

FCC RF Exposure

EUT Description: Pronto Intelligent Access Point

Model No.: PIAP-11N-S5-24O, PPAP-11N-S5-24O, PIAP-11N-S5-48O, PPAP-11N-S5-48O

FCC ID: TVV-PIAP

Requirements

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 energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

Band	Operation mode	Antenna Gain (nume i)	Max. Peak Output Power (dBm)	Power Density (mW/cm ²)	Limit of Power Density (mW/cm ²)	Result
Band I	802.11a	5	16.88	0.0484	1	PASS
	802.11n(HT20)	5	16.69	0.0464	1	PASS
	802.11n(HT40)	5	16.91	0.0488	1	PASS
	802.11ac(HT20)	5	16.84	0.0480	1	PASS
	802.11ac(HT40)	5	16.63	0.0457	1	PASS
Band IV	802.11a	5	11.64	0.0145	1	PASS
	802.11n(HT20)	5	12.15	0.0163	1	PASS
	802.11n(HT40)	5	10.91	0.0122	1	PASS
	802.11ac(HT20)	5	11.44	0.0138	1	PASS
	802.11ac(HT40)	5	10.86	0.0121	1	PASS

