



FCC Test Report

APPLICANT : Xiaomi Communications Co., Ltd.
EQUIPMENT : Mobile Phone
BRAND NAME : XIAOMI
MODEL NAME : 22081212UG
FCC ID : 2AFZZ1212UG
STANDARD : 47 CFR Part 15 Subpart B
CLASSIFICATION : Certification
TEST DATE(S) : Jun. 23, 2022 ~ Jun. 29, 2022

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

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

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**



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. Test Location 8

 1.7. Test Software 8

 1.8. Applicable Standards 8

2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST 9

 2.1. Test Mode 9

 2.2. Connection Diagram of Test System 11

 2.3. Support Unit used in test configuration and system 11

 2.4. EUT Operation Test Setup 12

3. TEST RESULT 13

 3.1. Test of AC Conducted Emission Measurement 13

 3.2. Test of Radiated Emission Measurement 17

4. LIST OF MEASURING EQUIPMENT 22

5. UNCERTAINTY OF EVALUATION 23

APPENDIX A. SETUP PHOTOGRAPHS



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC253108	Rev. 01	Initial issue of report	Jul. 14, 2022



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	Under limit 8.86 dB at 0.151 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 5.46 dB at 38.730 MHz for Quasi-Peak

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



1. General Description

1.1. Applicant

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	XIAOMI
Model Name	22081212UG
FCC ID	2AFZZ1212UG
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 Bluetooth BR/EDR/LE, GNSS, NFC
IMEI Code	Conduction: 869678060065300/869678060065318 for Sample1 869678060017343/869678060017350 for Sample2 869678060017640/869678060017657 for Sample3 Radiation: 869678060064840/869678060064857 for Sample1 869678060017384/869678060017392 for Sample2 869678060017852/869678060017590 for Sample3
HW Version	P2
SW Version	MIUI13
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 three type of EUT. The difference between them is memory capacity: sample 1 with 12+256G capacity, Sample 2 with 8+256G capacity and Sample 3 with 8+128G capacity. According to the difference, we chose sample 1 to perform full test and sample 2/3 to verify the worst cases of sample 1.

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 : 3400 MHz ~ 3600 MHz LTE Band 48 : 3550 MHz ~ 3700 MHz LTE Band 66 : 1710 MHz ~ 1780 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 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 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 : 3400 MHz ~ 3600 MHz LTE Band 48 : 3550 MHz ~ 3700 MHz



	<p>LTE Band 66 : 2110 MHz~ 2200 MHz 5G NR n5 : 869 MHz ~ 894 MHz 5G NR n7 : 2620 MHz ~ 2690 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 2110 MHz~ 2200 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, 1164 MHz ~ 1215 MHz</p>
Antenna Type	<p>WWAN : Fixed Internal Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GNSS: PIFA Antenna NFC: Coil Antenna</p>
Type of Modulation	<p>GSM/GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA : BPSK (Uplink) HSDPA/DC-HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM (Uplink) 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 / 4096QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) :$\pi/4$-DQPSK Bluetooth (3Mbps) : 8-DPSK GNSS : BPSK NFC: ASK</p>

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 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CO01-KS 03CH08-KS	CN1257	314309

1.7. Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH08-KS	AUDIX	E3	6.2009-8-24
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: LTE Band 26 Rx(Middle) ANT 1 + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Battery + USB Cable1 (Charging from Adapter) + SIM 1 for Sample 1
	Mode 2: LTE Band 12 Rx(High) ANT 4 + Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + Battery + USB Cable2 (Charging from Adapter) + SIM 2 for Sample 1
	Mode 3: LTE Band 13 Rx(Low) ANT 1 + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + Battery + USB Cable1 (Charging from Adapter) + SIM 1 for Sample 1
	Mode 4: LTE Band 13 Rx(Low) ANT 4 + Bluetooth Idle + WLAN (5G) Idle + NFC On + Battery + USB Cable1 (EUT (eMMC) USB Data Link to NB) + SIM 2 for Sample 1
	Mode 5: LTE Band 13 Rx(Low) ANT 1 + Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + Battery + USB Cable1 (NB USB Data Link to EUT (eMMC)) + SIM 1 for Sample 1
	Mode 6: LTE Band 13 Rx(Low) ANT 4 + Bluetooth Idle + WLAN (5G) Idle + GNSS Rx + Battery + USB Cable2 (EUT (eMMC) USB Data Link to NB) + SIM 2 for Sample 1
	Mode 7: LTE Band 13 Rx(Low) ANT 1 + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable1 (EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 2
	Mode 8: LTE Band 13 Rx(Low) ANT 1 + Bluetooth Idle + WLAN (2.4G) Idle + NFC On + Battery + USB Cable1 (EUT (eMMC) USB Data Link to NB) + SIM 1 for Sample 3

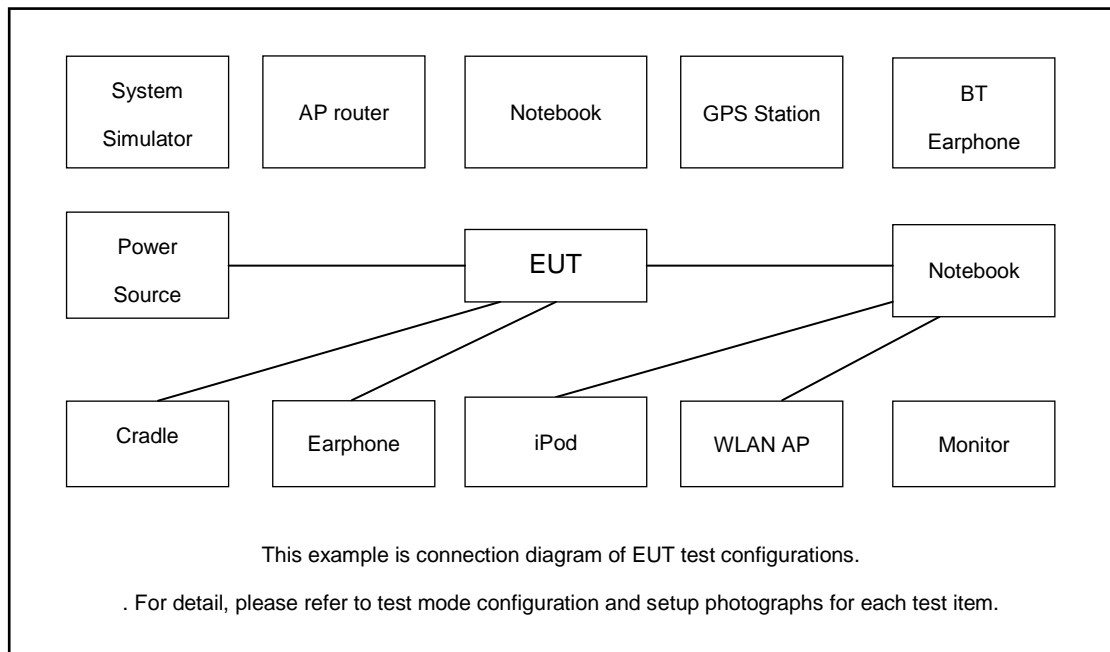


Radiated Emissions	<p>Mode 1: LTE Band 26 Rx(Middle) ANT 1 + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Rear) + Battery + USB Cable1 (Charging from Adapter) + SIM 1 for Sample 1</p> <p>Mode 2: LTE Band 12 Rx(High) ANT 4 + Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + Battery + USB Cable2 (Charging from Adapter) + SIM 2 for Sample 1</p> <p>Mode 3: LTE Band 13 Rx(Low) ANT 1 + Bluetooth Idle + WLAN (2.4G) Idle + MPEG4(Run Color Bar) + Earphone + Battery + SIM 1 for Sample 1</p> <p>Mode 4: LTE Band 12 Rx(High) ANT 4 + Bluetooth Idle + WLAN (5G) Idle + NFC On + Battery + USB Cable1 (EUT (eMMC) USB Data Link to NB) + SIM 2 for Sample 1</p> <p>Mode 5: LTE Band 12 Rx(High) ANT 1 + Bluetooth Idle + WLAN (2.4G) Idle + GNSS Rx + Battery + USB Cable1 (NB USB Data Link to EUT (eMMC)) + SIM 1 for Sample 1</p> <p>Mode 6: LTE Band 12 Rx(High) ANT 4 + Bluetooth Idle + WLAN (5G) Idle + GNSS Rx + Battery + USB Cable2(EUT (eMMC) USB Data Link to NB) + SIM 2 for Sample 1</p> <p>Mode 7: LTE Band 12 Rx(High) ANT 4 + Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + Battery + USB Cable1(EUT (eMMC) USB Data Link to NB) + SIM 2 for Sample 2</p> <p>Mode 8: LTE Band 12 Rx(High) ANT 4 + Bluetooth Idle + WLAN (2.4G) Idle + Camera(Front) + Battery + USB Cable1(EUT (eMMC) USB Data Link to NB) + ESIM for Sample 3</p> <p>Mode 9: LTE Band 12 Rx(High) ANT 4 + Bluetooth Idle + WLAN (5G) Idle + Camera(Front) + Battery + USB Cable(Typec to Typec)(EUT Charging to other phones) + SIM 1 for Sample 1</p>
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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 2; 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 LTE Band 12/13/26, 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	Anritus	MT8821C	N/A	N/A	Unshielded,1.8m
2.	Base Station	Anritus	MT8820C	N/A	N/A	Unshielded,1.8m
3.	Base Station	Anritus	MT8000A	N/A	N/A	Unshielded,1.8m
4.	Signal Generator	R&S	SMBV100A	258305	N/A	N/A
5.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded,1.8m
6.	Bluetooth Earphone	Xiaomi	LYEJ02LM	N/A	N/A	N/A
7.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
8.	Hard Disk	Lenovo	F310	DoC	Shielded, 1.2m	N/A
9.	Hard disk	KINGSHARE	KSP6120G	Fcc DoC	Shielded, 1.2m	N/A
10.	SD Card	Kingston	8GB	N/A	N/A	N/A
11.	Earphone	MI	EM023	N/A	Unshielded,1.2m	N/A
12.	Type-C cable	USB N/A	N/A	N/A	N/A	N/A



2.4. EUT Operation Test Setup

The EUT was in 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. Execute "Music Player" to play MPEG4 file.
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.

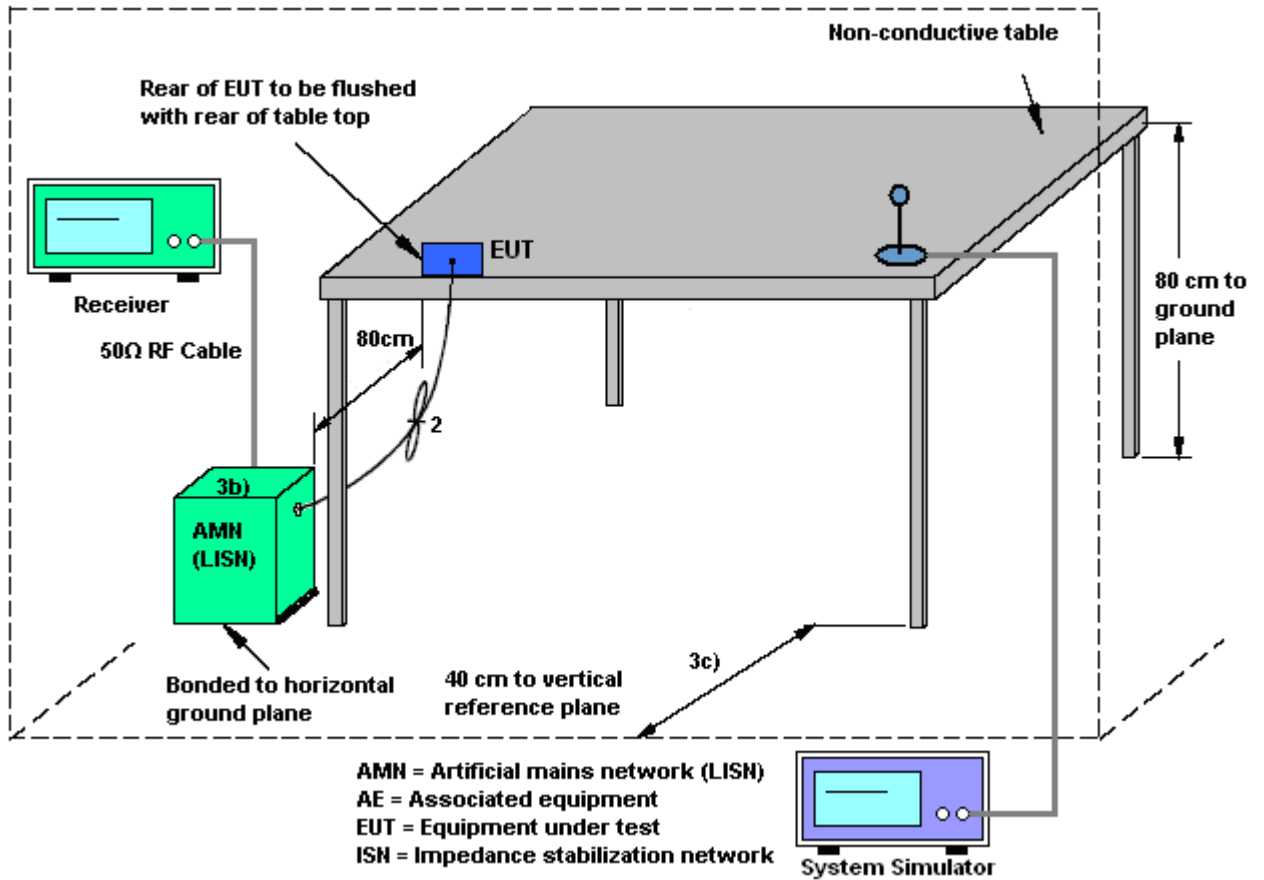
3.1.2 Measuring Instruments

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.

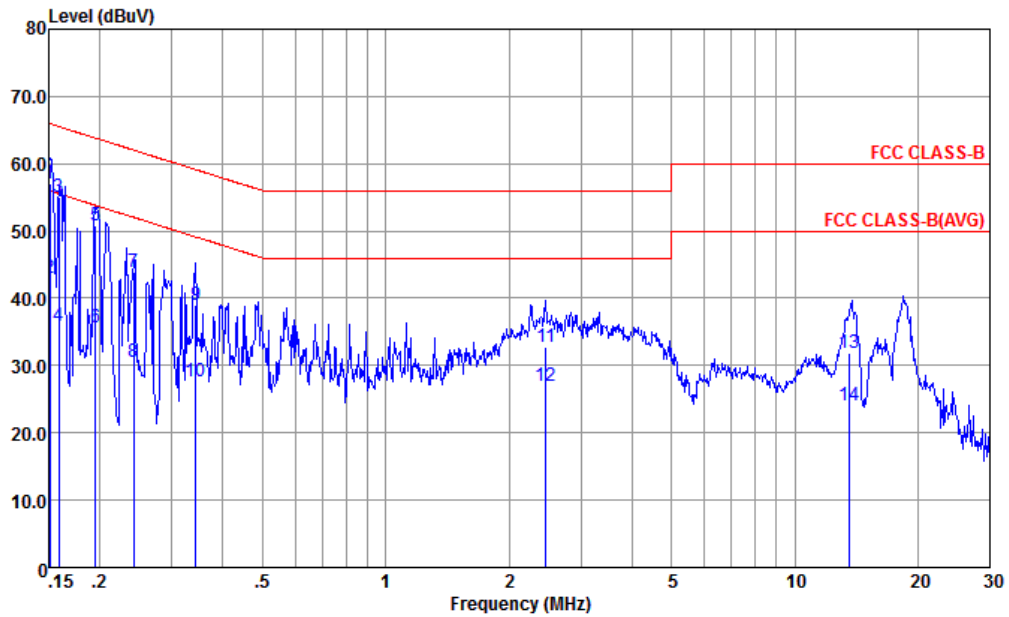
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

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

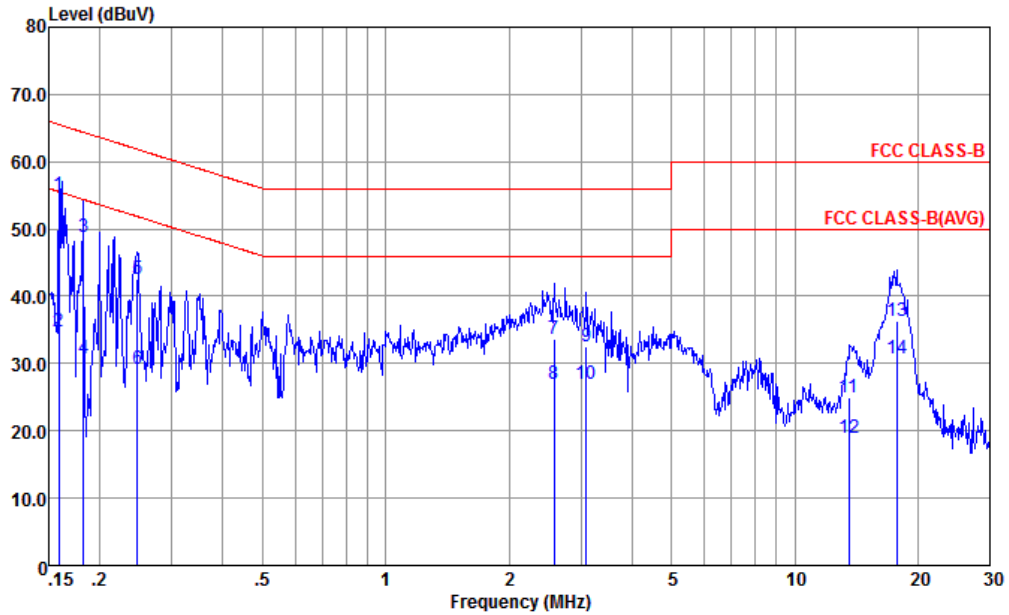


Site : CO01-KS
 Condition : FCC CLASS-B LISN-060105-L LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.151	57.10	-8.86	65.96	46.60	0.02	10.48	QP
2	0.151	43.10	-12.86	55.96	32.60	0.02	10.48	Average
3	0.159	54.98	-10.54	65.52	44.50	0.02	10.46	QP
4	0.159	35.98	-19.54	55.52	25.50	0.02	10.46	Average
5	0.195	50.71	-13.09	63.80	40.30	0.04	10.37	QP
6	0.195	35.71	-18.09	53.80	25.30	0.04	10.37	Average
7	0.242	43.89	-18.15	62.04	33.50	0.05	10.34	QP
8	0.242	30.59	-21.45	52.04	20.20	0.05	10.34	Average
9	0.343	38.97	-20.16	59.13	28.60	0.08	10.29	QP
10	0.343	27.57	-21.56	49.13	17.20	0.08	10.29	Average
11	2.461	32.68	-23.32	56.00	22.30	0.15	10.23	QP
12	2.461	26.98	-19.02	46.00	16.60	0.15	10.23	Average
13	13.560	31.76	-28.24	60.00	21.10	0.28	10.38	QP
14	13.560	24.16	-25.84	50.00	13.50	0.28	10.38	Average



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



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

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1 *	0.159	55.06	-10.46	65.52	44.49	0.11	10.46	QP
2	0.159	34.86	-20.66	55.52	24.29	0.11	10.46	Average
3	0.182	48.70	-15.67	64.37	38.20	0.10	10.40	QP
4	0.182	30.70	-23.67	54.37	20.20	0.10	10.40	Average
5	0.247	42.64	-19.22	61.86	32.20	0.10	10.34	QP
6	0.247	29.24	-22.62	51.86	18.80	0.10	10.34	Average
7	2.581	33.68	-22.32	56.00	23.29	0.15	10.24	QP
8	2.581	27.01	-18.99	46.00	16.62	0.15	10.24	Average
9	3.090	32.59	-23.41	56.00	22.20	0.15	10.24	QP
10	3.090	26.99	-19.01	46.00	16.60	0.15	10.24	Average
11	13.560	24.87	-35.13	60.00	14.20	0.29	10.38	QP
12	13.560	18.97	-31.03	50.00	8.30	0.29	10.38	Average
13	17.755	36.38	-23.62	60.00	25.50	0.43	10.45	QP
14	17.755	30.68	-19.32	50.00	19.80	0.43	10.45	Average

Note:

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



3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

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

<Class B Limit>

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

3.2.2. Measuring Instruments

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

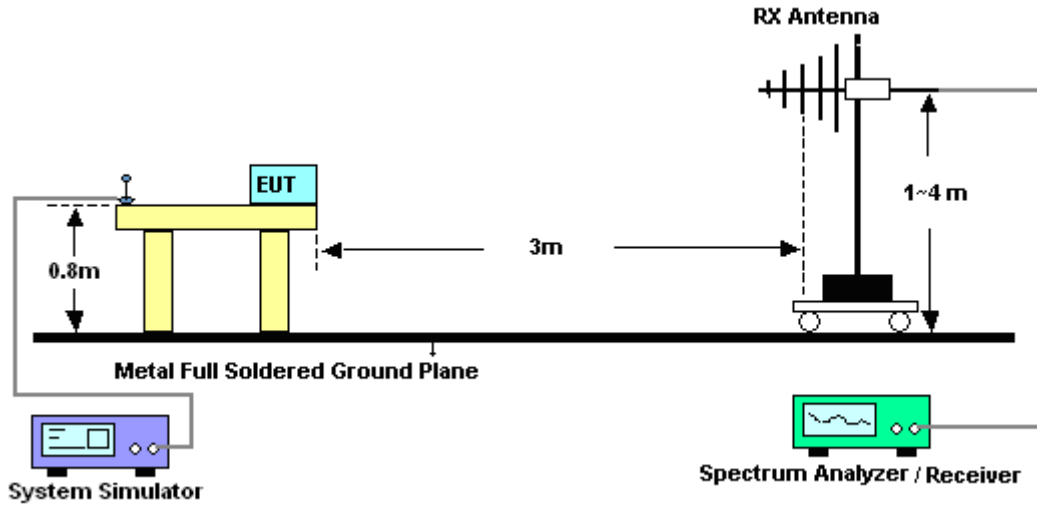


3.2.3. Test Procedures

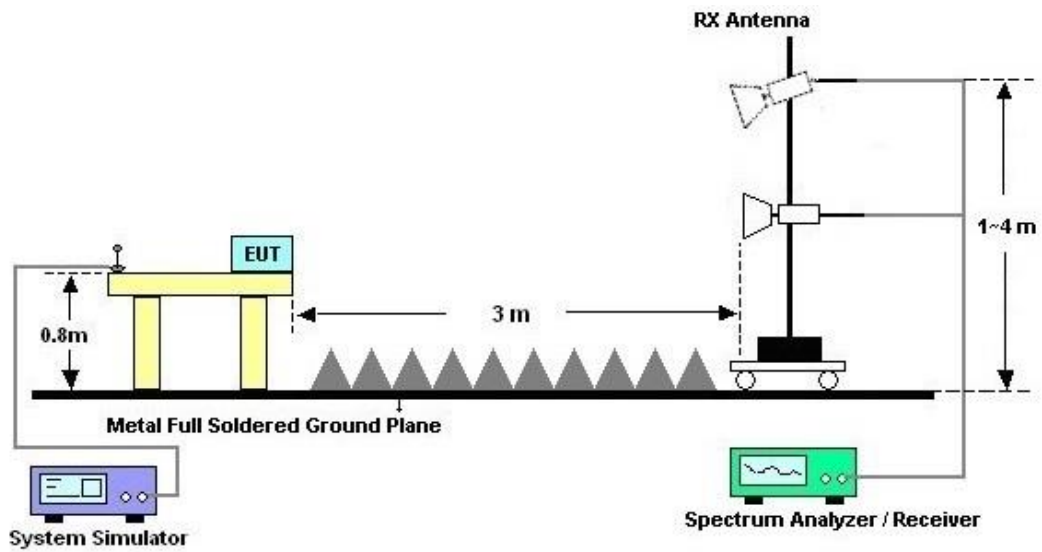
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dB 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



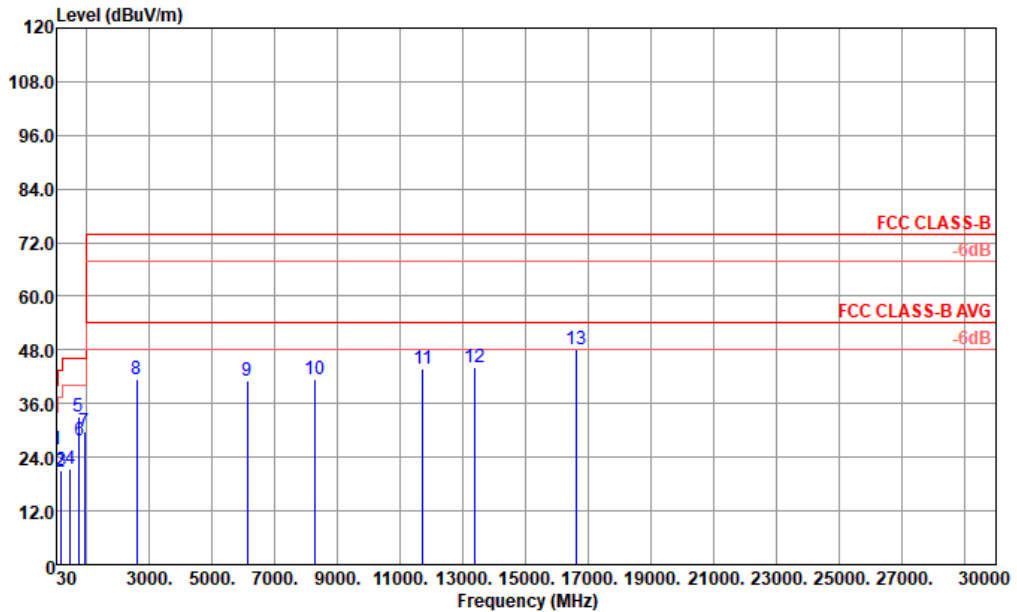
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Engineer :	Jie	Temperature :	21~22°C
		Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Horizontal
Remark :	#5 is system simulator signal which can be ignored.		

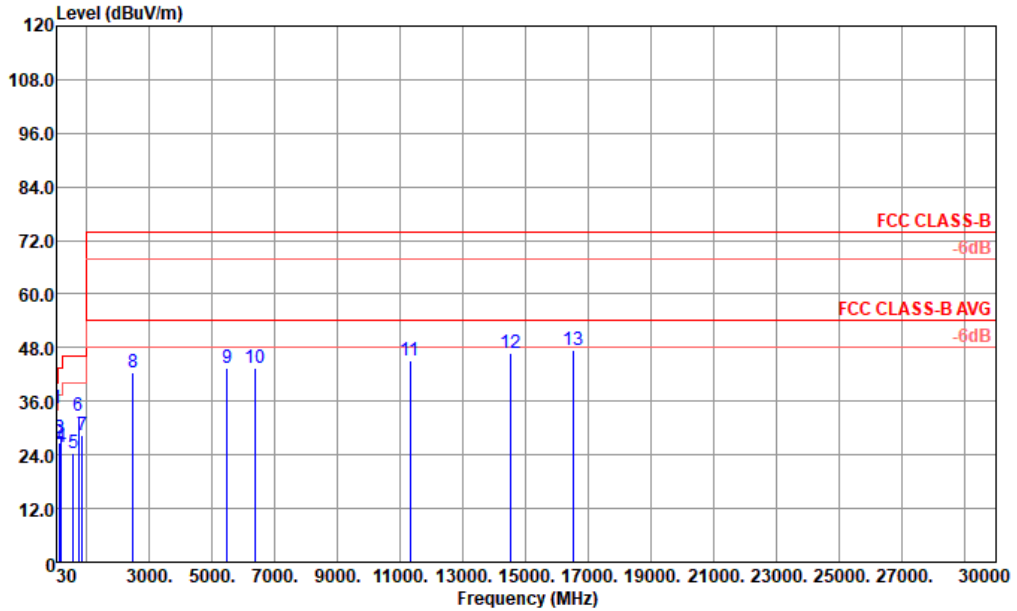


Site : 03CH08-KS
 Condition : FCC CLASS-B 3m 3117 75959 HORIZONTAL

	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	38.73	25.68	-14.32	40.00	37.49	20.08	1.01	32.90	---	---	Peak
2	151.25	20.82	-22.68	43.50	34.80	16.96	1.96	32.90	---	---	Peak
3	192.96	20.90	-22.60	43.50	36.56	15.10	2.22	32.98	---	---	Peak
4	468.44	21.25	-24.75	46.00	27.88	23.17	3.46	33.26	---	---	Peak
5	743.00	32.97			34.03	27.78	4.35	33.19	---	---	Peak
6	757.50	27.59	-18.41	46.00	28.29	28.03	4.39	33.12	---	---	Peak
7	913.67	29.60	-16.40	46.00	27.59	29.44	4.81	32.24	---	---	Peak
8	2598.00	41.42	-32.58	74.00	62.29	32.31	8.18	61.36	---	---	Peak
9	6117.00	41.26	-32.74	74.00	54.71	35.06	12.77	61.28	---	---	Peak
10	8293.00	41.50	-32.50	74.00	52.45	35.63	15.34	61.92	---	---	Peak
11	11727.00	43.87	-30.13	74.00	49.14	38.24	17.94	61.45	---	---	Peak
12	13376.00	44.28	-29.72	74.00	47.95	38.79	19.26	61.72	---	---	Peak
13	16623.00	48.03	-25.97	74.00	47.30	41.57	21.69	62.53	---	---	Peak



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



Site : 03CH08-K5
 Condition : FCC CLASS-B 3m 3117 75959 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 !	38.73	34.54	-5.46	40.00	46.35	20.08	1.01	32.90	100	25 QP
2	123.12	26.74	-16.76	43.50	41.55	16.35	1.76	32.92	---	Peak
3	155.13	27.65	-15.85	43.50	41.80	16.78	1.98	32.91	---	Peak
4	192.96	25.66	-17.84	43.50	41.32	15.10	2.22	32.98	---	Peak
5	576.11	24.38	-21.62	46.00	28.45	25.41	3.83	33.31	---	Peak
6	743.00	32.75			33.81	27.78	4.35	33.19	---	Peak
7	846.74	28.50	-17.50	46.00	27.63	28.95	4.65	32.73	---	Peak
8	2462.00	42.52	-31.48	74.00	63.66	32.12	7.97	61.23	---	Peak
9	5471.00	43.32	-30.68	74.00	58.10	34.58	12.16	61.52	---	Peak
10	6355.00	43.39	-30.61	74.00	56.33	35.21	13.02	61.17	---	Peak
11	11302.00	45.14	-28.86	74.00	51.28	37.83	17.62	61.59	---	Peak
12	14532.00	46.67	-27.33	74.00	48.43	39.63	20.14	61.53	---	Peak
13	16504.00	47.46	-26.54	74.00	46.80	41.29	21.61	62.24	---	Peak

Note:

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



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	May 24, 2022	Jun. 29, 2022	May 23, 2023	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 14, 2021	Jun. 29, 2022	Oct. 13, 2022	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	May 24, 2022	Jun. 29, 2022	May 23, 2023	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 14, 2021	Jun. 29, 2022	Oct. 13, 2022	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Max 30dBm	Oct. 16, 2021	Jun. 23, 2022	Oct. 15, 2022	Radiation (03CH08-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471084	10Hz~44G,MAX 30dB	Jul. 12, 2021	Jun. 23, 2022	Jul. 11, 2022	Radiation (03CH08-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 30, 2021	Jun. 23, 2022	Oct. 29, 2022	Radiation (03CH08-KS)
Bilog Ante1ma	TESEQ& VGT	CBL 61110	59915	30MHz~1GHz	Sep. 02, 2021	Jun. 23, 2022	Sep. 01, 2022	Radiation (03CH08-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00240138	1GHz~18GHz	Jul. 19, 2021	Jun. 23, 2022	Jul. 18, 2022	Radiation (03CH08-KS)
high gain Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	2025788	1Ghz-18Ghz	Jul. 30, 2021	Jun. 23, 2022	Jul. 29, 2023	Radiation (03CH08-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	Jun. 23, 2022	Jan. 04, 2023	Radiation (03CH08-KS)
Amplifier	SONOMA	310N	413741	9KHz-1GHz	Jan. 05, 2022	Jun. 23, 2022	Jan. 04, 2023	Radiation (03CH08-KS)
Amplifier	Keysight	83017A	MY53270389	500MHz~26.5G Hz	Jan. 05, 2022	Jun. 23, 2022	Jan. 04, 2023	Radiation (03CH08-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 05, 2022	Jun. 23, 2022	Jan. 04, 2023	Radiation (03CH08-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Jun. 23, 2022	NCR	Radiation (03CH08-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Jun. 23, 2022	NCR	Radiation (03CH08-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Jun. 23, 2022	NCR	Radiation (03CH08-KS)

NCR: No Calibration Required



5. Uncertainty of Evaluation

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

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.9dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.0dB
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