FCC RF Exposure Report

FCC ID	:	**2ABLK-844FX-X**
Equipment	:	**GigaCenter**
Model No.	:	**844FB-1 ; 844F-1 ; 844FB-2 ; 844F-2** **(refer to item 1.1.1 for more details)**
Brand Name	:	**Calix Inc**
Applicant	:	**Calix Inc**
Address	:	**1035 N. McDowell Blvd. Petaluma, CA 94954**
Standard	:	**47 CFR FCC Part 2.1091**
Received Date	:	**Jan. 10, 2017**
Tested Date	:	**Feb. 07 ~ Mar. 07, 2017**

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: **Approved by:**

Along Chen / Assistant Manager **Gary Chang / Manager**

Testing Laboratory
2732

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Release Record

Report No.	Version	Description	Issued Date
FA712305	Rev. 01	Initial issue	Apr. 17, 2017

1 Information

1.1.1 Product Details

The device has 4 configurations as below table.
RF function is identical to each configuration. Differences between 4 configurations are only non-RF function by depopulation of components without PCB Modifications.

Model Name	844FB-1	844FB-2	844F-1	844F-2
LAN / WAN function	4 LAN ports	4 LAN ports 1WAN port	4 LAN ports	4 LAN ports 1WAN port
G.fast function	bonding G.fast	bonding G.fast	Single G.fast	Single G.fast
Power Supply	1. Adapter 2. UPS	Adapter (DC jack)	1. Adapter 2. UPS	Adapter (DC jack)
Housing Type	Housing 1	Housing 2	Housing 1	Housing 2
Frequency band (GHz)	2.412 ~ 2.462 / 5.15 ~ 5.25 / 5.725 ~ 5.85			
Bean forming mode	Supported			
Master or Client	Master			
USB function	USB3.0			
VOIP function	VOIP (FXS)			

2 MPE EVALUATION OF MOBILE DEVICES

Human exposure to RF emissions from mobile devices (47 CFR §2.1091) may be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and/or power density, as appropriate, since exposures are assumed to occur at distances of 20 cm or more from persons.

2.1 LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE

Frequency Range (MHz)	Power Density (mW /cm^2)	Averaging Time (minutes)
300~1500	F/1500	30
1500~100000	1.0	30

2.2 MPE EVALUATION FORMULA

$$\mathbf{Pd} = \frac{Pt}{4 * Pi * R^2}$$

Where

Pd= Power density in mW/cm^2
Pt= EIRP in mW
Pi= 3.1416
R= Measurement distance

2.3 MPE EVALUATION RESULTS

Non-beamforming mode

Frequency Range (MHz)	Maximum Conducted Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412~2462	27.41	0	20	0.110	1
5180~5240	29.47	-0.8	20	0.146	1
5745~5825	27.85	-1.2	20	0.092	1

Beamforming mode

Frequency Range (MHz)	Maximum Conducted Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412~2462	26.63	6.02	20	0.366	1
5180~5240	29.34	5.22	20	0.568	1
5745~5825	26.97	4.82	20	0.300	1

Note:
Directional gain for 2.412 ~ 2.462 GHz = 0 dBi + 10*log(4/1) = 6.02 dBi
Directional gain for 5.18 ~ 5.24 GHz = -0.8 dBi + 10*log(4/1) = 5.22 dBi
Directional gain for 5.745 ~ 5.825 GHz = -1.2 dBi + 10*log(4/1) = 4.82 dBi

MPE Evaluation of Simultaneous Transmission

2.4 and 5GHz can transmit at the same time, MPE evaluation is as below formula

PD1 / Limit1 + PD2 / Limit 2 + ….. < 1, PD = Power density

Non-beamforming mode

MPE Evaluation = Maximum MPE of 2.4GHz + Maximum MPE of 5 GHz = 0.110 / 1 + 0.146 / 1 = 0.256 < 1

Beamforming mode

MPE Evaluation = Maximum MPE of 2.4GHz + Maximum MPE of 5 GHz = 0.366 / 1 + 0.568 / 1 = 0.934 < 1

Conclusion

MPE evaluations of single and simultaneous transmission meet the requirement of standard.

3 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website http://www.icertifi.com.tw.

Linkou	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

If you have any suggestion, please feel free to contact us as below information.

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