

## Timeline for Cassini Rev 75 RSS Saturn Atmospheric Occultation on July 07, 2008 (DOY 189)

Essam Marouf 06/30/2008 (v2)

	ERT UTC OWLT = 1:22:43	SCET	PDT ERT-7hrs 7:00:00	Comments
RSS3a Op-Mode start	7:13:29	5:50:46	0:13:29	
DSS-43 Start Precal	7:40:00	6:17:17	0:40:00	
DSS-55 Start Precal	8:15:00	6:52:17	1:15:00	
DSS-47: Start Postcal	8:30:00	7:07:17	1:30:00	
DSS-45 Start Precal	8:30:00	7:07:17	1:30:00	
DSS-43 Begin of Track	8:40:00	7:17:17	1:40:00	
DSS-63 Start Precal	8:45:00	7:22:17	1:45:00	
DSS-47: Begin of Track	9:00:00	7:37:17	2:00:00	
DSS-45 Begin of Track	9:00:00	7:37:17	2:00:00	
DSS-55 & 63 SNT Measurement (all bands)				
DSS-43 & 45 SNT Measurement (all bands)				
TWNC ON	9:20:35	7:57:52	2:20:35	
TLM OFF	9:20:40	7:57:57	2:20:40	End of SP turn to Earth (31 min turn)
Start Live Moveable Block (LMB)	9:20:43	7:58:00	2:20:43	PC/N0 (X70, X&Ka34, S70) = ~54, 48, 48, and 42 dB
Start Free-Space Baseline	9:41:02	8:18:19	2:41:02	PC/N0 (X70, X&Ka34, S70) = ~54, 48, 48, and 42 dB
DSS-55 & 63 Begin of Track	9:45:00	8:22:17	2:45:00	
DSS-55 Enable Monopulse	9:45:30	8:22:47	2:45:30	Enable monopulse once receivers are in lock
DSS-55 Disable Monopulse	TBD			Real-Time decision to leave or remove the offsets
<b>DSS-47: End of Track ??</b>	<b>10:00:00</b>	<b>8:37:17</b>	<b>3:00:00</b>	<b>Needs to be extended to 10:25 to capture the occ'n</b>
Top of the ionosphere (@~68,000 km)	10:01:45	8:39:02	3:01:45	Ionosphere primarily affects signal frequency
Troposphere in (~0.1° BA)	10:12:49	8:50:06	3:12:49	S/X/Ka signal intensities start to drop and scintillate
Likely loss of Ka-band signal (~1.15° BA)	10:16:27	8:53:44	3:16:27	Approximate time (clear of the rings)
Likely loss of X-band signal (~1.35° BA)	10:17:09	8:54:26	3:17:09	Approximate time (clear of the rings)
Likely loss of S-band signal (~1.55° BA)	10:17:51	8:55:08	3:17:51	Approximate time (clear of the rings)
Cassini is Behind Saturn				No S/X/Ka downlink detectable

DSS-43 & 45 SNT Measurement	10:22:00	8:59:17	3:22:00	
DSS-43 & 45 End of Track	10:25:00	9:02:17	3:25:00	
DSS-47: End Postcal	10:30:00	9:07:17	3:30:00	
DSS-43 & 45 Postacl	10:40:00	9:17:17	3:40:00	
DSS-55 & 63 SNT Measurement (all bands)	10:45:00	9:22:17	3:45:00	
Cassini is Behind Saturn				No S/X/Ka downlink detectable
Weak S-band signal (~1.55° BA)	11:12:16	9:49:33	4:12:16	Weak but increasing and scintillating S-band signal
Weak X-band signal (~1.35° BA)	11:12:58	9:50:15	4:12:58	Weak but increasing and scintillating X-band signal
Weak Ka-band signal (~1.15° BA)	11:13:40	9:50:57	4:13:40	Weak but increasing and scintillating Ka-band signal
Troposphere Out (~0.1° BA)	11:17:15	9:54:32	4:17:15	PC/N0 (X70, X&Ka34, S70) = ~54, 48, 48, and 42 dB
Ionosphere Out (~68,000 km)	11:31:52	10:09:09	4:31:52	Ionosphere primarily affects signal frequency
End of Free-Space Baseline	11:52:02	10:29:19	4:52:02	
End of Live Moveable Block (LMB)	12:08:48	10:46:05	5:08:48	
TLM ON	12:10:52	10:48:09	5:10:52	
TWNC OFF	12:10:56	10:48:13	5:10:56	
S/C remains Earth pointed	12:11:43	10:49:00	5:11:43	X-band is 2-way for the next 9 hours (Downlink period)
RSS3a Op-Mode End	12:11:51	10:49:08	5:11:51	Loss of S-band and Ka-band signals
DSS-55 & 63 SNT Measurement (all bands)	12:25:00	11:02:17	5:25:00	
DSS-55 End of Track	12:55:00	11:32:17	5:55:00	
DSS-55 Postcal	13:10:00	11:47:17	6:10:00	
S/C turns away from Earth point	21:11:43	19:49:00	14:11:43	End of Downlink period
DSS-63 End of Track	21:15:00	19:52:17	14:15:00	
DSS-63 Postcal	21:30:00	20:07:17	14:30:00	

DSS-55 and 63 Activities

DSS-43 & 45 Activities

DSS-47 (Narrabri) Activities

All times are based on Rev 75 Live Update OD published on June 27, 2008

Monopulse strategy is may be modified in real-time