



CASSINI SOST SEGMENT

Rev 129 (D2) Handoff Package

Segment Boundary 2010-096T16:34:00 – 2010-098T10:04:00

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Links to files

Science Highlights

Notes & Liens

Integration Checklist

Links to files

SOST rev 129

TOL (xls, txt):

https://cassini.jpl.nasa.gov/sp/icy/129DI/SOST_129DI_TOL_090918.xls

https://cassini.jpl.nasa.gov/sp/icy/129DI/SOST_129DI_TOL_090918.txt

SPASS (txt, pdf, xls):

https://cassini.jpl.nasa.gov/sp/icy/129DI/SPASS_SOST_129DI_090918.txt

https://cassini.jpl.nasa.gov/sp/icy/129DI/SPASS_SOST_129DI_090918.xls

SMT report:

https://cassini.jpl.nasa.gov/sp/icy/129DI/SOST_129DI_090918.rpt

https://cassini.jpl.nasa.gov/sp/icy/129DI/SOST_129DI_090918.warning

DSN report:

https://cassini.jpl.nasa.gov/sp/icy/129DI/SOST_129DI_090918_seg.txt

Science Highlights

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Apr. 6 - 8, 2010 (DOY 096-098)

These 41.5 hours encompass the D2 (rev 129) Dione flyby at a closest-approach altitude of 504 km.

DOY 096: CAPS starts the segment with 5 hours of prime pointing control of the spacecraft with ride-along observations for other MAPS instruments. MIMI will continue their campaign to observe the interaction between the magnetospheric hot ion and electron distributions, rings, and icy satellites. UVIS will then observe a solar ingress occultation by Saturn with VIMS riding along.

DOY 097: This is a busy day for Cassini, which starts out with ISS observing the plumes of Enceladus along with other optical remote sensing instruments before we begin the 504 km flyby of Dione. CIRS will turn the spacecraft to Dione to begin a darkside map of the satellite at a phase of ~165 degrees. UVIS and VIMS will also image Dione. CAPS then takes control for closest-approach to observe the interaction between Dione and Saturn's magnetosphere with most of the other instruments also taking data. UVIS then will map Dione's surface albedo in UV while other ORS instruments shutter. ISS follows UVIS to do a 21-panel mosaic and then a sit-and-stare observation. VIMS and CIRS will then continue scanning and mapping Dione before handing control back to ISS for a couple Enceladus plume observations and imaging of the satellite Janus. The day ends with a turn to Earth to downlink all the data to the 70-meter antenna in Madrid, Spain.

DOY 098: Cassini continues to downlink the Dione flyby data utilizing a DSN beam-wave-guide antenna at the Goldstone complex in California.

Notes and Liens

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Notes:

- Pointing:
 - ORS to Sun FR violations when pointing NEG_Y to Dione from 096T16:34 - 097T04:44 (Cassini in eclipse 097T00:55-04:16) so using Earth as initial WP. Then SP WP turn in custom period (no actual turn just defines ISS's attitude as new WP). SP Manager approved this. SPturns script creates SASF fine, but for this turn the initial pointer directive in the targeting SCART will be the previous Earth-point since the script doesn't know the custom pick-up attitude. S/C doesn't use this field, so it is fine, but for completeness, **SP Lead may want to hand-edit SP SASF to have correct initial pointer directive target. Also - creates CIMS resource checker error (ignore) and AACS should be warned in case they see an error when checking WP PEF.**
- Data Volume:
 - All good: no carryover, negative SSR margin of -81Mb on 1st DL.
- DSN:
 - No issues.
- Opmodes:
 - Mostly DFPW_Normal except for RSSKRWAF for RSS_129DI_KADOWN002_RSS
- Special Activities:
 - SP WP turn inside custom period. See "Pointing" above.

Sequence Liens:

- Not a lien, but a CRC error: "2010-097T08:17:11, SP_129NA_ENDCUSTOM497_PRIME, Request referencing GMB_E129_Dione occurs outside of corresponding Movable Block". Ok. End of custom period corresponds with end of GMB. Not sure why CRC flagged this.

Segment Checklist p1

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Item	Disposition notes, or X if complete
1. Disposition all requests in CIMS - approve all pending requests	x
2. Version the SPASS in CIMS, use label INTEG_FIN, in description put date and your name	x
3. Examine SPASS, ensure opnav & SP turns correctly designated PRIME or NEW WAYPOINT. Prime RSS observations require the Xband to Earth attitude be a waypoint, use DLTURN with spass type New Waypoint	x
4. Waypoints and downlinks have been checked and are violation free (per CTV). NOTE ON ISSUES PAGE if periods of no valid waypoint	x
5. SP turns have been checked, have adequate time, and are violation free. All large turns >60 degrees use the slower slew rates as specified by AACS in FR07D145 and include turn margin as specified in the Extended Mission slew margin policy. Exceptions to this rule are specified in FR07D145	See note on "Pointing" on p.4 Turns are safe, have enough time and margin, may have slight heating on DL turn.
8. There are no more than 3 waypoint changes in a 24 hour period	x
6. The minimum prime instrument request duration outside ± 5 hours from a targeted satellite flyby is 30 minutes	x
7. Custom handoffs are limited to the following periods: 1) ± 3 hours around a targeted Titan flybys, 2) ± 3 hours around a targeted Icy Satellite flyby, and 3) for OPNAVs that precede or follow a Downlink (special case)	Custom period starts earlier than -3 hrs and ends at C/A + 03:01.
8. Custom periods designated properly with SPASS notes (n/a for opnavs)	x
9. Custom period requests have "pick up at" and "hand off at" information filled in correctly (n/a for opnavs)	x
10. Use rolling_sru if required (not using rolling_bias as a default anymore)	x
11. The secondary axis for downlinks that contain prime and backup OTMs is the same, and inertially fixed	N/A
12. Downlinks that contain OTPs only roll for the first 4 hours of the downlink pass max. OTB: 6_hr rolling OK, unless SRU issues, then 4_Hr_Rolling max	N/A
13. There is one downlink pass block per OTM prime or backup window (one wedding cake for a split pass). Exception - if first split downlink pass is ≤ 4 hours can use 2 cakes, put playback_gap in 2nd pass, put OTP/OTB in name of BOTH passes (for CDA)	N/A
14. Downlinks (attitude/rolling) match XMDLWG plan. Negotiated changes should be reported back to the WG	x
15. The final downlink of a SEQUENCE is no more than 5 hour rolling (due to end of sequence bias)	N/A

Segment Checklist p2

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Item	Disposition notes, or X if complete
16. Multi-revolution turns about the X-axis have an offset greater than or equal to 30 degrees about X	N/A
17. Live moveable blocks (LMBs) include the appropriate time margin specified as a DEADTIME request in CIMS at the beginning and end of the moveable block. TLM modes in separate OBSMOV request (n/a for RSS)	N/A
18. Live moveable blocks use an LMB epoch and use the appropriate epoch naming conventions. Live Update Blocks use a LUB epoch (RSS only)	N/A
19. All stellar occultation observations include an additional +/-20 minutes of time (40 minutes total) when they occur within -1 day to +2 days of Saturn periapse	x
20. All Ground and Live Moveable blocks associated with non-targeted geometric events (e.g., solar and earth occultations) include an additional +/-20 minutes of time margin (40 minutes total) to account for reference trajectory changes.	~10 min. and ~14 min. deadtime around GMB. (technically non-targeted flyby of Dione)
21. Check your GMB, LMB, LUB, Occ times against current reference trajectory	x
22. Dual playback of high value science data is performed via multiple playbacks within this segment. CIMS entries are correct. Dual playback does not affect downstream segments	No dual PB
23. Run the resource checker in CIMS and fix errors found. Paste remaining notes here with disposition	2 CRC items - both ok. See p.4 under "Pointing" and "Sequence Liens"
24. Run SMT, if SSR not empty at end of segment include in notes, and instances of <-90 SSR margin	(see notes page)
25. Examine SMT warnings report, include dispositions here of any items (negative SSR margin already covered)	none

Segment Checklist p3

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Item	Disposition notes, or X if complete
26. Examine “ap_downlink report check” output, include dispositions here of any items (see next two items).	No issues
27. List any DSN stations requested during maintenance periods, AND JUSTIFICATION	none
28. List your percent 70M stations requested - avoid >35% (ha ha)	1 70m out of 2 DSN passes (50%)
29. Examine “ap_downlink report nav” output, MP should ensure NAV OK with gaps in 2way	all good
30. In CIMS check for “start before”, “end before”, “start after”, “end after” requests - fix if any problems found	x
31. Verify OPNAVs are in SNER5 and are support_image class, sanity check rest of tlm modes (Tilman often wants SNER5, RADAR 15 min in 5A/activity in 5A or 8, etc)	N/A - SNER3 for all observations
32. If sequence boundary at START of your segment, ensure IVPGAP info correct, NO “start before” MAPS requests	N/A
33. If sequence boundary at END of your segment (ie in the next segment), ensure 5 “SEQ” upload DSN passes - will probably ripple into preceding segment(s), make sure to notify them. NO “end after” MAPS requests	N/A
34. Verify opmodes correct (RSS and RADAR especially), teams going to sleep have agreed? Use table at https://cassini.jpl.nasa.gov/wiki/bin/view/Cassini/XMOpModes	x
35. Compare RSS requests to DSN requests, make sure they jive (ORT, occ, etc), ORTs are integrated.	x
36. If conjunction is in your segment, see Conjunction page on SP Wiki	N/A
37. Be aware of any AZSCANSs in your segment (only 2 planned in 2009)	N/A
38. RAMA VOID: new waypoint, NOT in custom period	N/A
39. If on thrusters, confirm deadbands	N/A
40. Segment products & this package linked to XM deliveries page	x