

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 17.62dBm (57.81mW) at 2412MHz,
1.60dBi antenna gain(with 1.45 numeric antenna gain.)

For 5G WIFI: The maximum output power for antenna is 11.342dBm (13.62mW) at 5795MHz,
4.87dBi antenna gain(with 3.07 numeric antenna gain.)

For WCDMA Band V: The maximum output power for antenna is 23.38dBm (217.77mW) at
836.4MHz,
1.90dBi antenna gain(with 1.55 numeric antenna gain.)

For WCDMA Band IV: The maximum output power for antenna is 22.79dBm (190.11mW) at
1712.4MHz,
1.27dBi antenna gain(with 1.34 numeric antenna gain.)

For WCDMA Band II: The maximum output power for antenna is 22.96dBm (197.70mW) at
1907.6MHz,
0.54dBi antenna gain(with 1.13 numeric antenna gain.)

For LTE Band 2: The maximum output power for antenna is 23.43dBm (220.29mW) at 1860MHz,
0.54dBi antenna gain(with 1.13 numeric antenna gain.)

For LTE Band 4: The maximum output power for antenna is 22.17dBm (164.82mW) at 1732.5MHz,
1.27dBi antenna gain(with 1.34 numeric antenna gain.)

For LTE Band 5: The maximum output power for antenna is 21.77dBm (150.31mW) at 848.3MHz,
1.90dBi antenna gain(with 1.55 numeric antenna gain.)

For LTE Band 12: The maximum output power for antenna is 21.88dBm (154.17mW) at 704MHz,
2.01dBi antenna gain(with 1.59 numeric antenna gain.)

For LTE Band 13: The maximum output power for antenna is 22.73dBm (187.50mW) at 782MHz,
1.02dBi antenna gain(with 1.26 numeric antenna gain.)

For LTE Band 14: The maximum output power for antenna is 21.52dBm (141.91mW) at 790.5MHz,
1.99dBi antenna gain(with 1.58 numeric antenna gain.)

For LTE Band 66: The maximum output power for antenna is 22.11dBm (162.55mW) at 1745MHz,
1.27dBi antenna gain(with 1.34 numeric antenna gain.)

For LTE Band 71: The maximum output power for antenna is 24.14dBm (259.42mW) at 680.5MHz,
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 $d=20\text{cm}$ into above equation.

Yields: $S=0.000199 \times P \times G$

| Mode | Power(mW) | numeric antenna gain | Power density (mW/cm ²) | Limit (mW/cm ²) | Result |
|---------------|-----------|----------------------|-------------------------------------|-----------------------------|--------|
| 2.4G WIFI | 57.81 | 1.45 | 0.016681 | 1.0 | PASS |
| 5G WIFI | 13.62 | 3.07 | 0.008321 | | |
| WCDMA Band V | 217.77 | 1.55 | 0.067171 | | |
| WCDMA Band IV | 190.11 | 1.34 | 0.050695 | | |
| WCDMA Band II | 197.70 | 1.13 | 0.044457 | | |
| LTE Band 2 | 220.29 | 1.13 | 0.049537 | | |
| LTE Band 4 | 164.82 | 1.34 | 0.043951 | | |
| LTE Band 5 | 150.31 | 1.55 | 0.046363 | | |
| LTE Band 12 | 154.17 | 1.59 | 0.048781 | | |
| LTE Band 13 | 187.50 | 1.26 | 0.047014 | | |
| LTE Band 14 | 141.91 | 1.58 | 0.044619 | | |
| LTE Band 66 | 162.55 | 1.34 | 0.043346 | | |
| LTE Band 71 | 259.42 | 1.14 | 0.058852 | | |