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)

Reviewed By : Robin Wu
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Revision History

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

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	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

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 (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	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^2

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, $1mW/cm^2$. 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.

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 cm (mW/cm^2)	Limit (mW/cm^2)
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^2 < 1mW/cm^2.

So the EUT complies with the requirement.

The End