

Timeline for Cassini Rev 250: 2-Way RSS Saturn's Ring Chord Occultation

Nov 28, 2016 UTC (DOY-333)

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	ERT UTC OWLT = 01:31:37	SCET	PDT ERT-8hrs 08:00:00	Comments
DOY 2016-332				
Spacecraft is Earth Pointed				
RSSG: Load 1-W Predicts, 2-W, and 3-W Frequency Predicts				
DSS-14: Begin Pre-Cal	19:45:00	18:13:23	11:45:00	
DSS-14: Beginning of Track	20:45:00	19:13:23	12:45:00	
DSS-14: Transmitter ON	20:55:00	19:23:23	12:55:00	Per DKF
DSS-43: Begin Pre-Cal	23:05:00	21:33:23	15:05:00	
RSSG: Begin DSS-43 Open-Loop Recordings	23:35:00	22:03:23	15:35:00	
DOY 2016-333				
DSS-43: Beginning Of Track	00:05:00	22:33:23	16:05:00	Spacecraft is Earth pointed; downlink X-band detectable
DSS-43: Begin X-band 3-Way Acquisition (w/DSS-14)	00:05:00	22:33:23	16:05:00	PC/N0 (X-70m TLM ON) = 43 dB-Hz
DSS-43: Transmitter ON, 18 kW, LCP, RAMP	00:15:00	22:43:23	16:15:00	Per DKF. NO SWEEP ; Uplink Transfer from DSS-14 to DSS-43
DSS-14: Transmitter OFF	00:15:05	22:43:28	16:15:05	Per DKF
DSS-14: End Of Track	00:20:00	22:48:23	16:20:00	
DSS-14: Post of Post-Cal	00:35:00	23:03:23	16:35:00	
DSS-34: Begin Pre-Cal	01:40:00	00:08:23	17:40:00	
DSS-43: Transmitter OFF	02:28:27	00:56:50	18:28:27	Transmitter off time = start of 1-way baseline - RTL
RSSG: Begin DSS-34 Open-Loop Recordings	02:40:00	01:08:23	18:40:00	
DSS-43: Transmitter ON, 18 kW, LCP, RAMP, SWEEP	02:42:27	01:10:50	18:42:27	Transmitter on time = start of 2- & 3-way baseline - RTL
DSS-34: Beginning Of Track	03:10:00	01:38:23	19:10:00	
DSS-34: Begin X-band 3-Way Acquisition (w/DSS-14)	03:10:00	01:38:23	19:10:00	PC/N0 (X-34m TLM ON) = 37 dB-Hz
DSS-43: Begin X-band 2-Way Acquisition	03:18:13	01:46:36	19:18:13	PC/N0 (X-34m TLM ON) = 43 dB-Hz
DSS-34: Begin X-band 3-Way Acquisition (w/DSS-43)	03:18:13	01:46:36	19:18:13	PC/N0 (X-34m TLM ON) = 37 dB-Hz
S-Band ON	03:27:05	01:55:28	19:27:05	Via real-time commands
DSS-43: Begin S-band 2-Way Acquisition	03:27:05	01:55:28	19:27:05	PC/N0 (S-70m) = 42 dB-Hz
Ka-Band ON	03:32:01	02:00:24	19:32:01	Via real-time commands
Start of Thermal Stabilization Period	03:32:01	02:00:24	19:32:01	
DSS-34: Begin Ka-band 3-Way Acquisition (w/DSS-43)	03:32:01	02:00:24	19:32:01	PC/N0 (Ka-34m) = 48 dB-Hz
DSS-34: Enable Monopulse	TBD			Enable Monopulse only when requested by RS Operations
Redundant S-band On Commands	05:26:39	03:55:02	21:26:39	Per PEF. In background sequence
End of Thermal Stabilization Period	05:27:36	03:55:59	21:27:36	

DSS-34: Disable Monopulse Without Clearing the Offsets	05:29:00	03:57:23	21:29:00	Prior to mode switch to 1-way
Redundant Ka-band On Commands	05:31:35	03:59:58	21:31:35	Per PEF. In background sequence
Official Start of Rev250 Ring Occultation Experiment	05:31:37	04:00:00	21:31:37	
RNG OFF/TLM OFF	05:31:40	04:00:03	21:31:40	X-band signal level increase
Start 1-Way Baseline (~14 min)				
DSS-43: Begin X- & S-band 1-Way Acquisition	05:31:41	04:00:04	21:31:41	PC/N0 (X-70m TLM OFF, S-70m) = 54, 42 dB-Hz
DSS-34: Begin X- & Ka-band 1-Way Acquisition	05:31:41	04:00:04	21:31:41	PC/N0 (X-34m TLM OFF, Ka-34m) = 48, 48 dB-Hz
RSSG: Enter 1-Way Open-Loop Frequency Offsets as Needed				
End 1-Way Baseline, Start 2-Way/3-Way Baseline	05:45:41	04:14:04	21:45:41	
RSSG: Clear 1-Way Open-Loop Frequency Offsets				
DSS-43: Begin X- & S-band 2-Way Acquisition	05:45:41	04:14:04	21:45:41	PC/N0 (X-70m TLM OFF, S-70m) = 54, 42 dB-Hz
DSS-34: Begin X- & Ka-band 3-Way Acquisition (w/DSS-43)	05:45:41	04:14:04	21:45:41	PC/N0 (X-34m TLM OFF, Ka-34m) = 48, 48 dB-Hz
DSS-34: Enable Monopulse	TBD			Enable Monopulse only when requested by RS Operations
Ring F	06:15:21	04:43:44	22:15:21	Approx. time; Ring F is usually not detectable in real-time
Ring A In	06:24:14	04:52:37	22:24:14	Approximate time
DSS-34: Disable Monopulse	TBD			Disable Monopulse only when requested by RS Operations
Ring A Out	07:06:41	05:35:04	23:06:41	
DSS-55: Begin Pre-Cal	07:20:00	05:48:23	23:20:00	
Ring B in	07:22:04	05:50:27	23:22:04	Potential loss of 2-Way signals over parts of Ring B
DSS-63: Begin Pre-Cal	08:05:00	06:33:23	00:05:00	
DSS-74: Begin Pre-Cal	08:05:00	06:33:23	00:05:00	
RSSG: Begin DSS-63 & DSS-55 Open-Loop Recordings	08:20:00	06:48:23	00:20:00	
DSS-74: Beginning Of Track	08:35:00	07:03:23	00:35:00	
DSS-74: Begin X- & S-band 3-Way Acquisition (w/DSS-43)	08:35:00	07:03:23	00:35:00	
DSS-74: Transmitter ON, 18 kW, LCP, RAMP	08:50:00	07:18:23	00:50:00	NO SWEEP ; Uplink Transfer from DSS-43 to DSS-74
DSS-55: Beginning Of Track	08:50:00	07:18:23	00:50:00	
DSS-55: Begin X- & Ka-band 3-Way Acquisition (w/DSS-43)	08:50:00	07:18:23	00:50:00	PC/N0 (X-34m, Ka-34m) = 48, 48 dB-Hz
DSS-43: Transmitter OFF	08:50:05	07:18:28	00:50:05	
Rings Turn Around Time	08:58:48	07:27:11	00:58:48	Center of the chord occultation track
DSS-63: Beginning Of Track	09:05:00	07:33:23	01:05:00	
DSS-63: Begin X- & S-band 3-Way Acquisition (w/DSS-43)	09:05:00	07:33:23	01:05:00	PC/N0 (X-34m, S-34m) = 48, 38 dB-Hz
DSS-43 & DSS-34: End Of Track	09:10:00	07:38:23	01:10:00	
DSS-63 Transmitter ON, 18 kW, LCP, RAMP	09:16:00	07:44:23	01:16:00	NO SWEEP ; Uplink Transfer from DSS-74 to DSS-63
DSS-74: Transmitter OFF	09:16:05	07:44:28	01:16:05	Trasnmittter off time = Start of DSS-63 2-Way minus RTLT
DSS-43 & DSS-34: End Of Post-Cal	09:25:00	07:53:23	01:25:00	
DSS-74: End Of Track	09:35:00	08:03:23	01:35:00	
DSS-74: End of Post-Cal	09:35:00	08:03:23	01:35:00	
DSS-63 Transmitter OFF	09:40:00	08:08:23	01:40:00	End of DSS-63 2-Way Baseline minus RTLT

RSSG: End DSS-43 & DSS-34 Open-Loop Recordings	09:40:00	08:08:23	01:40:00	
Ring B Out	10:35:30	09:03:53	02:35:30	
Ring A in	10:50:51	09:19:14	02:50:51	
DSS-55: Enable Monopulse	TBD			Enable monopulse only when requested by RS Operations
Ring A out	11:23:11	09:51:34	03:23:11	All signals back to full strength (free-space) levels
Ring F	11:42:03	10:10:26	03:42:03	Approx. time; Ring F is usually not detectable in real-time
DSS-63: Begin X- & S-band 3-Way Acquisition (w/DSS-74)	11:53:14	10:21:37	03:53:14	PC/N0 (X-70m, S-70m) = 58, 42 dB-Hz
DSS-55: Begin X- & Ka-band 3-Way Acquisition (w/DSS-74)	11:53:14	10:21:37	03:53:14	PC/N0 (X-34m, Ka-34m) = 48, 48 dB-Hz
DSS-63: Begin X- & S-band 2-Way Acquisition	12:19:14	10:47:37	04:19:14	PC/N0 (X-70m, S-70m) = 58, 42 dB-Hz
DSS-55: Begin X- & Ka-band 3-Way Acquisition (w/DSS63)	12:19:14	10:47:37	04:19:14	PC/N0 (X-34m, Ka-34m) = 48, 48 dB-Hz
DSS-55: Disable Monopule Without Clearing the Offsets	12:41:00	11:09:23	04:41:00	Prior to mode switch to 1-way
End 2-Way/3-Way Baseline, Start Short (~10 min) 1-Way Baseline	12:43:14	11:11:37	04:43:14	
DSS-63: Begin X- & S-band 1-Way Acquisition	12:43:14	11:11:37	04:43:14	PC/N0 (X-70m, S-70m) = 54, 42 dB-Hz
DSS-55: Begin X- & Ka-band 1-Way Acquisition	12:43:14	11:11:37	04:43:14	PC/N0 (X-34m, Ka-34m) = 48, 48 dB-Hz
RSSG: Enter 1-Way Open-Loop Frequency Offsets as Needed				
S-Band OFF	12:52:58	11:21:21	04:52:58	Per PEF
Ka-Band OFF	12:53:00	11:21:23	04:53:00	Per PEF
TLM ON/RNG ON	12:53:31	11:21:54	04:53:31	
End of Rev 250 RSS Ring Occultaion Experiment	12:53:37	11:22:00	04:53:37	
DSS-63 & DSS-55: End Of Track	13:30:00	11:58:23	05:30:00	
DSS-63 & DSS-55: End Of Post-Cal	13:45:00	12:13:23	05:45:00	
RSSG: End DSS-63 & DSS-55 Open-Loop Recordings	14:00:00	12:28:23	06:00:00	

- Goldstone DSS-14 related activities
- Canberra DSS-43 & DSS-34 related activities
- New Norcia DSS-74 Activities
- Madrid DSS-55 & DSS-63 related activities

Predicted rings event times are approximate and are based on [Ref Traj 150901](#)