

**1. Introduction**

By the instant application (“Application”), BAE Systems Information and Electronic Systems Integration Inc. (“BAE Systems”) requests that the Commission grant a 2 year 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.

In support of Internal Research and Development, the purpose of these tests (a continuation of the operations previously authorized under STA under call sign WP9XMK) is to continue to test basis a new modulated communications waveform that will facilitate the transmission of data messages from one unit to another while interleaving other missions on the same hardware. Continued testing is required because IRAD operation has not yet resulted in the completion of design/testing, and additional experimentation is required before committing to a design.

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

**3. Other Issues****A. Transmitting Equipment**

Manufacturer	Model No	RF Power	# Units	Modulating Signal(s)	Experimental? Yes/No
BAE Systems	N/A	20 W, CW	1	Differential QPSK	Yes

**B. Antenna Data**

Manufacturer	Model Number	Gain	Width of Beam @ 1/2 Power Point	Orientation in Horiz. Pane	Orientation in Vert. Pane
Echodyne	MESA-HPA	28 dB	4° az x 4° el	Depends on site geometry; electronically scanned +/- 60 degrees	Electronically scanned 0+/-40 degrees.

**4. Interference Mitigation**

The antenna under test has a narrow, electronically steerable beam with -16 dB average side lobes. Testing will typically consist of pointing this beam towards targets with a fixed

location and the main beam will not scan a large area. Generally during testing emission will be limited to short periods of less than 1 minute and only periodically with an overall duty cycle of less than 10% during tests. Testing will be sporadically planned and executed throughout the course of this license, typically for one to three days at a time at an expected frequency of once or twice a month. Testing will typically only occur between the hours of 8AM and 6PM EST on week days. During testing, targets will primarily be located on the ground and emission will be typically limited to no more than 10 degrees above the horizon. It is expected that these typical test conditions will represent 90% or more of the testing done under this license.

Potential impact to co-channel operations is significantly mitigated due to the following factors:

- Testing will be limited to ground-based testing with the emitting antenna generally located no higher than 10 feet from the ground. The vast majority of emissions will be directed at other near-ground targets with the elevation of the main beam not exceeding +10 degrees elevation.
- The new, higher gain antenna has a narrow beamwidth of 4 degrees in both elevation and azimuth, which limits the illuminated area/volume.
- Outdoor testing will not be frequent. Test events will occur sporadically throughout the duration of this license with an expected frequency of no more than 1-2 days per month on average throughout the year. The longest duration of outdoor testing will not likely exceed more than one consecutive week and testing will generally occur only for a few hours up to a full typical work-day (9AM to 5PM).
- Outdoor testing will not be continuous. Emissions will be active for short durations no longer than 1 minute at a time (maximum) with an average on-time more on the order of 10-30 seconds. During a test emissions will be activated for these durations periodically with several minutes between emissions at a minimum, if not longer. Overall, during a full day of testing the expected total time spent emitting would be on the order of 30 to 60 minutes on average.

## **5. Stop Buzzers**

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