	3000	86.4	SPASS Rider			
MIMI_096CO_SURVEY001_RIDER	2008-341T14:25:00		000T20:35:00	2008-342T11:00:00	900	66.69	Non-SPASS			
SP_096NA_C34BWGNON341_SP	2008-341T17:07:00		000T04:20:00	2008-341T21:27:00	0	0	Non-SPASS			
SP_096EA_C34BWGNON341_PRIME	2008-341T17:27:00		000T04:00:00	2008-341T21:27:00	0	0	Prime	XBAND to Earth	NEG_X to NEP	DSCAL over dual playback
SP_096NA_DUALPB340_SP	2008-341T17:27:00		000T00:00:01	2008-341T17:27:01	581765824	581.766	SPASS Note			
UVIS_096SW_IPHSURVEY002_RIDER	2008-341T17:27:00		000T04:00:00	2008-341T21:27:00	152.5	2.196	Non-SPASS			
CIRS_096IC_DSCAL08741_SP	2008-341T18:27:00		000T03:00:00	2008-341T21:27:00	4000	43.2	SPASS Rider			

T48 SPASS

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S46, length = 44 days		2008-331T17:55:00		043T21:21:00	2009-009T15:16:00			
Titan Flyby T48 Segment		2008-339T17:26:00		002T04:01:00	2008-341T21:27:00			
SP_095TI_WAYPTTURN339_PRIME		2008-339T17:26:00		000T00:40:00	2008-339T18:06:00	NEG_Y to Titan	NEG_X to 30.0/50.0	
SP_095TI_DEADTIME339_PRIME		2008-339T18:06:00		000T00:15:33	2008-339T18:21:33	NEG_Y to Titan	NEG_X to 30.0/50.0	
VIMS_095TI_GLOMAP001_PRIME	C, I	2008-339T18:21:33	GMB_E095_Titan48-000T20:000T07:04:12	000T07:04:12	2008-340T01:25:45	VIMS_IR to Titan	NEG_X to Sun	
CIRS_095TI_FIRNADCMP001_PRIME	C, I, R, U, V	2008-340T01:25:45	GMB_E095_Titan48-000T13:000T04:00:00	000T04:00:00	2008-340T05:25:45	CIRS_FP1 to Titan	PIC	
ISS_095TI_GLOMAP001_PRIME	C, R, V	2008-340T05:25:45	GMB_E095_Titan48-000T09:000T04:00:00	000T04:00:00	2008-340T09:25:45	ISS_NAC to Titan	NEG_X to Sun	
ISS_095TI_REGMAP001_PRIME	C, R, V	2008-340T09:25:45	GMB_E095_Titan48-000T05:000T02:00:00	000T02:00:00	2008-340T11:25:45	ISS_NAC to Titan	NEG_X to Sun	
CIRS_095TI_FIRLMBINT001_PRIME	C, I, M, R, V	2008-340T11:25:45	GMB_E095_Titan48-000T03:000T01:00:00	000T01:00:00	2008-340T12:25:45	CIRS_FP1 to Titan	PIC	
ISS_095TI_HIGHRES001_PRIME	C, M, R, V	2008-340T12:25:45	GMB_E095_Titan48-000T02:000T00:48:00	000T00:48:00	2008-340T13:13:45	ISS_NAC to Titan	NEG_X to Sun	
ENGR_095SC_RADRCS340_PRIME	C, M, R	2008-340T13:13:45	GMB_E095_Titan48-000T01:000T00:01:00	000T00:01:00	2008-340T13:14:45	NEG_Y to Titan (0.0,-40.0,0.0 deg)	NEG_X to Sun	
ISS_095TI_TRNSITION001_PRIME	C, M, R	2008-340T13:14:45	GMB_E095_Titan48-000T01:000T00:21:00	000T00:21:00	2008-340T13:35:45	ISS_NAC to Titan	NEG_X to Sun	
Begin Custom Period		2008-340T13:35:45	GMB_E095_Titan48-000T00:000T00:00:01	000T00:00:01	2008-340T13:35:46			
RADAR_095TI_T48IHISAR001_PRIME	M	2008-340T13:35:45	GMB_E095_Titan48-000T00:000T00:20:00	000T00:20:00	2008-340T13:55:45	NEG_Z to Titan	PIC	Pick up at unknown, unknown; Hand off at unknown, unknown.
RADAR_095TI_T48INALT001_PRIME	M	2008-340T13:55:45	GMB_E095_Titan48-000T00:000T00:12:00	000T00:12:00	2008-340T14:07:45	NEG_Z to Titan	PIC	Pick up at unknown, unknown; Hand off at unknown, unknown.
Begin Dual Playback Science		2008-340T14:07:45	GMB_E095_Titan48-000T00:000T00:00:01	000T00:00:01	2008-340T14:07:46			
RADAR_095TI_T48INSAR001_PRIME	M	2008-340T14:07:45	GMB_E095_Titan48-000T00:000T00:13:00	000T00:13:00	2008-340T14:20:45	NEG_Z to Titan	NEG_X to Titan_SC_RAM	Pick up at unknown, unknown; Hand off at unknown, unknown. Must be at INMS attitude by -0:05:00.
RADAR_095TI_T48RASAR001_PRIME	M, V	2008-340T14:20:45	GMB_E095_Titan48-000T00:000T00:25:00	000T00:25:00	2008-340T14:45:45	NEG_X to Titan_SC_RAM	NEG_Z to Titan	Pick up at unknown, unknown; Hand off at unknown, unknown. Ride-along.
95TI (t) T48 TITAN Outbou...		2008-340T14:25:45		000T00:00:01	2008-340T14:25:46			
End Dual Playback Science		2008-340T14:40:45	GMB_E095_Titan48+000T00:000T00:00:01	000T00:00:01	2008-340T14:40:46			
ENGR_095SC_DFPWBIAS340_PPS	C, M, V	2008-340T14:45:45	GMB_E095_Titan48+000T00:000T00:22:42	000T00:22:42	2008-340T15:08:27			Pick up at unknown, unknown; Hand off at unknown, unknown.
UVIS_095ST_EPSCMATI001_PRIME	C, M, V	2008-340T14:45:45	GMB_E095_Titan48+000T00:000T00:35:00	000T00:35:00	2008-340T15:20:45	UVIS_FUV to 104.656/-28.972 (0.2	NEG_X to Sun	Pick up at unknown, unknown; Hand off at unknown, unknown.
End Custom Period		2008-340T15:20:45	GMB_E095_Titan48+000T00:000T00:00:01	000T00:00:01	2008-340T15:20:46			
CIRS_095TI_FIRLMBINT002_PRIME	C, I, M, U, V	2008-340T15:20:45	GMB_E095_Titan48+000T00:000T01:20:00	000T01:20:00	2008-340T16:40:45	CIRS_FP1 to Titan	PIC	
UVIS_095TI_EUVFUV001_PRIME	C, I, V	2008-340T16:40:45	GMB_E095_Titan48+000T02:000T06:45:00	000T06:45:00	2008-340T23:25:45	UVIS_FUV to Titan	NEG_X to Sun	
Apoapse Per = 8.0 d, inc =...		2008-340T18:19:32		000T00:00:01	2008-340T18:19:33			
VIMS_096TI_CLOUDMAP001_PRIME	C, I	2008-340T23:25:45	GMB_E095_Titan48+000T09:000T04:00:00	000T04:00:00	2008-341T03:25:45	VIMS_IR to Titan	NEG_X to Sun	
ISS_096TI_NIGHTNAC001_PRIME	C, V	2008-341T03:25:45	GMB_E095_Titan48+000T13:000T01:00:00	000T01:00:00	2008-341T04:25:45	ISS_NAC to Titan	NEG_X to Sun	
CIRS_096TI_MIDIRMAP001_PRIME	C, I, V	2008-341T04:25:45	GMB_E095_Titan48+000T14:000T03:06:48	000T03:06:48	2008-341T07:32:33	CIRS_FP1 to Titan	POS_X to North_Pole_Dir	
SP_096TI_DEADTIME341_PRIME		2008-341T07:32:33	GMB_E095_Titan48+000T17:000T00:14:27	000T00:14:27	2008-341T07:47:00	NEG_Y to Titan	NEG_X to 30.0/50.0	
SP_096EA_DLTURN341_PRIME		2008-341T07:47:00		000T00:40:00	2008-341T08:27:00	XBAND to Earth	POS_X to NEP	
SP_096EA_G70METNON341_PRIME	C	2008-341T08:27:00		000T09:00:00	2008-341T17:27:00	XBAND to Earth	Rolling	NEG_X to NEP
Pointer Reset in preparatio...		2008-341T17:27:00		000T00:00:01	2008-341T17:27:01			
SP_096EA_C34BWGNON341_PRIME	C	2008-341T17:27:00		000T04:00:00	2008-341T21:27:00	XBAND to Earth	NEG_X to NEP	DSCAL over dual playback

T48 Open Issues



- ENGR_095SC_DFPWBIAS340_PPS requires pointing.
- Custom Handoff attitudes required for RADAR, ENG, and UVIS
- The Dual Playback is causing carryover into the following segment.
 - We have 6 (or 7) options
 - Cut some of the Dual Playback data
 - Upgrade to a C70M (currently being investigated)
 - Extend the G70M 30 mins earlier.
 - Cut back on the MAPS data rates during the Dual Playback downlink
 - Ask CIRS to move the DSCAL out of the second downlink and into the first
 - Ask the following TWT to accept the carry-over