



5046 Sierra Pines Dr. Mariposa, CA 95338

FCC 1.1310(b), Maximum Permissible Exposure Calculations

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Calculations prepared for:

Alico Systems Inc.

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Model Number: WNE-2407M,

WNE-5809M

FCC Identification: NA

Fundamental Operating Frequency:

2412- 2462 MHz, 5745 - 5825 MHz

Maximum Rated Output Power:

0.7762W

2.8184W

Measured Output Power:

0.7762W

2.8184W

MPE Limit in accordance with 1.1310(b): Limits for general population/uncontrolled exposure

MPE Limit for 2412- 2462 MHz = 1 mW/cm² (10 W/m²) multiply mw/m by 10

MPE Limit for 5745 - 5825 MHz = 1 mW/cm² (10 W/m²) multiply mw/m by 10

(B) Limits for General Population/Uncontrolled Exposure

0.3-1.34 614 1.63 *(100) 30

1.34-30 824/f 2.19/f *(180/f²) 30

30-300 27.5 0.073 0.2 30

300-1500 --- --- f/1500 30

1500-100,000 --- --- **1.0** 30min

Power Output (Watts)	Power Density Limit (mW/cm ²)	Minimum Distance (Meters)
2.4 GHz	1	0.0785
5.8 GHz	1	0.1657

$$\text{Power Density (W/m}^2\text{)} = \frac{30 \times P_t \times G}{d^2 \times Z_0}$$

P_t = Power Delivered to the Antenna
 d = Distance in meters

G = Antenna Gain
 Z_0 = Impedance of Free Space

The typical antennas to be used with the EUT are structure mount antennas which under normal operation has at least 0.2 meter separation from a user. As can be seen from the MPE result, this device passes the limit specified in 1.1310 at a distance of 0.16 and 0.08 meter.

Calculation:

2.4 GHz, 7 dBi Omni, 21.9 dBm (conducted power)

$$21.9 \text{ dBm} + 7 \text{ dB} = 28.9 \text{ dBm} = 0.7762 \text{ Watt}$$

$$d = \sqrt{\frac{30 \times 0.7762 \times 1}{10 \times 377}}$$

$$= 0.0785 \text{ meter.}$$

5.8 GHz, 9 dBi Omni, 25.5 dBm (conducted power)

$$25.5 \text{ dBm} + 9 \text{ dB} = 34.5 \text{ dBm} = 2.8184 \text{ Watt}$$

$$d = \sqrt{\frac{30 \times 3.45 \times 1}{10 \times 377}}$$

$$= 0.1657 \text{ meter.}$$