

## S56 Rev 124 Timeline for RSS Saturn Gravity Observation

2010/010-011, Sun-Mon Jan 10-11, 2010  
Saturn Closest Approach: ~2010/011-04:39 ERT

EPOCH: E124\_Per1 2010-011T03:23:00 SCET  
OWLT = 01:16, RTLT = ~02:32

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. Playbacks scheduled. 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
010	20:50	Sun 1/10	12:50 PM	DSS-34 Pre-cal	Cassini specific 4th-order pointing model
	22:20		2:20 PM	DSS-34 BOT	No downlink until ~01:26 ERT. Pass# 4483
				DSS-55 Pre-Cal	Cassini specific 4th-order pointing model, TLC enabled
	22:44		2:44 PM	DSS-34 Transmitter ON	DKF time 22:43:48
	23:26		3:26 PM	Ka-band ON (KEX & Ka-TWTA)	On-board s/c
	23:50		3:50 PM	DSS-55 BOT	No downlink until ~01:26 ERT. Pass# 4483
011	00:11		4:11 PM	Uplink Transfer from 34 to 55	DKF time 00:10:30
	00:20		4:20 PM	DSS-34 EOT	
	00:36		4:36 PM	Begin s/c Turn to Earth	Turn by Science Planning (SP)
	00:50		4:50 PM	RSSG: Begin RSR recordings (X & Ka)	
	01:16		5:16 PM	Begin RSS - Begin Coherent Downlink	DKF time 01:16:11. DSS-55 3-way with 34
				DSS-55 Enable Monopulse	As requested by RSSG
	01:26		5:26 PM	Note: Bit Rate Change	Bit Rate 27650
	02:43		6:43 PM	DSS-55 Switch to 2-way	DKF time 02:42:51
	03:45		7:45 PM	Note: Bit Rate Change	Bit Rate 33180
	04:39		8:49 PM	Saturn Periapse (Closest Approach)	03:23 SCET. R = 2.999 Rs, lat = 11 deg, phase = 76 deg
	05:34		12:34 PM	DSS-55 Transmitter OFF	DKF time 05:33:51
	06:45		10:45 PM	Note: Bit Rate Change	Bit Rate 27650
	08:06	Mon 1/11	12:06 AM	End RSS - End Coherent Downlink	DKF time 08:06:08
				Ka-band OFF	DKF time 08:05:52
				Begin s/c Turn from Earth	Turn by Science Planning (SP)
				DSS-55 Disable Monopulse	At loss of Ka-band signal
				Note: Bit Rate Change	Bit Rate 1896
	08:20		12:20 AM	RSSG: End RSR recordings (X & Ka)	
	08:30		12:30 AM	DSS-55 EOT	

### Gravity Science Enhancement (GSE) passes around Rev124 Grav:

Inbound  
None

Outbound:

10 011 2300 0030 0930 0945 DSS-54 CAS TP RS124-SAKDWN1 4484 N748 1A1  
10 011 2330 0030 0930 0945 DSS-63 CAS TKG PASS 4484 N003 1A1