TEST REPORT

REPORT NUMBER: I21W00039-EMC-Rev1

ON

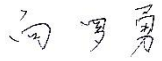
Type of Equipment:	GSM module
Type of Designation:	R800C
Brand Name:	SIMCom
Manufacturer:	SIMCom Wireless Solutions Limited
FCC ID:	2AJYU-8SF0001

ACCORDING TO

Subpart B, PART 15, RADIO FREQUENCY DEVICES

Chongqing Academy of Information and Communications Technology

Month date, year
Dec 13, 2021
Signature



Xiang Luoyong
Director

Note:
The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of Chongqing Academy of Information and Communications Technology.

Revision Version

Report Number	Revision	Date	Memo
I21W00047-EMC	00	2021-12-02	Initial creation of test report
I21W00047-EMC-Rev1	1	2021-12-28	--

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1. Test Laboratory

1.1. Testing Location

Name:	Chongqing Academy of Information and Communications Technology
FCC Registration Number:	CN1239
Address:	Building C, Technology Innovation Center, No.8, Yuma Road, Chayuan New Area, Nan'an District, Chongqing, People's Republic of China
Postal Code:	401336
Telephone:	0086-23-88069965
Fax:	0086-23-88608777

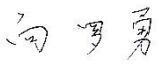
1.2. Testing Environment

Normal Temperature:	21.9-26.0℃
Relative Humidity:	55.0-58.0%

1.3. Project data

Testing Start Date:	2021-12-01
Testing End Date:	2021-12-03

1.4. Signature

	2021-12-13
Tan Haoyue **(Prepared this test report)**	**Date**
	2021-12-13
Xiao Yu **(Reviewed this test report)**	**Date**
	2021-12-13
Xiang Luoyong **Director of the laboratory** **(Approved this test report)**	**Date**

2. Client Information

2.1. Applicant Information

Company Name:	SIMCom Wireless Solutions Limited
Address /Post:	6F,BuildingB,SIMTechnologyBuilding,No.633Jinzhong Road,ChangningDistrict,Shanghai,P.R.China
City:	Shanghai
Country:	China
Telephone:	86 21 3157 5182
Fax:	--
Email:	YongshengLi@simcom.com
Contact Person:	Yongsheng Li

2.2. Manufacturer Information

Company Name:	SIMCom Wireless Solutions Limited
Address /Post:	6F,BuildingB,SIMTechnologyBuilding,No.633Jinzhong Road,ChangningDistrict,Shanghai,P.R.China
City:	Shanghai
Country:	China
Telephone:	86 21 3157 5182
Fax:	--
Email:	YongshengLi@simcom.com
Contact Person:	Yongsheng Li

3. Equipment under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

EUT Description	Wireless communication module
Model name	R800C
Brand name	SIMCom
GSM Frequency Band	GSM 850/PCS 1900

Note: Photographs of EUT are shown in ANNEX B of this test report.

3.2. Internal Identification of EUT used during the test

EUT ID	SN or IMEI	HW Version	SW Version	Date of receipt
S1	863070040111295	R800C	R800C R1850	2021-11-30

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID	Description		SN
AE1	Antenna gain:		--
	GSM850	0.91dBi	
	GSM900	0.031dBi	

*AE ID: is used to identify the test sample in the lab internally.
dB*：is provided customer.

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC CFR Part 15, Subpart B，	RADIO FREQUENCY DEVICES	August 24, 2018

5. Test Equipments Utilized

No.	Equipment	Model	SN	HW Version	SW Version	Manufacture	Cal.Due Date
1	Test Receiver	ESW 26	101382	00	1.50 SP1	R&S	2022-06-11
2	Test Receiver	ESU40	100350	01	4.43 SP3	R&S	2022-06-11
3	Ultra-wideband Log Periodic Antenna	VULB 9163	9163-586	--	--	Schwarzbeck	2022-11-11
4	Double Ridged Guide Antenna	9120D	9120D-1083	--	--	Schwarzbeck	2022-06-11
5	Fully anechoic chamber	FAC-5	--	--	2024-08-30	TDK	2024-08-30
6	Semi-anechoic chamber	FAC-10	--	--	2024-08-28	TDK	2024-08-28

Test software

No.	Name	version	SN	Manufacture
1	EMC32	V 9.26.01	--	R&S
2	EMC32	V10.20.10	--	R&S

6. Test Results

6.1. Summary of Test Results

FCC Rules	Name of Test	Result
15.109	Radiated Emission	Pass
15.107	Conducted Emission	Pass
Note: N/A means not applicable.		

7. Test Results

7.1. Radiated Emission

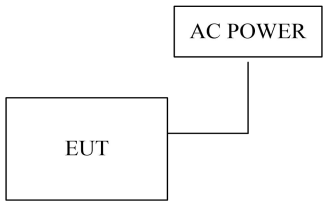
Specifications:	15.109
Date of Tests	2021-10-27
Test conditions:	Ambient Temperature:21.9℃-23.6℃ Relative Humidity:55.0%RH-57%RH Air pressure:99.9kPa
Operation Mode	Normal
Test Results:	Pass

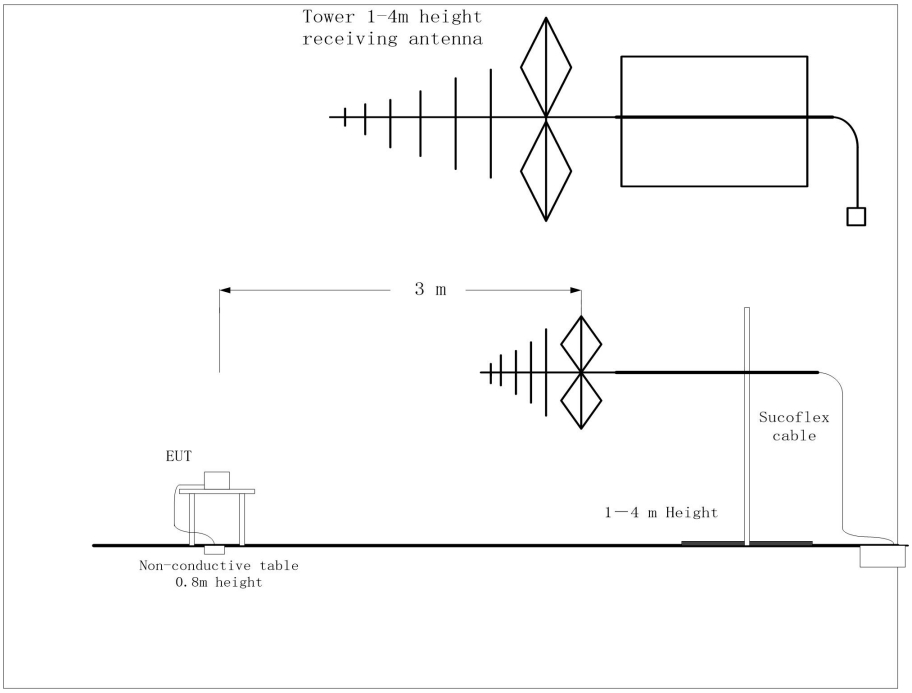
Limit Level Construction(Except for Class A digital devices):

Frequency Range (MHz)	Quasi-Peak (dBuV/m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Frequency Range (MHz)	Peak (dBuV/m)	Average (dBuV/m)
Above 1000	74	54

EUT Setup:





Test Method:

For 30-1000MHz, the EUT was placed on the top of a rotating 0.8m table above the ground at a semi-anechoic chamber. The distance between the EUT and the received antenna was 3 meters. The table was rotated 360 degree and the received antenna mounted on a variable-height antenna tower was varied from 1m to 4m to find the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement. Tested in accordance with the procedures of ANSI C63.4-2014, section 8.3.

For 1000-18000MHz, the maximal emission value was acquired by adjusting the antenna height, and the table was rotated 360 degree to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement.

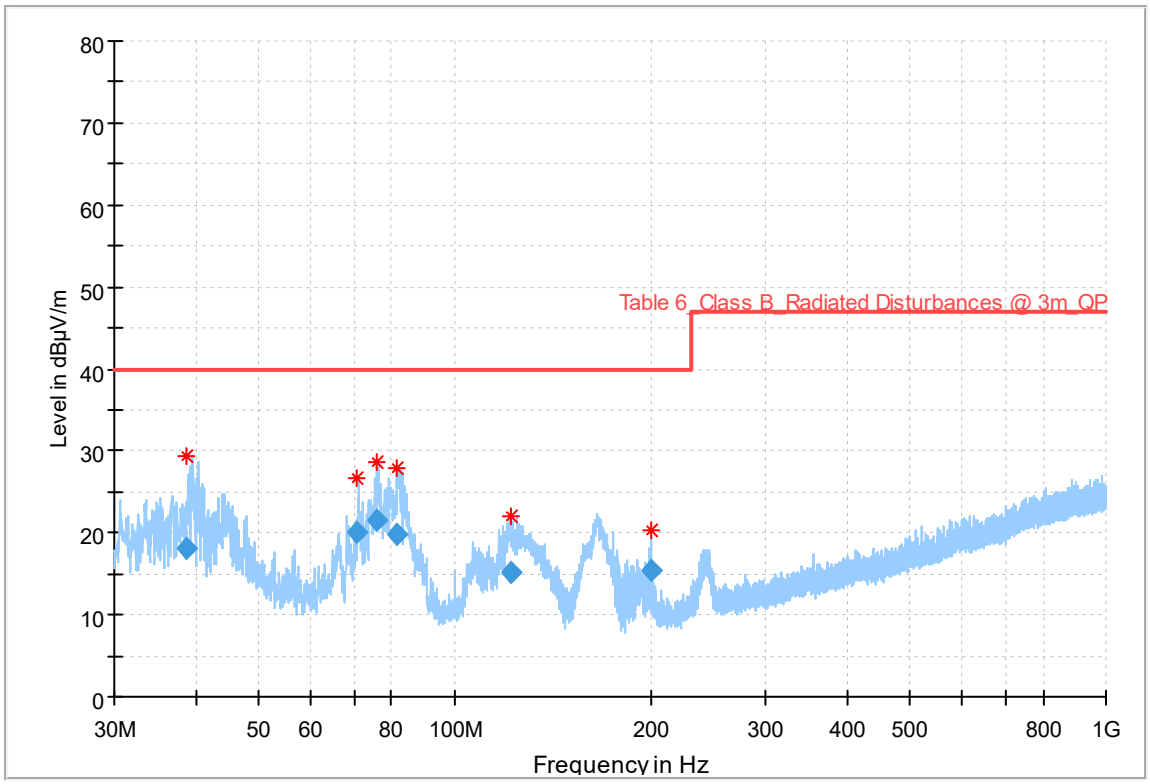
Uncertainty Measurement:

The measurement uncertainty (30MHz-1000MHz) is 4.09 dB (k=2).

The measurement uncertainty (1000MHz-6000MHz) is 4.84 dB (k=2).

The measurement uncertainty (6000MHz-18000MHz) is 4.52 dB (k=2).

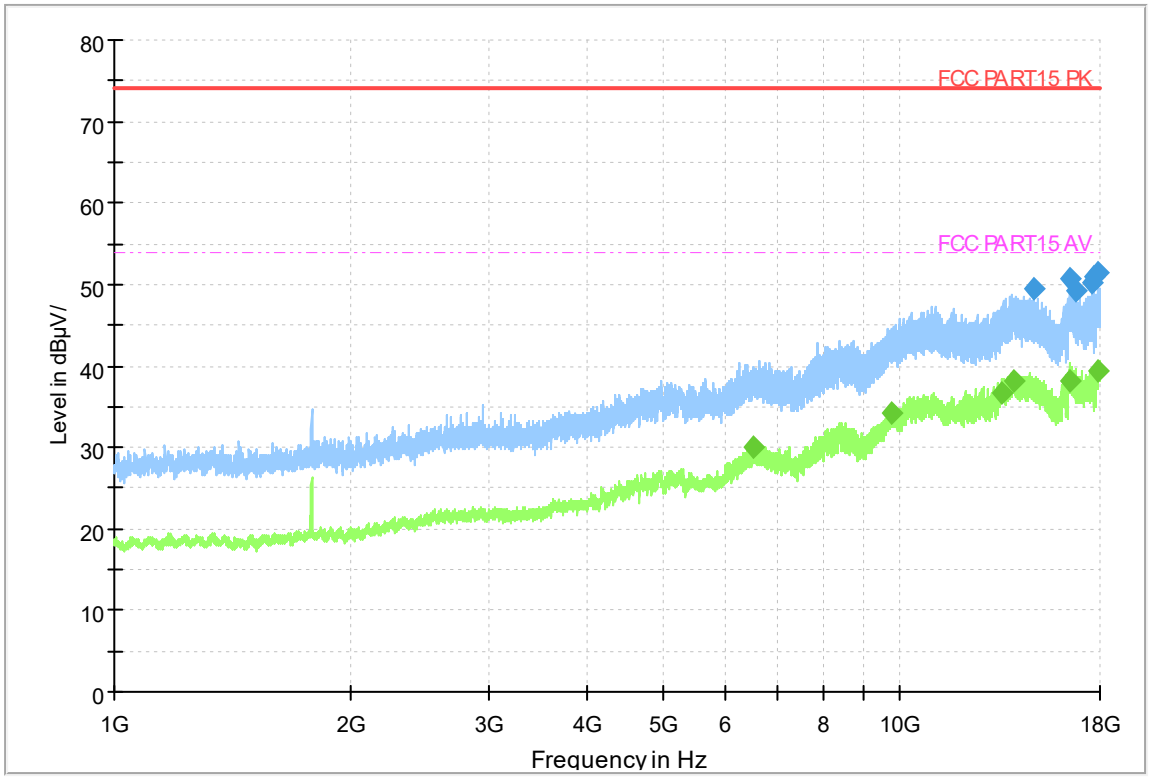
Test Data



RE 30MHz-1GHz

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
38.809000	18.11	40.00	21.89	1000.0	120.000	113.0	V	128.0
70.856500	20.17	40.00	19.83	1000.0	120.000	277.0	V	247.0
75.881000	21.49	40.00	18.51	1000.0	120.000	344.0	H	266.0
81.592000	19.80	40.00	20.20	1000.0	120.000	316.0	V	168.0
122.312500	15.18	40.00	24.82	1000.0	120.000	203.0	V	117.0
199.992500	15.51	40.00	24.49	1000.0	120.000	106.0	H	59.0

Note: Both H polarization and V polarization are tested. The figure shows the maximum value of H polarization and V polarization synthesis



RE 1GHz-18GHz

Final_Result

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
6507.000000	---	30.01	54.00	23.99	50.0	1000.000	150.0	V	180.0
9789.600000	---	34.10	54.00	19.90	50.0	1000.000	150.0	H	180.0
13468.80000	---	36.61	54.00	17.39	50.0	1000.000	150.0	V	180.0
13984.80000	---	38.13	54.00	15.87	50.0	1000.000	150.0	H	90.0
14787.00000	49.59	---	74.00	24.41	50.0	1000.000	150.0	V	90.0
16492.80000	---	38.24	54.00	15.76	50.0	1000.000	150.0	H	270.0
16498.50000	50.70	---	74.00	23.30	50.0	1000.000	150.0	V	90.0
16800.30000	49.33	---	74.00	24.67	50.0	1000.000	150.0	H	270.0
17632.50000	50.28	---	74.00	23.72	50.0	1000.000	150.0	H	180.0
17686.50000	50.86	---	74.00	23.14	50.0	1000.000	150.0	V	90.0
17917.80000	---	39.44	54.00	14.56	50.0	1000.000	150.0	V	270.0
17926.50000	51.35	---	74.00	22.65	50.0	1000.000	150.0	V	270.0

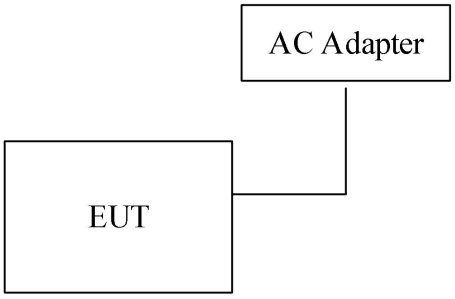
7.2. Conducted Emission

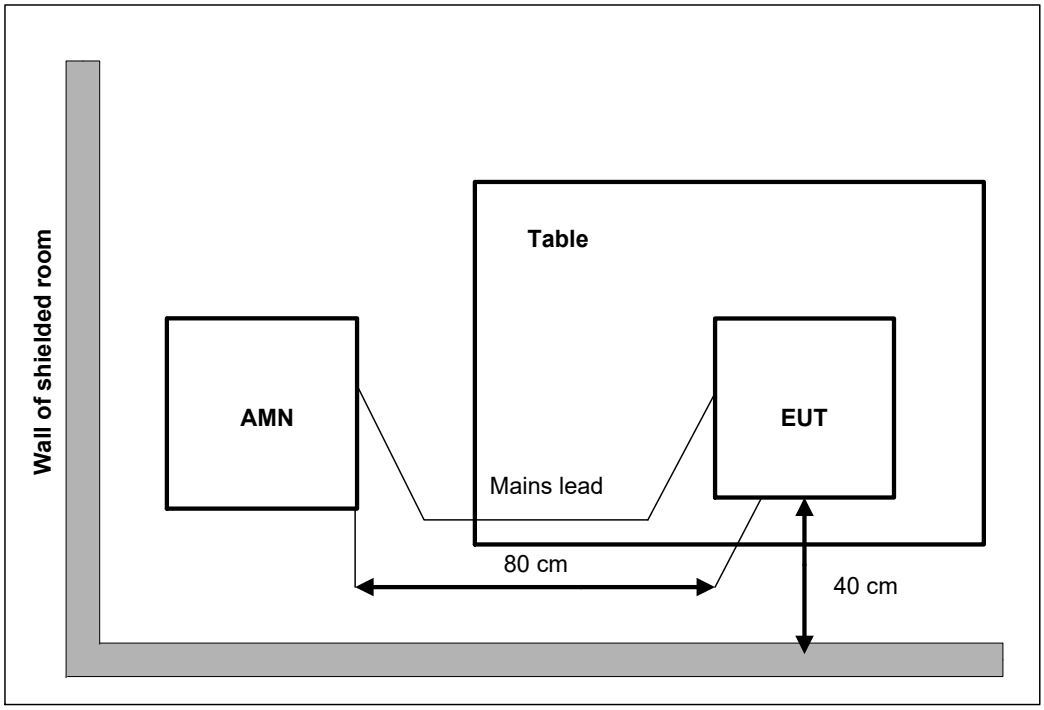
Specifications:	15.107
Date of Tests	2021-12-03
Test conditions:	Ambient Temperature:23.2℃ Relative Humidity:57% Air pressure: 99.8kPa
Operation Mode	Normal
Test Results:	Pass
Note: Both EUT have been tested , and the data only reflect the worst case.	

Limit Level Construction:

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency		

EUT Setup:





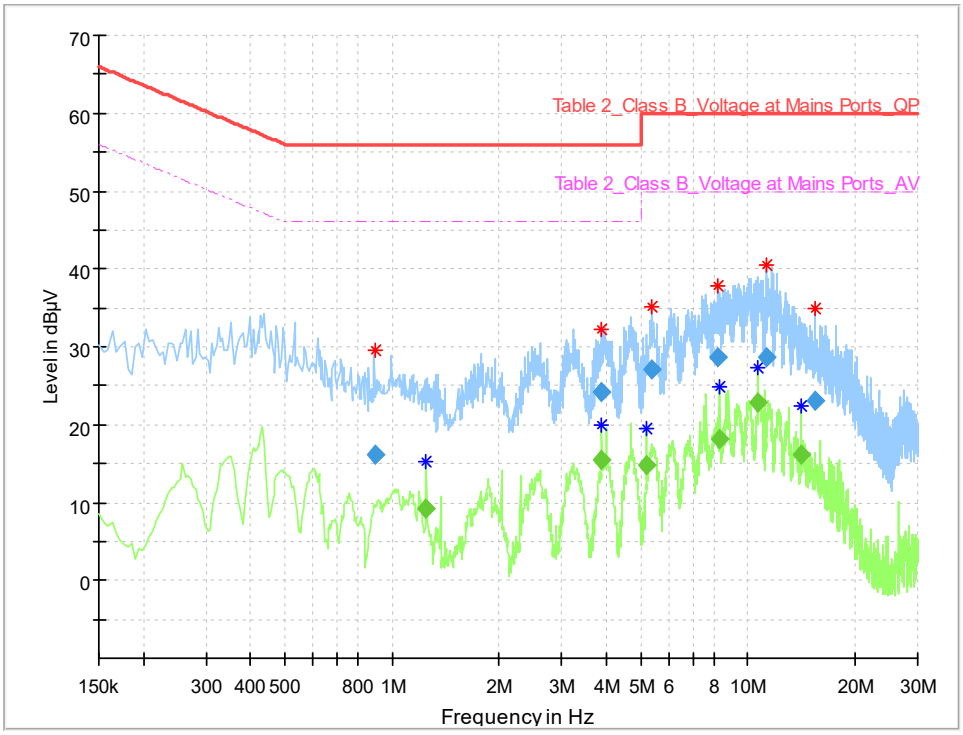
Test Method:

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies with the band 150 kHz to 30MHz shall not exceed the limits. Both lines of the power mains connected to the EUT were checked for maximum conducted interference. Tested in accordance with the procedures of ANSI C63.4-2014, section 7.3

Uncertainty Measurement:

The measurement uncertainty is 1.83 dB (k=2).

Test Data



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin	Meas. Time	Bandwidth	Line
0.892500	16.14	---	56.00	39.86	1000.0	9.000	L1
1.243500	---	9.22	46.00	36.78	1000.0	9.000	N
3.885000	---	15.50	46.00	30.50	1000.0	9.000	N
3.889500	24.22	---	56.00	31.78	1000.0	9.000	N
5.217000	---	14.70	50.00	35.30	1000.0	9.000	N
5.365500	27.10	---	60.00	32.90	1000.0	9.000	N
8.227500	28.72	---	60.00	31.28	1000.0	9.000	N
8.304000	---	18.09	50.00	31.91	1000.0	9.000	N
10.666500	---	22.79	50.00	27.21	1000.0	9.000	N
11.242500	28.71	---	60.00	31.29	1000.0	9.000	N
14.167500	---	16.07	50.00	33.93	1000.0	9.000	N
15.486000	23.16	---	60.00	36.84	1000.0	9.000	N

Annex A EUT Photos

See the document” I21W00047-External Photos”.
See the document” I21W00047-Internal Photos ”.
Test photo See the document”I21W00047_EMC Test Setup Photos”.

ANNEX B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

*****END OF REPORT*****