RF EXPOSURE REPORT

Report No.: 18070575-FCC-H

Applicant	Shenzhen Cudy Technology Co. Ltd.
Product Name	AC1200 Dual Band Smart Wi-Fi Router
Main Model No.	WR1000
Serial Model No.	N/A
Test Standard	FCC 2.1091
Test Date	June 05 to 26, 2018
Issue Date	June 27, 2018
Test Result	☑ Pass ☐ Fail
Equipment complied with the specification	☑
Equipment did not comply with the specification	☐

Aaron Liang	David Huang	
Aaron Liang Test Engineer	David Huang Checked By	

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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
18070575-FCC-H	NONE	Original	June 27, 2018

2. Customer information

Applicant Name	Shenzhen Cudy Technology Co. Ltd.
Applicant Add	Room A606, Gaoxinqi Industrial Park, Liuxianyi Road, Baoan District,Shenzhen China 518101
Manufacturer	Shenzhen Cudy Technology Co. Ltd.
Manufacturer Add	Room A606, Gaoxinqi Industrial Park, Liuxianyi Road, Baoan District,Shenzhen China 518101

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.	535293
IC Test Site No.	4842E-1
Test Software	Labview of SIEMIC version 2.0

4. Equipment under Test (EUT) Information

Description of EUT:	AC1200 Dual Band Smart Wi-Fi Router
Main Model:	WR1000
Serial Model:	N/A
Equipment Category :	DTS/NII
Antenna Gain:	2.4G/5G WIFI: 5dBi
Antenna type :	Cable Antenna
Input Power:	Adapter: Model: S12A12-120A100-CJ Input:AC 100-240V~50/60Hz 0.5A Output:DC 12V, 1A
Trade Name :	N/A
Port:	Please refer to the user manual
FCC ID:	2APRGWR1000V1
Type of Modulation:	802.11b: DSSS 802.11g/n20/n40/a/ac20/ac40/ac80: OFDM
RF Operating Frequency (ies):	802.11b/g: 2412-2462 MHz (TX/RX) 802.11n20: 2412-2462MHz; 802.11n40: 2422-2452 MHz (TX/RX); 5190-5230 MHz(TX/RX) 802.11 a: 5180-5240 MHz (TX/RX) 802.11ac 20: 5180-5240 MHz; (TX/RX) 802.11ac 40: 5190-5230 MHz; (TX/RX) 802.11ac 80: 5210 MHz; (TX/RX)

Number of Channels:	WIFI :802.11b/g: 11CH WIFI :802.11a/ac20: 24CH WIFI :802.11ac40: 12CH WIFI :802.11ac80: 6CH WIFI :802.11n20: 11CH(2.4GHz); WIFI :802.11n40: 9CH(2.4GHz); 12CH(5GHz)

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

5.1 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^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

5.2 Test Result

2.4G WIFI

Type	Test mode	CH	Freq (MHz)	Conducted Power (dBm)	Tune Up Power (dBm)
Output power	802.11b	Low	2412	**9.46**	9±1
		Mid	2437	8.95	9±1
		High	2462	9.23	9±1
	802.11g	Low	2412	**9.14**	9±1
		Mid	2437	8.36	9±1
		High	2462	9.04	9±1
	802.11n (20M)	Low	2412	**11.42**	11±1
		Mid	2437	10.76	11±1
		High	2462	11.31	11±1
	802.11n (40M)	Low	2422	**10.72**	10±1
		Mid	2437	9.89	10±1
		High	2452	9.74	10±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^2)

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)

2.4G WIFI:

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: 12(dBm)

Maximum output power at antenna input terminal: 15.85(mW)

Prediction distance: >20 (cm)

Predication frequency: 2412 (MHz) Low frequency

Antenna Gain (typical):5 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.00996(mW/cm^2)

MPE limit for general population exposure at prediction frequency: 1 (mW/cm^2)

0.00996(mW/cm^2) < 1.0 (mW/cm^2)

Result: Pass

5 G WIFI

Test mode	Freq Band (MHz)	CH	Frequency (MHz)	Conducted Power (dBm)	Tune Up Power (dBm)
820.11a	5150-5250	Low	5180	11.56	11.5±1
		Middle	5200	11.44	11.5±1
		High	5240	11.83	11.5±1
802.11ac (20M)		Low	5180	11.68	11.5±1
		Middle	5200	11.18	11.5±1
		High	5240	11.18	11.5±1
802.11ac (40M)		Low	5190	17.71	18.5±1
		High	5230	17.76	18.5±1
802.11ac (80M)		One	5210	19.19	18.5±1
802.11n (40M)		Low	5190	11.44	11.5±1
		High	5230	11.42	11.5±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^2)

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)

2.4G WIFI:

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: 12.5(dBm)

Maximum output power at antenna input terminal: 89.125(mW)

Prediction distance: >20 (cm)

Predication frequency: 5210 (MHz) frequency

Antenna Gain (typical):5 (numeric)

The worst case is power density at predication frequency at 20 cm: 0.223(mW/cm^2)

MPE limit for general population exposure at prediction frequency: 1 (mW/cm^2)

0.223(mW/cm^2) < 1.0 (mW/cm^2)

Result: Pass