

| Request                        | Riders     | Start (SCET)      | Start (Epoch) | Duration     | End               | Primary  | Secondary               | Comments   |
|--------------------------------|------------|-------------------|---------------|--------------|-------------------|--|-------------------------|--|
| Sequence S101, length = 67 ... |            | 2017-191701:14:00 |               | 067719:22:00 | 2017-258720:36:00 |  |                         |  |
| TOST_283 Segment               |            | 2017-191701:14:00 |               | 001722:59:00 | 2017-193700:13:00 |  |                         |  |
| SP_283EA_S101IVP236_PRIME      |            | 2017-191701:14:00 |               | 000700:06:00 | 2017-191701:20:00 | XBAND to Earth   | NEG_Y to Saturn         | S101 IVP Gap   |
| NEW WAYPOINT                   |            | 2017-191701:20:00 |               | 000702:10:00 | 2017-191703:30:00 | XBAND to Earth   | NEG_Y to Saturn         |  |
| ENGR_283SC_KPTYBIAS191_PRIME   |            | 2017-191701:20:00 |               | 000701:30:00 | 2017-191702:50:00 | POS_Z to DELTA_H                                       | NEG_X to Sun            |  |
| SP_283TI_WAYPTTURN191_PRIME    |            | 2017-191702:50:00 |               | 000700:40:00 | 2017-191703:30:00 | NEG_Y to Titan   | NEG_X to Sun            |  |
| NEW WAYPOINT                   |            | 2017-191703:30:00 |               | 001707:35:00 | 2017-192711:05:00 | NEG_Y to Titan   | NEG_X to Sun            |  |
| ISS_283TI_LRMONITOR001_PRIME   | C, V       | 2017-191703:30:00 |               | 000700:50:00 | 2017-191704:20:00 | ISS_NAC to Titan                                       | NEG_X to Sun            |  |
| CIRS_283TI_COMPMPA001_PRIME    | I, V       | 2017-191704:20:00 |               | 000703:46:00 | 2017-191708:06:00 | CIRS_FP3 to Titan                                      | NEG_X to Sun            |  |
| ISS_283TI_CLOUD001_PIE         | C, V       | 2017-191708:06:00 |               | 000701:30:00 | 2017-191709:06:00 | ISS_NAC to Titan                                       | NEG_X to Sun            |  |
| CIRS_283TI_MIDIRTMAP001_PRIME  | I, V       | 2017-191709:06:00 |               | 000704:15:00 | 2017-191713:21:00 | CIRS_FP3 to Titan                                      | NEG_X to Sun            |  |
| ISS_283TI_CLOUD002_PIE         | C, V       | 2017-191713:21:00 |               | 000701:00:00 | 2017-191714:21:00 | ISS_NAC to Titan                                       | NEG_X to Sun            |  |
| 283TI (nt) TITAN Inbound...    |            | 2017-191713:50:50 |               | 000700:00:01 | 2017-191713:50:51 |  |                         |  |
| CIRS_283TI_MIDIRTMAP002_PRIME  | I, V       | 2017-191714:21:00 |               | 000704:55:00 | 2017-191719:06:00 | CIRS_FP3 to Titan                                      | NEG_X to Sun            |  |
| ISS_283TI_CLOUD003_PIE         | C, V       | 2017-191719:06:00 |               | 000701:30:00 | 2017-191720:36:00 | ISS_NAC to Titan                                       | NEG_X to Sun            |  |
| CIRS_283TI_MIDIRTMAP003_PRIME  | I, V       | 2017-191720:36:00 |               | 000703:00:00 | 2017-191723:36:00 | CIRS_FP3 to Titan                                      | NEG_X to Sun            | Collaborative Rider(s): ISS  |
| ISS_283TI_CLOUD004_PIE         | C, V       | 2017-191723:36:00 |               | 000701:00:00 | 2017-192700:36:00 | ISS_NAC to Titan                                       | NEG_X to Sun            |  |
| CIRS_283TI_COMPMPA002_PRIME    | I, V       | 2017-192700:36:00 |               | 000703:42:00 | 2017-192704:18:00 | CIRS_FP3 to Titan                                      | NEG_X to Sun            | Collaborative Rider(s): ISS  |
| ISS_283TI_CLOUD005_PIE         | C, V       | 2017-192704:18:00 |               | 000701:45:00 | 2017-192706:03:00 | ISS_NAC to Titan                                       | NEG_X to Sun            |  |
| UVIS_283ST_BETCMAD01_PIE       |            | 2017-192706:03:00 |               | 000701:31:00 | 2017-192707:34:00 | UVIS_FUV to 95.675/-17.956 (0.258,0.0,0.0 deg. offset) | NEG_X to Sun            |  |
| ISS_283TI_LRMONITOR002_PRIME   | C, V       | 2017-192707:34:00 |               | 000700:30:00 | 2017-192708:04:00 | ISS_NAC to Titan                                       | NEG_X to Sun            |  |
| CIRS_283TI_COMPMPA003_PRIME    | I, V       | 2017-192708:04:00 |               | 000701:51:00 | 2017-192709:55:00 | CIRS_FP3 to Titan                                      | NEG_X to Sun            |  |
| ISS_283TI_LRMONITOR003_PRIME   | C, V       | 2017-192709:55:00 |               | 000700:30:00 | 2017-192710:25:00 | ISS_NAC to Titan                                       | NEG_X to Sun            |  |
| SP_283EA_DLTURN192_PRIME       |            | 2017-192710:25:00 |               | 000700:40:00 | 2017-192711:05:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)              | NEG_Y to Saturn         |  |
| NEW WAYPOINT                   |            | 2017-192711:05:00 |               | 000713:48:00 | 2017-193700:53:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)              | NEG_Y to Saturn         |  |
| SP_283EA_YGAP192_PRIME         | E          | 2017-192711:05:00 |               | 000701:30:00 | 2017-192712:35:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)              | NEG_Y to Saturn         |  |
| SP_283EA_C34BWGNON192_PRIME    | C, R       | 2017-192712:35:00 |               | 000704:39:00 | 2017-192717:14:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)              | NEG_Y to Saturn         | MIMI. XBAND to EARTH (0.0, -9.5), NEG_Y to SA  |
| SP_283EA_M70METNON192_PRIME    | R          | 2017-192717:14:00 |               | 000706:59:00 | 2017-193700:13:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)              | NEG_Y to Saturn         | MIMI. XBAND to EARTH (0.0, -9.5), NEG_Y to SA  |
| RINGS_283 Segment              |            | 2017-193700:13:00 |               | 002700:46:00 | 2017-195700:59:00 |  |                         |  |
| SP_283SA_WAYPTTURN193_PRIME    |            | 2017-193700:59:00 |               | 000700:40:00 | 2017-193700:59:00 | ISS_NAC to Saturn                                      | POS_Z to 173.9/32.7     |  |
| NEW WAYPOINT                   |            | 2017-193700:59:00 |               | 001712:43:00 | 2017-194703:36:00 | ISS_NAC to Saturn                                      | POS_Z to 173.9/32.7     |  |
| CIRS_283RA_COMPLTAD001_PRIME   | C, I, U, V | 2017-193700:53:00 |               | 000704:00:00 | 2017-193704:53:00 | CIRS_FP1 to Rings                                      | POS_Z to 173.9/32.7     | No Preference to secondary pointing  |
| CIRS_283RB_AZSHADS001_PRIME    | C, U       | 2017-193704:53:00 |               | 000703:00:00 | 2017-193707:53:00 | CIRS_FP3 to Rings                                      | PIC                     |  |
| UVIS_283ST_URKAPCAM001_PRIME   | C          | 2017-193707:53:00 |               | 000701:55:00 | 2017-193709:48:00 | UVIS_HSP to 102.46/-32.509                             | POS_Z to 173.9/32.7     |  |
| ISS_283RI_PROPRETGR001_PRIME   | C, U       | 2017-193709:48:00 |               | 000702:00:00 | 2017-193711:48:00 | ISS_NAC to Rings                                       | POS_Z to 173.9/32.7     | No Preference to secondary pointing  |
| VIMS_283RI_SHADSCAN001_PRIME   | C, U       | 2017-193711:48:00 |               | 000703:00:00 | 2017-193714:48:00 | VIMS_IR to Rings                                       | PIC                     |  |
| Begin Custom                   |            | 2017-193714:48:00 |               | 000700:00:01 | 2017-193714:48:01 |  |                         |  |
| CIRS_283RC_PLATUT001_PRIME     | C, I, U    | 2017-193714:48:00 |               | 000703:00:00 | 2017-193717:48:00 | CIRS_FP3 to Rings                                      | NEG_Z to 355.242/-4.553 | Pick up at ISS_NAC to Saturn, POS_Z to 173.9/32.7; Hand off at ISS_NAC to Saturn, NEG_Z to 355.242/-4.553.   |
| ISS_283RI_HRRADS001_PIE        | C, M, U, V | 2017-193717:48:00 |               | 000702:00:00 | 2017-193719:48:00 | ISS_NAC to Rings                                       | POS_X to 300.0/-10.0    | Pick up at ISS_NAC to Saturn, NEG_Z to 355.242/-4.553; Hand off at NEG_Z to Saturn, POS_X to NSP. No Preference to secondary pointing                        |
| INMS_283CO_SATAMOS001_PIE      | M          | 2017-193719:48:00 |               | 000702:00:00 | 2017-193721:48:00 | POS_X to COROT (-25.0,0.0,0.0 deg. offset)             | POS_Y to Sun            | Collaborative Rider(s): CDA. Pick up at NEG_Z to Saturn, POS_X to NSP; Hand off at NEG_Z to Saturn, NEG_X to Sun. Collaborative Rider(s): CDA. CDA secondary |
| Begin Dual Playback Science... |            | 2017-193720:34:20 |               | 000700:00:01 | 2017-193720:34:21 |  |                         |  |
| Periapse R = 1.045 Rs, lat ... |            | 2017-193720:48:14 |               | 000700:00:01 | 2017-193720:48:15 |  |                         |  |
| End Dual Playback Science, ... |            | 2017-193720:58:14 |               | 000700:00:01 | 2017-193720:58:15 |  |                         |  |
| ISS_283RI_HRRADS001_PIE        | C, M, U, V | 2017-193721:48:00 |               | 000702:00:00 | 2017-193723:48:00 | ISS_NAC to Rings                                       | POS_Z to Saturn         | Pick up at NEG_Z to Saturn, NEG_X to Sun; Hand off at ISS_NAC to Rings, POS_Z to Saturn. No Preference to secondary pointing                                 |
| ISS_283RI_HIRESAFRG001_PRIME   | C, U       | 2017-193723:48:00 |               | 000703:00:00 | 2017-194702:48:00 | ISS_NAC to Rings                                       | POS_Z to Saturn         | Pick up at ISS_NAC to Rings, POS_Z to Saturn; Hand off at ISS_NAC to Saturn, NEG_X to 173.9/32.7.  |
| SP_283EA_WAYPTTURN194_PRIME    |            | 2017-194702:48:00 |               | 000700:33:00 | 2017-194703:21:00 | XBAND to Earth (0.0,0.0,-90.0 deg. offset)             | NEG_X to 330.0/43.0     | Pick up at ISS_NAC to Saturn, NEG_X to 173.9/32.7; Hand off at XBAND to Earth (0.0,0.0,-90.0 deg. offset), NEG_X to 330.0/43.0.                              |
| SP_282EA_WAYPTTURN494_PRIME    |            | 2017-194703:21:00 |               | 000700:15:00 | 2017-194703:26:00 | XBAND to Earth   | NEG_X to 330.0/43.0     | Pick up at XBAND to Earth (0.0,0.0,-90.0 deg. offset), NEG_X to 330.0/43.0; Hand off at XBAND to Earth, NEG_X to 330.0/43.0.                                 |
| NEW WAYPOINT                   |            | 2017-194703:26:00 |               | 000704:41:00 | 2017-194708:17:00 | XBAND to Earth   | NEG_X to 330.0/43.0     |  |
| End Custom                     |            | 2017-194703:26:00 |               | 000700:00:01 | 2017-194703:26:01 |  |                         |  |
| CDA_283DR_PROGRD001_PRIME      |            | 2017-194703:26:00 |               | 000704:21:00 | 2017-194707:57:00 | XBAND to Earth   | NEG_X to 330.0/43.0     |  |
| SP_283EA_DLTURN194_PRIME       |            | 2017-194707:57:00 |               | 000700:20:00 | 2017-194708:17:00 | XBAND to Earth   | NEG_Y to 85.0/6.0       |  |
| NEW WAYPOINT                   |            | 2017-194708:17:00 |               | 000717:22:00 | 2017-195701:39:00 | XBAND to Earth   | NEG_Y to 85.0/6.0       |  |
| SP_283EA_C70METNON194_PRIME    | C, E       | 2017-194708:17:00 |               | 000706:15:00 | 2017-194714:32:00 | XBAND to Earth   | Rolling                 | SRU.   |
| Pointer Reset in preparatio... |            | 2017-194714:32:00 |               | 000700:00:01 | 2017-194714:32:01 |  |                         |  |
| UVIS_283ST_GAMOR1001_PIE       |            | 2017-194714:32:00 |               | 000701:38:00 | 2017-194716:10:00 | UVIS_FUV to 81.283/6.35 (0.258,0.0,0.0 deg. offset)    | NEG_Z to Earth          | PIE  |
| SP_283EA_YGAP193_PRIME         | E          | 2017-194716:10:00 |               | 000701:04:00 | 2017-194717:14:00 | XBAND to Earth   | NEG_Y to 85.0/6.0       | YGAP - overlap with pass. Make sure DV ok  |
| SP_283EA_M70METNON194_PRIME    | C, E       | 2017-194717:14:00 |               | 000707:45:00 | 2017-195700:59:00 | XBAND to Earth   | Rolling                 |  |
| SATURN_283_284 Segment         |            | 2017-195700:59:00 |               | 008713:52:00 | 2017-203714:51:00 |  |                         |  |
| SP_283SA_WAYPTTURN195_PRIME    |            | 2017-195700:59:00 |               | 000700:40:00 | 2017-195701:39:00 | ISS_NAC to Saturn                                      | NEG_X to NSP            |  |
| NEW WAYPOINT                   |            | 2017-195701:39:00 |               | 001704:42:00 | 2017-196706:21:00 | ISS_NAC to Saturn                                      | NEG_X to NSP            |  |
| UVIS_283ST_GAMOR1002_PIE       |            | 2017-195701:54:00 |               | 000701:14:00 | 2017-195703:08:00 | UVIS_FUV to 81.283/6.35 (0.258,0.0,0.0 deg. offset)    | NEG_X to NSP            | PIE  |
| VIMS_283SA_SHEMMAPO01_PRIME    | C          | 2017-195703:08:00 |               | 000702:02:00 | 2017-195705:10:00 | ISS_NAC to Saturn                                      | NEG_X to NSP            |  |
| UVIS_283ST_EPSOR1001_PIE       |            | 2017-195705:10:00 |               | 000701:11:00 | 2017-195706:21:00 | UVIS_FUV to 84.054/-1.202 (0.258,0.0,0.0 deg. offset)  | NEG_X to NSP            |  |
| VIMS_283SA_SHEMMAPO02_PRIME    | C          | 2017-195706:21:00 |               | 000702:09:00 | 2017-195708:30:00 | ISS_NAC to Saturn                                      | NEG_X to NSP            |  |
| UVIS_283ST_ZETAOR1001_PIE      |            | 2017-195708:30:00 |               | 000714:15:00 | 2017-196703:00:00 | UVIS_FUV to 85.19/-1.943 (0.258,0.0,0.0 deg. offset)   | NEG_X to NSP            |  |
| ISS_283EN_FLUM1001_PIE         | C, U, V    | 2017-195709:40:00 |               | 000706:25:00 | 2017-195716:05:00 | ISS_NAC to Eneadradus                                  | NEG_X to NSP            | SOST PIE   |
| VIMS_283SA_FULLDISK001_PRIME   | C          | 2017-195716:05:00 |               | 000705:33:00 | 2017-195721:38:00 | ISS_NAC to Saturn                                      | NEG_X to NSP            |  |
| UVIS_283ST_EPSOR1002_PIE       |            | 2017-195721:38:00 |               | 000701:14:00 | 2017-195722:52:00 | UVIS_FUV to 84.054/-1.202 (0.258,0.0,0.0 deg. offset)  | NEG_X to NSP            |  |
| VIMS_283SA_FULLDISK002_PRIME   | C          | 2017-195722:52:00 |               | 000701:56:00 | 2017-196700:48:00 | ISS_NAC to Saturn                                      | NEG_X to NSP            |  |
| UVIS_283ST_ZETAOR1002_PIE      |            | 2017-196700:48:00 |               | 000701:14:00 | 2017-196702:02:00 | UVIS_FUV to 85.19/-1.943 (0.258,0.0,0.0 deg. offset)   | NEG_X to NSP            |  |
| VIMS_283SA_FULLDISK003_PRIME   | C          | 2017-196702:02:00 |               | 000703:39:00 | 2017-196705:41:00 | ISS_NAC to Saturn                                      | NEG_X to NSP            |  |
| SP_283EA_DLTURN196_PRIME       |            | 2017-196705:41:00 |               | 000700:40:00 | 2017-196706:21:00 | XBAND to Earth   | NEG_X to NSP            |  |
| NEW WAYPOINT                   |            | 2017-196706:21:00 |               | 000709:40:00 | 2017-196716:01:00 | XBAND to Earth   | NEG_X to NSP            |  |
| SP_283EA_C34BWGOTP196_PRIME    | C, N       | 2017-196706:21:00 |               | 000709:00:00 | 2017-196715:21:00 | XBAND to Earth   | 4_Hr_Rolling            | OTP.   |
| SP_283SA_WAYPTTURN196_PRIME    |            | 2017-196715:21:00 |               | 000700:40:00 | 2017-196716:01:00 | ISS_NAC to Saturn                                      | POS_Z to NSP            |  |
| NEW WAYPOINT                   |            | 2017-196716:01:00 |               | 000712:35:00 | 2017-197704:36:00 | ISS_NAC to Saturn                                      | POS_Z to NSP            |  |
| CIRS_283SA_MIRMAP001_PRIME     | U, V       | 2017-196716:01:00 |               | 000711:55:00 | 2017-197703:56:00 | CIRS_FP3 to Saturn                                     | POS_Z to NSP            | Storm Alley 40 degrees south   |
| Apoapse Per = 6.5 d, inc =...  |            | 2017-197702:21:26 |               | 000700:00:01 | 2017-197702:21:27 |  |                         |  |
| SP_283EA_DLTURN197_PRIME       |            | 2017-197703:56:00 |               | 000700:40:00 | 2017-197704:36:00 | XBAND to Earth   | NEG_X to NSP            |  |
| NEW WAYPOINT                   |            | 2017-197704:36:00 |               | 000711:10:00 | 2017-197715:46:00 | XBAND to Earth   | NEG_X to NSP            |  |
| SP_283EA_YGAP197_PRIME         | E          | 2017-197704:36:00 |               | 000701:30:00 | 2017-197706:06:00 | XBAND to Earth   | NEG_X to NSP            |  |
| SP_283EA_C34BWGNON197_PRIME    | R          | 2017-197706:06:00 |               | 000709:00:00 | 2017-197715:06:00 | XBAND to Earth   | Rolling                 |  |
| SP_284SA_WAYPTTURN197_PRIME    |            | 2017-197715:06:00 |               | 000700:40:00 | 2017-197715:46:00 | ISS_NAC to Saturn                                      | NEG_X to NSP            |  |
| NEW WAYPOINT                   |            | 2017-197715:46:00 |               | 000714:20:00 | 2017-198706:06:00 | ISS_NAC to Saturn                                      | NEG_X to NSP            |  |
| ISS_284SA_LIMBINT001_PRIME     | U, V       | 2017-197715:46:00 |               | 000704:00:00 | 2017-197720:26:00 | ISS_NAC to Saturn                                      | NEG_X to NSP            |  |
| MAG_284SA_LFCALROL001_PRIME    | U          | 2017-197720:26:00 |               | 000709:00:00 | 2017-198705:26:00 | NEG_X to Earth (0.0,0.0,-30.0 deg. offset)             | Rolling                 |  |
| SP_284EA_DLTURN198_PRIME       |            | 2017-198705:26:00 |               | 000700:40:00 | 2017-198705:06:00 | XBAND to Earth   | NEG_X to NSP            |  |
| NEW WAYPOINT                   |            | 2017-198706:06:00 |               | 000709:40:00 | 2017-198715:46:00 | XBAND to Earth   | NEG_X to NSP            |  |
| SP_284EA_C34BWGOTB198_PRIME    | C, E, N    | 2017-198706:06:00 |               | 000709:00:00 | 2017-198715:06:00 | XBAND to Earth   | Rolling                 | OTB. Same secondary as OTP.  |

|                                |         |                  |                               |                  |  |                      |  |
|--------------------------------|---------|------------------|-------------------------------|------------------|--|----------------------|--|
| SP_2845A_WAYPTTURN198_PRIME    |         | 2017-19815:06:00 | 00000:40:00                   | 2017-19815:46:00 | ISS_NAC to Saturn                                      | NEG_X to Sun         |  |
| NEW WAYPOINT                   |         | 2017-19815:46:00 | 00019:52:00                   | 2017-19911:38:00 | ISS_NAC to Saturn                                      | NEG_X to Sun         |  |
| ISS_2845A_LIMBINT002_PRIME     | U, V    | 2017-19815:46:00 | 00002:24:00                   | 2017-19818:10:00 | ISS_NAC to Saturn                                      | NEG_X to Sun         |  |
| UVIS_2845T_BETCMA001_PIE       |         | 2017-19818:10:00 | 00001:12:00                   | 2017-19918:22:00 | UVIS_FUV to 95.675/-17.956 (0.258,0.0,0.0 deg. offset) | NEG_X to Sun         |  |
| CIRS_2845A_COMPST001_PRIME     | I, U, V | 2017-19819:22:00 | 00011:36:00                   | 2017-19906:58:00 | CIRS_FP1 to Saturn                                     | NEG_X to Sun         | 58N left limb ring rain. Protect from RWA interference. We lost the last ring-rain observation due to reaction wheels. |
| UVIS_2845A_AURDSTARE001_PRIME  | C, I, V | 2017-19906:58:00 | 00002:00:00                   | 2017-19908:58:00 | VIMS_IR to Saturn                                      | NEG_X to NSP         | Collaborative Rider(s): VIMS   |
| UVIS_2845A_AURDSLEW001_PRIME   | C, V    | 2017-19908:58:00 | 00002:00:00                   | 2017-19910:58:00 | UVIS_FUV to Saturn                                     | NEG_X to NSP         | Collaborative Rider(s): VIMS   |
| SP_284EA_DLTURN199_PRIME       |         | 2017-19910:58:00 | 00000:40:00                   | 2017-19911:38:00 | XBAND to Earth   | NEG_Y to 127.0/-37.0 |  |
| NEW WAYPOINT                   |         | 2017-19911:38:00 | 00210:42:00                   | 2017-20115:40:00 | XBAND to Earth   | NEG_Y to 127.0/-37.0 |  |
| SP_284EA_YGAP199_PRIME         | E       | 2017-19911:38:00 | 00000:30:00                   | 2017-19913:08:00 | XBAND to Earth   | NEG_Y to 127.0/-37.0 |  |
| SP_284EA_C70METN0199_PRIME     | C       | 2017-19913:08:00 | 00003:50:00                   | 2017-19916:58:00 | XBAND to Earth   | Rolling/SRU          | SRU.   |
| SP_284EA_M70METN0199_PRIME     | R       | 2017-19916:58:00 | 00002:55:00                   | 2017-19919:53:00 | XBAND to Earth   | Rolling/SRU          | MAG Range 1 - Roll Requested. SRU.   |
| SP_284EA_M34BWGRSS199_PRIME    | M, R    | 2017-19919:53:00 | 00004:20:00                   | 2017-20000:13:00 | XBAND to Earth   | Rolling/SRU          | Collaborative Rider(s): MAG, RSS Gravity   |
| SP_284EA_G34BWGRSS200_PRIME    | C, M, R | 2017-20000:13:00 | 00006:51:00                   | 2017-20007:04:00 | XBAND to Earth   | Rolling/SRU          | Collaborative Rider(s): MAG, RSS Gravity   |
| RSS_284RI_PERIOCC001_PRIME     | M, R    | 2017-20007:04:00 | 00002:07:00                   | 2017-20009:11:00 | XBAND to Earth   | Rolling              | Collaborative Rider(s): MAG. Rolling initiated by previous SP request.   |
| Periapse R = 1.044 Rs, lat ... |         | 2017-20007:54:49 | 00000:00:01                   | 2017-20007:54:50 |  |                      |  |
| SP_284EA_C70METRSS200_PRIME    | M, R    | 2017-20009:11:00 | 00002:25:00                   | 2017-20011:36:00 | XBAND to Earth   | Rolling/SRU          | Collaborative Rider(s): MAG, RSS Gravity, SRU. Possible VIMS heating (to be updated in integration)                    |
| RSS_284RI_CRDOCC001_PRIME      | R       | 2017-20011:36:00 | 00009:07:00                   | 2017-20020:43:00 | XBAND to Earth   | NEG_Y to 127.0/-37.0 |  |
| VIMS_284SA_SHEMMA001_PRIME     | C, U    | 2017-20020:43:00 | 00007:47:00                   | 2017-20104:30:00 | ISS_NAC to Saturn                                      | NEG_X to NSP         |  |
| SP_284EA_YGAP201_PRIME         | E       | 2017-20104:30:00 | 00001:30:00                   | 2017-20106:00:00 | XBAND to Earth   | NEG_Y to 127.0/-37.0 |  |
| SP_284EA_C34BWGNON201_PRIME    | C       | 2017-20106:00:00 | 00009:00:00                   | 2017-20115:00:00 | XBAND to Earth   | Rolling              |  |
| SP_2845A_WAYPTTURN201_PRIME    |         | 2017-20115:00:00 | 00000:40:00                   | 2017-20115:40:00 | ISS_NAC to Saturn                                      | NEG_X to NSP         |  |
| NEW WAYPOINT                   |         | 2017-20115:40:00 | 00112:41:00                   | 2017-20304:21:00 | ISS_NAC to Saturn                                      | NEG_X to NSP         |  |
| ISS_284TI_M150R2H2201_PRIME    | V       | 2017-20115:40:00 | E284_M150R2H2201+000T00:00:00 | 00001:30:00      | 2017-20117:10:00                                       | ISS_NAC to Titan     | NEG_X to NSP   |
| UVIS_2845T_EP5ORIO01_PIE       |         | 2017-20117:36:00 | 00001:10:00                   | 2017-20118:36:00 | UVIS_FUV to 84.054/-1.202 (0.258,0.0,0.0 deg. offset)  | NEG_X to NSP         | No Preference to secondary pointing  |
| UVIS_2845A_AURNSLEW001_PRIME   | C, V    | 2017-20118:36:00 | 00001:25:00                   | 2017-20120:11:00 | UVIS_FUV to Saturn                                     | NEG_X to NSP         |  |
| UVIS_2845A_AURNSTARE001_PRIME  | C, I, V | 2017-20120:11:00 | 00001:25:00                   | 2017-20121:36:00 | ISS_NAC to Saturn                                      | NEG_X to NSP         | Collaborative Rider(s): VIMS   |
| UVIS_2845T_ZETAADI001_PIE      | E       | 2017-20121:36:00 | 00001:10:00                   | 2017-20122:46:00 | UVIS_FUV to 85.19/-1.943 (0.258,0.0,0.0 deg. offset)   | NEG_X to NSP         | Collaborative Rider(s): VIMS   |
| CIRS_2845A_FIRMAP001_PRIME     | V       | 2017-20122:46:00 | 00010:21:00                   | 2017-20208:57:00 | CIRS_FP1 to Saturn                                     | NEG_X to NSP         |  |
| UVIS_2845T_EP5ORIO02_PIE       |         | 2017-20208:57:00 | 00001:12:00                   | 2017-20210:09:00 | UVIS_FUV to 84.054/-1.202 (0.258,0.0,0.0 deg. offset)  | NEG_X to NSP         |  |
| VIMS_284SA_NHEMMA001_PRIME     | C       | 2017-20210:09:00 | 00001:17:00                   | 2017-20211:26:00 | ISS_NAC to Saturn                                      | NEG_X to NSP         |  |
| UVIS_2845T_ZETAADI002_PIE      |         | 2017-20211:26:00 | 00001:10:00                   | 2017-20212:36:00 | UVIS_FUV to 85.19/-1.943 (0.258,0.0,0.0 deg. offset)   | NEG_X to NSP         |  |
| ISS_284TI_M150R2H2202_PRIME    | V       | 2017-20212:36:00 | E284_M150R2H2202+000T00:00:00 | 00001:30:00      | 2017-20214:06:00                                       | ISS_NAC to Titan     | NEG_X to NSP   |
| VIMS_284SA_FULDISK001_PRIME    | C       | 2017-20214:06:00 | 00007:09:00                   | 2017-20221:15:00 | ISS_NAC to Saturn                                      | NEG_X to NSP         | No Preference to secondary pointing  |
| UVIS_2845T_KAPORIO01_PIE       |         | 2017-20221:15:00 | 00001:10:00                   | 2017-20222:25:00 | UVIS_FUV to 86.939/-9.67 (0.258,0.0,0.0 deg. offset)   | NEG_X to NSP         | PIE in apoapse. Must point within 15 deg of Saturn Center.   |
| ISS_2845A_LIMBINT003_PRIME     | U, V    | 2017-20222:25:00 | 00002:00:00                   | 2017-20300:25:00 | ISS_NAC to Saturn                                      | NEG_X to NSP         |  |
| VIMS_284SA_NHEMMA002_PRIME     | C, I    | 2017-20300:25:00 | 00003:16:00                   | 2017-20303:41:00 | ISS_NAC to Saturn                                      | NEG_X to NSP         |  |
| SP_284EA_DLTURN203_PRIME       |         | 2017-20303:41:00 | 00000:40:00                   | 2017-20304:21:00 | XBAND to Earth   | NEG_Y to 127.0/-37.0 |  |
| NEW WAYPOINT                   |         | 2017-20304:21:00 | 00213:20:00                   | 2017-20517:41:00 | XBAND to Earth   | NEG_Y to 127.0/-37.0 |  |
| SP_284EA_YGAP203_PRIME         | E       | 2017-20304:21:00 | 00001:30:00                   | 2017-20305:51:00 | XBAND to Earth   | NEG_Y to 127.0/-37.0 |  |
| SP_284EA_C70METN0N203_PRIME    | C       | 2017-20305:51:00 | 00009:00:00                   | 2017-20314:51:00 | XBAND to Earth   | Rolling              |  |
| Apoapse Per = 6.5 d, inc = ... |         | 2017-20313:27:05 | 00000:00:01                   | 2017-20313:27:06 |  |                      |  |
| MAPS_285 Segment               |         | 2017-20314:51:00 | 00401:22:00                   | 2017-20316:13:00 |  |                      |  |
| ISS_284TI_M150R2H2203_PRIME    | C, V    | 2017-20314:51:00 | 00001:30:00                   | 2017-20316:21:00 | ISS_NAC to Titan                                       | NEG_Z to Sun         |  |
| MAG_284SU_LFCALROLL002_PRIME   | U       | 2017-20316:21:00 | 00011:45:00                   | 2017-20404:06:00 | NEG_X to Earth (0.0,0.0,-30.0 deg. offset)             | Rolling              |  |
| SP_285EA_YGAP204_PRIME         | E       | 2017-20404:06:00 | 00001:30:00                   | 2017-20405:36:00 | XBAND to Earth   | NEG_Y to 127.0/-37.0 |  |
| SP_285EA_C34BWGNON204_PRIME    | C       | 2017-20405:36:00 | 00009:00:00                   | 2017-20414:36:00 | XBAND to Earth   | Rolling              |  |
| UVIS_285SA_AURNSLEW001_PRIME   | C       | 2017-20414:36:00 | 00014:45:00                   | 2017-20505:21:00 | UVIS_FUV to Saturn                                     | NEG_X to NSP         |  |
| UVIS_285ST_BETCMA001_PIE       |         | 2017-20505:21:00 | 00001:10:00                   | 2017-20506:31:00 | UVIS_FUV to 95.675/-17.956 (0.258,0.0,0.0 deg. offset) | NEG_X to NSP         |  |
| SP_285EA_C70METN0N205_PRIME    | C       | 2017-20506:31:00 | 00009:00:00                   | 2017-20510:31:00 | XBAND to Earth   | NEG_Y to 127.0/-37.0 | MIMI RA/DEC equivalent   |
| SP_285EA_YGAP205_PRIME         | E       | 2017-20510:31:00 | 00001:30:00                   | 2017-20517:01:00 | XBAND to Earth   | NEG_Y to 127.0/-37.0 |  |
| SP_285SA_WAYPTTURN205_PRIME    |         | 2017-20517:01:00 | 00000:40:00                   | 2017-20517:41:00 | ISS_NAC to Saturn                                      | NEG_X to NSP         |  |
| NEW WAYPOINT                   |         | 2017-20517:41:00 | 00110:59:00                   | 2017-20704:40:00 | ISS_NAC to Saturn                                      | NEG_X to NSP         |  |
| ISS_285TI_M90R1CLD205_PRIME    | C, V    | 2017-20517:41:00 | E285_M90R1CLD205+000T00:00:00 | 00001:30:00      | 2017-20519:11:00                                       | ISS_NAC to Titan     | NEG_X to NSP   |
| UVIS_285SA_AURNSLEW002_PRIME   | C       | 2017-20519:11:00 | 00011:49:00                   | 2017-20607:00:00 | UVIS_FUV to Saturn                                     | NEG_X to NSP         | No Preference to secondary pointing  |
| 285TI (nt) TITAN Inbound...    |         | 2017-20600:02:21 | 00000:00:01                   | 2017-20600:02:22 |  |                      |  |
| MAG_285SU_HFCALROLL001_PIE     |         | 2017-20607:00:00 | 00007:00:00                   | 2017-20614:00:00 | NEG_X to Earth (0.0,0.0,-30.0 deg. offset)             | Rolling              | Handoff at POS_Y SUN, POS_X North_Pole_Dir   |
| MAG_285OT_CALROLL001_PIE       |         | 2017-20614:00:00 | 00003:18:00                   | 2017-20617:18:00 | POS_Y to Sun   | Rolling              | Handoff at +Y to sun, +X north_pole_dir  |
| ENGR_285SC_ORSRC206_PRIME      |         | 2017-20617:18:00 | 00000:01:00                   | 2017-20617:19:00 | POS_Y to Sun   | Rolling              | Deadband = (2.0, 2.0, 2.0)<br>Pickup at +Y Sun, +X north_pole_dir,   |
| MAG_285OT_CALROLL002_PIE       | M       | 2017-20617:19:00 | 00003:19:24                   | 2017-20620:38:24 | POS_X to SC_RAM (-19.594,0.0,0.0 deg. offset)          | Rolling              | Handoff at +X RA/Dec 268.436/-27.819, +Y RA/Dec 338.241/33.193   |
| Periapse R = 1.044 Rs, lat ... |         | 2017-20618:59:23 | 00000:00:01                   | 2017-20618:59:24 |  |                      |  |
| ENGR_285SC_DFPWBIA206_PPS      | M       | 2017-20620:38:24 | 00000:21:05                   | 2017-20620:39:05 |  |                      | Pickup at +X RA/Dec 268.436/-27.819, +Y RA/Dec 338.241/33.193,   |
| MAG_285OT_CALROLL003_PIE       |         | 2017-20620:38:24 | 00003:43:36                   | 2017-20700:22:00 | POS_X to 268.436/-27.819                               | Rolling              | Handoff at waypoint  |
| UVIS_285SA_AURSTARE001_PRIME   | C, I    | 2017-20700:22:00 | 00003:38:00                   | 2017-20704:00:00 | ISS_NAC to Saturn                                      | NEG_X to NSP         |  |
| SP_285EA_DLTURN207_PRIME       |         | 2017-20704:00:00 | 00000:40:00                   | 2017-20704:40:00 | XBAND to Earth   | NEG_Y to 8.95/-36.97 | MIMI. Changed to RA/DEC equivalent.  |
| NEW WAYPOINT                   |         | 2017-20704:40:00 | 00012:43:00                   | 2017-20716:53:00 | XBAND to Earth   | NEG_Y to 8.95/-36.97 |  |
| SP_285EA_YGAP207_PRIME         | E       | 2017-20704:40:00 | 00001:30:00                   | 2017-20706:19:00 | XBAND to Earth   | NEG_Y to 8.95/-36.97 | MIMI. Changed to RA/DEC equivalent.  |
| SP_285EA_C70METN0N207_PRIME    | C       | 2017-20706:19:00 | 00010:03:00                   | 2017-20716:13:00 | XBAND to Earth   | Rolling              | Rolling at MIMI  |
| TOST_285_OUT Segment           |         | 2017-20716:13:00 | 00112:53:00                   | 2017-20905:06:00 |  |                      |  |
| SP_285TI_WAYPTTURN207_PRIME    |         | 2017-20716:13:00 | 00000:40:00                   | 2017-20716:53:00 | NEG_Y to Titan   | NEG_Z to NTP         |  |
| NEW WAYPOINT                   |         | 2017-20716:53:00 | 00021:50:00                   | 2017-20814:43:00 | NEG_Y to Titan   | NEG_Z to NTP         |  |
| ISS_285TI_LRMONITOR001_PRIME   | C, M, V | 2017-20716:53:00 | 00004:58:00                   | 2017-20721:51:00 | ISS_NAC to Titan                                       | NEG_Z to NTP         | Collaborative Rider(s): CDA  |
| CIRS_285TI_COMPMPA001_PRIME    | I, V    | 2017-20721:51:00 | 00001:30:00                   | 2017-20723:21:00 | CIRS_FP2 to Titan                                      | NEG_Z to NTP         | CIRS_FP2 to 60S; arrays span 40S-90S; FP1 not on disk  |
| 285TI (nt) TITAN Outbound...   |         | 2017-20723:20:01 | 00000:00:01                   | 2017-20723:20:02 |  |                      |  |
| ISS_285TI_LRMONITOR002_PRIME   | C, M, V | 2017-20723:21:00 | 00004:00:00                   | 2017-20803:21:00 | ISS_NAC to Titan                                       | NEG_Z to NTP         | Collaborative Rider(s): CDA  |
| ISS_285TI_LRMONITOR003_PRIME   | C, V    | 2017-20803:21:00 | 00004:00:00                   | 2017-20807:21:00 | ISS_NAC to Titan                                       | NEG_Z to NTP         |  |
| ISS_285TI_LRMONITOR004_PRIME   | C, V    | 2017-20807:21:00 | 00004:00:00                   | 2017-20811:21:00 | ISS_NAC to Titan                                       | NEG_Z to NTP         |  |
| ISS_285TI_LRMONITOR005_PRIME   | C, V    | 2017-20811:21:00 | 00002:42:00                   | 2017-20814:03:00 | ISS_NAC to Titan                                       | NEG_Z to NTP         |  |
| SP_285EA_DLTURN208_PRIME       |         | 2017-20814:03:00 | 00000:40:00                   | 2017-20814:43:00 | XBAND to Earth   | NEG_X to Saturn      |  |
| NEW WAYPOINT                   |         | 2017-20814:43:00 | 00014:48:00                   | 2017-20905:31:00 | XBAND to Earth   | NEG_X to Saturn      |  |
| SP_285EA_YGAP208_PRIME         | E       | 2017-20814:43:00 | 00001:30:00                   | 2017-20816:13:00 | XBAND to Earth   | NEG_X to Saturn      |  |
| SP_285EA_M70METN0N208_PRIME    | C       | 2017-20816:13:00 | 00007:45:00                   | 2017-20823:58:00 | XBAND to Earth   | Rolling/SRU          | Roll for MAPS CDA Titan, plus preceding 4 hours for CDA  |
| SP_285EA_G34BWGNON208_PRIME    | C       | 2017-20823:58:00 | 00005:08:00                   | 2017-20905:06:00 | XBAND to Earth   | Rolling              | Roll for MAPS CDA Titan  |
| XD_286 Segment                 |         | 2017-20905:06:00 | 00309:10:00                   | 2017-21214:16:00 |  |                      |  |
| SP_285SA_WAYPTTURN209_PRIME    |         | 2017-20905:06:00 | 00000:25:00                   | 2017-20905:31:00 | ISS_NAC to Saturn                                      | NEG_X to 170.7/32.5  |  |
| NEW WAYPOINT                   |         | 2017-20905:31:00 | 00100:38:00                   | 2017-21006:09:00 | ISS_NAC to Saturn                                      | NEG_X to 170.7/32.5  |  |
| ISS_285OT_KVPOLAB02_PRIME      | U, V    | 2017-20906:09:00 | 00003:20:00                   | 2017-20906:59:00 | UVIS_FUV to Rocks                                      | NEG_X to Saturn      |  |
| UVIS_285ST_KAPORIO01_PIE       |         | 2017-20908:59:00 | 00001:10:00                   | 2017-20910:09:00 | UVIS_FUV to 86.939/-9.67 (0.258,0.0,0.0 deg. offset)   | NEG_X to Saturn      | PIE in apoapse.  |
| ISS_285OT_KVPOLB02_PRIME       | U, V    | 2017-20910:09:00 | 00001:18:00                   | 2017-21004:19:00 | UVIS_FUV to Saturn                                     | NEG_X to Saturn      |  |
| Apoapse Per = 6.5 d, inc = ... |         | 2017-21000:33:59 | 00000:00:01                   | 2017-21000:34:00 |  |                      |  |
| UVIS_285ST_KAPORIO02_PIE       |         | 2017-21004:19:00 | 00001:10:00                   | 2017-21005:29:00 | UVIS_FUV to 86.939/-9.67 (0.258,0.0,0.0 deg. offset)   | NEG_X to 170.7/32.5  | PIE in apoapse.  |

|                                |               |                   |                               |              |                   |  |                     |  |
|--------------------------------|---------------|-------------------|-------------------------------|--------------|-------------------|--|---------------------|--|
| SP_286SA_DLTURN210_PRIME       |               | 2017-210705:44:00 |                               | 000700:25:00 | 2017-210706:09:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     |  |
| NEW WAYPOINT                   |               | 2017-210706:09:00 |                               | 001708:21:00 | 2017-211174:30:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     |  |
| SP_286EA_YGAP210_PRIME         | E             | 2017-210706:09:00 |                               | 000701:30:00 | 2017-210707:39:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     |  |
| SP_286EA_C34BWGNON210_PRIME    | C, R          | 2017-210707:39:00 |                               | 000708:30:00 | 2017-210716:09:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | Rolling             |  |
| ISS_286TI_M150R2H2210_PRIME    | C, V          | 2017-210716:09:00 | E286_M150R2H2210+000700:00:00 | 000702:00:00 | 2017-210718:09:00 | ISS_NAC to Titan                                     | PIC                 | No Preference to secondary pointing  |
| MAG_286SU_LFCALROLL001_PRIME   | U             | 2017-210718:42:00 |                               | 000709:00:00 | 2017-211103:42:00 | NEG_X to Earth (0.0,0.0,-30.0 deg. offset)           | Rolling             |  |
| SP_286EA_YGAP211_PRIME         | E             | 2017-211103:42:00 |                               | 000701:30:00 | 2017-211105:12:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     |  |
| SP_286EA_C34BWGNON211_PRIME    | C             | 2017-211105:12:00 |                               | 000709:00:00 | 2017-211174:12:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     | MIMI. NEG_Y to Saturn (0.0,-9.5)   |
| SP_286SA_WAYPTTURN211_PRIME    |               | 2017-211174:12:00 |                               | 000700:18:00 | 2017-211174:30:00 | ISS_NAC to Saturn                                    | NEG_X to 170.7/32.5 |  |
| NEW WAYPOINT                   |               | 2017-211174:30:00 |                               | 000713:16:00 | 2017-211703:46:00 | ISS_NAC to Saturn                                    | NEG_X to 170.7/32.5 |  |
| UVIS_286SA_AURLEW001_PRIME     | C             | 2017-211174:30:00 |                               | 000706:30:00 | 2017-211721:00:00 | UVIS_FUV to Saturn                                   | NEG_X to 170.7/32.5 |  |
| CIRS_286RI_CASDVLUT001_PRIME   | C, I, U, V    | 2017-211721:00:00 |                               | 000704:00:00 | 2017-212101:00:00 | CIRS_FP1 to Rings                                    | NEG_X to 170.7/32.5 | No Preference to secondary pointing  |
| ISS_286RI_PROPRETREG001_PRIME  | C, U          | 2017-212101:00:00 |                               | 000702:20:00 | 2017-212703:20:00 | ISS_NAC to Rings                                     | NEG_X to 170.7/32.5 | No Preference to secondary pointing  |
| SP_286SA_DLTURN212_PRIME       |               | 2017-212703:20:00 |                               | 000700:26:00 | 2017-212703:46:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     | No Preference to secondary pointing. No Preference to secondary pointing   |
| NEW WAYPOINT                   |               | 2017-212703:46:00 |                               | 001171:41:00 | 2017-213721:27:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     |  |
| SP_286EA_YGAP212_PRIME         | E             | 2017-212703:46:00 |                               | 000701:30:00 | 2017-212705:16:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     |  |
| SP_286EA_C70METNON212_PRIME    | C             | 2017-212705:16:00 |                               | 000709:00:00 | 2017-212714:16:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     | MIMI. NEG_Y to Saturn (0.0,-9.5)   |
| Begin Custom                   |               | 2017-212714:16:00 |                               | 000700:00:01 | 2017-212714:16:01 |  |                     |  |
| SOST_286 Segment               |               | 2017-212714:16:00 |                               | 002716:56:00 | 2017-215707:12:00 |  |                     |  |
| UVIS_286SA_AURLEW001_PIE       | C, M, V       | 2017-212714:16:00 |                               | 000714:53:00 | 2017-213705:09:00 | UVIS_FUV to Saturn                                   | POS_Z to NSP        | Pick up at XBAND to Earth (0.0,0.0,-9.5 deg. offset), NEG_Y to Saturn; Hand off at POS_X to 280.0/60.0, VIMS_IR to Saturn. Must point within 15 degrees of Saturn center.                        |
| VIMS_286SA_AURSTARE001_PRIME   | C, M, U       | 2017-213705:09:00 |                               | 000704:20:00 | 2017-213709:29:00 | VIMS_IR to Saturn                                    | NEG_X to NSP        | Pick up at POS_X to 280.0/60.0, VIMS_IR to Saturn; Hand off at CIRS_FP3 to Enceladus, NEG_X to Sun.  |
| Periapse R = 1.046 Rs, lat ... |               | 2017-213706:09:11 |                               | 000700:00:01 | 2017-213706:09:12 |  |                     |  |
| Begin Dual Playback Science    |               | 2017-213709:29:00 |                               | 000700:00:01 | 2017-213709:29:01 |  |                     |  |
| CIRS_286EN_SPOLE001_PRIME      | I, U, V       | 2017-213709:29:00 |                               | 000703:40:00 | 2017-213713:09:00 | CIRS_FP3 to Enceladus_South_Pole                     | NEG_X to Sun        | Collaborative Rider(s): ISS. Pick up at CIRS_FP3 to Enceladus, NEG_X to Sun; Hand off at ISS_NAC to Enceladus, NEG_X to Sun. Collaborative Rider(s): ISS   |
| End Dual Playback Science      |               | 2017-213713:09:00 |                               | 000700:00:01 | 2017-213713:09:01 |  |                     |  |
| CIRS_286EN_SPO07_PIE           | I, U, V       | 2017-213713:09:00 |                               | 000703:11:00 | 2017-213716:20:00 | ISS_NAC to Enceladus_South_Pole                      | NEG_X to Sun        | Collaborative Rider(s): ISS. Pick up at ISS_NAC to Enceladus, NEG_X to Sun; Hand off at ISS_NAC to Enceladus, NEG_X to Sun. Collaborative Rider(s): ISS  |
| ISS_286D1_PLUMSEAR011_PRIME    | C, U, V       | 2017-213716:20:00 |                               | 000705:05:00 | 2017-213721:25:00 | UVIS_FUV to Dione                                    | NEG_X to NSP        | Pick up at XBAND to Earth, NEG_X to 177.0/16.0; Hand off at XBAND to Earth, NEG_X to 177.0/16.0. CDA prograde NEG_X to 177/16. Dummy turn - required hand-edit to sp_turn.saf (hand-edit margin) |
| SP_286EA_DLTURN213_PRIME       |               | 2017-213721:25:00 |                               | 000700:02:00 | 2017-213721:27:00 | XBAND to Earth                                       | NEG_X to 177.0/16.0 |  |
| NEW WAYPOINT                   |               | 2017-213721:27:00 |                               | 001700:00:00 | 2017-214721:27:00 | XBAND to Earth                                       | NEG_X to 177.0/16.0 |  |
| End Custom                     |               | 2017-213721:27:00 |                               | 000700:00:01 | 2017-213721:27:01 |  |                     |  |
| SP_286EA_YGAP213_PRIME         | E             | 2017-213721:27:00 |                               | 000701:30:00 | 2017-213722:57:00 | XBAND to Earth                                       | NEG_X to 77.0/16.0  |  |
| SP_286EA_G70METNON213_PRIME    | C             | 2017-213722:57:00 |                               | 000708:30:00 | 2017-214707:27:00 | XBAND to Earth                                       | Rolling             | CDA prograde NEG_X to 177/16   |
| Pointer Reset                  |               | 2017-214707:27:00 |                               | 000700:00:01 | 2017-214707:27:01 |  |                     |  |
| ISS_286EN_PLUMSEAR01_PIE       | C, U, V       | 2017-214707:27:00 |                               | 000712:48:00 | 2017-214720:15:00 | ISS_NAC to Enceladus                                 | NEG_X to NSP        | SOST PIE   |
| ISS_286D1_PLUMSEAR012_PRIME    | C, U, V       | 2017-214720:15:00 |                               | 000701:06:00 | 2017-214721:21:00 | UVIS_FUV to Dione                                    | NEG_X to NSP        | Do occasional turns about Y up to 20 deg for better handling of straight effects.  |
| SP_286EA_DLTURN214_PRIME       |               | 2017-214721:21:00 |                               | 000700:06:00 | 2017-214721:27:00 | XBAND to Earth                                       | NEG_X to 171.0/1.0  | CDA prograde NEG_X to 171/1  |
| NEW WAYPOINT                   |               | 2017-214721:27:00 |                               | 000710:25:00 | 2017-215707:52:00 | XBAND to Earth                                       | NEG_X to 171.0/1.0  |  |
| SP_286EA_YGAP214_PRIME         | E             | 2017-214721:27:00 |                               | 000701:30:00 | 2017-214722:57:00 | XBAND to Earth                                       | NEG_X to 171.0/1.0  |  |
| SP_286EA_G70METNON214_PRIME    | C             | 2017-214722:57:00 |                               | 000708:15:00 | 2017-215707:12:00 | XBAND to Earth                                       | Rolling             | CDA Prograde NEG_X to 171/1  |
| RINGS_287 Segment              |               | 2017-215707:12:00 |                               | 003720:10:00 | 2017-219703:22:00 |  |                     |  |
| SP_286SA_WAYPTTURN215_PRIME    |               | 2017-215707:12:00 |                               | 000700:40:00 | 2017-215707:52:00 | ISS_NAC to Saturn                                    | NEG_X to 140.0/75.0 |  |
| NEW WAYPOINT                   |               | 2017-215707:52:00 |                               | 000719:27:00 | 2017-216703:19:00 | ISS_NAC to Saturn                                    | NEG_X to 140.0/75.0 |  |
| ISS_286RI_PATHPLE001_PRIME     | C, M, U, V    | 2017-215707:52:00 |                               | 000709:03:00 | 2017-215716:55:00 | ISS_NAC to Rings                                     | NEG_X to 123.0/84.0 |  |
| CIRS_286RI_ANSASTARE001_PRIME  | C, M, U, V    | 2017-215716:55:00 |                               | 000709:44:00 | 2017-216702:39:00 | CIRS_FP1 to Rings                                    | NEG_X to 154.0/68.0 |  |
| SP_286EA_DLTURN216_PRIME       |               | 2017-216702:39:00 |                               | 000700:40:00 | 2017-216703:19:00 | XBAND to Earth                                       | NEG_X to 171.0/1.0  | CDA prograde NEG_X to 171/1  |
| NEW WAYPOINT                   |               | 2017-216703:19:00 |                               | 000711:10:00 | 2017-216714:29:00 | XBAND to Earth                                       | NEG_X to 171.0/1.0  |  |
| SP_286EA_YGAP216_PRIME         | E             | 2017-216703:19:00 |                               | 000701:30:00 | 2017-216704:49:00 | XBAND to Earth                                       | NEG_X to 171.0/1.0  |  |
| SP_286EA_C34BWGNON216_PRIME    | C             | 2017-216704:49:00 |                               | 000709:00:00 | 2017-216713:49:00 | XBAND to Earth                                       | Rolling             | CDA Prograde (a) NEG_X to 171/1 (due to close to previous SOST_286 segment)  |
| Apoapse Per = 6.5 d, inc = ... |               | 2017-216711:46:09 |                               | 000700:00:01 | 2017-216711:46:10 |  |                     |  |
| SP_286SA_WAYPTTURN216_PRIME    |               | 2017-216713:49:00 |                               | 000700:40:00 | 2017-216714:29:00 | ISS_NAC to Saturn                                    | NEG_X to 6.0/12.0   |  |
| NEW WAYPOINT                   |               | 2017-216714:29:00 |                               | 000712:50:00 | 2017-217703:19:00 | ISS_NAC to Saturn                                    | NEG_X to 6.0/12.0   |  |
| VIMS_286ST_RXLEPCAL001_PRIME   |               | 2017-216714:29:00 |                               | 000701:39:00 | 2017-216716:08:00 | VIMS_IR to 77.845/-11.849                            | NEG_X to 6.0/12.0   |  |
| UVIS_286ST_KAPORIO01_PIE       |               | 2017-216716:08:00 |                               | 000701:10:00 | 2017-216717:18:00 | UVIS_FUV to 86.939/-9.67 (0.258,0.0,0.0 deg. offset) | NEG_X to 6.0/12.0   | PIE in apoapse. Must point within 15 deg of Saturn Center.   |
| ISS_287RI_HPMONITOR001_PRIME   | C, M, U, V    | 2017-216717:18:00 |                               | 000709:21:00 | 2017-217702:39:00 | ISS_NAC to Rings                                     | NEG_X to 6.0/12.0   |  |
| SP_287EA_DLTURN217_PRIME       |               | 2017-217702:39:00 |                               | 000700:40:00 | 2017-217703:19:00 | XBAND to Earth                                       | NEG_X to 171.0/1.0  |  |
| NEW WAYPOINT                   |               | 2017-217703:19:00 |                               | 000711:10:00 | 2017-217714:29:00 | XBAND to Earth                                       | NEG_X to 171.0/1.0  |  |
| SP_287EA_YGAP217_PRIME         | E             | 2017-217703:19:00 |                               | 000701:30:00 | 2017-217704:49:00 | XBAND to Earth                                       | NEG_X to 171.0/1.0  |  |
| SP_287EA_C34BWGNON217_PRIME    | C             | 2017-217704:49:00 |                               | 000709:00:00 | 2017-217713:49:00 | XBAND to Earth                                       | Rolling             |  |
| SP_287SA_WAYPTTURN217_PRIME    |               | 2017-217713:49:00 |                               | 000700:40:00 | 2017-217714:29:00 | ISS_NAC to Saturn                                    | POS_Z to NSP        |  |
| NEW WAYPOINT                   |               | 2017-217714:29:00 |                               | 000723:28:00 | 2017-218713:57:00 | ISS_NAC to Saturn                                    | POS_Z to NSP        |  |
| VIMS_287RI_APOMOSAIC001_PRIME  | C, M, U       | 2017-217714:29:00 |                               | 000706:48:00 | 2017-217717:17:00 | VIMS_IR to Rings                                     | POS_Z to NSP        |  |
| CIRS_287RB_COMPLTIB001_PRIME   | C, I, M, U, V | 2017-217717:17:00 |                               | 000708:00:00 | 2017-218705:17:00 | CIRS_FP1 to Rings                                    | POS_Z to NSP        | No Preference to secondary pointing  |
| ISS_287RI_COMPLITCD001_PRIME   | C, I, M, U, V | 2017-218705:17:00 |                               | 000708:00:00 | 2017-218713:57:00 | CIRS_FP1 to Rings                                    | POS_Z to NSP        | No Preference to secondary pointing  |
| SP_287EA_DLTURN218_PRIME       |               | 2017-218713:57:00 |                               | 000700:40:00 | 2017-218713:57:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     |  |
| NEW WAYPOINT                   |               | 2017-218713:57:00 |                               | 000714:05:00 | 2017-219704:02:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     |  |
| SP_287EA_YGAP218_PRIME         | E             | 2017-218713:57:00 |                               | 000701:30:00 | 2017-218715:27:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     |  |
| SP_287EA_M70METNON218_PRIME    | C             | 2017-218715:27:00 |                               | 000707:45:00 | 2017-218723:12:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     | SRU. MIMI. NEG_Y to Saturn (0.0,-9.5)  |
| SP_287EA_G70METNON218_PRIME    |               | 2017-218723:12:00 |                               | 000704:10:00 | 2017-219703:22:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)            | NEG_Y to Saturn     | SRU. MIMI. NEG_Y to Saturn (0.0,-9.5)  |
| MAPS_287 Segment               |               | 2017-219703:22:00 |                               | 003711:49:00 | 2017-222715:11:00 |  |                     |  |
| SP_287SA_WAYPTTURN219_PRIME    |               | 2017-219703:22:00 |                               | 000700:40:00 | 2017-219704:02:00 | ISS_NAC to Saturn                                    | NEG_Z to Sun        |  |
| NEW WAYPOINT                   |               | 2017-219704:02:00 |                               | 001709:39:00 | 2017-220713:41:00 | ISS_NAC to Saturn                                    | NEG_Z to Sun        |  |
| UVIS_287SA_AURLEW001_PRIME     |               | 2017-219704:02:00 |                               | 000705:20:00 | 2017-219709:22:00 | UVIS_FUV to Saturn                                   | NEG_X to NSP        | Must point within 15 degrees of Saturn center.   |
| ISS_287RI_PROPRETREG001_PRIME  | C, U          | 2017-219709:22:00 |                               | 000702:00:00 | 2017-219711:22:00 | ISS_NAC to Rings                                     | NEG_Z to Sun        | No Preference to secondary pointing  |
| UVIS_287SA_AURLEW002_PRIME     |               | 2017-219711:22:00 |                               | 000702:08:00 | 2017-219713:30:00 | UVIS_FUV to Saturn                                   | NEG_X to NSP        | Must point within 15 degrees of Saturn center.   |
| Begin Custom Period            |               | 2017-219713:30:00 |                               | 000700:00:01 | 2017-219713:30:01 |  |                     |  |
| VIMS_287RI_COMPLTIB001_PIE     | C, I, M, U    | 2017-219713:30:00 |                               | 000702:53:00 | 2017-219716:23:00 | VIMS_IR to Rings                                     | NEG_Z to Sun        | Pick up at ISS_NAC to Saturn, NEG_Z to Sun; Hand off at NEG_Z to Saturn, POS_X to NSP.   |
| INMS_287CO_SATAMOS001_PIE      | M             | 2017-219716:23:00 |                               | 000702:00:00 | 2017-219718:23:00 | POS_X to COROT (-25.0,0.0,0.0 deg. offset)           | POS_Y to Sun        | Collaborative Rider(s): CDA. Pick up at NEG_Z to Saturn, POS_X to NSP; Hand off at NEG_Z to Saturn, NEG_X to NSP. Collaborative Rider(s): CDA. CDA secondary                                     |
| Begin Dual Playback Science    |               | 2017-219717:09:13 | E287_Peri+000700:14:00        | 000700:00:01 | 2017-219717:09:14 |  |                     |  |
| Periapse R = 1.047 Rs, lat ... |               | 2017-219717:23:13 |                               | 000700:00:01 | 2017-219717:23:14 |  |                     |  |
| End Dual Playback Science      |               | 2017-219717:39:13 | E287_Peri+000700:16:00        | 000700:00:01 | 2017-219717:39:14 |  |                     |  |
| UVIS_287SA_AURSTARE001_PIE     | C, M          | 2017-219718:23:00 |                               | 000719:17:00 | 2017-220713:40:00 | UVIS_FUV to Saturn                                   | NEG_Z to NSP        | Pick up at NEG_Z to Saturn, NEG_X to NSP; Hand off at XBAND to Earth, NEG_Y to 92.4/64.9. Must point within 15 degrees of Saturn center.   |
| SP_287EA_DLTURN220_PRIME       |               | 2017-220713:40:00 |                               | 000700:01:00 | 2017-220713:41:00 | XBAND to Earth                                       | NEG_Y to 92.4/64.9  | Pick up at XBAND to Earth, NEG_Y to 92.4/64.9; Hand off at XBAND to Earth, NEG_Y to 92.4/64.9. dummy turn to new DL  |
| NEW WAYPOINT                   |               | 2017-220713:41:00 |                               | 002702:10:00 | 2017-222715:51:00 | XBAND to Earth                                       | NEG_Y to 92.4/64.9  |  |

|                                  |            |                    |                              |              |                    |  |  |                     |   |  |
|----------------------------------|------------|--------------------|------------------------------|--------------|--------------------|--|--|---------------------|---|--|
| End Custom Period                |            | 2017-220113:41:00  |                              | 000T00:00:01 | 2017-220113:41:01  |  |  |                     |   |  |
| SP_287EA_YGAP220_PRIME           | E          | 2017-220113:41:00  |                              | 000T01:30:00 | 2017-220115:11:00  | XBAND to Earth                             |  | NEG_Y to 92.4/-64.9 |   |  |
| SP_287EA_M70METNON220_PRIME      | C          | 2017-220115:11:00  |                              | 000T08:00:00 | 2017-220123:11:00  | XBAND to Earth                             |  | NEG_Y to 92.4/-64.9 | SRU, MIMI, Secondary RA/DEC equiv of NEG_Y to Saturn (0,0,-9.5) |  |
| Pointer Reset in preparatio...   |            | 2017-220123:11:00  |                              | 000T00:00:01 | 2017-220123:11:01  |  |  |                     |   |  |
| ISS_287OT_XIVPOL087_PRIME        |            | 2017-2220723:11:00 |                              | 001T05:00:00 | 2017-222074:11:00  | UVIS_FUV to Rocks                          |  | NEG_Z to Sun        |   | Accomodate MIMI pointing requirements. Team-internal hand-off at inertial RA/Dec = 2.340/-0.433 (NEG_Z to sun).  |
| ISS_287OT_NEPTUNE001_PRIME       |            | 2017-2222704:11:00 |                              | 000T00:30:00 | 2017-2222704:41:00 | UVIS_FUV to 2.34/-0.433                    |  | NEG_Z to Sun        |   | Accomodate MIMI pointing requirements. ISS team-internal pick-up at inertial RA/Dec = 2.340/-0.433 (NEG_Z to sun).   |
| SP_287EA_YGAP222_PRIME           | E          | 2017-2222704:11:00 |                              | 000T01:30:00 | 2017-2222706:11:00 | XBAND to Earth                             |  | NEG_Y to 92.4/-64.9 |   |  |
| SP_287EA_C70METNON222_PRIME      | C          | 2017-2222706:11:00 |                              | 000T09:30:00 | 2017-2222706:11:00 | XBAND to Earth                             |  | Rolling/SRU         | SRU   |  |
| TOST_288 Segment                 |            | 2017-222115:11:00  |                              | 000T15:15:00 | 2017-224112:26:00  |  |  |                     |   |  |
| SP_287TI_WAYPTTURN222_PRIME      |            | 2017-222115:11:00  |                              | 000T00:40:00 | 2017-222115:11:00  | NEG_Y to Titan                             |  | NEG_X to Sun        |   |  |
| NEW WAYPOINT                     |            | 2017-222115:51:00  |                              | 000T10:05:00 | 2017-224101:56:00  | NEG_Y to Titan                             |  | NEG_X to Sun        |   |  |
| ISS_287TI_LRMONITOR001_PRIME     | C, V       | 2017-222115:51:00  |                              | 000T01:00:00 | 2017-222116:51:00  | ISS_NAC to Titan                           |  | NEG_X to Sun        |   | No Preference to secondary pointing  |
| CIRS_287TI_MIDIRMAP001_PRIME     | I, V       | 2017-222116:51:00  |                              | 000T06:40:00 | 2017-222123:31:00  | CIRS_FP1 to Titan                          |  | NEG_X to Sun        |   | No Preference to secondary pointing  |
| Apoapse Per = 6.5 d, inc = ...   |            | 2017-222122:56:28  |                              | 000T00:00:01 | 2017-222122:56:29  |  |  |                     |   |  |
| ISS_287TI_CLOUD001_PIE           | C, V       | 2017-222123:31:00  |                              | 000T01:00:00 | 2017-222100:31:00  | ISS_NAC to Titan                           |  | NEG_X to Sun        |   |  |
| CIRS_287TI_COMPMPA001_PIE        | I, V       | 2017-222300:31:00  |                              | 000T05:00:00 | 2017-222305:31:00  | CIRS_FP1 to Titan                          |  | NEG_X to Sun        |   | CIRS_FP1 to 89.9N  |
| 288TI (nt) TITAN Inbound...      |            | 2017-223105:04:07  |                              | 000T00:00:01 | 2017-223105:04:08  |  |  |                     |   |  |
| ISS_288TI_CLOUD002_PIE           | C, U, V    | 2017-223105:31:00  |                              | 000T01:00:00 | 2017-223106:31:00  | ISS_NAC to Titan                           |  | NEG_X to Sun        |   |  |
| CIRS_288TI_COMPMPA001_PIE        | I, U, V    | 2017-223106:31:00  |                              | 000T05:00:00 | 2017-223111:31:00  | CIRS_FP1 to Titan                          |  | NEG_X to Sun        |   | Collaborative Rider(s): ISS, CIRS_FP1 to 89.9N   |
| ISS_288TI_CLOUD003_PIE           | C, U, V    | 2017-223111:31:00  |                              | 000T01:00:00 | 2017-223112:31:00  | ISS_NAC to Titan                           |  | NEG_X to Sun        |   |  |
| CIRS_288TI_COMPMPA002_PIE        | I, V       | 2017-223112:31:00  |                              | 000T04:30:00 | 2017-223117:01:00  | CIRS_FP1 to Titan                          |  | NEG_X to Sun        |   | CIRS_FP1 to 89.9N  |
| ISS_288TI_CLOUD004_PIE           | C, V       | 2017-223117:01:00  |                              | 000T01:00:00 | 2017-223118:01:00  | ISS_NAC to Titan                           |  | NEG_X to Sun        |   |  |
| CIRS_288TI_COMPMPA003_PIE        | I, V       | 2017-223118:01:00  |                              | 000T06:15:00 | 2017-224100:16:00  | CIRS_FP1 to Titan                          |  | NEG_X to Sun        |   | CIRS_FP1 to 89.9N  |
| ISS_288TI_LRMONITOR002_PRIME     | C, V       | 2017-224100:16:00  |                              | 000T01:00:00 | 2017-224101:16:00  | ISS_NAC to Titan                           |  | NEG_X to Sun        |   | No Preference to secondary pointing  |
| SP_288EA_DLTURN224_PRIME         |            | 2017-224101:16:00  |                              | 000T00:40:00 | 2017-224101:56:00  | XBAND to Earth (0.0,0.0,-9.5 deg. offset)  |  | NEG_Y to Saturn     |   |  |
| NEW WAYPOINT                     |            | 2017-224101:56:00  |                              | 000T11:10:00 | 2017-224113:06:00  | XBAND to Earth (0.0,0.0,-9.5 deg. offset)  |  | NEG_Y to Saturn     |   |  |
| SP_288EA_YGAP224_PRIME           | E          | 2017-224101:56:00  |                              | 000T01:30:00 | 2017-224103:26:00  | XBAND to Earth (0.0,0.0,-9.5 deg. offset)  |  | NEG_Y to Saturn     |   |  |
| SP_288EA_C70METNON224_PRIME      | C          | 2017-224103:26:00  |                              | 000T09:00:00 | 2017-224112:26:00  | XBAND to Earth (0.0,0.0,-9.5 deg. offset)  |  | NEG_Y to Saturn     |   | MIMI, XBAND to EARTH (0,0,-9.5), NEG_Y to SA   |
| SATURN_288 Segment               |            | 2017-224112:26:00  |                              | 000T01:15:00 | 2017-224113:41:00  |  |  |                     |   |  |
| SP_288SA_WAYPTTURN224_PRIME      |            | 2017-224112:26:00  |                              | 000T00:40:00 | 2017-224113:06:00  | ISS_NAC to Saturn                          |  | NEG_X to NSP        |   |  |
| NEW WAYPOINT                     |            | 2017-224113:06:00  |                              | 000T06:20:00 | 2017-224119:26:00  | ISS_NAC to Saturn                          |  | NEG_X to NSP        |   |  |
| VIMS_288SA_NHEMIMAP001_PRIME     | C, I, U    | 2017-224113:06:00  |                              | 000T01:00:00 | 2017-224114:06:00  | ISS_NAC to Saturn                          |  | NEG_X to NSP        |   |  |
| UVIS_288SA_AURDSTARE001_PRIME    | C, I, V    | 2017-224114:06:00  |                              | 000T01:50:00 | 2017-224115:56:00  | VIMS_IR to Saturn                          |  | NEG_X to NSP        |   | Collaborative Rider(s): VIMS   |
| UVIS_288SA_AURDSLEW001_PRIME     | C, V       | 2017-224115:56:00  |                              | 000T01:50:00 | 2017-224117:46:00  | UVIS_FUV to Saturn                         |  | NEG_X to NSP        |   | Collaborative Rider(s): VIMS   |
| ISS_288SA_LIMBINT001_PRIME       | C, U, V    | 2017-224117:46:00  |                              | 000T01:00:00 | 2017-224118:46:00  | ISS_NAC to Saturn                          |  | NEG_X to NSP        |   |  |
| SP_288SA_DLTURN224_PRIME         |            | 2017-224118:46:00  |                              | 000T00:40:00 | 2017-224119:26:00  | XBAND to Earth (0.0,0.0,-9.5 deg. offset)  |  | NEG_Y to Saturn     |   |  |
| NEW WAYPOINT                     |            | 2017-224119:26:00  |                              | 000T20:25:00 | 2017-225115:51:00  | XBAND to Earth (0.0,0.0,-9.5 deg. offset)  |  | NEG_Y to Saturn     |   |  |
| MAG_288SU_LFCALROLLO01_PRIME     | U          | 2017-224119:26:00  |                              | 000T07:00:00 | 2017-225102:26:00  | NEG_X to Earth (0.0,0.0,-30.0 deg. offset) |  | Rolling             |   |  |
| SP_288EA_C34BWGNON225_PRIME      | C          | 2017-225102:26:00  |                              | 000T12:45:00 | 2017-225115:11:00  | XBAND to Earth (0.0,0.0,-9.5 deg. offset)  |  | NEG_Y to Saturn     |   | MIMI, XBAND to EARTH (0,0,-9.5), NEG_Y to SA   |
| SP_288SA_WAYPTTURN225_PRIME      |            | 2017-225115:11:00  |                              | 000T00:40:00 | 2017-225115:11:00  | ISS_NAC to Saturn                          |  | POS_Z to NSP        |   |  |
| NEW WAYPOINT                     |            | 2017-225115:51:00  |                              | 000T14:33:03 | 2017-226106:24:03  | ISS_NAC to Saturn                          |  | POS_Z to NSP        |   |  |
| VIMS_288SA_NPOLEMAP001_PRIME     | C, I, U    | 2017-225115:51:00  |                              | 000T04:41:00 | 2017-225120:32:00  | ISS_NAC to Saturn                          |  | POS_Z to NSP        |   |  |
| CIRS_288SA_LIMBINT001_PRIME      | U, V       | 2017-225120:32:00  |                              | 000T04:00:00 | 2017-226100:32:00  | CIRS_FP1 to Saturn                         |  | PIC                 |   |  |
| SP_288SA_DEADTIME226_PRIME       |            | 2017-226100:32:00  |                              | 000T00:19:54 | 2017-226100:51:54  | ISS_NAC to Saturn                          |  | POS_Z to NSP        |   | Start is absolute, End is epoch  |
| Begin Custom                     |            | 2017-226100:51:54  | LMB_E288_Per1-000T03:31:00   | 000T00:00:01 | 2017-226100:51:55  | ISS_NAC to Saturn                          |  | POS_Z to NSP        |   |  |
| ISS_288RI_CPLTSTRKP001_PIE       | C, M, U, V | 2017-226100:51:54  | LMB_E288_Per1-000T03:31:00   | 000T02:30:00 | 2017-226103:21:54  | ISS_NAC to Rings                           |  | POS_Z to NSP        |   | Pick up at ISS_NAC to Saturn, POS_Z to NSP; Hand off at NEG_Z to Saturn, POS_X to NSP. Collaborative Rider(s): RADAR   |
| ENGR_288SC_RADRCS226_PRIME       | M          | 2017-226103:21:54  | LMB_E288_Per1-000T01:01:00   | 000T00:01:00 | 2017-226103:22:54  | NEG_Z to Saturn                            |  | POS_X to NSP        |   | Pick up at NEG_Z to Saturn, POS_X to NSP; Hand off at NEG_Z to Saturn, POS_X to NSP. Deadband=(2,2,20)   |
| INMS_288CO_SATAMOS001_PIE        | M, R       | 2017-226103:22:54  | LMB_E288_Per1-000T01:00:00   | 000T02:00:00 | 2017-226105:22:54  | POS_X to COROT                             |  | NEG_Z to Saturn     |   | Collaborative Rider(s): RADAR. Pick up at NEG_Z to Saturn, POS_X to NSP; Hand off at NEG_Z to Saturn, POS_Y to Sun. Collaborative Rider(s): RADAR, RADAR secondary |
| Begin Dual Playback Science      |            | 2017-226104:07:54  | LMB_E288_Per1-000T00:15:00   | 000T00:00:01 | 2017-226104:07:55  |  |  |                     |   |  |
| Periapse R = 1.026 Rs, lat = ... |            | 2017-226104:22:55  |                              | 000T00:00:01 | 2017-226104:22:56  |  |  |                     |   |  |
| End Dual Playback Science        |            | 2017-226104:32:54  | LMB_E288_Per1-000T00:10:00   | 000T00:00:01 | 2017-226104:32:55  |  |  |                     |   |  |
| SP_288SA_WAYPTTURN426_PRIME      | M          | 2017-226105:22:54  | LMB_E288_Per1-000T01:00:00   | 000T00:03:00 | 2017-226105:25:54  | NEG_Z to 353.32/57.49                      |  | POS_Y to Sun        |   | Pick up at NEG_Z to Saturn, POS_Y to Sun; Hand off at NEG_Z to 353.32/57.49, POS_Y to Sun. Turn to Quiescent Attitude for RWA Transition.                          |
| ENGR_288SC_DFPWBIA5227_PPS       | M          | 2017-226105:25:54  | LMB_E288_Per1-000T01:03:00   | 000T00:21:09 | 2017-226105:47:03  | NEG_Z to 353.32/57.49                      |  | POS_Y to Sun        |   | Pick up at NEG_Z to 353.32/57.49, POS_Y to Sun; Hand off at ISS_NAC to Saturn, NEG_Z to NSP.   |
| SP_288SA_WAYPTTURN226_PRIME      | M          | 2017-226105:47:03  | LMB_E288_Per1-000T01:24:09   | 000T00:37:00 | 2017-226106:24:03  | ISS_NAC to Saturn                          |  | NEG_Z to NSP        |   |  |
| NEW WAYPOINT                     |            | 2017-226106:24:03  |                              | 000T16:31:57 | 2017-226122:56:00  | ISS_NAC to Saturn                          |  | NEG_Z to NSP        |   |  |
| End Custom                       |            | 2017-226106:24:03  | LMB_E288_Per1-000T02:01:09   | 000T00:00:01 | 2017-226106:24:04  | ISS_NAC to Saturn                          |  | NEG_Z to NSP        |   |  |
| SP_288SA_DEADTIME426_PRIME       |            | 2017-226106:24:03  | LMB_E288_Per1-000T02:01:09   | 000T00:19:56 | 2017-226106:43:59  | ISS_NAC to Saturn                          |  | NEG_Z to NSP        |   | Start is epoch, End is absolute  |
| VIMS_288SA_AURSTARE001_PRIME     | C, I, V    | 2017-226106:44:00  |                              | 000T15:32:00 | 2017-226122:16:00  | UVIS_FUV to Saturn                         |  | NEG_Z to NSP        |   | Collaborative Rider(s): VIMS   |
| SP_288EA_DLTURN226_PRIME         |            | 2017-226122:16:00  |                              | 000T00:40:00 | 2017-226122:56:00  | XBAND to Earth                             |  | POS_X to NEP        |   |  |
| NEW WAYPOINT                     |            | 2017-226122:56:00  |                              | 000T15:25:00 | 2017-227114:21:00  | XBAND to Earth                             |  | POS_X to NEP        |   |  |
| SP_288EA_YGAP226_PRIME           | E          | 2017-226122:56:00  |                              | 000T01:30:00 | 2017-227100:26:00  | XBAND to Earth                             |  | POS_X to NEP        |   |  |
| SP_288EA_C70METNON227_PRIME      | C          | 2017-227100:26:00  |                              | 000T05:00:00 | 2017-227106:26:00  | XBAND to Earth                             |  | 5_Hr_Rolling        |   | SRU. Possible CIRS/VIMS heating depending on secondary used (update in integration)  |
| Pointer Reset in preparatio...   |            | 2017-227106:26:00  |                              | 000T00:00:01 | 2017-227106:26:01  |  |  |                     |   |  |
| SP_288EA_C70METNON227_PRIME      | C          | 2017-227106:26:00  |                              | 000T07:15:00 | 2017-227113:41:00  | XBAND to Earth                             |  | Rolling/SRU         |   | SRU. Possible CIRS/VIMS heating depending on secondary used (update in integration)  |
| RINGS_288 Segment                |            | 2017-227113:41:00  |                              | 004T13:11:00 | 2017-232702:52:00  |  |  |                     |   |  |
| SP_288SA_WAYPTTURN227_PRIME      |            | 2017-227113:41:00  |                              | 000T00:40:00 | 2017-227114:21:00  | ISS_NAC to Saturn                          |  | NEG_X to 10.0/81.0  |   |  |
| NEW WAYPOINT                     |            | 2017-227114:21:00  |                              | 000T12:12:00 | 2017-228102:33:00  | ISS_NAC to Saturn                          |  | NEG_X to 10.0/81.0  |   |  |
| UVIS_288ST_DELORITK001_PIE       | C          | 2017-227114:21:00  |                              | 000T04:39:00 | 2017-227119:00:00  | UVIS_HSP to 83.002/-0.299                  |  | NEG_X to 10.0/81.0  |   | No Preference to secondary pointing  |
| CIRS_288RI_ANSASTARE001_PRIME    | C, M, U    | 2017-227119:00:00  |                              | 000T06:53:00 | 2017-228101:53:00  | CIRS_FP1 to Rings                          |  | NEG_X to 10.0/81.0  |   | No Preference to secondary pointing  |
| SP_288EA_DLTURN228_PRIME         |            | 2017-228101:53:00  |                              | 000T00:40:00 | 2017-228102:33:00  | XBAND to Earth                             |  | NEG_X to NEP        |   |  |
| NEW WAYPOINT                     |            | 2017-228102:33:00  |                              | 000T11:10:00 | 2017-228113:43:00  | XBAND to Earth                             |  | NEG_X to NEP        |   |  |
| SP_288EA_YGAP228_PRIME           | E          | 2017-228102:33:00  |                              | 000T01:30:00 | 2017-228104:03:00  | XBAND to Earth                             |  | NEG_X to NEP        |   |  |
| SP_288EA_C34BWGNON228_PRIME      | C, R       | 2017-228104:03:00  |                              | 000T09:00:00 | 2017-228113:03:00  | XBAND to Earth                             |  | Rolling             |   |  |
| SP_288SA_WAYPTTURN228_PRIME      |            | 2017-228113:03:00  |                              | 000T00:40:00 | 2017-228113:43:00  | ISS_NAC to Saturn                          |  | NEG_X to 161.0/49.0 |   |  |
| NEW WAYPOINT                     |            | 2017-228113:43:00  |                              | 000T12:42:00 | 2017-229102:25:00  | ISS_NAC to Saturn                          |  | NEG_X to 161.0/49.0 |   |  |
| ISS_288TI_M150RHZ227_PRIME       | C, V       | 2017-228113:43:00  | E288_M150RHZ227+000T00:00:00 | 000T01:30:00 | 2017-228115:13:00  | ISS_NAC to Titan                           |  | NEG_X to 161.0/49.0 |   | No Preference to secondary pointing  |
| VIMS_288ST_RXLEPCAL001_PRIME     |            | 2017-228115:13:00  |                              | 000T01:37:00 | 2017-228116:50:00  | VIMS_IR to 77.845/-11.849                  |  | NEG_X to 161.0/49.0 |   |  |
| UVIS_288ST_BETORITK001_PIE       | C          | 2017-228116:50:00  |                              | 000T03:45:00 | 2017-228120:35:00  | UVIS_HSP to 78.634/-8.202                  |  | NEG_X to 161.0/49.0 |   | No Preference to secondary pointing  |
| ISS_288OT_KIVNEPTUN092_PRIME     | M, V       | 2017-229120:35:00  |                              | 000T05:20:00 | 2017-229101:55:00  | UVIS_FUV to Rocks                          |  | NEG_X to 88.5/24.5  |   | Secondary for CDA. Return to WP as a 2-way turn via Neptune; stop there for approx. 15 min (inertial pointing NAC to RA/Dec = 2.384/-0.415 [NEG_X to 92.3/+4.7]).  |
| SP_288EA_DLTURN229_PRIME         |            | 2017-229101:55:00  |                              | 000T00:30:00 | 2017-229102:25:00  | XBAND to Earth                             |  | NEG_X to NEP        |   |  |
| NEW WAYPOINT                     |            | 2017-229102:25:00  |                              | 000T11:10:00 | 2017-229113:35:00  | XBAND to Earth                             |  | NEG_X to NEP        |   |  |
| SP_288EA_YGAP229_PRIME           | E          | 2017-229102:25:00  |                              | 000T01:30:00 | 2017-229103:55:00  | XBAND to Earth                             |  | NEG_X to NEP        |   |  |
| SP_288EA_C34BWGOTP229_PRIME      | C, N       | 2017-229103:55:00  |                              | 000T09:00    |                    |  |  |                     |   |  |

|                                |            |                   |                              |              |                   |   |                      |  |
|--------------------------------|------------|-------------------|------------------------------|--------------|-------------------|---|----------------------|--|
| SP_288SA_WAYPTTURN229_PRIME    |            | 2017-229T12:55:00 |                              | 000T00:40:00 | 2017-229T13:35:00 | ISS_NAC to Saturn                             | NEG_X to 3.0/23.0    |  |
| NEW WAYPOINT                   |            | 2017-229T13:35:00 |                              | 000T12:43:00 | 2017-230T02:18:00 | ISS_NAC to Saturn                             | NEG_X to 3.0/23.0    |  |
| CIRS_288RC_COMPLITC2001_PRIME  | C, M, U, V | 2017-229T13:35:00 |                              | 000T07:00:00 | 2017-229T20:35:00 | CIRS_FP1 to Rings                             | NEG_X to 161.0/49.0  |  |
| ISS_289RI_HPMONITOR001_PRIME   | C, M, V    | 2017-229T20:35:00 |                              | 000T05:03:00 | 2017-230T01:38:00 | ISS_NAC to Rings                              | NEG_X to 3.0/23.0    |  |
| SP_289EA_DLTURN230_PRIME       |            | 2017-230T01:38:00 |                              | 000T00:40:00 | 2017-230T02:18:00 | XBAND to Earth                                | NEG_X to NEP         |  |
| NEW WAYPOINT                   |            | 2017-230T02:18:00 |                              | 000T11:10:00 | 2017-230T13:28:00 | XBAND to Earth                                | NEG_X to NEP         |  |
| SP_289EA_YGAP230_PRIME         | E          | 2017-230T02:18:00 |                              | 000T01:30:00 | 2017-230T03:48:00 | XBAND to Earth                                | NEG_X to NEP         |  |
| SP_289EA_C34BWGOTB230_PRIME    | C, N       | 2017-230T03:48:00 |                              | 000T09:00:00 | 2017-230T12:48:00 | XBAND to Earth                                | Rolling              |  |
| SP_289SA_WAYPTTURN230_PRIME    |            | 2017-230T12:48:00 |                              | 000T00:40:00 | 2017-230T13:28:00 | ISS_NAC to Saturn                             | NEG_X to 6.0/12.0    |  |
| NEW WAYPOINT                   |            | 2017-230T13:28:00 |                              | 000T23:27:00 | 2017-231T12:55:00 | ISS_NAC to Saturn                             | NEG_X to 6.0/12.0    |  |
| VIMS_289RI_APOMSAIC001_PRIME   | C, M       | 2017-230T13:28:00 |                              | 000T05:00:00 | 2017-230T18:28:00 | VIMS_IR to Rings                              | NEG_X to NSP         |  |
| ISS_289RF_FMOVIE001_PRIME      | C, M, V    | 2017-230T18:28:00 |                              | 000T17:47:00 | 2017-231T12:15:00 | ISS_NAC to Rings                              | NEG_X to 6.0/12.0    |  |
| SP_289EA_DLTURN231_PRIME       |            | 2017-231T12:15:00 |                              | 000T00:40:00 | 2017-231T12:55:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)     | NEG_Y to Saturn      |  |
| NEW WAYPOINT                   |            | 2017-231T12:55:00 |                              | 000T14:37:00 | 2017-232T03:32:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)     | NEG_Y to Saturn      |  |
| SP_289EA_YGAP231_PRIME         | E          | 2017-231T12:55:00 |                              | 000T01:30:00 | 2017-231T14:25:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)     | NEG_Y to Saturn      |  |
| SP_289EA_M70METNON231_PRIME    | C          | 2017-231T14:25:00 |                              | 000T08:00:00 | 2017-231T22:25:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)     | NEG_Y to Saturn      | MIMI. XBAND to EARTH (0.0, -9.5), NEG_Y to SA  |
| SP_289EA_G70METNON231_PRIME    |            | 2017-231T22:25:00 |                              | 000T04:27:00 | 2017-232T02:52:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset)     | NEG_Y to Saturn      | MIMI. XBAND to EARTH (0.0, -9.5), NEG_Y to SA  |
| MAPS_289 Segment               |            | 2017-232T02:52:00 |                              | 005T19:02:00 | 2017-237T21:54:00 |   |                      |  |
| SP_289EA_WAYPTTURN232_PRIME    |            | 2017-232T02:52:00 |                              | 000T00:40:00 | 2017-232T03:32:00 | UVIS_FUV to Saturn                            | NEG_X to NSP         | Turning from MIMI attitude. RA/DEC equivalent NEG_Y to 138.68/-52.5  |
| NEW WAYPOINT                   |            | 2017-232T03:32:00 |                              | 000T22:08:00 | 2017-233T01:40:00 | UVIS_FUV to Saturn                            | NEG_X to NSP         |  |
| ISS_289TI_M150R2H232_PRIME     | C, V       | 2017-232T03:32:00 | E289_M150R2H232+000T00:00:00 | 000T01:30:00 | 2017-232T05:02:00 | ISS_NAC to Titan                              | NEG_X to NSP         | No Preference to secondary pointing  |
| SP_289SA_DEADTIME232_PRIME     |            | 2017-232T05:02:00 |                              | 000T00:09:27 | 2017-232T05:11:27 |   |                      |  |
| Begin Custom Period            |            | 2017-232T05:11:27 | LMB_E289_Per1-000T10:12:00   | 000T00:00:01 | 2017-232T05:11:28 |   |                      |  |
| UVIS_289SA_AURSLEW001_PIE      | C, M       | 2017-232T05:11:27 | LMB_E289_Per1-000T10:12:00   | 000T09:11:00 | 2017-232T14:22:27 | UVIS_FUV to Saturn                            | NEG_X to NSP         | Pick up at UVIS_FUV to Saturn, NEG_X to NSP; Hand off at XBAND to Sun, POS_X to NSP. Pickup at UVIS_FUV to Saturn, NEG_X to NSP, hand off at XBAND to Sun, POS_X to NSP  |
| ENGR_289SC_ORSRC232_PRIME      | M          | 2017-232T14:22:27 | LMB_E289_Per1-000T01:01:00   | 000T00:01:00 | 2017-232T14:23:27 | XBAND to Sun                                  | POS_X to NSP         | Pick up at XBAND to Sun, POS_X to NSP; Hand off at XBAND to Sun, POS_X to NSP. Deadband TBD  |
| CIRS_289IC_COLDOR001_PIE       | I, M       | 2017-232T14:23:27 | LMB_E289_Per1-000T01:00:00   | 000T01:30:00 | 2017-232T15:53:27 | NEG_Z to Sun                                  | PIC                  | Pointing TBD   |
| Periapse R = 1.025 Rs, lat ... |            | 2017-232T15:23:27 |                              | 000T00:00:01 | 2017-232T15:23:28 |   |                      | Pick up at XBAND to Sun, POS_X to NSP; Hand off at CIRS_FPB to 348.536/32.375, NEG_X to NSP.   |
| ENGR_289SC_DFPWBIA232_PPS      | C, M       | 2017-232T15:53:27 | LMB_E289_Per1+000T00:30:00   | 000T00:22:00 | 2017-232T16:15:27 |   |                      | Pick up at CIRS_FPB to 348.536/32.375, NEG_X to NSP; Hand off at CIRS_FPB to 348.536/32.375, NEG_X to NSP.   |
| Begin Dual Playback Science    |            | 2017-232T16:15:27 | LMB_E289_Per1+000T00:52:00   | 000T00:00:01 | 2017-232T16:15:28 |   |                      |  |
| CIRS_289SA_REGMAP001_PIE       | M, V       | 2017-232T16:15:27 | LMB_E289_Per1+000T00:52:00   | 000T01:38:00 | 2017-232T17:53:27 | CIRS_FP4 to Saturn                            | NEG_Z to NSP         | Pick up at CIRS_FPB to 348.536/32.375, NEG_X to NSP; Hand off at ISS_NAC to Saturn, NEG_Z to NSP. slow scans ~885 to 905   |
| End Dual Playback Science      |            | 2017-232T17:53:27 | LMB_E289_Per1+000T02:30:00   | 000T00:00:01 | 2017-232T17:53:28 |   |                      |  |
| VIMS_289SA_AURSTARE001_PIE     | C, I       | 2017-232T17:53:27 | LMB_E289_Per1+000T02:30:00   | 000T06:56:00 | 2017-233T00:49:27 | ISS_NAC to Saturn                             | NEG_Z to NSP         | Pick up at ISS_NAC to Saturn, NEG_Z to NSP; Hand off at UVIS_FUV to Saturn, NEG_X to NSP.  |
| End Custom Period              |            | 2017-233T00:49:27 | LMB_E289_Per1+000T09:26:00   | 000T00:00:01 | 2017-233T00:49:28 |   |                      |  |
| SP_289SA_DEADTIME233_PRIME     |            | 2017-233T00:49:27 | LMB_E289_Per1+000T09:26:00   | 000T00:10:33 | 2017-233T01:00:00 |   |                      |  |
| SP_289EA_DLTURN233_PRIME       |            | 2017-233T01:00:00 |                              | 000T00:40:00 | 2017-233T01:40:00 | XBAND to Earth                                | POS_Y to NSP         |  |
| NEW WAYPOINT                   |            | 2017-233T01:40:00 |                              | 004T10:59:00 | 2017-237T12:39:00 | XBAND to Earth                                | POS_Y to NSP         |  |
| SP_289EA_YGAP233_PRIME         | E          | 2017-233T01:40:00 |                              | 000T01:30:00 | 2017-233T03:10:00 | XBAND to Earth                                | POS_Y to NSP         |  |
| SP_289EA_C70METNON233_PRIME    | C          | 2017-233T03:10:00 |                              | 000T09:45:00 | 2017-233T12:55:00 | XBAND to Earth                                | Rolling              | MAG Range 1 - Roll Requested   |
| Pointer Reset in preparatio... |            | 2017-233T12:55:00 |                              | 000T00:00:01 | 2017-233T12:55:01 |   |                      |  |
| VIMS_289SA_SHEMMAPO01_PIE      | C, I, U    | 2017-233T12:55:00 |                              | 000T13:07:00 | 2017-234T02:02:00 | ISS_NAC to Saturn                             | NEG_Z to NSP         |  |
| SP_289EA_YGAP234_PRIME         | E          | 2017-234T02:02:00 |                              | 000T01:30:00 | 2017-234T03:32:00 | XBAND to Earth                                | POS_Y to NSP         |  |
| SP_289EA_C34BWGNON234_PRIME    | C, R       | 2017-234T03:32:00 |                              | 000T09:00:00 | 2017-234T12:32:00 | XBAND to Earth                                | Rolling              | CIRS heating   |
| CIR_289TOR_TITANREN001_PRIME   |            | 2017-234T12:32:00 |                              | 000T14:54:00 | 2017-235T03:26:00 | XBAND to Earth                                | NEG_X to 176.3/14.8  |  |
| ISS_289ST_LMC03_PRIME          |            | 2017-235T03:26:00 |                              | 000T02:59:00 | 2017-235T06:25:00 | ISS_NAC to 83.0/-68.0                         | NEG_Z to Earth       | Team internal handoff: ISS_NAC at 83/-68.  |
| ISS_289OT_THRYLU013_PRIME      |            | 2017-235T06:25:00 |                              | 000T12:00:00 | 2017-235T18:25:00 | UVIS_FUV to Rocks                             | POS_X to 16.0/52.0   | Team internal pickup: ISS_NAC at 83/-68.   |
| ISS_289TI_M150R2H234_PRIME     | C, V       | 2017-235T18:25:00 | E289_M150R2H234+000T00:00:00 | 000T01:30:00 | 2017-235T19:55:00 | ISS_NAC to Titan                              | XBAND to Earth       |  |
| SP_289EA_YGAP235_PRIME         | E          | 2017-235T19:55:00 |                              | 000T01:30:00 | 2017-235T21:25:00 | XBAND to Earth                                | POS_Y to NSP         |  |
| Apoapse Per = 6.5 d, Inc = ... |            | 2017-235T20:51:57 |                              | 000T00:00:01 | 2017-235T20:51:58 |   |                      |  |
| SP_289EA_G70METNON235_PRIME    | C          | 2017-235T21:25:00 |                              | 000T08:30:00 | 2017-236T05:55:00 | XBAND to Earth                                | Rolling              | CIRS heating   |
| MAG_290SU_LFCALROLL001_PRIME   | U          | 2017-236T05:55:00 |                              | 000T09:00:00 | 2017-236T14:55:00 | NEG_X to Earth (0.0,0.0,-30.0 deg. offset)    | Rolling              |  |
| UVIS_290SA_AURSTARE002_PRIME   | V          | 2017-236T14:55:00 |                              | 000T21:04:00 | 2017-237T11:59:00 | UVIS_FUV to Saturn                            | NEG_Z to NSP         |  |
| SP_290EA_DLTURN237_PRIME       |            | 2017-237T11:59:00 |                              | 000T00:40:00 | 2017-237T12:39:00 | XBAND to Earth                                | NEG_Y to 130.9/-57.5 | MIMI. RA/DEC equiv. 130.9/-57.5  |
| NEW WAYPOINT                   |            | 2017-237T12:39:00 |                              | 000T09:55:00 | 2017-237T22:34:00 | XBAND to Earth                                | NEG_Y to 130.9/-57.5 |  |
| SP_290EA_YGAP237_PRIME         | E          | 2017-237T12:39:00 |                              | 000T01:30:00 | 2017-237T14:09:00 | XBAND to Earth                                | NEG_Y to 130.9/-57.5 |  |
| SP_290EA_M70METNON237_PRIME    | C          | 2017-237T14:09:00 |                              | 000T07:45:00 | 2017-237T21:54:00 | XBAND to Earth                                | NEG_Y to 130.9/-57.5 | MIMI. RA/DEC equivalent NEG_Y to 130.9/-57.5   |
| SATURN_290_291 Segment         |            | 2017-237T21:54:00 |                              | 008T17:44:00 | 2017-246T15:38:00 |   |                      |  |
| SP_290SA_WAYPTTURN237_PRIME    |            | 2017-237T21:54:00 |                              | 000T00:40:00 | 2017-237T22:34:00 | ISS_NAC to Saturn                             | NEG_X to NSP         |  |
| NEW WAYPOINT                   |            | 2017-237T22:34:00 |                              | 000T20:29:00 | 2017-238T19:03:00 | ISS_NAC to Saturn                             | NEG_X to NSP         |  |
| CIRS_290SA_FIRMAP001_PRIME     | U          | 2017-237T22:34:00 |                              | 000T12:00:00 | 2017-238T10:34:00 | CIRS_FP1 to Saturn                            | NEG_X to NSP         |  |
| 290TI (nt) TITAN Inbound...    |            | 2017-238T02:27:17 |                              | 000T00:00:01 | 2017-238T02:27:18 |   |                      |  |
| VIMS_290SA_EQUAMAPO01_PRIME    | C, U       | 2017-238T10:34:00 |                              | 000T08:00:00 | 2017-238T18:34:00 | ISS_NAC to Saturn                             | NEG_X to NSP         |  |
| SP_290SA_WAYPTTURN238_PRIME    |            | 2017-238T18:34:00 |                              | 000T00:29:00 | 2017-238T19:03:00 | NEG_Z to Saturn                               | NEG_X to 165.4/32.2  |  |
| NEW WAYPOINT                   |            | 2017-238T19:03:00 |                              | 000T09:18:59 | 2017-239T04:21:59 | NEG_Z to Saturn                               | NEG_X to 165.4/32.2  | Saturn Equator - 30N, East or West limb, sub s/c lat=40-60N  |
| CIRS_290SA_LIMBMAP001_PIE      | I, U, V    | 2017-238T19:03:00 |                              | 000T05:35:00 | 2017-239T00:28:00 | CIRS_FPB to Saturn                            | PIC                  | PIE  |
| SP_290SA_DEADTIME239_PRIME     | M          | 2017-239T00:28:00 |                              | 000T00:18:34 | 2017-239T00:56:34 | NEG_Z to Saturn                               | NEG_X to 165.4/32.2  | Start absolute, End epoch  |
| Begin Custom                   |            | 2017-239T00:56:34 | LMB_E290_Per1-000T01:23:50   | 000T00:00:01 | 2017-239T00:56:35 | NEG_Z to Saturn                               | NEG_X to 165.4/32.2  |  |
| ENGR_290SC_RADRCS271_PRIME     | M          | 2017-239T00:59:34 | LMB_E290_Per1-000T01:20:50   | 000T00:01:00 | 2017-239T01:00:34 | NEG_Z to Saturn                               | NEG_X to 165.4/32.2  | Collaborative Rider(s): INMS. Pick up at NEG_Z to Saturn, NEG_X to 165.4/32.2; Hand off at NEG_Z to Saturn, NEG_X to 165.4/32.2. Collaborative Rider(s): INMS. Deadband TBD  |
| RADAR_290SA_2CMMAP001_PIE      | M          | 2017-239T01:20:24 | LMB_E290_Per1-000T01:00:00   | 000T02:00:00 | 2017-239T03:20:24 | NEG_Z to Saturn                               | POS_X to COROT       | Collaborative Rider(s): INMS. Pick up at NEG_Z to Saturn, NEG_X to 165.4/32.2; Hand off at NEG_Z to Saturn, NEG_X to 25.4/32.2. Collaborative Rider(s): INMS   |
| Begin Dual Playback Science    |            | 2017-239T01:41:14 | LMB_E290_Per1-000T00:39:10   | 000T00:00:01 | 2017-239T01:41:15 |   |                      |  |
| Periapse R = 1.025 Rs, lat ... |            | 2017-239T02:20:25 |                              | 000T00:00:01 | 2017-239T02:20:26 |   |                      |  |
| End Dual Playback Science      |            | 2017-239T02:51:14 | LMB_E290_Per1+000T00:30:50   | 000T00:00:01 | 2017-239T02:51:15 |   |                      |  |
| SP_290SA_WAYPTTURN239_PRIME    | M          | 2017-239T03:20:24 | LMB_E290_Per1+000T01:00:00   | 000T00:03:00 | 2017-239T03:23:24 | NEG_Z to 352.01/57.66                         | NEG_X to 25.4/32.2   | Collaborative Rider(s): INMS. Pick up at NEG_Z to Saturn, NEG_X to 25.4/32.2; Hand off at NEG_Z to 352.01/57.66, NEG_X to 25.4/32.2. Collaborative Rider(s): INMS. Turn to Quiescent Attitude for RWAV Transition. |
| ENGR_290SC_DFPWBIA239_PPS      | M          | 2017-239T03:23:24 | LMB_E290_Per1+000T01:03:00   | 000T00:21:09 | 2017-239T03:44:33 | NEG_Z to 352.01/57.66                         | NEG_X to 25.4/32.2   | Collaborative Rider(s): INMS. Pick up at NEG_Z to 352.01/57.66, NEG_X to 25.4/32.2. Collaborative Rider(s): INMS. Deadband TBD   |
| SP_290SA_WAYPTTURN239_PRIME    | M          | 2017-239T03:44:33 | LMB_E290_Per1+000T01:24:09   | 000T00:37:26 | 2017-239T04:21:59 | ISS_NAC to Saturn (0.0,-45.0,0.0 deg. offset) | NEG_Z to NSP         | Pick up at NEG_Z to 352.01/57.66, NEG_X to 25.4/32.2; Hand off at ISS_NAC to Saturn (0.0,-45.0,0.0 deg. offset), NEG_Z to NSP.   |
| NEW WAYPOINT                   |            | 2017-239T04:21:59 |                              | 000T08:02:01 | 2017-239T12:24:00 | ISS_NAC to Saturn (0.0,-45.0,0.0 deg. offset) | NEG_Z to NSP         |  |
| End Custom                     |            | 2017-239T04:21:59 | LMB_E290_Per1+000T02:01:35   | 000T00:00:01 | 2017-239T04:22:00 | ISS_NAC to Saturn (0.0,-45.0,0.0 deg. offset) | NEG_Z to NSP         |  |
| SP_290SA_DEADTIME439_PRIME     |            | 2017-239T04:21:59 | LMB_E290_Per1+000T02:01:35   | 000T00:20:01 | 2017-239T04:42:00 | ISS_NAC to Saturn (0.0,-45.0,0.0 deg. offset) | NEG_Z to NSP         |  |
| UVIS_290SA_AURSTARE001_PRIME   |            | 2017-239T04:42:00 |                              | 000T07:02:00 | 2017-239T11:44:00 | UVIS_FUV to Saturn                            | NEG_Z to NSP         | Start epoch, End absolute  |

|                                |         |                   |                               |              |                   |   |                      |  |
|--------------------------------|---------|-------------------|-------------------------------|--------------|-------------------|---|----------------------|--|
| SP_290EA_DLTURN239_PRIME       |         | 2017-239T11:44:00 |                               | 000T00:40:00 | 2017-239T12:24:00 | XBAND to Earth                            | POS_X to NEP         |  |
| NEW WAYPOINT                   |         | 2017-239T12:24:00 |                               | 000T10:10:00 | 2017-239T22:34:00 | XBAND to Earth                            | POS_X to NEP         |  |
| SP_290EA_YGAP239_PRIME         | E       | 2017-239T12:24:00 |                               | 000T01:30:00 | 2017-239T13:54:00 | XBAND to Earth                            | POS_X to NEP         |  |
| SP_290EA_M70METNON239_PRIME    | C, E    | 2017-239T13:54:00 |                               | 000T08:00:00 | 2017-239T21:54:00 | XBAND to Earth                            | Rolling              | Possible CIRS heating depending on secondary used (update in integration)  |
| Pointer Reset in preparatio... |         | 2017-239T21:54:00 |                               | 000T00:00:01 | 2017-239T21:54:01 |   |                      |  |
| SP_290SA_WAYPTTURN439_PRIME    |         | 2017-239T22:34:00 |                               | 000T00:40:00 | 2017-239T22:34:00 | ISS_NAC to Saturn                         | NEG_X to Sun         |  |
| NEW WAYPOINT                   |         | 2017-239T22:34:00 |                               | 001T04:20:00 | 2017-241T02:54:00 | ISS_NAC to Saturn                         | NEG_X to Sun         |  |
| ISS_290T1_ATMOS001_PIE         | C, V    | 2017-239T22:34:00 |                               | 000T01:45:00 | 2017-240T00:19:00 | ISS_NAC to Titan                          | NEG_X to Sun         |  |
| CIRS_290T1_COMPMPA001_PIE      | I, V    | 2017-240T00:19:00 |                               | 000T04:16:00 | 2017-240T04:35:00 | CIRS_FPB to Titan                         | NEG_Z to NTP         | CIRS_FPB to 48S; arrays cover 25S-90S  |
| 290T1 (nt) TITAN Outboud...    |         | 2017-240T01:07:17 |                               | 000T00:00:01 | 2017-240T01:07:18 |   |                      |  |
| ISS_290T1_ATMOS002_PIE         | C, V    | 2017-240T04:35:00 |                               | 000T01:45:00 | 2017-240T06:20:00 | ISS_NAC to Titan                          | NEG_X to Sun         |  |
| ISS_290EA_PLUMIE001_PIE        | C, U, V | 2017-240T06:20:00 |                               | 000T14:20:00 | 2017-240T20:40:00 | ISS_NAC to Enceladus                      | NEG_X to NSP         | SOST PIE   |
| ISS_290T1_ATMCLD001_PIE        | C, V    | 2017-240T20:40:00 |                               | 000T05:34:00 | 2017-241T02:14:00 | ISS_NAC to Titan                          | NEG_X to Sun         | Collaborative Rider(s); CIRS   |
| SP_290EA_DLTURN241_PRIME       |         | 2017-241T02:14:00 |                               | 000T00:40:00 | 2017-241T02:54:00 | XBAND to Earth                            | POS_X to NEP         |  |
| NEW WAYPOINT                   |         | 2017-241T02:54:00 |                               | 000T11:10:00 | 2017-241T14:04:00 | XBAND to Earth                            | POS_X to NEP         |  |
| SP_290EA_C70METNON241_PRIME    | C       | 2017-241T02:54:00 |                               | 000T10:30:00 | 2017-241T13:24:00 | XBAND to Earth                            | Rolling/Bias         | Possible CIRS heating depending on secondary used (update in integration)  |
| SP_290SA_WAYPTTURN241_PRIME    |         | 2017-241T13:24:00 |                               | 000T00:40:00 | 2017-241T14:04:00 | ISS_NAC to Saturn                         | NEG_Z to NSP         |  |
| NEW WAYPOINT                   |         | 2017-241T14:04:00 |                               | 000T11:27:00 | 2017-242T01:31:00 | ISS_NAC to Saturn                         | NEG_Z to NSP         |  |
| VIMS_290SA_FULLDISK001_PRIME   | C       | 2017-241T14:04:00 |                               | 000T10:47:00 | 2017-242T00:51:00 | ISS_NAC to Saturn                         | NEG_Z to NSP         |  |
| SP_290EA_DLTURN242_PRIME       |         | 2017-242T00:51:00 |                               | 000T00:40:00 | 2017-242T01:31:00 | XBAND to Earth                            | POS_X to NEP         |  |
| NEW WAYPOINT                   |         | 2017-242T01:31:00 |                               | 000T11:10:00 | 2017-242T12:41:00 | XBAND to Earth                            | POS_X to NEP         |  |
| SP_290EA_YGAP242_PRIME         | E       | 2017-242T01:31:00 |                               | 000T01:30:00 | 2017-242T03:01:00 | XBAND to Earth                            | POS_X to NEP         |  |
| SP_290EA_C34BWGOTP242_PRIME    | C, N    | 2017-242T03:01:00 |                               | 000T09:00:00 | 2017-242T12:01:00 | XBAND to Earth                            | Rolling              | Possible CIRS heating depending on secondary used (update in integration)  |
| Apoapse Per = 6.5 d, inc = ... |         | 2017-242T07:48:54 |                               | 000T00:00:01 | 2017-242T07:48:55 |   |                      |  |
| SP_290SA_WAYPTTURN242_PRIME    |         | 2017-242T12:01:00 |                               | 000T00:40:00 | 2017-242T12:41:00 | ISS_NAC to Saturn                         | NEG_Z to NSP         |  |
| NEW WAYPOINT                   |         | 2017-242T12:41:00 |                               | 000T12:50:00 | 2017-243T01:31:00 | ISS_NAC to Saturn                         | NEG_Z to NSP         |  |
| ISS_290T1_M120R2H2242_PRIME    | C, V    | 2017-242T12:41:00 | E290_M120R2H2242+000T00:00:00 | 000T01:30:00 | 2017-242T14:11:00 | ISS_NAC to Titan                          | NEG_Z to NSP         | No Preference to secondary pointing  |
| CIRS_291SA_MIRMAP001_PRIME     | U, V    | 2017-242T14:11:00 |                               | 000T10:40:00 | 2017-243T00:51:00 | CIRS_FP3 to Saturn                        | NEG_Z to NSP         |  |
| SP_291EA_DLTURN243_PRIME       |         | 2017-243T00:51:00 |                               | 000T00:40:00 | 2017-243T01:31:00 | XBAND to Earth                            | POS_X to NEP         |  |
| NEW WAYPOINT                   |         | 2017-243T01:31:00 |                               | 000T11:00:00 | 2017-243T12:41:00 | XBAND to Earth                            | POS_X to NEP         |  |
| SP_291EA_YGAP243_PRIME         | E       | 2017-243T01:31:00 |                               | 000T01:30:00 | 2017-243T03:01:00 | XBAND to Earth                            | POS_X to NEP         |  |
| SP_291EA_C34BWGOTB243_PRIME    | C, E, N | 2017-243T03:01:00 |                               | 000T09:00:00 | 2017-243T12:01:00 | XBAND to Earth                            | Rolling              | SRU. Possible CIRS heating depending on secondary used (update in integration)   |
| SP_291SA_WAYPTTURN243_PRIME    |         | 2017-243T12:01:00 |                               | 000T00:40:00 | 2017-243T12:41:00 | ISS_NAC to Saturn                         | NEG_Z to NSP         |  |
| NEW WAYPOINT                   |         | 2017-243T12:41:00 |                               | 000T11:34:00 | 2017-244T00:15:00 | ISS_NAC to Saturn                         | NEG_Z to NSP         |  |
| ISS_291T1_M150R2H2243_PRIME    | C, V    | 2017-243T12:41:00 | E291_M150R2H2243+000T00:00:00 | 000T01:30:00 | 2017-243T14:11:00 | ISS_NAC to Titan                          | NEG_Z to NSP         | No Preference to secondary pointing  |
| CIRS_291SA_COMPST001_PRIME     | I, U, V | 2017-243T14:11:00 |                               | 000T09:24:00 | 2017-243T23:35:00 | CIRS_FP1 to Saturn                        | NEG_Z to NSP         | Ring Rain, right limb, mid-northern latitude   |
| SP_291EA_DLTURN443_PRIME       |         | 2017-243T23:35:00 |                               | 000T00:40:00 | 2017-244T00:15:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset) | NEG_Y to Saturn      |  |
| NEW WAYPOINT                   |         | 2017-244T00:15:00 |                               | 000T11:10:00 | 2017-244T11:25:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset) | NEG_Y to Saturn      |  |
| SP_291EA_YGAP244_PRIME         | E       | 2017-244T00:15:00 |                               | 000T01:30:00 | 2017-244T01:45:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset) | NEG_Y to Saturn      |  |
| SP_291EA_C70METNON244_PRIME    | C       | 2017-244T01:45:00 |                               | 000T09:00:00 | 2017-244T10:45:00 | XBAND to Earth (0.0,0.0,-9.5 deg. offset) | NEG_Y to Saturn      | MIMI. XBAND to EARTH (0.0, -9.5), NEG_Y to SA  |
| SP_291SA_WAYPTTURN244_PRIME    |         | 2017-244T10:45:00 |                               | 000T00:40:00 | 2017-244T11:25:00 | ISS_NAC to Saturn                         | POS_Z to NSP         |  |
| NEW WAYPOINT                   |         | 2017-244T11:25:00 |                               | 001T03:53:59 | 2017-244T15:18:59 | ISS_NAC to Saturn                         | POS_Z to NSP         |  |
| ISS_291T1_M150R2H2244_PRIME    | C, V    | 2017-244T11:25:00 | E291_M150R2H2244+000T00:00:00 | 000T01:30:00 | 2017-244T12:55:00 | ISS_NAC to Titan                          | NEG_X to NSP         | No Preference to secondary pointing  |
| UVIS_291SA_AURDSTARE001_PRIME  | C, V    | 2017-244T12:55:00 |                               | 000T05:32:00 | 2017-244T18:27:00 | VIMS_IR to Saturn                         | POS_Z to NSP         | Collaborative Rider(s): VIMS   |
| UVIS_291SA_AURLEW001_PRIME     | C, V    | 2017-244T18:27:00 |                               | 000T05:32:00 | 2017-244T23:59:00 | UVIS_FUV to Saturn                        | POS_Z to NSP         | Collaborative Rider(s): VIMS   |
| CIRS_291SA_NADIROCC001_PIE     |         | 2017-244T23:59:00 |                               | 000T02:00:00 | 2017-245T01:59:00 | CIRS_FP4 to Saturn                        | POS_Z to NSP         | PIE, Track occ lat=0, lon=135; Verify Gam Cru ingress location w/ Phil Nicholson   |
| UVIS_291SA_LIMBINT001_PRIME    | C, V    | 2017-245T01:59:00 |                               | 000T06:47:00 | 2017-245T08:46:00 | UVIS_EUV to Saturn                        | PIC                  |  |
| SP_291SA_DEADTIME245_PRIME     |         | 2017-245T08:46:00 |                               | 000T00:19:59 | 2017-245T09:05:59 | ISS_NAC to Saturn                         | POS_Z to NSP         | Start absolute, End epoch  |
| Begin Custom                   |         | 2017-245T09:05:59 | LMB_E291_Peri-000T04:11:52    | 000T00:00:01 | 2017-245T09:06:00 | ISS_NAC to Saturn                         | POS_Z to NSP         |  |
| VIMS_291RI_GAMCRUOCC001_PRIME  | C       | 2017-245T09:05:59 | LMB_E291_Peri-000T04:11:52    | 000T01:39:00 | 2017-245T10:44:59 | VIMS_IR to 187.791/-57.113                | POS_Z to NSP         | Pick up at ISS_NAC to Saturn, POS_Z to NSP; Hand off at VIMS_IR to 187.791/-57.113, POS_Z to NSP.  |
| VIMS_291SA_GAMCRUOCC001_PIE    | C, M    | 2017-245T10:44:59 | LMB_E291_Peri-000T02:32:52    | 000T01:31:52 | 2017-245T12:16:51 | VIMS_IR to 187.791/-57.113                | PIC                  | Collaborative Rider(s): CIRS. Pick up at VIMS_IR to 187.791/-57.113, POS_Z to NSP; Hand off at NEG_Y to Saturn, POS_X to NSP. Collaborative Rider(s): CIRS |
| ENGR_291SC_ORSRCS245_PRIME     | M       | 2017-245T12:16:51 | LMB_E291_Peri-000T01:01:00    | 000T00:01:00 | 2017-245T12:17:51 | NEG_Y to Saturn                           | POS_X to NSP         | Pick up at NEG_Y to Saturn, POS_X to NSP; Hand off at NEG_Y to Saturn, POS_X to NSP. Deadband TBD  |
| INMS_291CO_SATAMOS001_PIE      | I, M    | 2017-245T12:17:51 | LMB_E291_Peri-000T01:00:00    | 000T02:00:00 | 2017-245T14:17:51 | POS_X to COROT                            | NEG_Y to Saturn      | Pick up at NEG_Y to Saturn, POS_X to NSP; Hand off at NEG_Y to Saturn, NEG_X to NSP. ISS secondary   |
| Begin Dual Playback Science    |         | 2017-245T13:02:51 | LMB_E291_Peri-000T00:15:00    | 000T00:00:01 | 2017-245T13:02:52 |   |                      |  |
| Periapse R = 1.025 Rs, lat ... |         | 2017-245T13:17:52 |                               | 000T00:00:01 | 2017-245T13:17:53 |   |                      |  |
| End Dual Playback Science      |         | 2017-245T13:27:51 | LMB_E291_Peri+000T00:10:00    | 000T00:00:01 | 2017-245T13:27:52 |   |                      |  |
| SP_291SA_WAYPTTURN445_PRIME    | M       | 2017-245T14:17:51 | LMB_E291_Peri+000T01:00:00    | 000T00:03:00 | 2017-245T14:20:51 | NEG_Y to 351.26/57.74                     | NEG_X to NSP         | Pick up at NEG_Y to Saturn, NEG_X to NSP; Hand off at NEG_Y to 351.26/57.74, NEG_X to NSP. Turn to Quiescent Attitude for RWA Transition.                  |
| ENGR_291SC_DFPWBAS245_PPS      | M       | 2017-245T14:20:51 | LMB_E291_Peri+000T01:03:00    | 000T00:21:05 | 2017-245T14:41:56 | NEG_Y to 351.26/57.74                     | NEG_X to NSP         | Pick up at NEG_Y to 351.26/57.74, NEG_X to NSP; Hand off at NEG_Y to 351.26/57.74, NEG_X to NSP.   |
| SP_291SA_WAYPTTURN245_PRIME    | M       | 2017-245T14:41:59 | LMB_E291_Peri+000T01:24:08    | 000T00:37:00 | 2017-245T15:18:59 | ISS_NAC to Saturn                         | NEG_Z to NSP         | Pick up at NEG_Y to 351.26/57.74, NEG_X to NSP; Hand off at ISS_NAC to Saturn, NEG_Z to NSP.   |
| NEW WAYPOINT                   |         | 2017-245T15:18:59 |                               | 000T11:49:01 | 2017-246T03:08:00 | ISS_NAC to Saturn                         | NEG_Z to NSP         |  |
| End Custom                     |         | 2017-245T15:18:59 | LMB_E291_Peri+000T02:01:08    | 000T00:00:01 | 2017-245T15:19:00 | ISS_NAC to Saturn                         | NEG_Z to NSP         |  |
| SP_291SA_DEADTIME445_PRIME     |         | 2017-245T15:18:59 | LMB_E291_Peri+000T02:01:08    | 000T00:20:01 | 2017-245T15:39:00 | ISS_NAC to Saturn                         | NEG_Z to NSP         | Start epoch, End absolute  |
| UVIS_291SA_AURLEW002_PRIME     |         | 2017-245T15:39:00 |                               | 000T05:25:00 | 2017-245T21:04:00 | UVIS_FUV to Saturn                        | NEG_Z to NSP         |  |
| UVIS_291SA_AURNSTARE001_PRIME  | I       | 2017-245T21:04:00 |                               | 000T05:24:00 | 2017-245T22:28:00 | ISS_NAC to Saturn                         | NEG_Z to NSP         |  |
| SP_291EA_DLTURN246_PRIME       |         | 2017-246T03:08:00 |                               | 000T00:40:00 | 2017-246T03:08:00 | XBAND to Earth                            | POS_X to NEP         |  |
| NEW WAYPOINT                   |         | 2017-246T03:08:00 |                               | 001T22:00:00 | 2017-248T01:08:00 | XBAND to Earth                            | POS_X to NEP         |  |
| SP_291EA_YGAP246_PRIME         | E       | 2017-246T03:08:00 |                               | 000T01:30:00 | 2017-246T03:28:00 | XBAND to Earth                            | POS_X to NEP         |  |
| SP_291EA_C70METNON246_PRIME    | C, E    | 2017-246T03:28:00 |                               | 000T09:00:00 | 2017-246T13:28:00 | XBAND to Earth                            | Rolling              | Possible CIRS heating depending on secondary used (update in integration)  |
| Pointer Reset in preparatio... |         | 2017-246T13:28:00 |                               | 000T00:00:01 | 2017-246T13:38:01 |   |                      |  |
| SP_291EA_M70METNON246_PRIME    |         | 2017-246T13:38:00 |                               | 000T02:00:00 | 2017-246T15:38:00 | XBAND to Earth                            | Rolling              | Possible CIRS heating depending on secondary used (update in integration)  |
| XD_291_292 Segment             |         | 2017-246T15:38:00 |                               | 004T18:43:00 | 2017-251T10:21:00 |   |                      |  |
| ISS_291OT_THRYTANJ016_PRIME    | V       | 2017-246T15:38:00 |                               | 000T13:32:00 | 2017-247T05:10:00 | UVIS_FUV to Rocks                         | PIC                  |  |
| CIRS_291OT_STRALTALQ01_PRIME   |         | 2017-247T05:10:00 |                               | 000T08:00:00 | 2017-247T13:10:00 | CIRS_FPB to Retargetable                  | PIC                  | This request may be moved within the remaining FRPO XD segments.   |
| ISS_291RI_FNTHPLE001_PRIME     | C, U, V | 2017-247T13:10:00 |                               | 000T03:00:00 | 2017-247T16:10:00 | ISS_NAC to Rings                          | NEG_X to 164.0/32.0  |  |
| ISS_291OT_THRYTIM020_PRIME     | V       | 2017-247T16:10:00 |                               | 000T08:30:00 | 2017-248T00:40:00 | UVIS_FUV to Rocks                         | PIC                  |  |
| SP_291EA_DLTURN248_PRIME       |         | 2017-248T00:40:00 |                               | 000T00:28:00 | 2017-248T01:08:00 | XBAND to Earth                            | POS_X to 355.8/-12.9 |  |
| NEW WAYPOINT                   |         | 2017-248T01:08:00 |                               | 002T10:40:00 | 2017-250T11:48:00 | XBAND to Earth                            | POS_X to 355.8/-12.9 |  |
| SP_291EA_YGAP248_PRIME         | E       | 2017-248T01:08:00 |                               | 000T01:30:00 | 2017-248T02:38:00 | XBAND to Earth                            | POS_X to 355.8/-12.9 |  |
| SP_291EA_C34BWGOTP248_PRIME    | C, N    | 2017-248T02:38:00 |                               | 000T09:00:00 | 2017-248T11:38:00 | XBAND to Earth                            | Rolling              | SRU, CIRS heating  |
| ISS_291OT_THRYDARI022_PRIME    | V       | 2017-248T11:38:00 |                               | 000T13:25:00 | 2017-249T01:03:00 | UVIS_FUV to Rocks                         | PIC                  |  |
| Apoapse Per = 6.5 d, inc = ... |         | 2017-248T18:47:53 |                               | 000T00:00:01 | 2017-248T18:47:54 |   |                      |  |
| SP_292EA_YGAP249_PRIME         | E       | 2017-249T01:03:00 |                               | 000T01:30:00 | 2017-249T02:33:00 | XBAND to Earth                            | POS_X to 355.8/-12.9 |  |
| SP_292EA_C34BWGOTB249_PRIME    | C, E, N | 2017-249T02:33:00 |                               | 000T09:00:00 | 2017-249T11:33:00 | XBAND to Earth                            | Rolling              | SRU, CIRS heating  |
| ISS_292RF_FMOVIE001_PRIME      | C, U, V | 2017-249T11:33:00 |                               | 000T14:55:00 | 2017-250T02:28:00 | ISS_NAC to Rings                          | NEG_X to 164.0/32.0  | No Preference to secondary pointing  |
| SP_292EA_C34BWGNON250_PRIME    | C, R    | 2017-250T02:28:00 |                               | 000T09:00:00 | 2017-250T11:28:00 | XBAND to Earth                            | POS_X to 355.8/-12.9 | MIMI   |
| SP_292SA_WAYPTTURN250_PRIME    |         | 2017-250T11:28:00 |                               | 000T00:20:00 | 2017-250T11:48:00 | ISS_NAC to Saturn                         | NEG_X to 164.0/32.0  |  |
| NEW WAYPOINT                   |         | 2017-250T11:48:00 |                               | 000T12:03:00 | 2017-250T23:51:00 | ISS_NAC to Saturn                         | NEG_X to 164.0/32.0  |  |
| ISS_292T1_M150R2H2250_PRIME    | C, V    | 2017-250T11:48:00 | E292_M150R2H2250+000T00:00:00 | 000T01:30:00 | 2017-250T13:18:00 | ISS_NAC to Titan                          | NEG_X to 164.0/32.0  | No Preference to secondary pointing  |

|                                |            |                   |                               |               |                   |  |                           |   |
|--------------------------------|------------|-------------------|-------------------------------|---------------|-------------------|--|---------------------------|---|
| CIRS_292R1_COMPLITCD001_PRIME  | C, I, U, V | 2017-250713:18:00 |                               | 00004.00:00   | 2017-250713:18:00 | CIRS_FP1 to Rings                                  | NEG_X to 164.0/32.0       |   |
| CIRS_292R1_CASDIVLT001_PRIME   | C, I, U, V | 2017-250717:18:00 |                               | 00004.00:00   | 2017-250717:18:00 | CIRS_FP1 to Rings                                  | NEG_X to 164.0/32.0       | No Preference to secondary pointing   |
| ISS_292R1_PROPRTREG001_PRIME   | C, U       | 2017-250721:18:00 |                               | 00002.0:13:00 | 2017-250723:31:00 | ISS_NAC to Rings                                   | NEG_X to 164.0/32.0       | No Preference to secondary pointing. No Preference to secondary pointing  |
| SP_292EA_DLTURN250_PRIME       |            | 2017-250723:31:00 |                               | 00000.20:00   | 2017-250723:51:00 | XBAND to Earth                                     | POS_X to 0.0/-23.8        |   |
| NEW WAYPOINT                   |            | 2017-250723:51:00 |                               | 00011.07:00   | 2017-25110:58:00  | XBAND to Earth                                     | POS_X to 0.0/-23.8        |   |
| SP_292EA_YGAP251_PRIME         | E          | 2017-250723:51:00 |                               | 00001.30:00   | 2017-251101:21:00 | XBAND to Earth                                     | POS_X to 0.0/-23.8        |   |
| SP_292EA_G70METN0N251_PRIME    | C, R       | 2017-251101:21:00 |                               | 00009.00:00   | 2017-251101:21:00 | XBAND to Earth                                     | POS_X to 0.0/-23.8        | MIMI. XBAND to Earth (0.0,-9.5), NEG_Y to Saturn.   |
| SATURN_292 Segment             |            | 2017-251110:21:00 |                               | 002118:16:00  | 2017-254104:37:00 |  |                           |   |
| SP_292SA_WAYPTTURN251_PRIME    |            | 2017-251110:21:00 |                               | 000100:37:00  | 2017-25110:58:00  | ISS_NAC to Saturn                                  | POS_Z to NSP              | Turn from XBAND to Earth; NEG_Y to Saturn   |
| NEW WAYPOINT                   |            | 2017-25110:58:00  |                               | 000152:15:59  | 2017-252102:19:59 | ISS_NAC to Saturn                                  | POS_Z to NSP              |   |
| VIMS_292SA_NADIROCC001_PRIME   |            | 2017-25110:58:00  |                               | 00002.0:00:00 | 2017-25112:58:00  | CIRS_FP4 to Saturn                                 | POS_Z to NSP              | PIE, Track occ lat=4.14N (Phi), lon=334 in DIGIT  |
| VIMS_292SA_NPOLEMAP001_PRIME   | C, I, U    | 2017-25112:58:00  |                               | 00006:37:00   | 2017-25119:35:00  | ISS_NAC to Saturn                                  | POS_Z to NSP              |   |
| SP_292SA_DEADTIME251_PRIME     |            | 2017-25119:50:00  |                               | 00000:49:59   | 2017-251170:09:59 | ISS_NAC to Saturn                                  | POS_Z to NSP              | Start absolute, End epoch   |
| Begin Custom                   |            | 2017-251120:09:59 | LMB_E292_Per1-000T04:08:05    | 00000.00:01   | 2017-251120:10:00 | ISS_NAC to Saturn                                  | POS_Z to NSP              |   |
| VIMS_292R1_GAMCRUOCC001_PRIME  | C          | 2017-251120:09:59 | LMB_E292_Per1-000T04:08:05    | 00001:38:00   | 2017-251121:47:59 | VIMS_IR to 187.791/-57.113                         | POS_Z to NSP              | No Preference to secondary pointing. Pick up at ISS_NAC to Saturn, POS_Z to NSP; Hand off at VIMS_IR to 187.791/-57.113, POS_Z to NSP. No Preference to secondary pointing                            |
| VIMS_292SA_GAMCRUOCC001_PIE    | C, M       | 2017-251121:47:59 | LMB_E292_Per1-000T02:30:05    | 00001:21:05   | 2017-251123:09:04 | VIMS_IR to 187.791/-57.113                         | PIC                       | Collaborative Rider(s): CIRS. Pick up at VIMS_IR to 187.791/-57.113, POS_Z to NSP; Hand off at NEG_Y to 235.73/-56.14 (0.0,-27.0,0.0 deg. offset), POS_X to NSP. Collaborative Rider(s): CIRS         |
| ENGR_292SC_RADRCS251_PRIME     | M          | 2017-251123:09:04 | LMB_E292_Per1-000T01:09:00    | 00000.01:00   | 2017-251123:10:04 | NEG_Y to 235.73/-56.14 (0.0,-27.0,0.0 deg. offset) | POS_X to NSP              | Pick up at NEG_Y to 235.73/-56.14 (0.0,-27.0,0.0 deg. offset), POS_X to NSP; Hand off at NEG_Y to 235.73/-56.14 (0.0,-27.0,0.0 deg. offset), POS_X to NSP. Deadband=(2,2,0).                          |
| INMS_292CO_SATAMOS001_PIE      | I, M, R    | 2017-251123:10:04 | LMB_E292_Per1-000T01:08:00    | 00002.08:00   | 2017-252101:18:04 | POS_X to COROT                                     | NEG_Z to Saturn           | Collaborative Rider(s): RADAR. Pick up at NEG_Y to 235.73/-56.14 (0.0,-27.0,0.0 deg. offset), POS_X to NSP; Hand off at NEG_Z to Saturn, POS_Y to Sun. Collaborative Rider(s): RADAR. RADAR secondary |
| Begin Dual Playback Science    |            | 2017-252100:03:04 | LMB_E292_Per1-000T00:15:00    | 00000.00:01   | 2017-252100:03:05 |  |                           |   |
| Periapse R = 1.025 Rs, lat ... |            | 2017-252100:18:05 |                               | 00000.00:01   | 2017-252100:18:06 |  |                           |   |
| End Dual Playback Science      |            | 2017-252100:28:04 | LMB_E292_Per1+000T00:10:00    | 00000.00:01   | 2017-252100:28:05 |  |                           |   |
| SP_292SA_WAYPTTURN452_PRIME    | M          | 2017-252101:18:04 | LMB_E292_Per1+000T01:00:00    | 00000.03:00   | 2017-252101:21:04 | NEG_Z to 350.45/57.79                              | POS_Y to Sun              | Pick up at NEG_Z to Saturn, POS_Y to Sun; Hand off at NEG_Z to 350.45/57.79, POS_Y to Sun. Turn to Quiescent Attitude for RWA Transition.   |
| ENGR_292SC_DFPWBIA5252_PPS     | M          | 2017-252101:21:04 | LMB_E292_Per1+000T01:03:00    | 00000.21:05   | 2017-252101:42:09 | NEG_Z to 350.45/57.79                              | POS_Y to Sun              | Pick up at NEG_Z to 350.45/57.79, POS_Y to Sun; Hand off at NEG_Z to 350.45/57.79, POS_Y to Sun.  |
| SP_292SA_WAYPTTURN252_PRIME    | M          | 2017-252101:42:09 | LMB_E292_Per1+000T01:24:05    | 00000.37:50   | 2017-252102:19:59 | ISS_NAC to Saturn                                  | NEG_Z to NSP              |   |
| NEW WAYPOINT                   |            | 2017-252102:19:59 |                               | 00009:17:01   | 2017-252111:37:00 | ISS_NAC to Saturn                                  | NEG_Z to NSP              |   |
| End Custom                     |            | 2017-252102:19:59 | LMB_E292_Per1+000T02:01:55    | 00000.00:01   | 2017-252102:20:00 | ISS_NAC to Saturn                                  | NEG_Z to NSP              |   |
| SP_292SA_DEADTIME252_PRIME     |            | 2017-252102:19:59 | LMB_E292_Per1+000T02:01:55    | 00000.20:01   | 2017-252102:40:00 | ISS_NAC to Saturn                                  | NEG_Z to NSP              | Start epoch, End absolute   |
| UVIS_292SA_AURSEW001_PRIME     |            | 2017-252102:40:00 |                               | 00004.99:00   | 2017-252106:49:00 | UVIS_FUV to Saturn                                 | NEG_Z to NSP              |   |
| UVIS_292SA_AURNSTARE001_PRIME  | I          | 2017-252106:49:00 |                               | 00004.98:00   | 2017-252105:57:00 | ISS_NAC to Saturn                                  | NEG_Z to NSP              |   |
| SP_292EA_DLTURN252_PRIME       |            | 2017-252110:57:00 |                               | 00000.40:00   | 2017-252111:37:00 | XBAND to Earth                                     | POS_X to NEP              |   |
| NEW WAYPOINT                   |            | 2017-252111:37:00 |                               | 00012.45:00   | 2017-253100:22:00 | XBAND to Earth                                     | POS_X to NEP              |   |
| SP_292EA_YGAP252_PRIME         | E          | 2017-252111:37:00 |                               | 00001.30:00   | 2017-252113:07:00 | XBAND to Earth                                     | POS_X to NEP              |   |
| SP_292EA_M70METN0N252_PRIME    | C          | 2017-252113:07:00 |                               | 00007.45:00   | 2017-252120:52:00 | XBAND to Earth                                     | Rolling/SRU               | SRU.  |
| Pointer Reset in preparatio... |            | 2017-252120:52:00 |                               | 00000.00:01   | 2017-252120:52:01 |  |                           |   |
| SP_292EA_G70METN0N252_PRIME    |            | 2017-252120:52:00 |                               | 00003.00:00   | 2017-252123:52:00 | XBAND to Earth                                     | POS_X to NEP              |   |
| SP_292SA_WAYPTTURN253_PRIME    |            | 2017-252123:52:00 |                               | 00000.30:00   | 2017-253100:22:00 | ISS_NAC to Saturn                                  | NEG_Z to NSP              |   |
| NEW WAYPOINT                   |            | 2017-253100:22:00 |                               | 00020.00:00   | 2017-253120:22:00 | ISS_NAC to Saturn                                  | NEG_Z to NSP              |   |
| ISS_292TI_M90R1CLD252_PRIME    | C, V       | 2017-253100:22:00 | E292_M90R1CLD252+000T00:00:00 | 00002.00:00   | 2017-253102:22:00 | ISS_NAC to Titan                                   | NEG_Z to NSP              | No Preference to secondary pointing   |
| CIRS_292SA_COMPST001_PRIME     | U, V       | 2017-253102:22:00 |                               | 00008.40:00   | 2017-253111:02:00 | CIRS_FP1 to Saturn                                 | NEG_Z to NSP              | southern hemisphere   |
| VIMS_292SA_FULLDISK001_PRIME   | C          | 2017-253111:02:00 |                               | 00009.00:00   | 2017-253120:02:00 | ISS_NAC to Saturn                                  | NEG_Z to NSP              |   |
| SP_292EA_DLTURN253_PRIME       |            | 2017-253120:02:00 |                               | 00010.20:00   | 2017-253120:22:00 | XBAND to Earth                                     | NEG_Y to Saturn           |   |
| NEW WAYPOINT                   |            | 2017-253120:22:00 |                               | 00018.55:00   | 2017-254109:37:00 | XBAND to Earth                                     | NEG_Y to Saturn           |   |
| SP_292EA_G70METN0N253_PRIME    | C          | 2017-253120:22:00 |                               | 00008.35:00   | 2017-254104:37:00 | XBAND to Earth                                     | Rolling/Bias              | SRU.  |
| TOST_292 Segment               |            | 2017-254104:37:00 |                               | 00207.48:00   | 2017-256112:25:00 |  |                           |   |
| SP_292TI_WAYPTTURN254_PRIME    |            | 2017-254104:37:00 |                               | 00000.40:00   | 2017-254105:17:00 | NEG_Y to Titan                                     | NEG_X to Sun              |   |
| NEW WAYPOINT                   |            | 2017-254105:17:00 |                               | 00116.59:00   | 2017-255122:16:00 | NEG_Y to Titan                                     | NEG_X to Sun              |   |
| ISS_292TI_CLOUD001_PIE         | C, V       | 2017-254105:17:00 |                               | 00001.05:00   | 2017-254106:22:00 | ISS_NAC to Titan                                   | NEG_X to Sun              |   |
| CIRS_292TI_MIDIRTMAP001_PRIME  | I, V       | 2017-254106:22:00 |                               | 00002.54:00   | 2017-254109:16:00 | CIRS_FP8 to Titan                                  | NEG_X to Sun              | No Preference to secondary pointing   |
| ISS_292TI_LRMONITOR001_PRIME   | C, V       | 2017-254109:16:00 |                               | 00001.00:00   | 2017-25410:16:00  | ISS_NAC to Titan                                   | NEG_X to Sun              | No Preference to secondary pointing   |
| CIRS_292TI_MIRLMBMAP001_PIE    | I, V       | 2017-254110:16:00 |                               | 00005.00:00   | 2017-254115:16:00 | CIRS_FP8 to Titan                                  | PIC                       | Collaborative Rider(s): ISS. CIRS_FP8 to 85N  |
| ISS_292TI_CLOUD002_PIE         | C, U, V    | 2017-254115:16:00 |                               | 00005.17:00   | 2017-254120:33:00 | ISS_NAC to Titan                                   | NEG_X to Sun              |   |
| 292TI (nt) TITAN Outbou...     |            | 2017-254119:03:43 |                               | 00000.00:01   | 2017-254119:03:44 |  |                           |   |
| RADAR_292TI_ALTIMETRY002_PIE   |            | 2017-254120:33:00 |                               | 00001.40:00   | 2017-254122:13:00 | NEG_Z to Titan                                     | NEG_X to Titan_North_Pole |   |
| ISS_292TI_CLOUD003_PIE         | C, U, V    | 2017-254122:13:00 |                               | 00001.33:00   | 2017-254123:46:00 | ISS_NAC to Titan                                   | NEG_X to Sun              |   |
| CIRS_292TI_FIRNADMAP001_PRIME  | V          | 2017-254123:46:00 |                               | 00003.00:00   | 2017-255102:46:00 | CIRS_FP1 to Titan                                  | NEG_X to Sun              |   |
| ISS_292TI_LRMONITOR002_PRIME   | C, V       | 2017-255102:46:00 |                               | 00001.00:00   | 2017-255103:46:00 | ISS_NAC to Titan                                   | NEG_X to Sun              | No Preference to secondary pointing   |
| CIRS_292TI_COMPMAP001_PRIME    | I, V       | 2017-255103:46:00 |                               | 00003.00:00   | 2017-255106:46:00 | CIRS_FP8 to Titan                                  | NEG_X to Sun              | CIRS_FP8 to 89.9N   |
| Apoapse Per = 6.4 d, inc =...  |            | 2017-255105:37:34 |                               | 00000.00:01   | 2017-255105:37:35 |  |                           |   |
| ISS_292TI_CLOUD004_PIE         | C, V       | 2017-255106:46:00 |                               | 00001.00:00   | 2017-255107:46:00 | ISS_NAC to Titan                                   | NEG_X to Sun              |   |
| CIRS_292TI_MIDIRTMAP002_PRIME  | I, V       | 2017-255107:46:00 |                               | 00005.00:00   | 2017-255112:46:00 | CIRS_FP8 to Titan                                  | NEG_X to Sun              | No Preference to secondary pointing   |
| ISS_293TI_LRMONITOR003_PRIME   | C, V       | 2017-255112:46:00 |                               | 00001.00:00   | 2017-255113:46:00 | ISS_NAC to Titan                                   | NEG_X to Sun              | No Preference to secondary pointing   |
| CIRS_293TI_MIDIRTMAP003_PRIME  | I, V       | 2017-255113:46:00 |                               | 00004.30:00   | 2017-255118:16:00 | CIRS_FP8 to Titan                                  | NEG_X to Sun              | No Preference to secondary pointing   |
| ISS_293TI_LRMONITOR004_PRIME   | C, V       | 2017-255118:16:00 |                               | 00000.30:00   | 2017-255118:46:00 | ISS_NAC to Titan                                   | NEG_X to Sun              | No Preference to secondary pointing   |
| CIRS_293TI_COMPMAP002_PRIME    | I, V       | 2017-255118:46:00 |                               | 00002.20:00   | 2017-255121:06:00 | CIRS_FP8 to Titan (0.0,-8.594,0.0 deg. offset)     | NEG_X to Sun              | No Preference to secondary pointing   |
| ISS_293TI_LRMONITOR005_PRIME   | C, V       | 2017-255121:06:00 |                               | 00000.30:00   | 2017-255121:36:00 | ISS_NAC to Titan                                   | NEG_X to Sun              | No Preference to secondary pointing   |
| SP_293EA_DLTURN255_PRIME       |            | 2017-255121:36:00 |                               | 00000.40:00   | 2017-255122:16:00 | XBAND to Earth                                     | NEG_Y to Saturn           |   |
| NEW WAYPOINT                   |            | 2017-255122:16:00 |                               | 00014.49:00   | 2017-256113:05:00 | XBAND to Earth                                     | NEG_Y to Saturn           |   |
| SP_293EA_YGAP255_PRIME         | E          | 2017-255122:16:00 |                               | 00001.40:00   | 2017-255123:56:00 | XBAND to Earth                                     | NEG_Y to Saturn           |   |
| SP_293EA_G70METN0N255_PRIME    | C          | 2017-255123:56:00 |                               | 00004.41:00   | 2017-256104:37:00 | XBAND to Earth                                     | Rolling/SRU               | SRU, CIRS heating   |
| SP_293EA_G70METN0N256_PRIME    | C          | 2017-256104:37:00 |                               | 00007.48:00   | 2017-256112:25:00 | XBAND to Earth                                     | Rolling/SRU               | SRU, CIRS heating   |
| MAPS_293 Segment               |            | 2017-256112:25:00 |                               | 00200.27:00   | 2017-258112:52:00 |  |                           |   |
| SP_293EA_WAYPTTURN256_PRIME    |            | 2017-256112:25:00 |                               | 00000.40:00   | 2017-256113:05:00 | ISS_NAC to Saturn                                  | NEG_X to NSP              |   |
| NEW WAYPOINT                   |            | 2017-256113:05:00 |                               | 01107:17:00   | 2017-257120:22:00 | ISS_NAC to Saturn                                  | NEG_X to NSP              |   |
| ISS_293SA_FAREWELL001_PRIME    |            | 2017-256113:05:00 |                               | 00002.30:00   | 2017-256115:35:00 | ISS_NAC to Saturn                                  | NEG_X to NSP              |   |
| ISS_293EN_ENCSET001_PRIME      |            | 2017-256115:35:00 |                               | 00000.55:00   | 2017-256116:30:00 | ISS_NAC to Enceladus                               | NEG_X to NSP              |   |
| ISS_293TI_M90R1CLD256_PRIME    | C, V       | 2017-256116:30:00 | E293_M90R1CLD256+000T00:00:00 | 00002.00:00   | 2017-256118:30:00 | ISS_NAC to Titan                                   | NEG_X to NSP              | No Preference to secondary pointing   |
| UVIS_293SA_AURSEW001_PRIME     | C          | 2017-256118:30:00 |                               | 00018.50:00   | 2017-257113:20:00 | UVIS_FUV to Saturn                                 | NEG_X to NSP              |   |
| ISS_293RA_PEGV001_PRIME        |            | 2017-257113:20:00 |                               | 00000.40:00   | 2017-257114:00:00 | ISS_NAC to Rings                                   | NEG_X to NSP              |   |
| UVIS_293SA_AURSEW002_PRIME     |            | 2017-257114:00:00 |                               | 00003.31:00   | 2017-257117:31:00 | UVIS_FUV to Saturn                                 | NEG_X to NSP              |   |
| ISS_293RI_PROPRTREG001_PRIME   | C          | 2017-257117:31:00 |                               | 00002.00:00   | 2017-257119:31:00 | ISS_NAC to Rings                                   | NEG_X to NSP              | No Preference to secondary pointing   |
| VIMS_293SA_IMPACT0BS001_PRIME  | C, I, U    | 2017-257119:31:00 |                               | 00000.30:00   | 2017-257120:01:00 | ISS_NAC to Saturn                                  | NEG_X to NSP              |   |
| SP_293EA_DLTURN257_PRIME       |            | 2017-257120:01:00 |                               | 00010.21:00   | 2017-257120:22:00 | XBAND to Earth (0.0,0.0,-16.0 deg. offset)         | NEG_Y to Saturn           |   |
| NEW WAYPOINT                   |            | 2017-257120:22:00 |                               | 00015.92:00   | 2017-258102:24:00 | XBAND to Earth (0.0,0.0,-16.0 deg. offset)         | NEG_Y to Saturn           |   |
| SP_293EA_G70METN0N257_PRIME    | E, R       | 2017-257120:22:00 |                               | 00005.52:00   | 2017-258102:14:00 | XBAND to Earth (0.0,0.0,-16.0 deg. offset)         | NEG_Y to Saturn           |   |
| SP_293EA_RWDTURN258_PRIME      | R          | 2017-258102:14:00 |                               | 00000.10:00   | 2017-258102:24:00 | XBAND to Earth                                     | POS_Y to NSP              | Roll from NEG_Y to Saturn to POS_Y to NSP.  |
| NEW WAYPOINT                   |            | 2017-258102:24:00 |                               | 00005.05:00   | 2017-258107:29:00 | XBAND to Earth                                     | POS_Y to NSP              |   |

|                                |         |                   |              |                   |                |                 |  |
|--------------------------------|---------|-------------------|--------------|-------------------|----------------|-----------------|--|
| SP_293EA_C70METNONZ58_PRIME    | C, R    | 2017-258T02:14:00 | 000T05:00:00 | 2017-258T07:14:00 | XBAND to Earth | POS_Y to NSP    |  |
| SP_293EA_RWDTURN458_PRIME      | C, R    | 2017-258T07:14:00 | 000T00:15:00 | 2017-258T07:29:00 | XBAND to Earth | NEG_X to SC_RAM | Roll from POS_Y to NSP to NEG_X to SC_RAM.         |
| NEW WAYPOINT                   |         | 2017-258T07:29:00 | 000T13:07:00 | 2017-258T20:36:00 | XBAND to Earth | NEG_X to SC_RAM |  |
| SP_293EA_C70METUNQZ58_PRIME    | C, M, R | 2017-258T07:14:00 | 000T05:38:00 | 2017-258T12:52:00 | XBAND to Earth | NEG_X to SC_RAM | Flatline at 27650 so either BWG or 70M can support |
| Periapse R = 0.993 Rs, lat ... |         | 2017-258T10:53:39 | 000T00:00:01 | 2017-258T10:53:40 |                |                 |  |