From: STSCIC::FITCH 10-MAY-1991 10:47:38.53
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CC:
Subj: Minutes from May 9th FOS FSW meeting

The following is a listing of the minutes of the FOS FSW review meeting held at STScI on May 10th.

Attendees:

Anne Kinney
George Hartig
Vicki Balzano
Don Chance
Rodger Doxsey
John Fitch
John Huber
Glen Foley
Liz Citrin
Art Rankin
Bob Garland
Ken Luchetti

J. Fitch began the meeting with a review of the Geomagnetically-induced motion problem (GIMP) and a potential solution to the problem involving changes to PASS, FSW, and commanding. The fix would require calculation in PASS of the corrections to be made at each point in the orbit to the X and Y deflection values internal to the FOS. George Hartig showed some of the science data obtained from the GIMP test which had been run on the vehicle and pointed out the fact that although there was a difference in magnitude of the correction apparently produced by how the observations were taken, in each case the actual data fit to the model was excellent.

The discussion then centered on how the corrections would be sent to the FOS. Art Rankin brought up the question of possible command collisions and noted that the commands sending the deflection corrections to the FOS were required to be separated by a minimum of 50ms from any other possible commanding to the FOS. Since the initial proposal was to have these commands sent whenever a deflection change was required, they would effectively come out asynchronously and could cause command collisions.

G. Hartig was asked what was the minimum time between corrections if they were sent out separated in time versus in deflection changes. It was pointed out that it would be less efficient to do it by time and that while on average corrections would be required every few minutes, if time separations were used the worst case of approximately every 40 seconds would be required.

Art brought up the question of how this would affect future parallel science commanding.

The discussion then changed to the question of what the NSSC-1 table would look like and if it was better to have the commands put into the absolute time sequence in the command load versus using a table and AP in the NSSC-1.

B. Garland pointed out that it was beyond the scope of PASS to generate commands and that Vicki would have to either request the table be generated for the NSSC1, or each time an absolute time command was required she would have to send a command which generated it. Additionally, he pointed out that the detector parameters required to determine the amplitude of the GIMP correction would have to be flagged in some way by Vicki. That is although PASS has the values, they cannot access them directly.

Vicki then discussed what would be required to let PASS know all of the parameters necessary to compute the corrections, and possible methods of requesting either a table load to the NSSC1 or separate absolute time commands.

J. Fitch stated that the commands would require the use of two of the

FOS spare words previously defined. Art asked if the correction which was required would be either 8 or 16 bits. G. Hartig said that 8 bits would be enough. Art then asked if there would be a problem with the command counter if these commands were sent during the time a data word was being sent to the FOS similar to the problem they used to have with sending keep alive commands to the FOS. This would be something which commanding would have to take into account.

J. Fitch then discussed how the deflections would be modified internal to the FOS using a new thread in the FOS microprocessor. Vicki asked would the corrections be accepted if the FOS was either collecting or dumping data. It was stated that due to the interrupt schedule of the FOS microprocessor as long as the commands were sent at least 50ms apart there should be no problem with the FOS microprocessor servicing them.

The use of the YKEY command was discussed and the question was asked if there was any potential for the thread loading being interrupted due to competion with other commands. It was also noted that the loading of this series of YKEY commands required a lot of commanding.

Art then brought up the question of weather or not it was required to look for confirmation in the telemetry and retry loading the thread if something failed or if it was okay to proceed without knowledge of correct loading. His concern was in the difficulty in reading the FOS status bytes and in sending the large command load a second time. It was thought that if the FOS microprocesser didn't accept the full thread that nothing would be accepted and therefore this check was not necessary. Glen pointed out that the check could be done but that it would be difficult.

It was determined that some additional knowledge was required prior to requesting additional work on this issue. The suggestion was to meet in approximately two weeks with more information on the various questions brought up in the meeting. The following action items were assigned to be closed at the next meeting.

- Vicki and J. Fitch to look into the question of the command volume required to send the corrections via a NSSC1 AP or directly from stored commanding.

- Glen Foley to look into the possible structure of the NSSC1 Table load and determine any concerns in that area.

- G.Hartig (and presumably the FOS IDT) to give Liz Citrin scientific justification as to why this fix should be done.

The second item of changes to the FOS Housekeeping AP was then discussed. This was determined to be a potential Health and Safety requirement due to a problem noted in the Overlite protection of the FOS (see HSTAR 1801).

J.Fitch discussed the modification to the current protection scheme and Art Rankin asked the question of if this is a true Health and Safety issue shouldn't something be done immediately.

The current scheme requires two consecutive Overlite out of limits conditions while a patch the current FSW could be made such it would take only a single event to safe the instrument. It was determined that this should be requested as an interim solution while the modifications as outlined were made. The potential of safing the FOS would then be higher, but it would now be protected in all circumstances.

G. Hartig pointed out that the current Overlite limit could be modified to be less conservative and more realistic as to a true indicator of potential damage to the FOS.

The following actions were assigned to this discussion.

- Glen Foley would look into what would be required to patch the FOS Housekeeping AP such that a single overlite out of limits condition would safe the FOS.

- John Fitch would proceed with getting this patch in place as soon as possible.

- George Hartig and John Fitch would look into changing the current Overlite limits to take into account a more realistic damage limit for the FOS.

At this time several persons had to leave the meeting due to additional appointments, but the discussion of the XY centroiding change was taken up with the remaining individuals.

G. Hartig showed why this would be nice to have in that the efficiency of the current mode II TA would be improved by an estimated 20-50%.

Glen Foley pointed out that it appeared to be possible but would be a totally different scheme from the current approach. Liz suggested that this appeared to be of less priority than the other 2 items discussed previously.

Discussions then centered on the timing in the current scheme and the potential for reducing the padding in the timing to make the current scheme much more efficient.

Liz Citrin then suggested that John Fitch fill out the PTRs required for all three of the items discussed and that Glen Foley should supply him with the appropriate forms.

It was agreed that a follow-up meeting would be held in two weeks. Don Chance suggested an afternoon meeting so that Rick Hier could be included via telecon from the west coast. I am suggesting Thursday may 23rd at 1:00 pm at STScI for the next meeting. Please let me know if this is a good time.