

## **RF Exposure**

### **Method**

The test methods used comply with ANSI C63.10. Unless otherwise stated no deviations were made from FCC OET 65 & IC RSS-102.

This testing was performed at Intertek Denver, located at 1795 Dogwood St. Suite 200, Louisville, CO 80027.

### **Test Requirement/Specification**

- FCC OET Bulletin 65/ KDB 447498
- RSS-102

### **Results:**

The sample tested was found to comply.

### **RF Exposure Requirements - MPE**

|                  |                                                                                        |            |                     |
|------------------|----------------------------------------------------------------------------------------|------------|---------------------|
| Project #:       | G101503607                                                                             | Test Area: | Intertek Louisville |
| Test Method:     | FCC CFR47 Part 1.1310                                                                  | Test Date: | 1/29/2014           |
| EUT Model #:     | W5800-01                                                                               |            |                     |
| EUT Serial #:    | DEN1402111313                                                                          |            |                     |
| Manufacturer:    | FreeWave Technologies Inc.                                                             |            |                     |
| EUT Description: | 802.11 b/g/n PCIe Radio Module                                                         |            |                     |
| Notes:           | ▪ With antenna model: RadioWaves SPD4-5.2S (4' Parabolic "Dish" Antenna) Gain: 34.9dBi |            |                     |

The following limit is from table 1 (B) Limits for Occupational/Controlled Exposure  
Exposure in FCC part 1.1310:

Power Density Limit for Frequency Range 1500 – 100,000 MHz = 5 mW/cm<sup>2</sup>

The following calculation was used to determine compliance to the above limit. The calculation is from FCC OET bulletin 65.

Power Density(S) =  $PG/4\pi R^2$  or  $S=EIRP/4\pi R^2$

**To determine what minimum distance the product can satisfy the Power Density Limit:**

$R(\text{cm}) = \text{SQRT}[(P \cdot G)/(4 \cdot \pi \cdot S)]$

Where:

S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = power input to the antenna (mW).

G = numeric power gain of the antenna in the direction of interest relative to an isotropic radiator.

R = distance to the center of radiation of the antenna (cm)

Maximum measured conducted power to the antenna = 478 mW

Maximum typical gain declared by the manufacture = 34.9 dBi

Therefore: Minimum Distance = 154 cm

#### **Power Density**

| Power (mW) | Gain (dbi) | Gain numeric | Distance (cm) | Power Density (mW/cm <sup>2</sup> ) |
|------------|------------|--------------|---------------|-------------------------------------|
| 478        | 34.9       | 3090.3       | 154           | 4.96                                |

Therefore: Power Density Margin ( $\Delta$  Limit) =  $4.96 - 5 = -0.04 \text{ mW/cm}^2$