



FCC Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2503-4, XT2505-1
FCC ID : IHDT56AU8
STANDARD : 47 CFR Part 15 Subpart B
CLASSIFICATION : Certification
TEST DATE(S) : Jan. 12, 2025 ~ Jan. 20, 2025

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



Sporton International Inc. (Kunshan)

**No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China**



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC4D1311-01	Rev. 01	Initial issue of report	Feb. 07, 2025



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 6.52 dB at 0.156 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 3.14 dB at 61.04 MHz for Quasi-peak

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	XT2503-4, XT2505-1
FCC ID	IHDT56AU8
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 WLAN 5GHz 802.11ax HE20/HE40/HE80 Bluetooth BR/EDR/LE GNSS/NFC
IMEI Code	Conduction/Radiation: 357706750006158/357706750006166 for Sample 1 358065190002973/358065190002981 for Sample 2
HW Version	DVT2
SW Version	V2VC35.13
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, model name: XT2503-4 is sample 1 and model name: XT2505-1 is sample 2, the differences could be referred to the XT2503-4, XT2505-1_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 GSM1900: 1850MHz ~ 1910MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2 : 1850 MHz ~ 1910 MHz LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 7 : 2500 MHz ~ 2570 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 71 : 663 MHz ~ 698 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n26 : 814 MHz ~ 849 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n71 : 663 MHz ~ 698 MHz 5G NR n77 : 3700 MHz ~ 3980 MHz; 5G NR n78 : 3700 MHz ~ 3800 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 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 V: 869 MHz ~ 894 MHz LTE Band 2 : 1930 MHz ~ 1990 MHz LTE Band 5 : 869 MHz ~ 894 MHz LTE Band 7 : 2620 MHz ~ 2690 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 71 : 617 MHz ~ 652 MHz 5G NR n5 : 869 MHz ~ 894 MHz 5G NR n7 : 2620 MHz ~ 2690 MHz 5G NR n26 : 859 MHz ~ 894 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n71 : 617 MHz ~ 652 MHz 5G NR n77 : 3700 MHz ~ 3980 MHz; 5G NR n78 : 3700 MHz ~ 3800 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 Bluetooth: 2400 MHz ~ 2483.5 MHz NFC : 13.56 MHz GNSS : 1559 MHz ~ 1610 MHz
Antenna Type	WWAN : PIFA Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GNSS: PIFA Antenna NFC: Loop 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 / 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) : $\pi/4$ -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. 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

1.7. Test Software

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

1.8. 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.

1.9. Specification of Accessory

Accessories Information				
AC Adapter 1(US)	Brand Name	Motorola(Chenyang)	Model Name	MC-681N
AC Adapter 1(EU)	Brand Name	Motorola(Chenyang)	Model Name	MC-682N
AC Adapter 1(UK)	Brand Name	Motorola(Chenyang)	Model Name	MC-683N
AC Adapter 1(AU)	Brand Name	Motorola(Chenyang)	Model Name	MC-685N
AC Adapter 1(AR)	Brand Name	Motorola(Chenyang)	Model Name	MC-686N
AC Adapter 1(BR)	Brand Name	Motorola(Chenyang)	Model Name	MC-687N
AC Adapter 1(CHILE)	Brand Name	Motorola(Chenyang)	Model Name	MC-689N
AC Adapter 2(US)	Brand Name	Motorola(Acbel)	Model Name	MC-681N
AC Adapter 2(EU)	Brand Name	Motorola(Acbel)	Model Name	MC-682N
AC Adapter 2(UK)	Brand Name	Motorola(Acbel)	Model Name	MC-683N
AC Adapter 2(AU)	Brand Name	Motorola(Acbel)	Model Name	MC-685N
AC Adapter 2(AR)	Brand Name	Motorola(Acbel)	Model Name	MC-686N
AC Adapter 2(BR)	Brand Name	Motorola(Acbel)	Model Name	MC-687N
AC Adapter 2(CHILE)	Brand Name	Motorola(Acbel)	Model Name	MC-689N
Battery 1	Brand Name	Motorola(ATL)	Model Name	RM52
Battery 2	Brand Name	Motorola(Cosmx)	Model Name	RM52
Earphone	Brand Name	Motorola(Lyand)	Model Name	MI181C
USB Cable 1	Brand Name	Motorola(saibao)	Model Name	SC18D71644
USB Cable 2	Brand Name	Motorola(Luxshare)	Model Name	SC18E08104
USB Cable 3	Brand Name	Motorola(saibao)	Model Name	SC18D86731
USB Cable 4	Brand Name	Motorola(Luxshare)	Model Name	SC18E08103

2. Test Configuration of Equipment Under Test

2.1. Test Mode

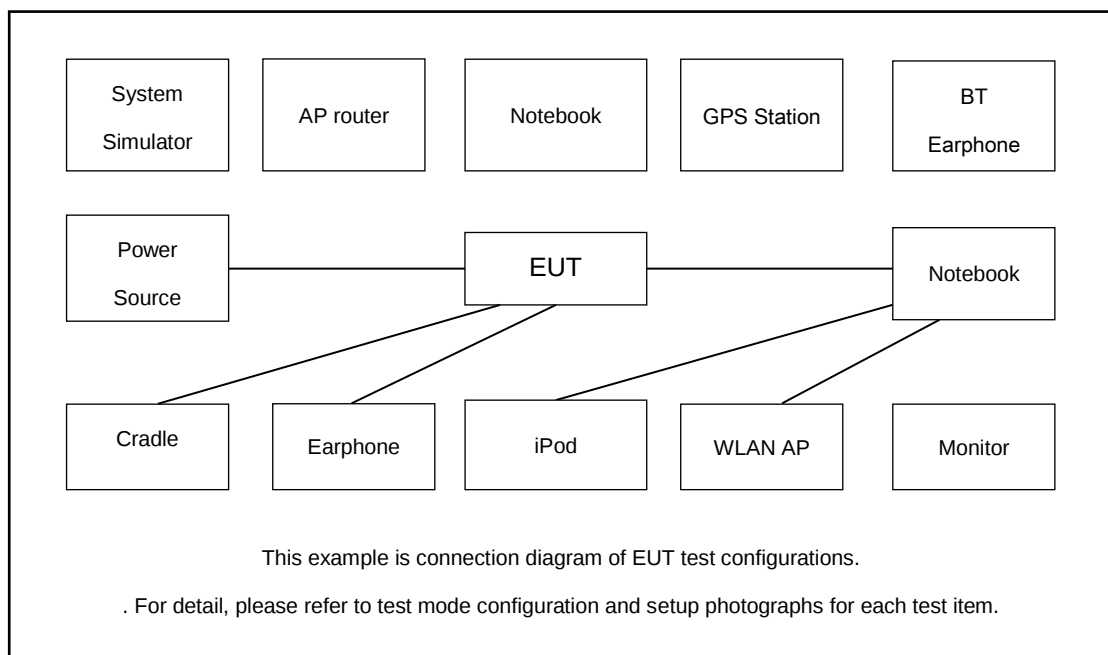
The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

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 Idle + WLAN (2.4G) Idle + NFC On + Battery 1 + USB Cable 1 (Charging from Adapter 1) + SIM 1 for Sample 1
	Mode 2: WCDMA Band II Rx + Bluetooth Idle + WLAN (5G) Idle + Camera(Rear) + Battery 1 + USB Cable 2 (Charging from Adapter 2) + SIM 2 for Sample 1
	Mode 3: LTE Band 7 Rx(High) + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Front) + Battery 1 + USB Cable 3 (Charging from Adapter 1) + SIM 1 for Sample 1
	Mode 4: LTE Band 26 Rx(Low) + Bluetooth Idle + WLAN (5G) Idle + MPEG4(Run Color Bar) + Battery 1 + USB Cable 4 (Charging from Adapter 1) + SIM 1 for Sample 1
	Mode 5: LTE Band 38 Rx(High) + Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + Battery 1 + USB Cable 1(Charging from Adapter 1) + SIM 1 for Sample 1
	Mode 6: 5G NR n5 Rx(Middle) + Bluetooth Idle + WLAN (5G) Idle + NFC On + Battery 1 + USB Cable 1 (Data Link with Notebook) + EUT (eMMC) USB Data Link to PC/NB + SIM 1 for Sample 1
	Mode 7: 5G NR n71 Rx(Middle) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery 1 + USB Cable 1 (Data Link with Notebook) + PC/NB USB Data Link to EUT (eMMC) + SIM 1 for Sample 1
	Mode 8: 5G NR n5 Rx(Middle) + Bluetooth Idle + WLAN (5G) Idle + NFC On + Battery 1 + USB Cable 1 (Data Link with Notebook) + EUT (SD) USB Data Link to PC/NB + SIM 1 for Sample 1
	Mode 9: 5G NR n5 Rx(Middle) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery 1 + USB Cable 1 (Data Link with Notebook) + PC/NB USB Data Link to EUT (SD) + SIM 1 for Sample 1
	Mode 10 : 5G NR n5 Rx(Middle) + Bluetooth Idle + WLAN (5G) Idle + NFC On + Battery 1 + USB Cable 2 (Data Link with Notebook) + EUT (eMMC) USB Data Link to PC/NB + SIM 1 for Sample 1
	Mode 11 : 5G NR n5 Rx(Middle) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery 1 + USB Cable 3 (Data Link with Notebook) + EUT (eMMC) USB Data Link to PC/NB + SIM 1 for Sample 1
	Mode 12 : 5G NR n5 Rx(Middle) + Bluetooth Idle + WLAN (5G) Idle + NFC On + Battery 1 + USB Cable 4 (Data Link with Notebook) + EUT (eMMC) USB Data Link to PC/NB + SIM 1 for Sample 1
	Mode 13 : 5G NR n5 Rx(Middle) + Bluetooth Idle + WLAN (5G) Idle + Camera(Rear) + Battery 1 + USB Cable 1 (Charging from Adapter 1) + SIM 1 for Sample 2
	Mode 14 : 5G NR n5 Rx(Middle) + Bluetooth Idle + WLAN (5G) Idle + Camera(Rear) + Battery 1 + USB Cable 1 (Data Link with Notebook) + EUT (eMMC) USB Data Link to PC/NB + SIM 1 for Sample 2

Radiated Emissions	Mode 1: GSM 850 Rx(Middle) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery 1 + USB Cable 1 (Charging from Adapter 1) + SIM 1 for Sample 1 Mode 2: WCDMA Band II Rx + Bluetooth Idle + WLAN (5G) Idle + Camera(Rear) + Battery 1 + USB Cable 2 (Charging from Adapter 2) + SIM 2 for Sample 1 Mode 3: LTE Band 7 Rx(High) + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Front) + Battery 1 + USB Cable 3 (Charging from Adapter 1) + SIM 2 for Sample 1 Mode 4: LTE Band 26 Rx(Low) + Bluetooth Idle + WLAN (5G) Idle + MPEG4(Run Color Bar) + Battery 1 + USB Cable 4 (Charging from Adapter 2) + SIM 2 for Sample 1 Mode 5: LTE Band 38 Rx(High) + Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + Earphone + Battery 1 + SIM 2 for Sample 1 Mode 6: 5G NR n5 Rx (Middle) + Bluetooth Idle + WLAN (5G) Idle + MPEG4(Run Color Bar) + Battery 1 + USB Cable 1 (Data Link with Notebook) + EUT (eMMC) USB Data Link to PC/NB + SIM 2 for Sample 1 Mode 7: 5G NR n71 Rx (Middle) + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + Battery 1 + USB Cable 1 (Data Link with Notebook) + PC/NB USB Data Link to EUT (eMMC) + SIM 2 for Sample 1 Mode 8: LTE Band 26 Rx (Low) + Bluetooth Idle + WLAN (5G) Idle + MPEG4(Run Color Bar) + Battery 1 + USB Cable 1 (Data Link with Notebook) + EUT (SD) USB Data Link to PC/NB + SIM 2 for Sample 1 Mode 9: LTE Band 26 Rx (Low) + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + Battery 1 + USB Cable 1 (Data Link with Notebook) + PC/NB USB Data Link to EUT (SD) + SIM 2 for Sample 1 Mode 10: LTE Band 26 Rx (Low) + Bluetooth Idle + WLAN (5G) Idle + MPEG4(Run Color Bar) + Battery 1 + USB Cable 2 (Data Link with Notebook) + EUT (SD) USB Data Link to PC/NB + SIM 2 for Sample 1 Mode 11: LTE Band 26 Rx (Low) + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + Battery 1 + USB Cable 3 (Data Link with Notebook) + EUT (SD) USB Data Link to PC/NB + SIM 2 for Sample 1 Mode 12: LTE Band 26 Rx (Low) + Bluetooth Idle + WLAN (5G) Idle + MPEG4(Run Color Bar) + Battery 1 + USB Cable 4 (Data Link with Notebook) + EUT (SD) USB Data Link to PC/NB + SIM 2 for Sample 1 Mode 13: WCDMA Band II Rx + Bluetooth Idle + WLAN (5G) Idle + Camera(Rear) + Battery 1 + USB Cable 2 (Charging from Adapter 2) + SIM 2 for Sample 2 Mode 14: LTE Band 26 Rx (Low) + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Battery 1 + USB Cable 1 (Data Link with Notebook) + EUT (SD) USB Data Link to PC/NB + SIM 2 for Sample 2
Remark:	1. The worst case of AC is mode 6; only the test data of this mode is reported. 2. The worst case of RE is mode 13; 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 channels, 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.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded,1.8m
2.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
3.	System Simulator	Anritsu	MT8000A	N/A	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.	Notebook	Acer	N20C5	N/A	N/A	N/A
6.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
7.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded,1.8m
8.	Vector Signal Generator	R&S	SMBV100A	N/A	N/A	Shielded, 1.2m
9.	Hard disk	Lenovo	F310	DoC	N/A	Shielded, 1.2m
10.	Hard disk	Ultra	WD	DoC	N/A	Shielded, 1.2m
11.	Bluetooth Earphone	Motorola	XT2443-1	N/A	N/A	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.

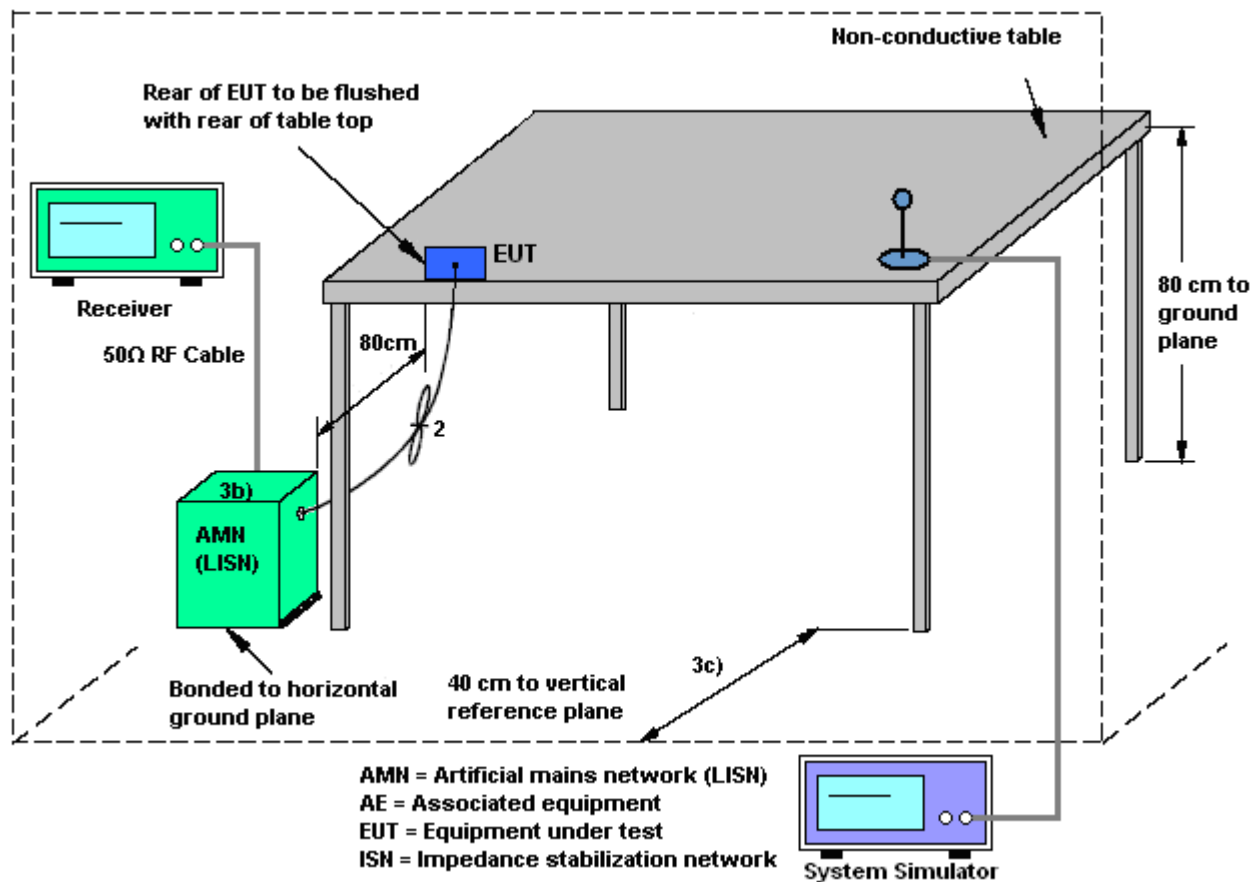
3.1.2 Measuring Instruments

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

3.1.3 Test Procedure

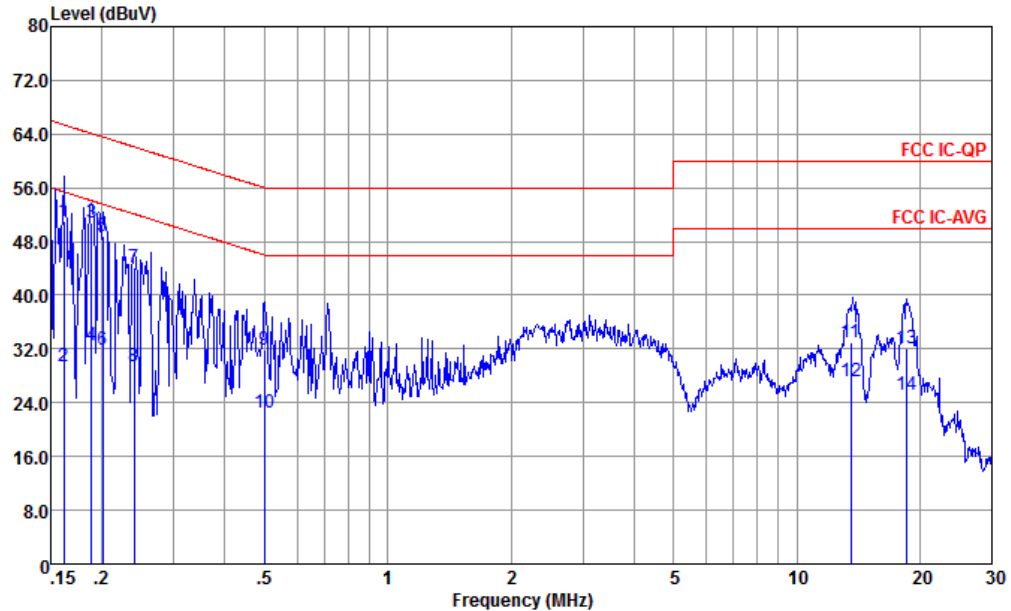
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

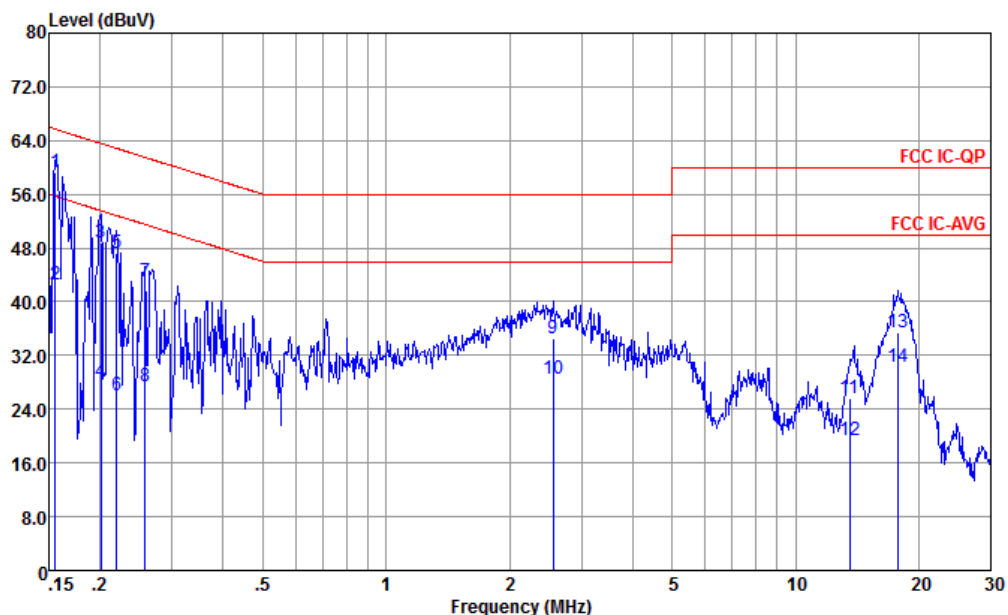


Site : CO01-KS
Condition : FCC IC-QP LISN-060105-L 2024 LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.162	51.06	-14.32	65.38	40.50	0.11	10.45	QP
2	0.162	29.36	-26.02	55.38	18.80	0.11	10.45	Average
3 *	0.188	50.75	-13.36	64.11	40.20	0.09	10.46	QP
4	0.188	32.45	-21.66	54.11	21.90	0.09	10.46	Average
5	0.201	48.74	-14.84	63.58	38.20	0.08	10.46	QP
6	0.201	31.84	-21.74	53.58	21.30	0.08	10.46	Average
7	0.240	44.05	-18.03	62.08	33.50	0.08	10.47	QP
8	0.240	29.35	-22.73	52.08	18.80	0.08	10.47	Average
9	0.499	31.80	-24.21	56.01	21.50	-0.11	10.41	QP
10	0.499	22.50	-23.51	46.01	12.20	-0.11	10.41	Average
11	13.560	32.88	-27.12	60.00	22.81	-0.20	10.27	QP
12	13.560	27.28	-22.72	50.00	17.21	-0.20	10.27	Average
13	18.524	32.11	-27.89	60.00	22.20	-0.38	10.29	QP
14	18.524	25.11	-24.89	50.00	15.20	-0.38	10.29	Average



Test Engineer :	Amos	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 IC-QP LISN-060105-N 2024 NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.156	59.17	-6.52	65.69	48.60	0.12	10.45	QP
2	0.156	42.47	-13.22	55.69	31.90	0.12	10.45	Average
3	0.201	48.79	-14.79	63.58	38.21	0.12	10.46	QP
4	0.201	28.19	-25.39	53.58	17.61	0.12	10.46	Average
5	0.220	47.13	-15.70	62.83	36.60	0.07	10.46	QP
6	0.220	26.03	-26.80	52.83	15.50	0.07	10.46	Average
7	0.258	42.95	-18.56	61.51	32.51	-0.03	10.47	QP
8	0.258	27.35	-24.16	51.51	16.91	-0.03	10.47	Average
9	2.554	34.53	-21.47	56.00	24.50	-0.20	10.23	QP
10	2.554	28.63	-17.37	46.00	18.60	-0.20	10.23	Average
11	13.560	25.56	-34.44	60.00	15.50	-0.21	10.27	QP
12	13.560	19.36	-30.64	50.00	9.30	-0.21	10.27	Average
13	17.755	35.51	-24.49	60.00	25.50	-0.28	10.29	QP
14	17.755	30.21	-19.79	50.00	20.20	-0.28	10.29	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

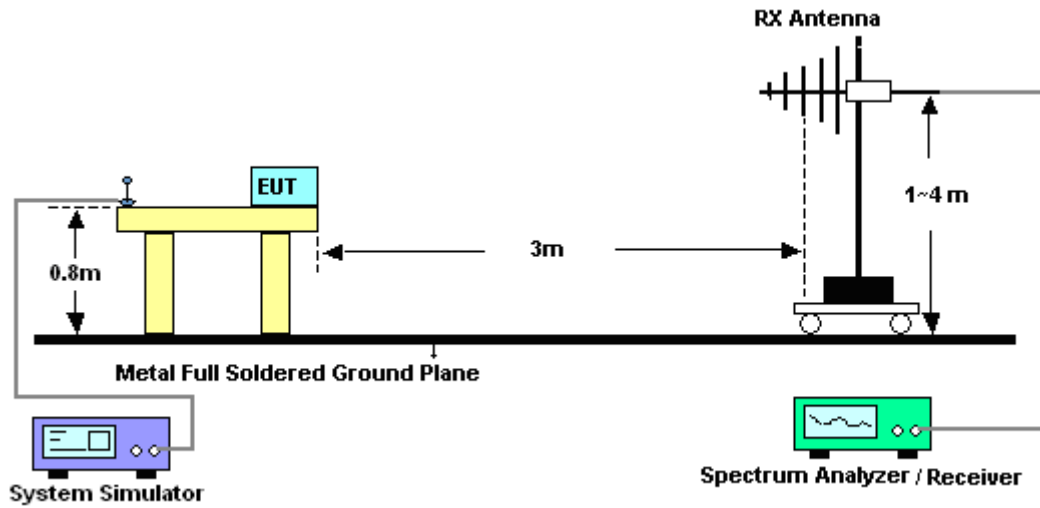
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

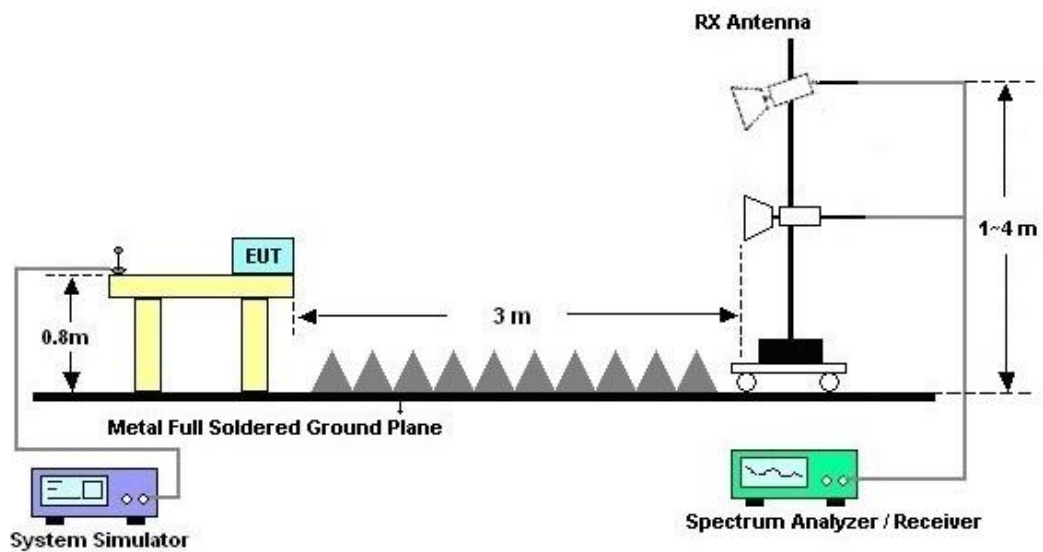
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

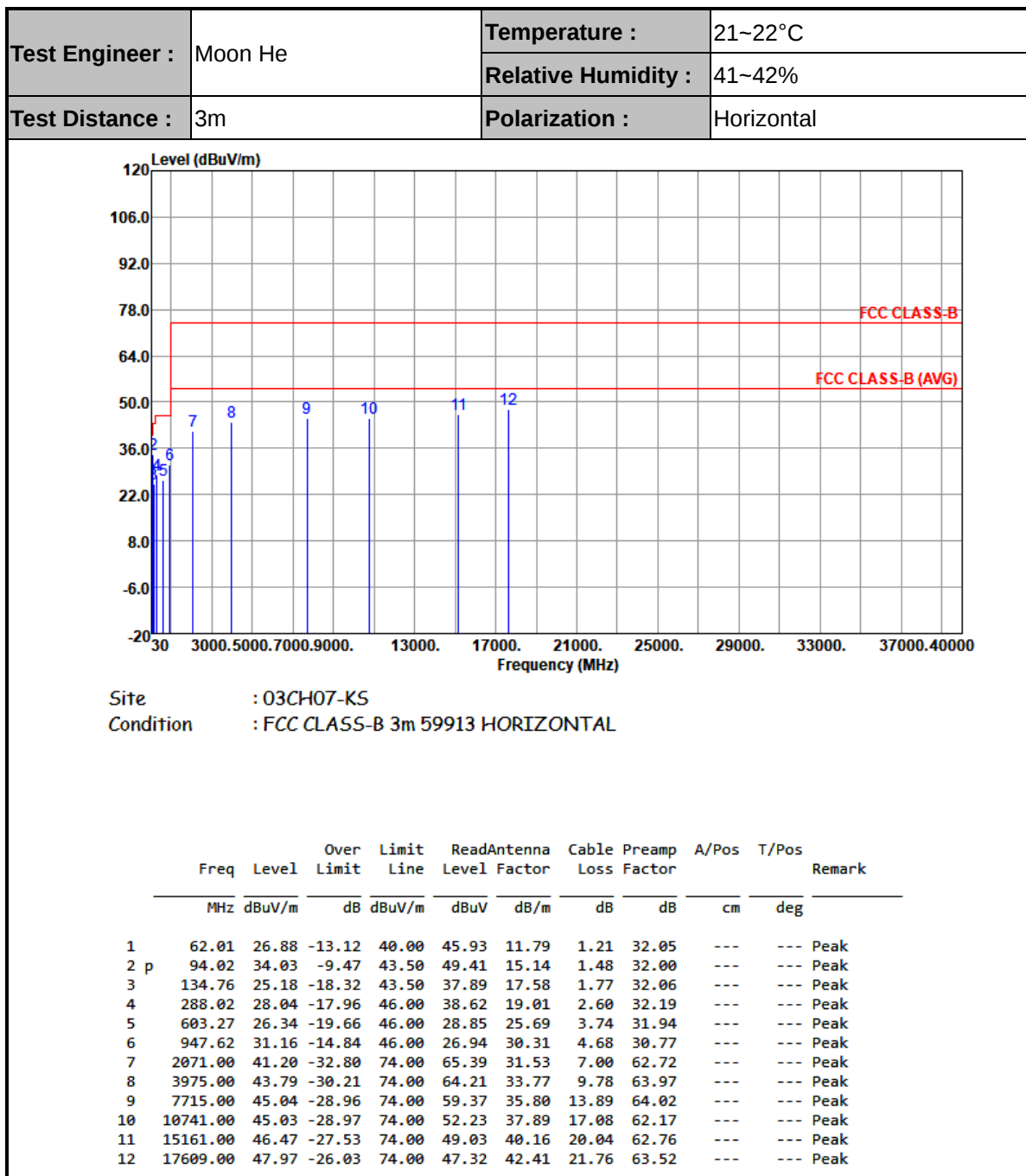


For radiated emissions above 1GHz



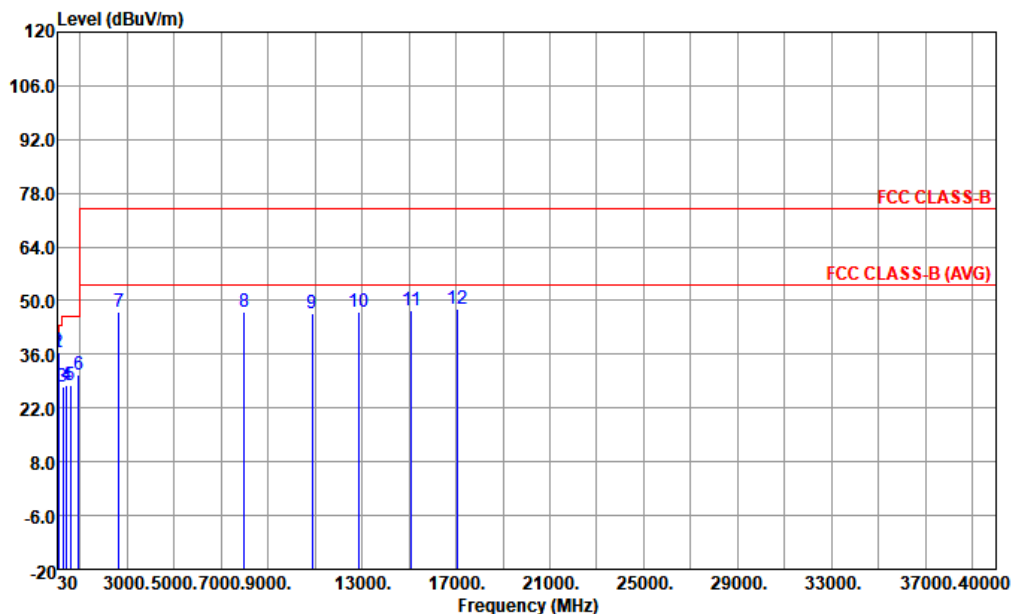


3.2.5. Test Result of Radiated Emission





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



Site : 03CH07-KS
Condition : FCC CLASS-B 3m 59913 VERTICAL

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 q	61.04	36.86	-3.14	40.00	55.89	11.83	1.20	32.06	100	52 QP
2 p	92.08	36.55	-6.95	43.50	52.19	14.88	1.47	31.99	---	--- Peak
3	278.32	27.68	-18.32	46.00	38.56	18.66	2.55	32.09	---	--- Peak
4	434.49	27.87	-18.13	46.00	34.34	22.61	3.18	32.26	---	--- Peak
5	575.14	28.09	-17.91	46.00	30.97	25.67	3.65	32.20	---	--- Peak
6	948.59	30.79	-15.21	46.00	26.49	30.36	4.69	30.75	---	--- Peak
7	2649.00	47.02	-26.98	74.00	69.70	32.50	7.94	63.12	---	--- Peak
8	8004.00	46.90	-27.10	74.00	60.99	35.80	14.05	63.94	---	--- Peak
9	10894.00	46.88	-27.12	74.00	53.65	38.02	17.26	62.05	---	--- Peak
10	12866.00	46.99	-27.01	74.00	51.00	39.07	18.42	61.50	---	--- Peak
11	15110.00	47.43	-26.57	74.00	50.09	40.10	20.01	62.77	---	--- Peak
12	17065.00	47.79	-26.21	74.00	48.07	42.13	21.12	63.53	---	--- 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. 11, 2024	Jan. 12, 2025	Oct. 10, 2025	Radiation (03CH07-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55370528	10Hz-44G,MAX 30dB	Oct. 11, 2024	Jan. 12, 2025	Oct. 10, 2025	Radiation (03CH07-KS)
Bilog Antenna	TESEQ	CBL 6111D	49921	30MHz-1GHz	Apr. 18, 2024	Jan. 12, 2025	Apr. 17, 2025	Radiation (03CH07-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00240132	1GHz~18GHz	Jul. 06, 2024	Jan. 12, 2025	Jul. 05, 2025	Radiation (03CH07-KS)
SHF-EHF Horn	Com-power	AH-840	101116	18GHz~40GHz	Oct. 22, 2024	Jan. 12, 2025	Oct. 21, 2025	Radiation (03CH07-KS)
Amplifier	EM	EM18G40GGA	060737	18~40GHz	Jan. 03, 2025	Jan. 12, 2025	Jan. 02, 2026	Radiation (03CH07-KS)
Amplifier	SONOMA	310N	380826	9KHz-1GHz	Jul. 03, 2024	Jan. 12, 2025	Jul. 02, 2025	Radiation (03CH07-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Jan. 12, 2025	NCR	Radiation (03CH07-KS)
Turn Table	EM	EM 1000-T	N/A	0~360 degree	NCR	Jan. 12, 2025	NCR	Radiation (03CH07-KS)
Antenna Mast	EM	EM 1000-A	N/A	1 m~4 m	NCR	Jan. 12, 2025	NCR	Radiation (03CH07-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 18, 2024	Jan. 20, 2025	Apr. 17, 2025	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Aug. 20, 2024	Jan. 20, 2025	Aug. 19, 2025	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Apr. 18, 2024	Jan. 20, 2025	Apr. 17, 2025	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 09, 2024	Jan. 20, 2025	Oct. 08, 2025	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% ($U = 2Uc(y)$)	2.84 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.06 dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.16 dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

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