

## **Introduction:**

By the instant application (“Application”), Epirus, Inc. requests that the Commission grant Special Temporary Authority (STA) to operate the facilities specified in the instant Application for the period of December 1, 2020, to May 31, 2021.

## **Purpose of the Operation:**

Epirus, Inc., requests authorization to test a prototype high power microwave (HPM) system. This HPM technology is a critical component of several solutions Epirus plans to provide for existing and future government customers including vehicle/vessel stop, counter-electronics, and counter-communications solutions. Epirus’s approach to HPM affords unprecedented reductions in size and weight, increased power density, and near-unlimited magazine depth over traditional vacuum tube HPM solutions.

The prototype system is a ground-based, directional phased array with a 300 meter range. The system utilizes 144 HPM-generating elements and digital beamforming capable of generating precision beams or a combined single beam. Its beam width at half-power is 7 degrees. The pulse widths vary from 10-200 us with 1-200 ms pulse repetition intervals.

This experiment will be conducted in connection to potential deployments of the technology described above for federal agencies. This experiment will also be conducted in support of Epirus’ existing contracts, listed below:

- Phase II Department of Navy Small Business Innovation Research (SBIR) grant to develop an HPM vehicle/vessel stop prototype system
- Strategic supplier agreement with Northrop Grumman

## **Interference Mitigation:**

Epirus is well aware of its obligations under Part 5 of the Commission’s rules to avoid interference to co-channel licensees in non-experimental services, and will take all necessary steps to ensure compliance with this obligation.

In addition, the following factors will help mitigate any interference issues:

1. Operation will take place only on the four discrete frequencies set forth in the STA Request.
2. Each test will be limited in time and location to protect co-channel licensees. Overall, Epirus expects that it will test the product no more than 30 days during the requested STA period. Outdoor testing will not be continuous.
3. Emissions will be active for short durations no longer than 30 minutes at a time (maximum) with an average on-time of 1 minute per test. During a test, emissions will be activated for these durations periodically with several minutes between emissions

at a minimum, if not longer. Overall, during a full day of testing the expected total time spent emitting would be on the order of 1 to 2 hours on average.

4. This application is being submitted with the full knowledge and approval of the government customer, who has asked Epirus to conduct the testing to demonstrate the proof in concept before moving forward with more formal licensing.
5. A waiver of the Station ID requirements of Section 5.115(a) of the Commission's rules is requested.

**Stop Buzzers:**

The following will be available by wireless telephone and will act as the "stop buzzer" if any issues arise during testing:

- Primary: **Jason Chaves**, Systems Engineering Lead, Epirus / c: (631) 896-3725
- Secondary: **Bo Marr**, Chief Technology Officer, Epirus / c: (310) 487-5016