

IEEE C95.1
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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 Wireless LAN Concurrent Dual Band Gigabit Router

Model: BR-6485AC

Trade Name: EDIMAX

Issued to

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TABLE OF CONTENTS

1. LIMIT	4
2. EUT SPECIFICATION	4
3. TEST RESULTS	6
4. MAXIMUM PERMISSIBLE EXPOSURE	7

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 Wireless LAN Concurrent Dual Band Gigabit Router		
Model	BR-6485AC		
RF Module(2.4G)	MEDIATEK	Model:	MT7603EN
RF Module(5G)	MEDIATEK	Model:	MT7612EN
Frequency band (Operating)	<input checked="" type="checkbox"/> 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 <input type="checkbox"/> Others		
Device category	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others		
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²)		
Antenna Specification	Dipole Antenna : GORTEC 2.4GHz: AN2450-1711WBO Antenna Gain : 2.73 dBi (Numeric gain: 1.87) AN2450-1712WGO Antenna Gain : 2.73 dBi (Numeric gain: 1.87) 5GHz: AN2450-1711WBO Antenna Gain : 4.30 dBi (Numeric gain: 2.69) AN2450-1712WGO Antenna Gain : 4.30 dBi (Numeric gain: 2.69) 2.4GHz: Directional gain = 2.73 dBi +10log (2) = 5.74 dBi (Numeric gain 3.75) 5GHz: Directional gain = 4.30 dBi +10log (2) = 7.31 dBi (Numeric gain 5.38)		
Maximum Average output power	IEEE 802.11b Mode: 22.31 dBm (170.216 mW) IEEE 802.11g Mode: 21.10 dBm (128.825 mW) IEEE 802.11n HT 20 Mode: 19.12 dBm (81.658 mW) IEEE 802.11n HT 40 Mode: 18.86 dBm (76.913 mW) IEEE 802.11a Mode: 24.05 dBm (254.097 mW) IEEE 802.11n HT 20 Mode: 22.11 dBm (162.555 mW) IEEE 802.11n HT 40 Mode: 18.28 dBm (67.298 mW) IEEE 802.11ac VHT80 Mode: 23.81 dBm (240.436 mW)		

Maximum Tune up Power	IEEE 802.11b Mode: 22.50 dBm (177.828 mW) IEEE 802.11g Mode: 22.50 dBm (177.828 mW) IEEE 802.11n HT 20 Mode: 19.50 dBm (89.125 mW) IEEE 802.11n HT 40 Mode: 19.00 dBm (79.433 mW) IEEE 802.11a Mode: 24.50 dBm (281.838 mW) IEEE 802.11n HT 20 Mode: 22.50 dBm (177.828 mW) IEEE 802.11n HT 40 Mode: 18.50 dBm (70.795 mW) IEEE 802.11ac VHT80 Mode: 24.00 dBm (251.189 mW)
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input type="checkbox"/> 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:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

Yields

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

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

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 / cm²

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	177.828	3.75	20	0.1327	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	177.828	3.75	20	0.1327	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	89.125	3.75	20	0.0665	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	79.433	3.75	20	0.0593	1

IEEE 802.11a mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
36	5180	281.838	5.38	20	0.3017	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	177.828	5.38	20	0.1904	1

IEEE 802.11a HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
46	5230	70.795	5.38	20	0.0758	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	251.189	5.38	20	0.2689	1