



FCC PART 15B, CLASS B TEST REPORT

For

BLU Products, Inc.

10814 NW 33rd St # 100 Doral, FL 33172

FCC ID: YHLBLUC5LP21

Report Type: Original Report		Product Type: Mobile Phone	
Test Engineer:	Haiguo Li Cloud Qiu Hanic Pan		
	<i>Haiguo Li Cloud Qiu Hanic Pan</i>		
Report Number:	SZ1210715-29262E-EM-00		
Report Date:	2021-07-22		
Reviewed By:	Moon Liu		
	<i>Moon Liu</i>		
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn		

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Mobile Phone
Tested Model	C5L+ 2021
Voltage Range	Powered: DC 3.8V by internal rechargeable Li-ion BATTERY Recharged: DC 5.0V by adapter
Highest operating frequency	2690MHz
Date of Test	2021-07-17 to 2021-07-21
Sample number	SZ1210715-29262E-EM-S1 (Assigned by BACL, Shenzhen)
Received date	2021-07-15
Sample/EUT Status	Good condition
Adapter information	Model: US-FC-0750 Input: AC 100-240V~50/60Hz, 0.2A Output: DC 5.0V, 750mA

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A, B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of the EUT with FCC Part 15 B.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters. Each test item follows test standards and with no deviation.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will be taken into consideration for the test data recorded in the report

Parameter		uncertainty
Conducted Emissions		$\pm 1.95\text{dB}$
Radiated Emissions	Below 1GHz	$\pm 4.75\text{dB}$
	Above 1GHz	$\pm 4.88\text{dB}$

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 342867, the FCC Designation No.: CN1221.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062B.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a manufacturer testing fashion.

Test Mode 1:Charging&Playing with earphone

Test Mode 2:Downloading

EUT Exercise Software

No exercise software was used.

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

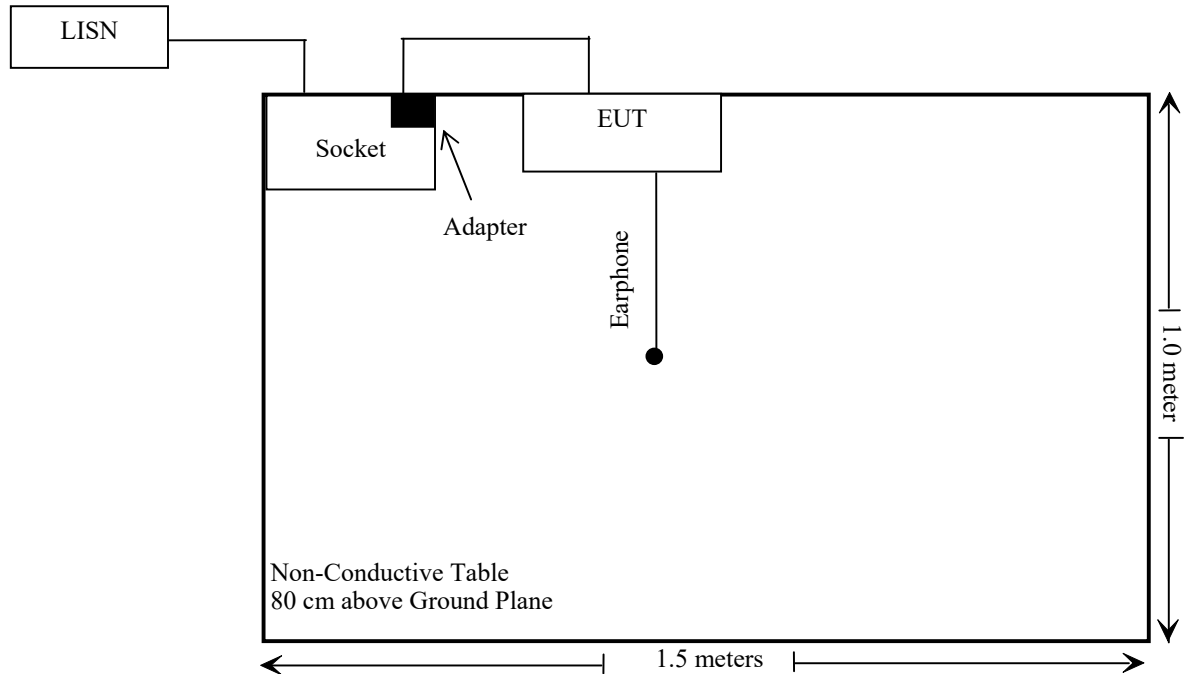
Manufacturer	Description	Model	Serial Number
BULL	Socket	GN-415K	5503290068073
DELL	Notebook	Latitude E5430	JG3NLV1

External I/O Cable

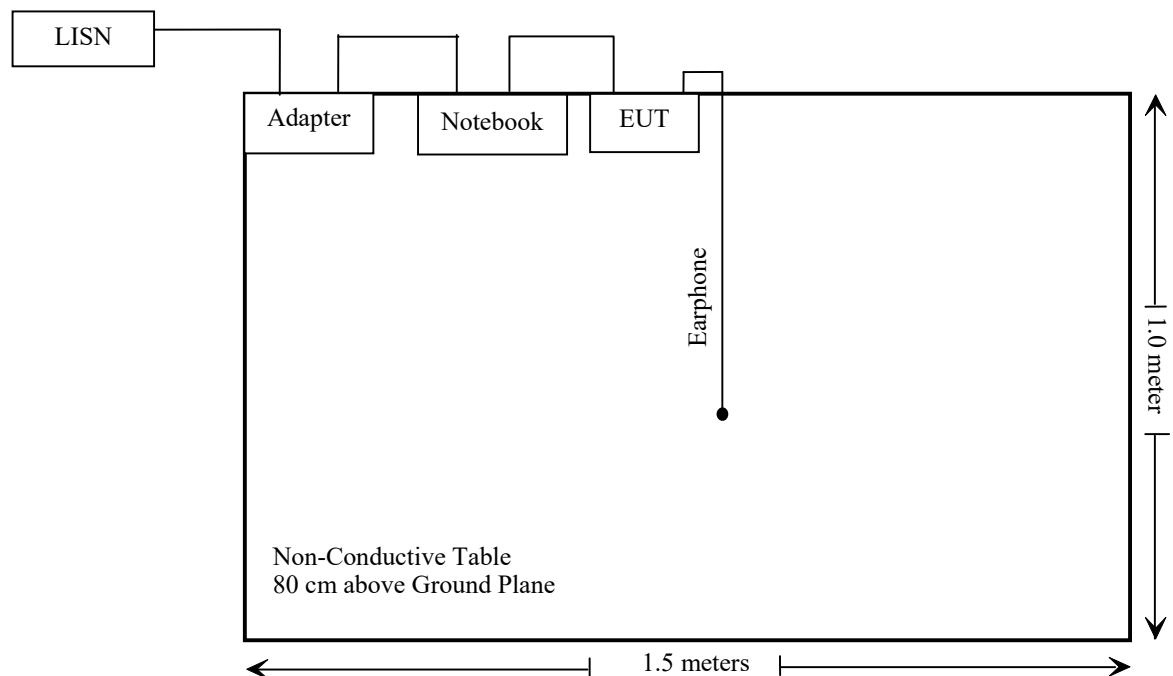
Cable Description	Length (m)	From/Port	To
Un-shielded un-detachable AC cable	1.0	Socket	LISN
Un-shielded un-detachableUSB cable	1.0	EUT	Notebook
Un-Shielded Detachable earphone cable	1.2	EUT	Earphone

Block Diagram of Test Setup

Test Mode 1: Charging&Playing with earphone



Test Mode2: Downloading



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliant
§15.109	Radiated Emissions	Compliant

EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2021/07/07	2022/07/06
Rohde & Schwarz	LISN	ENV216	101613	2021/07/07	2022/07/06
Rohde & Schwarz	Transient Limitor	ESH3Z2	DE25985	2020/11/29	2021/11/28
Unknown	CE Cable	CE Cable	UF A210B-1-0720-504504	2020/11/29	2021/11/28
Rohde & Schwarz	CE Test software	EMC 32	V8.53.0	NCR	NCR
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2021/07/06	2022/07/05
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2020/12/22	2023/12/21
Unknown	Cable 2	RF Cable 2	F-03-EM197	2020/11/29	2021/11/28
Unknown	Cable	Chamber Cable 4	EC-007	2020/11/29	2021/11/28
Rohde & Schwarz	Auto test software	EMC 32	V9.10.00	NCR	NCR
Rohde & Schwarz	Spectrum Analyzer	FSV40-N	102259	2021/07/06	2022/07/05
COM-POWER	Pre-amplifier	PA-122	181919	2020/11/29	2021/11/28
Sunol Sciences	Horn Antenna	3115	9107-3694	2021/01/15	2024/01/14
Insulted Wire Inc.	RF Cable	SPS-2503-3150	02222010	2020/11/29	2021/11/28
Unknown	RF Cable	W1101-EQ1 OUT	F-19-EM005	2020/11/29	2021/11/28

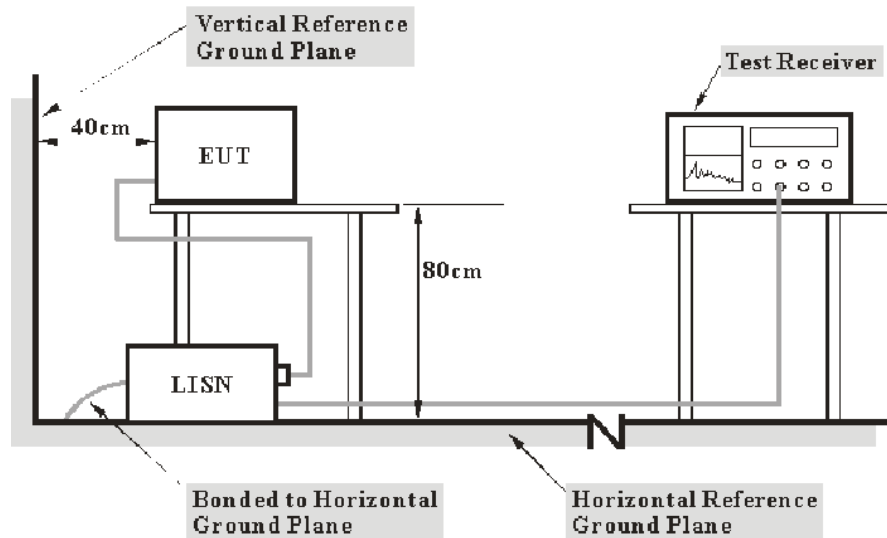
* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Applicable Standard

According to FCC §15.107

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with per ANSI C63.4-2014. The related limit was specified in FCC Part 15.107.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the device was connected to the first LISN and the other relevant equipments were connected to the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Correction Factor} = \text{LISN VDF} + \text{Cable Loss} + \text{Transient Limiter Attenuation}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

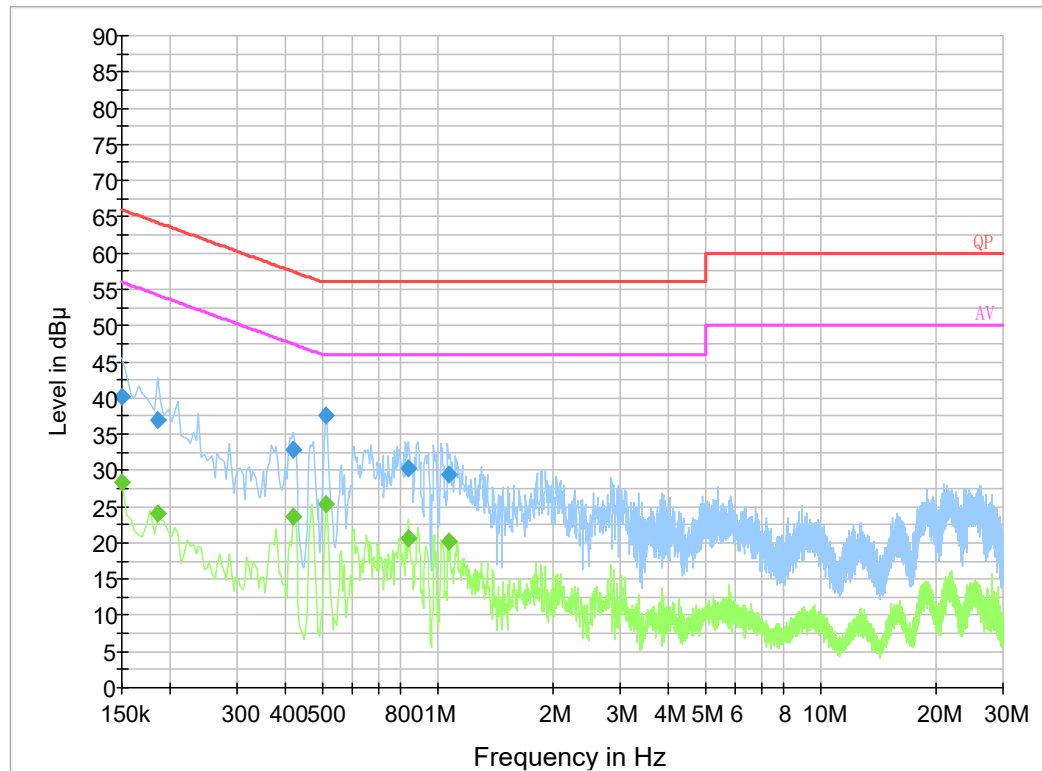
$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Data

Environmental Conditions

Temperature:	26 °C
Relative Humidity:	70 %
ATM Pressure:	101.0 kPa

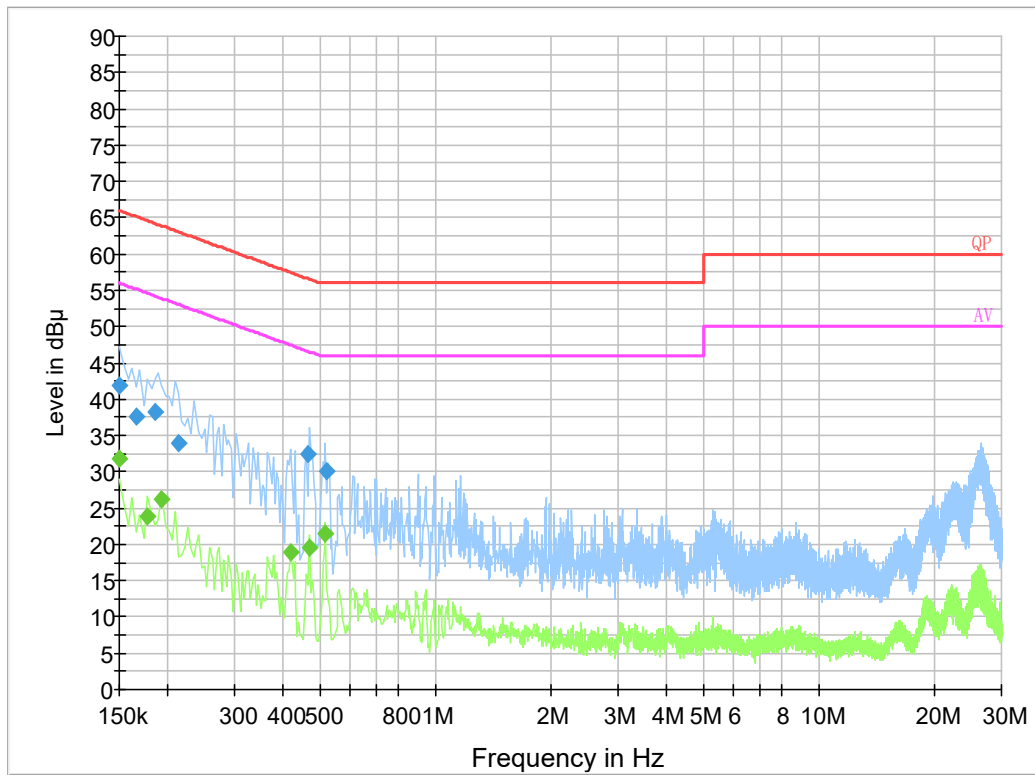
The testing was performed by Haiguo Li on 2021-07-21.

Test Mode 1**AC 120V/60 Hz, Line****Final Result 1**

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	40.1	9.000	L1	19.8	25.9	66.0
0.185500	37.0	9.000	L1	19.8	27.2	64.2
0.419670	32.9	9.000	L1	19.9	24.6	57.5
0.510290	37.6	9.000	L1	19.8	18.4	56.0
0.841370	30.3	9.000	L1	19.8	25.7	56.0
1.074010	29.4	9.000	L1	19.9	26.6	56.0

Final Result 2

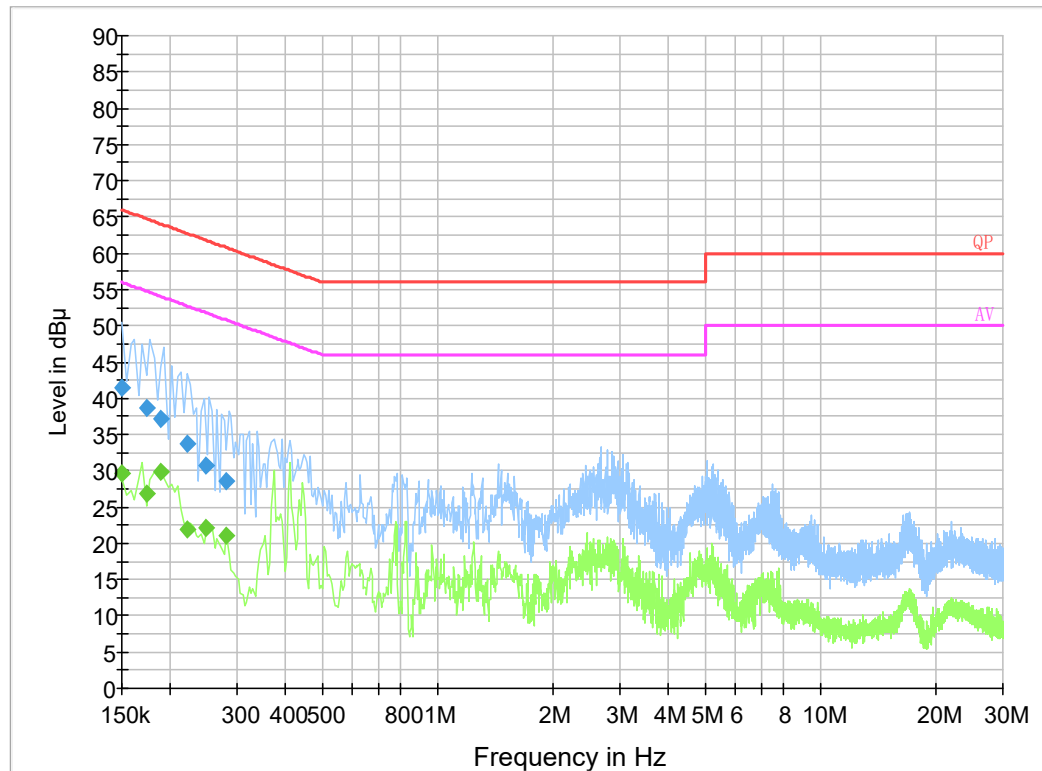
Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	28.3	9.000	L1	19.8	27.7	56.0
0.185500	24.0	9.000	L1	19.8	30.3	54.2
0.419670	23.6	9.000	L1	19.9	23.9	47.5
0.510290	25.3	9.000	L1	19.8	20.7	46.0
0.841370	20.6	9.000	L1	19.8	25.4	46.0
1.074010	20.2	9.000	L1	19.9	25.8	46.0

AC 120V/60 Hz, Neutral**Final Result 1**

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	41.9	9.000	N	19.8	24.1	66.0
0.165500	37.7	9.000	N	19.8	27.5	65.2
0.185500	38.2	9.000	N	19.8	26.0	64.2
0.213500	33.9	9.000	N	19.8	29.2	63.1
0.466950	32.4	9.000	N	19.8	24.2	56.6
0.522230	30.1	9.000	N	19.8	25.9	56.0

Final Result 2

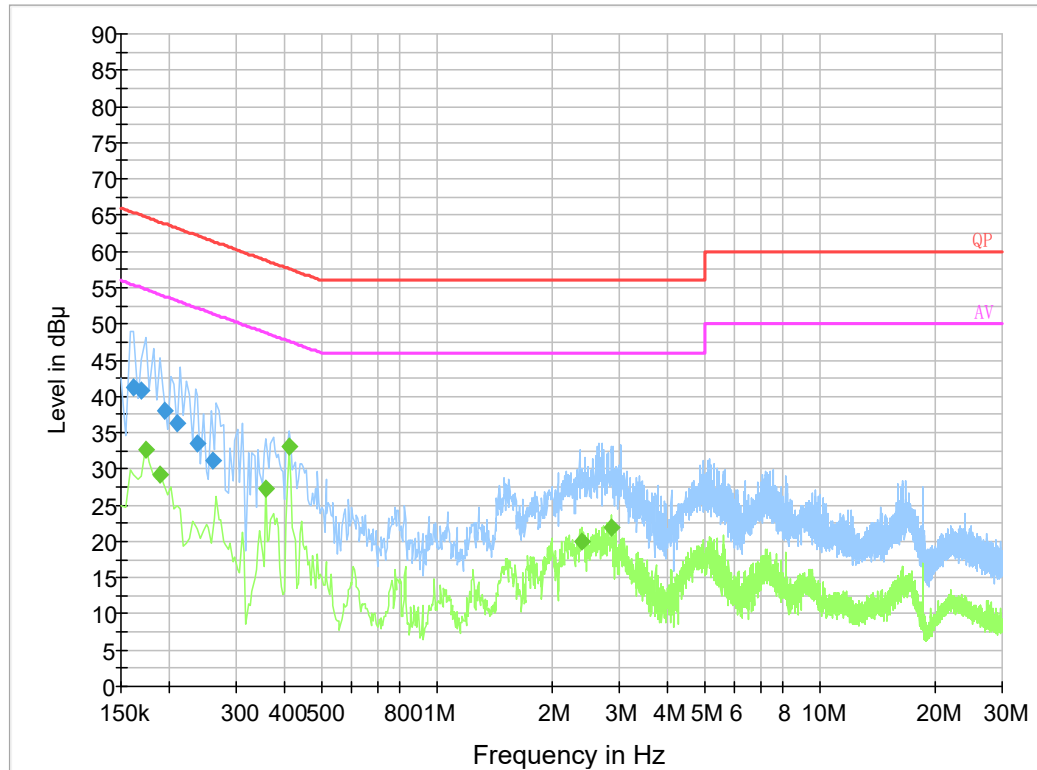
Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	31.8	9.000	N	19.8	24.2	56.0
0.178000	23.8	9.000	N	19.8	30.8	54.6
0.194000	26.1	9.000	N	19.8	27.8	53.9
0.422000	19.0	9.000	N	19.8	28.4	47.4
0.470000	19.6	9.000	N	19.8	26.9	46.5
0.518000	21.4	9.000	N	19.8	24.6	46.0

Test Mode 2**AC 120V/60 Hz, Line****Final Result 1**

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	41.5	9.000	L1	19.8	24.5	66.0
0.173500	38.7	9.000	L1	19.9	26.1	64.8
0.189500	37.2	9.000	L1	19.8	26.8	64.1
0.221500	33.7	9.000	L1	19.8	29.1	62.8
0.249500	30.8	9.000	L1	19.8	31.0	61.8
0.281500	28.5	9.000	L1	19.7	32.3	60.8

Final Result 2

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.150000	29.6	9.000	L1	19.8	26.4	56.0
0.173500	26.9	9.000	L1	19.9	29.9	54.8
0.189500	29.9	9.000	L1	19.8	24.1	54.1
0.221500	21.9	9.000	L1	19.8	30.9	52.8
0.249500	22.2	9.000	L1	19.8	29.6	51.8
0.281500	21.0	9.000	L1	19.7	29.8	50.8

AC 120V/60 Hz, Neutral**Final Result 1**

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.161500	41.3	9.000	N	19.8	24.1	65.4
0.169500	40.8	9.000	N	19.8	24.2	65.0
0.194500	38.0	9.000	N	19.8	25.8	63.8
0.209500	36.3	9.000	N	19.8	26.9	63.2
0.237500	33.5	9.000	N	19.8	28.7	62.2
0.261500	31.2	9.000	N	19.8	30.2	61.4

Final Result 2

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.174000	32.7	9.000	N	19.8	22.1	54.8
0.190000	29.2	9.000	N	19.8	24.8	54.0
0.358000	27.3	9.000	N	19.9	21.5	48.8
0.414000	33.1	9.000	N	19.8	14.5	47.6
2.390000	20.0	9.000	N	19.8	26.0	46.0
2.862000	22.0	9.000	N	19.9	24.0	46.0

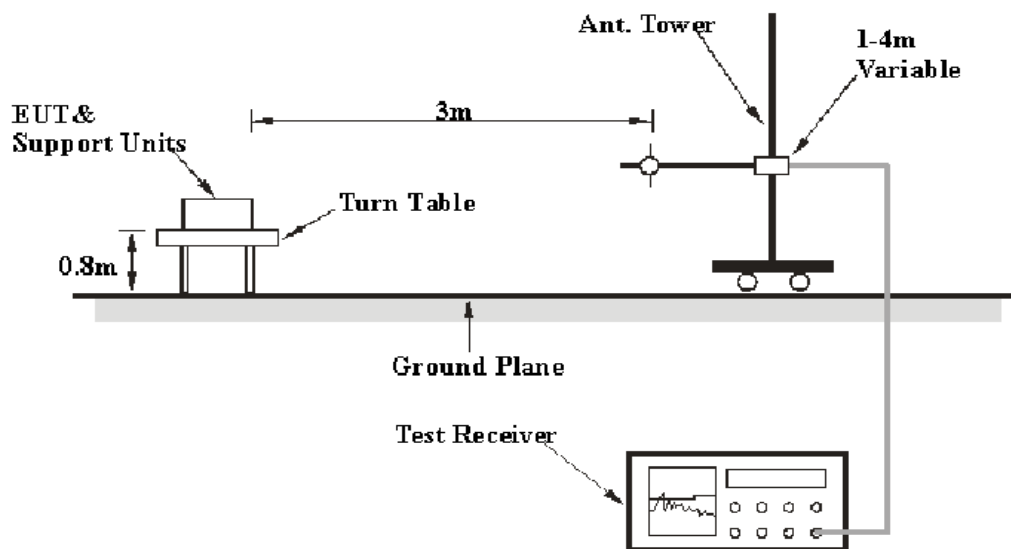
FCC §15.109 - RADIATED EMISSIONS

Applicable Standard

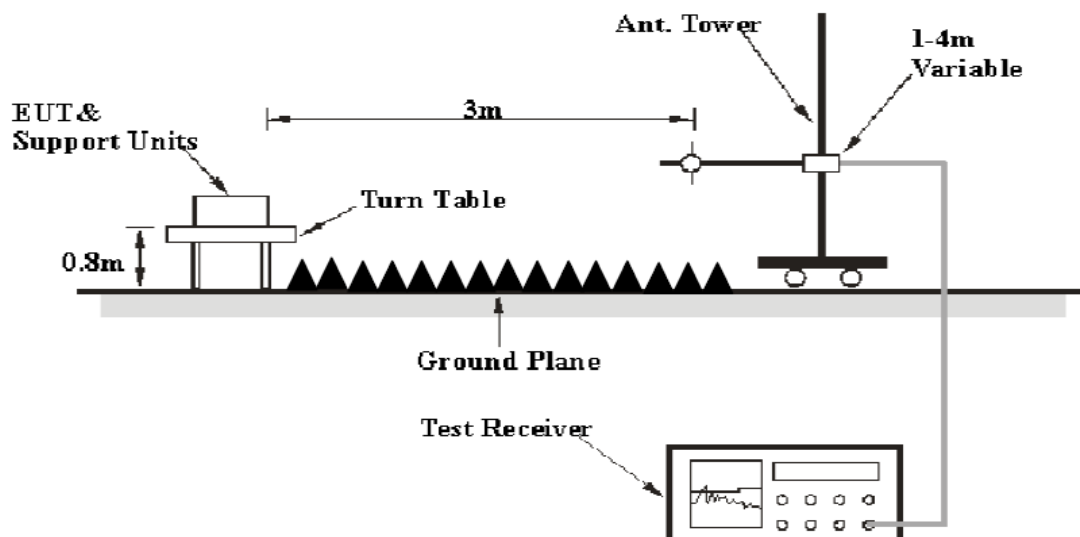
FCC §15.109

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz and PK and average detector modes for frequencies above 1 GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

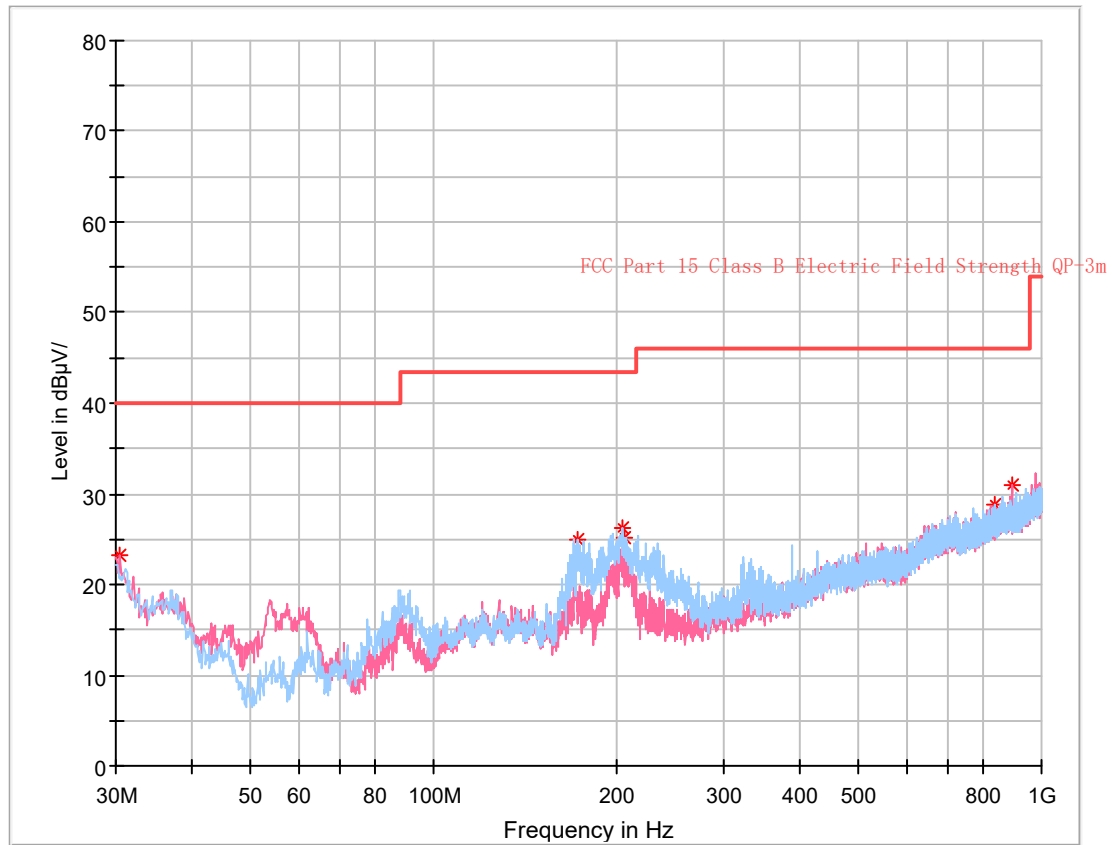
$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Data

Environmental Conditions

Temperature:	26 ~ 26.4°C
Relative Humidity:	55~56 %
ATM Pressure:	101.0~ 101.3 kPa

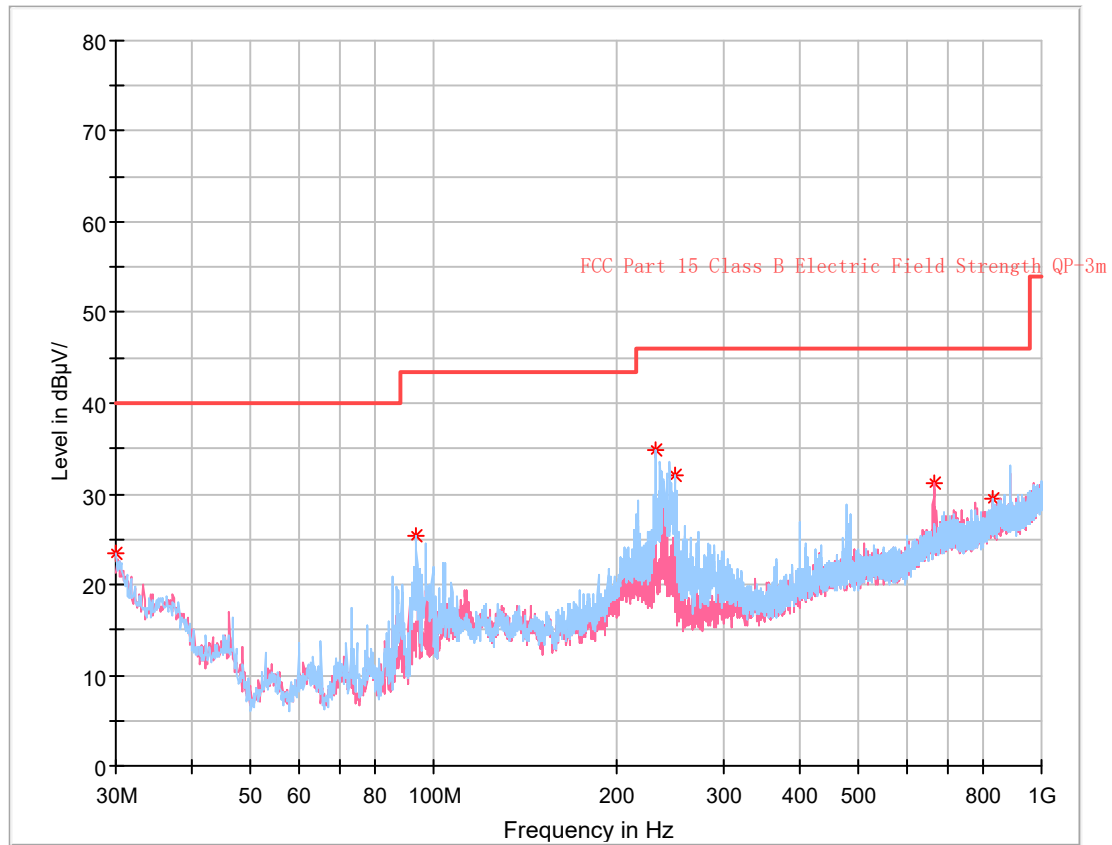
The testing was performed by Cloud Qiu on 2021-07-17 for below 1GHz and Hanic Pan on 2021-07-19 for above 1GHz.

Test Mode 1**30 MHz~1 GHz:****Critical_Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.485000	23.15	40.00	16.85	100.0	V	264.0	-3.9
172.468750	25.05	43.50	18.45	300.0	H	117.0	-12.1
204.236250	26.16	43.50	17.34	200.0	H	115.0	-11.1
206.418750	25.26	43.50	18.24	200.0	H	302.0	-11.1
836.555000	28.77	46.00	17.23	300.0	H	0.0	0.0
893.542500	30.89	46.00	15.11	300.0	V	274.0	0.9

1-13.5 GHz:

Frequency (MHz)	Measurement		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB μ V/m)	FCC Part 15B	
	Reading (dB μ V)	PK/QP/Ave.		Height (m)	Polar (H / V)			Limit (dB μ V/m)	Margin (dB)
1235.21	43.73	PK	183	1.3	H	-4.68	39.05	74	34.95
1235.21	28.38	Ave.	183	1.3	H	-4.68	23.70	54	30.30
1235.21	43.58	PK	56	2.1	V	-4.68	38.90	74	35.10
1235.21	28.32	Ave.	56	2.1	V	-4.68	23.64	54	30.36
2105.36	44.13	PK	263	1.1	H	-0.81	43.32	74	30.68
2105.36	28.52	Ave.	263	1.1	H	-0.81	27.71	54	26.29
2105.36	44.01	PK	87	1.9	V	-0.81	43.20	74	30.80
2105.36	28.36	Ave.	87	1.9	V	-0.81	27.55	54	26.45

Test Mode 2**30 MHz~1 GHz:****Critical_Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.000000	23.35	40.00	16.65	300.0	H	235.0	-3.5
93.535000	25.38	43.50	18.12	200.0	H	274.0	-15.5
231.517500	34.89	46.00	11.11	100.0	H	0.0	-11.6
250.190000	32.05	46.00	13.95	100.0	H	0.0	-11.8
666.562500	31.13	46.00	14.87	100.0	V	191.0	-2.1
830.977500	29.55	46.00	16.45	100.0	H	99.0	-0.1

1-13.5GHz:

Frequency (MHz)	Measurement		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dB μ V/m)	FCC Part 15B	
	Reading (dB μ V)	PK/QP/Ave.		Height (m)	Polar (H / V)			Limit (dB μ V/m)	Margin (dB)
1583.20	46.74	PK	266	1.3	H	-2.71	44.03	74	29.97
1583.20	29.3	Ave.	266	1.3	H	-2.71	26.59	54	27.41
1583.20	46.28	PK	20	1.5	V	-2.71	43.57	74	30.43
1583.20	29.12	Ave.	20	1.5	V	-2.71	26.41	54	27.59
1992.35	46.22	PK	213	2.2	H	-1.29	44.93	74	29.07
1992.35	28.93	Ave.	213	2.2	H	-1.29	27.64	54	26.36
1992.35	45.97	PK	354	2.2	V	-1.29	44.68	74	29.32
1992.35	28.66	Ave.	354	2.2	V	-1.29	27.37	54	26.63

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