Timeline for Cassini Rev 151 RSS Saturn Atmospheric Occultation
on August 01, 2011 ERT UTC (DOY 213); July 31, 2011, PDT (DOY 212)
Essam Marouf 07/22/2011 (v3)

	ERT UTC OWLT = 1:23:38	SCET	PDT ERT-7hrs 7:00:00	Comments
				Cassini HGA is Earth Poited; X-band downlink
S-band & Ka-band are turned ON (DOY 212)	19:30:29	18:06:51	12:30:29	S- & Ka-band downlink
Load 1-way ingress occultation frequency predicts	TBD			
DSS-34: Start pre-cal	0:30:00	23:06:22	17:30:00	
DSS-43: Start pre-cal	1:00:00	23:36:22	18:00:00	
DSS-34 & 43: Begin-of-Track	2:00:00	0:36:22	19:00:00	S/X/Ka downlink
DSS-34: Enable monopulse	TBD			Enable monopulse only when requested by RSS ops
TWNC ON	4:29:43	3:06:05	21:29:43	
RNG OFF	4:29:47	3:06:09	21:29:47	
TLM OFF	4:29:48	3:06:10	21:29:48	
Start of free-space baseline	4:29:49	3:06:11	21:29:49	PC/N0 (X70, X & Ka34, S70) = ~ 54, 48, 48, and 42 dB
Ionosphere in (~68,000 km)	4:45:29	3:21:51	21:45:29	Ionospher primarily affects signal frequency
Formal start of Saturn ingress occultation period	4:49:38	3:26:00	21:49:38	
Troposphere in (~0.1°)	5:04:41	3:41:03	22:04:41	S/X/Ka signal intensities start to drop
Near-loss of the Ka-band signal (1.15° BA)	5:16:53	3:53:15	22:16:53	approximate time Ka-bandis fully absorbed
Near-loss of the X-band signal (1.35° BA)	5:19:33	3:55:55	22:19:33	approximate time X-band signal is fully absorbed
Near-loss of the S-band signal (1.55° BA)	5:22:24	3:58:46	22:22:24	approximate time S-band signal is fully absorbed
Cassini is behind Saturn				No detectable signals from Cassini are expected during
Load 1-way egress occultation frequency predicts				
DSS-34: Clear monopulse offsets?	TBD			Real-Time decision based on monopulse offsets behavior
Cassini is behind Saturn				
Weak S-band signal (~1.55° BA)	6:17:55	4:54:17	23:17:55	weak but increasing and scintillating S-band signal
Weak X-band signal (1.35° BA)	6:20:34	4:56:56	23:20:34	weak but increasing and scintillating X-band signal
Weak Ka-band signal (1.15° BA)	6:23:01	4:59:23	23:23:01	weak but increasing and scintillating Ka-band signal
Troposphere out (~0.1°)	6:34:02	5:10:24	23:34:02	PC/N0 (X70, X&Ka34, S70) = ~54, 48, 48, and 23 dB

Ionosphere out (~68,000 km)	6:51:43	5:28:05	23:51:43	Ionosphere primarily affects signal frequency
Formal end of Saturn egress occultation period	7:14:38	5:51:00	0:14:38	
End of free-space baseline	7:31:37	6:07:59	0:31:37	
DSS-34: Enable monopulse	7:32:00	6:08:22	0:32:00	Monopulse enabled to check blind pointing performance
TLM ON	7:34:27	6:10:49	0:34:27	Drop of X-band signal level
TWNC OFF	7:34:31	6:10:53	0:34:31	
RNG ON	7:34:32	6:10:54	0:34:32	
Formal end of Saturn egress occultation period	7:34:38	6:11:00	0:34:38	
Ka- & S-band are turned OFF	7:34:38	6:11:00	0:34:38	Loss of Ka & S-band downlink
Start Waypoint turn away from Earth point	7:34:38	6:11:00	0:34:38	Loss of X-band downlink
DSS-34 & DSS-43: End-of-Track	8:15:00	6:51:22	1:15:00	
DSS-34 & DSS-43: End of post-cal	8:30:00	7:06:22	1:30:00	

Canberra DSS-34 & DSS-43 related activities

Occultation event times are based on NAV Rev151 LUD OD on 7/22/2011