

FCC §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 1.1310, 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

| Limits for General Population/Uncontrolled Exposure | | | | |
|---|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm ²) | Averaging Time (minutes) |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f ²) | 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

Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}}$$

Calculated Data

| Mode | Frequency Range (MHz) | Antenna Gain | | Tune-up Output Power★ | | Evaluation Distance (cm) | Power Density (mW/cm ²) | MPE Limit (mW/cm ²) |
|-----------|-----------------------|--------------|-----------|-----------------------|--------|--------------------------|-------------------------------------|---------------------------------|
| | | (dBi) | (numeric) | (dBm) | (mW) | | | |
| 2.4G WIFI | 2412~2462 | 2.10 | 1.62 | 25.50 | 354.81 | 20 | 0.1145 | 1.0 |
| 5G WIFI | 5150~5250 | 5.50 | 3.55 | 12.50 | 17.78 | 20 | 0.0126 | 1.0 |
| | 5725-5850 | 5.20 | 3.31 | 18.00 | 63.10 | 20 | 0.0416 | 1.0 |

Note:

1. For the above target output power were all declared by the manufacturer.
2. 2.4G Wi-Fi and 5G Wi-Fi cannot transmit simultaneously.

Result: The device meet FCC MPE at 20 cm distance.