

**Timeline for Cassini Rev 125 RSS Occultations of Enceladus Plume & Saturn Ring and Atmosphere
on January 26-27, 2010 (DOY 026-027)**

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	ERT UTC OWLT = 1:14:12	SCET	PST ERT-8hrs 8:00:00	Comments
Load ingress frequency predicts				Canberra Complex only
DSS-34: Start pre-cal	13:30:00	12:15:48	5:30:00	
RSS3a OpMode ON	13:47:40	12:33:28	5:47:40	
DSS-43: Start pre-cal	14:00:00	12:45:48	6:00:00	
DSS-34 & 43 Begin-of-Track	15:00:00	13:45:48	7:00:00	No downlink till shortly before 15:37:12
Start Live Moveable Block (LMB) period	15:37:12	14:23:00	7:37:12	Cassini HGA is Earth pointed; strong S/X/Ka signals
TWNC ON/RNG OFF/TLM OFF	15:37:12	14:23:00	7:37:12	
DSS-34: Enable Monopulse	15:40:00	14:25:48	7:40:00	Enable monopulse only when requested to do so by RS
Start free-space baseline	15:40:01	14:25:49	7:40:01	PC/N0 (X70, X34 & Ka34, S70) = ~54, 48, 48, and 42 dB
Start of Enceladus plume observation period	15:57:26	14:43:14	7:57:26	Plume effects are likely not detectable in real-time
Radio ray probing minimum Enceladus altitude	16:27:41	15:13:29	8:27:41	
End of Enceladus plume observation period	16:57:14	15:43:02	8:57:14	
S/C continues to be Earth pointed				Full strength downlink signals detectable
DSS-34: Disable Monopulse	18:30:00	17:15:48	10:30:00	Real-time decision to keep or remove the offsets
Start of free-space baseline	18:30:01	17:15:49	10:30:01	
Start of ingress ring occultation observation	18:44:26	17:30:14	10:44:26	
Ring A In	19:19:47	18:05:35	11:19:47	Detectable signals over most of Ring A
Within the Encke Gap	19:25:03	18:10:51	11:25:03	Signals are back very briefly to full strength
Ring A Out	19:44:01	18:29:49	11:44:01	Relatively strong signals in the Cassini Division
Ring B In	19:51:26	18:37:14	11:51:26	Signals will be small or absent over most of Ring B
Ring C In	20:32:52	19:18:40	12:32:52	Signals detectable but briefly blocked by dense Ring C ringlet
Ring C Out	21:01:10	19:46:58	13:01:10	Signals are back to full strength
End of ingress ring occultation observation	21:06:14	19:52:02	13:06:14	PC/N0 (X70, X34 & Ka34, S70) = ~54, 48, 48, and 42 dB
Start of ingress atmospheric occultation	21:06:25	19:52:13	13:06:25	
DSS-34: Enable Monopulse? (TBD)	21:06:27	19:52:15	13:06:27	Enable monopulse only when requested to do so by RS
Ionosphere In (~68,000 km)	21:06:35	19:52:23	13:06:35	Ionosphere primarily affects signal frequency
DSS-55: Start pre-cal	21:15:00	20:00:48	13:15:00	
Troposphere In (~0.01° BA)	21:19:30	20:05:18	13:19:30	S/X/Ka signal intensities start to drop and scintillate
Loss of the Ka-band signal (~1.0° BA)	21:31:03	20:16:51	13:31:03	approximate time
Loss of the X-band signal (~1.2° BA)	21:33:18	20:19:06	13:33:18	approximate time
Loss of the S-band signal (~1.4° BA)	21:35:32	20:21:20	13:35:32	approximate time
Cassini is behind Saturn as seen from Earth				Loss of all signals; no downlink expected till about 00:31:43

DSS-63: Start pre-cal	21:45:00	20:30:48	13:45:00	
End of the ingress limb-track maneuver	21:49:44	20:35:32	13:49:44	
Official end of ingress Saturn occultation	21:53:14	20:39:02	13:53:14	
Load egress frequency predicts	21:54:00	20:39:48	13:54:00	Madrid Complex only
VIMS high-phase observation				
DSS-55 & DSS-63: Begin-of-Track	22:45:00	21:30:48	14:45:00	No ddownlink signals detectable
DSS-34 & DSS-43: End-of-Track	23:29:00	22:14:48	15:29:00	
DSS-34 & DSS-43: End of post-cal	23:44:00	22:29:48	15:44:00	
Start of egress Saturn atmopseric occultation	0:17:14	23:03:02	16:17:14	
Start of Egress Limb-Track Maneuver	0:19:56	23:05:44	16:19:56	Saturn Occ'n egress is completed using blind pointing
Cassini is behind Saturn as seen from Earth				
Weak S-band signal (~1.4° BA)	0:31:43	23:17:31	16:31:43	Weak but increasing and scintillating S-band signal
Weak X-band signal (~1.2° BA)	0:33:26	23:19:14	16:33:26	Weak but increasing and scintillating X-band signal
Weak Ka-band signal (~1.0° BA)	0:35:07	23:20:55	16:35:07	Weak but increasing and scintillating Ka-band signal
Troposphere Out (~0.01° BA)	0:43:32	23:29:20	16:43:32	PC/N0 (X70, X34 & Ka34, S70) = ~54, 48, 48, and 42 dB
End of tracking atmospheric IVD file	0:51:16	23:37:04	16:51:16	
DSS-55: Enable Monopulse? (TBD)	0:52:00	23:37:48	16:52:00	Enable monopulse only when requested to do so by RS
Start of egress ring occultation	0:56:26	23:42:14	16:56:26	
Ionosphere out (~68,000 km)	0:56:42	23:42:30	16:56:42	Ionosphere primarily affects signal frequency
Ring C In	0:57:42	23:43:30	16:57:42	Signals detectable but briefly blocked by dense ringlets
Ring B In	1:27:00	0:12:48	17:27:00	Signals will be small or absent over most of Ring B
Ring B Out	2:11:59	0:57:47	18:11:59	Relatively strong signals in the Cassini Division
Ring A In	2:20:29	1:06:17	18:20:29	Detectable signals over most of Ring A
Within the Encke Gap	2:43:19	1:29:07	18:43:19	Signals are back very briefly to full strength
Ring A Out	2:50:02	1:35:50	18:50:02	All three signals are back to full strength
Official end of egress ring occultation	3:27:14	2:13:02	19:27:14	
End of egress baseline	3:44:59	2:30:47	19:44:59	PC/N0 (X70, X34 & Ka34, S70) = ~54, 48, 48, and 42 dB
DSS-55: Enable monopulse	3:45:00	2:30:48	19:45:00	Monopulse enabled to check blind pointing performance
TLM ON/TWNC OFF/RNG ON	3:47:06	2:32:54	19:47:06	Decrease in X-band signal level
End of LMB & of Rev 125 RSS experiments	3:47:12	2:33:00	19:47:12	HGA Continues to be Earth pointed until this time
Start wapoint turn away from Earth	3:47:12	2:33:00	19:47:12	Quick loss of all signals; end of Rev125 RSS experiments
End of RSS3a Op-Mode	3:47:12	2:33:00	19:47:12	
DSS-55 & DSS-63: End-of-Track	4:35:00	3:20:48	20:35:00	
DSS-55 & DSS-63: End of post-cal	4:50:00	3:35:48	20:50:00	

Canberra DSS-34 & DSS-43 related activities

Madrid DSS-55 and DSS-63 related activities

Predicted ring & atmospheric occultation event times are approximate and are based on reference trajectory 091005; changed by -1 sec using OTM 234 OD

Monopulse strategy is preliminary at this time