

About the Occultation

- S39 Rev 64 Rings and ionospheric occultation
 - Rings Occ (chord)
 - Ionospheric Occ (grazing)
 - Telemetry OFF, 1-way mode
 - Covered by Goldstone and Canberra

- From Essam Marouf:

The S39 Rev 64 ring occultation is a [chord occultation that probes all major ring features \(A, Cassini Division, B, and C\) on the inbound and outbound sides. The ring opening angle is 9.8 degrees.](#) The occultation will provide valuable information regarding ring structure and physical properties, complementing information from previous occultations. Rev 64 [also provides a relatively long grazing occultation of Saturn's ionosphere after completion of the ring occultation,](#) providing information about the ionospheric electron number density down to a radius of about 62,000 km.

DSN Antennas

- DSN Coverage

Station	Pre-cal	BOT	EOT	Post-Cal
DSS-43	102/0540	102/0645	102/1120	102/1135
DSS-14	102/0545	102/0645	102/1045	102/1100
DSS-25	102/0545	102/0645	102/1045	102/1100
DSS-34	102/0545	102/0645	102/1120	102/1135

25 and 34 scheduled as downlink only passes

- Receivers scheduled

- 2 closed-loop receivers per antenna
- Four RSRs at 10, Two RSRs at 40, One VSR (A&B) and One WVSR (A&B) at each complex
 - Total: 8 open-loop receivers at Goldstone, and 6 at Canberra
 - RSR2 is not at Canberra. It was temporarily moved to Narrabri
- Open-loop data are prime. Closed-loop data are backup

- Antennas Band and Polarization Capabilities

DSS-43	DSS-34	DSS-14	DSS-25
X-RCP X-LCP	X-RCP	X-RCP X-LCP	X-RCP X-LCP
S-RCP S-LCP	K-RCP	S-RCP S-LCP	K-RCP

Either XRCP or XLCP

- LCP data are enhancement. Prime are RCP. No antenna w/ K-LCP capability this time!

Narrabri (DSS-47)

- Pass

	Pre-cal	BOT	EOT	Post-Cal
DSS-47	102/0500	102/0515	102/1030	102/1100

- Test pass – not one of “official” Cassini passes
- Ka-band downlink only
- RSR2 from Canberra was transferred to Narrabri
- Messenger passes last week
- No direct voice lines with Narrabri - communicate through Canberra

RSR/VSR/WVSR Assignment

Aseel: VOCA
 Danny: Displays

DSS	Operator	Station	Open-Loop Receiver	RSR Assignment
43	Danny	rsops1	VSR1	VSR1A -> XRCP
				VSR1B -> SRCP
14	Danny	rsops1	RSR1	RSR1A -> XRCP
				RSR1B -> SRCP
34	Elias	rsops2	RSR1	RSR1A -> XRCP
				RSR1B -> KRCP
25	Elias	rsops2	RSR1	RSR1A -> XRCP
				RSR1B -> KRCP
43 LCP	Don	rsops3	WVSR1	43 WVSR1A -> XLCP
				43 WVSR1B -> SLCP
14 LCP	Don	rsops3	WVSR1	14 WVSR1A -> XLCP
				14 WVSR1B -> SLCP
47	Don	rsops3	RSR2	47 RSR2A -> KRCP

RSSG will be in RS Ops Room at 9:30 pm on Thursday 4/10/08 (102/0430)

ORTs

ORT on DOY 095 (April 4) over DSS-25, X- and Ka-band

completed

08 094 2330 0030 0930 0945 DSS-14 CAS TKG PASS 3834 N003 1A1

08 095 0455 0555 0930 0945 DSS-25 CAS TP RSR63-ORT D/L 3834 N71L 1A1

- DSS-14 was prime
- Weather: Cloudy with some winds
- DSS-25 Collected pointing data (monopulse) to update the 4th-order blind pointing model - Elevation correction reached a maximum value of about 10.69 mdegrees

ORT on DOY 096 (April 5) over DSS-25 and DSS-34, X- and Ka-band

completed

08 095 2300 0030 0930 0945 DSS-25 CAS TP RSR63-OCCORT2 3835 N748 1A1

08 096 0530 0700 0930 0945 DSS-34 CAS TP RSR63-OCCORT2 3836 N750 1A1

- DSS-25 was prime
- Both stations collected pointing data (monopulse) to update the 4th-order blind pointing model
- DSS-25 weather partly cloudy, wind speed was 20+ miles/hour, decreasing towards EOT
- DSS-25 Elevation correction reached up to 6.89 mdegrees, Azimuth correction values up to 7.66 mdegrees
- DSS-25 Ka-band sometimes noisy, sometimes good (due to weather?)
- DSS-34 weather "fine"
- DSS-34 Elevation correction reached up to -5.71 mdegrees, Azimuth correction values up to 3.75 mdegrees but there were periods of time where these values were lower
- Only one DSS-34 ORT

ORT on DOY 098 (April 7) over DSS-14 and DSS-43, X- and S-band

completed

08 097 2315 0015 0915 0930 DSS-14 CAS TP RSR64-OCCORT1 3837 1639 1A1

08 098 0545 0645 0915 0930 DSS-43 CAS TP RSR64-OCCORT1 3838 1639 1A1

- DSS-14 was prime
- DSS-14 verified S-band and X-band (RCP and LCP)
- DSS-14 antenna went to brake for a couple of minutes. DR# G108500
- DSS-43 S-Maser red. DR# C106312. SRCP to HEMT instead. No SLCP
- DSS-43 verified X-band (RCP and LCP) and S-band RCP

USO on DOY 099 (April 8) over DSS-25, X- and S-band

08 098 2245 0015 0915 0930 DSS-25 CAS TP RSR64-USOPIM1 3838 N748 1A1

- USO first 3-hrs of the pass, then Ka-band off

Misc

Cassini Specific 4th Order Pointing Models

- Status

SNT

- Enable X only at DSS-34 and DSS-25 throughout
- Conduct SNT measurements

DSS-43 and DSS-14 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
- **If DSS-43 S-Maser is still red, SRCP to the HEMT**