

## 7. RF Exposure Requirements

### 7.1 Test Equipment

Please refer to Section 10 this report.

### 7.2 Limit

According to FCC 15.247(i), Systems operating under 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 of the Commissions guidelines.

FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b)(1) of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| Frequency range (MHz)  | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|--|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| <b>(A) Limits for Occupational/Controlled Exposures</b>        |                               |                               |                                     |                          |
| 0.3–3.0 .....  | 614                           | 1.63                          | *(100)                              | 6                        |
| 3.0–30 .....   | 1842/f                        | 4.89/f                        | *(900/f <sup>2</sup> )              | 6                        |
| 30–300 .....   | 61.4                          | 0.163                         | 1.0                                 | 6                        |
| 300–1500 .....   | .....                         | .....                         | f/300                               | 6                        |
| 1500–100,000 .....   | .....                         | .....                         | 5                                   | 6                        |
| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                               |                               |                                     |                          |
| 0.3–1.34 .....   | 614                           | 1.63                          | *(100)                              | 30                       |
| 1.34–30 .....  | 824/f                         | 2.19/f                        | *(180/f <sup>2</sup> )              | 30                       |
| 30–300 .....   | 27.5                          | 0.073                         | 0.2                                 | 30                       |
| 300–1500 .....   | .....                         | .....                         | f/1500                              | 30                       |
| 1500–100,000 .....   | .....                         | .....                         | 1.0                                 | 30                       |

f = frequency in MHz

\* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

### 7.3 Test Result

|              |  |             |                  |
|--------------|--|-------------|------------------|
| Product      | : ADSL2+ 4 Port Router WIFI<br>802.11B/G/N 2X2 | Test Mode   | : IEEE 802.11b/g |
| Test Item    | : RF Exposure                                  | Temperature | : 25 °C          |
| Test Voltage | : DC 12V (Power by DC Power Supply)            | Humidity    | : 56% RH         |
| Test Result  | : <b>PASS</b>                                  |             |                  |

| <b>Evaluation of RF Exposure Compliance Requirements</b>  |  |
|---|--|
| <b>MPE Prediction of MPE according to equation from page 19 of OET Bulletin 65, Edition 97-01</b>   |  |
| <b>RF Exposure Requirements</b>   | <b>Compliance with FCC Rules</b>   |
| S=PG/4ΠR <sup>2</sup><br><br>Where:<br>S=Power density<br>P=Power input to antenna<br>G=Power gain of the antenna relative to an isotropic radiator<br>R=Distance to the center of radiation of the antenna | Maximum output power at antenna input terminal:<br>22.96 dBm = 197.70 mW (802.11b/g, 2462MHz)<br>24.18 dBm = 261.79 mW (Draft n, 2462MHz, 20MHz)<br>23.80 dBm = 239.99 mW (Draft n, 2422MHz, 40MHz)<br>Prediction distance: 20 cm<br>Antenna gain : 802.11b/g(5.0 dBi); 802.11n(8.01 dBi)<br>MPE limit for uncontrolled exposure at prediction frequency: 10 W/m <sup>2</sup><br><br>Power density at 20 cm:<br><br>802.11b/g: 0.1244 mW/cm <sup>2</sup><br>Draft n(20MHz) : 0.3294 mW/cm <sup>2</sup><br>Draft n(40MHz) : 0.3019 mW/cm <sup>2</sup> |