

**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**

**2.4 GHz Wi-Fi PoE Gateway**

**Model: G2**

**Trade Name: MIMOSA NETWORKS**

*Issued to*

**Mimosa Networks, Inc.  
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## Revision History

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## **TABLE OF CONTENTS**

<b>1. LIMIT .....</b>	<b>4</b>
<b>2. EUT SPECIFICATION.....</b>	<b>4</b>
<b>3. TEST RESULTS.....</b>	<b>5</b>
<b>4. MAXIMUM PERMISSIBLE EXPOSURE .....</b>	<b>6</b>

## 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

<b>Product</b>	2.4 GHz Wi-Fi PoE Gateway		
<b>Model</b>	G2		
<b>Model Discrepancy</b>	N/A		
<b>Trade Name</b>	MIMOSA NETWORKS		
<b>Frequency band (Operating)</b>	<input checked="" type="checkbox"/> 802.11b/g/n HT20: 2.412GHz ~ 2.462GHz 802.11n HT40: 2.422GHz ~ 2.452GHz <input type="checkbox"/> Others		
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others		
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )		
<b>Antenna Specification</b>	LITE-ON / WR300-Mi / PCB Antenna Antenna 1: 2.0 dBi Antenna 2: 2.4 dBi  2.4GHz: Antenna Gain : 2.4 dBi (Numeric gain: 1.74) Worst  2.4GHz: Directional gain = 2.4 dBi +10log ( 2 ) = 5.41 dBi (Numeric gain: 3.48)		
<b>Maximum Average output power</b>	IEEE 802.11b Mode: 25.24 dBm (334.195 mW) IEEE 802.11g Mode: 24.41 dBm (276.058 mW) IEEE 802.11n HT 20 Mode: 24.01 dBm (251.768 mW) IEEE 802.11n HT 40 Mode: 18.33 dBm (68.077 mW)		
<b>Maximum Tune up Power</b>	IEEE 802.11b Mode: 27.00 dBm (501.187 mW) IEEE 802.11g Mode: 26.00 dBm (398.107 mW) IEEE 802.11n HT 20 Mode: 26.00 dBm (398.107 mW) IEEE 802.11n HT 40 Mode: 20.00 dBm (100.000 mW)		
<b>Evaluation applied</b>	<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 / cm<sup>2</sup>

## 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<sup>2</sup>

### IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
6	2437	501.187	3.48	20	0.3471	1

### IEEE 802.11g mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
6	2437	398.107	3.48	20	0.2757	1

### IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
6	2437	398.107	3.48	20	0.2757	1

### IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm <sup>2</sup>	Limit (mW/cm2)
6	2437	100.000	3.48	20	0.0693	1