

## S23 Rev 28 Timeline for RSS Saturn Gravity Observation

2006/252, Saturday September 9, 2006  
Saturn Periapsis: 2006/252-19:05:38 ERT

EPOCH: E028\_Per 2006-252T17:38:29 SCET  
OWLT = 01:23:30, RTLT = 02:47

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 changes during observation for possible change in SNR. Set RSR fgain accordingly. Do no change during observation*

DOY	Time ERT	Date/Day PDT	Time PDT	Event	Comments
251	09:49	Fri 9/8	2:49 AM	Ka-band ON (KEX & Ka-TWTA)	On-board s/c. ON for ORT, and stays ON for grav on DOY 252 X-TWTA ON since DOY 250
252	10:55	Sat 9/9	3:55 AM	DSS-25 Pre-cal	Cassini specific 4th-order pointing model, TLC enabled
	12:40		5:40 AM	DSS-25 BOT	No downlink until ~16:03 ERT
	13:21		6:21 AM	DSS-25 Transmitter ON (DKF time 132133)	Ramped uplink predicts
	14:45		7:45 AM	DSS-14 Pre-cal	
	15:45		8:45 AM	DSS-14 BOT	No downlink until ~16:03 ERT
	15:36		8:36 AM	Begin S/C Turn to Earth (DKF time 153627)	Turn by SP. Telemetry Bit Rate: 1896 (until 1608)
	15:55		8:55 AM	RSSG: Begin RSR recording (X & Ka)	
	16:03		9:03 AM	1-way signal may be present	If DSS-25 locks up on Ka signal, enable monopulse. Disable monopulse before switch to 2-way, and clear offsets
	16:07		9:07 AM	If monopulse is enabled, disable and clear offsets	DSS-25
	16:07		9:07 AM	Begin Saturn Gravity Observation	
	16:08		9:08 AM	End S/C Turn to Earth (DKF time: 160827)	2-way at DSS-25 3-way at DSS-14 Telemetry Bit Rate change at 160828: 142201 (until 211428)
	16:08		9:08 AM	DSS-25 Enable Monopulse	After 2-way lock
	18:10		11:10 AM	DSS-34 Pre-cal	Cassini specific 4th-order pointing model DSS-34 is an ORT pass, but will acquire gravity data as well
	19:05		12:05 PM	Periapsis	R = 3 Rs, Lat = -12 deg, Phase = 7 deg
	19:41		12:41 PM	DSS-25 Transmitter OFF	REAL-TIME CHANGE: 5 mins later than 19:36 ERT time in DKF
	19:55		12:55 PM	DSS-34 BOT	3-way with DSS-25
	19:55		12:55 PM	DSS-34 Enable Monopulse	After 3-way lock
	21:14		2:14 PM	Note to RSSG	Telemetry Bit Rate change at 211428: 124426 (until 222325)
	22:23		3:23 PM	End Saturn Gravity Observation	
				Begin S/C Turn from Earth (DKF time: 222320)	Telemetry Bit Rate change at 222325: 1896
				DSS-25 Disable Monopulse	At loss of Ka-band signal
	22:25		3:25 PM	DSS-14 EOT	
	22:27		3:27 PM	RSSG: End RSR Recording (X & Ka)	
	22:30		3:30 PM	DSS-25 EOT	
	22:30		3:30 AM	DSS-34 EOT	