

**Timeline for Cassini Rev 120 RSS Atmospheric and Ionospheric Occultations
on November 1, 2009 (DOY 305)**

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	ERT UTC OWLT = 1:24:54	SCET	PST ERT-8hrs 8:00:00	Comments
Load frequency predicts	TBD			
RSS3a OpMode ON	13:58:54	12:34:00	5:58:54	
DSS-25: Start pre-cal	14:45:00	13:20:06	6:45:00	
DSS-14: Start pre-cal	15:15:00	13:50:06	7:15:00	
DSS-25 & 14 Begin-of-Track	16:15:00	14:50:06	8:15:00	No signals from Cassini expected till shortly before 17:01:54
Start S/C turn to Earth waypoint	16:41:54	15:17:00	8:41:54	
End S/C turn to Earth waypoint	17:01:54	15:37:00	9:01:54	
Start Live Update Block (LUB)	17:01:54	15:37:00	9:01:54	Cassini HGA is Earth pointed; strong S/X/Ka signals
TWNC ON	17:01:54	15:37:00	9:01:54	
RNG OFF	17:01:58	15:37:04	9:01:58	
TLM OFF	17:01:59	15:37:05	9:01:59	
Begin S/C targeting turn	17:01:59	15:37:05	9:01:59	
End S/C targeting turn	17:02:10	15:37:16	9:02:10	
Start tracking Earth (IVD file)	17:02:11	15:37:17	9:02:11	
DSS-25: Enable Monopulse	17:02:14	15:37:20	9:02:14	Enable monopulse once receiver is locked
Start free-space baseline	17:02:15	15:37:21	9:02:15	PC/N0 (X70, X & Ka34, S70) = ~54, 48, 48, and 42 dB
Ionosphere in (~68,000 km)	17:05:01	15:40:07	9:05:01	Ionospher primarily affects signal frequency
Troposphere in (~0.1° BA)	17:29:10	16:04:16	9:29:10	S/X/Ka signal intensities start to drop and scintillate
Loss of the Ka-band signal (~1.15° BA)	17:54:26	16:29:32	9:54:26	approximate time
Loss of the X-band signal (~1.35° BA)	17:59:25	16:34:31	9:59:25	approximate time
Loss of the S-band signal (~1.55° BA)	18:04:29	16:39:35	10:04:29	approximate time
Cassini is behind Saturn				No detectable signals from Cassini are expected during
DSS-34: Start pre-cal	18:05:00	16:40:06	10:05:00	the period from about 18:04:30 to about 20:45:35 ERT
End of ingress limb-track (2.12° BA)	18:19:44	16:54:50	10:19:44	
Start S/C turn to CIRS-ISS handoff attitude	18:19:56	16:55:02	10:19:56	
End of RSS Ingress LUB period	18:40:54	17:16:00	10:40:54	

DSS-25: Initialize blind pointing offset?			TBD		Real-Time decision based on monopulse offsets behavior
ISS Observation while S/C is behind Saturn					
DSS-45: Start pre-cal	19:05:00		17:40:06	11:05:00	
DSS-34 & DSS-45: Begin-of-Track	19:35:00		18:10:06	11:35:00	DSS-34 will have to use blind pointing
Start S/C turn from CIRS-ISS handoff attitude	20:08:59		18:44:05	12:08:59	
End S/C turn to RSS egress attitude	20:28:43		19:03:49	12:28:43	
start of egress limb-track (2.26° BA)	20:28:43		19:03:49	12:28:43	The egress occultation is completed using blind pointing
Cassini is behind Saturn					
Weak S-band signal (~1.55° BA)	20:45:36		19:20:42	12:45:36	Weak but increasing and scintillating S-band signal
Weak X-band signal (~1.35° BA)	20:49:55		19:25:01	12:49:55	Weak but increasing and scintillating X-band signal
Weak Ka-band signal (~1.15° BA)	20:54:06		19:29:12	12:54:06	Weak but increasing and scintillating Ka-band signal
Troposphere Out (~0.1° BA)	21:14:31		19:49:37	13:14:31	PC/N0 (X70, X&Ka34, S70) = ~54, 48, 48, and 42 dB
Ionosphere Out (~68,000 km)	21:36:35		20:11:40	13:36:35	Ionosphere primarily affects signal frequency
End of tracking IVD file	21:43:40		20:18:46	13:43:40	
Continue tracking X-band to Earth	21:43:41		20:18:47	13:43:41	
End of free-space baseline	22:07:53		20:42:59	14:07:53	
DSS-25: Enable Monopulse	22:07:54		20:43:00	14:07:54	Monopulse enabled to check blind pointing performance
DSS-34: Enable Monopulse	22:07:54		20:43:00	14:07:54	Monopulse enabled to check blind pointing performance
TLM ON	22:10:48		20:45:54	14:10:48	
TWNC OFF	22:10:52		20:45:58	14:10:52	
RNG ON	22:10:53		20:45:59	14:10:53	
End of Live Update Block (LUB)	22:10:54		20:46:00	14:10:54	HGA Continues to be Earth pointed until this time
Start wapoint turn away from Earth	22:10:54		20:46:00	14:10:54	Quick loss of all signals; end of the Rev120 RSS experiment
DSS-25 & DSS-14: End-of-Track	22:40:00		21:15:06	14:40:00	
DSS-34 & DSS-45: End-of-Track	22:50:00		21:25:06	14:50:00	
DSS-25 & DSS-14: End of post-cal	22:55:00		21:30:06	14:55:00	
DSS-34 & DSS-45: End of post-cal	23:05:00		21:40:06	15:05:00	
End of RSS3a Op-Mode	23:38:54		22:14:00	15:38:54	

Goldstone DSS-25 & DSS-14 related activities

Canberra DSS-34 and DSS-45 related activities

Occultation event times are based on reference trajectory 091005