

## S31 Rev 47 Timeline for RSS Titan T33 Gravity Observation

2007/180, Friday June 29, 2007

Titan Closest Approach: 2007/180-18:22 ERT

EPOCH: GMB\_E047\_Titan33 2007-180T16:59:46 SCET

OWLT = 01:22, RTLT = -02:44

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

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

RSSG: Note telemetry bit rate. Playback during 1st segment only. Set RSR fgain accordingly and do not change during observation

DOY	Time ERT	Date/Day PST	Time PST	Event	Comments
179	16:57	Thu 6/28	9:57 AM	X-TWTA ON	2007-179T15:35:00 SCET
	17:02		10:02 AM	Ka-band ON (KEX & Ka-TWTA)	On-board s/c. ON for GSE, and stays ON for grav on DOY 180
180	04:15		9:15 PM	DSS-34 Pre-cal	Cassini specific 4th-order pointing model
	06:00		11:00 PM	DSS-34 BOT	No downlink until ~09:22 ERT
	06:37		11:37 PM	DSS-34 Transmitter ON (DKF time 06:37:24)	Un-ramped uplink predicts
	07:25	Fri 6/29	12:25 AM	DSS-55 Pre-cal	Cassini specific 4th-order pointing model, TLC enabled
	09:10		2:10 AM	DSS-55 BOT	No downlink until ~09:22 ERT
	09:15		2:15 AM	RSS: Begin RSR recording (X & Ka)	
	09:22		2:22 AM	1st Segment - Begin coherent downlink	DKF time 092209. Telemetry Bit Rate: 14220 BPS
				DSS-34 Enable Monopulse	At 2-way lock
				DSS-55 Enable Monopulse	At 3-way lock
	09:35		2:35 AM	Uplink Transfer from 55 to 34 (DKF time 09:34:45)	
	09:55		2:55 AM	DSS-34 EOT	
				DSS-34 Disable Monopulse	At loss of Ka-band signal
	10:37		3:37 AM	DSS-55 Transmitter OFF (DKF time 10:37:23)	
	12:19		5:19 AM	DSS-55 switch to 2-way (DKF time 12:19:32)	
	13:22		6:22 AM	1st Segment - End coherent downlink	
				Begin S/C Turn from Earth (DKF time: 13:22:10)	
				DSS-55 Disable Monopulse	At loss of Ka-band signal
	13:30		6:30 AM	RSSG: Stop RSR recording	
	13:37		6:37 AM	DSS-55 Transmitter ON (DKF time 13:37:22)	Un-ramped uplink predicts
	15:00		8:00 AM	DSS-25 Pre-cal	Cassini specific 4th-order pointing model, TLC enabled
	16:15		9:15 AM	RSSG: Begin RSR recording (X & Ka)	
	16:22		9:22 AM	2nd Segment - Begin coherent downlink	DKF time 16:22:10. Telemetry Bit Rate: 1896 BPS
				DSS-55 Enable Monopulse	At 2-way lock
	16:22		9:22 AM	DSS-55 Transmitter OFF (DKF time 16:22:22)	
	16:45		9:45 AM	DSS-25 BOT	
				DSS-25 Enable Monopulse	At 3-way lock
	18:22		11:22 AM	Titan Closest Approach	Altitude 1944 km
	19:07		12:07 PM	2nd Segment - End coherent downlink	
				Begin S/C Turn from Earth (DKF time: 19:07:11)	
				DSS-55 and DSS-25 Disable Monopulse	At loss of Ka-band signal
	19:12		12:12 PM	RSSG: Stop RSR recording	
	19:40		12:40 PM	DSS-55 EOT	

DOY	Time ERT	Date/Day PST	Time PST	Event	Comments
180	20:52		1:52 PM	DSS-25 Transmitter ON (DKF time 20:52:21)	Un-ramped uplink predicts
	21:15		2:15 PM	DSS-26 Pre-cal	Cassini specific 4th-order pointing model, TLC enabled
	23:00		4:00 PM	DSS-26 BOT	
	23:05		4:05 PM	DSS-34 Pre-cal	Cassini specific 4th-order pointing model
	23:30		4:30 PM	RSSG: Begin RSR recording (X & Ka)	
	23:37		4:37 PM	3rd Segment - Begin coherent downlink	DKF time 23:37:12. Telemetry Bit Rate: 1896 BPS
				DSS-25 Enable Monopulse	At 2-way lock
				DSS-26 Enable Monopulse	At 3-way lock
181	00:22		5:22 PM	DSS-25 Transmitter OFF (DKF time 00:22:20)	
	00:50		5:50 PM	DSS-34 BOT	
				DSS-34 Enable Monopulse	At 3-way lock
	03:07		8:07 PM	3rd Segment - End coherent downlink	
				Begin S/C Turn from Earth (DKF time: 03:07:13)	
				DSS-25, 26, 34 Disable Monopulse	At loss of Ka-band signal
	03:12		8:12 PM	RSSG: End RSR Recording (X & Ka)	
	04:00		9:00 PM	DSS-25 EOT	
	04:00		9:00 PM	DSS-26 EOT	
	04:00		9:00 PM	DSS-34 EOT	
182	03:57	Sun 7/1	8:57 PM	Ka-band OFF	Stays ON after T33 gravity for GSEs on DOY 181-182

Gravity Science Enhancement (GSE) passes:

DOY 179, DSS-25, Pre-Cal 1610, BOT 1655, EOT 0330 (early uplink)

DOY 181, DSS-55, Pre-Cal 1030, BOT 1215, EOT 1810 (early uplink)

DOY 181, DSS-25, Pre-Cal 1550, BOT 1735, EOT 0400