

Anthony Serafini

From: Anthony Serafini
Sent: Friday, June 02, 2017 12:00 PM
To: Andrew O'Neill
Subject: Penn State File 0211-EX-ST-2017 questions
Attachments: ITUcost.rec.example.docx

Andrew

Our International Bureau has the following comments and questions. Please review and respond to the following items.

Cost recovery letter was not included in this application. Please use the attached Cost Recovery template text; use your organization cover letter, add the financial representative as the contact and have it signed and send a PDF copy of the signed letter to the FCC.

Also, the application mention remote sensing capability. Please coordinate with NOAA to determine if you need a NOAA license to operate the remote sensing equipment and forward a copy of the NOAA license to the FCC.

IARU letter

WE have reviewed the coordination IARU letter and note that the IARU assigned a bandwidth of 34K4F1D with output power of 1 Watt EIRP for frequency 437.505 MHz.

Form 442:

First, the emission designator for both uplink and downlink in the 437 MHz band contains an emission of 8 MHz wide. This emission may be impossible to support since the amateur-satellite service allocation is from 435-438 MHz (3 MHz) and the IARU letter has agreed to a 34.4 kHz bandwidth.

Second, your application contains a downlink in the 437.005 MHz band. Is this a typo?

For operations in the 400.32 MHz and 150.012 MHz band, applicant please coordinate with ORBCOMM satellite operator as soon as possible. Also, be aware that the 149.9-150.05 MHz band is allocated to the

MOBILE-SATELLITE (Earth-to-space) service on a primary basis and is it an uplink versus the applicant propose use as a downlink. This may have other consequences internationally.

ORBCOMM contact:

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SpaceCap API file

The API file contains several errors that will need to be address by the applicant. Please ensure to run the Space Validation software to ensure that the API does NOT have any fault errors.

The API is also missing earth station information for beam SCIENCE and UPLINK. Also, ensure that an antenna pattern is provided for the earth station uplink band.

Ensure that the API has a max and min peak power; if there is no min peak power then use the max peak power value. Also, ensure that the correct uplink output power value in dBW is provided.

Check the power spectral density calculation for all the beams for each emission designator; the power spectral density formula is $PSD = Power (dBW) - 10 * \log_{10}(\text{emission bandwidth in Hertz})$. Please review and verify the PSD calculation for each emission.

There were other issues with the API. If you run the Space Validation software, it should flag all these issues.

We may have additional question later.

NOTE: FCC does not aid on how to enter data in the SpaceCap API file since this is a consultant type of question. Please obtain the service of a satellite expert that can help filled properly the SpaceCap API file.

Regards

Tony