



## 10 RF EXPOSURE COMPLIANCE

### 10.1 LIMIT

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|------------------------------------------|-------------------------------------------------------------------|
| 0.3-3.0               | 614                               | 1.63                              | (100)*                                   | 6                                                                 |
| 3.0-30                | 1842 / f                          | 4.89 / f                          | (900 / f)*                               | 6                                                                 |
| 30-300                | 61.4                              | 0.163                             | 1.0                                      | 6                                                                 |
| 300-1500              |                                   |                                   | F/300                                    | 6                                                                 |
| 1500-100,000          |                                   |                                   | 5                                        | 6                                                                 |

(B) Limits for General Population / Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|------------------------------------------|-------------------------------------------------------------------|
| 0.3-1.34              | 614                               | 1.63                              | (100)*                                   | 30                                                                |
| 1.34-30               | 824/f                             | 2.19/f                            | (180/f)*                                 | 30                                                                |
| 30-300                | 27.5                              | 0.073                             | 0.2                                      | 30                                                                |
| 300-1500              |                                   |                                   | F/1500                                   | 30                                                                |
| 1500-100,000          |                                   |                                   | 1.0                                      | 30                                                                |

NOTE: f = frequency in MHz ; \*Plane-wave equivalent power density.

### 10.2 MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment  | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|--------------------|--------------|----------|------------|------------------|
| 1    | Power Meter        | Anritsu      | ML2495A  | 1128008    | Feb,26,2014      |
| 2    | Power Meter Sensor | Anritsu      | MA2411B  | 1126001    | Feb,26,2014      |

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

### 10.3 MPE CALCULATION METHOD

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d}$$

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

**E** = Electric field (V/m)

**P** = Peak RF output power (W)

**G** = EUT Antenna numeric gain (numeric)

**d** = Separation distance between radiator and human body (m)

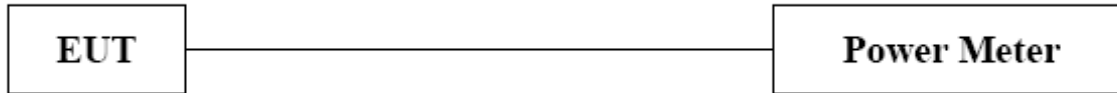
The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained



#### **10.4 TEST SETUP LAYOUT**



#### **10.5 DEVIATION FROM TEST STANDARD**

No deviation

#### **10.6 EUT OPERATING CONDITIONS**

The EUT tested system was configured as the statements of 4.6 Unless otherwise a special operating condition is specified in the follows during the testing.



## 10.7 TEST RESULTS

The power is too low, so no RF calculations are needed.

|              |                              |                   |         |
|--------------|------------------------------|-------------------|---------|
| E.U.T        | 2.4G RF Mouse                | Model Name        | G3-290N |
| Temperature  | 26°C                         | Relative Humidity | 60%     |
| Test Voltage | DC 1.5V                      |                   |         |
| Test Mode    | 2407 MHz, 2437 MHz, 2473 MHz |                   |         |

| Frequency | Antenna Gain (dBi) | Antenna Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) | Result |
|-----------|--------------------|------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|--------|
| 2407 MHz  | 1.70               | 1.4791                 | -2.1600                 | 0.6081                 | 0.000179                                | 1                                                | PASS   |
| 2437 MHz  | 1.70               | 1.4791                 | -2.9100                 | 0.5117                 | 0.000151                                | 1                                                | PASS   |
| 2473 MHz  | 1.70               | 1.4791                 | -3.8500                 | 0.4121                 | 0.000121                                | 1                                                | PASS   |