

## Maximum Permissible Exposure

### Applicable Standard

According to §1.1307(b), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

Remark: 1) **For WIFI:** The maximum output power for antenna is 14.00dBm (25.12mW) at 2412MHz, 5dBi antenna gain(with 3.16 numeric antenna gain.)

**For WCDMA 2:** The maximum output power for antenna is 22.54dBm (179.47mW) at 826.4MHz, 5dBi antenna gain(with 3.16 numeric antenna gain.)

**For WCDMA 5:** The maximum output power for antenna is 23.83dBm (241.55mW) at 1852.4MHz, 5dBi antenna gain(with 3.16 numeric antenna gain.)

**For LTE 4:** The maximum output power for antenna is 24.75dBm (298.54mW) at 1715MHz, 5dBi antenna gain(with 3.16 numeric antenna gain.)

**For LTE 7:** The maximum output power for antenna is 23.92dBm (246.60mW) at 2560MHz, 5dBi antenna gain(with 3.16 numeric antenna gain.)

**For LTE 66:** The maximum output power for antenna is 24.80dBm (301.99mW) at 1775MHz, 5dBi antenna gain(with 3.16 numeric antenna gain.)

2) For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20cm, even if the calculation indicate that the MPE distance would be lesser.

### Calculation

$$\text{Given } E = \sqrt{\frac{30 \times P \times G}{d}} \quad \& \quad S = \frac{E^2}{3770}$$

Where  $E$  = Field Strength in Volts / meter

$P$  = Power in Watts

$G$  = Numeric antenna gain

$d$  = Distance in meters

$S$  = Power Density in milliwatts / square centimeter

Substituting the MPE safe distance using  $d=20\text{cm}$  into above equation.

Yields:  $S=0.000199*P*G$

Maximum Emissions Level					
Mode	Power(mW)	numeric antenna gain	Power density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
<b>WIFI</b>	25.12	3.16	0.0158	1.0	Pass
<b>WCDMA 2</b>	241.55	3.16	0.1519		
<b>WCDMA 5</b>	179.47	3.16	0.1129		
<b>LTE 4</b>	298.54	3.16	0.1877		
<b>LTE 7</b>	246.60	3.16	0.1551		
<b>LTE 66</b>	301.99	3.16	0.1899		

The device contain transmitters LTE & WIFI can transmit multiple transmission modes at the same time.

<b>Maximum Emissions Level</b>			
<b>Mode</b>	<b>Power density (mW/cm<sup>2</sup>)</b>	<b>Limit (mW/cm<sup>2</sup>)</b>	<b>Result</b>
<b>LTE &amp; WIFI</b>	0.2057	1.0	Pass