



# FCC PART 15B, CLASS B TEST REPORT

For

## Xiamen VBeT Electronic Co., Ltd.

N403, Weiye Building, Xiamen Pioneering Park for Overseas Chinese Scholars, PRC

**FCC ID: 2AC67-9605EBT**

<b>Report Type:</b> Original Report	<b>Product Type:</b> 9605E Bluetooth Headset
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<b>Report Number:</b>	RSZ200928001-00A
<b>Report Date:</b>	2020-10-21
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## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

Product	9605E Bluetooth Headset
Tested Model	9605E BT Duo
Multiple Model	9605E BT
Model Differences	Refer to the DoS letter
Voltage Range	DC 3.7V from battery or DC 5V from USB port
Highest operating frequency	2480 MHz
Date of Test	2020-09-30 to 2020-10-07
Sample number	RSZ200928001-RF-S1 ( Assigned by BAACL, Shenzhen)
Received date	2020-09-28
Sample/EUT Status	Good condition
Adapter information	N/A

### 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.

## 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 expanded 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		±1.95dB
Radiated Emissions	Below 1GHz	±4.75dB
	Above 1GHz	±4.88dB

*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 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, 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 Model 1: Base Charging

Test Model 2: Charging& playing

### 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

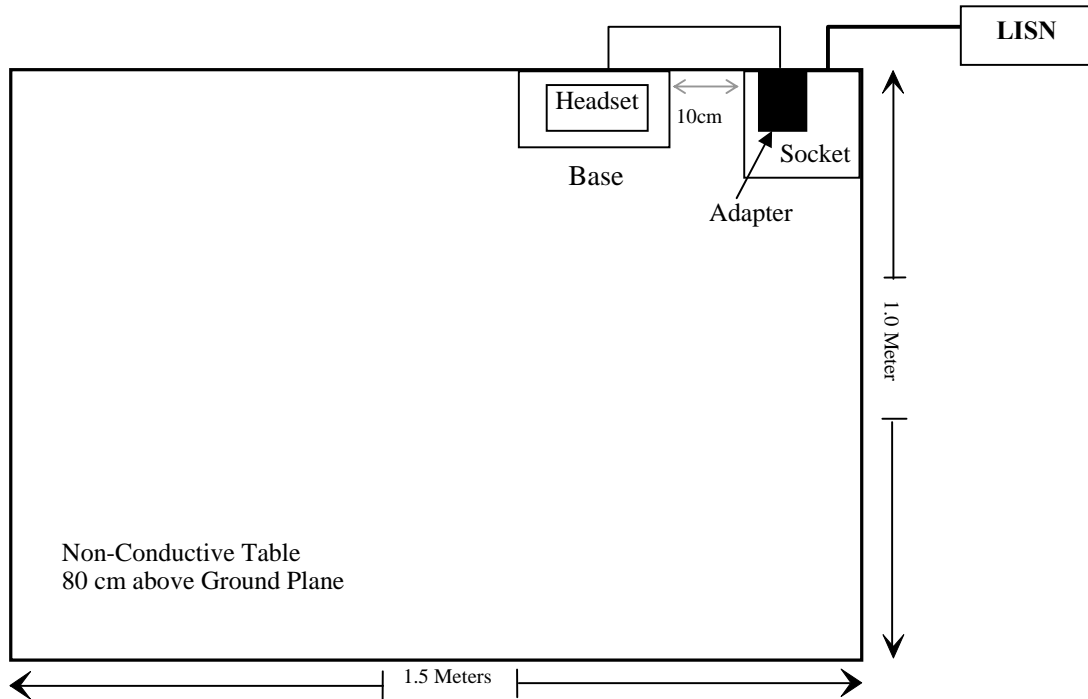
Manufacturer	Description	Model	Serial Number
BULL	Socket	GN-212	A37209315081183
Nubia	Mobile phone	NX549J	Unknown
Unknown	OTG Convertor	Unknown	Unknown
VBeT	UC Link	BT100U	Unknown
ZTE	Adapter	STC-A51A	STC-A51A

### External I/O Cable

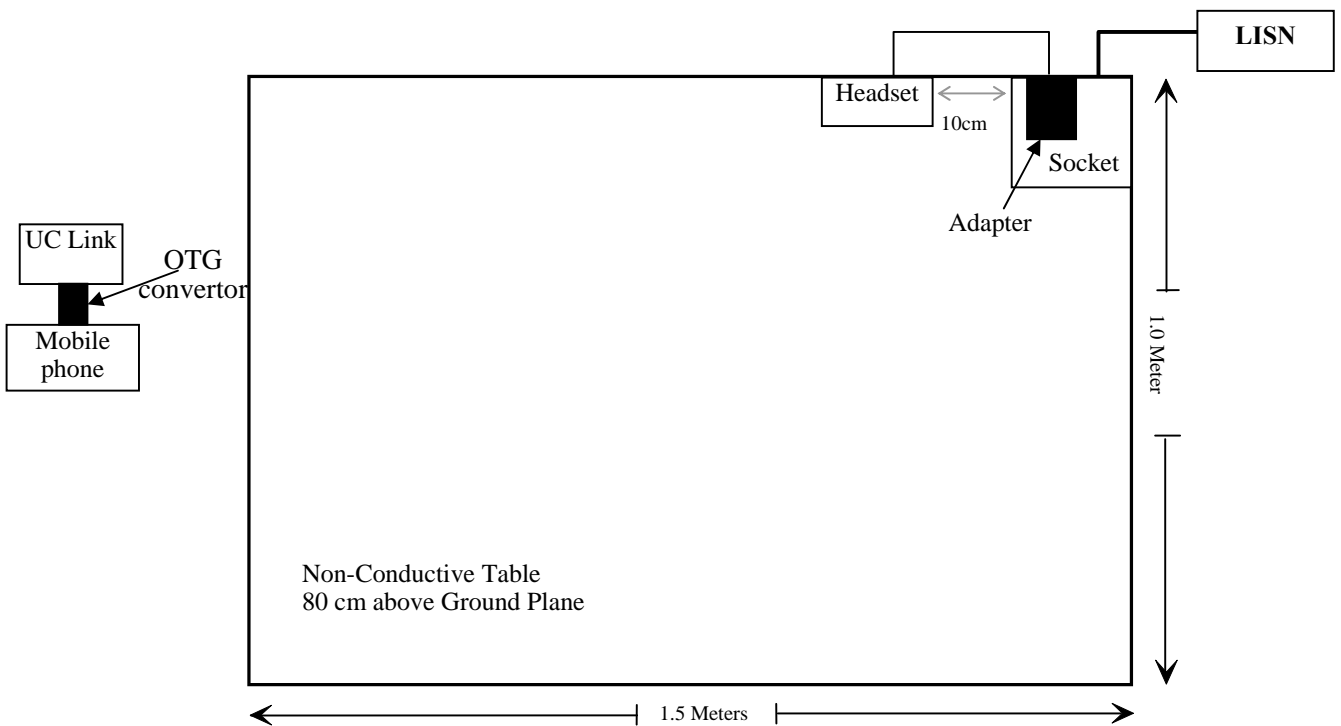
Cable Description	Length (m)	From/Port	To
Unshielded Un-detachable AC Cable	1.0	Socket	LISN
Unshielded Detachable DC Cable	1.0	Adapter	EUT

### Block Diagram of Test Setup

#### Test Model 1



#### Test Model 2



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## **SUMMARY OF TEST RESULTS**

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<b>FCC Rules</b>	<b>Description of Test</b>	<b>Results</b>
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Spurious Emissions	Compliance

**EQUIPMENT LIST**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>AC Line Conducted Emission Test</b>					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2020/08/04	2021/08/03
Rohde & Schwarz	LISN	ENV216	101613	2020/08/04	2021/08/03
Rohde & Schwarz	Transient Limitor	ESH3Z2	DE25985	2019/11/29	2020/11/28
Unknown	CE Cable	CE Cable	UF A210B-1-0720-504504	2019/11/29	2020/11/28
Rohde & Schwarz	CE Test software	EMC 32	V8.53.0	NCR	NCR
<b>Radiated Emission Test</b>					
R&S	EMI Test Receiver	ESR3	102455	2020/08/04	2021/08/03
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2017/12/22	2020/12/21
Unknown	Cable 2	RF Cable 2	F-03-EM197	2019/11/29	2020/11/28
Unknown	Cable	Chamber Cable 4	EC-007	2019/11/29	2020/11/28
Rohde & Schwarz	Auto test software	EMC 32	V9.10	NCR	NCR
Yijia	Temperature & Humidity Meter	TA218B	E0938	2019/10/14	2020/10/13
Rohde & Schwarz	Spectrum Analyzer	FSV40-N	102259	2020/08/04	2021/08/03
COM-POWER	Pre-amplifier	PA-122	181919	2019/11/29	2020/11/28
Sunol Sciences	Horn Antenna	DRH-118	A052604	2017/12/22	2020/12/21
Yijia	Temperature & Humidity Meter	TA218B	E0938	2019/10/14	2020/10/13
Insulated Wire Inc.	RF Cable	SPS-2503-3150	02222010	2019/11/29	2020/11/28
Unknown	RF Cable	W1101-EQ1 OUT	F-19-EM005	2019/11/29	2020/11/28

\* **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).

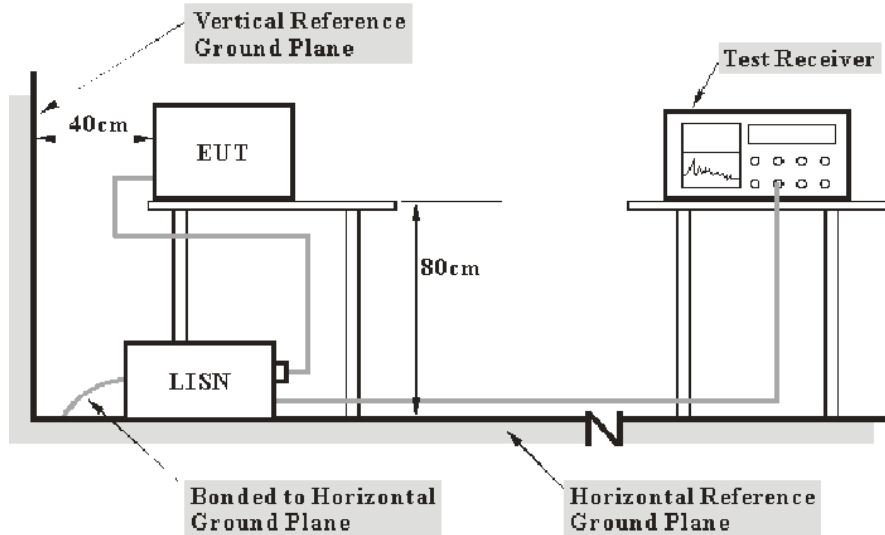


## FCC §15.107 – AC LINE CONDUCTED EMISSIONS

### 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

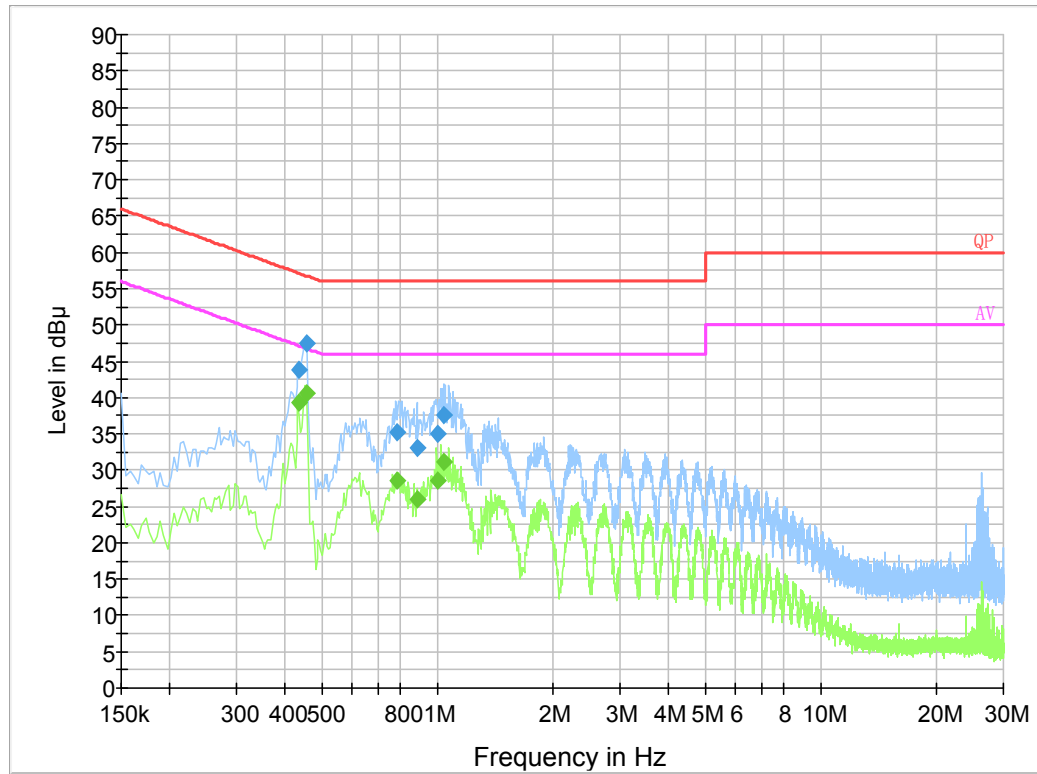
### Environmental Conditions

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	65 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Haiguo Li on 2020-10-07.*

Test Model 1

AC 120V/60 Hz, Line



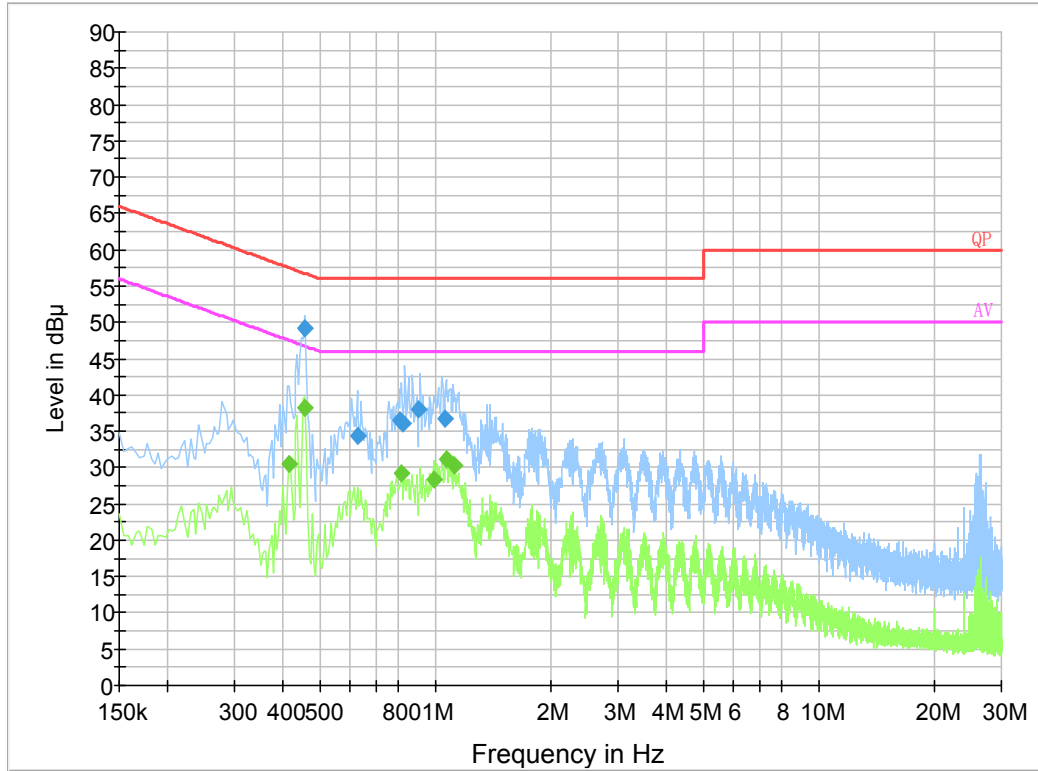
**Final Result 1**

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.435550	43.8	9.000	L1	19.8	13.3	57.1
0.455130	47.4	9.000	L1	19.8	9.4	56.8
0.790090	35.2	9.000	L1	19.8	20.8	56.0
0.888710	33.2	9.000	L1	19.8	22.8	56.0
1.002850	35.0	9.000	L1	19.9	21.0	56.0
1.046310	37.6	9.000	L1	19.9	18.4	56.0

**Final Result 2**

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.435550	39.2	9.000	L1	19.8	7.9	47.1
0.455130	40.6	9.000	L1	19.8	6.2	46.8
0.790090	28.6	9.000	L1	19.8	17.4	46.0
0.888710	25.9	9.000	L1	19.8	20.1	46.0
1.002850	28.5	9.000	L1	19.9	17.5	46.0
1.046310	31.1	9.000	L1	19.9	14.9	46.0

**AC 120V/60 Hz, Neutral:**



**Final Result 1**

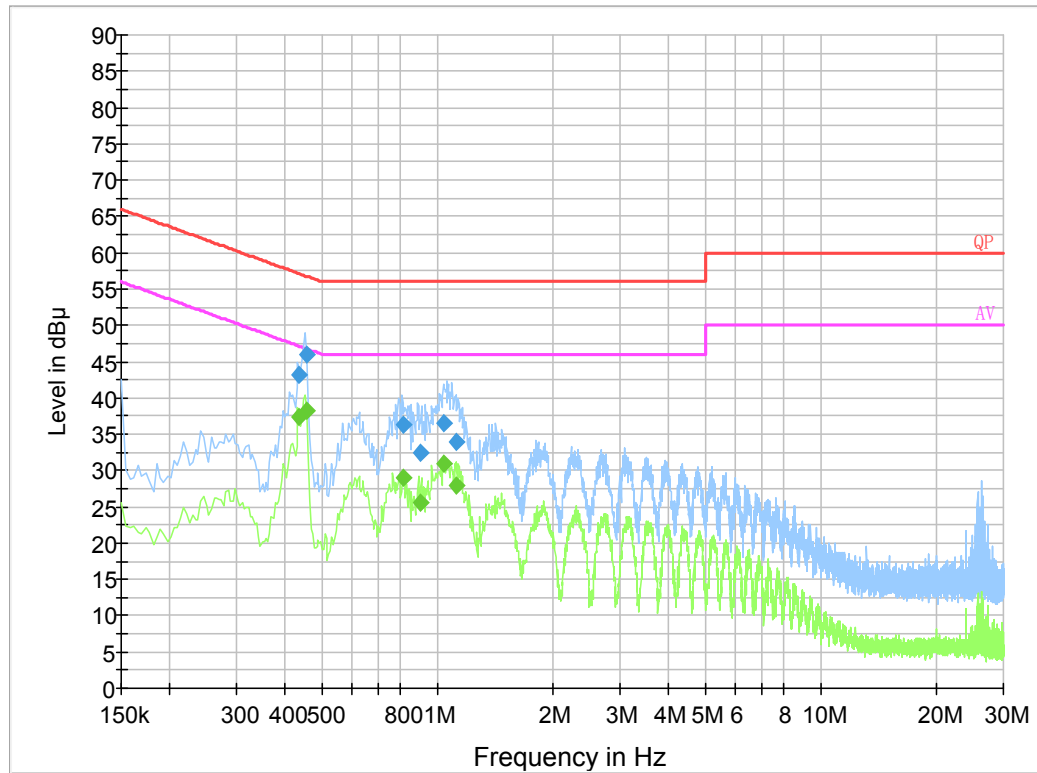
Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.455130	49.3	9.000	N	19.8	7.5	56.8
0.628610	34.4	9.000	N	19.8	21.6	56.0
0.809850	36.5	9.000	N	19.8	19.5	56.0
0.821490	36.1	9.000	N	19.8	19.9	56.0
0.908290	37.9	9.000	N	19.7	18.1	56.0
1.061690	36.7	9.000	N	19.8	19.3	56.0

**Final Result 2**

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.418000	30.4	9.000	N	19.8	17.1	47.5
0.458000	38.2	9.000	N	19.8	8.5	46.7
0.818000	29.3	9.000	N	19.8	16.7	46.0
0.990000	28.3	9.000	N	19.8	17.7	46.0
1.074000	31.2	9.000	N	19.8	14.8	46.0
1.126000	30.2	9.000	N	19.8	15.8	46.0

Test Model 2

AC 120V/60 Hz, Line



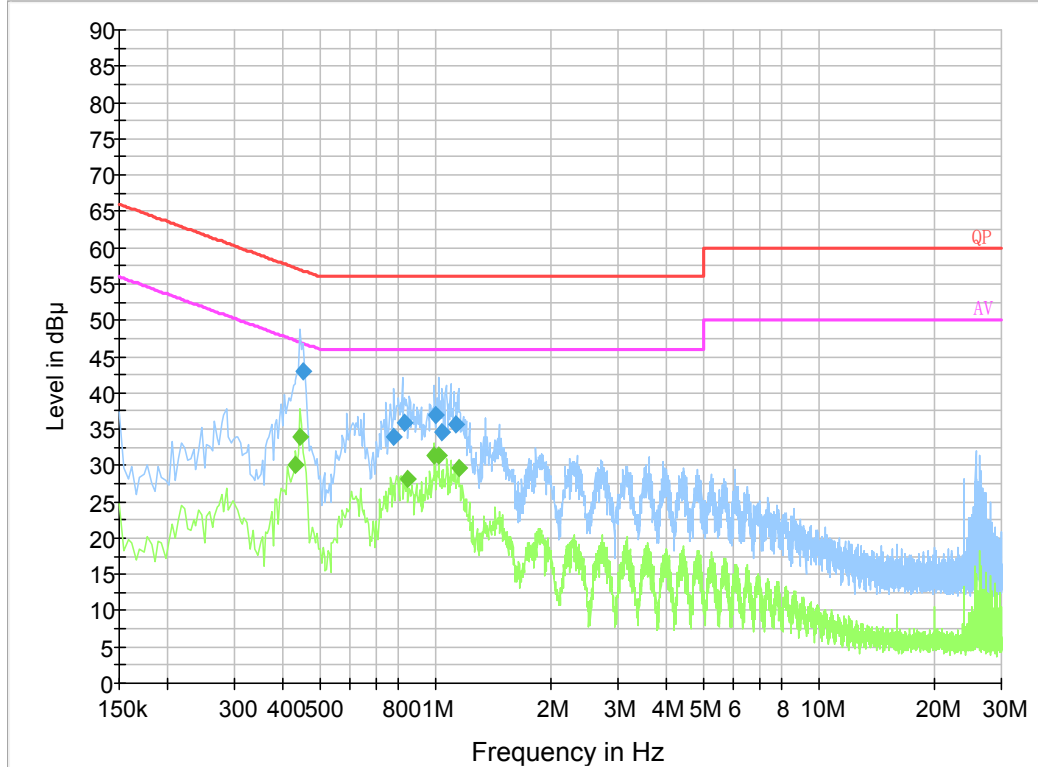
**Final Result 1**

Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.436450	43.1	9.000	L1	19.8	14.0	57.1
0.455190	46.0	9.000	L1	19.8	10.8	56.8
0.817850	36.4	9.000	L1	19.8	19.6	56.0
0.903350	32.5	9.000	L1	19.8	23.5	56.0
1.046070	36.6	9.000	L1	19.9	19.4	56.0
1.120930	34.0	9.000	L1	19.8	22.0	56.0

**Final Result 2**

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.436450	37.3	9.000	L1	19.8	9.8	47.1
0.455190	38.3	9.000	L1	19.8	8.5	46.8
0.817850	29.1	9.000	L1	19.8	16.9	46.0
0.903350	25.5	9.000	L1	19.8	20.5	46.0
1.046070	30.9	9.000	L1	19.9	15.1	46.0
1.120930	27.9	9.000	L1	19.8	18.1	46.0

**AC 120V/60 Hz, Neutral:**



**Final Result 1**

Frequency (MHz)	QuasiPeak (dB µV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.452690	42.9	9.000	N	19.8	13.9	56.8
0.778270	33.9	9.000	N	19.8	22.1	56.0
0.834330	36.0	9.000	N	19.8	20.0	56.0
0.999030	36.9	9.000	N	19.8	19.1	56.0
1.037330	34.5	9.000	N	19.8	21.5	56.0
1.132750	35.7	9.000	N	19.8	20.3	56.0

**Final Result 2**

Frequency (MHz)	Average (dB µV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µV)
0.430000	30.1	9.000	N	19.8	17.2	47.3
0.446000	33.9	9.000	N	19.8	13.0	46.9
0.846000	28.0	9.000	N	19.8	18.0	46.0
0.998000	31.4	9.000	N	19.8	14.6	46.0
1.022000	31.4	9.000	N	19.8	14.6	46.0
1.150000	29.6	9.000	N	19.8	16.4	46.0

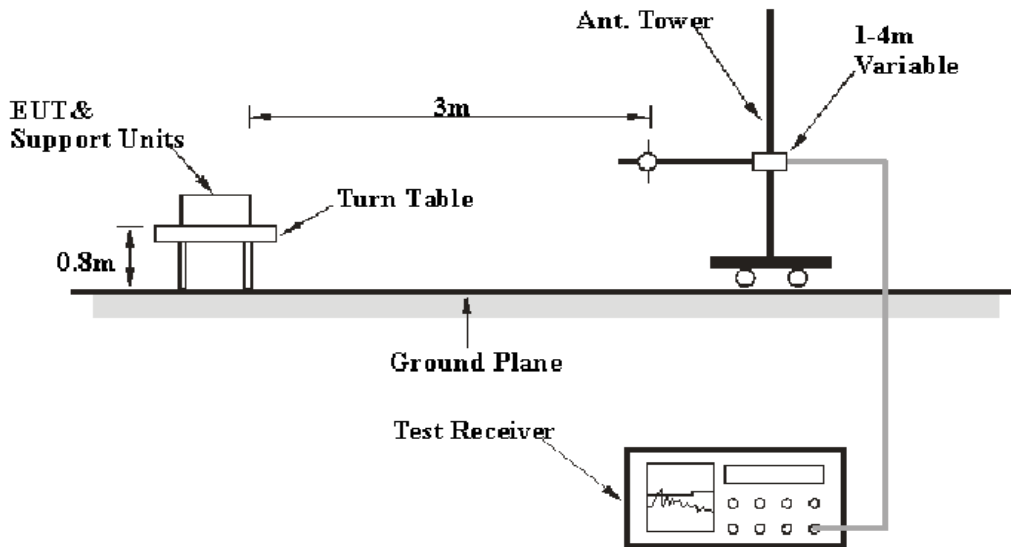
## FCC §15.109 - RADIATED SPURIOUS EMISSIONS

### Applicable Standard

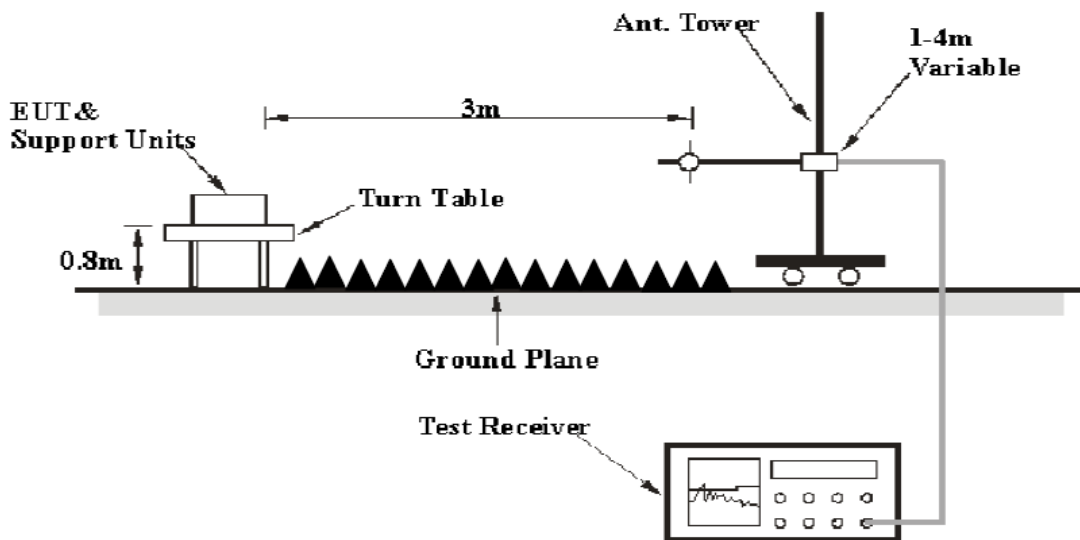
FCC §15.109

### 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

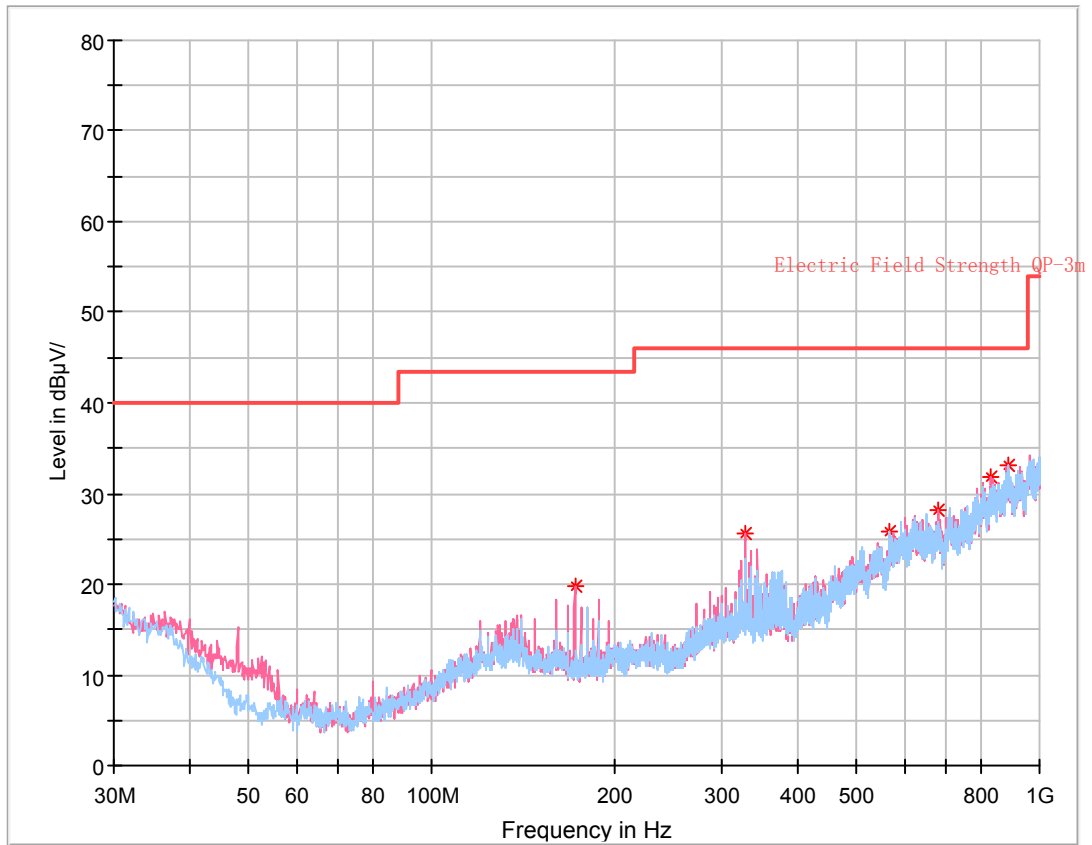
<b>Temperature:</b>	26~31.7 °C
<b>Relative Humidity:</b>	54~57 %
<b>ATM Pressure:</b>	101.0 kPa

*The testing was performed by Holland Yang on 2020-10-05 for below 1GHz and on 2020-09-30 for above 1GHz.*



Test Model 1

30 MHz~1 GHz:



**Critical Freqs**

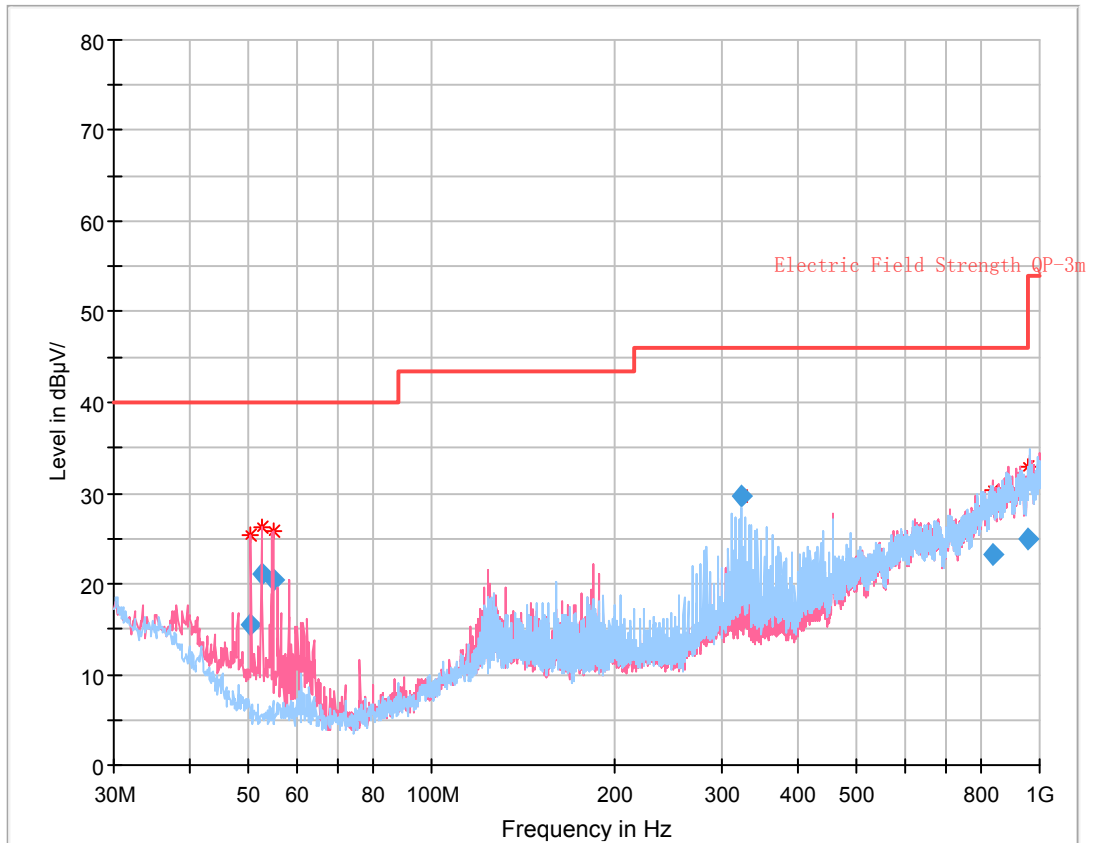
Frequency (MHz)	MaxPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
171.983750	19.82	43.50	23.68	100.0	V	15.0	-15.0
327.911250	25.61	46.00	20.39	200.0	V	310.0	-10.7
566.288750	25.79	46.00	20.21	100.0	H	311.0	-3.3
682.203750	28.19	46.00	17.81	200.0	V	28.0	-1.4
830.250000	31.82	46.00	14.18	300.0	V	268.0	2.6
887.116250	33.05	46.00	12.95	100.0	H	79.0	3.9

**1-12.5 GHz:**

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBuV/m)	FCC Part 15B	
	Reading (dBμV)	PK/QP/Ave.		Height (m)	Polar (H / V)			Limit (dBuV/m)	Margin (dB)
1238.45	45.28	PK	175	1.0	H	-4.68	40.60	74	33.40
1238.45	29.31	Ave.	175	1.0	H	-4.68	24.63	54	29.37
1238.45	45.23	PK	348	1.0	V	-4.68	40.55	74	33.45
1238.45	29.22	Ave.	348	1.0	V	-4.68	24.54	54	29.46
1894.38	44.82	PK	221	1.6	H	-1.60	43.22	74	30.78
1894.38	28.91	Ave.	221	1.6	H	-1.60	27.31	54	26.69
1894.38	44.63	PK	233	2.4	V	-1.60	43.03	74	30.97
1894.38	28.87	Ave.	233	2.4	V	-1.60	27.27	54	26.73

Test Model 2

30 MHz~1 GHz:



**Final\_Result**

Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
50.335000	15.59	40.00	24.41	109.0	V	212.0	-19.6
52.552500	21.00	40.00	19.00	114.0	V	294.0	-19.8
54.856250	20.42	40.00	19.58	187.0	V	331.0	-19.9
323.992625	29.58	46.00	16.42	114.0	H	67.0	-10.7
835.112125	23.15	46.00	22.85	286.0	V	157.0	2.7
958.672500	25.03	46.00	20.97	277.0	H	252.0	5.3

**1-12.5 GHz:**

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBuV/m)	FCC Part 15B	
	Reading (dBμV)	PK/QP/Ave.		Height (m)	Polar (H / V)			Limit (dBuV/m)	Margin (dB)
1158.76	45.24	PK	196	1.1	H	-5.08	40.16	74	33.84
1158.76	29.32	Ave.	196	1.1	H	-5.08	24.24	54	29.76
1158.76	45.19	PK	25	1.8	V	-5.08	40.11	74	33.89
1158.76	29.26	Ave.	25	1.8	V	-5.08	24.18	54	29.82
1834.24	44.89	PK	119	1.9	H	-1.95	42.94	74	31.06
1834.24	28.92	Ave.	119	1.9	H	-1.95	26.97	54	27.03
1834.24	44.68	PK	159	2.2	V	-1.95	42.73	74	31.27
1834.24	28.89	Ave.	159	2.2	V	-1.95	26.94	54	27.06

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