



TEST REPORT

REPORT NUMBER: I21W00032-EMC_Rev.01

ON

Type of Equipment: Wireless Module

Type of Designation: A7672SA、A7672SA miniPCIE

Brand Name: SIMCom

Manufacturer: SIMCom Wireless Solutions Limited

FCC ID: 2AJYU-8BAE001

ACCORDING TO

Subpart B, PART 15, RADIO FREQUENCY DEVICES

Chongqing Academy of Information and Communications Technology

Month date, year

Nov 15, 2021

Signature



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.



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Revision Version

Report Number	Revision	Date	Memo
I21W00032-EMC	00	2021-11-01	Initial creation of test report
I21W00032-EMC	01	2021-11-15	First modified of test report

Chongqing Academy of Information and Communication Technology

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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

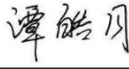
1.2. Testing Environment

Normal Temperature:	15-35°C
Relative Humidity:	30-60%

1.3. Project data

Testing Start Date:	2021-09-02
Testing End Date:	2021-11-12

1.4. Signature

	2021-11-15
Tan Haoyue (Prepared this test report)	Date
	2021-11-15
Xiao Yu (Reviewed this test report)	Date
	2021-11-15
Xiang Luoyong Director of the laboratory (Approved this test report)	Date

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2. Client Information

2.1. Applicant Information

Company Name:	SIMCom Wireless Solutions Limited
Address /Post:	Building 3, No. 289, Linhong Road, Changning District, Shanghai, P.R.China
City:	Shanghai
Country:	China
Telephone:	15902149520
Fax:	--
Email:	yue.hai@simcom.com
Contact Person:	Haiyue

2.2. Manufacturer Information

Company Name:	--
Address /Post:	--
City:	--
Country:	--
Telephone:	--
Fax:	--
Email:	--
Contact Person:	--

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

3.1. About EUT

EUT Description	Wireless Module
Model name	A7672SA、 A7672SA miniPCIE
Brand name	SIMCom
GSM Frequency Band	850/1900
LTE Frequency Band	2/4/5/66
Production Status	Product

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	860710050007767	V1.01	A011B01A7672M7_GPS	2021-08-30
S5	860710050007619	V1.01	A011B01A7672M7_GPS	2021-08-30

*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	Model	SN
AE1	Adapter	DSA-0131F-06	--

*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	ESU 26 20Hz-26.5 GHz	100350	01	4.43 SP3	R&S	2022-06-11
2	Trilog Antenna	VULB916 3	01392	--	--	Schwarzbec k	2023-03-04
3	Double Ridged Guide Antenna	HF907	100357	--	--	Schwarzbec k	2023-02-10
4	Fully-Anechoi c Chamber	--	--	--	--	ETS	2022-06-25
5	AMN	ENV216	101128	--	--	R&S	2022-06-11
6	EMI Test Receiver	ESCI 9KHz-3G HZ	101214	00	4.42 SP2	R&S	2022-06-11

Test software

No.	Name	version	SN	Manufacture
1	EMC32	V8.51.0	--	R&S
2	EMC32	V8.51.0	--	R&S

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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: NA means not applicable.		

7. Test Results

7.1. Radiated Emission

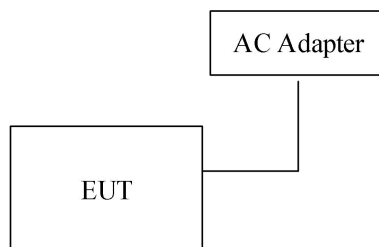
Specifications:	15.109
Date of Tests	2021-09-07-2021-09-27
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	Normal
Test Results:	Pass
Note: Both EUT have been tested , and the data only reflect the worst case.	

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

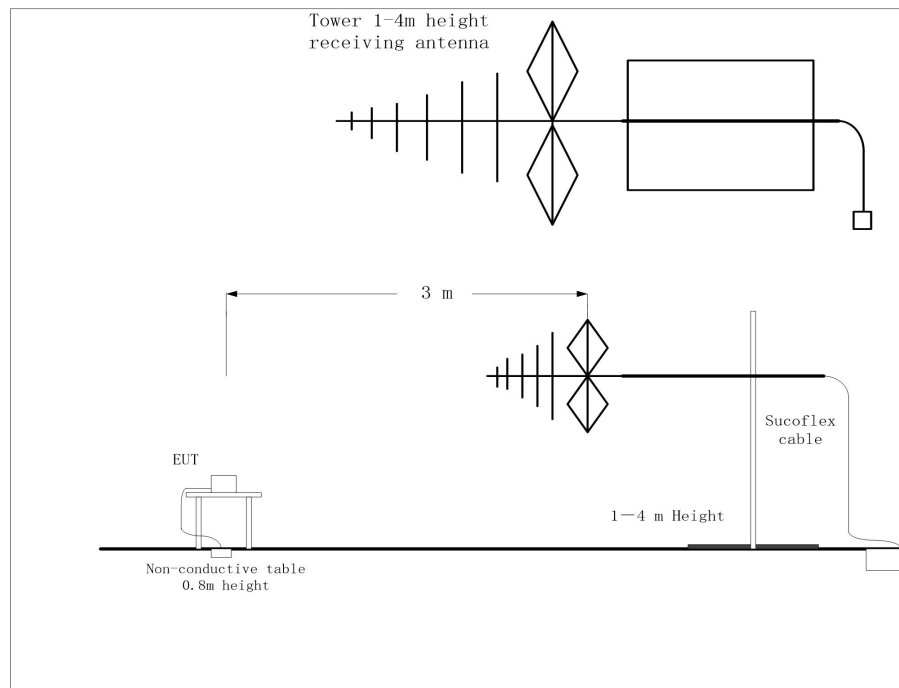
Frequency Range (MHz)	Peak (dBuV/m)	Average (dBuV/m)
Above 1000	74	54

EUT Setup:



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Test Method:

For 30-1000MHz, the EUT was placed on the top of a rotating 0.8-m 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 5.15 dB ($k=2$).

The measurement uncertainty (1000MHz-6000MHz) is 4.68 dB ($k=2$).

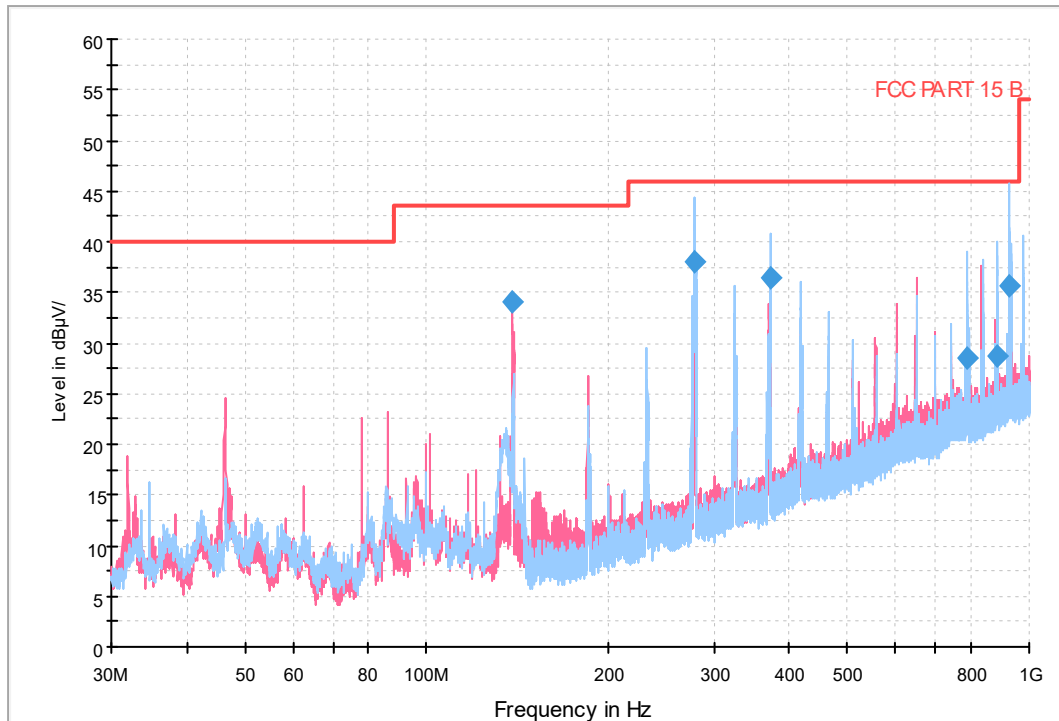
The measurement uncertainty (6000MHz-18000MHz) is 3.91 dB ($k=2$).

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Test Data

RE 30MHz-1GHz



RE 30MHz-1GHz

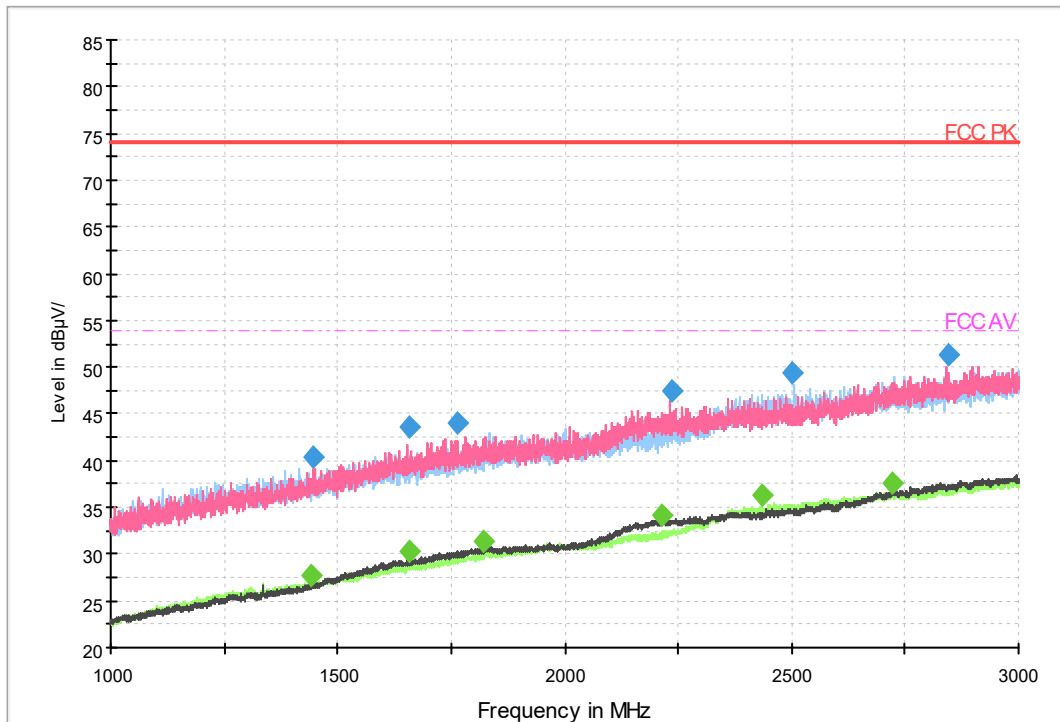
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
139.076500	34.1	43.5	9.4	5000.0	120.000	100.0	V	0.0	-20.3
278.856500	38.0	46.0	8.0	5000.0	120.000	102.0	H	0.0	-15.8
371.482500	36.4	46.0	9.6	5000.0	120.000	100.0	H	0.0	-13.2
789.749500	28.4	46.0	17.6	5000.0	120.000	117.0	H	90.0	-5.6
882.175500	28.8	46.0	17.2	5000.0	120.000	100.0	H	0.0	-4.5
928.735500	35.7	46.0	10.3	5000.0	120.000	100.0	H	270.0	-4.0

Note: The red curve represents V polarization, the blue curve represents H polarization.

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RE 1GHz-3GHz



RE 1GHz-3GHz

Final Result 1

Frequency (MHz)	MaxPeak (dB μ V/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
1445.20000	40.4	1500.	1000.000	100.0	V	273.0	0.3	33.6	74.0
1658.40000	43.5	1500.	1000.000	100.0	V	195.0	2.6	30.5	74.0
1761.60000	44.0	1500.	1000.000	100.0	V	15.0	3.3	30.0	74.0
2235.20000	47.6	1500.	1000.000	100.0	V	15.0	6.1	26.4	74.0
2503.00000	49.4	1500.	1000.000	100.0	H	270.0	8.6	24.6	74.0
2843.80000	51.4	1500.	1000.000	100.0	V	-7.0	10.8	22.6	74.0

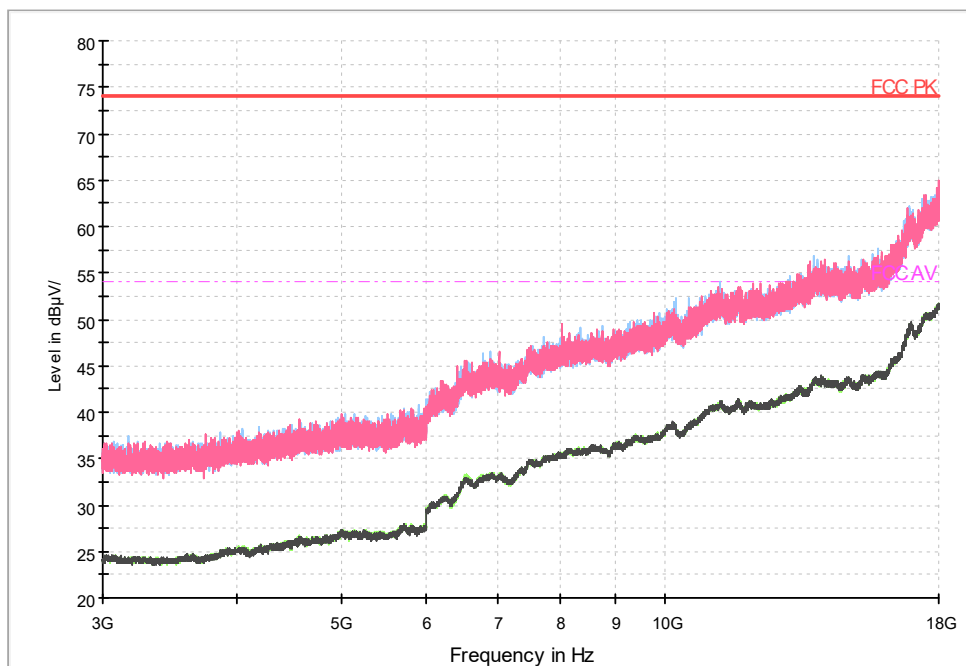
Final Result 2

Frequency (MHz)	Average (dB μ V/m)	Meas. Time	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
1443.40000	27.7	1500.	1000.000	100.0	H	195.0	0.4	26.3	54.0
1656.20000	30.2	1500.	1000.000	100.0	V	15.0	2.6	23.8	54.0
1819.40000	31.4	1500.	1000.000	100.0	V	285.0	3.7	22.6	54.0
2212.80000	34.2	1500.	1000.000	100.0	V	15.0	6.1	19.8	54.0
2436.40000	36.3	1500.	1000.000	100.0	H	285.0	8.3	17.7	54.0
2721.80000	37.6	1500.	1000.000	100.0	H	105.0	9.8	16.4	54.0

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RE 3GHz-18GHz



RE 3GHz-18GHz

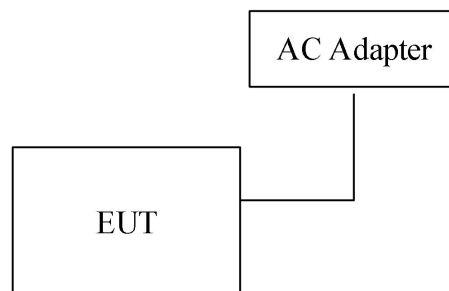
7.2. Conducted Emission

Specifications:	15.107
Date of Tests	2021-09-02
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	Normal
Test Results:	Pass
Note: Both EUT have been tested , and the data only reflect the worst case.	

Limit Level Construction:

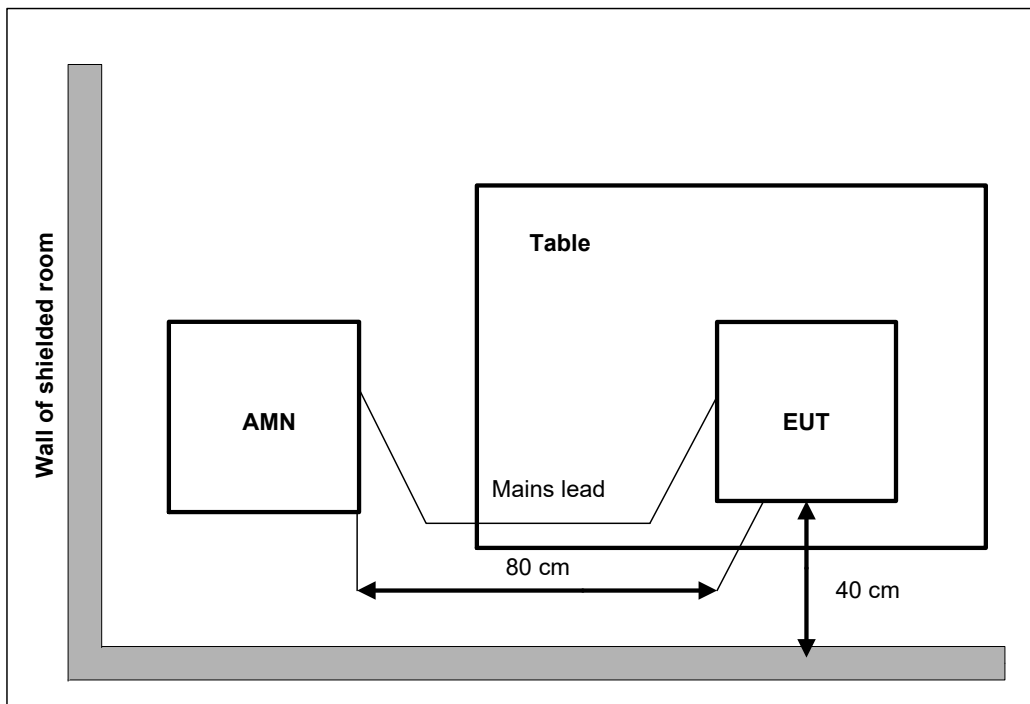
Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency		

EUT Setup:



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**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:

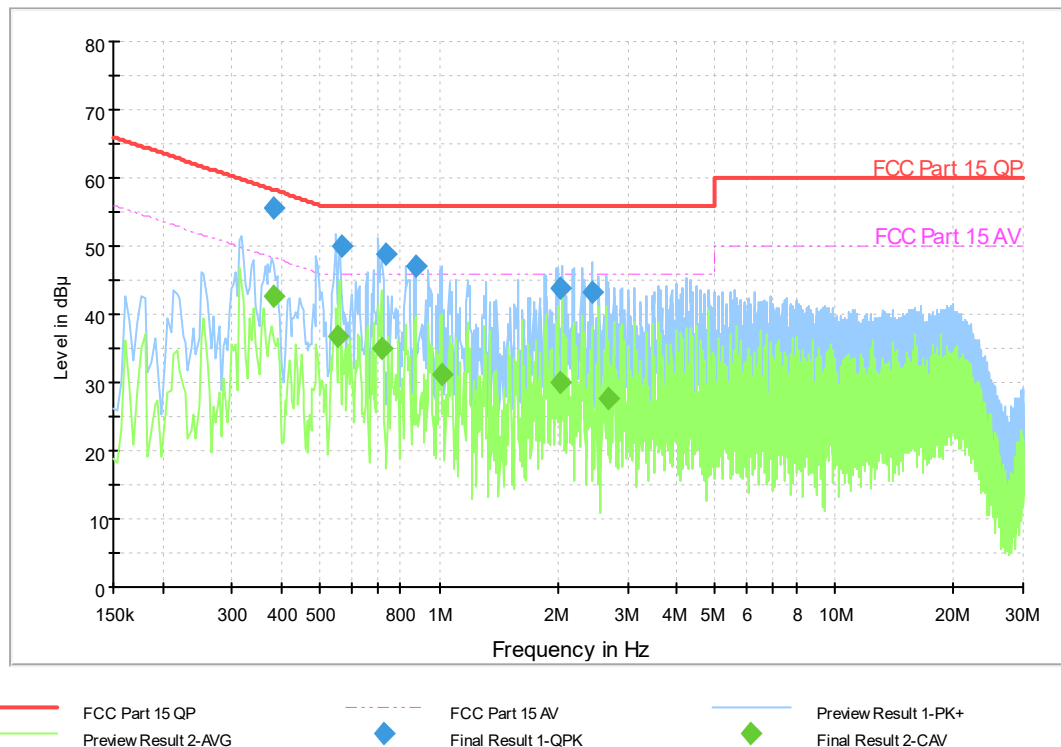
The measurement uncertainty is 1.83 dB (k=2).

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Test Data

CISPR N&L1 Voltage 150k to 30MHz-Class B



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.379906	55.7	1000.0	9.000	On	L1	9.7	2.6	58.3
0.567244	50.1	1000.0	9.000	On	L1	9.7	5.9	56.0
0.732225	48.7	1000.0	9.000	On	L1	9.7	7.3	56.0
0.876131	47.1	1000.0	9.000	On	L1	9.7	8.9	56.0
2.015775	43.9	1000.0	9.000	On	L1	9.7	12.1	56.0
2.440062	43.1	1000.0	9.000	On	L1	9.7	12.9	56.0

Final Result 2

Frequency (MHz)	CAverage (dB μ V)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.380175	42.5	1000.0	9.000	On	L1	9.7	5.8	48.3
0.554438	36.8	1000.0	9.000	On	L1	9.7	9.2	46.0
0.719419	34.9	1000.0	9.000	On	L1	9.7	11.1	46.0
1.013919	31.0	1000.0	9.000	On	L1	9.7	15.0	46.0
2.014669	30.1	1000.0	9.000	On	L1	9.7	15.9	46.0
2.663669	27.8	1000.0	9.000	On	L1	9.7	18.2	46.0

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Annex A EUT Photos

See the document "I21W00032-External Photos".

See the document "I21W00032-Internal Photos".

Test photo See the Pic1~2 in document "I21W00032_EMC Test Setup Photos".

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ANNEX B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

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