

1. Introduction

By the instant application (“Application”), 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 application. STA is requested for a period of six (6) months. A Start Date of October 2, 2014 is respectfully requested.

2. Purpose and Nature of the Operation

BAE Systems manufactures and tests RF systems as well as antennas for DOD as well as other governmental customers. The testing specified in this Application will be conducted by BAE Systems Information and Electronic Systems Integration Inc., which is a major producer of electronic warfare systems, protection systems, and tactical surveillance and intelligence systems for all branches of the armed forces. This unit's 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 specified in the instant Application is a critical part of the manufacture and delivery of systems provided to the military in support of war efforts. Specifically, this experiment is intended for further development of a wireless link for use by the US Army between a soldier's night weapon sight and his night vision goggles. This link will provide the soldier with the ability to accurately utilize his weapon without having to place his cheek to the comb of the rifle stock or his eye behind the ocular of the scope. This capability will provide the soldier with the ability to use his weapon offensively at night, as opposed to being limited to defensive operation, as is now the case.

Currently there are no wireless links between the weapon sight and the night vision goggles. Some sights have the ability to output video via a cable, but this is not safely useable for combat infantry. Similarly, all existing military radio links are too large, too heavy, consume too much power, and cannot provide the bandwidth necessary for real time video between the sight and goggles. The wireless link developed through this experiment is intended to enhance the war fighters' ability to execute his mission.

The experiment will utilize WiMedia MB-OFDM Ultra wideband technology to implement the wireless link between the sight and the goggles. Transmissions will be in compliance with the Standard ECMA-368, High Rate Ultra Wideband PHY and MAC Standard.

This authority is requested to support product development activities for a pending US Army application.

3. Directionality of Ground-Based Antennas

The Antenna Registrations specify "Yes" in response to the question: "Is a directional antenna used?". This section is meant to clarify that – while testing will occur with an "omnidirectional" stub (360 degrees azimuth) – additional authority is required for directional configurations, with the following characteristics:

- 120 degree at half power point
- Mounted on telescope or goggles, so may be variable orientation
- Typical axis will be horizontal

4. Note Regarding Frequency Requirements

While the application specifies a set of consolidated band, as a practical matter the experiment will involve transmissions from one of several bands described below. Each band is created by an orthogonal frequency division multiplex (OFDM) waveform, similar to 802.11 g, but over a wider band. The radio can frequency hop to other bands within the band group every 312.5 ns:

Band Group 1

Band 1: 3,168 MHz -3,696 MHz

Band 2: 3,696 MHz -4,224 MHz

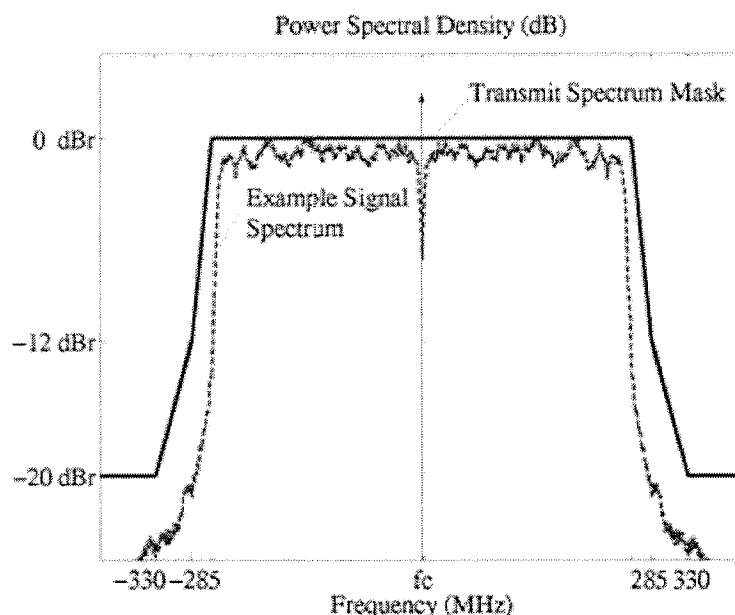
Band 3: 4,224 MHz -4,752 MHz

Band Group 2

Band 4: 4,752 MHz 5,280 MHz

Band 5: 5,280 MHz 5,808 MHz

Band 6: 5,808 MHz 6,336 MHz



5. Modulation

OFDM is comprised of many simultaneously modulated sub-carriers. In this case, there are 100 data sub-carriers, 10 guard sub-carriers, and 12 pilot sub-carriers, spaced 4.125 MHz across the 528 MHz band. The modulation in the data sub-carrier is either QPSK or Dual-Carrier Modulation (DCM), depending on the required data bandwidth.

6. FSS Coordination Issue

BAE Systems has determined that no coordination is necessary with grandfathered earth stations under Section 90.1331 of the Commission's Rules because:

- The closest grandfathered FSS earth stations (the "Closest Stations") to the proposed facilities are located in Andover, Maine, 222km away.
- The nearest station among the Closest Stations is more than 150 km from the proposed BAE Systems facilities.
- Because Section 90.1331 requires coordination with FSS Stations closer than 150 km from the proposed facilities, the company is not required to coordinate its proposed facilities with the Closest Stations."

7. Stop Buzzer

BAE Systems hereby advises that David Ngo will be available by wireless telephone at (603) 759-7530 and will act as a "stop buzzer" if any issues regarding interference arise during testing.