



Tracker: RDWN38-U3

Maximum Permissible Exposure FCC, Part 90 Subpart C §90.1217

Calculations for Maximum Permissible Exposure Levels

$$\text{Power Density} = P_d \text{ (mW/cm}^2\text{)} = \text{EIRP}/(4\pi d^2)$$

$$\text{EIRP} = P * G$$

P = Peak output power (mW)

G = Antenna numeric gain (numeric)

d = Separation distance (cm)

$$\text{Numeric Gain} = 10^{(G \text{ (dBi)}/10)}$$

The 5 GHz 802.11ac 3x3 RF Module 5XACMD3C has three antenna chains. The peak power in the table below is calculated by assuming a worst case scenario for the maximum gain antenna and output power. The calculated separation distance is worst case found (Operational mode 80 MHz, channel 5787.00 MHz. Calculation was performed using the 18 dBi antenna gain.

Because the EUT belongs to the General Population/Uncontrolled Exposure the limit of power density is 1.0 mW/cm²

Freq. Band (MHz)	Antenna Gain (dBi)	Numeric Gain (numeric)	Max Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Power Density @ 20cm	Distance (cm)	
						Calculated Safe Distance @ 1mW/cm ² Limit(cm)	Minimum Separation Distance (cm)
5787.0	18	63.1	+29.93	984.01	12.35	53.6	70.3

Note: for mobile or fixed location transmitters the minimum separation distance is 20cm, even if calculations indicate the MPE distance to be less.

Specification

Maximum Permissible Exposure Limits

§90.1217 Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency levels in excess of the Commission's guidelines. See §1.1307 (b)(1) of this chapter.

Limit = 1 mW / cm² from 1.310 Table 1

Laboratory Measurement Uncertainty for Power Measurements

Measurement uncertainty	±1.33dB
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