Exhibit 1

1. Introduction

By the instant application ("Application"), BAE Systems Land & Armaments L.P., acting through its Weapon Systems product line in Minneapolis, Minnesota ("BAE Systems") requests that the Commission grant a Conventional Experimental License to operate the facilities (the "Facilities") specified in the instant application.

2. Purpose of the Operation

The testing conducted by BAE Systems 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. The transmissions in the requested bands are critical to test and develop next generation weapon systems to help protect the war fighter. In particular the use of GPS repeaters and simulators are necessary to fully test and develop the guidance subsystems of our weapons system and the 2.2 GHz-2.3 GHz band provides invaluable telemetry about the performance and health of our system. In an effort to move to a pre-production environment, BAE Systems is requesting permission to broadcast in these bands within the Minneapolis facility. See "Attachment 1 - GPS Re-Radiation Network Description".

Government Contract Info.:

Agency:	Strategic Capabilities Office
Contract Number:	W15QKN-18-9-1008, DOTC-17-01-INIT-1016
Government POC:	Scott Kelley, 540-653-9321
Agency:	Strategic Capabilities Office
Contract Number:	HQ0727-16-D-0002 HQ072720F1203 CET 20-047
Government POC:	Stephen Marhevka, 862-324-5931
Agency:	US Air Force Research Laboratories Strategic Development Planning & Experimentation Office
Contract Number:	FA8650-20-C-9324
Government POC:	Jim Simonds, 937-694-0671

A waiver of the Station ID requirements of 47 CFR §5.115(a) is respectfully requested.

3. GPS Re-Radiation Network Radiate Power Analysis

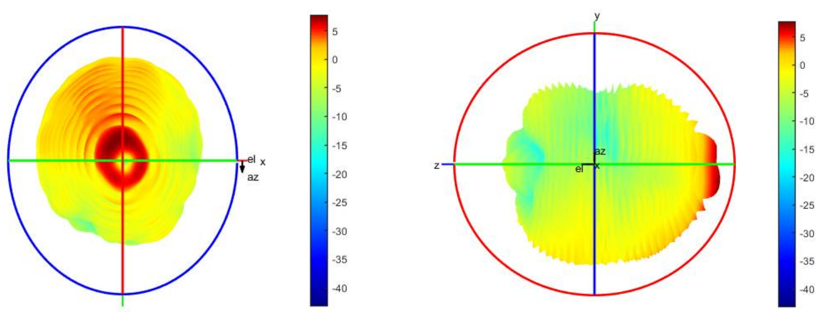
At Attachment 2, please see BAE Systems' demonstration of compliance with GPS re-radiation requirements set forth in section 8.3.28 of the NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management.

4. Directionality/Orientation of Antennas

The following information is provided with respect to the directional antennas to be used:

Transmitter	Beamwidth at Half-Power Point	Orientation in Horizontal Plane	Orientation in Vertical Plane
Sandia National Laboratories J45900	36 Degrees (Conical Pattern)	Any Orientation	0 or 90 deegrees (vertical)
CAST 4000-B	80 degrees horizontal, 55 degrees vertical	North (0 degrees)	-30 degrees (into ground)
GPS re-radiating network antenna 1	180 degrees (hemispherical)	East (90 degrees)	Slightly negative (~10 degrees)
GPS re-radiating network antenna 2	180 degrees (hemispherical)	North East (45 degrees)	Slightly negative (~10 degrees)
GPS re-radiating network antenna 3	180 degrees (hemispherical)	East (90 degrees)	Slightly negative (~10 degrees)
GPS re-radiating network antenna 4	180 degrees (hemispherical)	South (180 degrees)	Slightly negative (~10 degrees)

Antenna Used with Sandia National Laboratories J45900 in the 2.2GHz to 2.3GHz Band:



The antenna has a peak gain of 7.75dBi directed along the –z axis

5. Interference Mitigation

BAE Systems is aware of its obligations under Part 5 of the Commission's rules to avoid interference to co-channel licensees in non-experimental services, and will take all steps to ensure compliance with this obligation. In addition, the following factors will help mitigate any interference issues:

Mitigations for Sandia National Laboratories Transmitters Model Number J45900:

- The transmitters are only used periodically in 15 minute bursts, limiting the potential impacts of transmissions.
- The transmitter antenna is primarily used in an orientation such that the center of the antenna beam is kept in the horizontal plane. This orientation causes most of the radiated power to be shadowed by nearby buildings and other obstructions. This orientation is used for 90% of our testing. For the remaining 10% of test, the antenna is pointed directly vertical. This vertical orientation will radiate the majority of the transmitter power away from any points of potential interference.
- All transmissions will take place inside a metal and concrete building structure that is within another metal and concrete building structure. Any transmissions will be attenuated by two sets of walls reducing the power of the signal outside the facility
- All testing is done at ground level. The transmitter and antenna will not exceed a height of four feet.

Mitigations for Naval Surface Warfare Center Dahlgren Transmitters Model Number AFH100019:

- The transmitters are only used periodically in 15 minute bursts, limiting the potential impacts of transmissions.
- All transmissions will take place inside a metal and concrete building structure that is within another metal and concrete building structure. Any transmissions will be attenuated by two sets of walls reducing the power of the signal outside the facility
- All testing is done at ground level. The transmitter and antenna will not exceed a height of four feet.

Mitigations for CAST Navigation GPS Simulator Model Number CAST 4000-B:

- The transmitters are only used periodically in 15 minute bursts, limiting the potential impacts of transmissions.
- All testing is done at ground level. The transmitter and antenna will not exceed a height of four feet.
- The antenna will be pointed -30 degrees from the horizontal (towards the ground) causing the majority of the radiated energy to be radiated into the ground.
- Testing will use the lowest possible power setting of the simulator that achieves the test objectives. -110dBm (10fW) is the maximum power setting that will be used.
- The maximum power levels used are low enough that the signal falls below the -140 dBm interference limit used by the NTIA at a distance of 7 feet when in the peak gain path of the antenna. All potential interference hazards will be within view of the testing activities.

Mitigations for GPS Re-Radiation Network

- All transmissions will take place inside a metal and concrete building structure attenuating the repeated GPS signal.
- All GPS users in the area of potential interference shall be notified that their GPS signals could be impacted.
- Use of the repeaters shall be limited to the testing of GPS equipment

6. Stop Buzzer

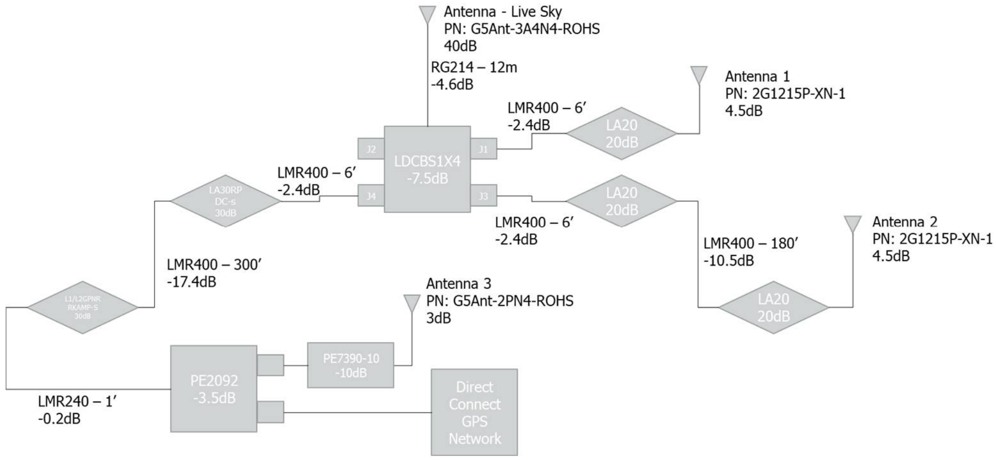
The following will be available by wireless telephone and will act as the "stop buzzer" if any issues arise during testing:

PRIMARY: Chris Beaudoin, Engineer - (612)-300-2827

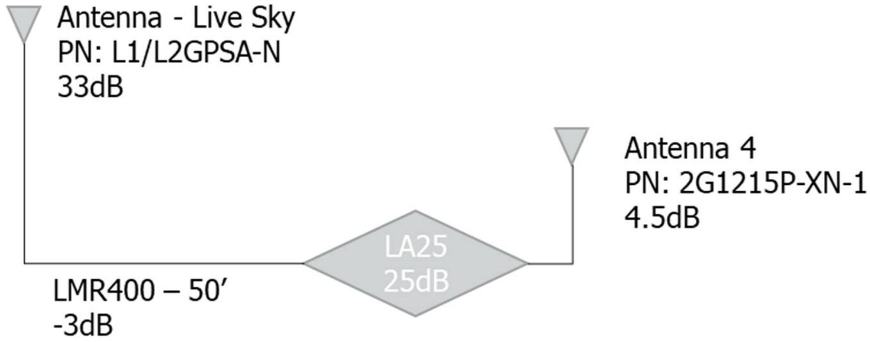
SECONDARY: Phil Hefel, BAE Systems Minneapolis Facility Security Officer (FSO) (763)203-1135

<u>**Attachment 1 - GPS Re-Radiation Network Description**</u>

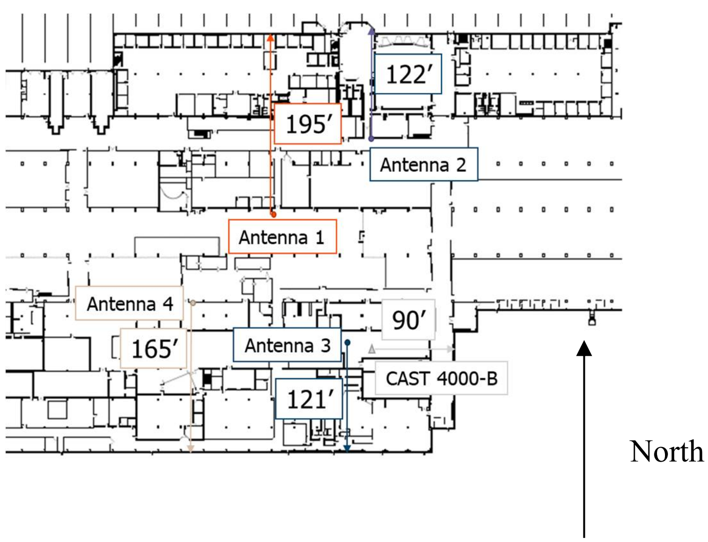
BAE Systems has 2 GPS re-radiation networks. The first has 3 repeater antennas throughout our facility fed from a single external antenna. This system repeats both the L1 (1575.42MHz) and L2 (1227.6MHz) bands. These antennas are Labeled Antenna 1, Antenna 2, and Antenna 3. The network is shown by the figure below:



The second network has an independent external antenna and feeds a single antenna. This antenna is labeled as antenna 4, and the network is shown below:



The locations of the re-radiation networks antennas and the CAST 4000-B antenna are shown in the figure below with distances to the nearest external wall:



Attachment 2 - GPS Re-Radiation Network Radiate Power Analysis

BAE Systems GPS re-radiation network meets the requirements set forth in section 8.3.28 of the NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management. The NTIA regulations set forth the following equation for the maximum equivalent isotopically radiated power (EIRP) for each repeater:

$$P_{tmax} = P_r + 20\log_{10} f + 20\log_{10}(30 + d) - 27.55$$

Where P_{tmax} is the maximum EIRP of the repeater, P_r is the power received 30 m from the building (-140dBm/24MHz), f is the frequency, and d is the distance to the nearest exterior wall in meters.

Antenna 1:

Antenna 1 is 195' (59.4 m) from the nearest exterior wall, therefore the maximum EIRP antenna 1 can radiate is as follows

L1 – 1575.42 MHz $$-64.6dBm = -140dBm + 20\log_{10}(1575.42) + 20\log_{10}(30 + 59.4) - 27.55$$

L2 – 1227.6 MHz $$-66.7dBm = -140dBm + 20\log_{10}(1227.6) + 20\log_{10}(30 + 59.4) - 27.55$$

The EIRP for antenna 1 was calculated as shown below assuming an average -130dBm GPS live sky signal at the roof antenna:

Item	PN	Item Gain (dB)	Cumulative Power (dBm)
Antenna	G5Ant-3A4N4-ROHS	40	-90
Cable (12m)	RG-214	-4.6	-94.6
4-way Splitter	LDCBS1X4	-7.5	-102.1
Cable (6ft)	LMR-400	-2.4	-104.5
Amplifier	LA20	20	-84.5
Antenna 1	2G1215P-XN-1	4.5	-80

The EIRP of antenna 1 is -80dBm far below the P_{tmax} of -66.7dBm and thus meets the power requirements.

Antenna 2:
Antenna 2 is 122' (37.2 m) from the nearest exterior wall, therefore the maximum EIRP antenna 2 can radiate is as follows

L1 – 1575.42 MHz $-67.1dBm = -140dBm + 20\log_{10}(1575.42) + 20\log_{10}(30 + 37.2) - 27.55$

L2 – 1227.6 MHz $-69.2\ dBm = -140dBm + 20\log_{10}(1227.6) + 20\log_{10}(30 + 37.2) - 27.55$

The EIRP for antenna 2 was calculated as shown below assuming an average -130dBm GPS signal at the antenna:

Item	PN	Item Gain (dB)	Cumulative Power (dBm)
Antenna	G5Ant-3A4N4-ROHS	40	-90
Cable (12m)	RG-214	-4.6	-94.6
4-way Splitter	LDCBS1X4	-7.5	-102.1
Cable (6ft)	LMR-400	-2.4	-104.5
Amplifier	LA20	20	-84.5
Cable (180ft)	LMR-400	-10.5	-95
Amplifier	LA20	20	-75
Antenna 2	2G1215P-XN-1	4.5	-70.5

The EIRP of antenna 2 is -70.5dBm below the P_{tmax} of -69.2dBm and thus meets the power requirements.

Antenna 3:
Antenna 3 is 121' (36.8 m) from the nearest exterior wall, therefore the maximum EIRP antenna 3 can radiate is as follows

L1 – 1575.42 MHz $-67.1dBm = -140dBm + 20\log_{10}(1575.42) + 20\log_{10}(30 + 36.8) - 27.55$

L2 – 1227.6 MHz $-69.3\ dBm = -140dBm + 20\log_{10}(1227.6) + 20\log_{10}(30 + 36.8) - 27.55$

The EIRP for antenna 3 was calculated as shown below assuming an average -130dBm GPS signal at the antenna:

Item	PN	Item Gain (dB)	Cumulative Power (dBm)
Antenna	G5Ant-3A4N4-ROHS	40	-90
Cable (12m)	RG-214	-4.6	-94.6
4-way Splitter	LDCBS1X4	-7.5	-102.1
Cable (6ft)	LMR-400	-2.4	-104.5
Amplifier	LA30	30	-74.5
Cable (300ft)	LMR-400	-17.4	-91.9
Amplifier	L1/L2GPNRRKAMP-S	30	-61.9
1 foot cable	PE3C0044-12	-0.2	-62.1
2 way splitter	PE2092	-3.5	-65.6
10 dB Attenuator	PE7390-10	-10	-75.6
Antenna 3	2G1215P-XN-1	3	-72.6

The EIRP of antenna 3 is -72.6dBm below the P_{tmax} of -69.3dBm and thus meets the power requirements.

Antenna 4:
Antenna 4 is 165’ (50.3 m) from the nearest exterior wall, therefore the maximum EIRP antenna 4 can radiate is as follows

L1 – 1575.42 MHz $$-65.5dBm = -140dBm + 20\log_{10}(1575.42) + 20\log_{10}(30 + 50.3) - 27.55$$

L2 – 1227.6 MHz $$-67.7\ dBm = -140dBm + 20\log_{10}(1227.6) + 20\log_{10}(30 + 50.3) - 27.55$$

The EIRP for antenna 4 was calculated as shown below assuming an average -130dBm GPS signal at the antenna:

Item	PN	Item Gain (dB)	Cumulative Power (dBm)
Antenna	L1/L2GPSA-N	33	-97
Cable 50'	LMR-400	-3	-100
Amplifier	LA25	25	-75
Antenna	2G1215P-XN-1	4.5	-70.5

The EIRP of antenna 4 is -70.5dBm below the P_{tmax} of -67.7dBm and thus meets the power requirements.