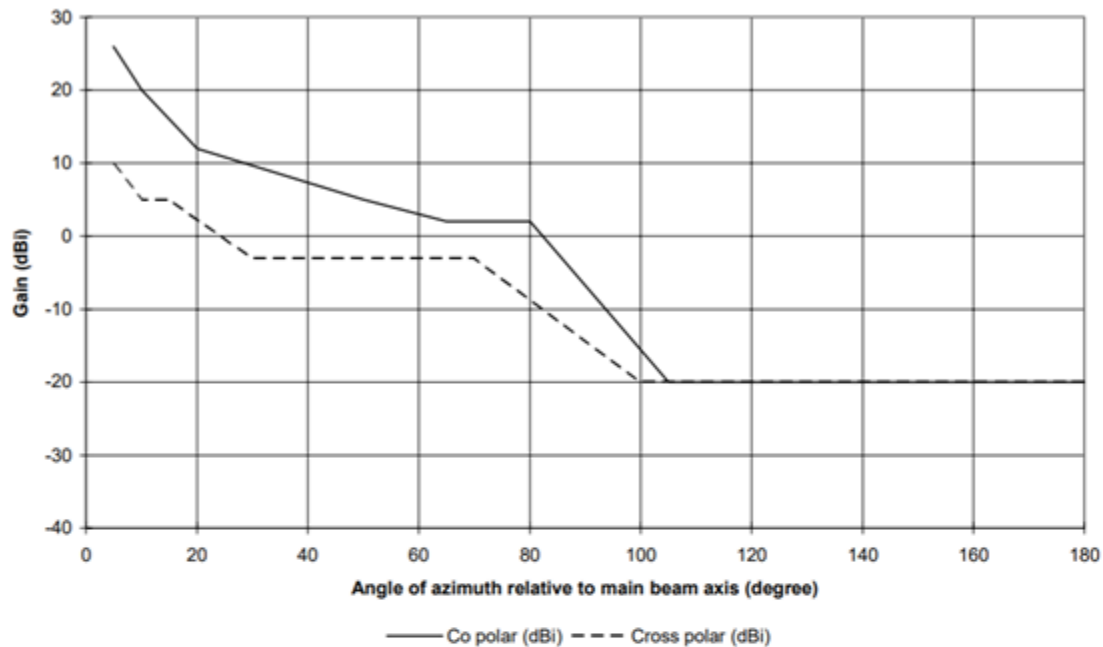


PROGRAM OF RESEARCH AND EXPERIMENTATION

Higher Ground LLC (“HG”), pursuant to Sections 5.54(a)(1) and 5.71(a) of the FCC’s rules, requests a conventional experimental license to test and develop new algorithms for its SatPaq technology, using a higher gain satellite antenna at a single location.

Purpose and Scope of Experimental Operations: The requested experimental authorization will permit HG to test, develop, and demonstrate the feasibility of using a higher gain antenna connected to a SatPaq to provide satellite-based messaging services to terrestrial users. The specific antenna off-axis pattern is based on the ETSI class II pattern shown below.



Angle (degrees)	Co-polar (dBi)	Angle (degrees)	Cross-polar (dBi)
5	26	5	10
10	20	10	5
20	12	15	5
50	5	30	-3
65	2	70	-3
80	2	100	-20
105	-20	180	-20
180	-20		

Figure 2b): RPEs for class 2 antennas in the frequency range 1

HG seeks to conduct studies to demonstrate device capabilities while providing interference protection to co-channel and adjacent-channel licensed systems.

Satellite Transmissions and Operating Frequencies: The devices will operate on C-band frequencies in the 3700-3705 MHz (space-to-Earth) and 5925-5930 MHz (Earth-to-space) bands to communicate with an authorized Intelsat satellite, the Galaxy 12 at 129° W.L. (Call Sign S2422). The resultant azimuth for the Earth station antenna at the single location for testing, in Mountain View, CA, will then be 191.3 degrees, and the resultant elevation for the Earth station will be 46.0 degrees.

Radiofrequency (“RF”) Operation: The devices will use a directional user terminal antenna to transmit in time division multiple access (“TDMA”) mode.

To prevent harmful interference to other Fixed Satellite Service systems, the devices will employ spread spectrum techniques to comply at all times with the power spectral density limits specified in Section 25.218(d) of the Commission’s rules.

With respect to the risk of harmful interference to authorized co-channel terrestrial point-to-point microwave systems in the 5925-5930 MHz band, the devices will use HG’s Channel Master software, which has been approved by the FCC for protecting fixed point-to-point operations (See DA 17-80). In addition, a search of the ULS database conducted on 03/29/2019 indicates that there are no point-to-point microwave links in the State of California operating in the 5925-5930 MHz band. Thus no interference is conceivable.

The technical parameters of the RF operation of the devices are further specified in the accompanying FCC Form 442.

Hours of Operation: The devices are capable of operation 24 hours per day, seven days per week. HG will maintain records of the dates and times when experimental operations are conducted. The following person may be contacted by telephone 24 hours, seven days a week in the event of any interference issues: Rob Reis at (650) 322-3958.