



TEST REPORT

REPORT NUMBER: I20W00023-EMC_Rev.2

ON

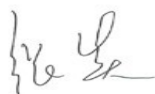
Type of Equipment: IoT Module
Type of Designation: L710HG
Manufacturer: Shanghai MobileTek Communication Ltd.

ACCORDING TO
Subpart B, PART 15, RADIO FREQUENCY DEVICES , 2019

Chongqing Academy of Information and Communication Technology

Month date, year
Jan, 21, 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 Communication Technology.

Revision Version

Report Number	Revision	Date	Memo
I20W00023-EMC	00	2021-01-07	Initial creation of test report
I20W00023-EMC	01	2021-01-19	Revised report
I20W00023-EMC	02	2021-01-21	Revised report

Chongqing Academy of Information and Communication Technology

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IC ID: 2AK9D-L710HG

Report Date: 2021-01-21

Test Firm Name: Chongqing Academy of Information and
Communication Technology

FCC Registration Number: CN1239

Statement

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part 15B. The sample tested was found to comply with the requirements defined in the applied rules.

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1 General Information

1.1 Notes

All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part 15B.

The test results of this test report relate exclusively to the item(s) tested as specified in section 2.

The following deviation from, additions to, or exclusions from the test specifications have been made. See Annex C.

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1.2 Testers

Name: Chen Xin
Position: Engineer
Department: Department of EMC test
Date: 2020-12-31-2021-01-19
Signature:



Editor of this test report:

Name: Xiao Yu
Position: Engineer
Department: Department of EMC test
Date: 2021-01-21
Signature:



Technical responsibility for area of testing:

Name: Zhang Yan
Position: Manager
Department: Department of EMC test
Date: 2021-01-21
Signature:



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1.3 Testing Laboratory information

1.3.1 Location

Name: Chongqing Academy of Information and Communications
Address: Building B, Technology Innovation Center, No.8, Yuma
Road, Chayuan New Area, Nan'an District, Chongqing,
People's Republic of China, 401336
Tel: +86 23 88069965
Fax: +86 23 88608777
Email: liqiao@caict.ac.cn

1.3.2 Details of accreditation status

Accredited by: --
Registration number: --
Standard: --

1.3.3 Test location, where different from section 1.3.1

Name: -----
Address: -----

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1.4 Details of applicant or manufacturer

1.4.1 Applicant

Name: Shanghai MobileTek Communication Ltd.

Address: Free Trade Zone No.33, No.17 building 6H3 Xiya Road, Shanghai.
China

Country: Shanghai.

Telephone: 18616835910

Fax: --

Contact: bin yang

Email: b.yang@mobiletek.cn

1.4.2 Manufacturer (if different from applicant in section 1.4.1)

Name:

Address:

Country:

2 Test Item

2.1 General Information

Manufacturer: Shanghai MobileTek Communication Ltd.
Name: IoT Module
Model Number: L710HG
Serial Number: G4KB2504010060
IMEI: 866884045632254
Production Status: Product
Receipt date of test item: 2020-12-16

2.2 Outline of EUT

The EUT, L710HG is a Product supporting GSM 850, PCS 1900, CAT-M BAND 2, Band 4, Band 5, Band 12, Band 13, Band 26, NB-IoT BAND 2, Band 4, Band 5, Band 12, Band 13, Band 26.

2.3 Modifications Incorporated in EUT

The EUT has not been modified from what is described by the brand name and unique type identification stated above.

2.4 Equipment Configuration

Equipment configuration list:

Item	Generic Description	Manufacturer	Type	Serial No.	Remarks
A	Module	Shanghai MobileTek Communication Ltd.	L506	G4JA310202 0006	None

2.5 Other Information

--

3 Summary of Test Results

A brief summary of the tests carried out is shown as following.

Configuration1		
Specification Clause	Name of Test	Result
15.109	Radiated Emission limits	Pass
15.107	Conducted Emission limits	Pass

4. Test equipment and Test software

Test equipment Used:						
Number	Description	Manufacturer	Model Number	Serial Number	Cal Due	State
1	EMI Test Receiver	R&S	ESU	100367	2021-06-26	Normal
2	Ultra Broadband Antenna	R&S	VULB 9163	vulb9163—544	2021-12-24	Normal
3	Double-Ridged Horn Antenna	R&S	HF907	100357	2021-08-20	Normal
4	Fully-Anechoic Chamber	ETS	11.8m×6.5m×6.3m	CT000174-1035	2021-06-26	Normal
5	AMN	R&S	ENV216	101128	2021-06-26	Normal
6	EMI Test Receiver	R&S	ESCI	101214	2021-06-26	Normal

Test software Used:				
Number	Test item	Test software name	Manufacturer	Version:
1	Radiated Emission	EMC32	R&S	V8.51.0
2.	Conducted Emission	EMC32	R&S	V8.51.0

Test auxiliary equipment Used:				
Number	Description	Manufacturer	Model Number	Serial Number
1	Single-stage sub-antenna	--	5J002B	--
2	Adapter	Shenzhen Yixiantian Intelligent Technology Co., Ltd.	YXT901-0502000CL	--
Note: The L710HG module is sold without an antenna and an adapter. They are only used for matching tests.				

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5 Test Results

5.1 Radiated Emission

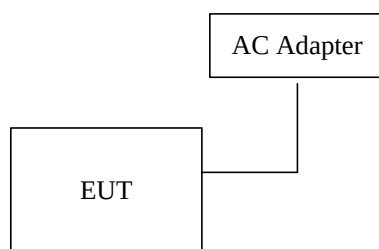
Specifications:	15.109
Date of Tests	2020-12-31
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	Normal(The EUT connects to the power supply and turns on the switch. The EUT connected to communication tester. The worst case is GSM 850RX)
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:



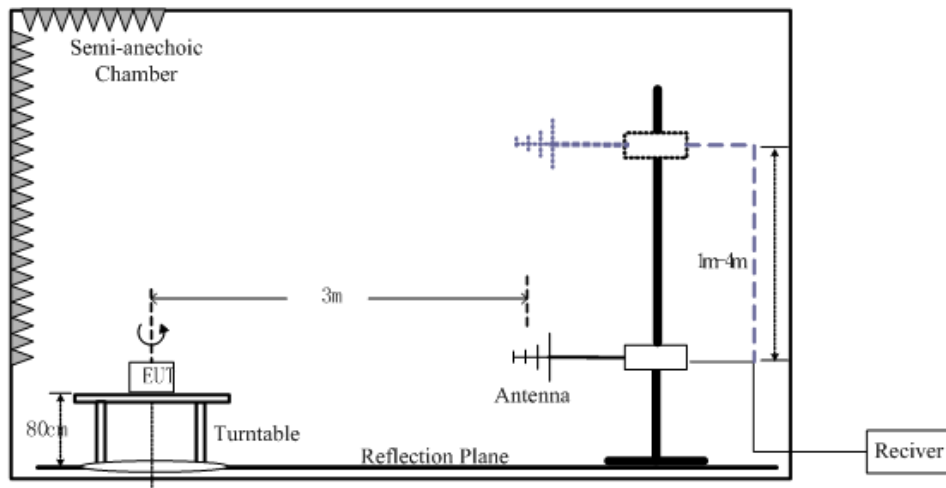
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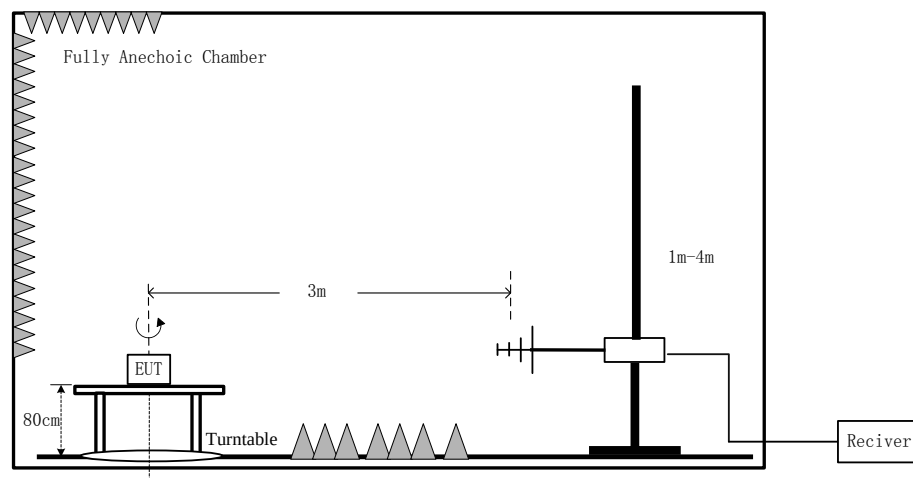
FAX:0086-23-88608777

Test Setup:



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 3.79 dB(MAX) ($k=2$).

The measurement uncertainty (1000MHz-18000MHz) is 4.84 dB ($k=2$).

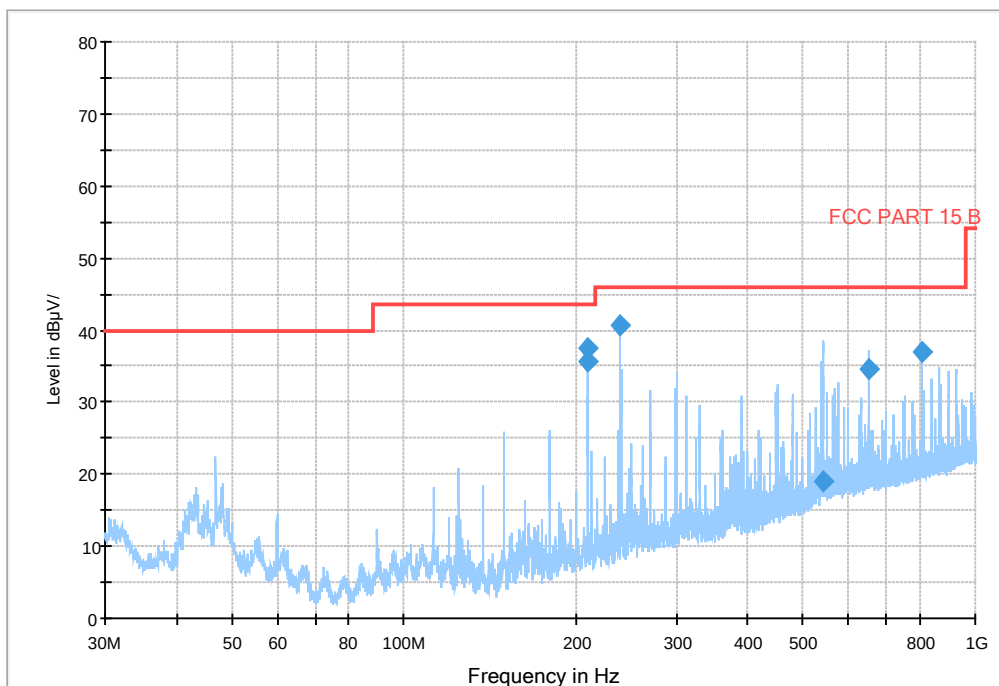
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RE 30MHz-1GHz



the test results are cumulative (horizontal and vertical)

Frequency MHz	QP dBuV/m	Mea.Time ms	RBW KHz	Height cm	Polarity	Azimuth deg	Margin dB	Limit dBuV/m
209.301500	37.4	5000.0	120.000	115.0	H	90.0	6.1	43.5
209.480500	35.7	5000.0	120.000	100.0	V	270.0	7.8	43.5
239.126000	40.7	5000.0	120.000	115.0	H	270.0	5.3	46.0
540.217000	18.9	5000.0	120.000	100.0	V	180.0	27.1	46.0
650.024000	34.6	5000.0	120.000	115.0	H	180.0	11.4	46.0
807.446000	37.0	5000.0	120.000	100.0	H	0.0	9.0	46.0

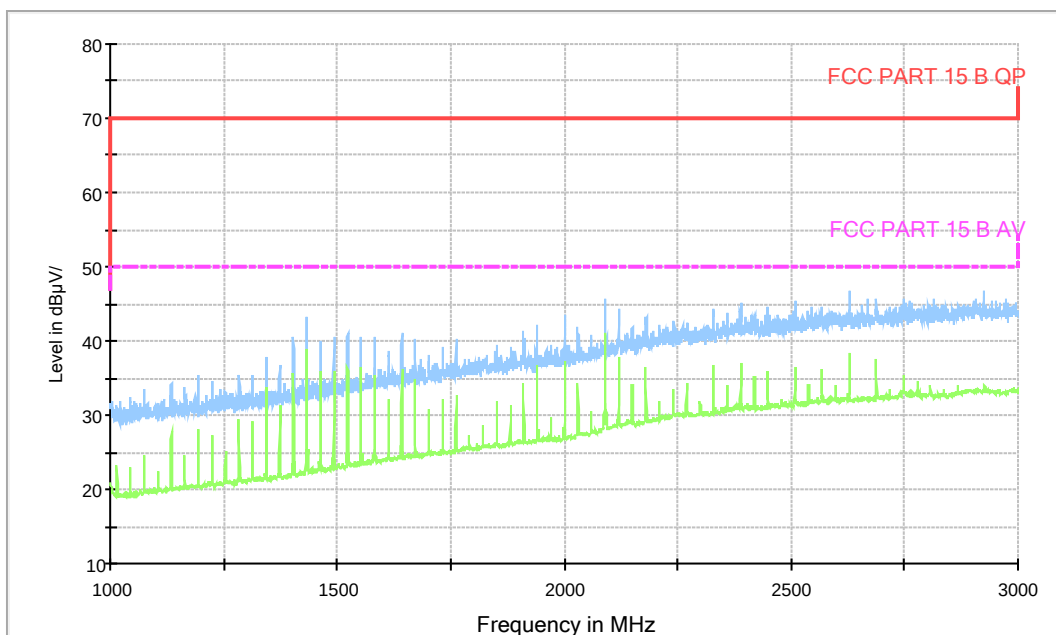
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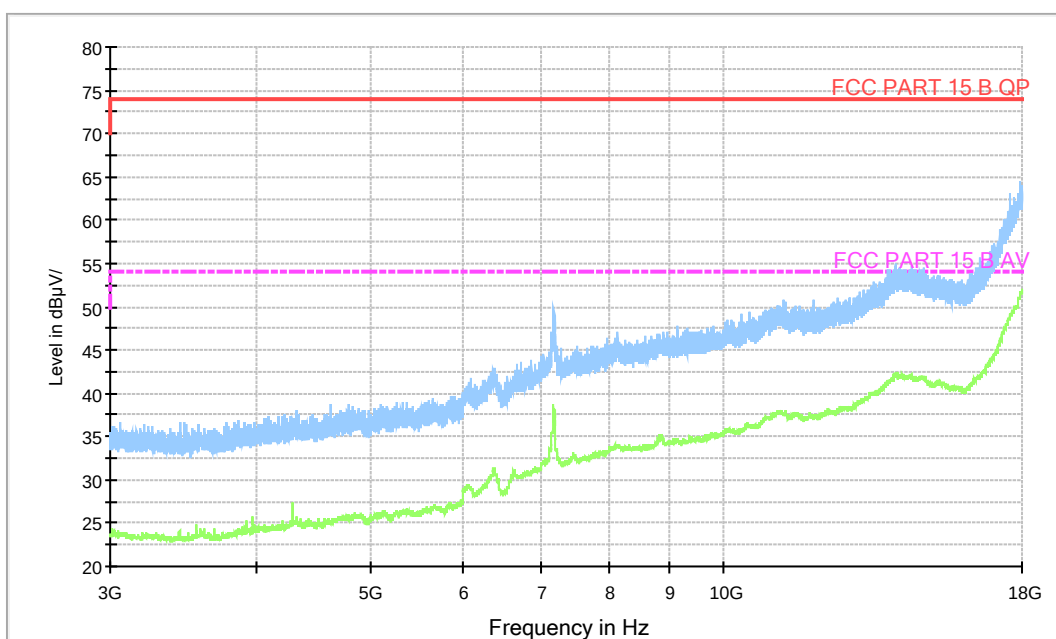
RE 1GHz-3GHz



— CISPR32 RE CLASS B 3M QP+PK.LimitLine
- - - CISPR32 RE CLASS B 3M QP+AV.LimitLine
* Preview Result 1-PK+
* Preview Result 2-AVG
* Data Reduction Result 1 [2]-PK+
* Data Reduction Result 2 [2]-AVG

the test results are cumulative (horizontal and vertical)

RE 3GHz-18GHz



— CISPR22 RE CLASS B 3M QP+PK.LimitLine
- - - CISPR22 RE CLASS B 3M QP+AV.LimitLine
* Preview Result 1-PK+
* Preview Result 2-AVG
* Data Reduction Result 1 [3]-PK+
* Data Reduction Result 2 [3]-AVG

the test results are cumulative (horizontal and vertical)

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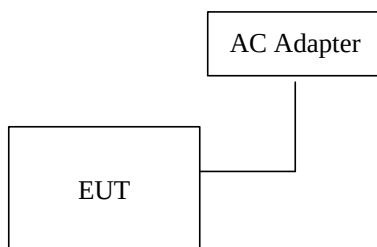
5.2 Conducted Emission

Specifications:	15.107
Date of Tests	2021-01-19
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Operation Mode	Normal(The EUT connects to the power supply and turns on the switch. The EUT connected to communication tester. The worst case is GSM 850RX)
Test Results:	Pass

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:



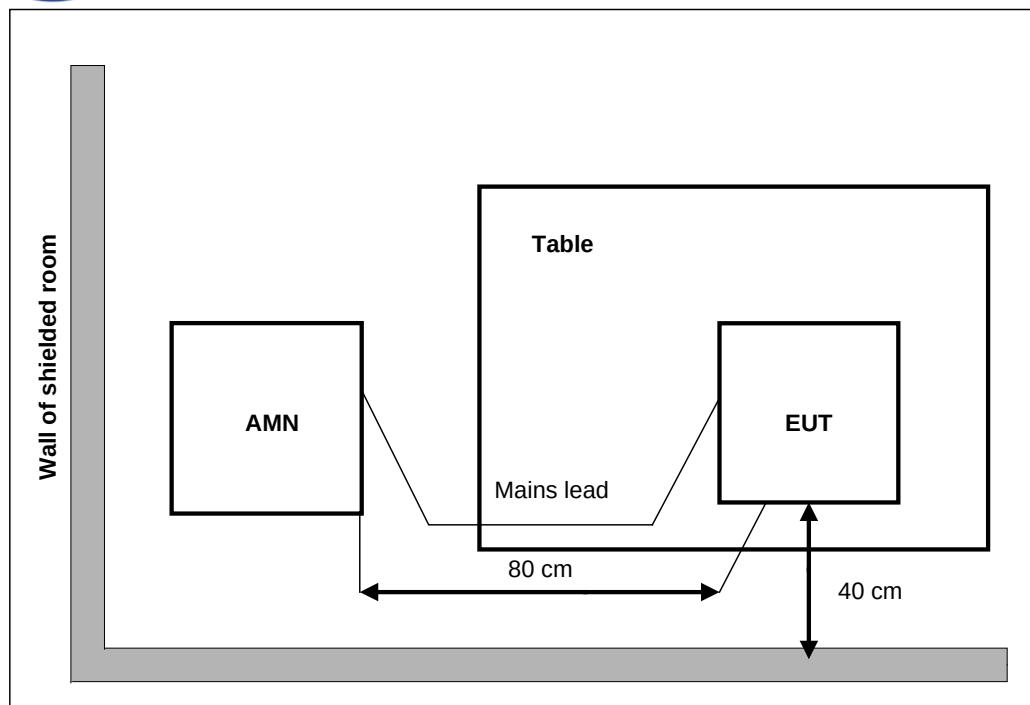
Test Setup:

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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 1.83dB (k=2).

Test Data

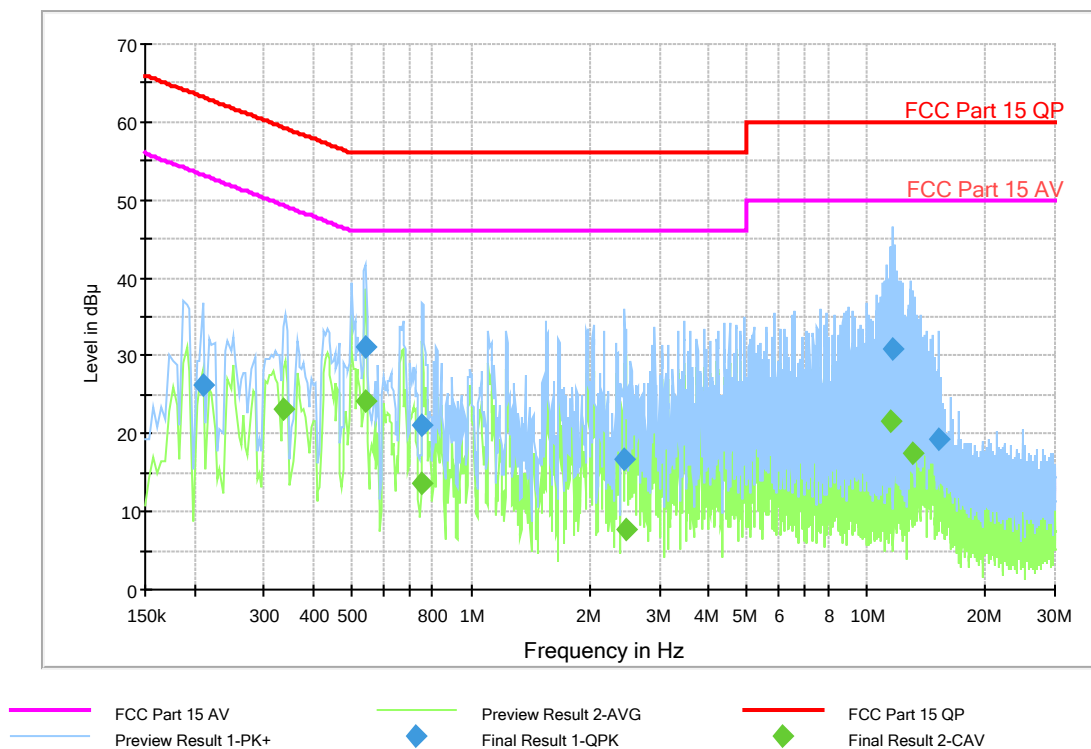
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Copy of CISPR N&L1 Voltage 150k to 30MHz-Class B



the test results are cumulative (L1 and N)

Frequency MHz	QP dBuV	Mea.Time ms	Line	Margin dB	Limit dBuV
0.209700	26.3	1000.0	N	36.9	63.2
0.541781	31.3	1000.0	L1	24.7	56.0
0.754462	21.0	1000.0	L1	35.0	56.0
2.452181	16.7	1000.0	L1	39.3	56.0
11.638519	30.8	1000.0	L1	29.2	60.0
15.231712	19.2	1000.0	L1	40.8	60.0

Frequency MHz	AV dBuV	Mea.Time ms	Line	Margin dB	Limit dBuV
0.336562	23.3	1000.0	L1	26.0	49.3
0.541781	24.1	1000.0	L1	21.9	46.0
0.754462	13.7	1000.0	L1	32.3	46.0
2.463375	7.7	1000.0	L1	38.3	46.0
11.530312	21.5	1000.0	L1	28.5	50.0
13.048931	17.5	1000.0	L1	32.5	50.0

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Test photo

See the Pic1~2 in document” L710HG_EMC Test Setup Photos”.



Annex A External Photos

See the document” L710HG -External Photos”.

Annex B Internal Photos

See the document” L710HG -Internal Photos”.

ANNEX C Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

_____ **The End of this Report** _____

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