FCC Test Report

APPLICANT	:	Xiaomi Communications Co., Ltd.
EQUIPMENT	:	Mobile Phone
BRAND NAME	:	Redmi
MODEL NAME	:	24090RA29G
FCC ID	:	2AFZZRA29G
STANDARD	:	47 CFR Part 15 Subpart B
CLASSIFICATION	:	Certification
TEST DATE(S)	:	Jul 27, 2024 ~ Aug. 12, 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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC471506	Rev. 01	Initial issue of report	Aug. 19, 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 6.70 dB at 0.186 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 3.61 dB at 480.08 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

Xiaomi Communications Co., Ltd.
#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.2. Manufacturer

Xiaomi Communications Co., Ltd.
#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	Redmi
Model Name	24090RA29G
FCC ID	2AFZZRA29G
EUT supports Radios application	GSM/WCDMA/LTE/5G NR WLAN 2.4GHz 802.11b/g/n HT20 WLAN 2.4GHz 802.11ax HE20 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: 861793070038664/861793070038672 for sample 1 861793070060486/861793070060494 for sample 2 861793070046204/861793070046212 for sample 3 861793070045529/861793070045537 for sample 4 Radiation: 861793070039480 for sample 1 861793070045404 for sample 2 861793070046188 for sample 3 861793070060544 for sample 4
HW Version	135300O16
SW Version	Xiaomi HyperOS 1.0
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 four samples under test, for the differences are as the following table shows. According to the difference, we chose sample 1 to perform full test and sample 2/3/4 to verify the worst cases.

Sample	Memory	Battery	Screen
Sample 1	8+256G	Battery 1(NVT)	3rd Screen(Visionox)
Sample 2	8+128G	Battery 2(SWD)	2nd Screen(TIANMA)
Sample 3	12+256G	Battery 1(NVT)	3rd Screen(Visionox)
Sample 4	12+512G	Battery 1(NVT)	1st Screen(China Star)

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 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 48 : 3550 MHz ~ 3700 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 n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n48 : 3550 MHz ~ 3700 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n77 : 3450 MHz ~ 3550 MHz; 3700 MHz ~ 3980 MHz; 5G NR n78 : 3450 MHz ~ 3550 MHz; 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 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 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 48 : 3550 MHz ~ 3700 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 n38: 2570 MHz ~ 2620 MHz 5G NR n48 : 3550 MHz ~ 3700 MHz 5G NR n66 : 2110 MHz~ 2200 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n77 : 3450 MHz ~ 3550 MHz; 3700 MHz ~ 3980 MHz; 5G NR n78 : 3450 MHz ~ 3550 MHz; 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: FPC 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) :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. 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.

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).

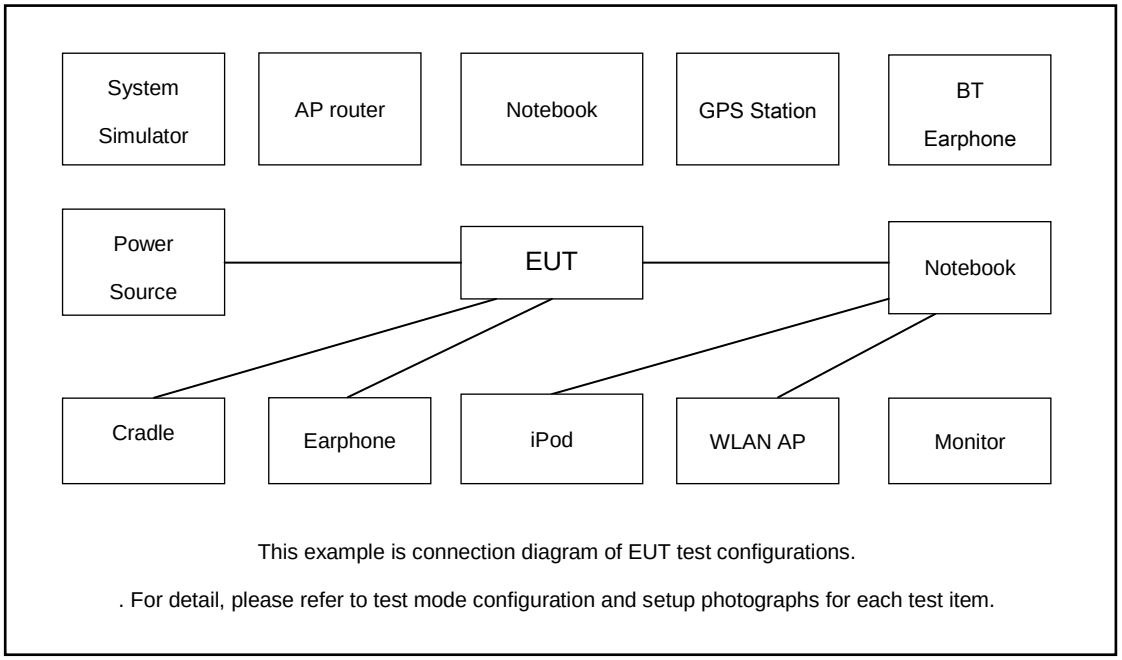
Test Items	Function Type
AC Conducted Emission	Mode 1 : GSM 850 Rx(Low)(Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Battery + USB Cable 1 (Charging from Adapter 1) + SIM 1 for Sample 1
	Mode 2 : WCDMA band V Rx(Middle)(Ant 1) + Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + Battery + USB Cable 2 (Charging from Adapter 2) + SIM 2 for Sample 1
	Mode 3 : LTE Band 26 Rx(High) (Ant 0) + Bluetooth Idle + WLAN (5G) Idle + MPEG4(Run Color Bar) + Battery + USB Cable 3 (Charging from Adapter 3) + eSIM for Sample 1
	Mode 4 : n5 Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable 1(EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 1
	Mode 5 : LTE B13 Rx(High) (Ant 1) + Bluetooth Idle + WLAN (5G) Idle + GNSS Rx + Battery + USB Cable 1(NB USB Data Link to EUT (eMMC)) for Sample 1
	Mode 6 : LTE B17 Rx(Low) (Ant 1) + + WLAN (2.4G) Idle + NFC On + Battery + USB Cable 2(EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 1
	Mode 7 : n12 Rx(Middle)(Ant 1) + WLAN (2.4G) Idle + NFC On + Battery + USB Cable 3(EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 1
	Mode 8 : n5 Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable 1(EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 2
	Mode 9 : n5 Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable 1(EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 3
	Mode 10 : n5 Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable 1(EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 4
	Mode 11 : n5 Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable 3(EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 1

Radiated Emissions	Mode 1 : GSM 850 Rx(Low) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Battery + USB Cable 1 (Charging from Adapter 1) + SIM 1 for Sample 1 Mode 2 : WCDMA band V Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + Battery + USB Cable 2 (Charging from Adapter 2) + SIM 2 for Sample 1 Mode 3 : LTE Band 26 Rx(High) (Ant 0) + Bluetooth Idle + WLAN (5G) Idle + MPEG4(Run Color Bar) + Battery + USB Cable 3 (Charging from Adapter 3) + eSIM for Sample 1 Mode 4 : n5 Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable 1(EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 1 Mode 5 : LTE B13 Rx(High) (Ant 1) + Bluetooth Idle + WLAN (5G) Idle + GNSS Rx + Battery + USB Cable 1(NB USB Data Link to EUT (eMMC)) for Sample 1 Mode 6 : LTE B17 Rx(Low) (Ant 1) + Bluetooth Idle + WLAN (5G) Idle + Battery + USB Cable 2 (EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 1 Mode 7 : n5 Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable(Typec to Typec)(EUT Charging to other phones) + SIM 1 for Sample 1 Mode 8 : n5 Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Earphone + SIM 1 for Sample 1 Mode 9 : n5 Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable 1(EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 2 Mode 10 : n5 Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable 1(EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 3 Mode 11 : n5 Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable 1(EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 4 Mode 12 : n5 Rx(Middle) (Ant 1) + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable 3(EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 1

Remark:

1. The worst case of AC is mode 4; only the test data of this mode is reported.
2. The worst case of RE is mode 4; 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.	Base Station	Anritsu	MT8000A	N/A	N/A	Unshielded,1.8m
3.	Signal Generator	R&S	SMBV100A	N/A	N/A	Unshielded,1.8m
4.	Bluetooth Earphone	xiaomi	LYEJ02LM	N/A	N/A	N/A
5.	Bluetooth Earphone	Lenovo	thinkplus-BH3	N/A	N/A	N/A
6.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	Shielded cable DC O/P 1.8m, Unshielded AC I/P cable 1.8m
7.	Notebook	HONOR	N/A	N/A	N/A	Shielded cable DC O/P 1.8m, Unshielded AC I/P cable 1.8m
8.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded,1.8m
9.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
10.	Hard Disk	Lenovo	F310	DoC	Shielded, 1.2m	N/A
11.	Hard disk	Ultra	WD	N/A	Shielded, 1.2m	N/A
12.	Earphone	Xiaomi	N/A	N/A	Unshielded,1.2m	N/A
13.	NFC Card	N/A	N/A	N/A	N/A	N/A
14.	Type C Cable	N/A	N/A	N/A	Unshielded,0.1m	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.

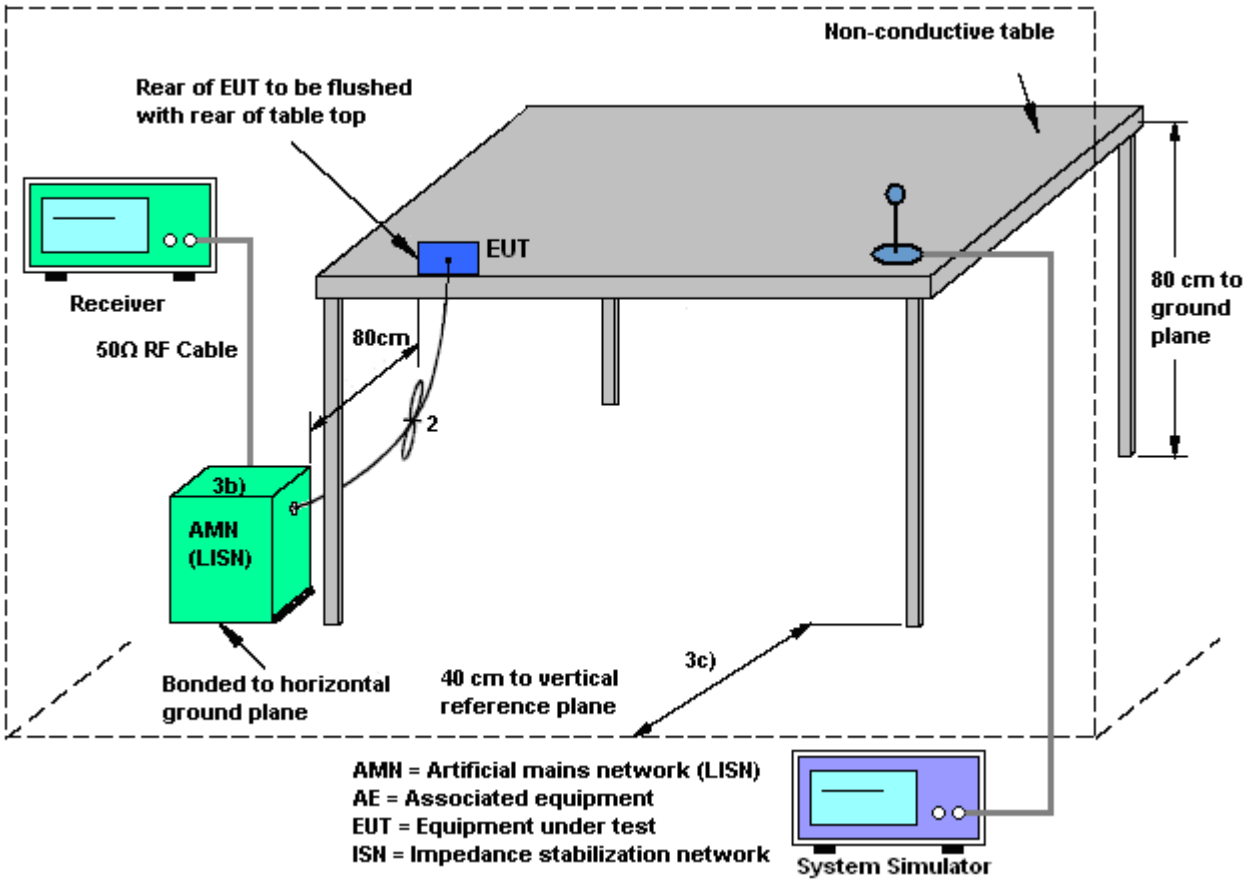
3.1.2 Measuring Instruments

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

3.1.3 Test Procedure

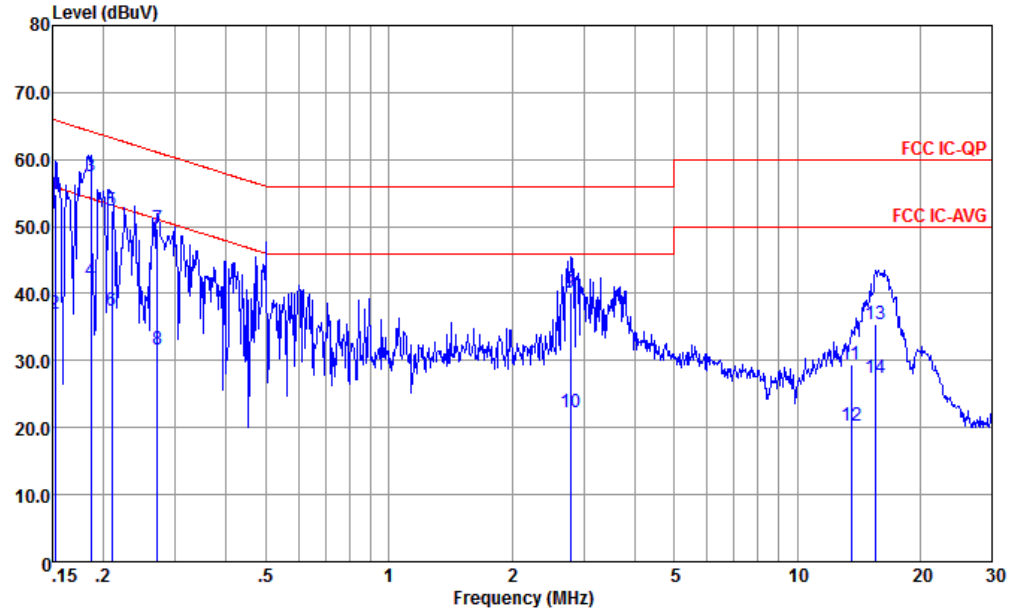
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

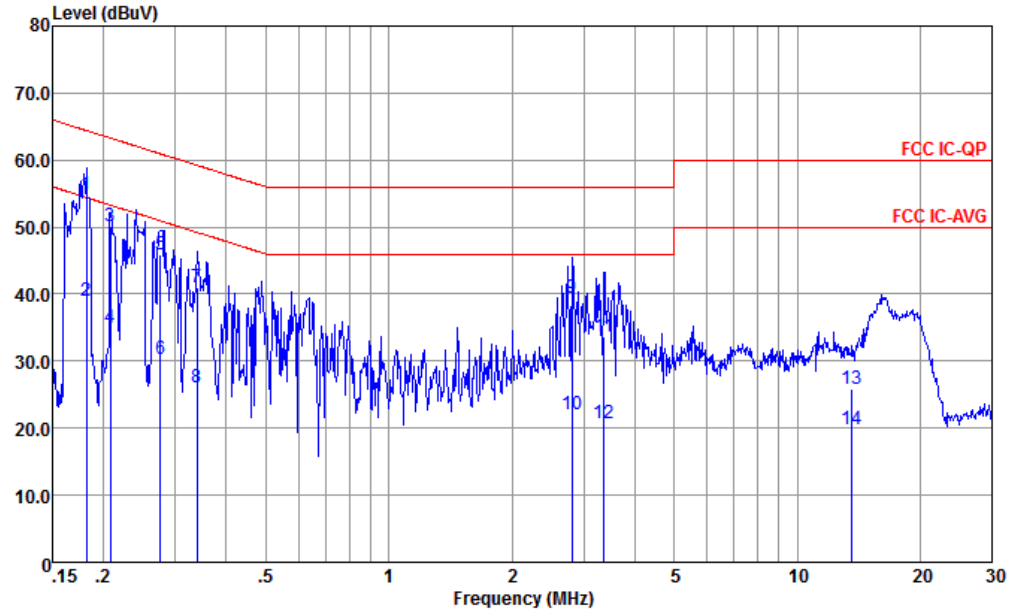
Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



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	0.152	54.84	-11.03	65.87	44.30	0.12	10.42	QP
2	0.152	37.04	-18.83	55.87	26.50	0.12	10.42	Average
3 *	0.186	57.50	-6.70	64.20	47.00	0.09	10.41	QP
4	0.186	41.80	-12.40	54.20	31.30	0.09	10.41	Average
5	0.209	52.38	-10.85	63.23	41.90	0.08	10.40	QP
6	0.209	37.38	-15.85	53.23	26.90	0.08	10.40	Average
7	0.272	49.74	-11.33	61.07	39.30	0.09	10.35	QP
8	0.272	31.74	-19.33	51.07	21.30	0.09	10.35	Average
9	2.779	40.00	-16.00	56.00	30.10	-0.17	10.07	QP
10	2.779	22.20	-23.80	46.00	12.30	-0.17	10.07	Average
11	13.551	29.51	-30.49	60.00	18.60	-0.20	11.11	QP
12	13.551	20.21	-29.79	50.00	9.30	-0.20	11.11	Average
13	15.552	35.52	-24.48	60.00	24.50	-0.21	11.23	QP
14	15.552	27.52	-22.48	50.00	16.50	-0.21	11.23	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	*	0.182	54.84	-9.58	64.42	44.30	0.13	10.41	QP
2		0.182	39.04	-15.38	54.42	28.50	0.13	10.41	Average
3		0.208	50.21	-13.06	63.27	39.71	0.10	10.40	QP
4		0.208	34.91	-18.36	53.27	24.41	0.10	10.40	Average
5		0.276	45.98	-14.96	60.94	35.70	-0.07	10.35	QP
6		0.276	30.28	-20.66	50.94	20.00	-0.07	10.35	Average
7		0.339	40.98	-18.24	59.22	30.80	-0.13	10.31	QP
8		0.339	26.08	-23.14	49.22	15.90	-0.13	10.31	Average
9		2.809	39.46	-16.54	56.00	29.60	-0.21	10.07	QP
10		2.809	22.16	-23.84	46.00	12.30	-0.21	10.07	Average
11		3.364	33.76	-22.24	56.00	23.90	-0.21	10.07	QP
12		3.364	20.76	-25.24	46.00	10.90	-0.21	10.07	Average
13		13.551	25.80	-34.20	60.00	14.90	-0.21	11.11	QP
14		13.551	19.80	-30.20	50.00	8.90	-0.21	11.11	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

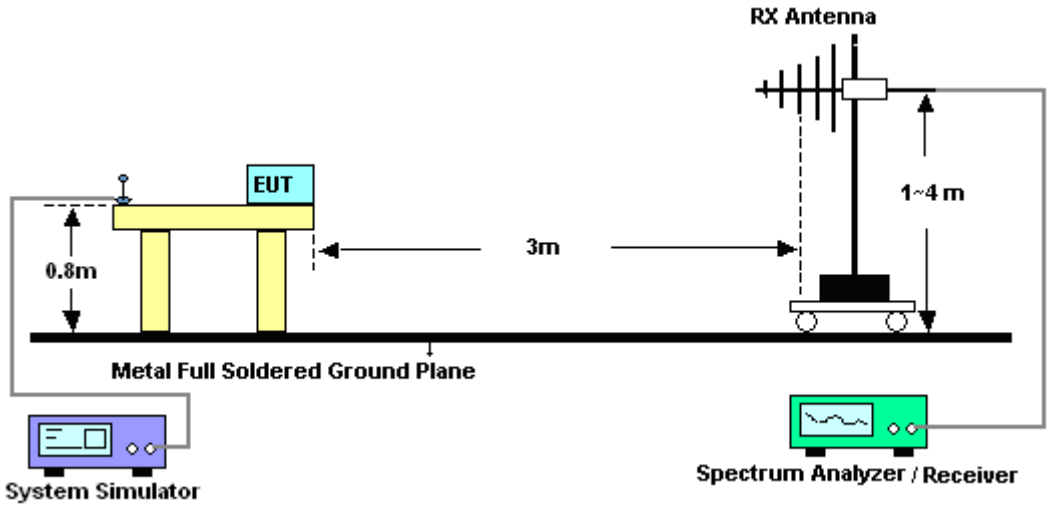
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

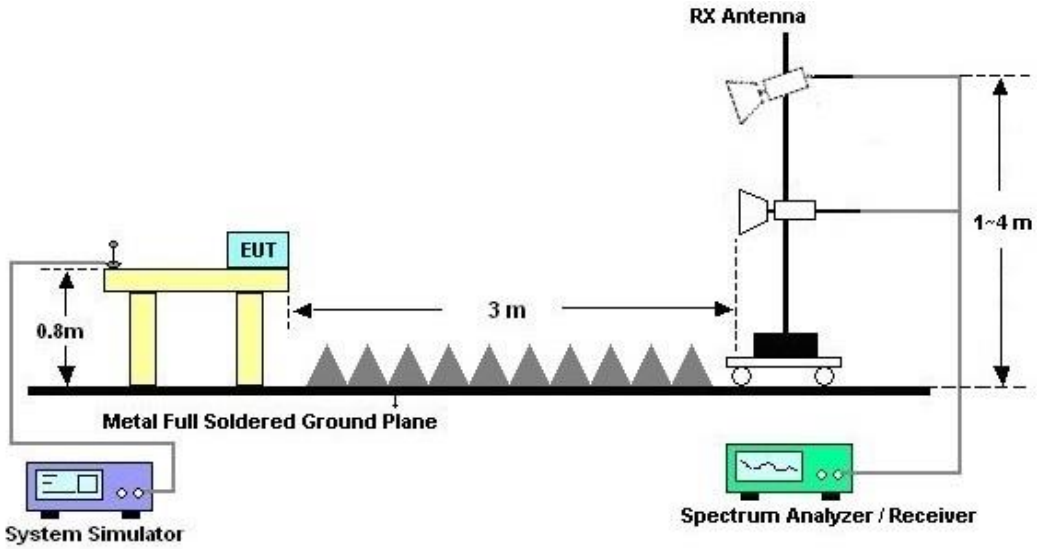
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

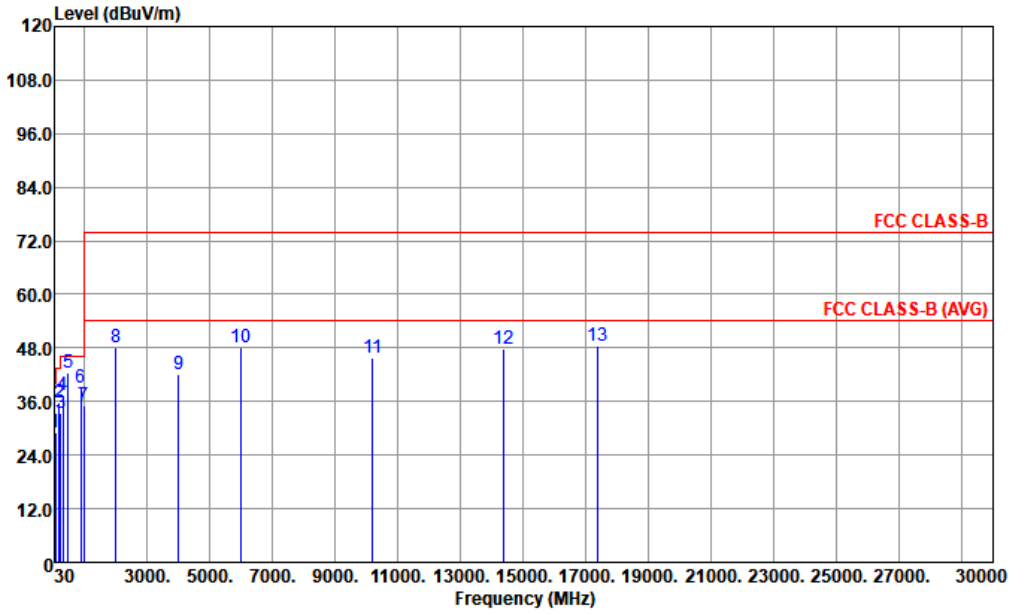


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

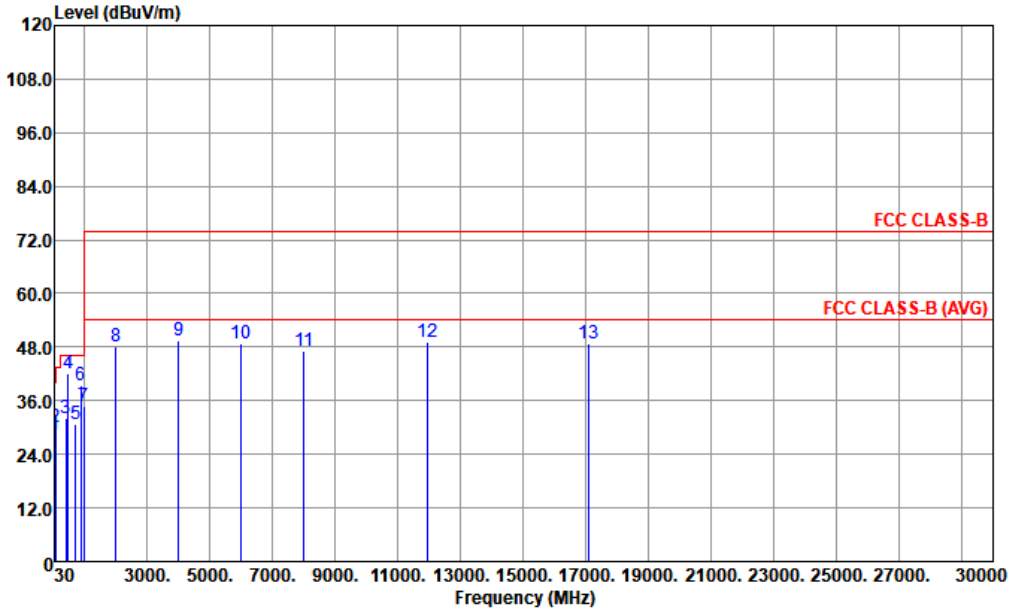
Test Engineer :	Levi Zhuo	**Temperature :**	21~22°C
		Relative Humidity :	41~42%
Test Distance :	3m	**Polarization :**	Horizontal
Remark :	#6 is system simulator signal which can be ignored.		



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	62.01	29.07	-10.93	40.00	48.40	11.82	0.94	32.09	---	---	Peak
2	180.35	35.62	-7.88	43.50	50.89	14.92	1.95	32.14	---	---	Peak
3	231.76	33.35	-12.65	46.00	46.97	16.26	2.22	32.10	---	---	Peak
4	311.30	37.35	-8.65	46.00	47.54	19.30	2.58	32.07	---	---	Peak
5 p	480.08	42.39	-3.61	46.00	47.88	23.52	3.19	32.20	100	207	Peak
6	881.66	38.95			36.81	29.20	4.32	31.38	---	---	Peak
7	960.23	35.06	-18.94	54.00	30.42	30.99	4.51	30.86	---	---	Peak
8	1986.00	48.06	-25.94	74.00	73.04	31.03	6.49	62.50	---	---	Peak
9	3992.00	42.02	-31.98	74.00	62.53	33.80	9.52	63.83	---	---	Peak
10	5981.00	48.01	-25.99	74.00	65.48	35.27	11.51	64.25	---	---	Peak
11	10197.00	45.87	-28.13	74.00	55.13	37.40	15.47	62.13	---	---	Peak
12	14379.00	47.69	-26.31	74.00	52.09	39.55	18.19	62.14	---	---	Peak
13	17371.00	48.58	-25.42	74.00	50.18	41.23	19.96	62.79	---	---	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	30.97	28.46	-11.54	40.00	35.67	24.42	0.51	32.14	---	---	Peak
2	62.01	30.23	-9.77	40.00	49.56	11.82	0.94	32.09	---	---	Peak
3	389.87	32.14	-13.86	46.00	40.01	21.35	2.88	32.10	---	---	Peak
4 p	480.08	41.96	-4.04	46.00	47.45	23.52	3.19	32.20	100	127	Peak
5	697.36	30.88	-15.12	46.00	32.50	26.73	3.86	32.21	---	---	Peak
6	881.66	39.31			37.17	29.20	4.32	31.38	---	---	Peak
7	960.23	34.85	-19.15	54.00	30.21	30.99	4.51	30.86	---	---	Peak
8	2003.00	48.19	-25.81	74.00	73.07	31.10	6.52	62.50	---	---	Peak
9	3992.00	49.44	-24.56	74.00	69.95	33.80	9.52	63.83	---	---	Peak
10	5981.00	48.78	-25.22	74.00	66.25	35.27	11.51	64.25	---	---	Peak
11	8004.00	47.05	-26.95	74.00	61.08	35.90	13.48	63.41	---	---	Peak
12	11948.00	49.29	-24.71	74.00	54.73	39.00	16.37	60.81	---	---	Peak
13	17065.00	48.86	-25.14	74.00	50.35	41.53	19.75	62.77	---	---	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. 12, 2024	Oct. 10, 2024	Radiation (03CH07-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55370528	10Hz-44G,MAX 30dB	Oct. 11, 2023	Aug. 12, 2024	Oct. 10, 2024	Radiation (03CH07-KS)
Bilog Antenna	TeseQ	CBL6111D	59913	30MHz-1GHz	Aug. 19, 2023	Aug. 12, 2024	Aug. 18, 2024	Radiation (03CH07-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 23, 2023	Aug. 12, 2024	Oct. 22, 2024	Radiation (03CH07-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Oct. 15, 2023	Aug. 12, 2024	Oct. 14, 2024	Radiation (03CH07-KS)
Amplifier	EM	EM18G40GGA	060851	18~40GHz	Jan. 03, 2024	Aug. 12, 2024	Jan. 02, 2025	Radiation (03CH07-KS)
Amplifier	SONOMA	310N	413740	9KHz-1GHz	Jan. 03, 2024	Aug. 12, 2024	Jan. 02, 2025	Radiation (03CH07-KS)
Amplifier	EM	EM01G18GA	060834	1Ghz-18Ghz	Oct. 11, 2023	Aug. 12, 2024	Oct. 10, 2024	Radiation (03CH07-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Aug. 12, 2024	NCR	Radiation (03CH07-KS)
Turn Table	EM	EM 1000-T	N/A	0~360 degree	NCR	Aug. 12, 2024	NCR	Radiation (03CH07-KS)
Antenna Mast	EM	EM 1000-A	N/A	1 m~4 m	NCR	Aug. 12, 2024	NCR	Radiation (03CH07-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 18, 2024	Jul. 27, 2024	Apr. 17, 2025	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 11, 2023	Jul. 27, 2024	Oct. 10, 2024	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Apr. 18, 2024	Jul. 27, 2024	Apr. 17, 2025	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 11, 2023	Jul. 27, 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))	**2.84 dB**

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

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

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

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

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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