

**Timeline for Cassini Rev 196: 2-Way RSS Saturn Rings Occultation**

**August 08, 2013 UTC (DOY-220)**

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	ERT UTC OWLT = 1:23:10	SCET	PDT ERT-7hrs 7:00:00	Comments
Spacecraft is Earth Pointed and rolling				
RSSG: Load 1-W, 2-W, and 3-W Frequency Predicts	TBD			
DSS-65: Begin Pre-Cal	12:00:00	10:36:50	05:00:00	
RSSG: Begin DSS-65 X-band Open-Loop Recordings	12:30:00	11:06:50	05:30:00	
DSS-65: Beginning of Track	13:00:00	11:36:50	06:00:00	Detectable X-band downlink
DSS-65: Begin X-band 1-Way Acquisition	13:00:00	11:36:50	06:00:00	PC/N0 (X-34m TLM ON) = 39 dB-Hz
DSS-55: Begin Pre-Cal	13:30:00	12:06:50	06:30:00	
<b>DSS-65 Transmitter ON, 18 kW, LCP, RAMP, SWEEP</b>	<b>13:42:00</b>	12:18:50	06:42:00	Start transmitter time = start of 2- & 3-way acq'n - RTLT
Ka-Band ON	13:55:05	12:31:55	06:55:05	
DSS-63: Begin Pre-Cal	14:00:00	12:36:50	07:00:00	Demo track. Downlink only
RSSG: Begin DSS-65 S-band Open-Loop Recordings	14:00:00	12:36:50	07:00:00	
RSSG: Begin DSS-63 X- & S-band Open-Loop Recordings	14:00:00	12:36:50	07:00:00	
DSS-63: Beginning of Track	14:30:00	13:06:50	07:30:00	Demo Track. Downlink only
DSS-63: Begin X-band 1-Way Acquisition	14:30:00	13:06:50	07:30:00	PC/N0 (X-70m TLM ON) = 45 dB-Hz
RSSG: Begin DSS-55 Open-Loop Recordings	14:30:00	13:06:50	07:30:00	
S-Band ON	14:35:21	13:12:11	07:35:21	Detectable S-band downlink
DSS-65: Begin S-band 1-Way Acquisition	14:35:21	13:12:11	07:35:21	PC/N0 (S-34m) = 36 dB-Hz
DSS-63: Begin S-band 1-Way Acquisition	14:35:21	13:12:11	07:35:21	PC/N0 (S-34m) = 42 dB-Hz
DSS-55: Beginning of Track	15:00:00	13:36:50	08:00:00	Detectable Ka-, X-band downlink
DSS-55: Begin X- & Ka-band 1-Way Acquisition	15:00:00	13:36:50	08:00:00	PC/N0 (X-34m TLM ON, Ka-34m) = 39, 48 dB-Hz
Official Start of Rev196 Observations	16:00:09	14:36:59	09:00:09	All 3 downlink signals detectable
RNG OFF/TLM OFF	16:00:13	14:37:03	09:00:13	PC/NO (X-70m, X-34m) = 54, 48 dB-Hz
Start 1-way Free-Space Baseline	16:00:14	14:37:04	09:00:14	About 28 m long 1-way baseline; FRO RSR if needed
DSS-55: Enable Monopulse	TBD			Enable monopulse only when requested by RS Operations
DSS-65: Begin X- & S-band 2-Way Acquisition	16:28:20	15:05:10	09:28:20	PC/N0 (X-34m, S-34m) =48, 36 dB-Hz

DSS-63: Begin X- & S-band 3-Way Acquisition w/ DSS-65	16:28:20	15:05:10	09:28:20	PC/N0 (X-70m, S-70m) = 54, 42 dB-Hz
DSS-55: Begin X- & Ka-band 3-Way Acquisition w/ DSS-65	16:28:20	15:05:10	09:28:20	PC/N0 (X-34m, Ka-34m) = 48, 48 dB-Hz
Begin 2- & 3-Way Free-Space Baseline	16:30:00	15:06:50	09:30:00	
DSS-55: Disable Monopulse	17:24:00	16:00:50	10:24:00	Enable monopulse only when requested by RS Operations
Ring F	17:31:56	16:08:46	10:31:56	Approx. time; Ring F is usually not detectable in real-time
Ring A In	17:39:24	16:16:14	10:39:25	Approximate time
Middle of Encke Gap	17:46:30	16:23:20	10:46:30	Increase in signal levels for a short period
Ring A Out	18:13:16	16:50:06	11:13:16	Approximate time
DSS-63: End of Track	18:15:00	16:51:50	11:15:00	
Ring B In	18:24:28	17:01:18	11:24:28	Signals will likely be blocked by parts of Ring B
DSS-63: End of Post-Cal	18:30:00	17:06:50	11:30:00	
DSS-25: Begin Pre-Cal	18:30:00	17:06:50	11:30:00	
DSS-14: Begin Pre-Cal	19:00:00	17:36:50	12:00:00	
RSSG: Begin DSS-14 & DSS-25 Open-Loop Recordings	19:30:00	18:06:50	12:30:00	
Ring C In	19:48:06	18:24:56	12:48:06	Approximate time
DSS-55: Enable Monopulse	19:52:00	18:28:50	12:52:00	Enable monopulse only when requested by RS Operations
DSS-14 & DSS-25: Beginning of Track	20:00:00	18:36:50	13:00:00	
DSS-14: Begin X- & S-band 3-Way Acquisition w/DSS-65	20:00:00	18:36:50	13:00:00	Acquisition is over outer Ring C
DSS-25: Begin X- & Ka-band 3-Way Acquisition w/DSS-65	20:00:00	18:36:50	13:00:00	Acquisition is over outer Ring C
DSS-25: Enable Monopulse	20:08:00	18:44:50	13:08:00	Enable monopulse only when requested by RS Operations
<b>DSS-65: Uplink Transfer to DSS-14</b>	<b>20:19:00</b>	18:55:50	13:19:00	Uplink transfer from DSS-65 to DSS-14
<b>DSS-14: Transmitter ON, 18 kW, LCP, RAMP, NO SWEEP</b>	<b>20:19:00</b>	18:55:50	13:19:00	DSS-14 start of 2-Way Acq'n - RTLTL
DSS-55: Disable Monopulse	21:23:30	20:00:20	14:23:30	Enable monopulse only when requested by RS Operations
DSS-25:Disable Monopulse	21:23:30	20:00:20	14:23:30	Enable monopulse only when requested by RS Operations
Ring B In	21:27:36	20:04:26	14:27:36	Signals will likely be blocked over parts of Ring B
DSS-55: End of Track	22:00:00	20:36:50	15:00:00	
DSS-65: End of Track	22:05:00	20:41:50	15:05:00	
<b>DSS-14: Transmitter OFF</b>	<b>22:06:00</b>	20:42:50	15:06:00	Start 1-Way Free-Space Baseline - RTLTL
DSS-55: End of Post-Cal	22:15:00	20:51:50	15:15:00	
DSS-65: End of Post-Cal	22:20:00	20:56:50	15:20:00	
RSSG: End DSS-65 & DSS-55 Open-Loop Recordings	22:30:00	21:06:50	15:30:00	
Ring B Out	22:51:15	21:28:05	15:51:15	Approximate time; Strong signals in the Cassini Division

Ring A In	23:02:27	21:39:17	16:02:27	Detectable signals over most of Ring A
DSS-14: Begin X- & S-band 2-Way Acquisition	23:05:20	21:42:10	16:05:20	Acquisition is over inner Ring A
DSS-25: Begin X- & Ka-band 3-Way Acquisition w/DSS-14	23:05:20	21:42:10	16:05:20	Acquisition is over inner Ring A
Middle of the Encke Gap	23:29:14	22:06:04	16:29:14	Strong signals over brief time period
Ring A out	23:36:19	22:13:09	16:36:19	All signals back to full strength (free-space) levels
Ring F	23:43:48	22:20:38	16:43:48	Approx. time; Ring F is usually not detectable in real-time
End of 2-Way Free-Space Baseline (DOY 221)	00:52:20	23:29:10	17:52:20	
DSS-14: Begin X- & S-band 1-Way Acquisition	00:52:21	23:29:11	17:52:21	PC/N0 (X-70m, S-70m) = 54, 42 dB-Hz
DSS-25: Begin X- & Ka-band 1-Way Acquisition	00:52:21	23:29:11	17:52:21	PC/N0 (X-34m, Ka-34m) = 48, 48 dB-Hz
Start 1-Way Free-Space Baseline	00:52:22	23:29:12	17:52:22	~19 m 1-way baseline
DSS-25: Enable Monopulse	01:08:00	23:44:50	18:08:00	Enable monopulse only when requested by RS Operations
End of 1-Way Free-Space Baseline	01:11:26	23:48:16	18:11:26	
S-Band OFF	01:11:27	23:48:17	18:11:27	
Ka-Band OFF	01:11:29	23:48:19	18:11:29	
TLM ON/RNG ON	01:12:00	23:48:50	18:12:00	End of Rev196 RSS Experiment
End of Rev196 RSS S/C Activities	01:12:06	23:48:56	18:12:06	
Spacecraft Turn from Earth Point	01:12:12	23:49:02	18:12:12	
DSS-14 & DSS-25: End of Track	01:40:00	00:16:50	18:40:00	
DSS-14 & DSS-25: End of Post-Cal	01:55:00	00:31:50	18:55:00	
RSSG: End DSS-14 & DSS-25 Open-Loop Recordings	02:10:00	00:46:50	19:10:00	

Madrid DSS-65, DSS-63 & DSS-55 related activities

Goldstone DSS-14 & DSS-25 related activities

Predicted rings event times are approximate and are based on [the NAV OD on 08/02/2013](#)

Monopulse strategy is preliminary at this time. Final strategy is decided in real-time