IEEE C95.1
KDB 447498 D03
47 C.F.R. Part 1, Subpart I, Section 1.1310
47 C.F.R. Part 2, Subpart J, Section 2.1091

RF EXPOSURE REPORT

For

AC1200 Dual-Band Wireless LAN Repeater

Model: EW-7476RPC

Trade Name: EDIMAX

Issued to

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Testing Laboratory
1309

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	2015/07/23	Initial Issue	ALL	Kelly Cheng

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1. 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.

2. EUT SPECIFICATION

EUT	AC1200 Dual-Band Wireless LAN Repeater		
Model	EW-7476RPC		
RF Module	MEDIATEK	Model:	MT7612EN
Frequency band (Operating)	☒ 802.11b/g/n HT20: 2.412GHz ~ 2.462GHz 802.11n HT40: 2.422GHz ~ 2.452GHz 802.11a/n HT20: 5.180GHz ~ 5.240GHz / 5.745 ~ 5.825GHz 802.11n HT40: 5.190GHz ~ 5.230GHz / 5.755~ 5.795GHz 802.11ac VHT80: 5.210GHz / 5.775GHz ☐ 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	PIFA Antenna：MAG.LAYERS / EDA-1313-25GR2-A10-E 2.4GHz: LYN wave / ALA150-222031 Antenna Gain : 3.35 dBi (Numeric gain: 2.16) LYN wave / ALA150-222030 Antenna Gain : 2.05 dBi (Numeric gain: 1.60) 5GHz: LYN wave / ALA150-222031 Antenna Gain : 4.79 dBi (Numeric gain: 3.01) LYN wave / ALA150-222030 Antenna Gain : 4.19 dBi (Numeric gain: 2.62) 2.4GHz: Directional gain = 3.35 dBi +10log (2) = 6.36 dBi (Numeric gain 4.33) 5GHz: Directional gain = 4.79 dBi +10log (2) = 7.80 dBi (Numeric gain 6.03)		
Maximum Average output power	IEEE 802.11b Mode: 18.19 dBm (65.917 mW) IEEE 802.11g Mode: 19.95 dBm (98.855 mW) IEEE 802.11n HT 20 Mode: 21.39 dBm (137.721 mW) IEEE 802.11n HT 40 Mode: 21.61 dBm (144.877 mW) IEEE 802.11a Mode: 24.38 dBm (274.157 mW) IEEE 802.11n HT 20 Mode: 24.38 dBm (274.157 mW) IEEE 802.11n HT 40 Mode: 23.79 dBm (239.332 mW) IEEE 802.11ac VHT80 Mode: 14.48 dBm (28.054 mW)		

Maximum Tune up Power	IEEE 802.11b Mode: 18.50 dBm (70.795 mW) IEEE 802.11g Mode: 20.00 dBm (100.000 mW) IEEE 802.11n HT 20 Mode: 21.50 dBm (141.254 mW) IEEE 802.11n HT 40 Mode: 22.00 dBm (158.489 mW) IEEE 802.11a Mode: 24.50 dBm (281.838 mW) IEEE 802.11n HT 20 Mode: 24.50 dBm (281.838 mW) IEEE 802.11n HT 40 Mode: 24.00 dBm (251.189 mW) IEEE 802.11ac VHT80 Mode: 14.50 dBm (28.184 mW)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

3. TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

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:

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

Changing to units of mW and cm, using:

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

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***Equation 1***

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

4. 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

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
1	2412	70.795	4.33	20	0.0610	1

IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
6	2437	100	4.33	20	0.0862	1

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
6	2437	141.254	4.33	20	0.1217	1

IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
6	2437	158.489	4.33	20	0.1366	1

IEEE 802.11a mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
44	5220	281.838	6.03	20	0.3382	1

IEEE 802.11a HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
44	5220	281.838	6.03	20	0.3382	1

IEEE 802.11a HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
151	5755	251.189	6.03	20	0.3014	1

IEEE 802.11ac VHT80 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
42	5210	28.184	6.03	20	0.0338	1