



# FCC Test Report

APPLICANT : Motorola Mobility LLC  
EQUIPMENT : Mobile Phone  
BRAND NAME : Motorola  
MODEL NAME : XT2227-1  
FCC ID : IHDT56AD5  
STANDARD : 47 CFR Part 15 Subpart B  
CLASSIFICATION : Certification  
TEST DATE(S) : Jan. 20, 2022 ~ Jan. 22, 2022

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Reviewed by: Jason Jia / Supervisor

Approved by: Alex Wang / Manager



**Sporton International Inc. (Kunshan)**

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People's Republic of China



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### SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	Under limit 8.36 dB at 0.567 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 5.32 dB at 50.370 MHz

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

**Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



# 1. General Description

## 1.1. Applicant

Motorola Mobility LLC  
222 W, Merchandise Mart Plaza,Chicago,IL60654 USA

## 1.2. Manufacturer

Motorola Mobility LLC  
222 W, Merchandise Mart Plaza,Chicago,IL60654 USA

## 1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	Motorola
Model Name	XT2227-1
FCC ID	IHDT56AD5
EUT supports Radios application	GSM/WCDMA/LTE WLAN 2.4GHz 802.11b/g/n HT20 Bluetooth BR/EDR/LE GNSS
IMEI Code	Conduction: Sample 1: 351822900015373/351822900015381 Sample 2: 351822900024177/351822900024185 Sample 5: 351822900026693/351822900026701 Radiation: Sample 1: 351822900015373/351822900015581 Sample 2: 351822900024276/351822900024284 Sample 5: 351822900026693/351822900026701
HW Version	DVT2
SW Version	ROR31.77
EUT Stage	Identical Prototype

**Remark:**

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. There are five samples, the detailed differences of five samples could be referred to the "XT2227-1\_Operational Description of Product Equality Declaration\_Sample List" which is exhibit separately. According to the differences, sample 1 perform full test, sample 2/5 verify the related cases, sample 3/4 do not need test.



### 1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
<b>Tx Frequency</b>	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850MHz ~ 1910MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV : 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2 : 1850 MHz ~ 1910 MHz LTE Band 4 : 1710 MHz ~ 1755 MHz LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 7 : 2500 MHz ~ 2570 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 26 : 814 MHz ~ 849 MHz LTE Band 38 : 2570 MHz ~ 2620 MHz LTE Band 66 : 1710 MHz ~ 1780 MHz 802.11b/g/n: 2400 MHz ~ 2483.5 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz
<b>Rx Frequency</b>	GSM850: 869 MHz ~ 894 MHz GSM1900: 1930 MHz ~ 1990 MHz WCDMA Band II: 1930 MHz ~ 1990 MHz WCDMA Band IV : 2110 MHz ~ 2155 MHz WCDMA Band V: 869 MHz ~ 894 MHz LTE Band 2 : 1930 MHz ~ 1990 MHz LTE Band 4 : 2110 MHz ~ 2155 MHz LTE Band 5 : 869 MHz ~ 894 MHz LTE Band 7 : 2620 MHz ~ 2690 MHz LTE Band 13 : 746 MHz ~ 756 MHz LTE Band 26 : 859 MHz ~ 894 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 66 : 2110 MHz~ 2180 MHz 802.11b/g/n: 2400 MHz ~ 2483.5 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz GNSS : 1559 MHz ~ 1610 MHz FM : 87.5 MHz ~ 108 MHz
<b>Antenna Type</b>	WWAN : Fixed Internal Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GNSS: PIFA Antenna FM : External Earphone Antenna
<b>Type of Modulation</b>	GSM/GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA : BPSK HSPA : QPSK HSPA+ : 16QAM DC-HSDPA : 64QAM LTE: QPSK / 16QAM / 64QAM 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : $\pi/4$ -DQPSK Bluetooth (3Mbps) : 8-DPSK



	GNSS : BPSK FM
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### 1.5. Modification of EUT

No modifications are made to the EUT during all test items.

### 1.6. Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	Brand Name	Motorola(Chenyang)	Model Name	MC-101
AC Adapter 1(EU)	Brand Name	Motorola(Chenyang)	Model Name	MC-102
AC Adapter 1(UK)	Brand Name	Motorola(Chenyang)	Model Name	MC-103
AC Adapter 1(IN)	Brand Name	Motorola(Chenyang)	Model Name	MC-104
AC Adapter 1(AU)	Brand Name	Motorola(Chenyang)	Model Name	MC-105
AC Adapter 1(AR)	Brand Name	Motorola(Chenyang)	Model Name	MC-106
AC Adapter 1(PRC)	Brand Name	Motorola(Chenyang)	Model Name	MC-108
AC Adapter 2(US)	Brand Name	Motorola(Aohai)	Model Name	MC-101
AC Adapter 2(EU)	Brand Name	Motorola(Aohai)	Model Name	MC-102
AC Adapter 2(UK)	Brand Name	Motorola(Aohai)	Model Name	MC-103
AC Adapter 2(AU)	Brand Name	Motorola(Aohai)	Model Name	MC-105
AC Adapter 2(AR)	Brand Name	Motorola(Aohai)	Model Name	MC-106
AC Adapter 2(IN)	Brand Name	Motorola(Aohai)	Model Name	MC-104
AC Adapter 3(US)	Brand Name	Motorola(Salcomp)	Model Name	MC-101
AC Adapter 3(EU)	Brand Name	Motorola(Salcomp)	Model Name	MC-102
AC Adapter 3(UK)	Brand Name	Motorola(Salcomp)	Model Name	MC-103
AC Adapter 3(AU)	Brand Name	Motorola(Salcomp)	Model Name	MC-105
AC Adapter 3(AR)	Brand Name	Motorola(Salcomp)	Model Name	MC-106
AC Adapter 3(PRC)	Brand Name	Motorola(Salcomp)	Model Name	MC-108
AC Adapter 3(Chile)	Brand Name	Motorola(Salcomp)	Model Name	MC-109
AC Adapter 4(UK)	Brand Name	Lenovo(Chenyang)	Model Name	SC-43
AC Adapter 5(EU)	Brand Name	Lenovo(Salom)	Model Name	SC-42
Battery 1	Brand Name	Motorola(ATL)	Model Name	NH50
Battery 2	Brand Name	Motorola(Sunwoda)	Model Name	NH50
Earphone 1	Brand Name	Motorola( NEW LEADER )	Model Name	NLD-EM313A-23SF
Earphone 2	Brand Name	Motorola( Ju wei)	Model Name	JWEP1185-ZN01H
USB Cable 1	Brand Name	Motorola(Washin)	Model Name	HX-ZN-13
USB Cable 2	Brand Name	Motorola( Ju wei)	Model Name	JWUB1498-ZN01H

### 1.7. Test Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

<b>Test Firm</b>	Sporton International Inc. (Kunshan)		
<b>Test Site Location</b>	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC Designation No.</b>	<b>FCC Test Firm Registration No.</b>
	CO01-KS 03CH04-KS	CN1257	314309

### 1.8. Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH04-KS	AUDIX	E3	6.2009-8-24a
2.	CO01-KS	AUDIX	E3	6.2009-8-24

### 1.9. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 15 Subpart B
- ANSI C63.4-2014

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.





## 2. Test Configuration of Equipment Under Test

### 2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (30MHz to the 5th harmonic of the highest frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
AC Conducted Emission	Mode 1: GSM 850 Rx(Middle) + USB Cable 1 (Charging from Adapter 1) + Bluetooth Idle + WLAN Idle (2.4G) + Camera(Rear) + Battery 1 + Earphone 1 + Sample 1
	Mode 2: WCDMA 1900 Rx + USB Cable 2 (Charging from Adapter 2) + Bluetooth Idle + WLAN Idle (2.4G) + Camera(Front) + Battery 1 + Earphone 2 + Sample 1
	Mode 3: WCDMA Band 5 Rx(Low) + USB Cable 1 (Charging from Adapter 3) + Bluetooth Idle + WLAN Idle (2.4G) + MPEG4 + Battery 1 + Earphone 1 + Sample 1
	Mode 4: LTE Band 13 Rx(High) + USB Cable 1 (Charging from Adapter 4) + Bluetooth Idle + WLAN Idle (2.4G) + FM Rx(98MHz) + Battery 1 + Earphone 1 + Sample 1
	Mode 5: LTE Band 26 Rx(Low) + USB Cable 1 (Charging from Adapter 5) + Bluetooth Idle + WLAN Idle (2.4G) + GNSS Rx + Battery 1 + Earphone 1 + Sample 1
	Mode 6: LTE Band 5 Rx(Low) + USB Cable 1 (Data Link with Notebook) + Bluetooth Idle + WLAN Idle (2.4G) + GNSS Rx + Battery 1 + Earphone 1 + Sample 1
	Mode 7: LTE Band 7 Rx + USB Cable 2 (Data Link with Notebook) + Bluetooth Idle + WLAN Idle (2.4G) + GNSS Rx + Battery 1 + Earphone 1 + Sample 1
	Mode 8: LTE Band 26 Rx(Low) + USB Cable 1 (Charging from Adapter 5) + Bluetooth Idle + WLAN Idle (2.4G) + Camera(Rear) + Battery 1 + Earphone 1 + Sample 2
	Mode 9: LTE Band 5 Rx(Low) + USB Cable 1 (Data Link with Notebook) + Bluetooth Idle + WLAN Idle (2.4G) + GNSS Rx + Battery 1 + Earphone 1 + Sample 2
	Mode 10 : LTE Band 26 Rx(Low) + USB Cable 1 (Charging from Adapter 5) + Bluetooth Idle + WLAN Idle (2.4G) + GNSS Rx + Battery 1 + Earphone 1 + Sample 5

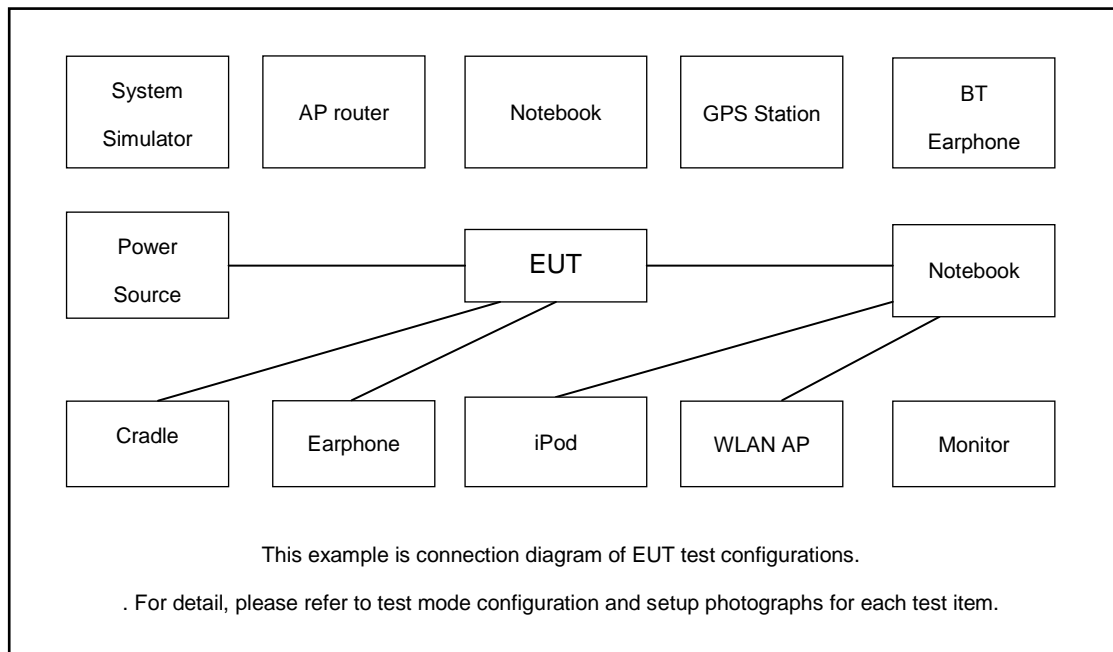


Radiated Emissions	<p>Mode 1: GSM 850 Rx(Middle) + USB Cable 1 (Charging from Adapter 1) + Bluetooth Idle + WLAN Idle (2.4G) + Camera(Rear) + Battery 1 + Earphone 1 + Sample 1</p> <p>Mode 2: WCDMA 1900 Rx + USB Cable 2 (Charging from Adapter 2) + Bluetooth Idle + WLAN Idle (2.4G) + Camera(Front) + Battery 1 + Earphone 2 + Sample 1</p> <p>Mode 3: WCDMA Band 5 Rx(Low) + USB Cable 1 (Charging from Adapter 3) + Bluetooth Idle + WLAN Idle (2.4G) + MPEG4 + Battery 1 + Earphone 1 + Sample 1</p> <p>Mode 4: LTE Band 13 Rx(High) + USB Cable 1 (Charging from Adapter 4) + Bluetooth Idle + WLAN Idle (2.4G) + FM Rx(98MHz) + Battery 1 + Earphone 1 + Sample 1</p> <p>Mode 5: LTE Band 26 Rx(Low) + USB Cable 1 (Charging from Adapter 5) + Bluetooth Idle + WLAN Idle (2.4G) + GNSS Rx + Battery 1 + Earphone 1 + Sample 1</p> <p>Mode 6: LTE Band 5 Rx(Low) + USB Cable 1 (Data Link with Notebook) + Bluetooth Idle + WLAN Idle (2.4G) + GNSS Rx + Battery 1 + Earphone 1 + Sample 1</p> <p>Mode 7: LTE Band 7 Rx + USB Cable 2 (Data Link with Notebook) + Bluetooth Idle + WLAN Idle (2.4G) + GNSS Rx + Battery 1 + Earphone 1 + Sample 1</p> <p>Mode 8: LTE Band 26 Rx(Low) + USB Cable 1 (Charging from Adapter 5) + Bluetooth Idle + WLAN Idle (2.4G) + Camera(Rear) + Battery 1 + Earphone 1 + Sample 2</p> <p>Mode 9: LTE Band 7 Rx + USB Cable 2 (Data Link with Notebook) + Bluetooth Idle + WLAN Idle (2.4G) + GNSS Rx + Battery 1 + Earphone 1 + Sample 2</p> <p>Mode 10 : LTE Band 7 Rx + USB Cable 2 (Data Link with Notebook) + Bluetooth Idle + WLAN Idle (2.4G) + GNSS Rx + Battery 1 + Earphone 1 + Sample 5</p>
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**Remark:**

1. The worst case of AC is mode 5; only the test data of this mode is reported.
2. The worst case of RE is mode 10; only the test data of this mode is reported.
3. Data Link with Notebook means data application transferred mode between EUT and Notebook.
4. Pre-scanned Low/Middle/High channel, the worst channel was recorded in this report.

## 2.2. Connection Diagram of Test System



The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application

### 2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1	Base Station	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8m
2	Signal Generator	R&S	SMBV100A	N/A	N/A	Unshielded, 1.8m
3	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
4	Bluetooth Earphone	Xiaomi	LYEJ02LM	N/A	N/A	N/A
5	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6	Notebook	Lenovo	S730-13IWL	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
7	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded, 1.8m
8	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded, 1.8m
9	Hard Disk	KINGSHARE	KSP6120G	N/A	Shielded, 1.2m	N/A
10	Hard Disk	Lenovo	F310	N/A	Shielded, 1.2m	N/A
11	SD Card	Kingston	8GB	N/A	N/A	N/A



## **2.4. EUT Operation Test Setup**

The EUT was in GSM or WCDMA or LTE idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

1. Data application is transferred between notebook and EUT via USB cable.
2. Turn on camera to capture images.
3. Turn on MPEG4 function.
4. Turn on FM function to make the EUT receive continuous signals from FM station.
5. Turn on GNSS function to make the EUT receive continuous signals from GNSS station.



### 3. Test Result

#### 3.1. Test of AC Conducted Emission Measurement

##### 3.1.1 Limits of AC Conducted Emission

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 within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

<Class B Limit>

Frequency of emission (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.

##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

##### 3.1.3 Test Procedure

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

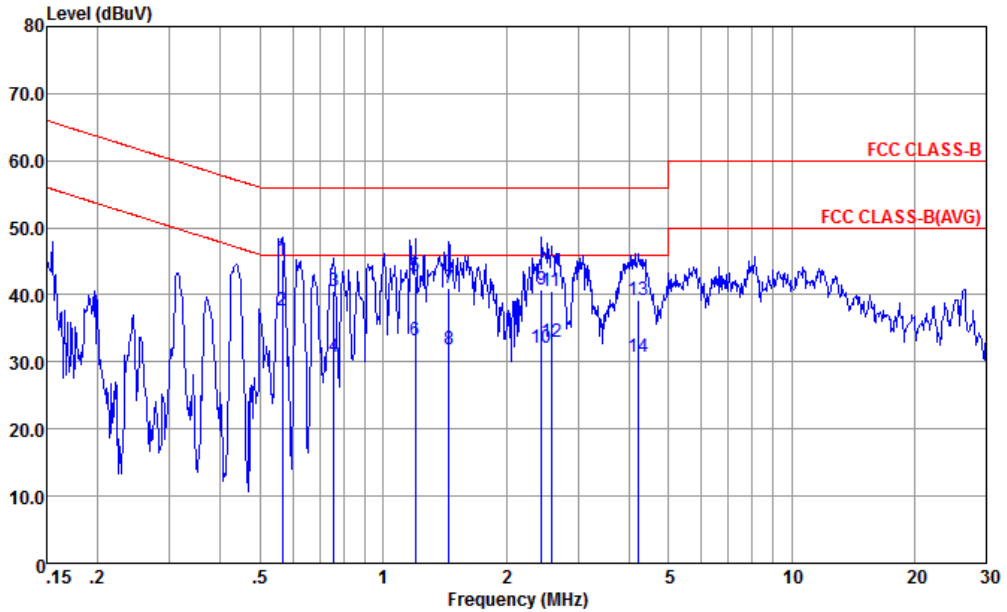
### 3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



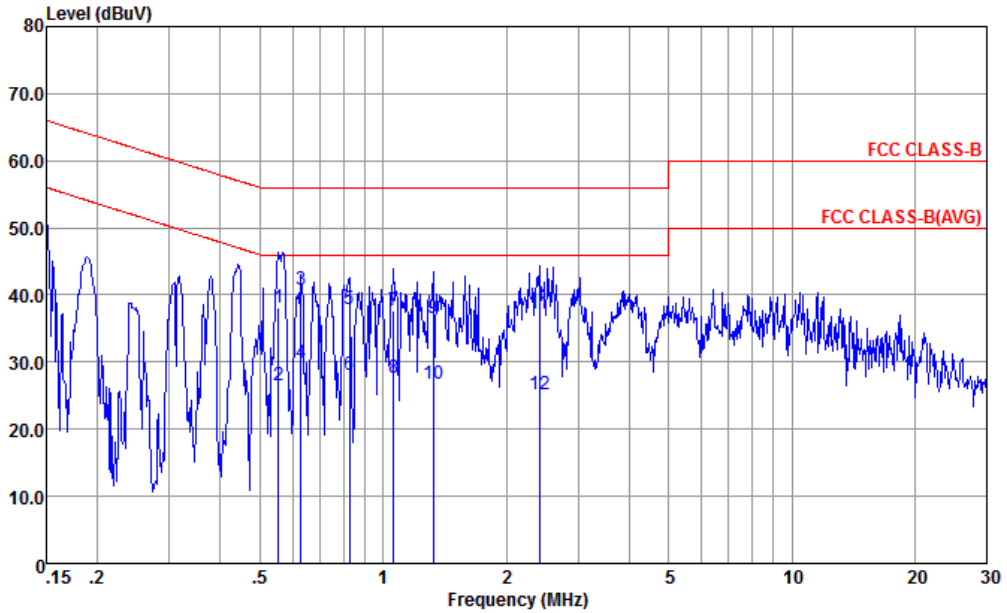
Site : CO01-KS  
 Condition : FCC CLASS-B LISN-060105-L LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.567	45.14	-10.86	56.00	34.80	0.10	10.24	QP
2 *	0.567	37.64	-8.36	46.00	27.30	0.10	10.24	Average
3	0.759	40.55	-15.45	56.00	30.20	0.11	10.24	QP
4	0.759	30.65	-15.35	46.00	20.30	0.11	10.24	Average
5	1.197	42.86	-13.14	56.00	32.50	0.13	10.23	QP
6	1.197	33.16	-12.84	46.00	22.80	0.13	10.23	Average
7	1.449	40.97	-15.03	56.00	30.60	0.14	10.23	QP
8	1.449	31.97	-14.03	46.00	21.60	0.14	10.23	Average
9	2.448	40.88	-15.12	56.00	30.50	0.15	10.23	QP
10	2.448	31.98	-14.02	46.00	21.60	0.15	10.23	Average
11	2.581	40.58	-15.42	56.00	30.19	0.15	10.24	QP
12	2.581	32.88	-13.12	46.00	22.49	0.15	10.24	Average
13	4.224	39.23	-16.77	56.00	28.80	0.17	10.26	QP
14	4.224	30.73	-15.27	46.00	20.30	0.17	10.26	Average





Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS  
 Condition : FCC CLASS-B LISN-060105-N NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.555	38.15	-17.85	56.00	27.80	0.11	10.24	QP
2	0.555	26.45	-19.55	46.00	16.10	0.11	10.24	Average
3 *	0.630	40.85	-15.15	56.00	30.50	0.11	10.24	QP
4	0.630	29.95	-16.05	46.00	19.60	0.11	10.24	Average
5	0.826	37.95	-18.05	56.00	27.60	0.11	10.24	QP
6	0.826	28.15	-17.85	46.00	17.80	0.11	10.24	Average
7	1.060	37.56	-18.44	56.00	27.21	0.12	10.23	QP
8	1.060	27.66	-18.34	46.00	17.31	0.12	10.23	Average
9	1.324	36.56	-19.44	56.00	26.20	0.13	10.23	QP
10	1.324	26.66	-19.34	46.00	16.30	0.13	10.23	Average
11	2.409	37.18	-18.82	56.00	26.81	0.14	10.23	QP
12	2.409	25.28	-20.72	46.00	14.91	0.14	10.23	Average

Note:

- Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
- Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)



### 3.2. Test of Radiated Emission Measurement

#### 3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

<Class B Limit>

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

#### 3.2.2. Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

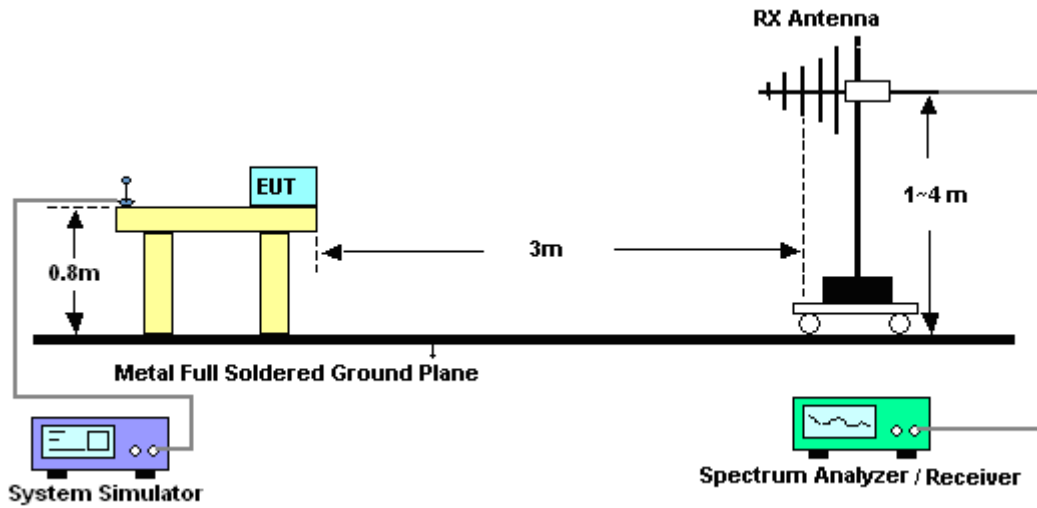


### **3.2.3. Test Procedures**

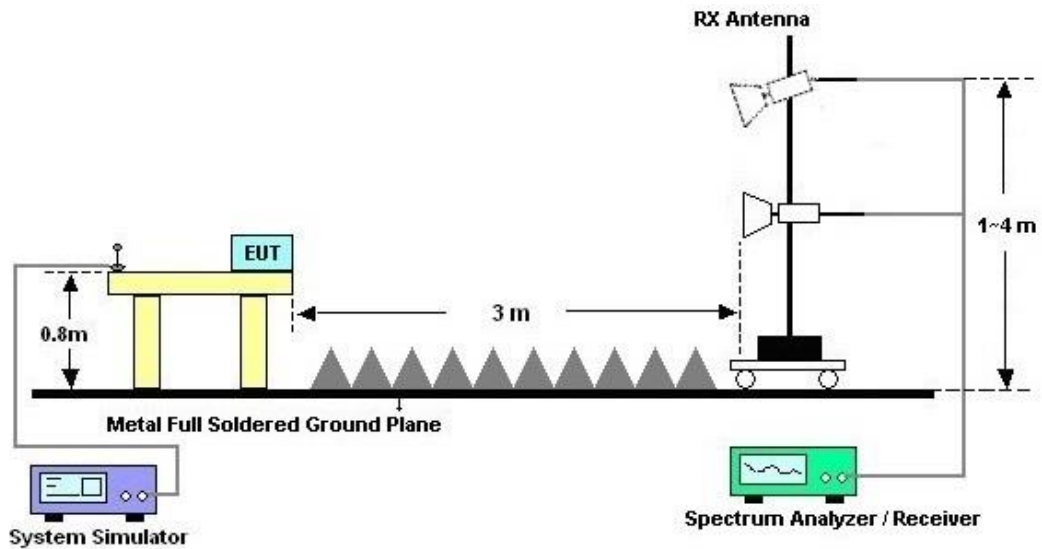
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
10. Exploratory radiated emissions testing of handheld and/or body-worn devices shall include rotation of the EUT through three orthogonal axes (X/Y/Z Plane) to determine the orientation (attitude) that maximizes the emissions.

### 3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



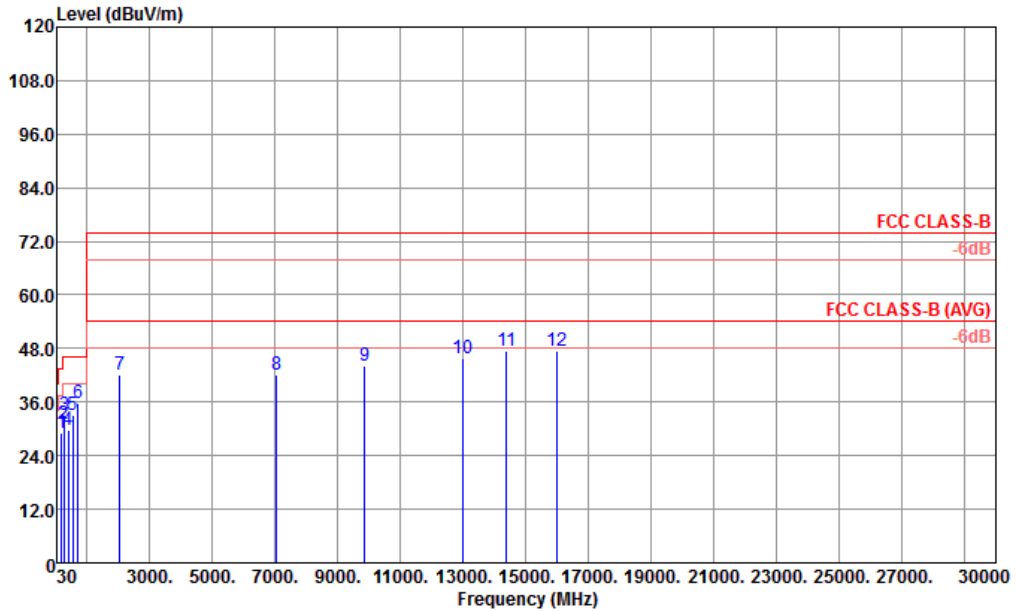
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Engineer :	Levi Zhuo	Temperature :	21~22°C
		Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Horizontal

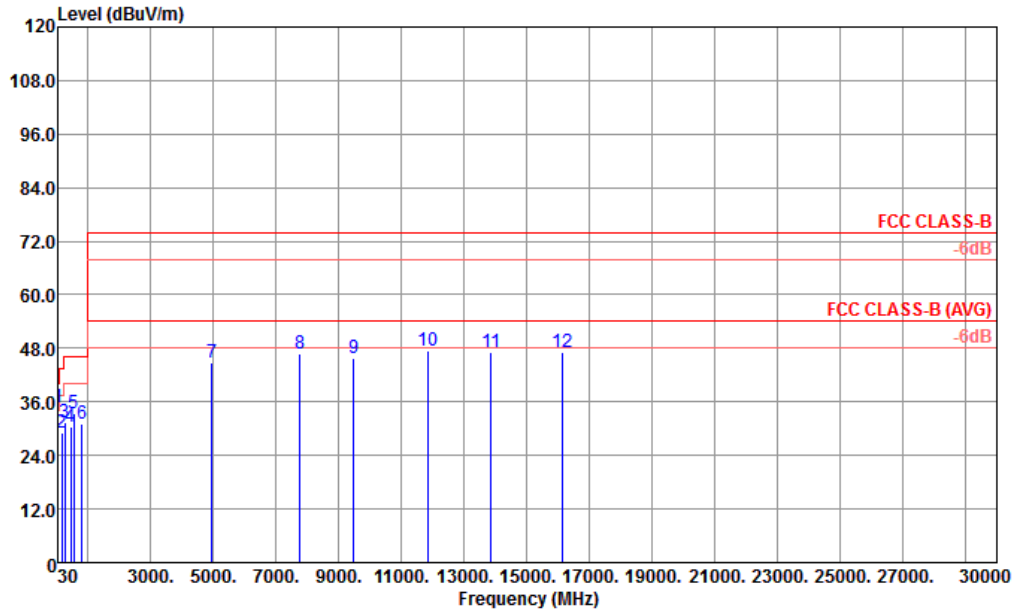


Site : 03ch04-KS  
 Condition : FCC CLASS-B 3m 3117 SN 00227860 NEW HORIZONTAL

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	179.38	28.94	-14.56	43.50	45.04	14.89	1.95	32.94	---	Peak
2	263.77	31.00	-15.00	46.00	41.71	19.68	2.38	32.77	---	Peak
3	282.20	32.99	-13.01	46.00	44.60	18.67	2.46	32.74	---	Peak
4	408.30	29.62	-16.38	46.00	37.03	21.91	2.96	32.28	---	Peak
5	531.49	33.22	-12.78	46.00	37.79	24.78	3.40	32.75	---	Peak
6	719.67	35.71	-10.29	46.00	37.35	26.96	3.94	32.54	---	Peak
7	2054.00	41.96	-32.04	74.00	69.78	29.33	6.63	63.78	---	Peak
8	7035.00	41.96	-32.04	74.00	57.74	35.38	12.48	63.64	---	Peak
9	9857.00	44.15	-29.85	74.00	55.68	36.67	15.10	63.30	---	Peak
10	13002.00	45.70	-28.30	74.00	52.45	38.85	17.15	62.75	---	Peak
11	14379.00	47.48	-26.52	74.00	54.77	39.01	18.18	64.48	---	Peak
12	15977.00	47.52	-26.48	74.00	53.30	40.39	19.07	65.24	---	Peak



Test Engineer :	Levi Zhuo	Temperature :	21~22°C
		Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical



Site : 03ch04-KS  
 Condition : FCC CLASS-B 3m 3117 SN\_00227860 NEW VERTICAL

	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	50.37	34.68	-5.32	40.00	52.43	14.33	1.02	33.10	100	278 Peak
2	167.74	29.15	-14.35	43.50	44.55	15.68	1.88	32.96	---	Peak
3	263.77	31.25	-14.75	46.00	41.96	19.68	2.38	32.77	---	Peak
4	449.04	30.57	-15.43	46.00	36.79	22.86	3.12	32.20	---	Peak
5	530.52	33.51	-12.49	46.00	38.09	24.76	3.40	32.74	---	Peak
6	792.42	30.98	-15.02	46.00	30.54	28.50	4.12	32.18	---	Peak
7	4961.00	44.63	-29.37	74.00	65.17	33.82	10.45	64.81	---	Peak
8	7766.00	46.87	-27.13	74.00	62.41	35.54	13.14	64.22	---	Peak
9	9466.00	45.90	-28.10	74.00	58.60	36.22	14.54	63.46	---	Peak
10	11829.00	47.35	-26.65	74.00	54.91	38.18	16.43	62.17	---	Peak
11	13869.00	46.97	-27.03	74.00	54.19	38.63	17.89	63.74	---	Peak
12	16130.00	47.19	-26.81	74.00	52.80	40.58	19.18	65.37	---	Peak

Note:

- Level(dBμV/m) = Read Level(dBμV) + Antenna Factor(dB/m) + Cable Loss(dB) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)



## 4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 21, 2021	Jan. 22, 2022	Apr. 20, 2022	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 14, 2021	Jan. 22, 2022	Oct. 13, 2022	Conduction (CO01-KS)
AC LISN	R&S	ENV216	100334	9kHz~30MHz	Oct. 14, 2021	Jan. 22, 2022	Oct. 13, 2022	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V, 45Hz~1000Hz	Oct. 14, 2021	Jan. 22, 2022	Oct. 13, 2022	Conduction (CO01-KS)
EMI Test Receiver	Keysight	N9038A	MY57290151	3Hz~8.5GHz;M ax 30dBm	Jul. 17, 2021	Jan. 20, 2022	Jul. 16, 2022	Radiation (03CH04-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz~44G,MAX 30dB	Apr. 13, 2021	Jan. 20, 2022	Apr. 12, 2022	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz~1GHz	May 30, 2021	Jan. 20, 2022	May 29, 2022	Radiation (03CH04-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 25, 2021	Jan. 20, 2022	Apr. 24, 2022	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	Jan. 20, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 05, 2022	Jan. 20, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	Burgeon	BPA-530	102219	0.01MHz ~3000MHz	Oct. 30, 2021	Jan. 20, 2022	Oct. 29, 2022	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5G Hz	Oct. 13, 2021	Jan. 20, 2022	Oct. 12, 2022	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jan. 20, 2022	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jan. 20, 2022	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jan. 20, 2022	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required



## 5. Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.9dB
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### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.0dB
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### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.1dB
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### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.1dB
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