

Public Interest Statement

1. Introduction

By the instant application ("Application"), Fortem Technologies, Inc. ("Fortem") requests that the Commission grant Special Temporary Authority ("STA") to permit Fortem to operate the facilities ("Facilities") specified in the instant application from 7/22/19 – 01/22/2020.

2. Purpose and Nature of Operation

Fortem Technologies specializes in worldwide real-time AI-enabled airspace security and safety. This experimental STA is requested to test the complete system with the appropriate 2-way digital datalink used in the final system. When airborne mobile, the facility will be mounted on an unmanned aircraft flying at a maximum altitude of 400 ft (122m) AGL and within visual line-of-sight of the operator.

The activity is necessary to test the system being developed which requires utilization of non-ISM frequency bands.

The testing will be directed by the Fortem Technologies engineering team with technical support from the data link manufacturer, Microhard, as necessary.

The digital datalink can operate with 8 different modulations, including BPSK, QPSK, and QAM, and different data rates as follows:

BPSK_1/2

QPSK_1/2

QPSK_3/4

16QAM_1/2

16QAM_3/4

64QAM_2/3

64QAM_3/4

64QAM_5/6

The data rates and modulation schemes are divided into 3 modes with maximum emission bandwidths of approximately 2, 4, and 8, MHz.

The three emission designator identified represent the maximum emission bandwidths for these modes using 64QAM_5/6 modulation.

The digital datalink can operate on any of the following:

- 1811 - 1869 (1 MHz BW, CH 1-59)
- 1812 - 1868 (2 MHz BW, CH 2-58)
- 1813 - 1867 (4 MHz BW, CH 3-57)
- 1814 - 1866 (8 MHz BW, CH 4-56)

The requested action frequency range represents the maximum usable emission bandwidth when operated on the lowest and highest channels.

The fixed ground station and the mobile airborne station have the same performance specifications including modulating schemes, bandwidth, and transmitter power, 1 Watt. The ground station will use a higher-gain antenna with a gain of 8 dBi with an estimated transmission line loss of 2dB. The airborne station will use a lower-gain antenna of 3 dBi with an estimated transmission line loss of 1 dB. Both antennas have omnidirectional radiation patterns in azimuth. One ground station will communicate with up to 3 airborne stations. Each airborne station transmits information to the ground station forming a two-way datalink. All stations (ground and airborne) will operate simultaneously at each location. The group of stations (up to 4) will always be at the same general location.

3. Interference Mitigation

Fortem 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 steps to ensure compliance with this obligation.

With respect to interference mitigation, Fortem Technologies understand that FAA (or other government stakeholders) may restrict radiation to certain azimuth and/or elevation sectors in order to ensure the proposed Facilities do not pose a threat of interference to adjacent emitters. Accordingly, this is to confirm that Fortem Technologies stand ready to work with FAA to identify any reasonably necessary restrictions for the system.

4. Stop Buzzer

Fortem Technologies advises that the following will be available by wireless telephone and will act as "Stop Buzzers" if any issues regarding interference arise during testing

Primary: George Mayor; Mobile: 703-629-1968

Secondary: Spencer Prows, Mobile: 608-358-8051 or Nate Prows, Mobile: 801-369-5425