

**STA REQUEST
AND DESCRIPTION OF OPERATIONS**

1. **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. STA is requested for a period of six (6) months from the date of grant of this STA Request. In this case, a start date of December 1, 2005 has been proposed by BAE Systems.

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 STA Request. 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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3. Why STA is in the Public Interest

STA is being requested in order to obtain processing as expeditiously as possible so that the commencement of operation of the proposed facilities can occur as soon as possible. As a leader in technological advancements, BAE Systems continually drives new research efforts in support of the war fighter. Each candidate antenna design is fabricated and tested using the antenna measurement system described in the application. Accordingly, pursuant to the requirements of the relevant contract, evaluation of the performance of the antenna is currently scheduled to commence on December 1, 2005. Grant of an STA in this instance will permit BAE Systems to meet this near-term scheduling requirement. As stated above, the testing at BAE Systems' Greenlawn campus is a critical part of the development and manufacture of systems for the Armed Forces in support of Homeland Security as well as war efforts. For the foregoing reasons, approval of this STA Request is in the public interest, convenience and necessity.

It is also noted that the instant STA Request 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 STA Request (i.e., 40-52-00 N.Lat.; 073-22-10 W.Long. [NAD 83]).

4. Transmitting Equipment and Additional Technical Information

In response to Item No. 8 in the Administrative portion of the STA Request, 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.

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.