



# RF EXPOSURE REPORT



Report No.: 14070736-FCC-H2

Supersede Report No.: N/A

Applicant	Guangzhou Gaoke Communications Technology Co., Ltd.	
Product Name	FIBER GATEWAY (Router)	
Model No.	FG7008N	
Serial No.	FG7000N/FG7002N/FG7004N	
Test Standard	FCC 2.1091	
Test Date	January 29, 2015	
Issue Date	January 08, 2015	
Test Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	
Equipment complied with the specification <input checked="" type="checkbox"/>		
Equipment did not comply with the specification <input type="checkbox"/>		
		
Dustin Wang Test Engineer	Alex Liu Checked By	
This test report may be reproduced in full only Test result presented in this test report is applicable to the tested sample only		

Issued by:

**SIEMIC (SHENZHEN-CHINA) LABORATORIES**

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## Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

### Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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## 1. Report Revision History

Report No.	Report Version	Description	Issue Date
14070736-FCC-H2	NONE	Original	January 08, 2015

## 2. Customer information

Applicant Name	Guangzhou Gaoke Communications Technology Co., Ltd.
Applicant Add	GAOKE SCI-TEC Park, No.168 Gaopu Road, Tianhe District
Manufacturer	Guangzhou Gaoke Communications Technology Co., Ltd.
Manufacturer Add	GAOKE SCI-TEC Park, No.168 Gaopu Road, Tianhe District

## 3. Test site information

Lab performing tests	SIEMIC (Shenzhen-China) LABORATORIES
Lab Address	Zone A, Floor 1, Building 2 Wan Ye Long Technology Park South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108
FCC Test Site No.	718246
IC Test Site No.	4842E-1
Test Software	Radiated Emission Program-To Shenzhen v2.0

## 4. Equipment under Test (EUT) Information

Description of EUT:	FIBER GATEWAY (Router)
Main Model:	FG7008N
Serial Model:	FG7000N/FG7002N/FG7004N
Date EUT received:	January 05, 2015
Test Date(s):	January 29, 2015
Antenna Gain:	WIFI: 3 dBi
Type of Modulation:	802.11b/g/n: DSSS, OFDM
RF Operating Frequency (ies):	WIFI:802.11b/g/n(20M): 2412-2462 MHz WIFI:802.11n(40M): 2422-2452 MHz
Number of Channels:	WIFI :802.11b/g/n(20M): 11CH WIFI :802.11n(40M): 7CH
Port:	USB Port, WAN Port, LAN Port, RJ11 Port, SFP Port
Input Power:	FG 7008N,FG7004N Powered by adaptor; Model:GP304U-120-200; Input:100-240V~1.0 A 50/60Hz Output:12.0V DC2.0A FG 7002N,FG7000N Powered by adaptor; Model:G0616U-120-100; Input:100-240V~0.5 A 50/60Hz Output:12.0V DC1.0A
Trade Name :	GAOKE
FCC ID:	2AD5JFG700X

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*It share the same data with 14070737-FCC-R1-WIFI due to the difference between the BG900XW (BG9008W, BG9004W, BG9002W and BG9000W) and FG700XN (FG7008N,FG7004N, FG7002N, FG7000N). The difference among them was explained in the declaration letter.*

## 5. FCC §2.1091 - Maximum Permissible exposure (MPE)

### 6.1 Applicable Standard

According to §1.1307(b)(1), 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 level in excess of the Commission' s guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

\* = Plane-wave equivalent power density



## 6.2 Test Result

Type	Test mode	CH	Freq (MHz)	Conducted Power (dBm)	Tune Up Power (dBm)
Output power	802.11b	Low	2412	<b>16.18</b>	16.0±1
		Mid	2437	<b>18.32</b>	18.5±1
		High	2462	<b>18.33</b>	18.0±1
	802.11g	Low	2412	10.77	10.5±1
		Mid	2437	12.51	12.5±1
		High	2462	11.88	12.0±1
	802.11n (20M)	Low	2412	10.31	10.5±1
		Mid	2437	13.03	13.0±1
		High	2462	11.99	12.0±1
	802.11n (40M)	Low	2422	9.82	14.5±1
		Mid	2437	10.27	13.5±1
		High	2452	9.84	13.5±1

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

For the antenna manufacturer provide only used limited to ERP/EIRP or radiated spurious emission test. The MPE evaluation as below:

Maximum output power at antenna input terminal: 18.33 dBm)

Maximum output power at antenna input terminal: 68.08 (mW)

Prediction distance: >20 (cm)

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Predication frequency: 2462 (MHz) High frequency

Antenna Gain (typical): 3 (dBi)

Antenna Gain (typical): 1.995 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.027(mW/cm<sup>2</sup>)

MPE limit for general population exposure at prediction frequency: 1.0 (mW/cm<sup>2</sup>)

$0.027(\text{mW}/\text{cm}^2) < 1.0 (\text{mW}/\text{cm}^2)$

**Result: Pass**