

**STA REQUEST
AND DESCRIPTION OF OPERATIONS**

1. **Introduction**

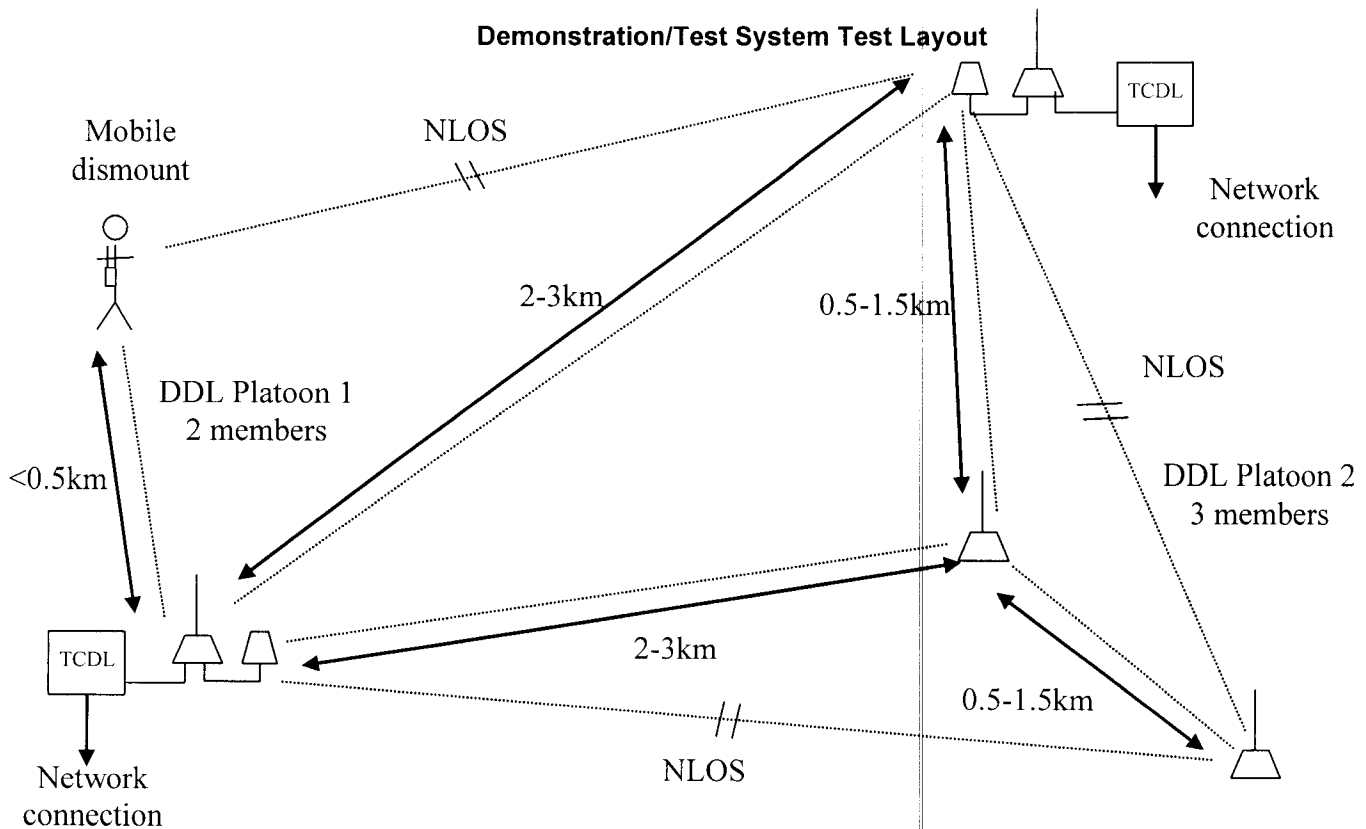
By the instant application ("STA Request"), BAE Systems Information and Electronic Systems Integration Inc. ("BAE Systems") requests that the Commission grant special temporary authority ("STA") to permit BAE Systems to operate the facilities (the "Facilities") specified in the instant STA Request. STA 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 May 26, 2006 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 device (the "Battlefield Target Identification Device (BTID)") that enables commanders to identify, and possibly locate, friendly soldiers on the battlefield. Specifically, the primary aim of the BTID is to positively identify friendly forces on the battlefield in order to reduce fratricide and maintain or improve combat effectiveness. This BTID system is a millimeter wave question and answer system working in the Ka band. It comprises two main components, an interrogator, which allows a platform to question another platform with an encrypted message, and a transponder, which decodes the message and replies with an encrypted answer. Transponders will be fitted to all designated platforms, while interrogators will be fitted to only those designated platforms with an offensive or reconnaissance capability. The specific objectives sought to be accomplished is to test the equipment that consists of an interrogator that transmits a signal using a narrow antenna pattern and a transponder that when it receives the signal, transmits a reply using a near omni directional antenna. The interrogator receives this signal in order to recognize the transponder and determine its range. All signals are encrypted and spread over a band of 300 MHz using a combination of spread spectrum and frequency hopping. The program of experimentation will have a significant contribution to the development, extension, expansion and to the radio art in the areas of identifying "Friend" or "Unknown" in the battlespace using spread spectrum technology of over 300Mhz bandwidth using a combination of frequency hopping and BPSK modulation including encryption.

A graphic description of the test system layout is provided below:



The tests for which authority is sought pursuant to this STA Request are, at this time, related to internal Research and Development (“IR&D”) efforts aimed at achieving a level of performance that will enable BAE Systems to be in a position to compete for future government contract opportunities. As a result, there is no specific contract information to be provided with respect to this STA Request.

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. Grant of an STA in this instance will permit BAE Systems to meet its near-term scheduling requirements. 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.

4. Additional Technical Information

Additional technical information regarding the proposed transmissions is as follows:

A. Actual Frequency Requirements

The BTID waveform operates in the Ka band of the electromagnetic spectrum, specifically between the frequencies of 36.7 to 37.0 GHz. The BTID waveform has been designed to achieve a low probability of exploitation (LPE). A LPE encompasses both a low probability of detection (LPD) and a low probability of intercept (LPI). To accomplish the required TRANSEC properties the waveform uses the following:

- Frequency hopping with 29 hopsets.
- Direct sequence spreading using BPSK within each hopset.

The hopset is 29 frequencies 10 MHz spaced with center frequencies starting at 36.710 GHz and ending at 36.990 GHz. Accordingly, a grant consistent with these actual frequency requirements would be wholly acceptable to BAE Systems.

B. Orientation of Directional Antenna

3dB BW E (Vertical)	3dB BW H (Horizontal)
5°	3°

5. Prevention of Interference

BAE Systems' Ronnie P. Milione will be personally conducting the test and will be available by wireless telephone at 917-539-2234. Mr. Milione will act as a "stop buzzer" if any issues regarding interference arise during testing.

Close-up Details of Antenna Support Systems

