



## Maximum Permissible Exposure

ARUB169;

Aruba APEX0100, APEX0101

FCC, Part 15 §1.1310

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/cm<sup>2</sup>

The calculations in the tables below use highest gain antennas for the client EUT. Where the antenna gain exceeds 6dBi the transmitter power is reduced where necessary to meet the EIRP requirements. These calculations represent worst case in terms of the exposure levels.

A minimum separation distance of 35 cm is declared in the Professional Installation Guide for the Aruba APEX0100, APEX0101.

Freq. Band (MHz)	Antenna Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm <sup>2</sup> Limit(cm)	Minimum Separation Distance (cm)
2400 – 2483.5	14	25.12	21.17	130.92	16.18	35
5725 - 5850	14	25.12	20.94	124.12	15.81	35
5250 - 5350	14	25.12	16.00	39.81	8.92	35
5470 - 5725	14	25.12	16.00	39.81	8.92	35

### Assessment for simultaneous operation in 2.4 GHz and 5 GHz bands

The Aruba APEX0100, APEX0101 can transmit simultaneously in the 2.4 GHz and 5 GHz bands. The following assessment is based on simultaneous operation in the 2.4 GHz and 5 GHz bands.

Freq. Band (MHz)	Antenna Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Safe Distance @ 1mW/cm <sup>2</sup> Limit(cm)	Minimum Separation Distance (cm)
2400 – 2483.5	14	25.12	21.17	130.92	16.18	35
5725 - 5850	14	25.12	20.94	124.12	15.81	35
<b>Combined Total</b>	14	25.12	<b>24.06</b>	<b>255.04</b>	<b>22.58</b>	<b>35</b>



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**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

**FCC §1.1310** Limit =  $1\text{mW} / \text{cm}^2$  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	$\pm 1.33$ dB
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