

**Timeline for Cassini Rev 133 RSS Saturn Ring & Atmospheric Occultations
on June 18-19, 2010 (DOY 169-170)**

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	ERT UTC OWLT = 1:18:43	SCET	PDT ERT-7hrs 7:00:00	Comments
Load ingress frequency predicts	TBD			Goldstone & Madrid Complexes
DSS-63: Start pre-cal	12:05:00	10:46:17	5:05:00	
DSS-63: Begin-of-Track	13:05:00	11:46:17	6:05:00	Cassini HGA is earth pointed; X-Band downlink only
RSS3a OpMode ON	19:59:35	18:40:52	12:59:35	
DSS-15: Start pre-cal	20:15:00	18:56:17	13:15:00	
DSS-25: Start pre-cal	20:30:00	19:11:17	13:30:00	
DSS-15 Begin-of-Track	21:15:00	19:56:17	14:15:00	Cassini HGA is Earth pointed; S/X/Ka Downlink
DSS-25 Begin-of-Track	21:30:00	20:11:17	14:30:00	Cassini HGA is Earth pointed; S/X/Ka Downlink
DSS-25: Enable Monopulse	TBD			Enable monopulse only when requested to do so by RS
DSS-25: Disable Monopulse ??	TBD			Real-time decision to keep or remove the offsets
Start Live Moveable Block (LMB) period	22:04:43	20:46:00	15:04:43	
TWNC ON	22:04:43	20:46:00	15:04:43	
RNG OFF	22:04:47	20:46:04	15:04:47	
TLM OFF	22:04:48	20:46:05	15:04:48	
Start free-space baseline	22:04:49	20:46:06	15:04:49	PC/N0 (X70, X25 & Ka25, S70) = ~55, 49, 49, and 43 dB
Official start of ingress ring occultation observation	22:14:43	20:56:00	15:14:43	
Ring A In	22:33:06	21:14:23	15:33:06	Detectable signals over parts of Ring A
Within the Encke Gap	22:38:28	21:19:45	15:38:28	Signals are back very briefly to full strength
Ring A Out	22:57:45	21:39:02	15:57:45	Relatively strong signals in the Cassini Division
Ring B In	23:05:17	21:46:34	16:05:17	Signals will be small or absent over most of Ring B
Ring C In	23:47:22	22:28:39	16:47:22	Signals detectable but briefly blocked by dense Ring C ringlet
DSS-63: End-of-Track	0:00:00	22:41:17	17:00:00	
DSS-63: End of post-cal	0:15:00	22:56:17	17:15:00	
Ring C Out	0:16:05	22:57:22	17:16:05	Signals are back to full strength
Official end of ingress ring occultation observation	0:22:53	23:04:10	17:22:53	PC/N0 (X70, X25 & Ka25, S70) = ~55, 49, 49, and 43 dB
Start of ingress atmospheric occultation	0:22:54	23:04:22	17:22:54	
DSS-25: Enable Monopulse ??	0:23:00	23:04:17	17:23:00	Enable monopulse only when requested to do so by RS
Ionosphere In (~68,000 km)	0:24:26	23:05:43	17:24:26	Ionospher primarily affects signal frequency

Troposphere In	0:36:14	23:17:31	17:36:14	S/X/Ka signal intensities start to drop and scintillate
Loss of the Ka-band signal (~1.20° BA)	0:49:57	23:31:14	17:49:57	approximate time
Loss of the X-band signal (~1.4° BA)	0:52:03	23:33:20	17:52:03	approximate time
Loss of the S-band signal (~1.6° BA)	0:54:08	23:35:25	17:54:08	approximate time
Cassini is behind Saturn as seen from Earth				Loss of all signals; no downlink expected till about 00:31:15
End of the ingress limb-track maneuver	1:02:53	23:44:10	18:02:53	
Official end of ingress Saturn occultation	1:06:53	23:48:10	18:06:53	
Start CAPS Ring Observation	1:06:54	23:48:11	18:06:54	
Load egress frequency predicts	1:08:43	23:50:00	18:08:43	Canberra & Goldstone Complexes
DSS-34: Start pre-cal	1:40:00	0:21:17	18:40:00	
DSS-43: Start pre-cal	2:00:00	0:41:17	19:00:00	
DSS-43: Begin-of-Track	3:00:00	1:41:17	20:00:00	No ddownlink signals detectable
DSS-34: Begin-of-Track	3:10:00	1:51:17	20:10:00	No ddownlink signals detectable
End CAPS Ring Observation	3:28:23	2:09:40	20:28:23	
Start of egress Saturn atmopsheric occultation	3:28:28	2:09:45	20:28:28	
Start of Egress Limb-Track Maneuver	3:31:08	2:12:25	20:31:08	Saturn Occ'n egress is completed using blind pointing
Cassini still behind Saturn as seen from Earth				
Weak S-band signal (~1.6° BA)	3:41:29	2:22:46	20:41:29	Weak but increasing and scintillating S-band signal
Weak X-band signal (~1.4° BA)	3:43:06	2:24:23	20:43:06	Weak but increasing and scintillating X-band signal
Weak Ka-band signal (~1.2° BA)	3:44:42	2:25:59	20:44:42	Weak but increasing and scintillating Ka-band signal
Troposphere Out	3:54:59	2:36:16	20:54:59	PC/N0 (X70, X25 & Ka25, S70) = ~55, 49, 49, and 43 dB
End of tracking atmospheric IVD file	3:56:43	2:38:00	20:56:43	
Official end of egress atmospheric occultation	4:05:43	2:47:00	21:05:43	
Official start of egress ring occultation	4:05:44	2:47:01	21:05:44	
Ionosphere out (~68,000 km)	4:06:44	2:48:01	21:06:44	Ionosphere primarily affects signal frequency
DSS-25: Enable Monopulse ?	4:08:00	2:49:17	21:08:00	Enable monopulse only when requested to do so by RS
DSS-34: Enable Monopulse ?	4:08:00	2:49:17	21:08:00	Enable monopulse only when requested to do so by RS
Ring C In	4:16:20	2:57:37	21:16:20	Signals detectable but briefly blocked by dense ringlets
Ring B In	4:46:18	3:27:35	21:46:18	Signals will be small or absent over most of Ring B
Ring B Out	5:32:52	4:14:09	22:32:52	Relatively strong signals in the Cassini Division
Ring A In	5:41:48	4:23:05	22:41:48	Detectable signals over parts of Ring A
Within the Encke Gap	6:06:10	4:47:27	23:06:10	Signals are back very briefly to full strength
Ring A Out	6:13:29	4:54:46	23:13:29	All three signals are back to full strength
Official end of egress ring occultation	6:50:30	5:31:47	23:50:30	

End of egress baseline	7:18:42	5:59:59	0:18:42	PC/N0 (X70, X25 & Ka25, S70) = ~55, 49, 49, and 43 dB
DSS-34: Enable monopulse	7:19:00	6:00:17	0:19:00	Monopulse enabled to check blind pointing performance
DSS-25: Enable Monopulse ?	7:19:00	6:00:17	0:19:00	Enable monopulse only when requested to do so by RS
TLM ON	7:20:37	6:01:54	0:20:37	Decrease in X-band signal level
TWNC OFF	7:20:41	6:01:58	0:20:41	
RNG ON	7:20:42	6:01:59	0:20:42	HGA Continues to be Earth pointed until this time
End of LMB & of Rev 133 RSS experiments	7:20:43	6:02:00	0:20:43	
End of RSS3a Op-Mode	7:20:43	6:02:00	0:20:43	Loss of S- and Ka-band signals
S/C starts turning off Earth-point	7:20:43	6:02:00	0:20:43	Quick loss of X-band signal
DSS-25 & DSS-15: End-of-Track	7:30:00	6:11:17	0:30:00	
DSS-25 & DSS-15: End of post-cal	7:45:00	6:26:17	0:45:00	
DSS-34 & DSS-43: End-of-Track	8:00:00	6:41:17	1:00:00	
DSS-34 & DSS-43: End of post-cal	8:15:00	6:56:17	1:15:00	

Goldstone DSS-15 & DSS-25 related activities

Canberra DSS-34 and DSS-43 related activities

Predicted ring & atmospheric occultation event times are approximate and are based on June 11 LUD OD

Monopulse strategy is preliminary at this time