FCC Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2437-1, XT2437-2
FCC ID	:	IHDT56AS8
STANDARD	:	47 CFR Part 15 Subpart B
CLASSIFICATION	:	Certification
TEST DATE(S)	:	Jul. 26, 2024 ~ Aug. 08, 2024

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.

Jason Jia

Approved by: Jason Jia

ACCREDITED Cert #5145.02

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

TABLE OF CONTENTS

REVISION HISTORY **3**

SUMMARY OF TEST RESULT **4**

1. GENERAL DESCRIPTION **5**

1.1. Applicant 5
1.2. Manufacturer 5
1.3. Product Feature of Equipment Under Test 5
1.4. Product Specification of Equipment Under Test 6
1.5. Modification of EUT 7
1.6. Specification of Accessory 8
1.7. Test Location 8
1.8. Test Software 9
1.9. Applicable Standards 9

2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST **10**

2.1. Test Mode 10
2.2. Connection Diagram of Test System 12
2.3. Support Unit used in test configuration and system 12
2.4. EUT Operation Test Setup 13

3. TEST RESULT **14**

3.1. Test of AC Conducted Emission Measurement 14
3.2. Test of Radiated Emission Measurement 18

4. LIST OF MEASURING EQUIPMENT **23**

5. MEASUREMENT UNCERTAINTY **24**

APPENDIX A. SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC471919	Rev. 01	Initial issue of report	Aug. 21, 2024
FC471919	Rev. 02	Revise Radiated Emission test range; Revise section 1.4, about antenna type; This report is an update version, replacing the report issued on Aug. 21, 2024.	Aug. 23, 2024

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 9.68 dB at 0.641 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 5.02 dB at 480.080 MHz

Conformity Assessment Condition:
The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account. Please refer to each test results in the section “Measurement Uncertainty”.
Disclaimer:
The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

1. General Description

1.1. Applicant

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.2. Manufacturer

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2437-1, XT2437-2
FCC ID	IHDT56AS8
EUT supports Radios application	GSM/WCDMA/LTE/5G NR WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ax HE20/HE40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/VHT160 WLAN 5GHz 802.11ax HE20/HE40/HE80/HE160 WLAN 6GHz 802.11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE GNSS/NFC
IMEI Code	Conduction: 355709740016651/355709740016669 for sample 1 357931300014177/357931300014185 for sample 2 Radiation: 355709740016693/355709740016701 for sample 1 357931300013732 for sample 2
HW Version	DVT2
SW Version	U4UQ34.39
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. The two model names are only for market segment, no other difference.
3. There are two samples under test, the differences could be referred to the XT2437-1, XT2437-2 _Operational Description of Product Equality Declaration which is exhibit separately. According to the differences, sample 1 perform full test and sample 2 verify for the difference.

1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	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 12 : 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 17 : 704 MHz ~ 716 MHz LTE Band 25 : 1850 MHz ~ 1915 MHz LTE Band 26 : 814 MHz ~ 849 MHz LTE Band 38 : 2570 MHz ~ 2620 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz LTE Band 42 : 3450 MHz ~ 3550 MHz LTE Band 66 : 1710 MHz ~ 1780 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n26 : 814 MHz ~ 849 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n78 : 3450 MHz ~ 3550 MHz 802.11b/g/n/ax: 2400 MHz ~ 2483.5 MHz 802.11a/n/ac/ax: 5150 MHz ~ 5250 MHz; 5250 MHz ~ 5350 MHz; 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz 802.11ax: 5925 MHz ~ 7125 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz
Rx Frequency	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 12 : 729 MHz ~ 746 MHz LTE Band 13 : 746 MHz ~ 756 MHz LTE Band 17 : 734 MHz ~ 746 MHz LTE Band 25 : 1930 MHz ~ 1995 MHz LTE Band 26 : 859 MHz ~ 894 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz LTE Band 42 : 3450 MHz ~ 3550 MHz LTE Band 66 : 2110 MHz~ 2200 MHz

	5G NR n2 : 1930 MHz ~ 1990 MHz 5G NR n5 : 869 MHz ~ 894 MHz 5G NR n7 : 2620 MHz ~ 2690 MHz 5G NR n26 : 859 MHz ~ 894 MHz 5G NR n66 : 2110 MHz~ 2200 MHz 5G NR n78 : 3450 MHz ~ 3550 MHz 802.11b/g/n/ax: 2400 MHz ~ 2483.5 MHz 802.11a/n/ac/ax: 5150 MHz ~ 5250 MHz; 5250 MHz ~ 5350 MHz; 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz 802.11ax: 5925 MHz ~ 7125 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz GNSS : 1559 MHz ~ 1610 MHz
Antenna Type	WWAN : LDS+MDA Antenna WLAN ANT 5: Monopole Antenna WLAN ANT6/8: IFA Antenna Bluetooth ANT6/8: IFA Antenna GNSS: IFA Antenna NFC: FPC coil + Ferrite Antenna
Type of Modulation	GSM/GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA : BPSK HSPA : QPSK HSPA+ : 16QAM (Downlink only) DC-HSDPA : 64QAM LTE: QPSK / 16QAM / 64QAM / 256QAM 5G NR: DFT-s-OFDM (PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM) CP-OFDM (QPSK / 16QAM / 64QAM / 256QAM) 802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) 802.11ax: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM /1024QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) :π/4-DQPSK Bluetooth (3Mbps) : 8-DPSK GNSS : BPSK NFC: ASK

1.5. Modification of EUT

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

1.6. Specification of Accessory

Accessories Information				
AC Adapter 1(US)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-331L
AC Adapter 1(EU)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-332L
AC Adapter 1(UK)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-333L
AC Adapter 1(AU)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-335L
AC Adapter 1(AR)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-336L
AC Adapter 1(BR)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-337L
AC Adapter 1((CHILE))	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-339L
AC Adapter 1(KR)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-330L
AC Adapter 2(US)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-331L
AC Adapter 2(EU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-332L
AC Adapter 2(UK)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-333L
AC Adapter 2(AR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-336L
AC Adapter 2(BR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-337L
Battery 1	**Brand Name**	Motorola(ATL)	**Model Name**	RW50
USB Cable 1	**Brand Name**	Motorola(Washin)	**Model Name**	S928D92375
USB Cable 2	**Brand Name**	Motorola(Saibao)	**Model Name**	S928D95755
Wireless Earphones	**Brand Name**	Motorola	**Model Name**	XT2443-1

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.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	CO01-KS 03CH07-KS	CN1257	314309

1.8. Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH07-KS	AUDIX	E3	210616
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).

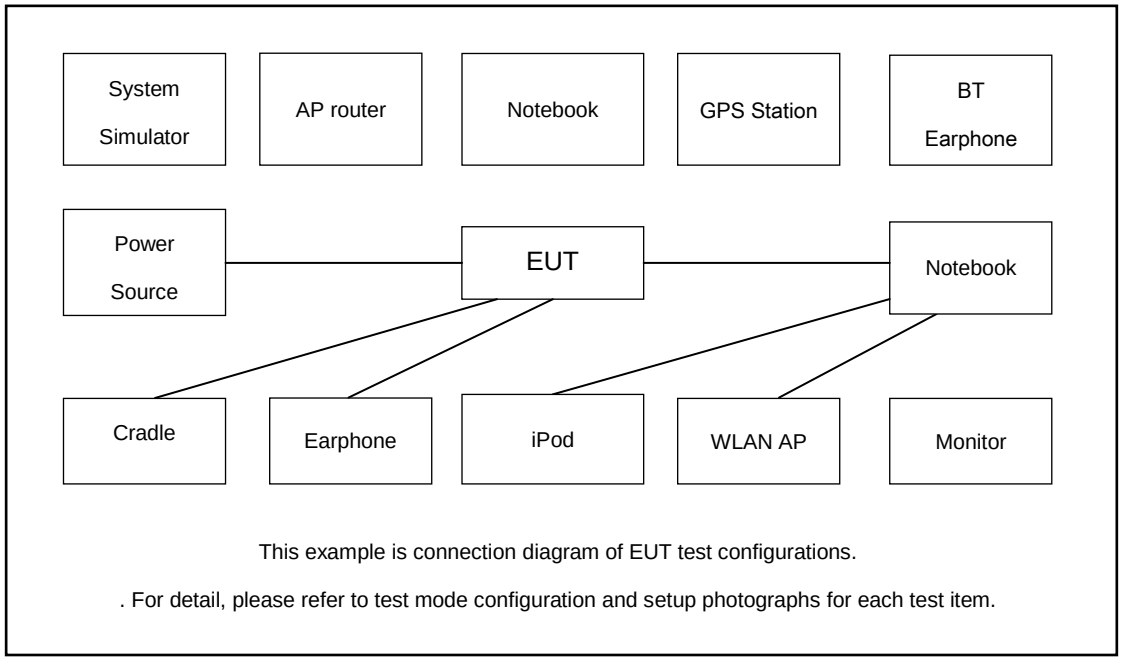
Test Items	Function Type
AC Conducted Emission	Mode 1: GSM 850 Rx(Middle) + Bluetooth Link with Wireless Earphones + WLAN 2.4G Idle + Camera(Rear) + SIM + Battery 1 + USB Cable 1 (Charging from Adapter 1) for sample 1 Mode 2: WCDMA Band V Rx(Middle) + Bluetooth Link with Wireless Earphones + WLAN 5G Idle + Camera(Front) + E-SIM + Battery 1 + USB Cable 2 (Charging from Adapter 2) for sample 1 Mode 3: LTE Band 17 Rx(Middle) + Bluetooth Link with Wireless Earphones + WLAN 6E Idle + MPEG4(Run Color Bar) + E-SIM + Battery 1 + USB Cable 1(Data Link with Notebook) + EUT (eMMC) USB Data Link to PC/NB for sample 1 Mode 4: LTE Band 12 Rx(Low) + Bluetooth Link with Wireless Earphones + WLAN 2.4G Idle + NFC On + E-SIM + Battery 1 + USB Cable 1(Data Link with Notebook) + PC/NB USB Data Link to EUT (eMMC) for sample 1 Mode 5: LTE Band 26 Rx(High) + Bluetooth Link with Wireless Earphones + WLAN 5G Idle + GNSS Rx + E-SIM + Battery 1 + USB Cable 1(Data Link with Notebook) + EUT (SD) USB Data Link to PC/NB for sample 1 Mode 6: 5G N5 Rx(Low) + Bluetooth Link with Wireless Earphones + WLAN 6E Idle + Camera(Front) + E-SIM + Battery 1 + USB Cable 1(Data Link with Notebook) + PC/NB USB Data Link to EUT (SD) for sample 1 Mode 7: 5G N78 Rx + Bluetooth Link with Wireless Earphones + WLAN 2.4G Idle + Camera(Front) + E-SIM + Battery 1 + USB Cable 2(Data Link with Notebook) + EUT (SD) USB Data Link to PC/NB for sample 1 Mode 8: WCDMA Band V Rx(Middle) + Bluetooth Link with Wireless Earphones + WLAN 5G Idle + Camera(Front) + E-SIM + Battery 1 + USB Cable 2 (Charging from Adapter 2) for sample 2

Radiated Emissions	Mode 1: GSM 850 Rx(Middle) + Bluetooth Idle with Wireless Earphones + WLAN 2.4G Idle + Camera(Rear) + SIM + Battery 1 + USB Cable 1 (Charging from Adapter 1) for sample 1 Mode 2: WCDMA Band V Rx(Middle) + Bluetooth Idle with Wireless Earphones + WLAN 5G Idle + Camera(Front) + E-SIM + Battery 1 + USB Cable 2 (Charging from Adapter 2) for sample 1 Mode 3: LTE Band 13 Rx(Middle) + Bluetooth Idle with Wireless Earphones + WLAN 6E Idle + MPEG4(Run Color Bar) + SIM + Battery 1 + USB Cable 1(Data Link with Notebook) + EUT (eMMC) USB Data Link to PC/NB for sample 1 Mode 4: LTE Band 12 Rx(Low) + Bluetooth Idle with Wireless Earphones + WLAN 2.4G Idle + NFC On + SIM + Battery 1 + USB Cable 1(Data Link with Notebook) + USB Cable 1(Data Link with Notebook) for sample 1 Mode 5: LTE Band 26 Rx(High) + Bluetooth Idle with Wireless Earphones + WLAN 5G Idle + GNSS Rx + SIM + Battery 1 + USB Cable 1(Data Link with Notebook) + EUT (SD) USB Data Link to PC/NB + for sample 1 Mode 6: 5G N5 Rx(Low) + Bluetooth Idle with Wireless Earphones + WLAN 6E Idle + GNSS Rx + SIM + Battery 1 + USB Cable 1(Data Link with Notebook) + PC/NB USB Data Link to EUT (SD) for sample 1 Mode 7: 5G N78 Rx + Bluetooth Idle with Wireless Earphones + WLAN 2.4G Idle + GNSS Rx + SIM + Battery 1 + USB Cable 2(Data Link with Notebook) + EUT (SD) USB Data Link to PC/NB for sample 1 Mode 8: LTE Band 26 Rx(High) + Bluetooth Idle with Wireless Earphones + WLAN 5G Idle + GNSS Rx + Earphone + Battery 1 for sample 1 Mode 9: LTE Band 26 Rx(High) + Bluetooth Idle with Wireless Earphones + WLAN 5G Idle + GNSS Rx + SIM + Battery 1 + USB Cable 1 (Data Link with Notebook) + EUT (eMMC) USB Data Link to PC/NB for sample 2

Remark:

1. The worst case of AC is mode 2; only the test data of this mode is reported.
2. The worst case of RE is mode 5; 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



This example is connection diagram of EUT test configurations.

. For detail, please refer to test mode configuration and setup photographs for each test item.

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.	LTE Base Station	Anritus	MT8821C	N/A	N/A	Unshielded,1.8m
2.	5GNR Base Station	Anritus	MT8000A	N/A	N/A	Unshielded,1.8m
3.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
4.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
5.	Vector Signal Generator	R&S	SMBV100A	258305	N/A	N/A
6.	Hard Disk	Lenovo	F310	DoC	Shielded, 1.2m	N/A
7.	SD Card	Kingston	8GB	N/A	N/A	N/A
8.	Earphone	Moto	N/A	N/A	Unshielded,1.0m	N/A

2.4. EUT Operation Test Setup

The EUT was in GSM or WCDMA or LTE or 5G NR 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 GNSS function to make the EUT receive continuous signals from GNSS station.
5. Turn on NFC function

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.

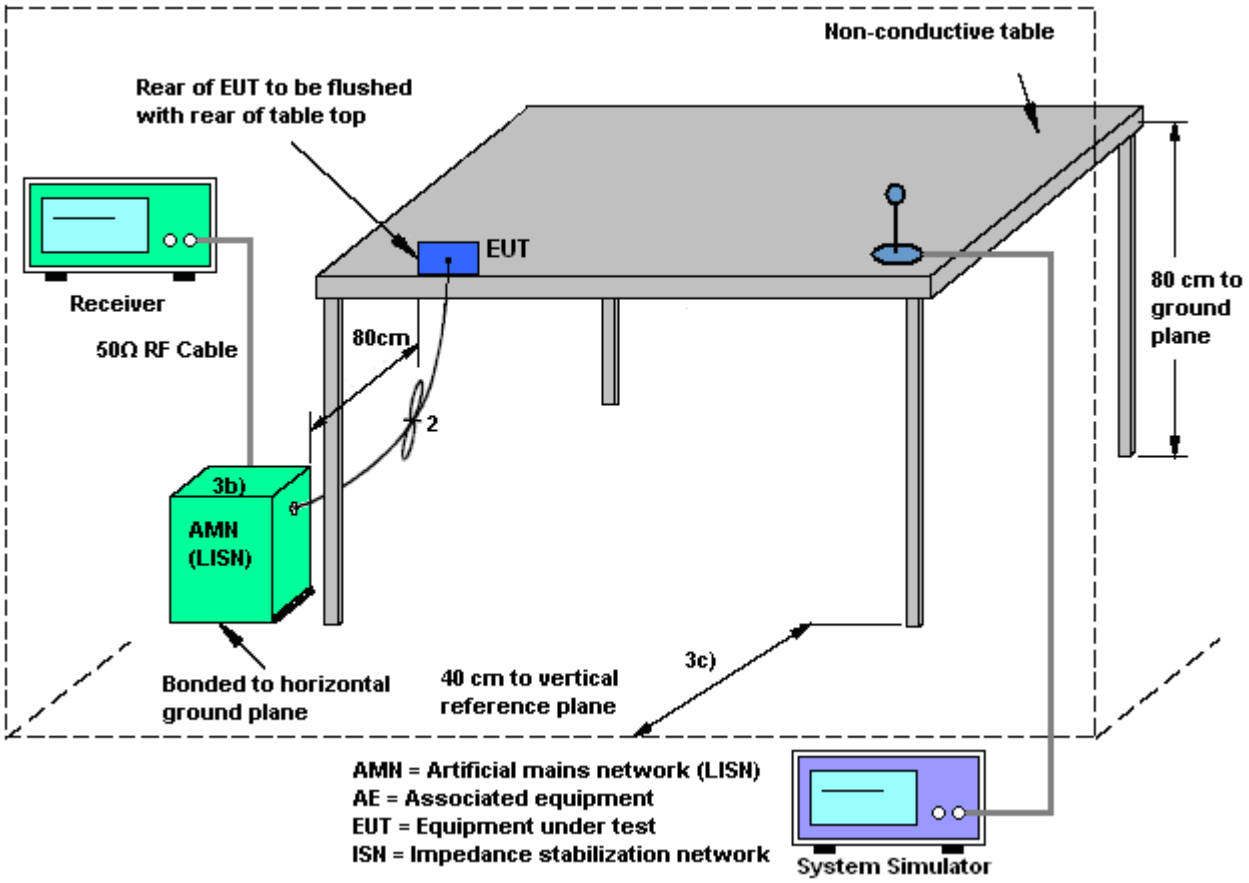
3.1.2 Measuring Instruments

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

3.1.3 Test Procedure

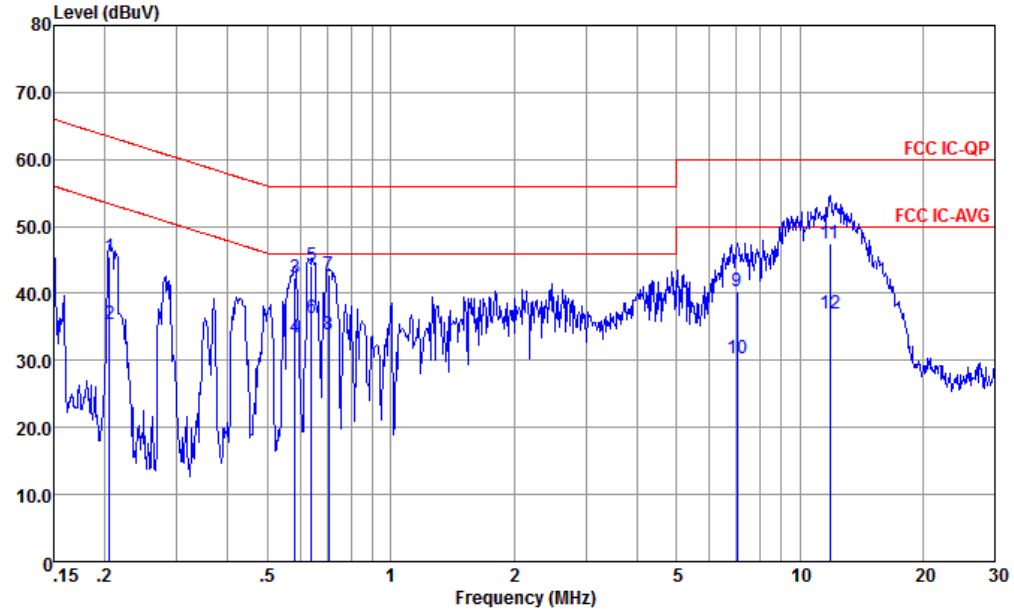
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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

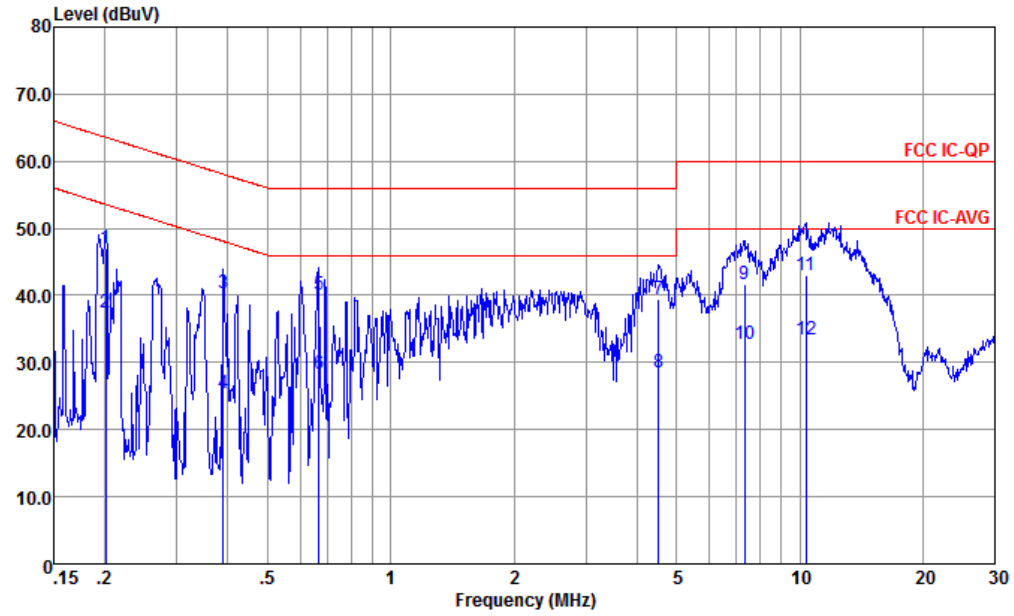
Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : FCC IC-QP LISN-060105-L 2024 LINE

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.205	45.49	-17.91	63.40	35.00	0.08	10.41	QP
2		0.205	35.39	-18.01	53.40	24.90	0.08	10.41	Average
3		0.582	42.36	-13.64	56.00	32.31	-0.13	10.18	QP
4		0.582	33.36	-12.64	46.00	23.31	-0.13	10.18	Average
5		0.641	44.02	-11.98	56.00	34.00	-0.14	10.16	QP
6	*	0.641	36.32	-9.68	46.00	26.30	-0.14	10.16	Average
7		0.705	42.69	-13.31	56.00	32.70	-0.15	10.14	QP
8		0.705	33.89	-12.11	46.00	23.90	-0.15	10.14	Average
9		7.025	40.34	-19.66	60.00	30.30	-0.22	10.26	QP
10		7.025	30.34	-19.66	50.00	20.30	-0.22	10.26	Average
11		11.870	47.36	-12.64	60.00	36.60	-0.21	10.97	QP
12		11.870	37.06	-12.94	50.00	26.30	-0.21	10.97	Average

Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		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 IC-QP LISN-060105-N 2024 NEUTRAL

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.201	46.93	-16.65	63.58	36.40	0.12	10.41	QP
2		0.201	37.53	-16.05	53.58	27.00	0.12	10.41	Average
3		0.389	40.25	-17.83	58.08	30.11	-0.14	10.28	QP
4		0.389	25.35	-22.73	48.08	15.21	-0.14	10.28	Average
5	*	0.668	40.09	-15.91	56.00	30.10	-0.16	10.15	QP
6		0.668	28.20	-17.80	46.00	18.21	-0.16	10.15	Average
7		4.525	39.45	-16.55	56.00	29.60	-0.21	10.06	QP
8		4.525	28.45	-17.55	46.00	18.60	-0.21	10.06	Average
9		7.329	41.72	-18.28	60.00	31.60	-0.19	10.31	QP
10		7.329	32.82	-17.18	50.00	22.70	-0.19	10.31	Average
11		10.342	43.04	-16.96	60.00	32.60	-0.27	10.71	QP
12		10.342	33.34	-16.66	50.00	22.90	-0.27	10.71	Average

Note:

1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
2. 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

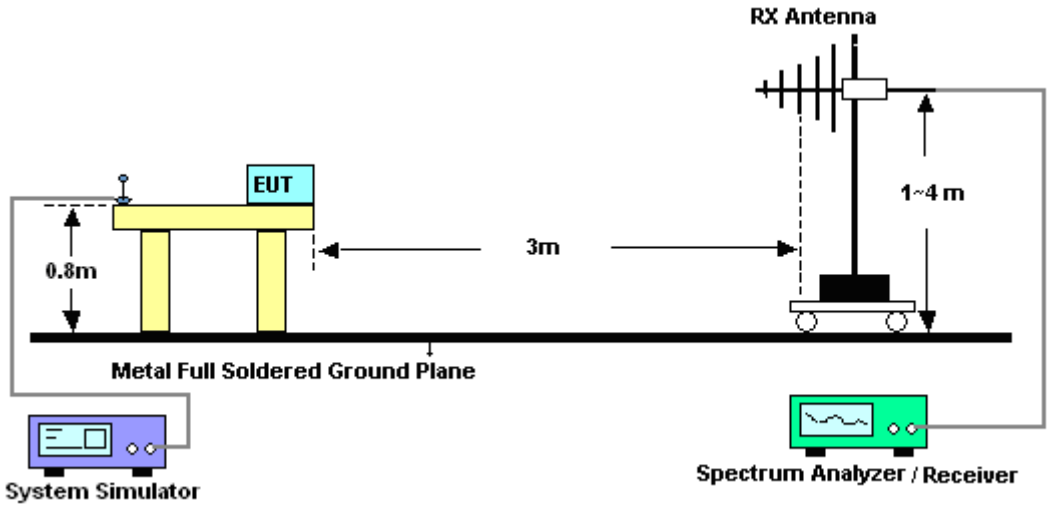
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

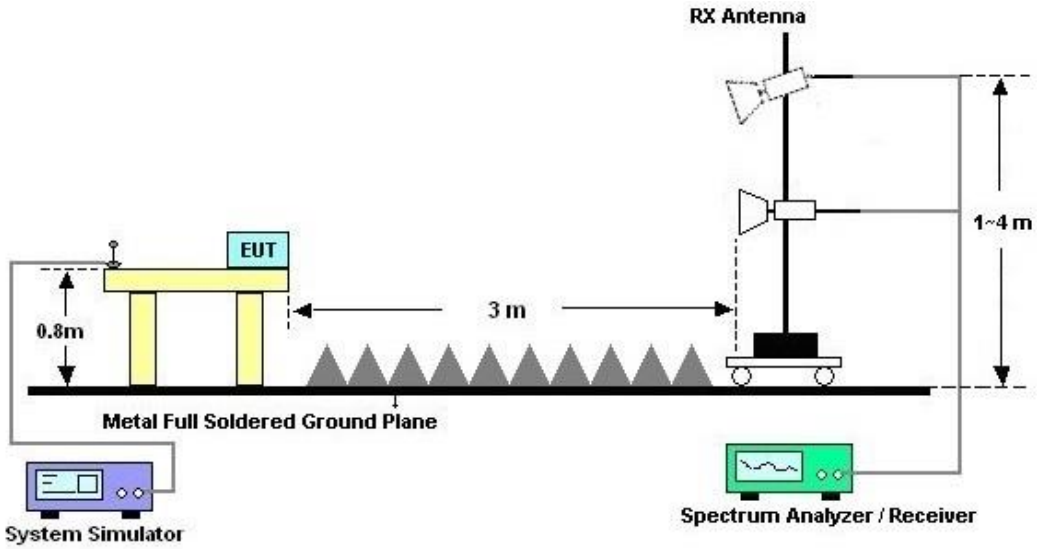
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna 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 (dBμV/m) = 20 log Emission level (μV/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

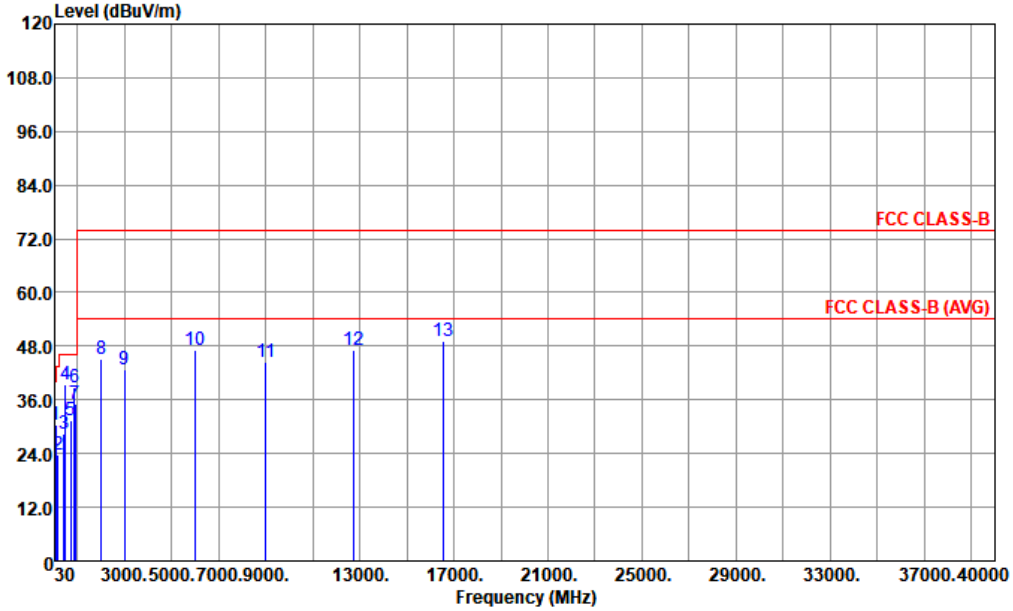


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

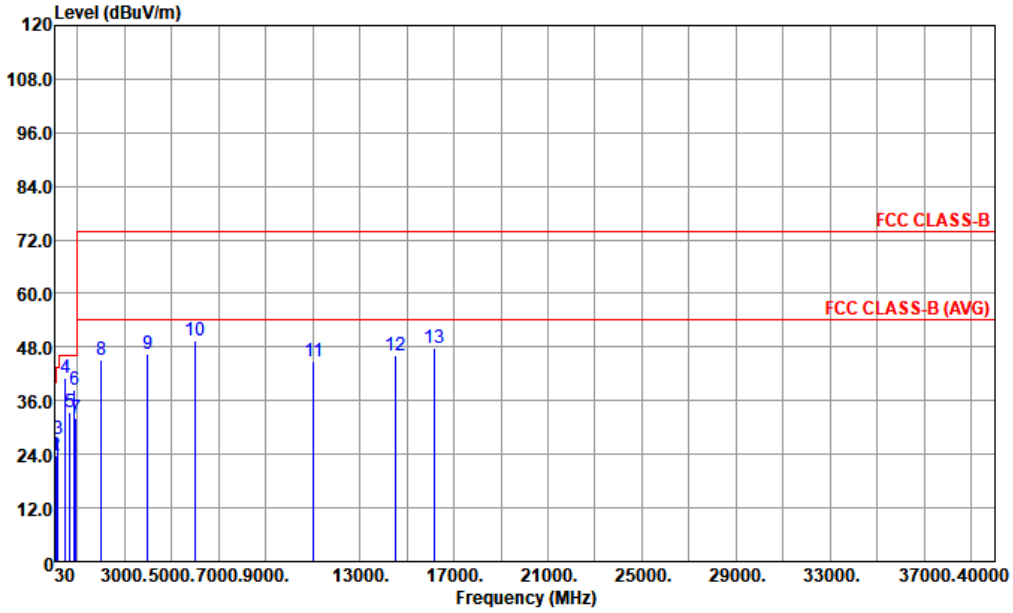
Test Engineer :	Levi Zhuo	**Temperature :**	21~22°C
		Relative Humidity :	41~42%
Test Distance :	3m	**Polarization :**	Horizontal
Remark :	#6 is system simulator signal which can be ignored.		



Site : 03CH07-KS
Condition : FCC CLASS-B 3m 3117 00240132 HORIZONTAL

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1		64.92	30.35	-9.65	40.00	49.66	11.82	0.98	32.11	---	---	Peak
2		183.26	23.71	-19.79	43.50	39.08	14.81	1.97	32.15	---	---	Peak
3		417.03	28.45	-17.55	46.00	35.05	22.54	2.98	32.12	---	---	Peak
4	p	480.08	39.56	-6.44	46.00	45.05	23.52	3.19	32.20	---	---	Peak
5		716.76	31.57	-14.43	46.00	32.65	27.17	3.91	32.16	---	---	Peak
6		886.51	38.85			36.71	29.16	4.34	31.36	---	---	Peak
7		900.09	35.13	-10.87	46.00	32.92	29.13	4.37	31.29	---	---	Peak
8		2003.00	45.29	-28.71	74.00	70.17	31.10	6.52	62.50	---	---	Peak
9		3006.00	42.75	-31.25	74.00	64.88	32.80	8.05	62.98	---	---	Peak
10		5981.00	47.05	-26.95	74.00	64.52	35.27	11.51	64.25	---	---	Peak
11		9007.00	44.36	-29.64	74.00	56.94	36.30	14.32	63.20	---	---	Peak
12		12747.00	46.99	-27.01	74.00	52.23	39.30	17.03	61.57	---	---	Peak
13		16521.00	49.08	-24.92	74.00	51.03	41.43	19.37	62.75	---	---	Peak

Test Engineer :	Levi Zhuo	**Temperature :**	21~22°C
		Relative Humidity :	41~42%
Test Distance :	3m	**Polarization :**	Vertical
Remark :	#6 is system simulator signal which can be ignored.		



Site : 03CH07-KS
Condition : FCC CLASS-B 3m 3117 00240132 VERTICAL

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.94	23.82	-16.18	40.00	31.56	23.91	0.52	32.17	---	---	Peak
2	69.77	23.89	-16.11	40.00	42.75	12.22	1.05	32.13	---	---	Peak
3	179.38	27.38	-16.12	43.50	42.60	14.97	1.95	32.14	---	---	Peak
4 p	480.08	40.98	-5.02	46.00	46.47	23.52	3.19	32.20	200	42	Peak
5	675.05	33.55	-12.45	46.00	35.50	26.48	3.80	32.23	---	---	Peak
6	886.51	38.32			36.18	29.16	4.34	31.36	---	---	Peak
7	940.83	32.23	-13.77	46.00	28.24	30.55	4.46	31.02	---	---	Peak
8	2003.00	45.29	-28.71	74.00	70.17	31.10	6.52	62.50	---	---	Peak
9	3992.00	46.54	-27.46	74.00	67.05	33.80	9.52	63.83	---	---	Peak
10	5981.00	49.37	-24.63	74.00	66.84	35.27	11.51	64.25	---	---	Peak
11	11030.00	44.76	-29.24	74.00	52.52	38.07	15.92	61.75	---	---	Peak
12	14515.00	46.24	-27.76	74.00	50.47	39.75	18.25	62.23	---	---	Peak
13	16164.00	47.76	-26.24	74.00	50.45	40.93	19.12	62.74	---	---	Peak

Note:

1. Level(dBμV/m) = Read Level(dBμV) + Antenna Factor(dB/m) + Cable Loss(dB) - Preamp Factor(dB)
2. 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 Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Max 30dBm	Oct. 11, 2023	Aug. 06, 2024 ~Aug. 08, 2024	Oct. 10, 2024	Radiation (03CH07-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55370528	10Hz-44G,MAX 30dB	Oct. 11, 2023	Aug. 06, 2024 ~Aug. 08, 2024	Oct. 10, 2024	Radiation (03CH07-KS)
Bilog Antenna	TeseQ	CBL6111D	59913	30MHz-1GHz	Aug. 19, 2023	Aug. 06, 2024 ~Aug. 08, 2024	Aug. 18, 2024	Radiation (03CH07-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 23, 2023	Aug. 06, 2024 ~Aug. 08, 2024	Oct. 22, 2024	Radiation (03CH07-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Oct. 15, 2023	Aug. 06, 2024 ~Aug. 08, 2024	Oct. 14, 2024	Radiation (03CH07-KS)
Amplifier	SONOMA	310N	413740	9KHz-1GHz	Jan. 03, 2024	Aug. 06, 2024 ~Aug. 08, 2024	Jan. 02, 2025	Radiation (03CH07-KS)
Amplifier	EM	EM01G18GA	060834	1Ghz-18Ghz	Oct. 11, 2023	Aug. 06, 2024 ~Aug. 08, 2024	Oct. 10, 2024	Radiation (03CH07-KS)
Amplifier	EM	EM18G40GGA	060851	18~40GHz	Jan. 03, 2024	Aug. 06, 2024 ~Aug. 08, 2024	Jan. 02, 2025	Radiation (03CH07-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Aug. 06, 2024 ~Aug. 08, 2024	NCR	Radiation (03CH07-KS)
Turn Table	EM	EM 1000-T	N/A	0~360 degree	NCR	Aug. 06, 2024 ~Aug. 08, 2024	NCR	Radiation (03CH07-KS)
Antenna Mast	EM	EM 1000-A	N/A	1 m~4 m	NCR	Aug. 06, 2024 ~Aug. 08, 2024	NCR	Radiation (03CH07-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr 18, 2024	Jul. 26, 2024	Apr 17, 2025	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 11, 2023	Jul. 26, 2024	Oct. 10, 2024	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Apr 18, 2024	Jul. 26, 2024	Apr 17, 2025	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 11, 2023	Jul. 26, 2024	Oct. 10, 2024	Conduction (CO01-KS)

NCR: No Calibration Required

5. Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.84dB**

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.06dB**

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.16dB**

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.28dB**

---------- THE END ----------