

S65 Rev 141 Timeline for RSS Enceladus E12 Gravity Observation and Gravity Science Enhancements

2010/333-334, Mon-Tue November 29-30, 2010
Enceladus Closest Approach: 2010/334-13:18 ERT

OWLTL = 01:24, RTLTL = ~02:48

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 changes. Playback periods. Set RSR fgain accordingly and do not change during observation

DOY	Time ERT	Date/Day PST	Time PST	Event	Comments
				X-TWTA ON	Has been ON for days
333	02:30	Sun 11/28	6:30 PM	DSS-55 Pre-cal	Pass# 4806. Cas specific 4th-order pointing model, TLC enabled This pass to support Inbound GSE
	03:00		7:00 PM	DSS-63 Pre-cal	Pass# 4806. This pass is for Telemetry support
	04:00		8:00 PM	DSS-55 BOT	1-way
	04:00		8:00 PM	DSS-63 BOT	1-way
				Begin Inbound GSE	
	04:05		8:05 PM	Ka-band ON (KEX & Ka-TWTA)	DKF time 040533
				DSS-55 Enable Monopulse	At 1-way acquisition
	04:10		8:10 PM	DSS-63 Transmitter ON	DKF time 041000
	06:59		10:59 PM	DSS-55 Tracking Mode Change	1-way to 3-way. DKF time 065848
				DSS-63 Tracking Mode Change	1-way to 2-way. DKF time 065848
	10:12		2:12 AM	DSS-63 Transmitter OFF	DKF time 101138
	11:00		3:00 AM	DSS-55 EOT	
				DSS-55 Disable Monopulse	At loss of Ka-band signal
	13:00		5:00 AM	End Inbound GSE	
	13:00		5:00 AM	Ka-band OFF	
	13:00		5:00 AM	DSS-63 EOT	
334	00:10	Mon 11/29	4:10 PM	DSS-34 Pre-cal	Pass# 4807. Cassini specific 4th-order pointing model
	01:40		5:40 PM	DSS-34 BOT	No signal until ~0337 ERT
	01:50		5:50 PM	DSS-34 Transmitter ON	DKF time 015000
	01:55		5:55 PM	DSS-55 Pre-Cal	Pass# 4807. Cas specific 4th-order pointing model, TLC enabled
	03:13		7:13 PM	Ka-band ON (KEX & Ka-TWTA)	DKF time 031312
	03:20		7:20 PM	RSSG: Begin RSR recordings (X & Ka) at DSS-34 & 55	Att auto at 03:30
	03:25		7:25 PM	DSS-55 BOT	No signal until ~0337 ERT
	03:37		7:37 PM	DSS-34 Acquire 1-way Signal	DKF time 033717
				DSS-34 Enable Monopulse	As requested by RSSG
	03:37		7:37 PM	DSS-55 Acquire 1-way Signal	DKF time 033717
				DSS-55 Enable Monopulse	As requested by RSSG. Wait till elevation angle > 10 degrees
	03:44		7:44 PM	DSS-34 Transmitter OFF	DKF time 034415
	03:50		7:50 PM	DSS-55 Transmitter ON	DKF time 035000 Note: Not possible to do an uplink transfer from 34 to 55
	04:05		8:05 PM	DSS-34 EOT	
				DSS-34 Disable Monopulse	At loss of Ka-band signal

DOY	Time ERT	Date/Day PST	Time PST	Event	Comments
	04:39		8:39 PM	Begin 1st Segment - Begin Coherent Downlink	Official time is 0518 ERT
	04:39		8:39 PM	DSS-55 Tracking Mode Change	1-way to 3-way with DSS-34. DKF time 043834
				DSS-55 Enable Monopulse	As requested by RSSG
	05:35		9:35 PM	DSS-55 Transmitter OFF	5 minutes after DKF time 052943
	06:33		10:33 PM	DSS-55 Tracking Mode Change	3-way to 1-way. DKF time 063247
	06:39		10:39 PM	DSS-55 Tracking Mode Change	1-way to 2-way. DKF time 063832
				DSS-55 Enable Monopulse	As requested by RSSG
	08:18	Tue 11/30	12:18 AM	End 1st Segment	DKF time 081814
				Begin s/c turn from Earth	Turn by Science Planning (SP)
	09:00		1:00 AM	DSS-55 Transmitter ON	DKF time 085945
	09:45		1:45 AM	DSS-26 Pre-cal	Pass# 4807. Cas specific 4th-order pointing model, TLC enabled
	11:15		3:15 AM	DSS-26 BOT	No signal until ~11:48 ERT
	11:30		3:30 AM	RSSG: Begin RSR recordings (X & Ka) at DSS-34 & 55	Att auto 11:28 ERT
	11:48		3:48 AM	Begin 2nd Segment - Begin Coherent Downlink	DKF time 114813
				DSS-55 Acquire 2-way Signal	
				DSS-55 Enable Monopulse	As requested by RSSG
				DSS-26 Acquire 3-way signal	
				DSS-26 Enable Monopulse	As requested by RSSG
	12:05		4:05 AM	DSS-55 Transmitter OFF	5 minutes after DKF time 115946
	13:05		5:05 AM	DSS-55 EOT	
				DSS-55 Disable Monopulse	At loss of Ka-band signal
	13:18		5:18 AM	E12 Enceladus Closest Approach	11:54 SCET. Altitude 47.9 km
	14:48		6:48 AM	End 2nd Segment	DKF time 144811
				Begin s/c turn from Earth	
				DSS-26 Disable Monopulse	At loss of Ka-band signal
	15:30		7:30 AM	DSS-26 Transmitter ON	DKF time 152947
	16:00		8:00 AM	DSS-34 Pre-cal	Pass# 4808. Cassini specific 4th-order pointing model
	17:30		9:30 AM	DSS-34 BOT	No signal until ~18:18 ERT
	18:18		10:18 AM	Begin 3rd Segment - Begin Coherent Downlink	DKF time 181810
				DSS-26 Acquire 2-way Signal	
				DSS-26 Enable Monopulse	As requested by RSSG
				DSS-34 Acquire 3-way Signal	
				DSS-34 Enable Monopulse	As requested by RSSG
	18:37		10:37 AM	DSS-26 Transmitter OFF	5 minutes after DKF time 183150
	21:20		1:20 PM	End 3rd Segment	DKF time 212004
				Being s/c turn from Earth	
				Ka-band OFF	
				DSS-26 Disable Monopulse	At loss of Ka-band signal
				DSS-34 Disable Monopulse	At loss of Ka-band signal
	21:25		1:25 PM	DSS-26 EOT	
	21:45		1:45 PM	DSS-34 EOT	