RADIO FREQUENCY EXPOSURE

LIMIT

According to §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 energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

EUT Specification

EUT	AC600 Wireless Dual Band High Power Outdoor AP Router
Model	WF2375
Frequency band (Operating)	☒ 802.11b/g/gn HT20: 2412 MHz ~ 2462 MHz 802.11gn HT40: 2422 MHz ~ 2452 MHz 802.11a/802.11ac VHT20 : 5180MHz ~ 5240MHz / 5745MHz ~ 5825MHz 802.11ac VHT40 : 5190MHz ~ 5230MHz / 5755MHz ~ 5795MHz 802.11ac VHT80 : 5210MHz / 5775MHz ☐ Others
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2)
Antenna Specification	5GHz: PIFA Antenna , Antenna Gain: 12.2 dBi (Numeric gain 16.60) 2.4GHz: PIFA Antenna , Antenna Gain: 8.9 dBi (Numeric gain 7.76)
Maximum output power	2.4G IEEE 802.11b Mode: 23.64 dBm (231.206 mW) IEEE 802.11g Mode: 26.19 dBm (415.911 mW) IEEE 802.11gn HT 20 Mode: 25.68 dBm (369.828 mW) IEEE 802.11gn HT 40 Mode: 23.87 dBm (243.781 mW) 5G UNII Band 1 IEEE 802.11a Mode: 18.72 dBm (74.473 mW) IEEE 802.11ac VHT20 Mode: 17.46 dBm (55.719 mW) IEEE 802.11ac VHT40 Mode: 17.79 dBm (60.117 mW) IEEE 802.11ac VHT80 Mode: 13.82 dBm (24.099 mW) 5G UNII Band 3 IEEE 802.11a Mode: 18.22 dBm (66.374 mW) IEEE 802.11ac VHT20 Mode: 16.58 dBm (45.499 mW) IEEE 802.11ac VHT40 Mode: 16.66 dBm (46.345 mW) IEEE 802.11ac VHT80 Mode: 15.22 dBm (33.266 mW)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	2015/07/17	Initial Issue	ALL	Michelle Chiu

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TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \dfrac{\sqrt{30 \times P \times G}}{d}$ & $S = \dfrac{E^2}{3770}$

Where E = Field strength in Volts / meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \textbf{\textit{Equation 1}}$$

Where d = Distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm^2

Maximum Permissible Exposure

Substituting the MPE safe distance using d = 20 cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where   P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm^2

2.4G

IEEE 802.11b mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
2437	231.206	8.9	20	0.4095	1

IEEE 802.11g mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
2437	415.911	8.9	20	0.7366	1

IEEE 802.11gn HT20 mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
2437	369.828	8.9	20	0.6550	1

IEEE 802.11gn HT40 mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
2437	243.781	8.9	20	0.4318	1

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5G UNII Band 1

IEEE 802.11a mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
5200	74.473	12.2	20	0.1808	1

IEEE 802.11ac VHT20 mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
5200	55.719	12.2	20	0.1353	1

IEEE 802.11ac VHT40 mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
5230	60.117	12.2	20	0.1460	1

IEEE 802.11ac VHT80 mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
5210	24.099	12.2	20	0.0585	1

5G UNII Band 3

IEEE 802.11a mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
5785	66.374	12.2	20	0.1611	1

IEEE 802.11ac VHT20 mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
5825	45.499	12.2	20	0.1105	1

IEEE 802.11ac VHT40 mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
5755	46.345	12.2	20	0.1125	1

IEEE 802.11ac VHT80 mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm^2)
5775	33.266	12.2	20	0.0808	1