



FCC Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2421-5
FCC ID : IHDT56AR3
STANDARD : 47 CFR Part 15 Subpart B
CLASSIFICATION : Certification
TEST DATE(S) : Oct. 20, 2023 ~ Nov. 13, 2023

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.

This report contains data that were produced under subcontract by Sporton International Inc. (ShenZhen).

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



Sporton International Inc. (Kunshan)

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People's Republic of China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC381720	Rev. 01	Initial issue of report	Dec. 13, 2023

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 5.80 dB at 0.150 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 7.32 dB at 250.190 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/manufacture 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	XT2421-5
FCC ID	IHDT56AR3
EUT supports Radios application	GSM/WCDMA/LTE WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20 WLAN 5GHz 802.11ac VHT20 Bluetooth BR/EDR/LE GNSS/NFC/FM
IMEI Code	Conduction: 355031480011135/355031480011143 for sample 1 355031480002811/355031480002829 for sample 2 Radiation: 355031480002035/355031480002043 for sample 1 355031480011135/355031480011143 for sample 2
HW Version	DVT2
SW Version	ULA34.53
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 two types of EUT, the differences could be referred to the XT2421-5_Operational Description of Product Equality Declaration which is exhibit separately. According to the difference, we choose sample 1 to full test and the sample 2 is verified for the difference.

1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	GSM850: 824 MHz ~ 849 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 7 : 2500 MHz ~ 2570 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz 802.11b/g/n: 2400 MHz ~ 2483.5 MHz 802.11a/n/ac: 5150 MHz ~ 5250 MHz; 5250 MHz ~ 5350 MHz; 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz
Rx Frequency	GSM850: 869 MHz ~ 894 MHz WCDMA Band V: 869 MHz ~ 894 MHz LTE Band 5 : 869 MHz ~ 894 MHz LTE Band 7 : 2620 MHz ~ 2690 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz 802.11b/g/n: 2400 MHz ~ 2483.5 MHz 802.11a/n/ac: 5150 MHz ~ 5250 MHz; 5250 MHz ~ 5350 MHz; 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz GNSS : 1559 MHz ~ 1610 MHz FM : 87.5 MHz ~ 108 MHz
Antenna Type	WWAN : PIFA Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GNSS: PIFA Antenna NFC: Coil Antenna FM : External Earphone Antenna
Type of Modulation	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) 802.11a/g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : $\pi/4$ -DQPSK Bluetooth (3Mbps) : 8-DPSK GNSS : BPSK NFC: ASK FM



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-101
AC Adapter 1(EU)	Brand Name	Motorola (Salcomp)	Model Name	MC-102
AC Adapter 1(UK)	Brand Name	Motorola (Salcomp)	Model Name	MC-103
AC Adapter 1(AU)	Brand Name	Motorola (Salcomp)	Model Name	MC-105
AC Adapter 1(CHILE)	Brand Name	Motorola (Salcomp)	Model Name	MC-109
AC Adapter 2(US)	Brand Name	Motorola (chenyang)	Model Name	MC-101
AC Adapter 2(EU)	Brand Name	Motorola (chenyang)	Model Name	MC-102
AC Adapter 2(UK)	Brand Name	Motorola (chenyang)	Model Name	MC-103
AC Adapter 2(AU)	Brand Name	Motorola (chenyang)	Model Name	MC-105
AC Adapter 3(US)	Brand Name	Motorola (aohai)	Model Name	MC-101
AC Adapter 3(EU)	Brand Name	Motorola (aohai)	Model Name	MC-102
AC Adapter 3(UK)	Brand Name	Motorola (aohai)	Model Name	MC-103
AC Adapter 3(AU)	Brand Name	Motorola (aohai)	Model Name	MC-105
Battery 1	Brand Name	Motorola (ATL)	Model Name	QF50
Battery 2	Brand Name	Motorola (Sunwoda)	Model Name	QF50
Earphone 1	Brand Name	Motorola (New leader)	Model Name	NLD-EM313A-20SF
Earphone 2	Brand Name	Motorola (JWELL)	Model Name	JWEP1205-L20H
USB Cable 1	Brand Name	Motorola (JWELL)	Model Name	JWUB1631-L20H
USB Cable 2	Brand Name	Motorola (Saibao)	Model Name	SLQ-A238A

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

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CO01-SZ	CN1256	421272

Test data subcontracted: Test cases in section 3.1 of this report.

1.8. Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH07-KS	AUDIX	E3	210616
2.	CO01-KS	AUDIX	E3	6.2009-8-24
3.	CO01-SZ	AUDIX	E3	6.120613b

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

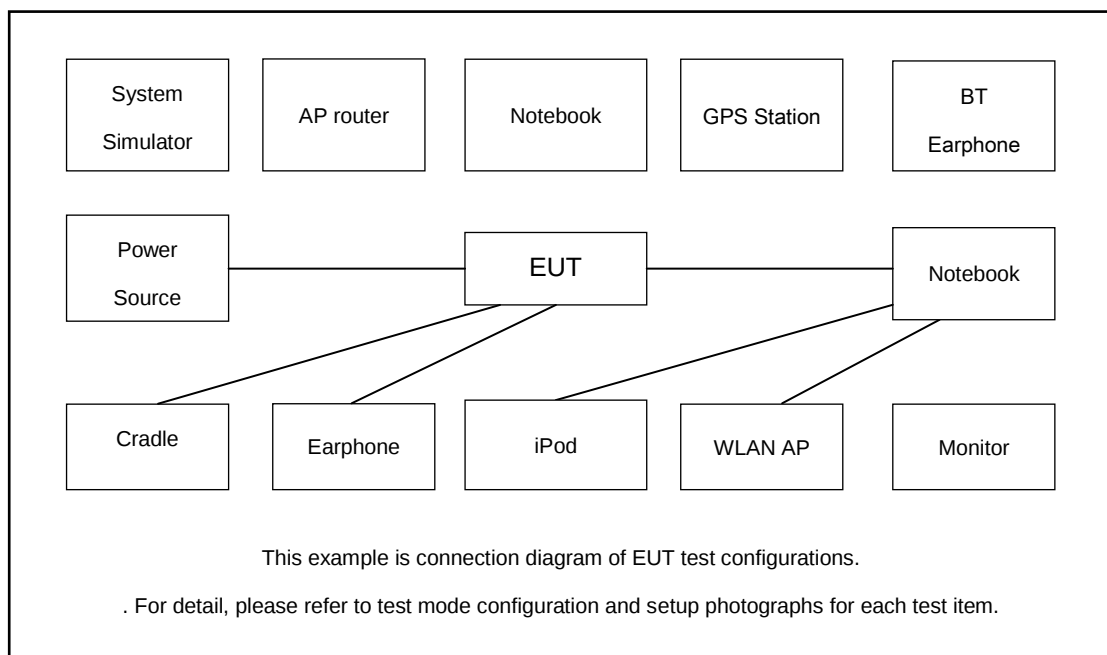
The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

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 CH) + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Earphone 1 + Battery 1 + USB Cable 1(Charging from Adapter 1) + SIM 1 for Sample 1
	Mode 2: WCDMA 850 Rx(Low CH) + Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + Earphone 2 + Battery 1 + USB Cable 2(Charging from Adapter 2) + SIM 2 for Sample 1
	Mode 3: WCDMA 850 Rx(High CH) + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + Earphone 1 + Battery 1 + USB Cable 1(Charging from Adapter 3) + SIM 1 for Sample 1
	Mode 4: LTE Band 5 Rx(High CH) + Bluetooth Idle + WLAN (5G) Idle + FM Rx(98) + Earphone 2 + Battery 1 + USB Cable 1(Data Link with Notebook) + EUT (eMMC) USB Data Link to PC/NB + SIM 2 for Sample 1
	Mode 5: LTE Band 5 Rx(Low CH) + Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + Earphone 2 + Battery 1 + USB Cable 1(Data Link with Notebook) + PC/NB USB Data Link to EUT (eMMC) + SIM 1 for Sample 1
	Mode 6: LTE Band 5 Rx(Middle CH) + Bluetooth Idle + WLAN (5G) Idle + NFC Tx + Earphone 2 + Battery 1 + USB Cable 1(Data Link with Notebook) + EUT (SD) USB Data Link to PC/NB + SIM 2 for Sample 1
	Mode 7: LTE Band 5 Rx(Low CH) + Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + Earphone 2 + Battery 1 + USB Cable 1(Data Link with Notebook) + PC/NB USB Data Link to EUT (SD) + SIM 1 for Sample 1
	Mode 8: LTE Band 5 Rx(Low CH) + Bluetooth Idle + WLAN (5G) Idle + GNSS Rx + Earphone 2 + Battery 1 + USB Cable 2(Data Link with Notebook) + PC/NB USB Data Link to EUT (SD) + SIM 2 for Sample 1
	Mode 9: WCDMA 850 Rx(Low CH) + Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + Earphone 2 + Battery 2 + USB Cable 2(Charging from Adapter 2) + SIM 2 for Sample 2
	Mode 10: LTE Band 5 Rx(Low CH) + Bluetooth Idle + WLAN (5G) Idle + GNSS Rx + Earphone 2 + Battery 1 + USB Cable 2(Data Link with Notebook) + PC/NB USB Data Link to EUT (SD) + SIM 2 for Sample 2

Radiated Emissions	Mode 1: GSM 850 Rx(Middle CH) + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Earphone 1 + Battery 1 + USB Cable 1(Charging from Adapter 1) + SIM 1 for Sample 1 Mode 2: WCDMA 850 Rx(Low CH) + Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + Earphone 2 + Battery 1 + USB Cable 2(Charging from Adapter 2) + SIM 2 for Sample 1 Mode 3: WCDMA 850 Rx(High CH) + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + Earphone 1 + Battery 1 + USB Cable 1(Charging from Adapter 3) + SIM 1 for Sample 1 Mode 4: LTE Band 5 Rx(High CH) + Bluetooth Idle + WLAN (5G) Idle + FM Rx(88) + Earphone 2 + Battery 1 + USB Cable 1(Data Link with Notebook) + EUT (eMMC) USB Data Link to PC/NB + SIM 2 for Sample 1 Mode 5: LTE Band 5 Rx(Low CH) + Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + Earphone 1 + Battery 1 + USB Cable 1(Data Link with Notebook) + PC/NB USB Data Link to EUT (eMMC) + SIM 1 for Sample 1 Mode 6: LTE Band 5 Rx(Middle CH) + Bluetooth Idle + WLAN (5G) Idle + NFC on + Earphone 1 + Battery 1 + USB Cable 1(Data Link with Notebook) + EUT (SD) USB Data Link to PC/NB + SIM 2 for Sample 1 Mode 7: LTE Band 5 Rx(Middle CH) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Earphone 1 + Battery 1 + USB Cable 1(Data Link with Notebook) + PC/NB USB Data Link to EUT (SD) + SIM 1 for Sample 1 Mode 8: LTE Band 5 Rx(Middle CH) + Bluetooth Idle + WLAN (5G) Idle + NFC On + Earphone 1 + Battery 1 + USB Cable 2(Data Link with Notebook) + PC/NB USB Data Link to EUT (SD) + SIM 2 for Sample 1 Mode 9: GSM 850 Rx(Middle CH) + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Earphone 1 + Battery 2 + USB Cable 1(Charging from Adapter 1) + SIM 1 for Sample 2 Mode 10: LTE Band 5 Rx(Middle CH) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Earphone 1 + Battery 2 + USB Cable 1(Data Link with Notebook) + PC/NB USB Data Link to EUT (SD) + SIM 1 for Sample 2
Remark: 1. The worst case of AC is mode 8; 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 for GSM 850/WCDMA Band V / LTE Band 5 and FM Rx, 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.	Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
3.	GNSS Station	Labsat	RLLS03-2P	N/A	N/A	Unshielded,1.8m
4.	WLAN AP	D-Link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
5.	WLAN AP	D-Link	DIR-820L	KA21R820LA1	N/A	Unshielded,1.8m
6.	Bluetooth Earphone	Samsung	EO-MG900	N/A	N/A	N/A
7.	Bluetooth Earphone	Lenovo	thinkplus-BH3	N/A	N/A	N/A
8.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P : Unshielded, 1.2m DC O/P : Shielded, 1.8m
9.	Notebook	Lenovo	G480	QDS-BRCM1050 I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
10.	Vector Signal Generator	R&S	SMBV100A	N/A	N/A	Unshielded,1.8m
11.	SD Card	Kingston	8GB	N/A	N/A	N/A
12.	Hard Disk	Lenovo	F310	N/A	Shielded,1.2m	N/A
13.	Iopd	apple	MC69029/A	N/A	Shielded,1.2m	N/A
14.	NFC Card	N/A	N/A	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.
6. 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.

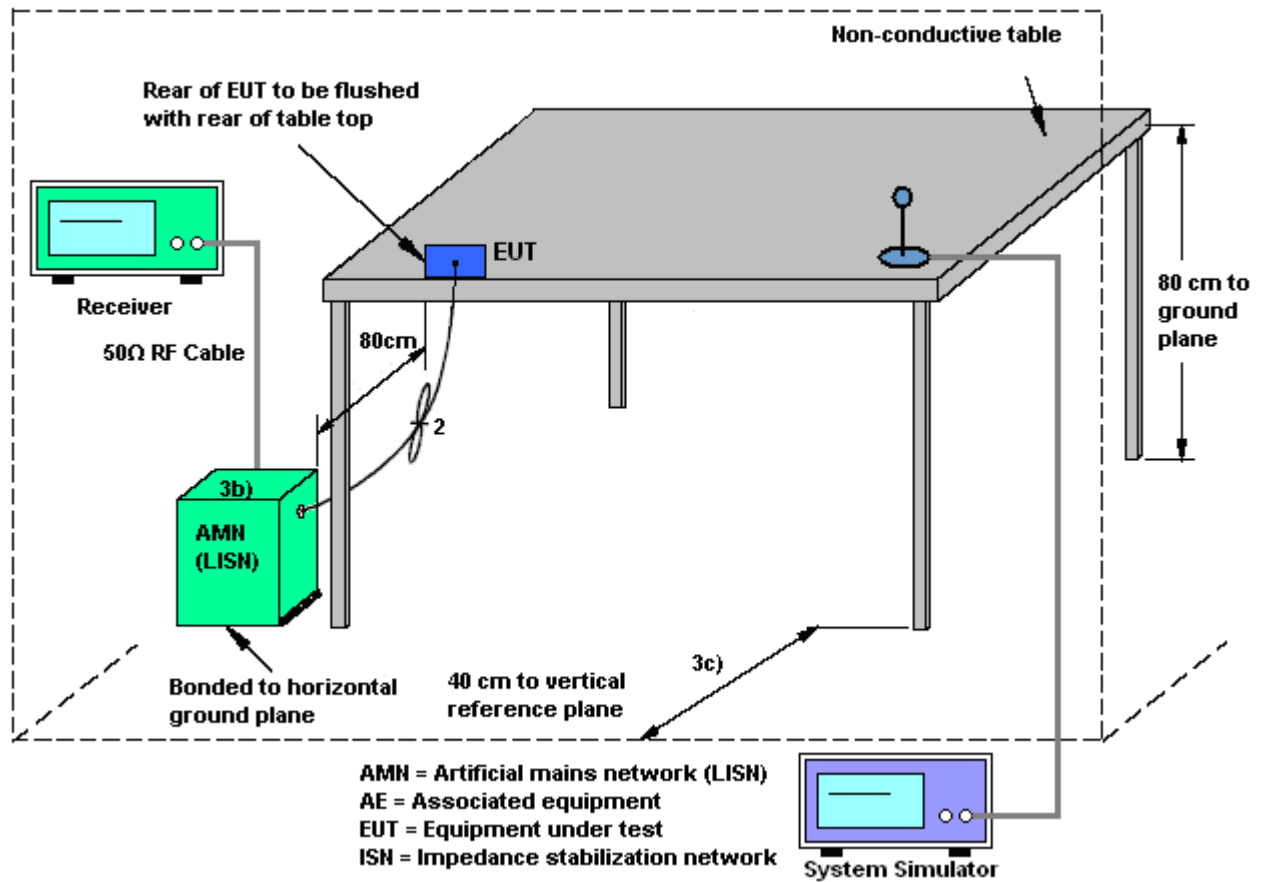
3.1.2 Measuring Instruments

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.

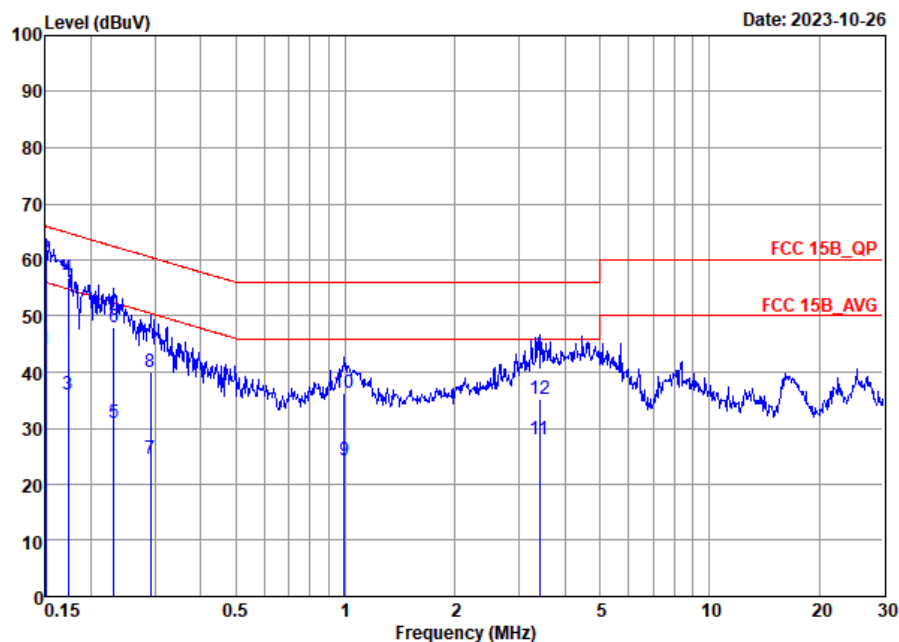
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

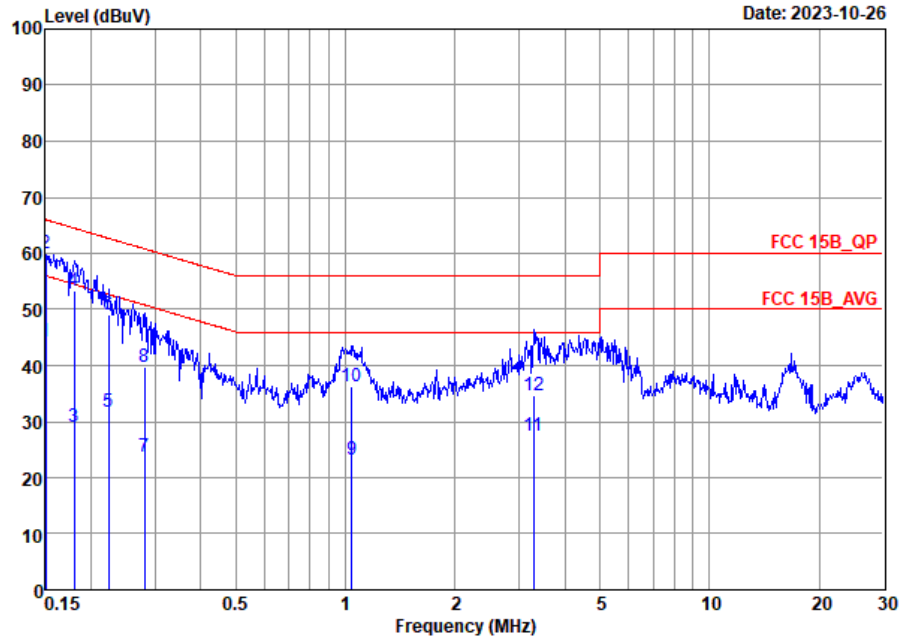
Test Engineer :	Lily Qiu	Temperature :	22~24°C
		Relative Humidity :	44~50%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
Condition: FCC 15B_QP LISN_20230420_L LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	44.00	-12.00	56.00	23.40	10.47	10.13	Average
2 *	0.15	60.20	-5.80	66.00	39.60	10.47	10.13	QP
3	0.17	36.11	-18.70	54.81	15.50	10.47	10.14	Average
4	0.17	56.91	-7.90	64.81	36.30	10.47	10.14	QP
5	0.23	30.94	-21.45	52.39	10.40	10.39	10.15	Average
6	0.23	48.04	-14.35	62.39	27.50	10.39	10.15	QP
7	0.29	24.43	-26.07	50.50	3.91	10.37	10.15	Average
8	0.29	40.13	-20.37	60.50	19.61	10.37	10.15	QP
9	0.99	24.20	-21.80	46.00	3.80	10.24	10.16	Average
10	0.99	36.40	-19.60	56.00	16.00	10.24	10.16	QP
11	3.42	28.08	-17.92	46.00	7.70	10.08	10.30	Average
12	3.42	35.18	-20.82	56.00	14.80	10.08	10.30	QP

Test Engineer :	Lily Qiu	Temperature :	22~24°C
		Relative Humidity :	44~50%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ
Condition: FCC 15B_QP LISN_20230420_N NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.15	44.29	-11.71	56.00	23.70	10.46	10.13	Average
2 *	0.15	59.89	-6.11	66.00	39.30	10.46	10.13	QP
3	0.18	28.95	-25.55	54.50	8.41	10.40	10.14	Average
4	0.18	53.45	-11.05	64.50	32.91	10.40	10.14	QP
5	0.22	31.79	-20.91	52.70	11.30	10.34	10.15	Average
6	0.22	48.99	-13.71	62.70	28.50	10.34	10.15	QP
7	0.28	23.67	-27.14	50.81	3.21	10.31	10.15	Average
8	0.28	39.77	-21.04	60.81	19.31	10.31	10.15	QP
9	1.04	23.31	-22.69	46.00	2.90	10.25	10.16	Average
10	1.04	36.21	-19.79	56.00	15.80	10.25	10.16	QP
11	3.29	27.35	-18.65	46.00	6.90	10.15	10.30	Average
12	3.29	34.65	-21.35	56.00	14.20	10.15	10.30	QP

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

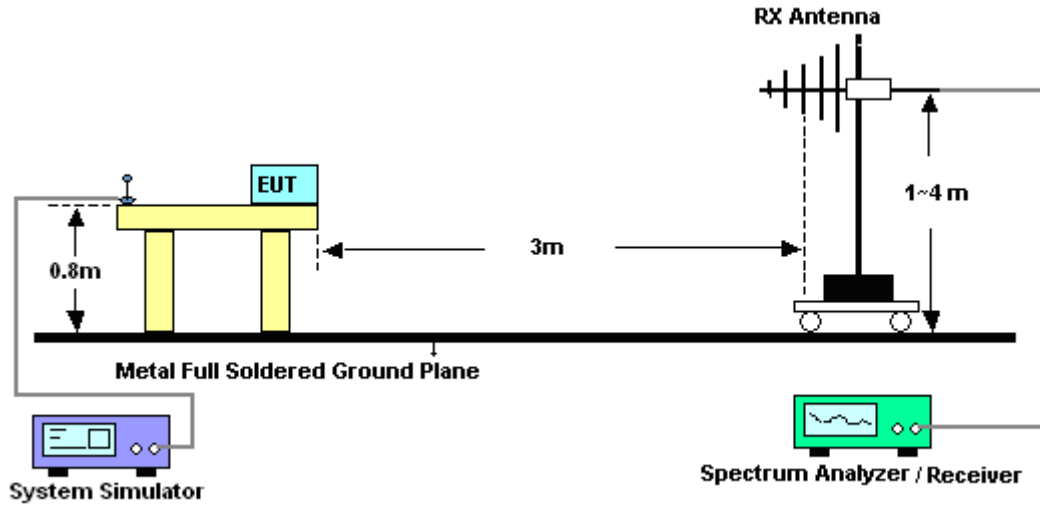
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

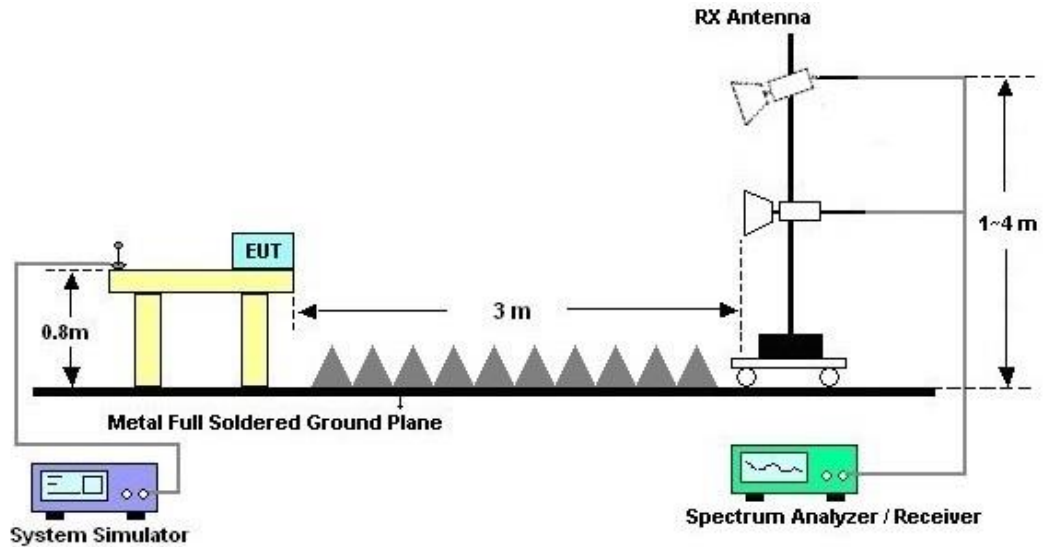
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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



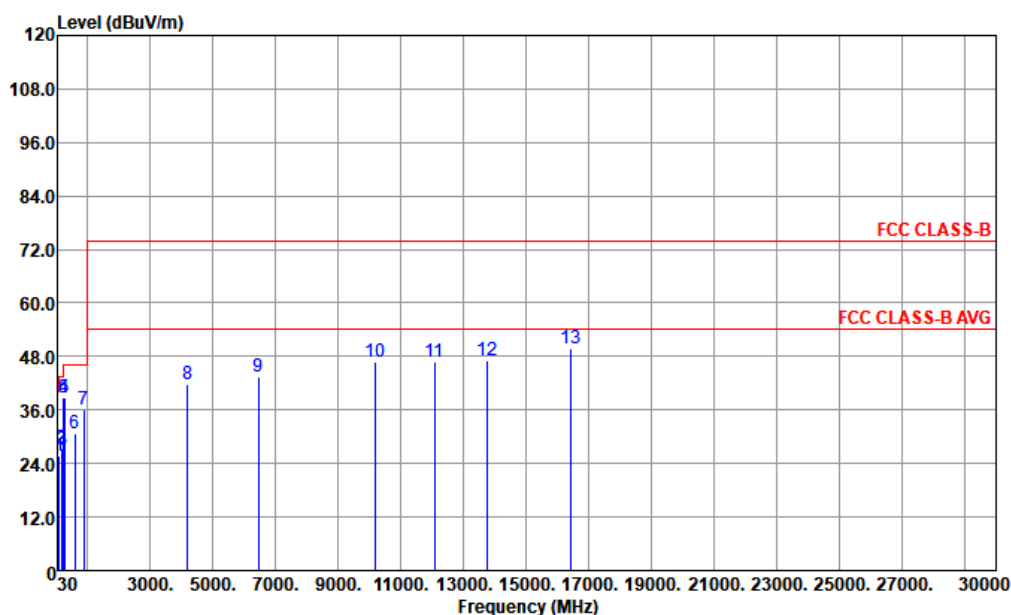
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

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

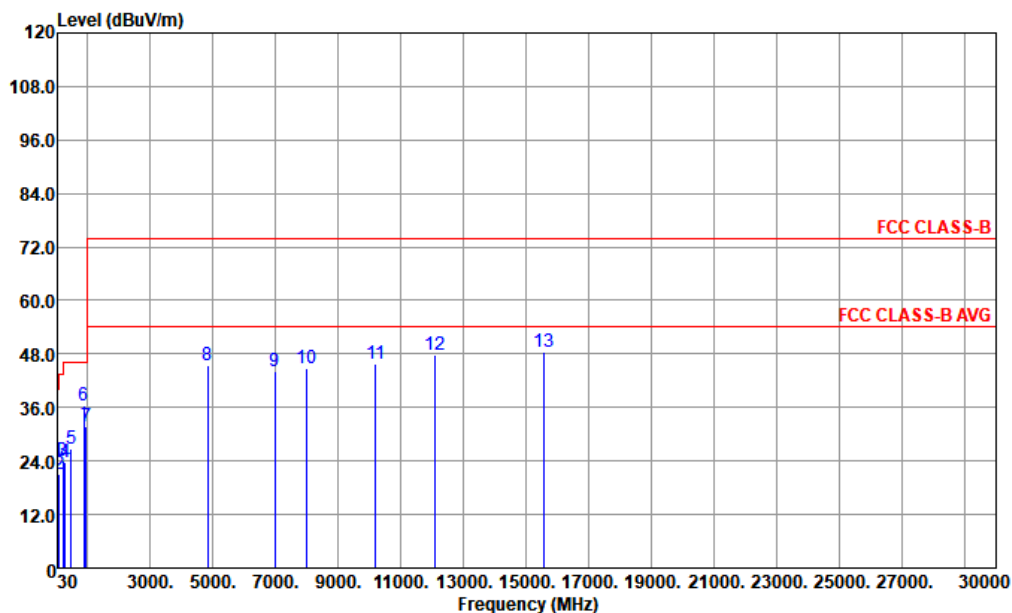


Site : 03CH07-KS
Condition : FCC CLASS-B 3m 3117 SN00240138 HORIZONTAL

	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	87.23	25.89	-14.11	40.00	42.46	14.22	1.28	32.07	---	---	Peak
2	162.89	27.56	-15.94	43.50	41.90	15.90	1.85	32.09	---	---	Peak
3	198.78	27.23	-16.27	43.50	42.65	14.71	2.06	32.19	---	---	Peak
4	234.67	38.61	-7.39	46.00	51.90	16.57	2.23	32.09	---	---	Peak
5 p	250.19	38.68	-7.32	46.00	49.98	18.45	2.30	32.05	---	---	Peak
6	584.84	30.84			33.72	25.96	3.52	32.36	---	---	Peak
7	881.66	36.01	-9.99	46.00	34.13	28.94	4.32	31.38	---	---	Peak
8	4179.00	41.71	-32.29	74.00	63.20	33.53	9.62	64.64	---	---	Peak
9	6457.00	43.54	-30.46	74.00	60.70	35.37	11.95	64.48	---	---	Peak
10	10163.00	46.63	-27.37	74.00	57.10	37.17	15.45	63.09	---	---	Peak
11	12084.00	46.73	-27.27	74.00	53.62	38.83	16.47	62.19	---	---	Peak
12	13750.00	47.02	-26.98	74.00	54.04	38.75	17.81	63.58	---	---	Peak
13	16436.00	49.70	-24.30	74.00	54.58	41.49	19.31	65.68	---	---	Peak



Test Engineer :	Feng Li	Temperature :	21~22°C
		Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH07-K5
Condition : FCC CLASS-B 3m 3117 SN00240138 VERTICAL

	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	43.58	24.18	-15.82	40.00	38.25	17.36	0.68	32.11	---	Peak
2	86.26	21.21	-18.79	40.00	37.90	14.10	1.27	32.06	---	Peak
3	198.78	24.17	-19.33	43.50	39.59	14.71	2.06	32.19	---	Peak
4	268.62	23.75	-22.25	46.00	34.19	19.23	2.39	32.06	---	Peak
5	480.08	26.84	-19.16	46.00	32.53	23.32	3.19	32.20	---	Peak
6 p	881.66	36.57	-9.43	46.00	34.69	28.94	4.32	31.38	---	Peak
7	941.80	31.69			28.22	30.02	4.46	31.01	---	Peak
8	4825.00	45.62	-28.38	74.00	66.08	33.98	10.31	64.75	---	Peak
9	6984.00	44.14	-29.86	74.00	59.58	35.59	12.58	63.61	---	Peak
10	7987.00	44.85	-29.15	74.00	59.62	35.79	13.46	64.02	---	Peak
11	10180.00	45.64	-28.36	74.00	56.08	37.18	15.46	63.08	---	Peak
12	12067.00	47.87	-26.13	74.00	54.75	38.83	16.46	62.17	---	Peak
13	15569.00	48.59	-25.41	74.00	55.15	40.11	18.78	65.45	---	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 Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Max 30dBm	Oct. 10, 2023	Oct. 20, 2023 ~Nov. 08, 2023	Oct. 09, 2024	Radiation (03CH07-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55370528	10Hz~44G,MAX 30dB	Oct. 10, 2023	Oct. 20, 2023 ~Nov. 08, 2023	Oct. 09, 2024	Radiation (03CH07-KS)
Bilog Antenna	TeseQ	CBL6111D	59913	30MHz~1GHz	Aug. 12, 2023	Oct. 20, 2023 ~Nov. 08, 2023	Aug. 11, 2024	Radiation (03CH07-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218642	1GHz~18GHz	Apr. 06, 2023	Oct. 20, 2023 ~Nov. 08, 2023	Apr. 05, 2024	Radiation (03CH07-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Oct. 16, 2023	Oct. 20, 2023 ~Nov. 08, 2023	Oct. 15, 2024	Radiation (03CH07-KS)
Amplifier	EM	EM18G40G GA	060851	18~40GHz	Jan. 05, 2023	Oct. 20, 2023 ~Nov. 08, 2023	Jan. 04, 2024	Radiation (03CH07-KS)
Amplifier	SONOMA	310N	413741	9KHz~1GHz	Jan. 05, 2023	Oct. 20, 2023 ~Nov. 08, 2023	Jan. 04, 2024	Radiation (03CH07-KS)
Amplifier	EM	EM01G18GA	060834	1Ghz~18Ghz	Oct. 10, 2023	Oct. 20, 2023 ~Nov. 08, 2023	Oct. 09, 2024	Radiation (03CH07-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Oct. 20, 2023 ~Nov. 08, 2023	NCR	Radiation (03CH07-KS)
Turn Table	EM	EM 1000-T	N/A	0~360 degree	NCR	Oct. 20, 2023 ~Nov. 08, 2023	NCR	Radiation (03CH07-KS)
Antenna Mast	EM	EM 1000-A	N/A	1 m~4 m	NCR	Oct. 20, 2023 ~Nov. 08, 2023	NCR	Radiation (03CH07-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	May 16, 2023	Nov. 13, 2023	May 15, 2024	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 11, 2023	Nov. 13, 2023	Oct. 10, 2024	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	May 16, 2023	Nov. 13, 2023	May 15, 2024	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 11, 2023	Nov. 13, 2023	Oct. 10, 2024	Conduction (CO01-KS)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Jul. 06, 2023	Oct. 26, 2023	Jul. 05, 2024	Conduction (CO01-SZ)
AC LISN	R&S	ENV216	100063	9kHz~30MHz	Aug. 21, 2023	Oct. 26, 2023	Aug. 20, 2024	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 16, 2023	Oct. 26, 2023	Oct. 15, 2024	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 07, 2023	Oct. 26, 2023	Jul. 06, 2024	Conduction (CO01-SZ)

NCR: No Calibration Required

5. Measurement Uncertainty

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz) CO01-KS

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.94dB
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Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz) CO01-SZ

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.70dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.20dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.86dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.24dB
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