

AST&Science
Request for Special Temporary Authority

AST&Science (“AST”) respectfully requests a grant of special temporary authority (“STA”) for temporary downlink (space-to-earth) operations from its BlueWalker 1 (“BW1”) cubesat to its test location in Midland, Texas. The requested downlink operations would occur on the 2207.875-2208.525 MHz band during the period of July 15-30, 2019, in accordance with the proposed schedule set out below. The purpose of the requested testing is to send commands and receive telemetric responses related to the payload configuration and status of UHF links that will be used in accordance with a separate grant of experimental authority. This STA is necessary because neither the satellite nor the earth station antenna have permanent FCC authorization.

Background

The BW1 operates at an orbit of 505 km. The satellite is authorized by Lithuania, which will register the satellite with the UN Office of Outer Space Affairs. AST is using an earth station licensed and located in Lithuania to perform telemetry, tracking and control (“TT&C”) activities for the BW1 on S Band frequencies.

AST has a test and manufacturing facility located in Midland, Texas, where it is developing a novel use for low earth orbit (“LEO”) satellites. AST has experimental authority to operate on certain low band frequencies at its facility in Midland.^{1/} It has separately requested experimental authority to operate uplink transmissions (earth-to-space) on 2033.375-2033.625 MHz from the Midland facility.^{2/}

The BW1 passes over Midland two to three times per day, but experimental testing only will be conducted sporadically. During the testing under its UHF experimental authority, AST requires use of downlink transmissions on 2207.875-2208.525 MHz to obtain satellite telemetry regarding the satellite health status, the setup and transmit conditions of the UHF radio on board the satellite, and other necessary information as it passes over Midland.

AST is not providing commercial services and therefore permanent authority is not required.

Public Interest

AST requires short term experimental testing in the 2200 MHz frequency range using an S Band antenna because the BW1 houses an S band radio designed for the requested downlink frequency range that must be used while the UHF radio is being set up and initially tested. AST will downlink telemetry data from the satellite to assure that the UHF experimental radio is functioning correctly. For accuracy, this must occur while the satellite is over Midland rather

^{1/} Call Sign: WJ2XZZ; File Number: 0884-EX-CN-2018.

^{2/} File Number: 0047-EX-CN-2019.

than while it is located over Lithuania, where AST has permanent authority to operate on the 2200 MHz frequency range.

AST is cognizant that the requested frequency is allocated for Federal use only and that it must be cautious about the potential impact of its testing on any nearby Federal operations. Therefore, AST has limited this request to the minimum number and length of downlink transmissions that it believes are necessary for its testing. Grant of this request would be in the public interest as it would enable development of a novel communications system.

Proposed Transmission Schedule

AST will be able to provide a schedule of transmissions by July 1, 2019, for the requested test period timeframe of July 15-30, 2019. This will be more precise than providing one at this time.

In general, AST proposes to transmit on and off during a five-minute period of time as the satellite passes over Midland. These transmissions will occur in short bursts (equivalent to a very low duty cycle of less than 5%) during the five-minute window of time that the satellite passes over Midland. AST anticipates that after the first few days of the test period, it will only require a few short transmissions per day, of perhaps 60 seconds each.

Additionally, as necessary, AST can provide 24 hours advanced notice of its planned transmissions directly to any nearby Federal user.