Timeline for Cassini Rev 247: 2-Way RSS Saturn's Ring Chord Occultation
Nov 02, 2016 UTC (DOY-307)
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	ERT UTC OWLT = 01:30:19	SCET	PDT ERT-7hrs 07:00:00	Comments
DOY 2016-307				
Spacecraft is NOT Earth Pointed				
RSSG: Load 1-W Predicts, 2-W, and 3-W Frequency Predicts				
DSS-26: Begin Pre-Cal	16:00:00	14:29:41	09:00:00	
DSS-15: Begin Pre-Cal	16:30:00	14:59:41	09:30:00	
DSS-26: Beginning Of Track	17:30:00	15:59:41	10:30:00	
DSS-15: Beginning Of Track	17:30:00	15:59:41	10:30:00	Spacecraft is not Earth pointed
DSS-26 Transmitter ON, 18 kW, LCP, RAMP, SWEEP	**18:10:00**	16:39:41	11:10:00	Start transmitter time = start of 2- & 3-way baseline - RTLT
RSSG: Begin DSS-15 and DSS-26 Open-Loop Recordings	19:00:00	17:29:41	12:00:00	
S-Band ON	19:25:19	17:55:00	12:25:19	Spacecraft is not Earth pointed
Ka-Band ON	19:30:15	17:59:56	12:30:15	Spacecraft is not Earth pointed
Spacecraft is Earth Pointed (Warmup/Baseline)	19:30:19	18:00:00	12:30:19	Downlink signals detectable
DSS-26: Begin X- & Ka-band 1-Way Acquisition	19:30:19	18:00:00	12:30:19	PC/N0 (X-34m TLM ON, Ka-34m) = 37, 48 dB-Hz
DSS-15: Begin X- & S-band 1-Way Acquisition	19:30:19	18:00:00	12:30:19	PC/N0 (X-34m TLM ON, S-34m) = 37, 38 dB-Hz
RSSG: Enter 1-Way Open-Loop Frequency Offsets as Needed				
RNG OFF/TLM OFF	19:30:23	18:00:04	12:30:23	X-band signal level increase. PC/N0 (X-34m, TLM OFF) = 48 dB-Hz
Start 1-Way baseline (During warmup)	19:30:24	18:00:05	12:30:24	
DSS-26: Enable Monopulse	TBD			Enable Monopulse only when requested by RS Operations
DSS-35: Begin Pre-Cal	20:20:00	18:49:41	13:20:00	
DSS-45: Begin Pre-Cal	20:40:00	19:09:41	13:40:00	
DSS-26: Disable Monopulse Without Clearing the Offsets	21:08:00	19:37:41	14:08:00	Prior to mode switch to 3-way
DSS-26: Begin X- & S-band 2-Way Acquisition	21:10:38	19:40:19	14:10:38	PC/N0 (X-34m, Ka-34m) = 48, 48 dB-Hz
DSS-15: Begin X- & Ka-band 3-Way Acquisition (w/DSS-26)	21:10:38	19:40:19	14:10:38	PC/N0 (X-34m, S-34m) = 48, 38 dB-Hz
RSSG: Clear 1-Way Open-Loop Frequency Offsets	21:10:38	19:40:19	14:10:38	
DSS-26: Enable Monopulse	TBD			Enable Monopulse only when requested by RS Operations
RSSG: Begin DSS-35 and 45 Open-Loop Recordings	21:10:00	19:39:41	14:10:00	
Start X/S/Ka 2-Way/3-Way Baseline (During Warmup)	21:12:00	19:41:41	14:12:00	
DSS-45: Beginning Of Track	21:40:00	20:09:41	14:40:00	
DSS-45: Begin X- & S-band 3-Way Acquisition (w/DSS-26)	21:40:00	20:09:41	14:40:00	PC/N0 (X-34m, S-34m) = 48, 38 dB-Hz
DSS-35: Beginning Of Track	21:50:00	20:19:41	14:50:00	
DSS-35: Begin X- & Ka-band 3-Way Acquisition (w/DSS-26)	21:50:00	20:19:41	14:50:00	PC/N0 (X-34m, Ka-34m) = 48, 48 dB-Hz
DSS-35: Enable Monopulse	21:55:00	20:24:41	14:55:00	Enable monopulse only when requested by RS Operations
Official start of 2- & 3-Way Free-Space Baseline	22:06:38	20:36:19	15:06:38	

Ring F	22:57:19	21:27:00	15:57:19	Approx. time; Ring F is usually not detectable in real-time
Ring A In	23:11:23	21:41:04	16:11:23	Approximate time
Middle of Encke Gap (Inbound)	23:26:42	21:56:23	16:26:42	Increase in signal levels for a short period
DSS-26: Transmitter OFF	**23:48:00**	22:17:41	16:48:00	Start of 1-Way Baseline minus RTLT
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DSS-35 Transmitter ON, 18 kW, LCP, RAMP, SWEEP	**00:00:00**	22:29:41	17:00:00	End of RSS Experiment minus RTLT. Tracking continues for Telemetry
Note: DSS-35 Range Mod ON, Per DKF	00:06:00	22:35:41	17:06:00	
Rings Turn Around Time	00:33:12	23:02:53	17:33:12	Center of the chord occultation track
Middle of the Encke Gap (Outbound)	01:39:41	00:09:22	18:39:41	Strong signals over brief time period
Ring A out	01:54:59	00:24:40	18:54:59	All signals back to full strength (free-space) levels
Ring F	02:09:02	00:38:43	19:09:02	Approx. time; Ring F is usually not detectable in real-time
DSS-26 & DSS-15 End Of Track	02:10:00	00:39:41	19:10:00	
DSS-26 & DSS-15: End Of Post-Cal	02:25:00	00:54:41	19:25:00	
DSS-35: Disable Monopulse Without Clearing the Offsets	02:47:00	01:16:41	19:47:00	Prior to mode switch to 1-way
End of 3-Way free-space baseline	02:48:37	01:18:18	19:48:37	
DSS-35: Begin X- & Ka-band 1-Way Acquisition	02:48:38	01:18:19	19:48:38	PC/N0 (X-34m, Ka-34m) = 48, 48 dB-Hz
DSS-45: Begin X- & S-band 1-Way Acquisition	02:48:38	01:18:19	19:48:38	PC/N0 (X-34m, S-34m) = 48, 38 dB-Hz
RSSG: Enter 1-Way Open-Loop Frequency Offsets as Needed	02:48:38	01:18:19	19:48:38	
Start 1-way baseline	02:49:00	01:18:41	19:49:00	Short ~11 m 1-Way baseline
DSS-35: Enable Monopulse	02:50:00	01:19:41	19:50:00	Enable monopulse only when requested by RS Operations
RSSG: End DSS-15 & DSS-26 Open-Loop Recordings	02:50:00	01:19:41	19:50:00	
DSS-35: Disable Monopulse	02:58:00	01:27:41	19:58:00	Disable monopulse only when requested by RS Operations
TLM ON/RNG ON	03:00:13	01:29:54	20:00:13	S/C remains Earth pointed. Telemetry support per DKF
End of Rev 247 RSS S/C Activities	03:00:17	01:29:58	20:00:17	DSS-35 Continues Tracking for Telemetry Purposes. Follow DKF
S-Band OFF	03:00:20	01:30:00	20:00:20	
Ka-Band OFF	03:00:26	01:30:02	20:00:26	
Start of Uplink From DSS-35 Observed	03:00:38	01:30:19	20:00:38	
DSS-35: Begin X-band 2-Way Acquisition	03:00:38	01:30:19	20:00:38	PC/N0 (X-34m, TLM ON) = 37 dB-Hz
DSS-45: Begin X-band 3-Way Acquisition (w/DSS-35)	03:00:38	01:30:19	20:00:38	PC/N0 (X-34m, TLM ON) = 37 dB-Hz
RSSG: End DSS-35 & DSS-45 Open-Loop Recordings	03:30:00	01:59:41	20:30:00	
DSS-45: End Of Track	03:30:00	01:59:41	20:30:00	
DSS-45: End Of Post-Cal	03:45:00	02:14:41	20:45:00	
DSS-35 Transmitter OFF	**05:47:55**	04:17:36	22:47:55	Per DKF
DSS-35 Loss of X-band Signal	08:48:36	07:18:17	01:48:36	Spacecraft turns off Earth point
DSS-35: End Of Track	09:15:00	07:44:41	02:15:00	
DSS-35: End Of Post-Cal	09:30:00	07:59:41	02:30:00	

Canberra DSS-35 & DSS-45 related activities

Goldstone DSS-15 & DSS-26 related activities

Predicted rings event times are approximate and are based on Ref Traj 140114