

**PUBLIC INTEREST STATEMENT**

1. **Introduction**

By the instant Application ("Application"), BAE Systems Information and Electronic Systems Integration Inc. ("BAE Systems") requests that the Commission grant a Two Year experimental license to permit BAE Systems to operate the facilities (the "Facilities") specified in the instant Application.

**The instant Application seeks a two year license for the same facilities that were granted under Special Temporary Authority ("STA") pursuant to File No. 0653-EX-ST-2005, and under the same terms and conditions.**

2. **Purpose of the Operation**

BAE Systems Communication, Navigation, Identification and Reconnaissance (CNIR), a business unit of the Information and Electronic Systems Integration Sector (IESI) within BAE Systems Inc., will conduct the testing specified in this Application. CNIR is a leader in building technical systems for the U.S. Department of Defense and our allies in avionics, navigation, and military communications. CNIR's lines of business include C3I systems and communication systems integration, guidance and navigation, electronic identification, and reconnaissance systems.

The testing at BAE Systems' Greenlawn campus will support the internal development of a soldier ID system that enables commanders to identify, and possibly locate, friendly soldiers on the battlefield. The soldier ID tag is a self contained unit that requires no input from the soldier. The purpose of the Combat ID demonstration test program is to investigate the range of the system in various combat situations. Some of the variables include terrain, location, and soldier orientation and position. Another objective of the test program is to investigate the effects of the proximity of the human body on performance. The relevant contract information is as follows:

- Agency:

Contract Research and Development Agreement with the US Army,  
Research and Development Command

- Contract #:

There is no CRADA Number. However, the full name of the CRADA title is "Cooperative Research and Development Agreement for Antenna Modeling & Simulation, Testing and Validation; Network Architecture Verification and Demonstration; and Systems Integration and Prototyping

U.S. Army Research, Development, and Engineering Command,  
Communications-Electronics Research, Development and Engineering  
Center and BAE Systems Information and Electronic Systems Integration  
Inc- CNIR"

- Point of Contact:

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It is also noted that the instant Application seeks Commission authority to operate the specified antennas on a fixed basis within a radius of operation around the centerpoint of: 40-52-00 N.Lat.; 073-22-10 W.Long. [NAD 83]. Specifically, BAE Systems is requesting authority to operate the specified transmitting equipment within a 2 km radius from the centerpoint geographic coordinates identified in the Application (i.e., 40-52-00 N.Lat.; 073-22-10 W.Long. [NAD 83]).

3. Transmitting Equipment and Additional Technical Information

The following information is provided with respect to the transmitting equipment to be involved in the experiment.

| Manufacturer | Model               | Quantity | Experimental? |
|--------------|---------------------|----------|---------------|
| BAE Systems  | N/A - Combat ID Tag | 1        | Yes           |

Additional technical information regarding the proposed transmissions is as follows:

- The proposed system uses a short burst of coded RF in the VHF SINCGARS band to query soldiers in the field. Upon reception of the interrogation, the soldier responds with a coded RF burst that includes data with his unique identity and location that could be derived from GPS. The soldier transmission also uses the VHF SINCGARS band. The best and only reliable test of this system is through over-the-air radiation in the field. It has been determined that the link is asymmetrical where the weak link is the soldier-to-interrogator response. Accordingly, only that aspect of the system will be evaluated in this test. A soldier antenna/transmitter will be constructed. Simple, pulsed modulation will be applied to the transmitted signal and the link will be evaluated by listening, using a standard SINCGARS radio.
- The system employs a specially designed, integrated transmitter/antenna system. No commercial transmitting or antenna hardware is used.
- The antenna pattern is nearly isotropic and may radiate signals in any polarization.
- The anticipated pulse duration is 0.2 sec and the prf will be approximately 0.5 pps.

- The transmission will be modulated using FSK. The maximum data rate will be 5Kb/sec. The maximum FM deviation will be 7 KHz and the transmission will be contained within the 25KHz SINCGARS radio channel bandwidth.

4. Note Regarding Frequency Request

BAE Systems is mindful of the need to ensure that its frequency requests are narrowly defined to meet its project requirements, while not unnecessarily intruding upon bands allocated for government or other use. Having said that, BAE Systems confirms that obtaining authority for the bands specified in the above-referenced Application (30-74.8 MHz; 75.2-88 MHz) is necessary in this context in light of the nature of the subject experiment. Specifically, the BAE Systems proposed combat ID system uses existing SINCGARS radios and soldier-mounted tags to transfer soldier identification and location information throughout the battlefield. The combat ID function is embedded within the SINCGARS waveform and the frequency-hopped transmission simultaneously passes the traditional SINCGARS voice/data along with the combat ID. Since the CID function must be transparent to the SINCGARS radio operator, it must operate anywhere in the allocated SINCGARS band. In some cases the traditional SINCGARS radio transmission uses a full-band hop set and a single radio transmission will require the entire specified spectrum.

5. Note Regarding Output Power/ERP Figures

The "antenna" is a specially designed, integrated transmitter/antenna system with no identifiable antenna terminal. For the purpose of completion of the attached form, therefore, the transmitter power and the radiated power are reported as equal (i.e., both the Output Power and the ERP are reported as ".010 W").

6. Note Regarding "Mean" Power Designation

In the attached form, the power levels are reported as a "Mean" value. The transmitter will not be left on continuously due to the nature of the experiment and the need to physically reposition the unit under test between measurements, cycle through frequencies, etc. where the transmit power is reduced to zero. The actual duty cycle of the transmit system is approximately 10%. Mean power is therefore a more accurate representation of the applicant's proposed activity.

7. Prevention of Interference

BAE Systems' Joseph T. Merenda will be personally conducting the test and will be available by telephone at (631) 262-8092. Mr. Merenda will act as a "stop buzzer" if any issues regarding interference arise during testing.