About the Occultation

- S35 Rev 53 Rings occultation
 - Ingress occ only
 - Telemetry OFF, 1-way mode
 - Covered by Madrid
- From Essam Marouf:

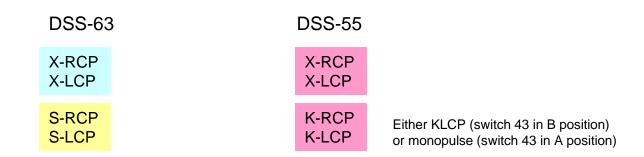
The rev 53 RSS ring occultation is the first in a sequence of 8 occultations implemented during the last seven months of the Cassini prime mission during the Cassini high-inclination sequence. The occultations capture the rings when the angle B between the Cassini-to-Earth line-of-sight and the ring plane is relatively small (B = 6.6 to 9.9 degs, compared with B = 19.5 to 23.5 degs early in the mission). The more elongated path of the radio signal through the rings (length ~ 1/sin(B)) allows enhanced sensitivity to tenuous ring features at the expense of more attenuation by dense ring features, hence the early and late occultation sets provide complementary information about ring structure and physical properties. Rev 53 is a "chord" occultation that partially probes the ring system (it does not probe Ring C or inner Ring B), but does so at B = 6.7 degs and hence is expected to provide particularly valuable information about the structure of the Cassini Division, Ring F, and likely the less optically thick regions of Ring A. The relatively optically thick Ring B is expected to be mostly noise limited.

DSN Antennas

DSN Coverage

Station	Pre-cal	BOT	EOT	Post-Cal
DSS-55	337/0330	337/0515	337/0815	337/0830
DSS-63	337/0415	337/0515	337/0815	337/0830

- Receivers scheduled
 - 2 closed-loop receivers per antenna
 - Four RSRs, One VSR (A&B) and One WVSR (A&B) at Madrid are scheduled
 - Total: 8 open-loop receivers
 - Open-loop data are prime. Closed-loop data are backup
- Antennas Band and Polarization Capabilities



LCP data are enhancement. Prime are RCP

RSR/VSR/WVSR Assignment

Aseel: VOCA

Roberto: Displays

DSS	Operator	Station	Open-Loop Receiver	RSR Assignment
63	Danny	rsops1	RSR1	RSR1A -> XRCP
				RSR1B -> SRCP
55	Elias	rsops2	RSR2	RSR2A -> XRCP
				RSR2B -> KRCP
63/55 LCP	Don	rsops3	VSR1 and WVSR1	63 VSR1A -> XLCP
				63 VSR1B -> SLCP
				55 WVSR1A -> XLCP
				55 WVSR1B -> KLCP

RSSG will be in RS Ops Room at 7 pm on Sunday 12/2/07 (337/0300)

ORTs

ORT on DOY 325 (November 21) over DSS-55, X- and Ka-band **completed** 07 325 0030 0215 1115 1130 DSS-55 CAS TP RSR52-OCCORT1 3699 N750 1A1 07 325 0115 0215 0715 0730 DSS-63 CAS TKG PASS 3699 N003 1A1

- Nominal DSS-55 collected pointing data (monopulse) to update the 4th-order blind pointing model

ORT on DOY 328 (November 24) over DSS-25, DSS-55 and DSS-34, X- and Ka-band 07 328 0745 0930 1830 1845 DSS-25 CAS TP RSR52-GRVORT1 3702 N748 1A1 07 328 0745 0930 1230 1245 DSS-55 CAS TP RSR52-GRVORT1 3702 N750 1A1 07 328 1415 1600 1830 1845 DSS-34 CAS TP RSR52-GRVORT1 3703 N750 1A1

- DSS-25 was prime for telemetry and uplink
- DSS-25 and DSS-34 not participating in Rev53 occ. Were scheduled as ORTs for a gravity observation that later got deleted. Kept DSS-25 as it is the prime pass, and kept DSS-34 since no Ka-band data were collected there for a while and pass was helpful with DSS-47 testing

completed

- DSS-55 collected pointing data (monopulse) to update the 4th-order blind pointing model. Nominal support except for large monopulse offsets during 2-way
- Antenna problems at DSS-25 (DR#108183) seemed to affect monopulse (large offsets). After problem fixed, monopulse was re-started (disabled, offsets cleared and re-enabled), and offsets were much better
- Nominal DSS-34 support

ORT on DOY 333 (November 29/Thu evening) over DSS-25 and DSS-34, X- and Ka-band 07 333 0730 0915 1815 1830 DSS-25 CAS TP RSR53-GRVORT2 3707 N748 1A1 07 333 1400 1545 1815 1830 DSS-34 CAS TP RSR53-GRVORT2 3708 N750 1A1

- DSS-25 is prime
- Originally gravity ORT

ORT on DOY 334 (November 30/very early Friday) over DSS-63, X- and S-band 07 334 0815 0915 1815 1830 DSS-15 CAS TKG PASS 3708 N006 1A1 07 334 0815 0915 1045 1100 DSS-63 CAS TP RSR53-OCCORT2 3708 1639 1A1

- DSS-15 is prime for telemetry and uplink. No S-band support
- DSS-63 verify S-band and X-band (RCP and LCP)

Misc

Cassini Specific 4th Order Pointing Models

Name:

DSS-55 cas55.sem

SNT

Enable X at DSS-55 only throughout

DSS-63 Microwave Configuration

- Configure SRCP low noise to the SP MASER to the 01 output
- Configure SLCP through the diplexer to the SB HEMT to the 02 output