

FCC MPE / Health Hazard

Requirement:

According to 47 CFR 15 §1.1307 (b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

MPE / Health Hazard Separation Distance:

The minimum separation distance calculated following FCC OET Bulletin 65 is calculated as follows, where S is power density,

The power density at 20 cm is computed to be:

$$\text{EIRP} = 17.8 \text{ dBm} = 60.3 \text{ mW (Pk)}$$

$$S(\text{mW}/\text{cm}^2) = \text{EIRP}(\text{mW}) / (4 \pi R(\text{cm})^2) = 60.3 / (4 \pi 20^2) = 0.0119 \text{ mW}/\text{cm}^2 \text{ (Pk)}$$

Minimum permissible separation distance is computed as

$$\text{EIRP}_{\text{avg}} = 17.8 \text{ dBm} - 5.1 \text{ dB (exposure duty)} = 12.7 \text{ dBm} = 18.6 \text{ mW}$$

$$R(\text{cm}) = \sqrt{\text{EIRP}_{\text{avg}}(\text{mW}) / (4 \pi S)} = 1.2 \text{ cm,}$$

with $S(\text{mW}/\text{cm}^2) = 1 \text{ mW}/\text{cm}^2$ per 47 CFR 1.1310 Table 1.

ERP is computed to be:

$$\begin{aligned} \text{ERP} &= \text{EIRP} - 2.15 = 17.8 - 2.15 = 15.65 \text{ dBm} \\ &= 0.0367 \text{ W (Pk)} \end{aligned}$$

NOTE: Under no circumstances is the ERP of this device greater than 3W, as required by 2.1091 and the FCC mm-wave accepted test procedures.

Industry Canada MPE / Health Hazard

Requirement:

According to Industry Canada RSS-102 Issue 5, Section 2.5.2, RF exposure evaluation is not required if for devices operating above 6 GHz if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm and the EIRP rating of the device is less than 5W.

Per the test report included herein,

$$\text{EIRP(Pk)} = 17.8 \text{ dBm} = 0.0603 \text{ W} < 5 \text{ W}$$