COMPATIBLE ELECTRONICS

MPE Calculations
For RF Exposure Requirements
Smart Profile
Model: 15051102-A

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MAXIMUM PERMISSIBLE EXPOSURE FOR SUBPART C 2.4 GHz BAND

Calculations

Power density at the specific separation:

$$S = PG/(4R^2\pi)$$
$$S = (8.974 * 3.162) / (4 * 20^2 * \pi)$$
$$S = 0.0056452 \text{ mW/cm}^2 \text{ (at 20 cm)}$$
$$\text{Limit} = 1 \text{ mW/cm}^2$$

where

S = Maximum power density (mW/cm^2)
P = Power input to the antenna (mW) – 9.53 dBm
G = Numeric power gain of the antenna
R = distance to the center of the radiation of the antenna (20 cm = limit for MPE)

The maximum permissible exposure (MPE) for the general population is 1 mW/cm^2.

The power density at 20 cm does not exceed the 1 mW/cm^2. Therefore, the exposure condition is compliant with FCC rules.

The numeric gain (G) of the antenna with a gain specified in dB is determined by:

$$G = \text{Log}^{-1} \text{ (dB antenna gain/10)}$$
$$G = \text{Log}^{-1} \text{ (5 dBi/10)}$$
$$G = 3.162$$