

## 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 2.4G WIFI:** The maximum output power for antenna is 14.99dBm (31.55mW) at 2437MHz, 1.60dBi antenna gain(with 1.45 numeric antenna gain.)

**For 5G WIFI:** The maximum output power for antenna is 8.006dBm (6.32mW) at 5745MHz, 4.87dBi antenna gain(with 3.07 numeric antenna gain.)

**For WCDMA Band V:** The maximum output power for antenna is 23.21dBm (209.41mW) at 826.4MHz, 1.90dBi antenna gain(with 1.55 numeric antenna gain.)

**For WCDMA Band IV:** The maximum output power for antenna is 23.21dBm (209.41mW) at 1712.4MHz, 1.27dBi antenna gain(with 1.34 numeric antenna gain.)

**For WCDMA Band II:** The maximum output power for antenna is 23.15dBm (206.54mW) at 1907.6MHz, 0.54dBi antenna gain(with 1.13 numeric antenna gain.)

**For LTE Band 2:** The maximum output power for antenna is 23.67dBm (232.81mW) at 1850.7MHz, 0.54dBi antenna gain(with 1.13 numeric antenna gain.)

**For LTE Band 4:** The maximum output power for antenna is 23.38dBm (217.77mW) at 1732.5MHz, 1.27dBi antenna gain(with 1.34 numeric antenna gain.)

**For LTE Band 5:** The maximum output power for antenna is 23.07dBm (202.77mW) at 824.7MHz, 1.90dBi antenna gain(with 1.55 numeric antenna gain.)

**For LTE Band 12:** The maximum output power for antenna is 23.93dBm (247.17mW) at 715.3MHz, 2.01dBi antenna gain(with 1.59 numeric antenna gain.)

**For LTE Band 13:** The maximum output power for antenna is 24.15dBm (260.02mW) at 782MHz, 1.02dBi antenna gain(with 1.26 numeric antenna gain.)

**For LTE Band 14:** The maximum output power for antenna is 24.28dBm (267.92mW) at 793MHz, 1.99dBi antenna gain(with 1.58 numeric antenna gain.)

**For LTE Band 66:** The maximum output power for antenna is 23.33dBm (215.28mW) at 1745MHz, 1.27dBi antenna gain(with 1.34 numeric antenna gain.)

**For LTE Band 71:** The maximum output power for antenna is 23.44dBm (220.80mW) at 693MHz, 0.57dBi antenna gain(with 1.14 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**

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

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=20cm into above equation.

Yields:  $S = 0.000199 * P * G$

Mode	Power(mW)	numeric antenna gain	Power density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
2.4G WIFI	31.55	1.45	0.009104	1.0	PASS
5G WIFI	6.32	3.07	0.003861		
WCDMA Band V	209.41	1.55	0.064593		
WCDMA Band IV	209.41	1.34	0.055841		
WCDMA Band II	206.54	1.13	0.046445		
LTE Band 2	232.81	1.13	0.052352		
LTE Band 4	217.77	1.34	0.058071		
LTE Band 5	202.77	1.55	0.062544		
LTE Band 12	247.17	1.59	0.078207		
LTE Band 13	260.02	1.26	0.065197		
LTE Band 14	267.92	1.58	0.084239		
LTE Band 66	215.28	1.34	0.057407		
LTE Band 71	220.80	1.14	0.050091		