

About the Occultation

- S77 Rev 179 Saturn rings occultation

- Ingress only
- Telemetry OFF, Ranging OFF, 2-way/3-way mode
- Covered by Madrid

- From Essam Marouf:

Two RSS ring occultations are captured in S77, the first is on Rev179 (2013-018) and the second is on Rev180 (2013-031). They sample new ring opening angle range around $B = \sim 19$ degrees at two different Earth-relative longitudes. The occultation tracks cover outer Ring B, the Cassini Division, and Ring A. The geometry is ideally suited for profiling density and bending waves populating Ring A, and also for providing additional constraints on the kinematics of circular and non-circular Cassini Division features and outer edge of Ring B. The measurements will also be used to determine/constrain the particle size distribution of resolved ring features and physical properties of gravitational wakes in outer Ring B and throughout Ring A.

DSN Antennas

- DSN Coverage

	Pre	BOT	EOT	Post							
13 018	0120	0220	0740	0755	DSS-63	CAS	TP	RS179-RIOCC	5589	1639	1A1
13 018	0320	0450	0740	0755	DSS-55	CAS	TP	RS179-RIOCC	5589	N750	1A1

- DSS-63 will be providing the uplink throughout

- Receivers scheduled

- 2 closed-loop receivers per antenna
- Open-loop receivers (RSRs, WVSRs, VSRs)
 - Danny – Check WVSR & VSR availability
- Open-loop data are prime. Closed-loop data are backup
 - Will need ramp info in closed-loop data for processing

- Antennas Band and Polarization Capabilities

DSS-63	DSS-55*
X-RCP X-LCP	X-RCP X-LCP
S-RCP S-LCP	K-RCP K-LCP

*Either KLCP (switch 43 in B position)
or monopulse (switch 43 in A position)

- Only RCP will be recorded
 - 2-way/3-way and 1-way modes

S77 Rev 179 Open-Loop Assignment

DSS Prdx Mode	Operator	Station	Open-loop Receiver	Channels	Subchannels	Bandwidths KHz
63 (2-way)	Gregory	rsops1	RSR1	RSR1A -> XRCP RSR1B -> SRCP	1, 2, 3, 4 1, 2, 3, 4	1, 16, 50, 100 1, 16, 50, 100
63 (1-way)	Danny	rsops4	WVSR1	WVSR1A -> XRCP WVSR1B -> SRCP	1, 2, 3, 4 1, 2, 3, 4	1, 16, 50, 100 1, 16, 50, 100
55 (3-way)	Elias	rsops2	RSR2	RSR2A -> XRCP RSR2B -> KRCP	1, 2, 3, 4 1, 2, 3, 4	1, 16, 50, 100 1, 16, 50, 100
55 (1-way)	Danny	rsops4	WVSR2	WVSR2A -> XRCP WVSR2B -> KRCP	1, 2, 3, 4 1, 2, 3, 4	1, 16, 50, 100 1, 2, 16, 50

- VSR is backup
- Aseel – VOCA
- Elias – Ops Room Displays

- RSSG will be in the Ops room at 5 pm on Thursday, January 17th, 2013 (2013-018/0100)

ORTs

- No new ORTs!
 - No Madrid supports since last experiment (Rev 178 atmospheric occultation on DOY 004-005)
- Last DSS-55 ORT were early January prior to last experiment:

ORT on DOY 002 (January 2) over DSS-55, X- and Ka-band

13 002 0130 0330 0645 0700 DSS-55 CAS RSORT MC ARRAY-R 5573 N650 1A1 A

ORT on DOY 003 (January 3) over DSS-55, X- and Ka-band

13 003 0200 0330 1010 1025 DSS-55 CAS RS178-ORT MC SEQ 5574 N750 1A1

- Also acquired monopulse data during Rev 178 atmospheric occultation support

13 005 0140 0310 0530 0545 DSS-55 CAS RSS REV178 SAOCC 5576 N750 1A1

- David Rochblatt already has monopulse data from above supports

Misc

Uplink Strategy

- DSS-63, 18 kW, RAMPED, sweep

DKF – Does not have the correct uplink or AOS/LOS times. Use times in RSS timeline

Plan for Cassini Specific 4th Order Pointing Models

- DSS-55 pointing model was not updated prior to January 5th experiment
 - David reported: In the region for the Cassini Occultation support by DSS-55, between 03:10 (BOT) and 05:30 (EOT) UTC, the MRE pointing performance is 2.76-mdeg and 2.77-mdeg for DOY's 002, and 003, respectively
 - Pointing appeared to be good during January 5th experiment
 - David checked monopulse data?
 - However, slightly different regions during upcoming experiment (signal expected ~0520 to ~0700 ERT)

NOPEs - Equipment Status?

Plan for Predicts Generation – Elias & Danny?

SNT

- Enable X only at DSS-55 throughout
- Conduct SNT measurements