

From: Robyn Millan

To: Doug Young

Date: December 23, 2020

Subject: Request for Info - File # 1196-EX-ST-2020

Message:

Answers to the inquiry dated November 24, 2020 are below. In addition, relevant documents addressing the issues raised have been uploaded as attachments.

1. Are the solar arrays included in the components section of the DAS logs and under what name? If not, why are they omitted?

Response: The solar arrays are included. They were shown in the output of requirement 4.7-1 at the top of page 19 of the original Exhibit 6 (ODAR) PDF. However, it appears that a few of the components shown in the "OUTPUT" section were inadvertently omitted from the "INPUT" section. This was a copy and paste error when transferring the log results into the ODAR.

To correct this error, we have uploaded a revised version of the ODAR (Exhibit 6) as an attachment in the Experimental Licensing System with a corrected Appendix (DAS Log results). The revised ODAR is Revision 1. The DAS log (appendix was corrected) and a Record of Revisions table was added.

2. Is the UHF antenna included in the components section of the DAS logs and under what name? If not, why is it omitted?

Response: The UHF antenna was not previously included. It is very thin and had not been included in other CubeSat ODAR that we examined. However, we have now added it and re-run DAS requirement 4.7-1. The results are now included in the Log File (Appendix) of the revised ODAR. The results are shown under "name = UHF Antenna";.

3. Which components included in the components section of the DAS logs, if any, are interior to the structure?

Response: Components interior to the structure are as follows: ClydeSpace Optimus Battery (and children), UHF Transceiver, S-band Transceiver, ADCS Plate, ADCS Bracket, Structure - ADCS-to-rods plate, Structure - Collimator Plate, ESA(1), ESA(2), ESA(3), SSDs,

4. The parent object of the three batteries are each listed as "17". What is the parent object "17"?

Response: The parent object is called "Clyde Space Optimus-40 40 Wh Battery" and is shown in the OUPUT section of the requirement 4.7-1 just before the battery daughter objects, but it was inadvertently omitted from the INPUT section. This was a copy/past error. This has been corrected in the revised ODAR. Note that in re-running DAS with the addition of the UHF antenna, the battery parent object is now numbered parent=3.

5. On page 16 of the ODAR, the component "Solar Array Left Interface Plate 2" is listed as a box but does not have a length or height provided, only a width. Were the values accidentally omitted, or was there an error during the DAS run?

Response: This length and width had gotten cut off the bottom of the page when printing to pdf. That has been corrected. We also fixed the names (changed the word "Left" which previously

appeared twice. They are now labelled correctly as “Left” and “Right”).

Spacecap: 6. Spacecap cover letter is included, but it states a v7 spacecap. Spacecap (AP4 file) is v7 and should be v9. Resubmit a v9 spacecap and update the cover letter.

Response: An updated version of the letter has been submitted as an Attachment. We also resubmitted the spacecap using v9.

7. There are no antenna patterns included. Antenna patterns will need to be submitted in polar format.

Response: The Antenna patterns have been submitted as Attachments. Note that we initially submitted a less accurate version of the S-band antenna patterns. We have submitted an updated version with title, "REAL_S-band_antenna_pattern_Rev1.pdf" which is an updated calculation that includes the spacecraft wall (which acts as a ground plane) and the UHF antenna which affects the directivity by a small amount.

8. You are missing stop buzzer information and will need to submit.

Response: The Stop Buzzer contact is:

John Sample
Montana State University
510-859-3162