

Table III: VIMS solar occultations

Rev	Date	B_{\odot}^1 (deg)	Δ^2 (kkm)	Dur'n	Mode ⁰	Data	cubes	Ptg ³	Remarks ³
Ring solar occultations:									
VIMS SOLAROCcs									
9	2005-159T11:30	21.45°	245	2:40	12x12	122	437	P0	F-C rings (I) ⁸
11	2005-196T00:26	21.07°	250	1:20	12x12	90		P5	B-C rings (I) ^{4,8}
28	2006-257T19:22	15.86°	2053	11:08	32x32	363	210	P1	A-C rings (I) ⁵
43	2007-114T09:45	12.77°	452	2:30	12x12	122	890	P1	ABF chord ⁶
55	2008-003T20:00	9.00°	285	1:45	12x12	79	590	P1	FBF chord
59	2008-051T16:31	8.27°	220	0:55	12x12	44	297	P1	F-C rings (I) ⁸
62	2008-083T08:45	7.79°	247	2:00	12x12	88	595	P1	FCF chord
65	2008-111T20:05	7.36°	279	2:10	12x12	106	520	P1	FCF chord ⁷
66	2008-121T09:10	7.21°	278	2:10	12x12	106	600	P1	FCF chord ⁷
85	2008-261T16:00	5.05°	242	1:45	12x12	29	160	P4	FCF chord ⁷
90	2008-298T08:57	4.49°	241	1:37	12x12	29	160	P5	FBF chord
172	2012-267T22:43	-15.94°	596	2:07	8x8	150	1870	P0	F-C rings (I)
181	2013-044T22:50	-17.54°	563	1:12	12x12	40	320	P0	B-F rings (E)
239a	2016-221T21:50	-26.39°	808	1:20	8x8	80	650	P1	F-A rings (I) ¹⁴
239b	2016-222T02:27	-26.39°	838	3:33	8x8	210	2480	P1	D-F rings (E) ^{10,14}
241	2016-245T17:48	-26.45°	818	6:14	8x8	360	4170	P1	FCA chord ¹¹
243	2016-269T19:20	-26.50°	842	2:49	8x8(S)	36	2280	P1	D-B rings (E) ^{9,11}
245	2016-288T16:30	-26.53°	765	4:36	8x8(S)	60	2550	P1	FBB chord ¹¹
249	2016-325T05:09	-26.59°	725	6:30	8x8(S)	80	4400	P1	FBF chord ¹¹
254	2016-361T16:24	-26.64°	607	8:03	8x8(S)	120	5450	P1	FCF chord
257	2017-017T04:00	-26.66°	597	1:32	8x8	100	1020	P1	F-B rings (I) ¹²
260	2017-038T21:40	-26.68°	710	3:42	24x24(S)	50	334	P1	D-F rings (E) ¹⁴
261	2017-046T02:32	-26.69°	725	2:58	8x8(S)	50	1800	P1	D-F rings (E)
262	2017-053T06:47	-26.70°	698	2:40	8x8(S)	50	1700	P1	D-F rings (E) ¹⁴
263	2017-060T11:10	-26.70°	704	1:34	24x24	100	111	P1	C-B rings (E) ^{12,14}

NOTES:

0. Most observations through rev 181 done with $\tau_{IR} = 40$ ms, but revs 85 & 90 used 60 msec. Subsequent observations used 60 msec, but rev 243 used 50 msec. S = spectrally-summed to reduce data volume.
1. Ring opening angle.
2. Mean spacecraft-Saturn distance.
- 3a. I = ring ingress; E = ring egress.
- 3b. P0 = VIMS-IR-SOL; P1 = UVIS solar port; P4 = extra twist about Y; P5 = NAC, offset 20 deg.
4. UVIS prime; F and A rings lost to σ Sgr occ.
5. Very slow occ; covers inner A ring thru outer C ring only.
6. A ring ingress lost due to trajectory tweak.
7. Includes outer C ring only.
8. Ring occ followed by Saturn ingress occ.
9. $\tau_{IR} = 50$ ms.
10. Allocated as a PIE.
11. End of occultation lost to downlink or DSN problems.

Table III (continued)

Rev	Date	B_{\odot}^1 (deg)	Δ^2 (kkm)	Dur'n	Mode ⁰	Data	cubes	Ptg. ³	Remarks ³
Ring solar occultations (continued):									
265	2017-074T19:29	-26.71°	713	2:15	8x8	80	1070	P1	B-F rings (E) ^{12,14}
267	2017-089T03:38	-26.72°	729	1:50	8x8	80	1125	P1	B-F rings (E) ¹²
269	2017-103T04:10	-26.73°	583	1:13	24x24(S)	20	105	P1	F-A rings (I) ^{12,14}
271	2017-116T21:20	-26.73°	558	1:40	24x24(S)	25	132	P1	A-G rings (E) ^{12,14}
277	2017-155T07:42	-26.73°	440	5:40	64x64(S)	80	70	P1	BDB chord ^{15,16}
279	2017-168T05:30	-26.73°	438	5:55	64x64(S)	80	80	P1	ACA chord ^{11,13,15}

NOTES:

0. All observations done with $\tau_{IR} = 60$ ms. S = spectrally-summed to reduce data volume.
1. Ring opening angle.
2. Mean spacecraft-Saturn distance.
- 3a. I = ring ingress; E = ring egress.
- 3b. P0 = VIMS-IR-SOL: Xoff = 26, Zoff = 26; P1 = UVIS solar port: Xoff = 32, Zoff = 48)
11. Both ends of occultation lost to other requests/downlinks.
12. Ring occ partially blocked by Saturn.
13. UVIS prime.
14. Follows, or is followed by, a HIPHASE observation
15. Rings or Saturn cross the main aperture during the occ.
16. All data lost due to DSN problem.

Revised 8 July 2017, PDN.

Table III (continued)

Rev	Date	ϕ_c^1 (deg)	Δ^2 (kkm)	Dur'n	Mode ⁰	Data	cubes	refr'n (mrad)	Remarks ³
Saturn solar occultations:									
VIMS SOLOCCs									
9	2005-159T14:10	+3.9°	265	0:17	8x8	37		2.7	I ⁴ , OK; P0 ptg
59	2008-051T18:01	-69.8°	203	1:10	12x12	65?		2.2	E, noisy, slow; P1 ptg
239	2016-222T02:27	<i>xx</i> °	838	[3:33]	8x8	210	2480	2.0	E, v. good ⁴ ; P1 ptg
UVIS USUNOCC riders									
11	2005-196T01:50	+5.3°	268	0:17	8x8	37		2.3	I ⁴ , OK
44	2007-130T14:39	+67.3°	375	1:30	12x12	50		2.8	I, OK, fast
¹⁴ 50	2007-273T07:45	-52.5°	311	1:05	12x12	45		3.1	E, OK, slow
52	2007-321T04:24	-45.5°	259	0:50	12x12	65		4.0	I, noisy
52	2007-321T06:04	-50.3°	239	0:45	12x12	65		3.1	E, noisy
53	2007-337T07:09	-39.2°	153	0:46	12x12	45		2.4	E, v. noisy, fast
57	2008-027T19:03	-70.2°	202	1:31	12x12	45		2.2	E, noisy
60	2008-062T03:23		238	1:15				-	graze; no VIMS obsv'ns
69	2008-146T22:00	-30.1°	197	1:10	12x12	65		1.6	E, slow; noisy ⁷
71	2008-161T00:10	+18.0°	169	1:10	12x12	50		1.7	I, noisy
71	2008-161T01:45	-44.7°	163	1:20	12x12	50		~ 1	E, v. noisy ⁸
76	2008-196T08:54	+12.5°	166	1:05	24x12	65		-	I, v. noisy ^{8,9}
76	2008-196T10:34	-38.4°	162	0:50	24x12	65		-	E, v. noisy ⁸
126	2010-044T02:46	+26.2°	484	3:12	8x12	40		0.2	I, truncated ¹⁰
128	2010-079T08:15	+30.5°	478	2:49	12x8	65		2.2	I, OK
¹⁴ 129	2010-096T21:51	+34.7°	505	3:34	12x8	120		3.7	I, OK
131	2010-137T23:08	+31.4°	408	3:08	12x8	65		3.2	E, OK
138	2010-265T16:07	+14.8°	368	2:49	16x8	65		5.5	E, v. good ¹¹

NOTES:

0. All observations exc. Rev 239 done with $\tau_{IR} = 40$ ms. All UVIS riders from rev 44 used UVIS Solar pointing vector = NAC, with offset [-20.0, 0.0, -0.109] or (from rev 126) UVIS-SOL-OFF.
1. Planetocentric latitude at occultation half-light point. Entries in () are from the Tour Atlas & may be planetographic.
2. Mean spacecraft-Saturn distance \approx projected solar diameter (km).
3. I = ingress; E = egress.
4. Follows or precedes solar ring occultation.
7. Shallow graze; Saturn ingress behind rings.
8. Refraction not clearly seen; excess radiation noise.
9. Saturn ingress near or behind rings.
10. UVIS observation ended near half-light level.
11. Offset pointing to follow sun deeper,
14. Labeled as SA-SOLAROCC (UVIS prime).

Table III (continued)

Rev	Date	ϕ_c^1 (deg)	Δ^2 (kkm)	Dur'n	Mode ⁰	Data	cubes	refr'n (mrad)	Remarks ³
Saturn solar occultations (cont'd):									
167	2012-157T01:50	+36.1°	219	1:57	8x8	65		2.3	E, OK ¹²
171	2012-246T20:12	(+34.7°)	488	2:00	16x8	65		5.5	E ^{11,12} ; v. good
175	2012-331T06:44	(-62.2°)	615	2:19	8x8	65		2.5	I, v good
178	2013-004T20:25	(-68.2°)		2:11	8x8	65		2.0	I, OK
187	2013-111T15:39	(-67.9°)	443	2:50	8x8	60		3.0	I, OK ^{12,13}
188	2013-121T06:05	(-67.4°)	443	1:20	16x8	65		4.5	I, OK ^{11,12,13}
192	2013-163T03:20	(-58.8°)		2:15	16x8	65		1.0	I ^{10,11}

NOTES:

0. All (?) observations done with $\tau_{\text{R}} = 40$ ms and pointing to UVIS-SOL-OFF.
1. Planetocentric latitude at occultation half-light point. Entries in () are from the Tour Atlas & may be planetographic.
2. Mean spacecraft-Saturn distance \approx projected solar diameter (km).
3. I = ingress; E = egress.
4. Follows solar ring occultation.
10. UVIS observation ends early.
11. Offset pointing to follow sun deeper,
12. Allocated as UVIS PIE.
13. Bad pointing; Sun at edge of field.

Revised 8 July 2017, PDN.