RF Exposure Evaluation Declaration

Product Name	:	GPON ONT
Model No.	:	T077G, T073G
FCC ID	:	2ABLK-T077GT073G

Applicant	:	Calix Inc.
Address	:	1035 N. McDowell Blvd. Petaluma, CA 94954 U.S.A.

Date of Receipt	:	Nov. 22, 2013
Issued Date	:	Dec. 18, 2013
Report No.	:	13B0453R-RF-US-P20V01
Report Version	:	V1.0

Test Report Certification

Issued Date : Dec. 18, 2013
Report No. : 13B0453R-RF-US-P20V01

Product Name	:	GPON ONT
Applicant	:	Calix Inc.
Address	:	1035 N. McDowell Blvd. Petaluma, CA 94954 U.S.A.
Manufacturer	:	Calix Inc.
Address	:	1035 N. McDowell Blvd. Petaluma, CA 94954 U.S.A.
Model No.	:	T077G, T073G
FCC ID	:	2ABLK-T077GT073G
EUT Voltage	:	DC 12V, 2A
Brand Name	:	Calix
Applicable Standard	:	FCC OET 65
Test Result	:	Complied
Performed Location	:	Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392

Documented By	:	Alice Ni
Reviewed By	:	Jamie Yuan
Approved By	:	Jeff Chen

Laboratory Information

We, **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC**
Japan	**:**	**VCCI**
China	**:**	**CNAS**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site :http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory :
No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.
TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

LinKou Testing Laboratory :
No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

Suzhou Testing Laboratory :
No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., SuZhou, China
TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : service@quietek.com

1. RF Exposure Evaluation

1.1. 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/cm2)	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

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4*pi*r2)

Where

Pd = power density in mW/cm2

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 id the limit of MPE, 1 mW/cm2 . 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.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.
The temperature and related humidity: 18℃and 78％ RH.

1.3. Test Result of RF Exposure Evaluation

Product	:	GPON ONT
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

- Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2dBi for 2.4GHz in logarithm scale.

- Output Power into Antenna & RF Exposure Evaluation Distance:

Test Mode	Frequency Band (MHz)	Maximum Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
802.11b/g/n(20MHz)	2412~2462	576.7665	0.181857
802.11n(40MHz)	2422~2452	561.0480	0.176901

Note:
The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm2.

The End