

§1.1310, §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

According to Part 1.1310(e), the maximum exposure level to the public from the RF power of the EUT shall not exceed a power density, S as per the respective limits in the below table, at a distance, d, of 20 cm from the EUT.

Limits for General Population/Uncontrolled Exposure

| 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

Reference method

KDB 447498 D01 General RF Exposure Guidance v06

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Result

Calculated Formulary:

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = 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:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

| Frequency (MHz) | Tune Up EIRP | | Evaluation Distance (cm) | Power Density (mW/cm ²) | MPE Limit (mW/cm ²) |
|--------------------|--------------|--------|--------------------------------|---|------------------------------------|
| | (dBm) | (mW) | | | |
| 6489.6 | -1.0 | 0.79 | 20 | 0.0002 | 1 |
| 2412-2462 | 23.5 | 223.87 | 20 | 0.0446 | 1 |

Note: 1. the tune up EIRP was declared by the applicant
2. the UWB can transmit at the same time with the Wi-Fi.

Simultaneous transmitting consideration:

The ratio= $MPE_{DTS}/limit + MPE_{UWB}/limit = 0.0446 + 0.0002 = 0.0448 < 1.0$

so simultaneous exposure is not required.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliance