

1.1.1. Maximum Permissible Exposure

Aruba Network APINR108, APINR109

FCC, Part 15 Subpart C §15.247(i)
Industry Canada RSS-Gen §5.6

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)

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

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

2.4 GHz operation

Antenna Model	Type	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm ² Limit(cm)	Power Density @ 20cm (mW/cm ²)
AP-ANT-1B	Omni	3.8	2	29.69	931.11	13.33	0.44
AP-ANT-13B	Omni	4.4	3	29.69	931.11	14.29	0.51
AP-ANT-16	Omni	3.9	2	29.69	931.11	13.49	0.45
AP-ANT-17	Directional 120 Deg	6.0	4	29.69	931.11	17.17	0.74
AP-ANT-18	Directional 60 Deg	7.0	5	28.69	739.61	17.17	0.74
AP-ANT-19	Omni	3.0	2	29.69	931.11	12.16	0.37

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

5725 -5850 MHz operation

Antenna Model	Type	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm ² Limit(cm)	Power Density @ 20cm (mW/cm ²)
AP-ANT-1B	Omni	5.8	4	27.45	555.90	12.97	0.42
AP-ANT-13B	Omni	3.3	2	27.45	555.90	9.73	0.24
AP-ANT-16	Omni	4.7	3	27.45	555.90	11.43	0.33
AP-ANT-17	Directional 120 Deg	5.0	3	27.45	555.90	11.83	0.35
AP-ANT-18	Directional 60 Deg	7.5	6	27.45	555.90	15.77	0.62
AP-ANT-19	Omni	6.0	4	27.45	555.90	13.27	0.44

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

§15.247(i) 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.

FCC §1.1310 Limit = 1mW / cm² from 1.310 Table 1

RSS-Gen §5.6 Category I and Category II equipment shall comply with the applicable requirements of RSS-102.

Laboratory Measurement Uncertainty for Power Measurements

Measurement uncertainty	±1.33 dB
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