

**Timeline for Cassini Rev 121 RSS Egress Atmospheric and Ionospheric Occultations
on November 20, 2009 (DOY 324)**

Essam Marouf 11/11/2009 (v2)

	ERT UTC OWLT = 1:22:57	SCET	PST ERT-8hrs 8:00:00	Comments
Load frequency predicts	TBD			
RSS3a OpMode ON	18:11:49	16:48:52	10:11:49	
DSS-34: Start pre-cal	18:40:00	17:17:03	10:40:00	
DSS-43: Start pre-cal	19:10:00	17:47:03	11:10:00	
DSS-34 & 43 Begin-of-Track	20:10:00	18:47:03	12:10:00	
Cassini is behind Saturn				
Start RSS turn from waypoint	20:46:57	19:24:00	12:46:57	No detectable S-, X-, Ka-band signals
TWNC ON	20:46:57	19:24:00	12:46:57	
RNG OFF	20:47:01	19:24:04	12:47:01	
TLM OFF	20:47:02	19:24:05	12:47:02	
Begin S/C targeting turn for egress Saturn occ'n	20:47:56	19:24:59	12:47:56	
End S/C targeting turn for egress Saturn occ'n	21:02:51	19:39:54	13:02:51	
Start of S/C tracking of Saturn's limb	21:05:27	19:42:30	13:05:27	No detectable S-, X-, Ka-band signals till about 21:31:58
Cassini is behind Saturn				
Weak S-band signal (~1.55° BA)	21:31:58	20:09:01	13:31:58	Weak but increasing and scintillating S-band signal
Weak X-band signal (~1.35° BA)	21:36:51	20:13:54	13:36:51	Weak but increasing and scintillating X-band signal
Weak Ka-band signal (~1.15° BA)	21:41:29	20:18:32	13:41:29	Weak but increasing and scintillating Ka-band signal
Troposphere Out (~0.1° BA)	22:03:14	20:40:17	14:03:14	PC/N0 (X70, X&Ka34, S70) = ~54, 48, 48, and 42 dB
End of tracking IVD file	22:08:27	20:45:30	14:08:27	
Continue S/C tracking of X-band to Earth	22:08:28	20:45:31	14:08:28	

Ionosphere Out (~68,000 km)	22:26:58	21:04:01	14:26:58	Ionosphere primarily affects signal frequency
End of free-space baseline	23:03:57	21:41:00	15:03:57	
DSS-34: Enable Monopulse	23:03:57	21:41:00	15:03:57	Monopulse enabled to check blind pointing performance
Start S/C turn back to the waypoint	23:05:59	21:43:02	15:05:59	Quick loss of all three downlink signals
TLM ON	23:22:51	21:59:54	15:22:51	
TWNC OFF	23:22:55	21:59:58	15:22:55	
RNG ON	23:22:56	21:59:59	15:22:56	
End of RSS Rev 121 Saturn occ'n experiment	23:22:57	22:00:00	15:22:57	
End of RSS3a Op-Mode	23:28:47	22:05:50	15:28:47	
DSS-34 & DSS-43: End-of-Track	23:50:00	22:27:03	15:50:00	
DSS-34 & DSS-43: End of post-cal	0:05:00	22:42:03	16:05:00	

Canberra DSS-34 and DSS-43 related activities

Occultation event times are based on reference trajectory 091005