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Report No.: 1507RSU01002 Report Version: Issue Date: 08-26-2015

# **RF Exposure Evaluation Declaration**

FCC ID: 2ABLK-813G-2

APPLICANT: Calix Inc.

**Application Type:** Certification

**Product: BROADBAND CPE** 

Model No.: 813G-2

**Trademark:** Calix

FCC Classification: Digital Transmission System (DTS)

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Approved By

( Marlin Chen )





The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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# **Revision History**

Report No.	Version	Description	Issue Date
1507RSU01002	Rev. 01	Initial report	08-26-2015

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## 1. PRODUCT INFORMATION

## 1.1. Equipment Description

Product Name	BROADBAND CPE		
Model No.	813G-2		
Frequency Range	802.11b/g/n-HT20: 2412 ~ 2462 MHz		
	802.11n-HT40: 2422 ~ 2452 MHz		
Maximum Output Power	er 802.11b: 19.73dBm		
	802.11g: 19.38dBm		
	802.11n-HT20: 19.31dBm		
	802.11n-HT40: 18.90dBm		
Type of Modulation	802.11b: DSSS		
	802.11g/n: OFDM		

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### 2. RF Exposure Evaluation

#### 2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range	Electric Field	Magnetic Field	Power Density	Average Time	
(MHz)	Strength (V/m)	Strength (A/m)	(mW/cm <sup>2</sup> )	(Minutes)	
(A) Limits for Occupational/ Control Exposures					
300-1500	1		f/300	6	
1500-100,000			5	6	
(B) Limits for General Population/ Uncontrolled Exposures					
300-1500	-		f/1500	6	
1500-100,000	-		1	30	

f= Frequency in MHz

Calculation Formula:  $Pd = (Pout*G)/(4*pi*r^2)$ 

Where

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

r = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, 1mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

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### 2.2. Test Result of RF Exposure Evaluation

Product	BROADBAND CPE
Test Item	RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.6dBi for 802.11b/g, and 1.47dBi for 802.11n-HT20 & n-HT40 in logarithm scale.

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Power Density at $R = 20 \text{ cm}$ $(\text{mW/cm}^2)$	Limit (mW/cm²)
802.11b	2412 ~ 2462	19.73	0.0428	1
802.11g	2412 ~ 2462	19.38	0.0395	1
802.11n-HT20	2412 ~ 2462	19.31	0.0238	1
802.11n-HT40	2422 ~ 2452	18.90	0.0217	1

#### **CONCULISON:**

The WLAN 2.4GHz Band can transmit simultaneously. Therefore, the Max Power Density at R (20 cm) = 0.0428mW/cm<sup>2</sup> < 1mW/cm<sup>2</sup>.

So the EUT complies with the requirement.

— The End —