

From: Stephen Gillespie

To: Doug Young

Date: December 01, 2016

Subject: Request for Info - File #0016-EX-CN-2016

Message:

In response to comments made by the FCC IB (Reference number 34771), the following items have been uploaded to 0016-EX-CN-2016:

- ITU Cost Recovery letter in requested template
- Spacecap file v3 (includes all updates and corrections except for addition of Globalstar terminals)
- Spacecap file attachments (updated space and earth terminal patterns)
- HSAT Experiment Narrative v3 (Rev B)

Form 442 has also been updated to reflect the most updated and corrected power levels for the space and earth station antennas.

Regarding the recent FCC IB questions, please see the following below (FCC questions in quotes):

- "We have concerns with operations in the 2005.625 MHz band. There are a number of GSO and NGSO that operate in the 2000-2020 MHz band"
- Harris Corporation has conducted the search of the referenced website as requested and has concluded that only two GSO satellites are to potentially subject to interference: Echostar G1 (ICO, S2651) authorized to Gamma Acquisition L.L.C. /DISH and Echostar T1 (Terrestar, S2633) authorized to New DBSD Satellite Services G.P/DISH. All other satellite authorizations or applications listed, either GSO or NGSO, have either been surrendered, dismissed or withdrawn. While not evident from the website, Iridium surrendered its authorization (call sign S2325) as part of SAT-MOD-20030828-00286 (surrender notice: http://licensing.fcc.gov/myibfs/download.do?attachment_key=424133).
- Harris Corporation is actively working to develop a mitigation plan with DISH Networks and Echostar who own and operate Echostar G1 and T1.
- "We notice that this application is using the Global Star modem as an inter-satellite service link. In addition, Global Star will need to submit an experimental request for their transmission to the HSAT-1 space station."
- Harris Corporation understands this requirement and is currently coordinating with Globlstar to provide this request.
- "Form 442 and Exhibit 1 indicates that the Global Star modem will be used. Applicant will need to provide the transmit, receive and antenna information for operations in the 1615-1618.5 MHz and 2483.5-2500 MHz band in the API file."
- Harris Corporation does not understand why this is required. The most recent use of Globalstar as a cubesat communications link was for RAVAN (file number 1257-EX-ST-2015), in which Globalstar stations were not included in the API/Spacecap file. To include Globalstar station information in the API file would be a very tedious and difficult task for Harris, due to the lack of control or access to information regarding those stations.
- "Also there is mention of receiving VHF AIS signals. Applicant will need to provide earth station transmitting VHF AIS signals and the monopole VHF antenna information in the API file."
- HSAT-1 will receive publicly-broadcasted AIS signals on the maritime VHF channels from existing ship-based AIS transmitters within the field of view of HSAT-1. These AIS transmitters are separately authorized and not associated with Harris. Harris's AIS receive-only antennas pose zero risk of causing interference to other stations, and Harris is also not seeking protection from interference to the reception of these signals. For these reasons Harris requests to exclude information on the AIS transmitters and Harris's AIS signal reception from the API file.
- "Lastly, we will need to know more about the earth station transmitting in the 159.0125 MHz, 195 MHz, 397.5 MHz and 1260 MHz and received signals into the broad bandwidth deployable

antenna. Can the earth station information be provided into the API file?”
As indicated above, the 162 MHz (not specifically 159.015 MHz) HSAT-1 channel is receiving AIS beacons or VHF keying. The 195 MHz HSAT-1 channel is receiving public VHF broadcast signals from existing, authorized stations. Harris Corporation feels that inclusion of these numerous existing earth stations providing VHF broadcast into the API file is unnecessary. Harris Corporation has no control, authority, or association with any of these stations. The 397.5 MHz and 1260 MHz channels will only be receiving solar noise to test the mid to high end band performance of HSAT’s novel wideband antenna. No Earth Station or Earth emission is associated with the 397.5 and 1260 MHz channels.