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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

MT7620 WIFI Module

Model: IWM-7620

Trade Name: ORing

Issued for

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	08/14/2015	Initial Issue	ALL	Michelle Chiu

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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	MT7620 WIFI Module
Model	IWM-7620
Frequency band (Operating)	☒ 802.11b/g/n HT20: 2.412GHz ~ 2.462GHz 802.11n HT40: 2.422GHz ~ 2.452GHz ☐ 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	Antenna 1 2.4GHz: Antenna 0 / Chain 0 Gain 4.00 dBi (Numeric gain 2.51) 2.4GHz: Antenna 1 / Chain 1 Gain 4.00 dBi (Numeric gain 2.51) Antenna 2: 2.4GHz: Antenna 0 / Chain 0 Gain 3.00 dBi (Numeric gain 2.00) 2.4GHz: Antenna 1 / Chain 1 Gain 3.00 dBi (Numeric gain 2.00) Antenna 3: 2.4GHz: Antenna 0 / Chain 0 Gain 2.00 dBi (Numeric gain 1.58) 2.4GHz: Antenna 1 / Chain 1 Gain 2.00 dBi (Numeric gain 1.58)
Maximum Average output power	IEEE 802.11b Mode: 23.54 dBm (225.944 mW) IEEE 802.11g Mode: 26.36 dBm (432.514 mW) IEEE 802.11n HT 20 Mode: 25.66 dBm (368.129 mW) IEEE 802.11n HT 40 Mode: 24.00 dBm (251.189 mW)
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A

3. <u>TEST RESULTS</u>

No non-compliance noted.

<u>Calculation</u>

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

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

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:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
2412	225.944	2.51	20	0.1129	1

IEEE 802.11g mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
2437	432.514	2.51	20	0.2160	1

IEEE 802.11n HT20 mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
2437	368.129	2.51	20	0.1839	1

IEEE 802.11n HT40 mode:

Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm^2	Limit (mW/cm2)
2437	251.189	2.51	20	0.1255	1