

S89 Rev 217 Timeline for RSS Dione D4 Gravity Observation

2015/167, Tuesday, June 16, 2015 PDT
Dione Closest Approach: 2015/167-21:27 ERT

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

DSS-34 related activities

DSS-43 related activities

DSS-55 related activities

DSS-63 related activities

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

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

DOY	Time ERT	Time PDT	Event	Comments
			X-TWTA ON	On since DOY 160
167	15:00:00	8:00 AM	DSS-34 Pre-Cal	Pass# 0167. Cassini specific 4th-order pointing model
	16:30:00	9:30 AM	DSS-34 BOT	Uplink only support
	16:45:00	9:45 AM	DSS-55 Pre-Cal	Pass# 0167. Cassini specific 4th-order pointing model
	16:45:13	9:45 AM	Ka-band ON (KEX & Ka-TWTA)	ON until end of outbound GSE
	17:07:31	10:07 AM	DSS-34 Transmitter ON	18 kW, Ramped uplink predicts
	17:40:00	10:40 AM	Note: Spacecraft bias	Duration 27 minutes. Spacecraft not Earth-pointed
	18:15:00	11:15 AM	DSS-55 BOT	No signal until 19:38:09 ERT (spacecraft off Earth-point)
	18:17:30	11:17 AM	DSS-34 Transmitter OFF	Due to transmitter elevation limits. Coherent data gap RTLT later
	18:38:30	11:38 AM	DSS-55 Transmitter ON	18 kW, Ramped uplink predicts
	18:40:00	11:40 AM	DSS-34 EOT	
	18:55:00	11:55 AM	DSS-34 End of Post-Cal	
	19:10:00	12:10 PM	DSS-63 Pre-Cal	
	19:20:00	12:20 PM	RSSG: Begin DSS-55 RSR recordings (X & Ka)	
	19:20:00	12:20 PM	RSSG: Begin DSS-63 RSR recordings (X)	
	19:38:09	12:38 PM	Begin Dione D4 Gravity Observation - Begin Coherent Data	
	19:38:09	12:38 PM	Spacecraft Earth pointed	
	19:38:09	12:38 PM	DSS-55 Acquire 3-way X- & Ka-band signals (w/ DSS-34)	
			DSS-55 Enable Monopulse	When requested by RSSG
			RSSG: Note telemetry B/R 1896	
	19:40:00	12:40 PM	DSS-63 BOT	
	19:40:00	12:40 PM	DSS-63 Acquire 3-way X-band signal (w/ DSS-34)	
	19:40:21	12:40 PM	RSSG: Note telemetry B/R 99541	Expect decrease in signal power of about 6.45 dB
	19:55:21	12:55 PM	RSSG: Note telemetry B/R 110601	
	20:30:21	1:30 PM	RSSG: Note telemetry B/R 124426	
	20:41:40	1:41 PM	DSS-55 Transmitter OFF	5 minutes after DKF time 20:36:40
	20:45:00	1:45 PM	DSS-55 Disable Monopulse without clearing offsets	Before mode switch to 1-way
	20:48:09	1:48 PM	DSS-55 Tracking mode change to 1-way	Begin coherent data gap
			DSS-55 Re-enable Monopulse	When requested by RSSG
	20:48:09	1:48 PM	DSS-63 Acquire 1-way signal	
	21:07:00	2:07 PM	DSS-55 Disable Monopulse without clearing offsets	Before mode switch to 2-way
	21:09:09	2:09 PM	DSS-55 Tracking mode change to 2-way	End coherent data gap

DOY	Time ERT	Time PDT	Event	Comments
			DSS-55 Enable Monopulse	When requested by RSSG
	21:09:09	2:09 PM	DSS-63 Acquire 3-way X-band signal (w/ DSS-55)	
	21:27:08	2:27 PM	Dione D4 Closest Approach	Altitude 516 km
	23:05:00	4:05 PM	DSS-63 EOT	
	23:05:20	4:05 PM	<i>RSSG: Note telemetry B/R 1896</i>	
	23:07:20	4:07 PM	DSS-55 Loss of X- and Ka-band signal	
			DSS-55 Disable Monopulse	At loss of Ka-band signal
	23:07:20	4:07 PM	End Dione D4 Gravity Observation - End Coherent Data	
	23:07:20	4:07 PM	Begin turn from Earth	
	23:20:00	4:20 PM	DSS-63 End of Post-Cal	
	23:25:00	4:25 PM	<i>RSSG: End Madrid RSR recordings</i>	
168	00:15:00	5:15 PM	DSS-55 EOT	
	00:30:00	5:30 PM	DSS-55 End of Post-Cal	