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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**

**Network Appliance**

**Model: BNHW029-SC1**

**Trade Name:**  Barracuda®

*Issued to*

**Barracuda Networks, Inc.  
5710 Fontanoso Way, San Jose, CA 95138, United States**

*Issued by*

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Testing Laboratory  
1309

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## Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	March 29, 2016	Initial Issue	ALL	Doris Chu
01	May 4, 2016	1. Modify company name.	P.1	Doris Chu

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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

<b>Product</b>	Network Appliance
<b>Model</b>	BNHW029-SC1
<b>Model Discrepancy</b>	N/A
<b>Trade Name</b>	
<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>	Print Antenna Model: UD92C02-1V0 A: Gain: 0.9 dBi B: Gain: 3 dBi  2.4GHz: Antenna Gain : 3.0 dBi (Numeric gain: 2.00) Worst  2.4GHz: Directional gain = 3.0 dBi +10log ( 2 ) = 6.01 dBi (Numeric gain: 3.99)

<b>Maximum Average output power</b>	IEEE 802.11b Mode: 18.41 dBm (69.343 mW) IEEE 802.11g Mode: 15.56 dBm (35.975 mW) IEEE 802.11n HT 20 Mode: 14.83 dBm (30.409 mW) IEEE 802.11n HT 40 Mode: 14.63 dBm (29.040 mW)
<b>Maximum Tune up Power</b>	IEEE 802.11b Mode: 19.00 dBm (79.433 mW) IEEE 802.11g Mode: 16.00 dBm (39.811 mW) IEEE 802.11n HT 20 Mode: 15.00 dBm (31.623 mW) IEEE 802.11n HT 40 Mode: 15.00 dBm (31.623 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

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

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:

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

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

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

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	79.433	2.00	20	0.0316	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	39.811	2.00	20	0.0158	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)
1	2412	31.623	3.99	20	0.0251	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)
3	2422	31.623	3.99	20	0.0251	1