

TGS Issues Raised at the Scheduling System Design Review

- Two-gyro mode flags (Design Review action) - Make flags multi-state vs. two-state to support potential future modes (one-gyro?)
 - Status: Closed 03/10/04
 - 02/18/04 – Two-state flag is already implemented in SPSS (Build 46.0) and PASS, as well as in DCR 5065 to ST-ICD-26, Part 2. The change to make it multi-state is relatively easy, and can be done in conjunction with other changes to the database parameters to support future modes, if and when they are needed. Recommendation is to leave as is for two-gyro mode.
 - 03/01/04 – Discussed at TGSOWG. L. Dunham agrees that flag can remain as is and that there is no need to change ST-ICD-26, Part 2. Carey will write response to Design Review action item.
 - 03/10/04 – Design Review action item response written and accepted.
- Are there internal risks that the Scheduling Systems should identify that might impact the TGS Project?
 - Status: Open
 - 02/18/04 – Risks related to science schedulability and types of science that can be supported in TGS mode should be added. The HST Project is requesting that we use their format for defining / tracking risks and that we present our risks at the Project CDR.
 - 02/25/04 – Carey discussed additional risks with Rodger. Carey will write up and review with Rodger, then put risks into Project-defined format.
- Are there additional variations that should be considered in the science impact studies?
 - Status: Closed 03/10/04
 - 02/18/04 – Potential variations include using different LAU values, varying the timing of activities, varying the number of science minutes / orbit, and showing the usable part of the sky by date.
 - 03/01/04 – Rodger would like to present findings to the TGSOWG in the April-May timeframe as a checkpoint prior to the Project CDR, and then decide what, if any, additional analysis would be helpful.
 - 03/10/04 – George, Alison, and Merle met with Rodger on science study results and future efforts. It was decided that they would make additional runs with increased visit lengths (using 50-min. alignments), that they will create a web site describing the studies and results, and that they will present their results at the April TIPS meeting.
- Dog-leg slews / two-part slews
 - Status: Closed 03/10/04
 - 2/18/04 – Can they be used to avoid sun constraint or mag field constraint, e.g. by slewing part way to target, waiting for the constraint to pass, and then finishing the slew to the target? Although that capability exists for avoiding

the sun constraint, it is not efficient for avoiding the mag field constraint due to FHST visibility requirements.

- 03/01/04 – The TGSOWG agrees that this is not a priority item. It should be a potential enhancement for Phase II if scheduling around the magnetic field is a problem.
- 03/10/04 – The decision was made to close this issue, and to open a new issue if the SPSS magnetic field scheduling constraint turns out to be too restrictive.
- Definition of new PCS scenarios
 - Status: Closed 03/10/04
 - 02/18/04 – Merle and Alan are defining them. It looks like there will be two new acquisition scenarios: base1t and base1tns.
 - 03/10/04 – PRs have been filed to implement these new scenarios.
- Loss of lock strategy - Is there any effect on scheduling?
 - Status: Closed 03/10/04
 - 02/18/04 – The number of loss of lock occurrences is expected to be so low that there shouldn't be any effect on scheduling. The scheduling systems will schedule for success and if there is a loss of lock, the schedule will get back into synch with the next set of OBADs.
 - 03/01/04 – The only concern is during CVZ operations, when a target may be observed for many consecutive orbits without intervening OBADs. In this case, a loss of lock could impact a lot of science. However, the likelihood of uncovered SAAs helps mitigate the likelihood of this happening.
 - 03/10/04 – This issue is closed and will be reopened only if science loss, resulting from loss of lock occurrences, becomes an issue.
- Magnetic field Gx vector parameters in the PRD
 - Status: Closed 03/10/04
 - 02/18/04 – Provide parameter values for all gyro combinations (six) in the PRD and add a flag in PRD indicating which set to use. Only the designated set needs to be populated forward into the PMDB.
 - 03/01/04 – The TGSOWG agrees with this approach.
 - 03/10/04 – This issue is closed. A database PR has been filed to make these parameters available to SPSS. An action item will be opened to update ICD-26, Part 2 to add the parameters to the SCHF.
- Is there a minimum time that you must be in the bad mag field alignment before scheduling is constrained?
 - Status: Closed 03/10/04
 - 02/18/04 – It seems that it would be useful to provide a PRD parameter to define the minimum time, and to add a requirement to the Scheduling System to only constrain the schedule if the time during which there is bad mag field alignment exceeds the database parameter.
 - 03/01/04 – The TGSOWG agrees with this approach.
 - 03/10/04 – This issue is closed. A database PR has been filed to make this parameter available to SPSS. An action item will be opened to update ICD-26, Part 2 to add this parameter to the SCHF.

- Provide support for target reacquisitions using the save / restore quaternion feature
 - Status: Open
 - 02/18/04 – Test with ACS (can be done in 3-gyro mode). Add to Phase II work.
 - 03/01/04 – P. Coleman found the PLCPs that support this capability. Rodger suggested that we try to arrange a test in the May timeframe, and use the results to define requirements for a Phase II implementation.
 - 03/10/04 – An on-orbit test is tentatively scheduled for May. Details of the test will be worked out via the GSACQ working group.

- Impact to astrometry observations if the GSACQ fails.
 - Status: Closed 03/10/04
 - 02/18/04 – This is an issue that must be resolved in the acquisition logic.
 - 03/01/04 – The TGSOWG took an action to deal with this during development of the FGS PLCPs.
 - 03/10/04 – No further action from the scheduling system needed at this time.

- Type 3/4 slews and the use of the slew rate parameter.
 - Status: Closed 03/10/04
 - 02/18/04 – The slew rate parameter is optional in the command template. Therefore, Type 3/4 slews can be supported in Phase I without specifying the slew rate parameter (no moving targets). In Phase II, the slew rate parameter can be specified for moving targets.
 - 03/01/04 – The slew rate will not be passed through in the SMS and is automatically set to 0.0 by the PASS software.
 - 03/03/04 – Is the slew rate allowed on Type 5 slews in TGS mode?
 - 03/10/04 – Type 5 slews will work the same in two-gyro mode as they do in three-gyro mode. PASS has set up basefile parameters for allowing slew rate parameters on the various slew types.