Douglas Young

From: Douglas Young
Sent: Friday, September 30, 2016 10:48 AM
To: 'brian.gunter@aerospace.gatech.edu'
Subject: FW: Coordination, Georgia Institute of Technology (RANGE-A,-B), File #0311-EX-PL-2016
Attachments: RANGE_API_output.rtf

Importance: High

The FCC's International Bureau has these additional follow-up questions:

1) On our previous question regarding the description of the concept of operations for formation flying risk of collision and steps to mitigate the risk, we request the applicant to include this information in the ODAR section 5.

1a) In addition, we have a follow-on question on what mechanism is used to release the two cubesats? (i.e. spring or other mechanism, etc.)

1b) And would the release of the two cube-satellites change the operation debris and probability? Also, all this information, we would probably want it incorporated in the ODAR as well.

2) With respect to the in-house built laser ranging system (or inter-satellite laser), we would like to know the frequency or frequency range this laser operates.

Review of the SpaceCap API file

3) Please confirm if both satellite will be transmitting at the same time on the Northern Hemisphere (Box A4b3a) and add one or two in this box.

4) On the the SpaceCap API file receiver and emitter pages, the box RR No. 4.4 has not been checked with "Y"; please make sure all the boxes with RR No. 4.4 are checked "Y";

5) On the receiver page, the max peak power boxes C8a1/C8b1 and min peak power C8c1 have a value of 14 dBW (equal to 25 Watts), yet on the Form 442 the max power is listed as 100 Watts (20 dBW). Please review the max power value and update the correct power level to either document as appropriate.

5) On both receiver and emitter pages, the power spectral density in boxes C8a2/C8b2 and C8c3 values are way below what we calculated. Please review the power spectral density values in each corresponding box using the proper transmit power and emission bandwidth in hertz.

To calculated the power spectral density value, use the following equation: PSD = Power (**dBW**) – 10*Log10 (emission bandwidth in **Hertz,** i.e., 20kHz = 20000 Hz.)

6) On both receiver and emitter pages, the associated earth station, please add the country or countries of the earth station(s), box C10c2.

7) On the emitter page, associated earth station, box C10d6 "Noise temp." there is a value of 1000 yet on the receiver page box C5a "Noise temperature" the value is 290. Please confirm the noise value temperature and update the SpaceCap file as appropriate. (from other application we have processed, the 290 K seems like a typical value).

8) On the emitter page, please marked box B2bis.a "Transmit only when visible from notified service area" and add the minimum elevation angle in box B2bis.b "Min. Elev. Angle"

The attached is the SpaceCap API output file and we have marked the boxes we have questions on with red text and highlighted in yellow. We hope this output document will help the applicant.

The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information within 30 days of May 9, 2016 may result in application dismissal pursuant to Section 5.67 and forfeiture of the filing fee pursuant to Section 1.1108.