

**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. Due to the requirements of the government program referenced herein, grant of the instant STA Request is respectfully requested by no later than August 1, 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 Litchfield 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 full scale antennas of various types (i.e., loop, monopole, dipole), and measure the performance of the antennas on a large ground plane. As discussed below, the instant STA Request seeks grant of authority for facilities similar to those previously granted under File No. 0221-EX-ST-2005, but this time in connection with a different (i.e., Airborne Antenna Testing) program. 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 Millimeter-wave 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 many of the same requested frequency bands at the same location, under File No. 0221-EX-ST-2005 (WC9XDV). Accordingly, BAE SYSTEMS trusts that the Commission's coordination and processing of this STA Request may benefit from the prior grant of these similar frequency bands at the same antenna range.

The next two pages identify: (i) On Page 3 - a comparison of the frequencies identified in the instant STA Request to those previously granted by the Commission under File No. 0221-EX-ST-2005; (ii) On Page 4 – those frequencies sought in this STA Request which were not previously granted under File No. 0221-EX-ST-2005.

**FREQUENCIES SOUGHT IN THIS STA REQUEST THAT WERE PREVIOUSLY
GRANTED IN FILE NO. 0221-EX-ST-2005**

**Frequencies/Bands Requested
In This STA Request**

**Frequencies/Bands Previously
Granted Under File No. 0221-EX-ST-2005**

30.2-74.6 MHz
75.2-106.4 MHz

30-74.8 MHz
75.2-108 MHz

125.6-129.2 MHz
(BAE SYSTEMS hereby confirms that it is willing to accept the same “carve-outs” required by the Commission in its grant of this band under File No. 0221-EX-ST-2005 - See next column for prior “carve-outs”)

120.1-129.2 MHz
(Band previously granted subject to specific “carve-outs”, i.e., No emissions permitted within +/- 25 kHz of the following frequencies: 125.825 MHz, 125.950 MHz, 126.500 MHz, 126.750 MHz, 127.200 MHz, 127.350 MHz, 128.200 MHz, 128.325 MHz, 128.400 MHz)

137.6-152 MHz
154.4-155.7 MHz
159.2-161.6 MHz
176-226.5 MHz

137-152.885 MHz
154-156.515 MHz
156.81-161.625 MHz
174-228.6 MHz

228.8-328.6 MHz
(BAE SYSTEMS hereby confirms that it is willing to accept the same “carve-outs” required by the Commission in its grant of this band under File No. 0221-EX-ST-2005 - See next column for prior “carve-outs”)

228.8-328.6 MHz
(Band previously granted subject to specific “carve-outs”, i.e., No emissions permitted within +/- 25 kHz of the following frequencies: 228.900 MHz, 239.025 MHz, 243.000 MHz, 254.250 MHz, 255.400 MHz, 260.900 MHz, 263.050 MHz, 263.100 MHz, 269.300 MHz, 273.450 MHz, 277.400 MHz, 279.600 MHz, 282.200 MHz, 284.750 MHz, 307.900 MHz)

336.8-452 MHz
(BAE SYSTEMS hereby confirms that it is willing to accept the same “carve-outs” required by the Commission in its grant of this band under File No. 0221-EX-ST-2005 - See next column for prior “carve-outs”)

335.4-454 MHz
(Band previously granted subject to specific “carve-outs”, i.e., No emissions permitted within +/- 25 kHz of the following frequencies: 338.200 MHz; 341.700 MHz; 343.600 MHz ; 348.700 MHz; 353.700 MHz; 354.100 MHz; 360.600 MHz; 364.200 MHz; 370.000 MHz; 381.400 MHz; 381.650 MHz; 382.000 MHz; 385.450 MHz)

456.6-468.8 MHz
509.7-610 MHz
810.6-922.7 MHz
934.5 MHz

456-470 MHz
508-614 MHz
809-928 MHz
933-935 MHz

**FREQUENCIES SOUGHT IN THIS STA REQUEST
THAT WERE NOT PREVIOUSLY GRANTED UNDER FILE NO. 0221-EX-ST-2005**

15-29.9 MHz

108.5-118.4 MHz

129.5-135.2 MHz

164.0-173.6 MHz

940.4 MHz-1.2 GHz

In connection with these new frequency band requests, BAE SYSTEMS understands that the above bands impact certain FAA/aeronautical frequencies, and as a result, upon filing of this STA Request BAE SYSTEMS will be contacting relevant FAA personnel to try to work out acceptable “carve-outs” within which the company may operate, while not negatively impacting FAA operations.

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 Area of Operation

The Litchfield Antenna Test Range is comprised of multiple separate testing locations on the BAE SYSTEMS campus at which the subject experiment may be conducted. In addition, depending on the particular requirements of the experiment (i.e., when generating signals at zero degree elevation), it may be necessary to move a given antenna along the bore site line on the range up to a distance of 100 feet. ***Accordingly, in order to accommodate these requirements, by this STA Request, BAE SYSTEMS is requesting authority to operate all of the specified facilities within a 1,500 foot radius from the centerpoint geographic coordinates identified in the STA Request (i.e., 42-48-22 N.Lat.; 071-25-33 W.Long. [NAD 83]).*** Commission approval of such area of operation will provide BAE SYSTEMS with the flexibility it requires to move the specified test equipment to any appropriate testing location on the Litchfield Antenna Test Range during the authorized term of operation, in response to the requirements of the experiment.

B. Information Regarding Non-Directional (Omni-directional) Antenna

Manufacturer	Model #	Quantity	Gain (Nominal)	3dB BW E (Vertical)	3dB BW H (Horizontal)
Sanders	TASES 24	2	-31.5 to +1.1 dBi	OMNI	N/A

C. Note Regarding Output Power/ERP Figures

For the purpose of completion of the attached form, antenna efficiency has been assumed to be 100%. Therefore, the transmitter power and the radiated power are reported as equal (i.e., both the Output Power and the ERP are reported as “.007 W”). In practice the antenna efficiency and cable loss between the transmitter and the antenna will be considered and the transmitter power adjusted to achieve the approved output radiated power level.

D. 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, change elevation angles of the transmit antenna, etc. where the transmit power is reduced to zero. The actual duty cycle of the transmit system is approximately 7%. Mean power is therefore a more accurate representation of the applicant’s proposed activity.

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

Manufacturer	Model	Quantity
HP	HP8753D	2
HP	HP8753E	2

F. Additional Signal Amplification

Due to the low gain of the transmit antennas, an additional signal amplification may be utilized as follows:

Power Amplifiers	Model	Frequency Band	Power Output	Quantity
ENI	510L	1.7MHz to 500MHz	9.5W	2

G. 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’ Litchfield, New Hampshire facilities. Such location will result in the separation of the test facilities from other existing transmit or receive facilities. BAE SYSTEMS’ Richard C. Ball will be personally conducting the test and will be available by wireless telephone at (603) 318-6913. Mr. Ball will act as a “stop buzzer” if any issues regarding interference arise during testing.