

Science Planning & Sequence Team

SATURN TARGET WORKING TEAM

Rev 12 Outbound Segment Legacy Package

Segment Boundary: Aug 3, 2005 – Aug 4, 2005 2005-215T14:50:00 – 2005-216T22:00:00 (SCET)

Integration Began 09/17/2001 Segment Delivered to S13 Sequence 02/08/2002 Lead Integrator was Jerod Gross

Legacy Package Assembled by Keven Uchida

Table of Contents

•	Seg	ment Overview and Final Products	3 - 9
	_	Summary	4
	_	Final Sequenced SPASS (Science Planning Attitude Strategy Spreadsheet)	5
	_	Final Sequenced SMT (SSR Management Tool) Reports	7
	_	Segment Geometry	7 - 8
		Overview	7
		Solar Geometry ORS Boresight Concerns	8
	_	Daily Science Highlights	9
٠	Seg	ment Integration Planning	12 - 15
	_	Timeline Gaps & Suggested Observations	12
	_	Initial SMT (SSR Management Tool) Reports	12
	_	Waypoint Selection	13 - 14
		Options Considered (N.A.*)	13
		Waypoints Chosen	14
	_	Sequence handoff notes and Liens on sequence development/execution	15

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

Segment Overview and Final Products

- This is a very short (~1.5 day long) Prime Mission outbound segment. Periapse occurs ~1.4 days **prior** to the start of this segment. The S/C is in an inclined orbit. Phase angles were relatively high, ranging between 112 96 degrees.
- The initial science proposal included UVIS EUV-FUV observations of Saturn, followed by ISS observations (first of satellites, then of Saturn), and then concluding with OPNAV satellite observations (page 11). The final plan (page 5) had instead the UVIS and ISS observations entirely replaced by an ~21 hour long CIRS Far-IR mapping of Saturn (scanning N-S). The ~1 hour remaining in the segment went to OPNAV satellite imaging.
- Data volume was initially oversubscribed (page 12), but cuts were made come within the allocation/downlink capability.
- There were no Sun constraints/issues in planning this segment

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
SATURN rev 12 Segment		2005-215T14:50:0	0	001T07:30:00	2005-216T22:20:00)		
SP_012SA_WAYPTTURN215_PRIME		2005-215T14:50:0	D	000T00:20:00	2005-215T15:10:00	ISS_NAC to 300.0/0.0	POS_X to NSP	SP Turn to Waypoint
SP_012SA_WAYPTTURN415_PRIME	U, V	2005-215T15:10:0	D	000T00:18:00	2005-215T15:28:00	ISS_NAC to Saturn	POS_X to NSP	SP Turn to Waypoint
NEW WAYPOINT		2005-215T15:28:	00	001T07:37:0	0 2005-216T23:05:0	0(ISS_NAC to Saturn	POS_X to NSP	
CIRS_012SA_FIRMAP008_PRIME	C, U, V	2005-215T15:28:0	D	000T20:52:00	2005-216T12:20:00	CIRS_FP1 to Saturn	POS_X to NSP	
NAV_012SK_OPNAV161_PRIME		2005-216T12:20:0		000T00:59:00	2005-216T13:19:00) ISS_NAC to Satellites	POS_X to NSP	Starts at waypoint, ends at Earth point
NAV_012EA_DLTURN161_PRIME		2005-216T13:19:0		000T00:01:00	2005-216T13:20:00) XBAND to Earth	POS_X to NEP	
SP_012EA_G34BWGOTB216_PRIME	N	2005-216T13:20:0	0	000T09:00:00	2005-216T22:20:00) XBAND to Earth	POS_X to NEP	

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

		l			OBS	ERVATI	ON_PERI	OD		1			DOWNLIN	K_PASS			
						P4			₽5 	 RECO	ORDED	 		PLAYB	ACK	******	
DOWNLINK PASS NAME	Start doy hh:mm	 End doy hh:mm	START (Mb)		HK+E (Mb)	TOTAL (Mb)	CPACTY (Mb)	MRGN (Mb)	 OPNAV (Mb)	 SCI (Mb)	ENGR (Mb)	 TOTAL (Mb)	CPACTY (Mb)	MARGN (Mb)	NET_1 (Mb)	MARGN (%)	CAROVI (Mb)
SP_012EA_G34BWGOTB216_PRIME	216 13:20	216 22:20	0	1440	77	1516	3468	1952	9	248	53	1826	668	-1158	72	1%	1158

DATA VOLUME REPORT --- TRANSFER FRAME OVERHEAD NOT INCLUDED

Event	Start doy hh:mm	End doy hh:mm	(Mb)	CDA (Mb)	CIRS (Mb)	INMS (Mb)	ISS (Mb)	MAG (Mb)	MIMI (Mb)	RADAR (Mb)	(Mb)	UVIS (Mb)	VIMS (Mb)	PROBE (Mb)	ENGR (Mb)	TOTAL (Mb)
OBSERVATION NOR	215 14:50	216 13:20	81.0	104.9	300.5	4.1	0.0	80.0	97.2	0.0	703.2	32.8	10.0	0.0	0.0	1413.6
OBSERVATION OPN	215 14:50	216 13:20	0.0	0.0	0.0	0.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7
OBSERVATION SI	215 14:50	216 13:20	0.0	0.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0
SP 012EA G34BWGOTB216 PRIME	216 13:20	216 22:20	32.4	17.0	86.4	1.6	0.0	32.0	38.9	0.0	35.2	2.5	0.0	0.0	0.0	245.9
DAILY TOTAL SCIENCE	215 14:50	216 22:20	113.4	121.8	399.9	5.7	0.0	112.0	136.1	0.0	738.4	35.3	10.0	0.0		

Segment Geometry

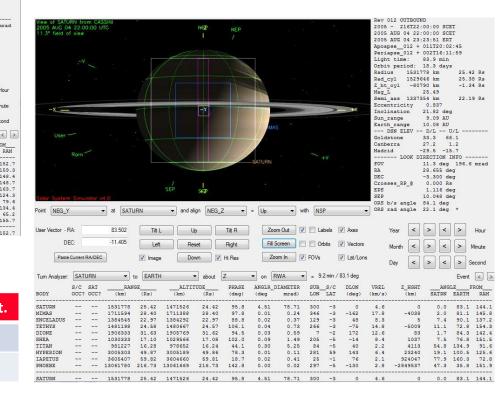
Saturn 012 Legacy

View of SATU	RN fee	om CAS	SIN					_	_			_		012 OUTB			
2005 AUG 0.	3 14:5	0:00 U				NEZP	NEP								14:50:00 S		
24.1° field o	f view					1	INC.								14:50:00 S		
															16:13:53 E		
															+ 010T12:		
															+ 001T09:		
														t time:	83.9 mi		
															: 18.3 da		
													Radi		10531 km		77 Rs
													Rad		09316 km		75 Rs
					4/1	(Assessment of									49546 km	0.	82 Rs
													Mag_		16.81		
							1.							_axs 13:		22.	20 Rs
-x						FY	and the second se					+X		ntricity			
	-													ination	21.81 d 9.09 A		
														range h range	10.09 A		
User				EN	CELADUS										D/L		
							and a state of the							stone		13.0	
													Canb			74.4	
							SATU	RN					Madr			60.6	
											EW.				DIRECTION		
													FOV	Loon	24.1 de		2 mrad
		Ram											RA		13.742		
													DEC		-8.585		
													Croc	ses RP @	0.000		
						000							EPS	ses_kF_6	1.000		
						SEZ								ses_kb_6		deg	
Solar System	Şimu	lator v	4.8		SEP						сэр 11 а _р	$(e_{-\frac{1}{2}})$	EPS SEP	b/s angle	1.000 8.993	deg deg	
Solar System	simu	iator v	at SAT	UBN		SEZ	7 •	= Up	• w	ith NS	P		EPS SEP ORS		1.000 8.993 e 68.5 de	deg deg g	
Point NEG_Y	Simu	lator v	• at SAT	URN			<u>z</u> •	= Up	• w	ith NS	P	•	EPS SEP ORS	b/s angle	1.000 8.993 e 68.5 de	deg deg g	
(talor v		_	▼ and	SEZ				(- Auga	EPS SEP ORS	b/s angle rad angle	1.000 8.993 e 68.5 de e 29.9 de	deg g g *	11
User Vector - F	RA:	Lator v	83.502	_		SEZ	Z •		v w	(Axes	EPS SEP ORS	b/s angle	1.000 8.993 e 68.5 de e 29.9 de	deg g g	Hour
(RA:	ator v		_	▼ and	SEZ		Zo] [[] La	bels	 ✓ Axes ✓ Vectors 	EPS SEP ORS	b/s angle rad angle	1.000 8.993 e 68.5 de e 29.9 de	deg g g *	Hour
User Vector - F	RA:		83.502 -11.405		and Tilt L Left	Sizz I align NEG Up (Reset	Tilt R Right	Zo	om Out		bels bits	Vectors	EPS SEP ORS ORS	b/s angle rad angle Year	1.000 8.993 e 68.5 de e 29.9 de	deg g g *	
User Vector - F	RA:	RA/DEC	83.502 -11.405	_	and Tilt L Left	Sizz I align NEG Up (Reset	Tilt R	Zo	om Out		bels bits		EPS SEP ORS ORS	b/s angle rad angle Year	1.000 8.993 e 68.5 de e 29.9 de	deg deg g *	
Jser Vector - F DE Paste	RA: EC: Current		83.502		anc Tilt L Left nage	Jalign NEG	Tilt R Right Hi Res	Zo	om Out 🛛 🔽 Screen 📄] [] La] [] Or] FOVs	bels bits	Vectors	EPS SEP ORS ORS	b/s angle rad angle Year	1.000 8.993 e 68.5 de e 29.9 de	deg deg g . >	Minute Second
User Vector - F	RA: EC: Current SAT	URN	83.502 -11.405	↓ Ir to EA	anc Tilt L Left nage RTH	d align NEG	Tilt R Right Hi Res Z	Zo Fill Zo • on	om Out V Screen C som In V RWA •	La Or FOVs = 8.	bels bits 0 min /	 ✓ Vectors ✓ Lat/Lons 67.5 deg 	EPS SEP ORS ORS	b/s angle rad angle Year Month Day	1.000 8.993 e 68.5 de 29.9 de	deg deg g *	Minute Second t <
Jser Vector - F DE Paste Tum Analyzer:	RA: EC: Current SAT S/C	URN SAT	83.502 -11.405	to EA	anc Tilt L Left Left RTH L_Left Left Left Left Left Left Left Left	align NEG Up (Reset) Down V about TITUDE	Tilt R Right] Hi Res Z PHASE	To Fill Zo • on [ANGLR_	om Out V Screen C bom In V RWA V DIAMETER	La Or FOVs = 8. SUB_	bels bits 0 min / _s/C	Vectors Lat/Lons 67.5 deg DLON	EPS SEP ORS ORS	b/s angle rad angle Year Month Day Z_HG	1.000 8.993 e 68.5 de e 29.9 de c > < c > <	deg deg g *	Minute Second t <u>c</u>
Jser Vector - F DE Paste Tum Analyzer:	RA: EC: Current SAT	URN SAT	83.502 -11.405	↓ Ir to EA	anc Tilt L Left Left RTH L_Left Left Left Left Left Left Left Left	d align NEG	Tilt R Right Hi Res Z	Zo Fill Zo • on	om Out V Screen C som In V RWA •	La Or FOVs = 8.	bels bits 0 min /	 ✓ Vectors ✓ Lat/Lons 67.5 deg 	EPS SEP ORS ORS	b/s angle rad angle Year Month Day	1.000 8.993 e 68.5 de e 29.9 de c > < c > <	deg deg g *	Minute Second t <u>c</u>
Jser Vector - F DE Paste Tum Analyzer: BODY	RA: EC: Current SAT S/C	URN SAT	83.502 -11.405	to EA	anc Tilt L Left Left RTH AL2 (km)	d align NEG Up (Reset) Down V about TITUDE (Rs)	Tilt R Right] Hi Res Z PHASE	To Fill Zo • on [ANGLR_	om Out V Screen C bom In V RWA V DIAMETER	La Or FOVs = 8. SUB_	bels bits 0 min / _s/C	Vectors Lat/Lons 67.5 deg DLON	EPS SEP ORS ORS	b/s angle rad angle Year Month Day Z_HG	1.000 8.993 e 68.5 de e 29.9 de c > < c > <	deg deg g *	Minute Second t c [FROM_ H RAM
Jser Vector - F DE Paste Tum Analyzer: BODY SATURN	RA: EC: Current SAT S/C	URN SAT	83.502 -11.405	to EA	anc Tik L Left Left RTH <u>AL1 (km) 77 950277 </u>	Up Up Reset Down Up Composition Compos	Tilt R Right Hi Res Z PHASE (deg)	To Fill Zo on ANGLR (deg	om Out V Screen V som In V RWA V DIAMETER mrad)	 Cor FOVs SUB_ LON 	bels bits 0 min / _S/C LAT	Vectors Lat/Lons 67.5 deg DLON (deg)	UREL (km/s)	b/s angl rad angl Year Month Day Z_HG (km	1.000 8.993 e 68.5 de 29.9 de 29.9 de 20.9 de	deg deg g + > > > Even IGLE r EARTH	Minute Second t C (FROM H RAM 5 152.
User Vector - F DE Paste Tum Analyzer: BODY SATURN MIMAS	RA: EC: Current SAT S/C OCC?	URN SAT	83.502 -11.405 	✓ Ir to EA NGE (Rs 16.	anc Tilt L Left Left RTH ALII (km) 77 950277 18 66166	Siz2 Up Reset Down ▼ about TIUDE (Rs) ? 15.77 3 14.70	Tilt R Right Hi Res Z PHASE (deg) 111.5	Zo Fill Zc on ANGLR_ (deg 6.84	om Out Screen bom In RWA DIAMETER mrad) 119.35	 La Or FOVs = 8. SUB_ LON 342 	bits 0 min / _S/C LAT 	Vectors Lat/Lons 67.5 deg DLON (deg) 0	VREL (km/s)	b/s angl rad angl Year Month Day Z_HG (km	1.000 8.933 e 68.5 de e 29.9 de c > c c > c c > c c > c c > c c > c c > c	deg deg g * > > Even IGLE I EARTH 67.5 59.7	Minute Second t c (FROM H RAM 5 152. 7 159.
Jaer Vector - F DE Paste Tum Analyzer: BODY SATURN MINAS SATURN MINAS	RA: EC: Current SAT S/C OCC?	URN SAT	83.502 -11.405 	✓ Ir to EA NGE_(Rs) 16. 14.	anc Thit L Left Left Left AL1 (km) 77 950277 866166 9776281	Siz Jalign NEG. Up Up Peset Down v about TIUDE (R#) 7 15.777 3 14.70 3 12.99 12.99	Tilt R Right HI Res Z PHASE (deg) 111.5 119.3	Zo Fill Zr ANGLR (deg 6.84 0.03	om Out Screen bom In RWA DIAMETER mrad) 119.35 0.47	 La Or FOVs = 8. SUB_ LON 342 231 	bits 0 min / _S/C LAT 	Vectors Lat/Lons C.5 deg DLON (deg) 0 -44	VREL (hm/s) 6.8 17.0	b/s angl rad angl Year Month Day Z_HG (km	1.000 9.93 6.55 4.29 4.29 4.29 4.20	deg deg g g	Minute Second t c [FROM FROM 5 152. 7 159. 4 148.
Jser Vector - F DE Paste Tum Analyzer: BODY SATURN MINAS ENCELADUS TETHYS	RA: EC: Current SAT S/C OCC?	URN SAT	83.502 -11.405 	✓ Ir to EA NGE_(Rs) 16. 14. 12.	anc Tilt L Left Left AII (km) (km) 77 950277 86166 99 722814 12804	Siz2 Up Up Reset Down Image: state st	Tilt R Right Hi Res Z PHASE (deg) 111.5 119.3 107.6	Zo Fill Zr ANGLR (deg 6.84 0.03 0.04	om Out Screen com in RWA DIAMETER mrad) 119.35 0.47 0.66	 La Or FOVs = 8. SUB_ LON 342 231 166 	bels bits 0 min / _S/C LAT 3 2 4	Vectors Lat/Lons 67.5 deg DLON (deg) 0 -44 15	EPS SEP ORS ORS VREL (km/s) 6.8 17.0 9.1	b/s angle rad angle Year Month Z_HG (km 4 	1.000 9.93 6.55 4.29 4.29 4.29 4.20	deg deg g g Even IGLE I EARTH 67.6 59.7 67.6 71.4 72.5	Minute Second t C [FROM H RAM 5 152. 7 159. 4 148. 3 148.
Jaer Vector - F DE Paste Tum Analyzer: BODY SATURN MIMAS ENCELADUS TETHYS DIONE	RA: EC: Current SAT S/C OCC?	URN SAT OCC?	83.502 -11.405 	V Ir to EA NGE_(Rs 16. 14. 12. 21.	and Tilt L Left Left RTH AL1 (km) 77 950277 186616 97 7281 38 128044 128044 12804	xxx Up Up Up Case	Tilt R Right HI Res Z PHASE (deg) 111.5 119.3 107.6 106.7	Zo Fill Zd ANGLR (deg 6.84 0.03 0.04 0.05	om Out Screen com in RWA DIAMETER mrad) 119.35 0.47 0.66 0.84	C La C Or FOVs E 8. SUB_ LON 342 231 166 17	bits 0 min / _S/C LAT 3 2 4 2	 ✓ Vectors ✓ Lat/Lons 67.5 deg DLON (deg) 0 -44 15 158 	UREL (km/s) 6.8 17.0 9.1 14.3	b/s angle rad angle Year Month Z_HG (km 4 	1.000 1.000 6.993 6.55 de 2.9.9 de 2.9.3 de 2.9.4	deg deg g g	Minute Second t () FROM T RAM 5 152. 7 159. 4 148. 3 148. 3 148. 1 163.
User Vector - F DE Paste Tum Analyzer: BODY SATURN MINAS ENCELADUS TETHYS DIONE RIEA	RA: EC: Current SAT S/C OCC?	URN SAT OCC?	83.502 -11.405 -11.405 	✓ Ir to EA NGE (Rs 16. 14. 12. 21. 11.	anc Tit L Left Left Left AL2 (kan be considered on the constant o	Size Jalign NEG. Up	Tilt R Right H Res Z PHASE (deg) 111.5 119.3 107.6 106.7 126.9	Zo Fill Zr ANGLR_ (deg 6.84 0.03 0.04 0.05 0.09	om Out Screen xom In RWA LIAMETER mrad) 119.35 0.47 0.66 0.84 1.57	C La C Or FOVs E 8 LON 342 231 166 17 228	bits D min / S/C LAT 3 2 4 2 4 2 4	 ✓ Vectors ✓ Lat/Lons 67.5 deg DLON (deg) 0 -44 15 158 -32 	UREL (km/s) 6.8 17.0 9.1 14.3 12.1	b/s angle rad angle Year Month Z_HG (km 4 - 42 42	1.000 8.993 e 68.5 de 29.9 de 29.9 de 20.9 de	deg deg g g Even IGLE E Even IGLE 59.5 571.4 52.1 596.0	Minute Second t () FROM H RAM 5 152. ⁻ 7 159. ⁻ 4 148. ⁻ 3 148. ⁻ 3 148. ⁻ 1 163. ⁻ 0 124. ⁻
User Vector - F DE Paste	IA: EC: Current SAT S/C OCC? 	URN SAT OCC? 	83.502 -11.405 -11.405 -11.405 	✓ Ir to EA NGE (Rs 16. 14. 12. 21. 11. 16. 16.	and and Tilk L Left .	dialign NEG, Up	Tilt R Right H Res Z PHASE (deg) 111.5 119.3 107.6 106.7 126.9 83.1	Zo Fill Zr ANGLR (deg 6.84 0.03 0.04 0.05 0.09 0.09	om Out Screen xom In RWA DIAMETER mrad 119.35 0.47 0.66 0.84 1.57 1.57	Control Con	bels bits 0 min / _S/C LAT 3 2 4 2 4 2 4 3	 ✓ Vectors ✓ Lat/Lons 67.5 deg DLON (deg) -44 15 158 -32 74 	VREL (km/s) 6.8 17.0 9.1 14.3 12.1 3.0	b/s angle rad angle Year Month Z_HG (km 4 4 42 42 27 70 152	1.000 8.993 663.5 de 29.9 de 29.9 de 20.9 de 2	deg deg g g > > > Even IGLE EARTF EARTF 5	Minute Second t c FROM H RAM 5 152 5 152 5 152 7 159 4 148 1 163 0 124 2 79
Jser Vector - F DE Paste Tum Analyzer: BODY SATURN MINAS SATURN MINAS SATURN MINAS SINCELADUS TETHYS DIONE RHEA HEA	IA: EC: Current SAT S/C OCC? 	URN SAT OCC? 	83.502 -11.405 -11.405 -11.405 	to EA NGE (Rs 16. 14. 12. 21. 16. 17.	and and and ange a	Set Jalign NEG. Up	Tilt R Right H Res Z PHASE (deg) 111.5 119.3 107.6 106.7 126.9 83.1 42.1	Zo Fill Zd ANGLR (deg 6.84 0.03 0.04 0.05 0.09 0.29	om Out Screen som in RWA DIAMETER mrad) 119.35 0.47 0.66 0.84 1.57 1.53 5.00	C La C Or FOVs E 8: SUB_ LON 342 231 166 17 228 78 48	bels bits 	 ✓ Vectors ✓ Lat/Lons 67.5 deg DLON (deg) 0 -44 15 158 -32 74 53 	VREL (km/s) 6.8 17.0 9.1 14.3 12.1 3.0 1.8	b/s angle rad angle Year Month Z_HG (km 4 - 42 27 70	1.000 8.993 663.5 de 29.9 de 29.9 de 20.9 de 2	deg deg g * > > > Even IGLE (EARTH (59.5) 52.1) 52.1) 54.6 59.5 52.1) 54.6 59.5 10.7 2.5 52.1) 54.6 59.5 55.5 10.5 55.5 55.5 55.5 55.5 55.5 55	Minute Second t C 2 FROM T RAM 5 152.7 7 159.3 4 148.4 3 148.4 3 148.7 1 163.7 0 124.3 2 79.6 3 134.4
Jaer Vector - F DE Paste Tum Analyzer: BODY SATURN MINAS SATURN MINAS SATURN MINAS SATURN MINAS REA HEA HITAN HYPERION	IA: EC: Current SAT S/C OCC? 	URN SAT OCC? 	83.502 -11.405	to EA NGE (Rs 16. 14. 21. 11. 16. 12. 21. 11. 14.	anc Till L Left Left Left (xn) (xn)	Size Up Up Reset Down w about (Rs) 7 15.77 3 2.99 2.1.37 3 1.93 2.1.37 1.1.94 3 1.5.75 5.5.77	Tilt R Right H Res Z PHASE (deg) 111.5 119.3 107.6 106.7 126.9 83.1 42.1 91.6	Zo Fill Zr ANGLR (deg 6.84 0.03 0.04 0.05 0.09 0.29 0.01	om Out Screen com In RWA TIANSER mrad) 119.35 0.47 1.53 5.00 0.13	C La C Or FOVs FOVs SUB_ LON 342 231 166 17 228 78 48 214	bels bits 	 ✓ Vectors ✓ Lat/Lons 67.5 deg DLON (deg) -44 15 158 -32 74 53 147 	UREL (km/s) 6.8 17.0 9.1 14.3 12.1 3.0 1.8 8.6	b/s angle rad angle Year Month Z_HG (km 4 4 42 42 27 70 152	1.000 8.993 e 68.5 de 29.9 de 29.9 de 20.9 e 20.9 e 20.9 e 20.0 e	deg deg g - g - Even (GLE EARTH EARTH EARTH F EARTH F	Minute Second t C
Jser Vector - F DE Paste Tum Analyzer: BODY SATURN MIMAS SATURN MIMAS SATURN MIMAS DIONE RHEA DIONE RHEA DIONE RHEA DITAN HYPERION I TAPFTUS	IA: EC: Current SAT S/C OCC? 	URN SAT OCC? 	83.502 -11.405	V Ir to EA NGE (Rs 16. 14. 12. 21. 11. 15. 214.	anc Tit L Left Left	Set Jalign NEG. Up	Tik R Right H Res Z PHASE (deg) 111.5 119.3 107.6 106.7 126.9 86.1 42.1 91.6 5 144.5	▼ on ANGLR (deg 6.84 0.03 0.04 0.05 0.09 0.29 0.09 0.29 0.01	om Out Screen som in RWA 119.35 0.47 0.66 0.84 1.57 1.53 5.00 0.13 0.43	Contemporation of the second secon	bels bits 	 ✓ Vectors ✓ Lat/Lons 67.5 deg DLON (degr) 0 -44 15 158 -32 74 53 147 68 	VREL (km/s) 6.8 17.0 9.1 14.3 12.1 3.0 1.8 8.6 3.8	b/s angle rad angle Year Month Day Z_HG (km 4 - - 27 70 152 9458	1.000 8.993 e 68.5 de 29.9 de 29.9 de 20.9 e 20.9 e 20.9 e 20.0 e	deg deg g g E Even IGLE E EARTF E E	Minute Second t FROM_ H RAD 5 152. 7 159. 4 148. 3 148. 1 163. 0 124. 2 79. 3 134. 7 65.

	Saturn Range	Phase Angle	Sub-S/C Lat.
Segment Start	16.77	111.5	+3
Segment End	25.42	95.8	-3



Seg End (below)



Saturn 012 Legacy

No ORS Boresight Solar Constraints on Science Pointing.

- Aug 3 (DOY 215): The one observation period in this segment started at 2005-215T15:28:00 with an ~21 hour duration CIRS Far-IR mapping observation of Saturn (scanning N-S).
- Aug 4 (DOY 216): Following the CIRS Far-IR map, OPNAV satellite imaging was performed for the remaining one hour of this segment.

Segment Integration Planning

Timeline Gaps and Suggested Observations

Saturn 012 Legacy

Rev 12 Outbound Strawman

- Rev 12 outbound segment (215T14:00 to 216T22:00)
 - Periapse is 2005-214T05:31:27.70, so this seg starts at Peri+1T08:30
 - Total data volume of all inputs: ~1920 Mb
 - Proposed DSN passes: 1 Goldstone 34-m HEF, ~840 Mb capability
- Proposed Strawman:
- UVIS moved 2:00 earlier
- ISS Pandora and Atlas events moved ~0:02 later
- ISS Photom moved 2:23
 earlier
- OPNAV given 3:05 to do whatever they want
- 30 minutes to turn to Earth after OpNav
- 9.25-hour d/l assumed (13 hrs. pictured); no CIRS DS Cal due to OTM
- OTM window moved 7:00 later - OK?
- Questions
- Is SOST using Mad 70-m downlink?

Observation	Start Time	Dur	End Time
UVIS EUV-FUV	215T15:00	11:00	216T02:00
ISS Pandora Mutual Event	216T02:00	0:31	216T02:31
ISS Atlas Mutual Event	216T02:31	0:31	216T03:02
ISS Janus Mutual Event	216T03:02	0:31	216T03:33
ISS Saturn Photom 001	216T03:40	0:24	216T04:04
ISS Saturn Photom 002	216T04:40	0:24	216T05:04
ISS Saturn Photom 003	216T05:40	0:24	216T06:04
ISS Saturn Photom 004	216T06:40	0:24	216T07:04
ISS Saturn Photom 005	216T07:40	0:24	216T08:04
ISS Saturn Photom 006	216T08:40	0:24	216T09:04
OPNAV	216T09:10	3:05	216T12:15
Downlink & OTM-26 B/U	216T12:45	9:15	216T22:00

Beginning of Integration:

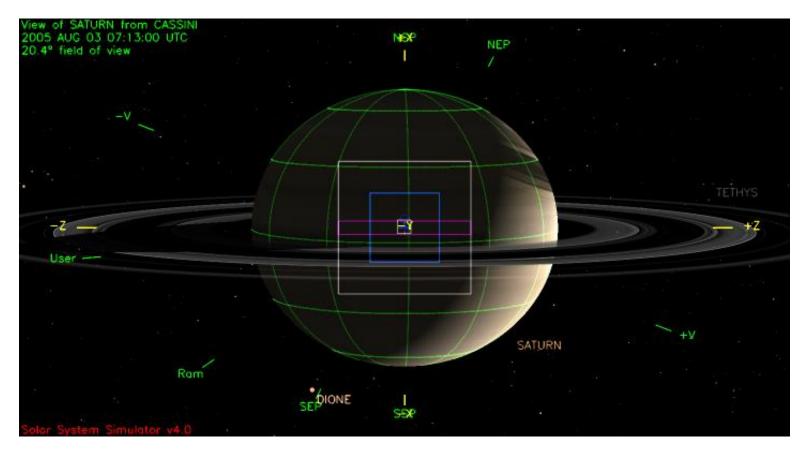
Rev 12 Outbound

- We are oversubscribed by 725 Mb (more than a factor of 2!)
 - Science usage = 1423 Mb; ORS usage = 58% (821 Mb), MAPS usage = 42% (602 Mb)
 - One solution would be ORS cuts 0.58*725 = 421 Mb, MAPS cuts by 0.42*725 = 304
 - Other solutions?
 - We need to come up with a solution here today!
- Telem mode = S_N_ER_5 for OpNav, S_N_ER_3 elsewhere? OpMode = ORS_RWA?

Playback	doy hh:mm	End doy hh;mm	(Mb)	5% (Mb)	ENG+HK (Mb)	SCIENC	E TOTAL (Mb)	MARGIN (Mb)							
old_27k**	216 13:05	216 22:35	877	44	134	1423	<mark>1558</mark>	-725							
	Start	End	CAPS	CDA	CIRS	INMS	ISS MA	S MIMI	RADAR	RPWS	UVIS	VIMS	ENG S	SCIENC	TOTAL
Event	doy hh:mm	doy hh:mm	(Mb)	(Mb)	(Mb)	(Mb) (I	иь) (мь) (Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)
		doy hh:mm	(МЬ)	(Mb)	(Mb)	(МЬ) (1	иь) (мь) (Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)

No Waypoint Selection Info Available

Waypoint 1 (2005-215T15:28:00 to - 216T23:05:00): NEG_Y to Saturn, POS_X to NSP.



08/23/2017

Saturn Rev 12 Outbound Open Issues (as of 02/08/02)

Pointing Issues

- The waypoint is NAC to Saturn, +X to Saturn N. Pole.

Data Volume Issues

- 80 Mb of "extra" data volume available. The Saturn TWT agrees that the 80 Mb should be awarded to CIRS to help restore the Far-IR Map. Originally requesting 4000 bps, the Far-IR Map was cut back to 2000 bps to solve a data volume problem that was partly fictitious. The 80 Mb helps, but still does not restore 4000 bps.
- There are OpNavs in the observation period.
- CIMS Issues
 - None
- Power Issues
 - None
- Flight Rule / Mission Planning Guideline & Constraint Issues
 - None
- Other Issues
 - None