

Cassini T57: Titan Ingress Radio Occultation

June 22, 2009 (DOY 173)

Essam Marouf, June 15, 2009 (v2)

	ERT UTC OWLT = 1:20:13	SCET UTC	PDT ERT - 7 hrs 7:00:00	Comments
S-Band ON	16:26:41	15:06:28	9:26:41	
Start Precal DSS-55	16:30:00	15:09:47	9:30:00	
Ka-Band ON	16:31:37	15:11:24	9:31:37	
Load Predicts	17:30:00	16:09:47	10:30:00	
Start Precal DSS-65	18:00:00	16:39:47	11:00:00	
Begin-of-Track DSS-55	18:00:00	16:39:47	11:00:00	
Start Precal DSS 14	18:05:00	16:44:47	11:05:00	
Begin-of-Track DSS-65	18:30:00	17:09:47	11:30:00	No Cassini downlink signals till shortly before 18:52:35
TWNC ON/ RNG OFF /	18:42:48	17:22:35	11:42:48	
Start Turn to Earth Point	18:42:52	17:22:39	11:42:52	
TLM OFF/	18:42:53	17:22:40	11:42:53	
End Turn to Earth Point	18:52:35	17:32:22	11:52:35	
Start Free-Space Baseline	18:52:35	17:32:22	11:52:35	PC/N0 ~ 48, 48, & 38 dB-Hz for X/Ka/S at 34-m stations
Enable Monopulse: DSS-55	18:53:13	17:33:00	11:53:13	Enable monopulse when instructed to do so by Radio Science
Begin-of-Track DSS-14	19:05:00	17:44:47	12:05:00	
Top of Ionosphere (~3000 km alt)	19:16:39	17:56:26	12:16:39	
Titan Ionosphere (~1500 km alt)	19:23:11	18:02:58	12:23:11	The ionosphere primarily affects the signal freq/phase
Titan Atmosphere (~200 km alt)	19:28:52	18:08:39	12:28:52	
At Tropopause (~ 0.1 deg ben ang)	19:29:34	18:09:21	12:29:34	Signals strength drop quickly in Titan's atmosphere
Ka-Band is absorbed (~10 km alt)	19:30:33	18:10:20	12:30:33	Ka-band signal is extinguished before the surface is reached
Titan Surface (~2575 km radius)	19:31:00	18:10:47	12:31:00	
Behind Titan				Quick Loss of the X- & S-band signals
End Tracking of Titan's Limb	19:31:20	18:11:07	12:31:20	
Start S/C Turn to Handoff Attitude	19:31:27	18:11:14	12:31:27	
TLM ON /TWNC OFF /RNG ON	19:31:54	18:11:41	12:31:54	

S-Band OFF	19:32:00	18:11:47	12:32:00	Handoff S/C to INMS at Xband-to-Earth primary attitude
Ka-Band OFF	19:32:02	18:11:49	12:32:02	
End of RSS Observation Period	19:33:00	18:12:47	12:33:00	
Titan Closest Approach Behind Titan	19:52:00	18:31:47	12:52:00	
End-of-Track DSS-55, DSS-65	20:15:00	18:54:47	13:15:00	
End-of-Track DSS-14	20:15:00	18:54:47	13:15:00	
End of Postcal DSS-55, DSS-65	20:30:00	19:09:47	13:30:00	
End of Postcal DSS-14	20:30:00	19:09:47	13:30:00	

Atmopsheric event times are based on T57 LUB OD (OTM-121 OD 090612AP_SCPSE_09163_09179.bsp)

- Madrid Activities
- Goldstone Activities