

## **Exhibit 1**

### **I. Introduction**

By the instant application (“STA Request”), BAE Systems Information and Electronic Systems Integration Inc. (“BAE Systems”) requests that the Commission grant Special Temporary Authority (“STA”) to permit BAE Systems to operate the facilities (the “Facilities”) specified in the instant STA Request.

### **II. Purpose and Nature of the Operation**

BAE Systems manufactures and tests RF systems as well as antennas for DOD as well as other governmental customers. The testing specified in this Application will be conducted by BAE Systems Information and Electronic Systems Integration Inc., which is a major producer of electronic warfare systems, protection systems, and tactical surveillance and intelligence systems for all branches of the armed forces. This unit's lines of business include Electronic Warfare/Electronic Protection, Electronic Warfare/Information Warfare, Integrated Defense Solutions, and Mission Electronics with products and services spanning the whole electromagnetic spectrum.

In this case, BAE Systems is testing an electronic payload installed on a small unmanned aircraft system at four different locations. The tests will demonstrate the feasibility of providing our warfighters unique communications capabilities enabled by airborne small form factor electronics. A STA is requested to authorize transmission operations in all four locations in support of activity pursuant to the following government contract:

|                  |                                                                                                                                                   |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Agency:          | Air Force Research Laboratory                                                                                                                     |
| Contract Number: | FA8650-19-C-7925                                                                                                                                  |
| Government POC:  | Steve Fernandez, DR-03<br>Program Manager<br>AFRL/RYMR<br>2241 Avionics Circle, Bldg 620<br>Wright-Patterson AFB, OH 45433<br>937-713-8976 office |

Waiver of the Station ID rules set forth at Section 5.115 is respectfully requested.

Temporary-fixed and airborne operations will occur at each of the 4 locations, as follows:

Devens, MA (RFTA Devens - US Army):

Temporary-fixed operations within 2.1 km of the specified centerpoint coordinates

Mobile airborne operations with the furthest waypoints lying on a radius of 2.1 km from the specified centerpoint coordinates. The maximum flight ceiling planned is 1020 meters above ground level (AGL). Ground elevation above sea level at the center point coordinates is 95m at this location. The nearest airport to the center point coordinates is at this location (Turner Drop Zone, RFTA Devens (US Army)).

Merrimack, NH (BAE Systems Campus):

Temporary-fixed operations within .43 km of the specified centerpoint coordinates

Mobile airborne operations with the furthest waypoints lying on a radius of .43 km from the specified centerpoint coordinates. The maximum flight ceiling planned is 122 meters above ground level (AGL). Ground elevation above sea level at the center point coordinates is 71m at this location. The nearest airport to the center point coordinates is 7.4 km from the centerpoint.

Hudson, NH (BAE Systems Campus):

Temporary-fixed operations within .16 km of the specified centerpoint coordinates

Mobile airborne operations with the furthest waypoints lying on a radius of .16 km from the specified centerpoint coordinates. The maximum flight ceiling planned is 122 meters above ground level (AGL). Ground elevation above sea level at the center point coordinates is 73m at this location. The nearest airport to the center point coordinates is 11.5 km from the centerpoint.

Preston, MD (EIS test facility):

Temporary-fixed operations within .7 km of the specified centerpoint coordinates

Mobile airborne operations with the furthest waypoints lying on a radius of .7 km from the specified centerpoint coordinates. The maximum flight ceiling planned is 122 meters above ground level (AGL). Ground elevation above sea level at the center point coordinates is 6m at this location. The nearest airport to the center point coordinates is 11.1 km from the centerpoint.

### III. Directionality/Orientation

At each location, a “Yes” reply has been inserted in response to the question “Is a directional antenna (other than radar) used?” because in each scenario there will be a mix of directional and non-directions antennas used. The following information is provided with respect to the directional antennas to be used at each location:

Devens, MA

Directional Antennas used for Ground-Based Transmissions:

| Antenna                                              | Beamwidth at Half-Power Point | Orientation in Horizontal Plane      | Orientation in Vertical Plane |
|------------------------------------------------------|-------------------------------|--------------------------------------|-------------------------------|
| Orchestrator – L-Com Model HG2415P-180 (15 dBi gain) | 180° in azimuth               | No footprint in the horizontal plane | Vertically polarized          |

Merrimack, NH

Directional Antennas used for Ground-Based Transmissions:

| Antenna                                              | Beamwidth at Half-Power Point | Orientation in Horizontal Plane      | Orientation in Vertical Plane |
|------------------------------------------------------|-------------------------------|--------------------------------------|-------------------------------|
| Orchestrator – L-Com Model HG2415P-180 (15 dBi gain) | 180° in azimuth               | No footprint in the horizontal plane | Vertically polarized          |

Hudson, NH

N/A

Preston, MD

Directional Antennas used for Ground-Based Transmissions:

| Antenna                                              | Beamwidth at Half-Power Point | Orientation in Horizontal Plane      | Orientation in Vertical Plane |
|------------------------------------------------------|-------------------------------|--------------------------------------|-------------------------------|
| Orchestrator – L-Com Model HG2415P-180 (15 dBi gain) | 180° in azimuth               | No footprint in the horizontal plane | Vertically polarized          |

#### **IV. Interference Mitigation**

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

- Operation of the requested facilities in the range 902 to 927 MHz is limited to a traditionally "unlicensed" range, specifically intended for command and control of an unmanned air vehicle (drone). Transmissions in this range will be continuous for a maximum duration of six hours in any day during the approval time period.
- Operation of the requested facilities in the range 2401 to 2473 MHz is limited to a traditionally "unlicensed" range, specifically intended for operation of a wireless network in accordance with the IEEE 802.11 protocols. Transmissions in this range will be limited to one 20MHz channel in the available frequency range. Transmissions will be continuous for a total duration of six hours in any day during the approval time period.
- Operation of the requested facilities in the known licensed frequency ranges of 100 to 107MHz, 175 to 200MHz, 650 to 697MHz, 3000 to 3200MHz and 6000 to 6100MHz will not be continuous. Rather, authority for only sporadic operation of the facilities within any single frequency band is requested during the authorized timeframe. The transmitters will issue highly intermittent transmissions of short duration, which will significantly limit the potential for interference to authorized users. Each transmission issued by the device will be no longer than 100 microseconds in length, repeated every 10 milliseconds for a maximum of 10 minutes every 30 minutes. Testing periods will not exceed six hours per day during the approval period.
- In the off state, no measurable power will be radiated.
- At RFTA Devens, all operations will be coordinated with the local spectrum management office.
- BAE Systems has selected the test frequencies and bandwidths to avoid commonly used FAA ATC frequencies, known paging services and known public safety frequencies.
- BAE Systems understands that FAA (or other stakeholders) may require certain limited azimuth and/or elevation orientations in order to ensure that the proposed facilities do not pose a threat of interference to adjacent emitters. Accordingly, this is to confirm that BAE Systems stands ready to work with FAA to identify any reasonably necessary restrictions for the system.

**V.     Stop Buzzer**

The following will be available by wireless (cellular) telephone and will act as the “stop buzzer” if any issues arise during testing:

John Vanderburgh 603-674-6965