

**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 three (3) months from the date of grant of this STA Request. Due to the requirements of the government program referenced herein, grant of the instant STA Request is respectfully requested by no later than May 13, 2005.

2. **Purpose of the Operation**

BAE SYSTEMS Information & Electronic Warfare Systems (IEWS), a business unit of the Information and Electronic Systems Integration Sector (IESI) within BAE SYSTEMS North America, will conduct the testing specified in this STA Request. IEWS is a major producer of electronic warfare systems, protection systems, and tactical surveillance and intelligence systems for all branches of the armed forces. IEWS’ 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.

The testing at the Merrimack Antenna Test Range is a critical part of the manufacture and delivery of military systems provided to the Armed Forces in support of Homeland Security as well as war efforts. As a general matter, the purpose of the facilities for which consent is requested herein is to measure individually the performance of scale model antennas of various types (i.e., loop, monopole, dipole), then install arrays of these antennas on scale models of various military fixtures, and measure the performance of the antennas in their installed configuration. Due to the nature of the program for which the system is being designed, BAE SYSTEMS is not in a position to discuss the particular anticipated system function in any greater detail, and the security guidelines do not permit BAE SYSTEMS to reveal the contract number, agency, or the point of contact (POC) for the customer.

3. **Discussion Regarding the Specified Frequency Bands**

The STA Request seeks Commission authority to operate within a number of different frequency bands. Although BAE SYSTEMS is aware that requesting authority for such a broad selection of frequencies will require significant review and coordination efforts, BAE SYSTEMS notes that the subject system’s capabilities will span the HF to microwave frequency spectrum. As contractually specified by all government procurement agencies, any development and/or product sell-off requires realistic measurement of a system. Should BAE SYSTEMS be

denied the critical ability to perform radiation measurement over a broad range of frequencies, such denial would severely hinder the execution of the programs and systems developed by the company in support of Homeland Security efforts. Accordingly, authorization under such a broad variety of frequency bands is necessary in this context.

It is further noted that the Commission has already previously granted STA to BAE SYSTEMS to operate on a smaller subset of all of the same requested frequency bands at the company's Merrimack, NH Antenna Test Range (which is located approximately 500 meters from the temporary test facility described herein) See File Nos. 0114-EX-ST-2005 (WC9XCL) and 0010-EX-ST-2005 (WB9XZE). Accordingly, BAE SYSTEMS trusts that the Commission's coordination and processing of this STA Request may benefit from the prior grant of these exact frequency bands at a co-located antenna range.

4. Why STA is in the Public Interest

STA is being requested in order to obtain processing by the Commission and Other Governmental Agencies 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, evaluation of the performance of the antenna will be conducted in the near term before integrated into the system. In this particular case, authority to operate the Facilities under STA is necessary so that BAE SYSTEMS can demonstrate and verify performance of the subject system in accordance with the guidelines of military contracts for which BAE SYSTEMS will be competing in the very near future. As stated above, the testing at the Antenna Test Range Facilities is a critical part of the manufacture and delivery of military systems provided to the Armed Forces in support of Homeland Security as well as war efforts, and BAE SYSTEMS is not in a position to delay the commencement of these tests. Commission grant of STA in this case will permit BAE SYSTEMS to commence operations under a timeframe that will permit it to timely verify performance and submit the system to the government under applicable bidding procedures. For the foregoing reasons, approval of this STA Request is in the public interest, convenience and necessity.

5. Other Issues

A. Requested Location and Test Range Geometry

The Antenna Test Range will use a crane to raise the transmitting antenna to various heights above the ground to achieve various look-down angles on the Antenna Under Test (AUT). See Exhibit 2. The transmit antenna is directional and will be adjusted in elevation at each test height of the crane to maintain bore-sight with the AUT. The transmitter will be turned off while the crane is moving and will not be turned back on until nominal bore-sight is achieved. The mechanical interface to the crane will provide elevation control and stability of the transmit antenna. The same interface will ensure that the stability of the transmit antenna in both azimuth and elevation angles will be better than +/- 5 degrees in up to 20 mph winds. The system will be shutdown in wind conditions exceeding 20 mph.

The transmitter will be located at North Latitude: 42-48-39.42 and West Longitude: 71-29-10.68. The receiver will be connected to the AUT which is located at North Latitude: 42-48-38.34 and West Longitude: 71-29-9.66. The transmit antenna will only point in a direction toward the receiver, and as the height of the transmit antenna is raised, the declination angle will be changed to keep the transmit antenna pointed toward the AUT on the ground.

B. Directionality and Height of Antennas

The transmit antenna height will vary from 0 meters above the ground to a maximum of 36.6 meters above the ground during a given experiment. The transmit antenna will be located where the immediate area is nominally 62.5 meters above sea level.

The directional transmit antenna will point in a direction of maximum radiation that is in the opposite direction of the nearest air field.

The antenna range geometry described herein inherently contains radiation to the local area by:

1. The bearing from the transmitter to the receiver is into a heavily wooded area behind the AUT site.
2. The direction of maximum transmission of the transmit antenna will generally be pointed to the earth.
3. The earth's surface is randomly rough and composed of relatively high loss sandy soil in the location where the transmit beam impinges on the earth.

Two transmit antennas will be required to cover all the requested frequencies. The antenna will be physically swapped on the transmitter as required. The two antennas are listed below with their characteristic.

Manufacturer	Model #	Gain (Nominal)	E-Plane 3dB BW	H-Plane 3dB BW
KMA	26500	-6 dBi	90 deg	90 deg
Scientific Atlanta	28-1.0/8/10	+8 dBi	9 deg	4.5 deg

C. Transmitting Equipment

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. One of the following items listed below will be chosen for use during the experiments. It should be made clear that only one transmitter will be use at any given time.

It is noted that each of these transmitters is non-experimental in nature:

Manufacturer	Model	Quantity
Fluke	Fluke 6060	1
HP	HP8341	1
HP	HP8643A	2
HP	HP8340B	2
HP	HP8662A	1
HP	HP8671A	1
HP	HP8753A	2
HP	HP8753D	2
HP	HP8753E	2
HP	HP8510B	1
HP	HP8510C	1
Agilent	E8257D	1

D. Prevention of Interference

BAE SYSTEMS hereby advises the Commission that the tests to be conducted under the requested Commission authorization are to be conducted solely on the campus of BAE SYSTEMS' Merrimack, New Hampshire facilities. Such location will result in the separation of the test facilities from other existing transmit or receive facilities. BAE SYSTEMS' Steve Summers will be personally conducting the test and will be available by wireless telephone at (603) 885-1707. Mr. Summers will act as a "stop buzzer" if any issues regarding interference arise during testing.