

Maximum Permissible Exposure

Applicable Standard

According to §1.1307(b)(5), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

Remark: 1) The maximum output power for antenna0 is 9.61dBm (9.14mW) at 5230MHz, 5 dBi antenna0 gain(with 3.16 numeric antenna gain.)

The maximum output power for antenna1 is 9.95dBm (9.89mW) at 5230MHz, 5 dBi antenna1 gain(with 3.16 numeric antenna gain.)

Calculation

$$\text{Given } E = \frac{\sqrt{30 \times P \times G}}{d} \quad \& \quad S = \frac{E^2}{3770}$$

Where E = Field Strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power Density in milliwatts / square centimeter

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antenna0 output power=9.14mW

Numeric Antenna gain=3.16

antenna1 output power=9.89mW

Numeric Antenna gain=3.16

Substituting the MPE safe distance using $d=20\text{cm}$ into above equation.

Yields:

$$S = 0.000199 * P * G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW/cm^2

antenna0 Power density = $0.006\text{mW}/\text{cm}^2$

antenna1 Power density = $0.006\text{mW}/\text{cm}^2$

$S1 + S2 = S$ Power density = $0.012\text{mW}/\text{cm}^2$

(For mobile or fixed location transmitters, the maximum power density is $1.0\text{mW}/\text{cm}^2$ even if the calculation indicates that the power density would be larger.)