

Form 442 Question 6: Description of Research Project (Form 442 Experimental License Request)

Applicant: Globalstar, Inc.
Form 442 File Number: 0575-EX-CN-2019
In support of NTIA File Number: SPS-23718/1

The objective of the Globalstar Form 442 Experimental License request is to support communications for the ASTRA, LLC (ASTRA) ORCA Constellation of eight (8) CubeSat satellites.

The ORCA mission is a constellation of eight (8) small spacecraft designed to carry passive RF receivers in low earth orbit. The ORCA mission consists of a pathfinder spacecraft followed by seven (7) constellation spacecraft to be launched within 1 year of the pathfinder for a total constellation consisting of eight (8) spacecraft. Each spacecraft is of a 6U CubeSat class with dimensions of approximately 20x30x10cm. The spacecraft are equipped with a 3-axis control system capable of tens of arcsecond control accuracies and equipped with multi-meter deployable booms which make up the three-axis antenna system. For each satellite, primary command, control, and telemetry links will be provided through an S-band TT&C link, X-band Primary Downlink, and S-band secondary downlink, with a Globalstar very low-rate system.

The primary mission is to observe emitting RF signals from the earth and to characterize and report on the received signals. Full details of the objectives of the ORCA project are presented in NTIA File SPS-23718/1.

Background:

This request is related to NTIA File SPS-23718/1. In its NTIA filing, ASTRA sought authority to operate a Globalstar STX-3 transceiver module (FCCID: FCCID L2V-STX3) on each spacecraft. Data transmitted by the ORCA CubeSat will be relayed through the Globalstar system constellation and the associated ground infrastructure to the mission operations center.

In this Experimental License request, Globalstar seeks authority, in connection with the aforementioned CubeSat mission, to:

- receive transmissions from the licensed transmitter modules and relay the data to the mission operations center

The only change from Globalstar's currently licensed operations is that the Globalstar constellation will be receiving transmissions from FCC-approved terminals located on space stations rather than communicating with these terminal from their usual earth-based location. Globalstar's License does not cover space-to-space operation, thus requiring this Experimental License request.

It is anticipated that the ORCA CubeSat mission will be operational for approximately 36 months. ASTRA will notify the FCC of the dates of actual operation, once those dates have been established.

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