

Product: RF Module
 Trademark: Tractel
 Manufacturer: TRACTEL
 Model: RF 2.4GHz
 FCC ID: **OVL-RF24GHZ**

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

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

where: S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Equation from page 1 KDB 412172 D01 Determining ERP and EIRP v01r01

$$p_t \times g_t = (E \times d)^2 / 30$$

- p_t = transmitter output power in watts,
- g_t = numeric gain of the transmitting antenna (unitless),
- E = electric field strength in V/m,
- d = measurement distance in meters (m).

Transmitter n°1 (RF Proprietary: 2400-2483,5 MHz)

Average E-Field at 3m: 90,95 (dB μ V/m)

PG: 0,37 (mW)

Prediction distance: 20 (cm)

Prediction frequency: 2480 (MHz)

MPE limit for uncontrolled exposure at prediction frequency: 1 (mW/cm²)

Power density at prediction frequency: 0,000074 (mW/cm²)

Transmitter n°2 (BLE: 2400-2483.5MHz)

Maximum peak output power at the antenna terminal: 4,39 (mW)

Antenna gain(typical): 2,21 (dBi)

Maximum antenna gain: 1,66 (numeric)

Prediction distance: 20 (cm)

Prediction frequency: 2402 (MHz)

MPE limit for uncontrolled exposure at prediction frequency: 1 (mW/cm²)

Power density at prediction frequency: 0,001453 (mW/cm²)

Note : Transmitter n°2: Single modular FCC ID: OVL-BL652 operating in colocation with transmitter n°1

Transmitter n°1 (RF Proprietary: 2400-2483,5 MHz) + Transmitter n°2 (BLE: 2400-2483,5 MHz)

$$[Pd(1)/LPd(1)] + [Pd(3)/LPd(3)] = 0,00153 \\ <1$$