

## **Raytheon IDS**

### **Request for FCC Special Temporary Authorization (STA)**

STA File Number: 0772-EX-ST-2015

July 15, 2015

#### **Purpose of Operation:**

Frequency authorization is being requested for the period of August 5, 2015 – February 5, 2016 in X-band at frequencies between 9.497 – 9.6 GHz in order to test and demonstrate a new antenna design. Outdoor testing, across multiple frequencies as noted above is required to assess hardware compliance with requirements.

#### **Technical Synopsis:**

- Spectrum needed: 9.497 – 9.6 GHz
- Power levels requested: 137.2 W ERP
- Expected time of use: Less than 20 minutes of transmit time over the course of an 8 hour day
- Stop buzzer contact: Karen Dyberg (508-450-9236 cell)

#### **Test Summary:**

The antenna being tested consists of 4 antenna elements, a dummy load and an RF switch for antenna element selection, and a radome. The antenna will be sent Built-In-Test (BIT) signals and element selection signals to validate and demonstrate RF transmission performance. Only one unit will be tested at a time.

#### **RF Hazard Calculations and Site Safety Measures:**

Initial calculations show that general public exposure limits will be reached at a 1.2 meters distance and occupational exposure limits at 1.8 meters, using formula (7) from FCC OET Bulletin 65 “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields”, dated August 1997. These calculations take into account the highest duty factor of 10%.

Raytheon’s RF safety group is involved in all testing that requires free space radiation to ensure that no personnel are subjected to RF power density levels exceeding the Maximum Permissible Exposure (MPE) limits of the Part 1.1310 of the FCC Rules and the guidelines in FCC’s OET Bulletin Number 65. An RF Safety Control Plan is not required for this test due to the height of the antenna test fixture.

#### **Raytheon Technical Point of Contact:**

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**Raytheon Spectrum Manager filing application:**

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Title: Spectrum Management/RF Safety

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**List each type of emission separately for each frequency:**

6M00M1D – BIT signal

**Antenna information:**

**Width of beam in degrees at the half-power point:**

90° Azimuth per quadrant, 20° Elevation

**Orientation in horizontal plane:**

360°

**Orientation in vertical plane:**

+20° relative to horizon