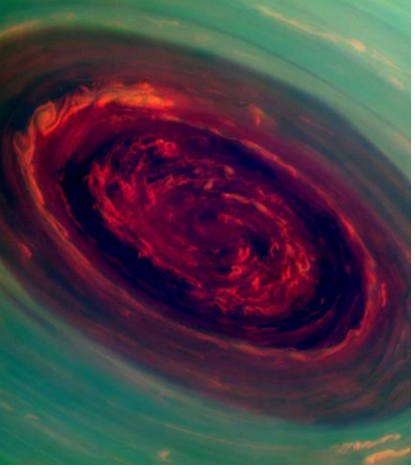

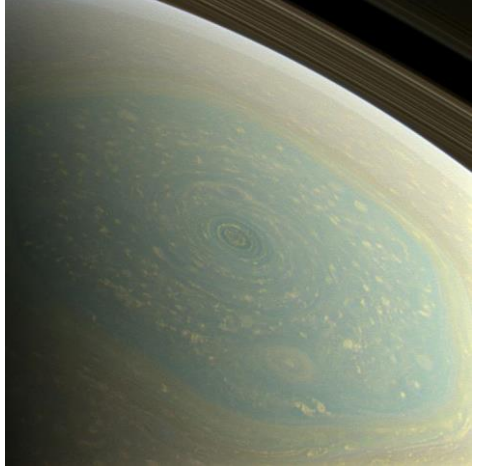
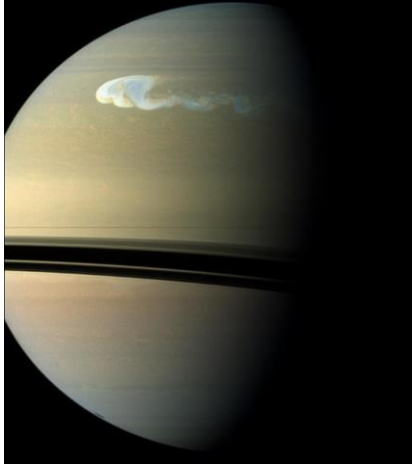

Science Planning & Sequence Team
CASSINI

SATURN TARGET WORKING TEAM

Rev 251 Segment Legacy Package

Segment Boundary: Dec 1, 2016 – Dec 4, 2016
2016-336T09:13:00 – 339T14:58:00 (SCET)

Integration Began 12/07/2015
Segment Delivered to S97 Sequence 06/03/2016
Lead Integrator was Keven Uchida

Legacy Package Assembled by Keven Uchida

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*** N.A. = Slide present but content not available.**

Segment Overview and Final Products

Segment Summary

- Three day long segment just prior to periapse.
- This is the first segment in Cassini's F-Ring Orbit phase. S/C is in an inclined orbit
- View is of Saturn's northern hemisphere (sub-S-C latitudes range from 13 – 60 degrees). The segment covers a large range of Saturn phase angles.
- One pre-integrated high value (PIE) science observation – UVIS observation of Beta Cru ingress occultation by Saturn (See Daily Science Highlights, DOY 339).
- North polar movie including Hexagon is obtained, with VIMS leading.
- Last downlink designated as prime slot for OTM.
- No Sun issues or CMT management required
- Data volume management
  - Accepted ~525 Mb of carryover from preceding TOST 250_T125 segment
  - RPWS used high data collection rates in last observation/downlink period for high value science. Resulted in 838 Mb of carry over at the end of the segment. This carry over was accepted by the XD_251_252 segment which followed.

Final Sequenced SPASS

Gap 1

Gap 2

Gap 3

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End	Primary	Secondary	Comments
SATURN_251 Segment		2016-336T09:13:00		003T05:45:00	2016-339T14:58:00			
SP_251SA_WAYPTTURN336_PRIME		2016-336T09:13:00		000T00:40:00	2016-336T09:53:00	ISS_NAC to Saturn	POS_Z to NSP	
NEW WAYPOINT		2016-336T09:53:00		000T08:58:00	2016-336T18:51:00	ISS_NAC to Saturn	POS_Z to NSP	
CIRS_251SA_COMPSIT001_PRIME	U, V	2016-336T09:53:00		000T08:18:00	2016-336T18:11:00	CIRS_FP1 to Saturn	POS_Z to NSP	
SP_251EA_DLTURN336_PRIME		2016-336T18:11:00		000T00:40:00	2016-336T18:51:00	XBAND to Earth	NEG_Y to 151.8/-33.0	SAT_TWT: Inertial NegY to Sat(0,0,-9.5)
NEW WAYPOINT		2016-336T18:51:00		000T11:10:00	2016-337T06:01:00	XBAND to Earth	NEG_Y to 151.8/-33.0	
SP_251EA_YGAP336_PRIME		2016-336T18:51:00		000T01:30:00	2016-336T20:21:00	XBAND to Earth	NEG_Y to 151.8/-33.0	
SP_251EA_C34BWGNON336_PRIME	C, R	2016-336T21:16:00		000T06:42:00	2016-337T03:58:00	XBAND to Earth	Rolling/SRU	SRU. Saturn TWT: NegY to Saturn (0,0,-9.5)
SP_251SA_WAYPTTURN337_PRIME		2016-337T05:21:00		000T00:40:00	2016-337T06:01:00	ISS_NAC to Saturn	POS_Z to 191.5/32.0	
NEW WAYPOINT		2016-337T06:01:00		000T17:12:00	2016-337T23:13:00	ISS_NAC to Saturn	POS_Z to 191.5/32.0	
CIRS_251SA_MIRMAP001_PRIME	V	2016-337T06:01:00		000T11:32:00	2016-337T17:33:00	CIRS_FP3 to Saturn	POS_Z to NSP	
UVIS_251SA_EUVFUV001_PRIME	C, I, V	2016-337T17:33:00		000T05:00:00	2016-337T22:33:00	UVIS_FUV to Saturn	NEG_X to Sun	
SP_251EA_DLTURN337_PRIME		2016-337T22:33:00		000T00:40:00	2016-337T23:13:00	XBAND to Earth	NEG_Y to 150.3/-35.4	SAT_TWT_ Inertial NegY to Sat(0,0,-9.5)
NEW WAYPOINT		2016-337T23:13:00		000T16:25:00	2016-338T15:38:00	XBAND to Earth	NEG_Y to 150.3/-35.4	
ENGR_251SC_KPTYBIAS337_PRIME		2016-337T23:13:00		000T01:30:00	2016-338T00:43:00	POS_Z to DELTA_H (0.0,0.0,-48.0 deg. offset)	NEG_X to Sun	
SP_251EA_C70METNON338_PRIME	C, R	2016-338T04:13:00		000T03:00:00	2016-338T07:13:00	XBAND to Earth	NEG_Y to 150.3/-35.4	SRU. Saturn TWT: NegY to Saturn (0,0,-9.5)
SP_251EA_M70METNON338_PRIME	C, R	2016-338T07:13:00		000T07:45:00	2016-338T14:58:00	XBAND to Earth	NEG_Y to 150.3/-35.4	SRU. Saturn TWT: NegY to Saturn (0,0,-9.5)
SP_251SA_WAYPTTURN338_PRIME		2016-338T14:58:00		000T00:40:00	2016-338T15:38:00	ISS_NAC to Saturn	POS_Z to 191.5/32.0	
NEW WAYPOINT		2016-338T15:38:00		000T14:20:00	2016-339T05:58:00	ISS_NAC to Saturn	POS_Z to 191.5/32.0	
VIMS_251SA_NPOLMOV001_PRIME	C, I	2016-338T15:38:00		000T09:00:00	2016-339T00:38:00	ISS_NAC to Saturn	POS_Z to NSP	
UVIS_251SA_AURSLEW001_PRIME	V	2016-339T00:38:00		000T03:43:00	2016-339T04:21:00	UVIS_FUV to Saturn	POS_Z to 191.5/32.0	Collaborative Rider(s): VIMS. 1h10m of stare - 1h23 of slew - 1h10m of stare
UVIS_251ST_BETCRU002_PIE		2016-339T04:21:00		000T01:00:00	2016-339T05:21:00	UVIS_HSP to 191.929/-59.678	POS_Z to 191.5/32.0	PIE
SP_251EA_DLTURN339_PRIME		2016-339T05:21:00		000T00:37:00	2016-339T05:58:00	XBAND to Earth	NEG_Y to 307.79/57.95	Saturn_TWT: Inertial XBAND to Earth [0,0,-20] / NegY to NSP
NEW WAYPOINT		2016-339T05:58:00		001T07:10:00	2016-340T13:08:00	XBAND to Earth	NEG_Y to 307.79/57.95	
SP_251EA_C70METOTP339_PRIME	M, N	2016-339T05:58:00		000T01:15:00	2016-339T07:13:00	XBAND to Earth	NEG_Y to 307.79/57.95	MAG Range 1 & 2 - Roll requested. OTP. SRU. CIRS heating.
SP_251EA_M70UNQOTP339_PRIME	C, E, M, N	2016-339T07:13:00		000T07:45:00	2016-339T14:58:00	XBAND to Earth	NEG_Y to 307.79/57.95	MAG Range 1 & 2 - Roll Requested. OTP. SRU. CIRS heating.
Periapse R = 2.490 Rs, lat ...		2016-339T13:30:40		000T00:00:01	2016-339T13:30:41			

Final Sequenced SMT and Data Volume

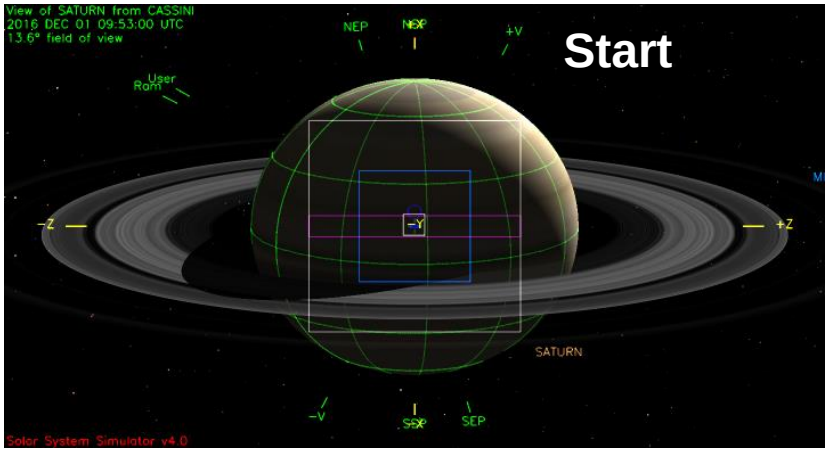
DATA VOLUME SUMMARY --- TRANSFER FRAME OVERHEAD INCLUDED (80 BITS PER 8800-BIT FRAME)

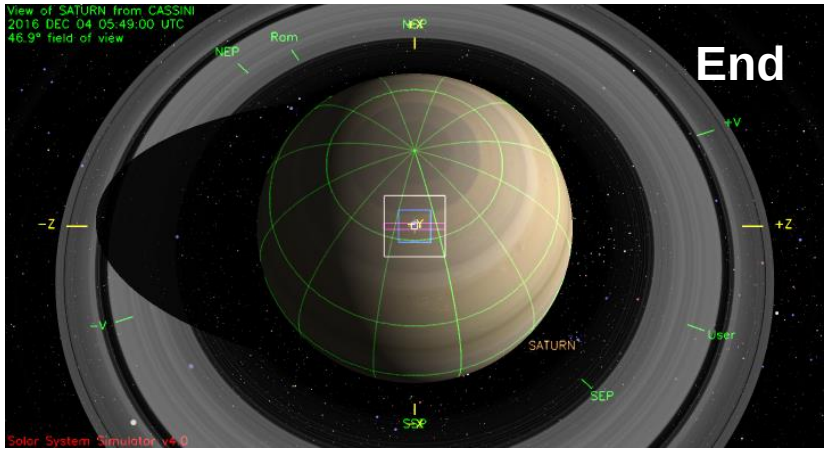
			OBSERVATION_PERIOD							DOWNLINK_PASS							
			P4						P5	RECORDED		PLAYBACK					
DOWNLINK PASS NAME	Start doy hh:mm	End doy hh:mm	START (Mb)	SCI (Mb)	HK+E (Mb)	TOTAL (Mb)	CPACTY (Mb)	MRGN (Mb)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGN (Mb)	NET_MARGN (Mb)	(%)	CAROVR (Mb)
SP_251EA_C34BWGNON336_PRIME	336 21:16	337 03:58	998	773	51	1822	3322	1500	0	156	40	2017	414	-1604	-795	-10%	1603
SP_251EA_C70METNON338_PRIME	338 04:13	338 07:13	1603	1125	102	2830	3322	492	0	52	18	2900	708	-2192	-795	-8%	2192
SP_251EA_M70METNON338_PRIME	338 07:13	338 14:58	2192	0	0	2192	3322	1130	0	153	46	2390	1675	-716	-795	-9%	715
SP_251EA_C70METOTP339_PRIME	339 05:58	339 07:13	715	1277	63	2056	3322	1267	0	60	7	2123	181	-1943	-795	-10%	1942
SP_251EA_M70UNQOTP339_PRIME	339 07:13	339 14:58	1942	0	0	1942	3322	1380	0	848	46	2836	592	-2244	-795	-10%	2244

DATA VOLUME REPORT --- TRANSFER FRAME OVERHEAD NOT INCLUDED

Event	Start doy hh:mm	End doy hh:mm	CAPS (Mb)	CDA (Mb)	CIRS (Mb)	INMS (Mb)	ISS (Mb)	MAG (Mb)	MIMI (Mb)	RADAR (Mb)	RPWS (Mb)	UVIS (Mb)	VIMS (Mb)	PROBE (Mb)	ENGR (Mb)	TOTAL (Mb)
OBSERVATION_NOR	336 09:13	336 21:16	0.0	22.7	59.8	4.3	0.0	21.4	36.9	0.0	56.8	30.6	270.0	0.0	314.0	816.6
SP_251EA_C34BWGNON336_PRIME	336 21:16	337 03:58	0.0	12.6	71.5	2.4	0.0	11.9	20.5	0.0	31.6	3.7	0.0	0.0	0.0	154.2
DAILY TOTAL SCIENCE	336 09:13	337 03:58	0.0	35.4	131.2	6.8	0.0	33.3	57.4	0.0	88.4	34.3	270.0	0.0	314.0	
OBSERVATION_NOR	337 03:58	338 04:13	0.0	45.7	217.0	8.7	50.0	43.1	74.2	0.0	114.4	91.3	470.0	0.0	101.4	1215.9
SP_251EA_C70METNON338_PRIME	338 04:13	338 07:13	0.0	5.7	14.4	1.1	0.0	5.3	9.2	0.0	14.1	1.6	0.0	0.0	0.0	51.4
SP_251EA_M70METNON338_PRIME	338 07:13	338 14:58	0.0	14.6	55.8	2.8	0.0	13.8	23.7	0.0	36.3	4.3	0.0	0.0	0.0	151.2
DAILY TOTAL SCIENCE	337 03:58	338 14:58	0.0	66.0	287.2	12.6	50.0	62.2	107.1	0.0	164.7	97.2	470.0	0.0	101.4	
OBSERVATION_NOR	338 14:58	339 05:58	0.0	28.3	64.8	15.5	127.5	13.3	45.9	0.0	411.0	129.0	430.0	0.0	62.7	1328.0
SP_251EA_C70METOTP339_PRIME	339 05:58	339 07:13	0.0	2.4	0.0	0.5	0.0	1.5	3.8	0.0	50.9	0.7	0.0	0.0	0.0	59.6
SP_251EA_M70UNQOTP339_PRIME	339 07:13	339 14:58	0.0	30.6	51.3	12.9	0.0	27.6	23.7	0.0	690.1	4.3	0.0	0.0	0.0	840.4
DAILY TOTAL SCIENCE	338 14:58	339 14:58	0.0	61.3	116.1	28.8	127.5	42.4	73.4	0.0	1151.9	134.0	430.0	0.0	62.7	

Segment Geometry





Segment Bounds: 2016–336T09:13 to 339T14:58

	Saturn Range	Phase Angle	Sub-S/C Lat.
Segment Start	21.1	130.6	13
Segment End	6.8	71.3	60

Solar Geometry – ORS Boresight Concerns

No ORS Boresight Solar Constraints on Science Pointing.

Daily Science Highlights

01 Dec 2016 (DOY 336): On this day, the Saturn_251 periapsis segment started with the distinction of being the first segment of the F-Ring orbits. CIRS led the segment with an 8h18m COMPSIT (CIRS_251SA_COMPSIT001_PRIME), from ~20Rs, over the northern hemisphere of Saturn.

02 Dec 2016 (DOY 337): After downlink to Canberra, CIRS continued the lead with a Mid-IR mapping observation (CIRS_251SA_MIRMAP001_PRIME) of Saturn's northern hemisphere, over the course of one complete Saturn rotation. Troposphere and tropopause temperatures are detailed with spatial resolution of about two degrees of latitude and longitude. UVIS then took the lead with an EUVFUV map/scan (UVIS_251SA_EUVFUV001_PRIME) to obtain spectral images across the illuminated portion of the northern hemisphere.

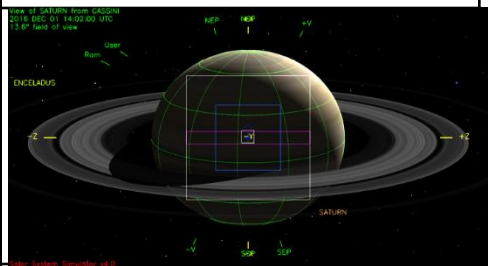
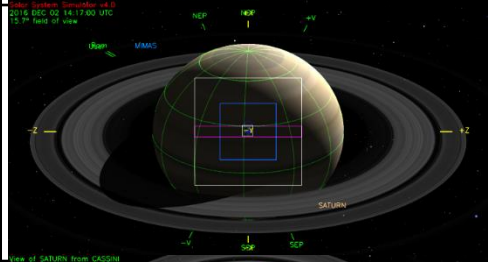
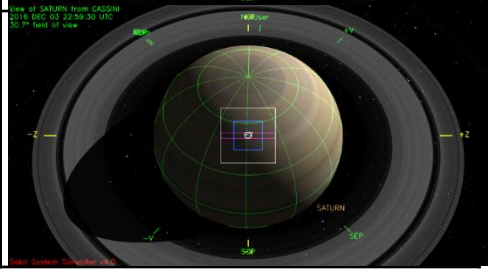
03 Dec 2016 (DOY 338): Following downlink, VIMS performed a 9hr north pole movie (VIMS_251SA_NPOLMOV001_PRIME) with advantageous viewing of the entire polar region and hexagon feature from a sub-S/C latitude of ~50 deg. The movie ended shortly after the start of DOY 339.

04 Dec 2016 (DOY 339): We began this day with auroral observations led by UVIS (UVIS_251SA_AURSLEW001_PRIME), from the prime vantage point of ~50 deg. sub-S/C latitude, and ~10 Rs. This AURSLEW activity was actually a composite of slewing and starting observations – it started with a stare at the illuminated north polar region for 01h10m to support VIMS auroral imaging, then continued with repeated slews across the north polar auroral zone for 01h23m for UVIS auroral imaging. Finally, there was a stare at the illuminated north polar region for 01h10m to support VIMS auroral imaging. VIMS was a collaborative rider on this activity.

08 Sept 2016 (DOY 339): The Saturn_251 segment ended on DOY 239 with a UVIS Beta Cru (Saturn atmosphere) ingress occultation (UVIS_251ST_BETCRU002_PIE) observation. Saturn UV stellar occultations provided detailed vertical profiles of several hydrocarbon species and aerosols in Saturn's thermosphere and high stratosphere. The detailed vertical profile information is critical for studies of photochemical processes and circulation in Saturn's upper atmosphere. These measurements probed higher altitudes than can be sensed with the CIRS information and it is in this regime that the photochemical processes are active. Each occultation, however, sampled only one latitude (in this case BetCru ingress latitude is -6.9 degrees) and we need many of them to build up a global picture of Saturn's high atmosphere and the circulation in that part of the atmosphere. Occultations that occurred near the latitude where INMS sampled the atmosphere directly near the end of the mission are additionally valuable because they provide information on the density of the atmosphere where the spacecraft experienced some atmospheric drag. Previous UV stellar occultation measurements showed that the atmosphere was expanding until about 2010 and had then contracted to some extent. This was considered a spacecraft health and safety issue.

Segment Integration Planning

Timeline Gaps and Suggested Observations

Gap	Start	End	Duration	Phase angle (range)	Rs range	Sub-S/C Lat.	Snapshot (mid-gap)
1	2016-336T09:53:00 Suggestion(s): CIRS COMPSIT	2016-336T18:11:00 08h18m	000T08:18:00	130.6 – 127.2	21.1 – 20.6	13 to 16	
2	2016-337T06:01:00 Suggestion(s): CIRS MIR/FIR Map UVIS EUV/FUV	2016-337T22:33:00 11h00m 05h32m	000T16:32:00	121.9 – 113.0	19.34 – 16.7	21 to 29	
3	2016-338T15:38:00 Suggestion(s): VIMS Polar Map UVIS Aurora	2016-339T04:21:00 09h00m 03h43m	000T12:43:00	98.0 – 71.3	12.1 – 6.8	41 to 60	

Initial SMT and Data Volume

Beginning of Integration:

DATA VOLUME SUMMARY --- TRANSFER FRAME OVERHEAD INCLUDED (80 BITS PER 8800-BIT FRAME)

			OBSERVATION_PERIOD							DOWNLINK_PASS							
			P4						P5	RECORDED		PLAYBACK					
	DOWNLINK PASS NAME	Start doy hh:mm	End doy hh:mm	START (Mb)	SCI (Mb)	HK+E (Mb)	TOTAL (Mb)	CPACTY (Mb)	MRGN (Mb)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGN (Mb)	NET_MARGN (Mb)	NET_MARGN (%)	CAROVR (Mb)
	SP_251EA_C34BWGNON336_PRIME	336 20:21	337 05:21	0	129	47	176	3322	3146	0	196	53	425	558	133	3073	56%	0
Split Pass	SP_251EA_C70METNON338_PRIME	338 00:43	338 07:13	0	224	82	305	3322	3017	0	139	38	482	1897	1415	2940	59%	0
Split Pass	SP_251EA_M70METNON338_PRIME	338 07:13	338 14:58	0	0	0	0	3322	3322	0	104	46	150	1675	1524	1525	50%	0
	SP_251EA_C70METOTP339_PRIME	339 06:29	339 07:13	0	662	66	727	3322	2595	0	37	4	769	85	-684	0	0%	683
	SP_251EA_M70METOTP339_PRIME	339 07:13	339 14:58	683	0	0	683	3322	2639	0	829	46	1558	1283	-275	0	0%	275

SMT Report (Team Summary)

DATA VOLUME REPORT --- TRANSFER FRAME OVERHEAD NOT INCLUDED

Event	Start doy hh:mm	End doy hh:mm	CAPS (Mb)	CDA (Mb)	CIRS (Mb)	INMS (Mb)	ISS (Mb)	MAG (Mb)	MIMI (Mb)	RADAR (Mb)	RPWS (Mb)	UVIS (Mb)	VIMS (Mb)	PROBE (Mb)	ENGR (Mb)	TOTAL (Mb)
OBSERVATION_NOR	336 09:13	336 20:21	0.0	21.0	0.0	0.0	0.0	19.8	34.1	0.0	52.5	0.0	0.0	0.0	46.5	173.9
SP_251EA_C34BWGNON336_PRIME	336 20:21	337 05:21	0.0	17.0	86.4	0.0	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	194.3
DAILY TOTAL SCIENCE	336 09:13	337 05:21	0.0	38.0	86.4	0.0	0.0	35.8	61.6	0.0	94.9	4.9	0.0	0.0	46.5	
OBSERVATION_NOR	337 05:21	338 00:43	0.0	36.5	0.0	0.0	0.0	34.4	59.3	0.0	91.3	0.0	0.0	0.0	80.9	302.5
SP_251EA_C70METNON338_PRIME	338 00:43	338 07:13	0.0	12.3	59.4	0.0	0.0	11.6	19.9	0.0	30.6	3.6	0.0	0.0	0.0	137.3
SP_251EA_M70METNON338_PRIME	338 07:13	338 14:58	0.0	14.6	10.8	0.0	0.0	13.8	23.7	0.0	36.3	4.3	0.0	0.0	0.0	103.4
DAILY TOTAL SCIENCE	337 05:21	338 14:58	0.0	63.4	70.2	0.0	0.0	59.8	102.9	0.0	158.2	7.8	0.0	0.0	80.9	
OBSERVATION_NOR	338 14:58	339 06:29	0.0	29.3	0.0	0.0	0.0	27.6	51.2	0.0	432.0	115.5	0.0	0.0	64.9	720.5
SP_251EA_C70METOTP339_PRIME	339 06:29	339 07:13	0.0	1.4	0.0	0.0	0.0	2.0	3.2	0.0	29.8	0.4	0.0	0.0	0.0	36.8
SP_251EA_M70METOTP339_PRIME	339 07:13	339 14:58	0.0	30.6	7.9	0.0	0.0	55.1	33.5	0.0	690.1	4.3	0.0	0.0	0.0	821.5
DAILY TOTAL SCIENCE	338 14:58	339 14:58	0.0	61.3	7.9	0.0	0.0	84.7	87.9	0.0	1151.9	120.2	0.0	0.0	64.9	

SMT Report (MAPS Rates)

AVERAGE DATA RATE REPORT (calculated over observation periods and downlink passes)

Event	Start doy hh:mm	End doy hh:mm	CAPS (bps)	CDA (bps)	INMS (bps)	MAG (bps)	MIMI (bps)	RPWS (bps)	UVIS (bps)
SP_251NA_OBSERV336_NA	336 09:13	336 20:21	0.0	524.0	0.0	494.0	850.0	1310.0	0.0
SP_251EA_C34BWGNON336_PRIME	336 20:21	337 05:21	0.0	524.0	0.0	494.0	850.0	1310.0	152.5
SP_251NA_OBSERV337_NA	337 05:21	338 00:43	0.0	524.0	0.0	494.0	850.0	1310.0	0.0
SP_251EA_C70METNON338_PRIME	338 00:43	338 07:13	0.0	524.0	0.0	494.0	850.0	1307.8	152.5
SP_251EA_M70METNON338_PRIME	338 07:13	338 14:58	0.0	524.0	0.0	494.0	850.0	1300.0	152.5
SP_251NA_OBSERV338_NA	338 14:58	339 06:29	0.0	524.0	0.0	494.0	917.0	7734.2	2068.5
SP_251EA_C70METOTP339_PRIME	339 06:29	339 07:13	0.0	524.0	0.0	763.3	1200.0	11301.3	152.5
SP_251EA_M70METOTP339_PRIME	339 07:13	339 14:58	0.0	1097.5	0.0	1976.0	1200.0	24733.6	152.5

11

Waypoint Selection

Good Waypoints

OBS_NAME	START	END	POS_X_2_NSP	POS_X_2_NEP	NEG_X_2_NSP	NEG_X_2_NEP	POS_Z_2_NSP	POS_Z_2_NEP	NEG_Z_2_NSP	NEG_Z_2_NEP	NEG_X_2_SUN	NEG_Z_2_EARTH
SP_251NA_OBSERV336_NA	2016-336T07:28:00	2016-336T20:21:00	**BAD**	**BAD**	OK	OK	OK	OK	**BAD**	**BAD**	OK	OK
SP_251NA_OBSERV337_NA	2016-337T05:21:00	2016-338T00:43:00	**BAD**	**BAD**	OK	OK	OK	OK	**BAD**	**BAD**	OK	OK
SP_251NA_OBSERV338_NA	2016-338T14:58:00	2016-339T06:29:00	**BAD**	**BAD**	OK	**BAD**	OK	OK	**BAD**	**BAD**	OK	OK

RBOT Friendly Waypoints

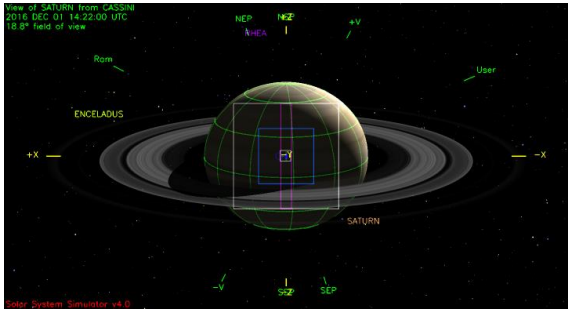
OBSERVATION PERIOD	START	END	POS_X	NEG_X	POS_Z	NEG_Z
SP_251NA_OBSERV336_NA	2016-336T07:28:00	2016-336T20:21:00	191.5/ 32.0	------	191.5/ 32.0	------
SP_251NA_OBSERV337_NA	2016-337T05:21:00	2016-338T00:43:00	191.5/ 32.0	------	191.5/ 32.0	------
SP_251NA_OBSERV338_NA	2016-338T14:58:00	2016-339T06:29:00	191.4/ 32.0	------	191.4/ 32.0	------

Good Downlinks

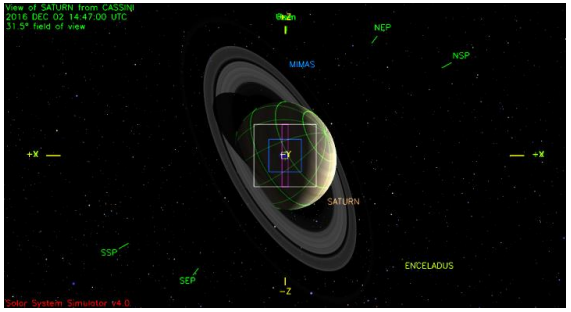
DOWNLINK	START	END	POS_X_2_NSP	POS_X_2_NEP	NEG_X_2_NSP	NEG_X_2_NEP	POS_Y_2_NSP	POS_Y_2_NEP	NEG_Y_2_NSP	NEG_Y_2_NEP	ROLL_FLAG
SP_251EA_C34BWGNON336_PRIME	2016-336T20:21:00	2016-337T05:21:00	OK	OK	OK	OK	OK	OK	OK	OK	0
SP_251EA_C70METNON338_PRIME	2016-338T00:43:00	2016-338T07:13:00	OK	OK	OK	**BAD**	OK	OK	OK	OK	0
SP_251EA_M70METNON338_PRIME	2016-338T07:13:00	2016-338T14:58:00	OK	OK	**BAD**	**BAD**	OK	OK	OK	OK	0
SP_251EA_C70METOTP339_PRIME	2016-339T06:29:00	2016-339T07:13:00	OK	OK	**BAD**	**BAD**	OK	OK	OK	OK	0
SP_251EA_M70METOTP339_PRIME	2016-339T07:13:00	2016-339T14:58:00	**BAD**	**BAD**	**BAD**	**BAD**	**BAD**	**BAD**	OK	OK	12

Waypoints Chosen

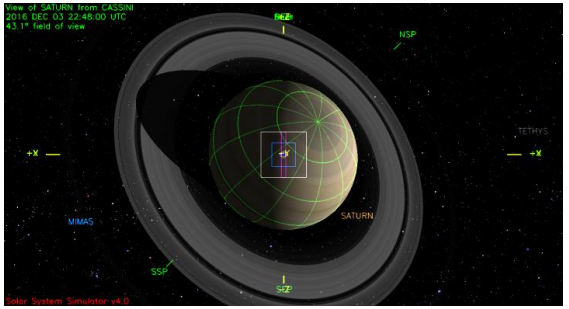
Waypoint 1 (2016– 336T09:53:00 to 336T18:51:00): NEG_Y to Saturn, POS_Z to NSP.



Waypoint 2 (2016-337T06:01:00 to 337T23:13:00): NEG_Y to Saturn, POS_Z to 191.5/32.0



Waypoint 3 (2016-338T15:38:00 to 339T05:58:00): NEG_Y to Saturn, POS_Z to 191.5/32.0



Notes and Leins (1/2)

- Pointing:
  - No violations, issues, or notes.

- Data Volume:
  - Accepting ~525 Mb of carryover from preceding TOST 250_T125 segment
  - 838 Mb of carry over from this segment is accepted by XD_251_252.

- DSN:
  - C70METOTP339 and M70METOTP339 comprise a split-pass.
    - Total C70/M70 pass duration originally 8h29m. Increased to full 09h00m duration per SCO request for critical periapse OTM.
  - ap_downlink report check warnings
    - Warning: SP_251EA_C70METOTP339_PRIME has an unusual gap time; usual for OTMs is 01:22:00
      This OTM pass is a split pass. The 01h22m PB gap has been placed in the second portion of the pass (SP_251EA_M70METOTP339) .
    - Warning: number of sequence upload passes is 0; should be 5 or more
      No sequence upload passes required in this segment.

- Resource checker:
  - 2016-339T05:58:00 "SP_251EA_C70METOTP339_PRIME“ "OTP Downlink Pass Playback gap is not 01:22:00"
    Part of split OTM pass. Second part (SP_251EA_M70METOTP339_PRIME) contains the 01:22:00 Playback Gap
  - 2016-337T23:13:00 "SP_251SA_YGAP337_PRIME“ "Gap in Prime SPASS requests between SP_251SA_YGAP337_PRIME and SP_251EA_C70METNON338_PRIME. Gap of 000T03:30:00 is greater than or equal to 60 seconds."
    The 03h30m gap is intentional, to reduce and anomalously long (14h15m) 70m DL pass.
  - 2016-339T05:58:00 "SP_251EA_C70METOTP339_PRIME“ "Manually verify identical inertial pointing, the backup OTM may exist in the next segment/sequence."
    Verified identical inertial pointing (NEG_Y to 307.79/57.95) are consistent between OTP and OTB (in XD_251_252) passes.

(Continued on Next Page)

Notes and Liens (2/2)

- Resource checker (CONTINUED):
  - 2016-339T05:58:00 "SP_251EA_C70METOTP339_PRIME“ "Downlink containing Prime OTM is rolling for more than four hours Rolling”. Fix rolling to be less than four hours

    The intent of the CIMS rolling entries for the split C70/M70 OTP pass, is for a SRU rolling to fit within 4 hrs of DL pass start (as required for OTM passes).

    HAND EDIT REQUIRED to SP_251EA_C70METOTP_339_PRIME request (2016-339T05:58:00) in PDT sasf:
    - **CHANGE roll specification in first 7DELTA_BODY_LONG command (at 339T06:13:00) to 31415.93 mRad (5 complete rolls)**
    - **DELETE second roll command set (7 PROFILE and 7DELTA_BODY_LONG) starting at 339T07:27:30.**

- Opmodes:
  - No unique opmodes

- Hydrazine:
  - NA

- Special Activities:
  - UVIS_251ST_BETCRU002_PIE (See Science Highlights)

- List any Liens to be worked in SIP
  - None