S60 Rev 131 Timeline for RSS Titan T68 Gravity Observation
and Gravity Science Enhancements
2010/139-140, Wed-Thu May 19-20, 2010
Titan Closest Approach: 2010/140-04:39 ERT

OWLT = 01:15, RTLT = ~02:30

Closed-loop Doppler is prime for gravity. Open-loop is backup

RSR = Radio Science Receiver (open-loop receiver)   RSSG = Radio Science Systems Group   GSE = Gravity Science Enhancement

RSSG: Note telemetry bit rate. Playback periods.Set RSR fgain accordingly and do not change during observation

DOY	Time ERT	Date/Day PDT	Time PDT	Event	Comments
137	03:06	Mon 5/17	8:06 PM	X-TWTA ON	Was in Sleep mode for ORS activities
138	23:15	Tue 5/18	4:15 PM	Ka-band ON (KEX & Ka-TWTA)	ON for GSE. OFF at end of GSE
	23:25		4:25 PM	DSS-25 Pre-cal	Pass# 4611. Cas specific 4th-order pointing model, TLC enabled
139	00:55		5:55 PM	DSS-25 BOT	3-way with DSS-63
				Begin Inbound GSE	
				DSS-25 Enable Monopulse	At 3-way acquisition
	01:05		6:05 PM	DSS-25 Transmitter ON - U/L Transfer from DSS-63	Ramped uplink predicts. DKF time 010500
	03:34		8:34 PM	DSS-25 Tracking Mode Change	3-way to 2-way. DKF time 033411
	06:00		11:00 PM	DSS-25 Transmitter OFF	DKF time 060023
	08:30	Wed 5/19	1:30 AM	End Inbound GSE	
				Ka-band OFF	
				DSS-25 Disable Monopulse	At loss of signal
	08:30		1:30 AM	DSS-25 EOT	
	15:00		8:00 AM	DSS-55 Pre-cal	Pass# 4612. Cas specific 4th-order pointing model, TLC enabled Don't use LQG coefficients
	16:30		9:30 AM	DSS-55 BOT	No signal until ~20:19 ERT
	17:39		10:39 AM	Ka-band ON (KEX & Ka-TWTA)	ON for T68 observation. OFF at end
	17:50		10:50 AM	DSS-55 Transmitter ON	Unramped uplink predicts. DKF time 174940
	19:39		12:39 PM	Begin turn to Earth	Turn by Science Planning (SP). 40min turn
	19:50		12:50 PM	*RSSG: Begin RSR recordings (X & Ka) at DSS-55*	
	20:19		1:19 PM	Begin Titan Gravity - Begin Coherent Data	DKF time 201901
				DSS-55 Acquire 2-way signal	DKF time 201901
				DSS-55 Enable Monopulse	As requested by RSSG
	20:45		1:45 PM	DSS-25 Pre-cal	Pass# 4612. Cas specific 4th-order pointing model, TLC enabled
	21:45		2:45 PM	*RSSG: Begin RSR recordings (X & Ka) at DSS-25*	
	22:15		3:15 PM	DSS-25 BOT	3-way with DSS-55
				DSS-25 Enable Monopulse	As requested by RSSG. Wait till 10 degrees elevation angle
	22:40		3:40 PM	Uplink Transfer from 55 to 25	Unramped uplink predicts. DKF time 224000
140	01:09		6:09 PM	Tracking Mode Change	DSS-25 to 2-way. DSS-55 to 3-way. DKF time 010924
	01:45		6:45 PM	DSS-55 EOT	
				DSS-55 Disable Monopulse	At loss of Ka-band signal
	03:35		8:35 PM	DSS-34 Pre-cal	Pass# 4613. Cassini specific 4th-order pointing model

DOY	Time ERT	Date/Day PDT	Time PDT	Event	Comments
	04:30		8:30 PM	*RSSG: Begin RSR recordings (X & Ka) at DSS-34*	
	04:39		9:39 PM	T68 Titan Closest Approach	Altitude 1400 km
	05:05		10:05 PM	DSS-34 BOT	3-way with DSS-25
				DSS-34 Enable Monopulse	As requested by RSSG. Wait till 10 degrees elevation angle
	09:05	Thu 5/20	2:05 AM	Uplink Transfer from 25 to 34	DKF time 090955
	09:30		2:30 AM	DSS-25 EOT	
				DSS-25 Disable Monopulse	At loss of Ka-band signal
	10:50		3:50 AM	DSS-34 Transmitter OFF	5 minutes after DKF time 104434
	11:35		4:35 AM	DSS-34 Tracking Mode Change	3-way to 2-way. DKF time 113431
	13:14		6:14 AM	End Titan Gravity - End Coherent Data	DKF time 131406
				Begin turn from Earth	Turn by Science Planning (SP). 25min turn
				DSS-34 Disable Monopulse	At loss of Ka-band signal
	13:54		6:54 AM	Ka-band OFF	
	14:10		7:10 AM	DSS-34 EOT	
	21:45		1:45 PM	DSS-25 Pre-cal	Pass# 4613. Cas specific 4th-order pointing model, TLC enabled
	22:15		2:15 PM	DSS-63 Pre-cal	Pass# 4613 for telemetry support. Do no uplink from DSS-63
	23:15		3:15 PM	DSS-25 BOT	1-way
				DSS-63 BOT	1-way
				Begin Outbound GSE	
	23:20		3:20 PM	Ka-band ON (KEX & Ka-TWTA)	ON for GSE. OFF at end of GSE
				DSS-25 Enable Monopulse	At Ka-band acquisition
	23:25		3:25 PM	DSS-25 Transmitter ON	Unramped uplink predicts. DKF time 232500
141	01:45		5:45 PM	DSS-63 EOT	
	01:55		6:55 PM	DSS-25 Tracking Mode Change	1-way to 2-way. DKF time 015440
	05:45		10:45 PM	DSS-25 Transmitter OFF	DKF time 054508
	08:15	Fri 5/21	1:15 AM	End Outbound GSE	
				Ka-band OFF	
				DSS-25 Disable Monopulse	At loss of signal
	08:15		1:15 AM	DSS-25 EOT	