

Atmospheric & Space Technology Research Associates (ASTRA)
Experimental License Application
File No.: 0867-EX-CN-2021

Explanation of Amendment – GlobalStar link added

Atmospheric & Space Technology Research Associates (ASTRA) is seeking an experimental license from the FCC for operation of its 12U satellite which is scheduled to launch the second half of 2022.

ASTRA has been in the business of science and engineering for over 16 years. It currently holds a subcontract to conduct a demonstration for the US Air Force and Space Force of how ASTRA's Rapid Revisit Optical Cloud Imager (RROCI¹) can improve in-theater weather imagery over the currently available technologies.

This amendment requests authorization to add a Globalstar link to the satellite, which will act as a beacon. The delay in the launch has allowed ASTRA to implement this additional feature to the satellite and – this time – Globalstar is willing to file a companion application.

GlobalStar Link Data:

Spectrum Needed: 1616.25 MHz
Time of Use: limited to about 10 minutes per week, at most
Satellite Elevation: 642 km
Receive Station: Globalstar satellite
Emission Designator: 2M50G1D

Globalstar use:

Spectrum Needed: 1616.25 MHz

In recent years, small sat missions have been using one-way phone systems supported by the GlobalStar constellation, akin to Iridium or some other satellite phone system. This link will be used for communicating very short state of health messages from the RROCI satellite to the GlobalStar constellation, as a tertiary link. ASTRA is incorporating one of these radios into its satellite as this type of beacon system. It will be tested during the early operation of the satellite, and after that, it is only expected to be used if the satellite experiences a hard reset on orbit.

The link will be in use a very limited amount of time. Following the satellite launch, the beacon will be in use during the set-up time and first few weeks of operation. The beacon will turn on every ten minutes, transmit for 12 seconds, and turn off. The transmission will be of 3 35-byte packets relaying the health of the satellite. Then, the system will turn off.

This pattern of one transmission every 10 minutes is planned for the first two weeks of on-orbit operation for RROCI. There is a possibility that the operation would continue for one additional week, if the data is needed. At that point, this beacon radio will be turned off. It will only be turned

¹ Pronounced "rocky"

on again if the satellite computer system needs to go through a hard reboot, at which point the beacon will be turned on again for its 2% duty cycle transmissions every 10 minutes. After a reboot, the beacon system is only expected to operate for about a week.

The beacon system is one-way communication, so RROCI will not be receiving any signals from the Globalstar system.

RROCI will be communicating with the Globalstar HIBLEO4 constellation. A companion filing will be submitted by Globalstar, and ASTRA will provide those details to the FCC once they are available.

This requested Globalstar link was once part of this application, approved at NTIA, and then removed from the application. The request is identical to what was reviewed previously.

For questions about this application, please contact Anne E. Cortez, Esq., Washington Federal Strategies, 520-360-0925 or alc@conspecinternational.com.