

Shanghai Feixun Communication Co., Ltd.

Wireless router

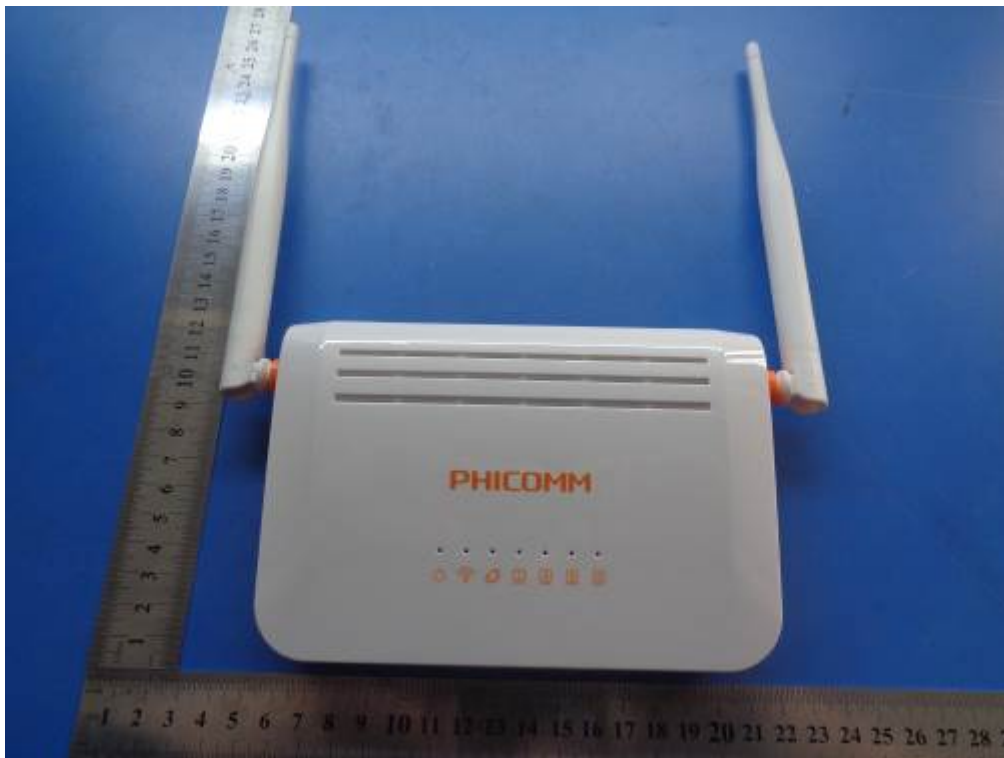
Main Model: FIR302B

Serial Model: FIR300B

June 16, 2014

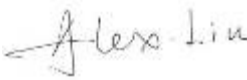
Report No.: 14050026-FCC-H1

(This report supersedes NONE)



Modifications made to the product : None

This Test Report is Issued Under the Authority of:

		
William Long Compliance Engineer	Alex Liu Technical Manager	

This test report may be reproduced in full only.
Test result presented in this test report is applicable to the representative sample only.

RF Exposure Evaluation Report

To: FCC 2.1091: 2013

SIEMIC, INC.
Accessing global markets



Laboratory 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](#) through out 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 , Telecom
Canada	EMC, RF/Wireless , Telecom
Taiwan	EMC, RF, Telecom , Safety
Hong Kong	RF/Wireless ,Telecom
Australia	EMC, RF, Telecom , Safety
Korea	EMI, EMS, RF , Telecom, Safety
Japan	EMI, RF/Wireless, Telecom
Singapore	EMC , RF , Telecom
Europe	EMC, RF, Telecom , Safety

This page has been left blank intentionally.

CONTENTS

1. EXECUTIVE SUMMARY & EUT INFORMATION.....5

2. TECHNICAL DETAILS6

3. MAXIMUM PERMISSIBLE EXPOSURE (MPE)7

FCC §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE).....7

1. EXECUTIVE SUMMARY & EUT INFORMATION

The purpose of this test programme was to demonstrate compliance of the Shanghai Feixun Communication Co., Ltd., Wireless router and model: FIR302B against the current Stipulated Standards. The Wireless router has demonstrated compliance with the FCC 2.1091: 2013.

EUT Information

EUT Description	Wireless router
Main Model	FIR302B
Serial Model	FIR300B
Antenna Gain	WIFI Antenna 1: 5 dBi(Transmitter) WIFI Antenna 2: 5 dBi(Transmitter)
Input Power	Adapter 1: Model: PSAA06X-120 (X=A, C, E, K, S) Input: AC 100-240V 200mA Output: DC 12V 500mA Adapter 2: Model: RD1200500-C55-8MG Input: AC 100-240V 250mA Output: DC 12V 500mA
Maximum Conducted Peak Power to Antenna	802.11b:18.71dBm 802.11g:23.38dBm 802.11n(20M):22.94dBm 802.11n(40M):23.66 dBm 802.11n(20M MIMO):25.94dBm 802.11n(40M MIMO):26.72 dBm
Classification Per Stipulated Test Standard	FCC 2.1091: 2013

Note: in this report, we choice the FIR302B to test, and the two models are identical in interior structure, electrical circuits and PCB layout, only the quality of LAN port is different, the FIR302B has 4 LAN ports, the FIR300B has 1 LAN port.

2. TECHNICAL DETAILS

Purpose	Compliance testing of Wireless router with stipulated standard
Applicant / Client	Shanghai Feixun Communication Co., Ltd. No.3666,Sixian Rd.,Songjiang District,Shanghai,P.R.China
Manufacturer	Shanghai Feixun Communication Co., Ltd. No.3666,Sixian Rd.,Songjiang District,Shanghai,P.R.China
Laboratory performing the tests	SIEMIC (Nanjing-China) Laboratories NO.2-1,Longcang Dadao, Yuhua Economic Development Zone, Nanjing, China Tel: +86(25)86730128/86730129 Fax: +86(25)86730127 Email: China@siemic.com.cn
Test report reference number	14050026-FCC-H1
Date EUT received	May 16, 2014
Standard applied	FCC 2.1091: 2013
Dates of test	May 20 to June 16, 2014
No of Units	#1
Equipment Category	Spread Spectrum System/Device
Trade Name	PHICOMM
RF Operating Frequency (ies)	WIFI: 802.11b/g/n(20M): 2412-2462 MHz 802.11n(40M): 2422-2452 MHz
Number of Channels	802.11b/g /n(20M): 11CH 802.11n(40M): 7CH
Modulation	WIFI: 802.11b/g/n: CCK/OFDM
Port	Power Port, LAN*4 Port, WAN Port
FCC ID	YJYFIR300

3. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

FCC §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)

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 ²)	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	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

Test Data

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/cm²)

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)

Note:

Please refer to the following tables and plots.

Antenna Gain 1=5 dBi

Antenna Gain 2=5 dBi

Array Gain=8 dBi = 10*log((10^{5/10})+(10^{5/10}))

Note: base on different type antenna and their gain, the bellow result is the worst case.

802.11b:

Maximum peak output power at antenna input terminal: 18.71(dBm)
Maximum peak output power at antenna input terminal: 74.30(mW)

Prediction distance: >20 (cm)
Predication frequency: 2412 (MHz)
Antenna Gain (typical): 5 (dBi)
Antenna Gain (typical): 3.16 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.047 (mW/cm2)
MPE limit for general population exposure at prediction frequency: 1.0 (mW/cm2)

$0.047(\text{mW}/\text{cm}^2) < 1.0(\text{mW}/\text{cm}^2)$

802.11g:

Maximum peak output power at antenna input terminal: 23.38 (dBm)
Maximum peak output power at antenna input terminal: 217.77 (mW)

Prediction distance: >20 (cm)
Predication frequency: 2412 (MHz)
Antenna Gain (typical):5(dBi)
Antenna Gain (typical): 3.16 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.137 (mW/cm2)
MPE limit for general population exposure at prediction frequency:1.0 (mW/cm2)

$0.137(\text{mW}/\text{cm}^2) < 1.0(\text{mW}/\text{cm}^2)$

802.11n(20M):

Maximum peak output power at antenna input terminal: 22.94 (dBm)
Maximum peak output power at antenna input terminal: 196.79 (mW)

Prediction distance: >20 (cm)
Predication frequency: 2412 (MHz)
Antenna Gain (typical):5 (dBi)
Antenna Gain (typical): 3.16(numeric)

The worst case is power density at predication frequency at 20 cm: 0.124(mW/cm2)
MPE limit for general population exposure at prediction frequency:1.0 (mW/cm2)

$0.124 (\text{mW}/\text{cm}^2) < 1.0(\text{mW}/\text{cm}^2)$

802.11n(40M):

Maximum peak output power at antenna input terminal: 23.66(dBm)
Maximum peak output power at antenna input terminal: 232.27 (mW)

Prediction distance: >20 (cm)
Predication frequency: 2412 (MHz)
Antenna Gain (typical):5 (dBi)
Antenna Gain (typical): 3.16 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.146 (mW/cm2)
MPE limit for general population exposure at prediction frequency:1.0 (mW/cm2)

$0.146 (\text{mW}/\text{cm}^2) < 1.0(\text{mW}/\text{cm}^2)$

802.11n(20M MIMO):

Maximum peak output power at antenna input terminal: 25.94 (dBm)

Maximum peak output power at antenna input terminal: 392.64 (mW)

Prediction distance: >20 (cm)

Predication frequency: 2412 (MHz)

Antenna Gain (typical):5 (dBi)

Antenna Gain (typical): 3.16(numeric)

The worst case is power density at predication frequency at 20 cm: 0.247(mW/cm²)

MPE limit for general population exposure at prediction frequency:1.0 (mW/cm²)

0.247 (mW/cm²) < 1.0(mW/cm²)

802.11n(40M MIMO):

Maximum peak output power at antenna input terminal: 26.72(dBm)

Maximum peak output power at antenna input terminal: 469.89 (mW)

Prediction distance: >20 (cm)

Predication frequency: 2412 (MHz)

Antenna Gain (typical):5 (dBi)

Antenna Gain (typical): 3.16 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.296 (mW/cm²)

MPE limit for general population exposure at prediction frequency:1.0 (mW/cm²)

0.296 (mW/cm²) < 1.0(mW/cm²)

Result: Pass

(Shanghai Feixun Communication CO.,Ltd.)

To SIEMIC Inc

775 Montague Expressway Milpitas, CA 95035

Statement

We, Shanghai Feixun Communication Co., Ltd. apply a multiple-listing certification for the below models.

Product Name: Wireless router

Model number: FIR302B,FIR300B

FCC ID: YJYFIR300

We hereby state that these models are identical in interior structure, electrical circuits and PCB layout; Only the quantity of LAN port is different. FIR302B have 4 LAN ports, FIR300B have 1 LAN ports.

Your assistance on this matter is highly appreciated.

Sincerely,

Name: Emmy Xiong

Title: Certification Engineer

Signature:

