

**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.

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 Inc., 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 purposes of the facilities for which consent is requested herein are to test the functionality of individual antenna elements prior too their assembly into an antenna array. The elements will be swept over a broad frequency range and measured for amplitude and phase response. The elements will then be assembled into an array and the assembly measured at multiple discrete frequencies to determine the pattern and phase performance of the antenna assembly. BAE Systems notes that it is separately submitting to the Commission's Security Office, under applicable classified submission procedures, the relevant program name, contract number and point of contact for the program.

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, evaluation of the performance of the antenna will be conducted in the near term before integrated into the system. 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. For the foregoing reasons, approval of this STA Request is in the public interest, convenience and necessity.

4. Directionality/Beamwidth and Orientation of Antennas

The following information describes the directionality, beamwidth and orientation of the antennas associated with this experiment (all below 6m):¹

Directional Antennas

Manufacturer	Model #	Quantity	Gain (Nominal)	3dB BW E (Vertical)	3dB BW H (Horizontal)
SA	26-0.1	1	+8 dBi	60°	120°
SA	29-0.1	2	+8 dBi	60°	120°
SA	27-1.0/8	1	+8 dBi	9°	1.5°
SA	28-1.0/8/10	1	+8 dBi	9°	4.5°
Sanders	1/2 Horn	1	+8 dBi	60-30°	N/A
Sanders	Dual Horn	1	+8 dBi	60-30°	60-30°
Sanders	1/2 Horn	1	+8 dBi	60-45°	N/A
Condor	AS-48461	1	+5-18 dBi	60-10°	60-10°
AEL	H-1498	1	+8-12 dBi	60-30°	60-30°
SA	28-2.0/8/10	1	+8 dBi	60-30°	60-30°

Non-Directional Antennas

Manufacturer	Model #	Quantity	Gain (Nominal)	3dB BW E (Vertical)	3dB BW H (Horizontal)
Sanders	1/4Mon	4	-5.2 dBi	OMNI	N/A
Sanders	TASES 36	2	-60 to -5dBi	OMNI	N/A
Sanders	TASES 24	2	-31.5 to +1.1 dBi	OMNI	N/A
Sanders	TASES 12	2	-10 to -5	OMNI	N/A
Sanders	Slant	1	-20 to -5	OMNI	N/A

5. Transmitting Equipment and Additional Signal Amplification

Transmitting Equipment (all non-experimental):

Manufacturer	Model	Quantity
HP	HP8753A	2
HP	HP8753D	2
HP	HP8753E	2
HP	HP8510B	1
HP	HP8510C	1
HP	HP8340B	1
HP	HP8341	1
HP	HP8643A	1

¹ As depicted in the figure attached to the end of this exhibit, the transmitters operated as part of this experiment will remain stationary at ground level, while the receive targets may be operated while resting at ground level or resting on a platform raised no higher than 12 feet above ground level.

Additional signal amplification may be utilized as follows:

Power Amplifiers	Model	Frequency Band	Power Output	Quantity
OPHIR	5069	.5MHz to 500MHz	8W	1
OPHIR	5094	1MHz to 1000MHz	3W	1
OPHIR	5160	.8GHz to 4.2GHz	7W	1
ENI	510L	1.7MHz to 500MHz	9.5W	1
ENI	603L	.8 MHz to 1000MHz	3W	1

6. Requested Area of Operation for Ground-Based Transmissions

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 ground-based transmissions 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.

7. 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.

8. 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.

9. Coordination of Frequencies Relevant to Part 74

BAE Systems is aware that a number of the requested frequencies fall within bands that are assigned for Part 74 operations. In this regard, BAE Systems confirms that it will work with the relevant New Hampshire Society of Broadcast Engineers (“SBE”) coordinator to determine whether the SBE requires a coordination plan to protect these Part 74 frequencies, and if so, to identify a coordination plan that the SBE deems appropriate to sufficiently protect these Part 74 frequencies.

10. Prevention of Interference

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.