FCC Test Report

APPLICANT	:	**Motorola Mobility LLC**
EQUIPMENT	:	**Mobile Cellular Phone**
BRAND NAME	:	**Motorola**
MODEL NAME	:	**XT2027-1**
FCC ID	:	**IHDT56YH1**
STANDARD	:	**47 CFR Part 15 Subpart B**
CLASSIFICATION	:	**Certification**

The product was received on Aug. 15, 2019 and testing was completed on Sep. 26, 2019. We, Sporton International (Kunshan) Inc., 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 (Kunshan) Inc., the test report shall not be reproduced except in full.

Jason Jia

Reviewed by: Jason Jia / Supervisor

James Huang

Approved by: James Huang / Manager

ACCREDITED Cert #5145.02

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

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC981517	Rev. 01	Initial issue of report	Oct. 22, 2019

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 3.93 dB at 0.206 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 3.20 dB at 40.670 MHz

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	XT2027-1
FCC ID	IHDT56YH1
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/ DC-HSDPA/HSPA+(16QAM uplink is not supported) /LTE/NFC WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR / EDR/ LE FM Receiver and GNSS
IMEI Code	Conduction: 357226100002971 for Sample1 357225100029091/357225100029109 for Sample2 Radiation: 357226100002930 for Sample1 357225100029075/357225100029083 for Sample2
HW Version	DVT2
SW Version	QPF30.71
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 17 : 706.5 MHz ~ 713.5 MHz LTE Band 66 ：1710.7 MHz ~ 1779.3 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5720 MHz 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 7 : 2622.5 MHz ~ 2687.5 MHz LTE Band 12 : 729.7 MHz ~ 745.3 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz LTE Band 66 : 2110.7 MHz~ 2199.3 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5720 MHz 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz GNSS : 1559 MHz ~ 1610 MHz NFC : 13.56 MHz FM : 87.5MHz ~ 108MHz
Antenna Type	WWAN : Fixed Internal Antenna WLAN : Loop Antenna Bluetooth : Loop Antenna GNSS: Loop Antenna FM : External Headset Antenna NFC: Ferrite FPC Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA : BPSK (Uplink)

	HSDPA/DC-HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM (16QAM uplink is not supported) DC-HSDPA : 64QAM LTE: QPSK / 16QAM / 64QAM 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n/ac : OFDM (BPSK / QPSK / 16QAM / 64QAM /256QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : π/4-DQPSK Bluetooth (3Mbps) : 8-DPSK GNSS : BPSK NFC: ASK FM

Note:

（1）WLAN operation in 5600 MHz ~ 5650 MHz is notched.

（2）GNSS Rx = Galileo Rx + Glonass Rx + GPS Rx

1.5. Modification of EUT

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

1.6. Test Location

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International (Kunshan) Inc.		
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 03CH06-KS	CN1257	314309

1.7. 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.

1.8. Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	**Brand Name**	Motorola(Salom)	**Model Name**	SC-51
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 1(EU)	**Brand Name**	Motorola(Salom)	**Model Name**	SC-52
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 1(UK)	**Brand Name**	Motorola(Salom)	**Model Name**	SC-53
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 1(AU)	**Brand Name**	Motorola(Salom)	**Model Name**	SC-55
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 1(AR)	**Brand Name**	Motorola(Salom)	**Model Name**	SC-56
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 1(BR)	**Brand Name**	Motorola(Salom)	**Model Name**	SC-57
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 1(Chile)	**Brand Name**	Motorola(Salom)	**Model Name**	SC-52
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 1(BR) Local Build	**Brand Name**	Motorola(Flex)	**Model Name**	SC-57
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 2(US)	**Brand Name**	Motorola(Chenyang)	**Model Name**	SC-51
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 2(EU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	SC-52
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 2(UK)	**Brand Name**	Motorola(Chenyang)	**Model Name**	SC-53
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 2(AU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	SC-55
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 2(AR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	SC-56
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 3(BR) Cliptech Local Build	**Brand Name**	Motorola(Cliptech)	**Model Name**	SC-57
	Power Rating	I/P: 100-240 Vac , 600mA; O/P: 5/9/12Vdc, 3000/2000/1500mA		

AC Adapter 4(US)	**Brand Name**	Motorola(Chenyang)	**Model Name**	SC-81
	Power Rating	I/P: 100-240 Vac , 1.2A; O/P: 5/9/15/20Vdc, 4000/4000/3000/2250mA		
AC Adapter 4(EU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	SC-82
	Power Rating	I/P: 100-240 Vac , 1.2A; O/P: 5/9/15/20Vdc, 4000/4000/3000/2250mA		
AC Adapter 4(BR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	SC-87
	Power Rating	I/P: 100-240 Vac , 1.2A; O/P: 5/9/15/20Vdc, 4000/4000/3000/2250mA		
AC Adapter 5(AR)	**Brand Name**	Motorola(Salom)	**Model Name**	SC-36
	Power Rating	I/P: 100-240 Vac , 800mA; O/P: 5/9Vdc, 3000/3000mA		
AC Adapter 6(AR)	**Brand Name**	Motorola(Acbel)	**Model Name**	SC-36
	Power Rating	I/P: 100-240 Vac , 800mA; O/P: 5/9Vdc, 30003000mA		
Battery	**Brand Name**	Motorola(ATL)	**Model Name**	KG50
	Power Rating	3.8Vdc, 3790/4000mAh	**Type**	Li-ion; Polymer
Earphone 1	**Brand Name**	Motorola(Lianyun)	**Model Name**	SH38C37773
	Signal Line Type	1.11 meter, non-shielded cable, without ferrite core		
Earphone 2	**Brand Name**	Motorola (Cosonic)	**Model Name**	SH38C44959
	Signal Line Type	1.11 meter, non-shielded cable, without ferrite core		
USB Cable 1	**Brand Name**	Motorola(Saibao)	**Model Name**	SC18C24367
	Signal Line Type	1.0 meter, shielded cable, without ferrite core		
USB Cable 2	**Brand Name**	Motorola(Luxshare)	**Model Name**	SC18C24368
	Signal Line Type	1.0 meter, shielded cable, without ferrite core		
USB Cable 3	**Brand Name**	Motorola(I SHENG)	**Model Name**	SC18C28955
	Signal Line Type	1.0 meter, shielded cable, without ferrite core		
USB Cable 4	**Brand Name**	Motorola(Saibao)	**Model Name**	SC18C57604
	Signal Line Type	1.0 meter, shielded cable, without ferrite core		

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 fundamental frequency or to 40 GHz, whichever is lower).

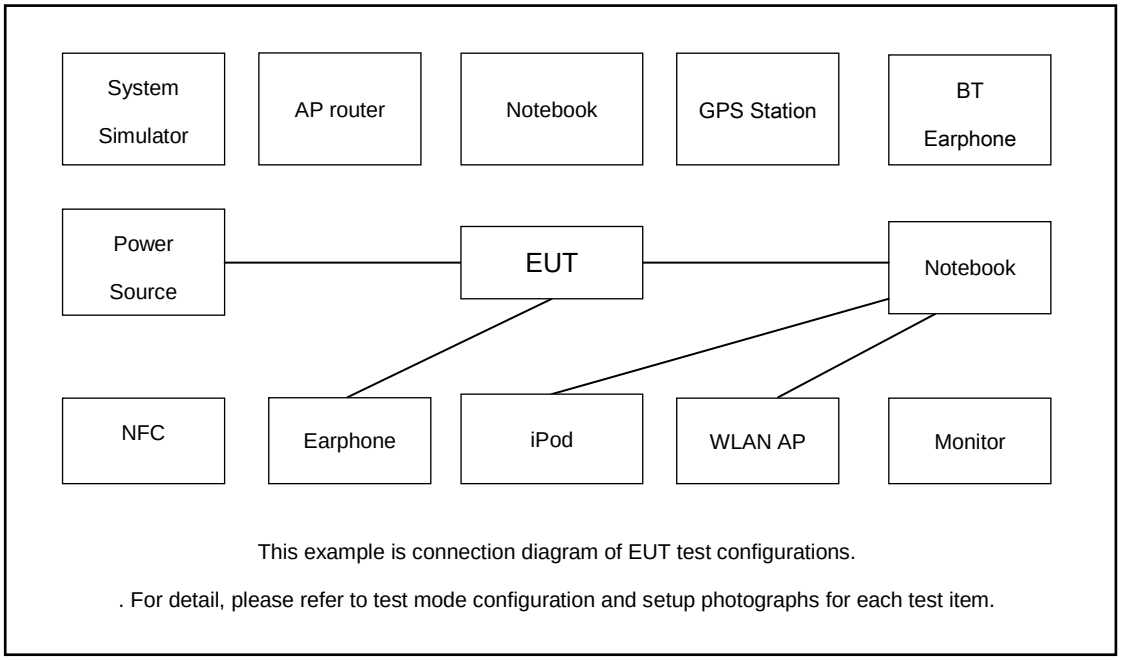
Test Items	Function Type
AC Conducted Emission	Mode 1 : GSM 850 Rx(Middle) + BT Idle + Earphone1 + USB Cable1(Charging from Adapter1) + WLAN Idle(2.4G) + Camera(Rear) for Sample1
	Mode 2 : PCS 1900 Rx + BT Idle + Earphone2 + USB Cable2(Charging from Adapter2) + WLAN Idle(5G) + Camera(Front) for Sample1
	Mode 3 : WCDMA Band 5 Rx(Low) + BT Idle + Earphone2 + USB Cable3(Charging from Adapter3) + WLAN Idle(2.4G) + MPEG4 for Sample1
	Mode 4 : LTE Band 5 Rx(Low) + BT Idle + Earphone2 + USB Cable2(Charging from Adapter2) + WLAN Idle(5G) + NFC On for Sample1
	Mode 5 : LTE Band 12 Rx(High) + BT Idle + Earphone2 + USB Cable2(Charging from Adapter2) + WLAN Idle(2.4G) + FM Rx(98MHZ) for Sample1
	Mode 6 : LTE Band 17 Rx(High) + BT Idle + Earphone2 + USB Cable 1(Data Link with Notebook) + WLAN Idle(5G) + GNSS Rx for Sample1
	Mode 7 : LTE Band 4 Rx + BT Idle + Earphone2 + USB Cable 2(Data Link with Notebook) + WLAN Idle(2.4G) + GNSS Rx for Sample1
	Mode 8 : LTE Band 7 Rx + BT Idle + Earphone2 + USB Cable 3(Data Link with Notebook) + WLAN Idle(5G) + GNSS Rx for Sample1
	Mode 9 : PCS 1900 Rx + BT Idle + Earphone2 + USB Cable2(Charging from Adapter2) + WLAN Idle(5G) + Camera(Front) for Sample 2
	Mode 10 : PCS 1900 Rx + BT Idle + Earphone2 + USB Cable4(Charging from Adapter4) + WLAN Idle(5G) + Camera(Front) for Sample1
	Mode 11 : LTE Band 17 Rx(High) + BT Idle + Earphone2 + USB Cable 4(Data Link with Notebook) + WLAN Idle(5G) + GNSS Rx for Sample1
	Mode 12 : PCS 1900 Rx + BT Idle + Earphone2 + USB Cable4(Charging from Adapter5) + WLAN Idle(5G) + Camera(Front) for Sample1
	Mode 13 : PCS 1900 Rx + BT Idle + Earphone2 + USB Cable4(Charging from Adapter6) + WLAN Idle(5G) + Camera(Front) for Sample1

Radiated Emissions	Mode 1 : GSM 850 Rx(Middle) + BT Idle + Earphone1 + WLAN Idle(2.4G) + Camera(Rear) + USB Cable1(Charging from Adapter1) for Sample1 Mode 2 : PCS 1900 Rx + BT Idle + Earphone2 + WLAN Idle(5G) + Camera(Front) + USB Cable2(Charging from Adapter2) for Sample1 Mode 3 : WCDMA Band 5 Rx(Low) + BT Idle + Earphone1 + WLAN Idle(2.4G) + MPEG4 + USB Cable3(Charging from Adapter3) for Sample1 Mode 4 : LTE Band 5 Rx(Low) + BT Idle + Earphone1 + WLAN Idle(5G) + NFC On + USB Cable3(Charging from Adapter3) for Sample1 Mode 5 : LTE Band 12 Rx(High) + BT Idle + Earphone1 + WLAN Idle(2.4G) + FM(88) + USB Cable3(Charging from Adapter3) for Sample1 Mode 6 : LTE Band 17 Rx(High) + BT Idle + Earphone1 + WLAN Idle(5G) + GNSS Rx + USB Cable 1(Data Link with Notebook) for Sample1 Mode 7 : LTE Band 4 Rx + BT Idle + Earphone1 + WLAN Idle(2.4G) + GNSS Rx + USB Cable 2(Data Link with Notebook) for Sample1 Mode 8 : LTE Band 7 Rx + BT Idle + Earphone1 + WLAN Idle(5G) + GNSS Rx + USB Cable 3(Data Link with Notebook) for Sample1 Mode 9 : LTE Band 5 Rx(Low) + BT Idle + Earphone1 + WLAN Idle(5G) + NFC On + USB Cable3(Charging from Adapter3) for Sample2 Mode 10 : LTE Band 5 Rx(Low) + BT Idle + Earphone1 + WLAN Idle(5G) + Earphone1 + USB Cable4(Charging from Adapter4) for Sample2 Mode 11 : LTE Band 4 Rx + BT Idle + Earphone1 + WLAN Idle(2.4G) + GNSS Rx + USB Cable 4(Data Link with Notebook) for Sample2 Mode 12 : LTE Band 5 Rx(Low) + BT Idle + Earphone1 + WLAN Idle(5G) + NFC On + USB Cable4(Charging from Adapter5) for Sample2 Mode 13 : LTE Band 5 Rx(Low) + BT Idle + Earphone1 + WLAN Idle(5G) + NFC On + USB Cable4(Charging from Adapter6) for Sample2

Remark:

1. The worst case of AC is mode 2; only the test data of this mode is reported.
2. The worst case of RE is mode 9; only the test data of this mode is reported.
3. Data Link with Notebook means data application transferred mode between EUT and Notebook.

2.2. Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

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

2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
2.	LTE Base Station	Anritus	MT8821C	N/A	N/A	Unshielded,1.8m
3.	Base Station	R&S	CMU 200	N/A	N/A	Unshielded,1.8m
4.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
5.	Bluetooth Earphone	XiaoMi	LYEJ02LM	N/A	N/A	N/A
6.	Notebook	Lenovo	Yoga S730	N/A	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
7.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
8.	Notebook	Dell	Latitude3440	N/A	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
9.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
10.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded,1.8m
11.	WLAN AP	ASUS	AC66U	N/A	N/A	Unshielded,1.8m
12.	Earphone	Lenovo	P121	N/A	N/A	Unshielded,1.2m
13.	Earphone	Lenovo	N/A	N/A	N/A	N/A
14.	U Disk	SanDisk	SDCZ50-008G	N/A	N/A	N/A
15.	Hard Disk	Lenovo	F310	DoC	Shielded, 1.2m	N/A
16.	SD Card	Kingston	8GB	N/A	N/A	N/A
17.	SD Card	SanDisk	Uitra	N/A	N/A	N/A
18.	Hard disk	Lenovo	FH310	Fcc DoC	Shielded, 1.2m	N/A
19.	Signal Generator	R&S	SMBV100A	N/A	N/A	Unshielded,1.8m
20.	Vector Signal Generator	R&S	SMBV100A	258305	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.
5. Turn on NFC function.
6. Turn on GNSS function to make the EUT receive continuous signals from GNSS station.

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.

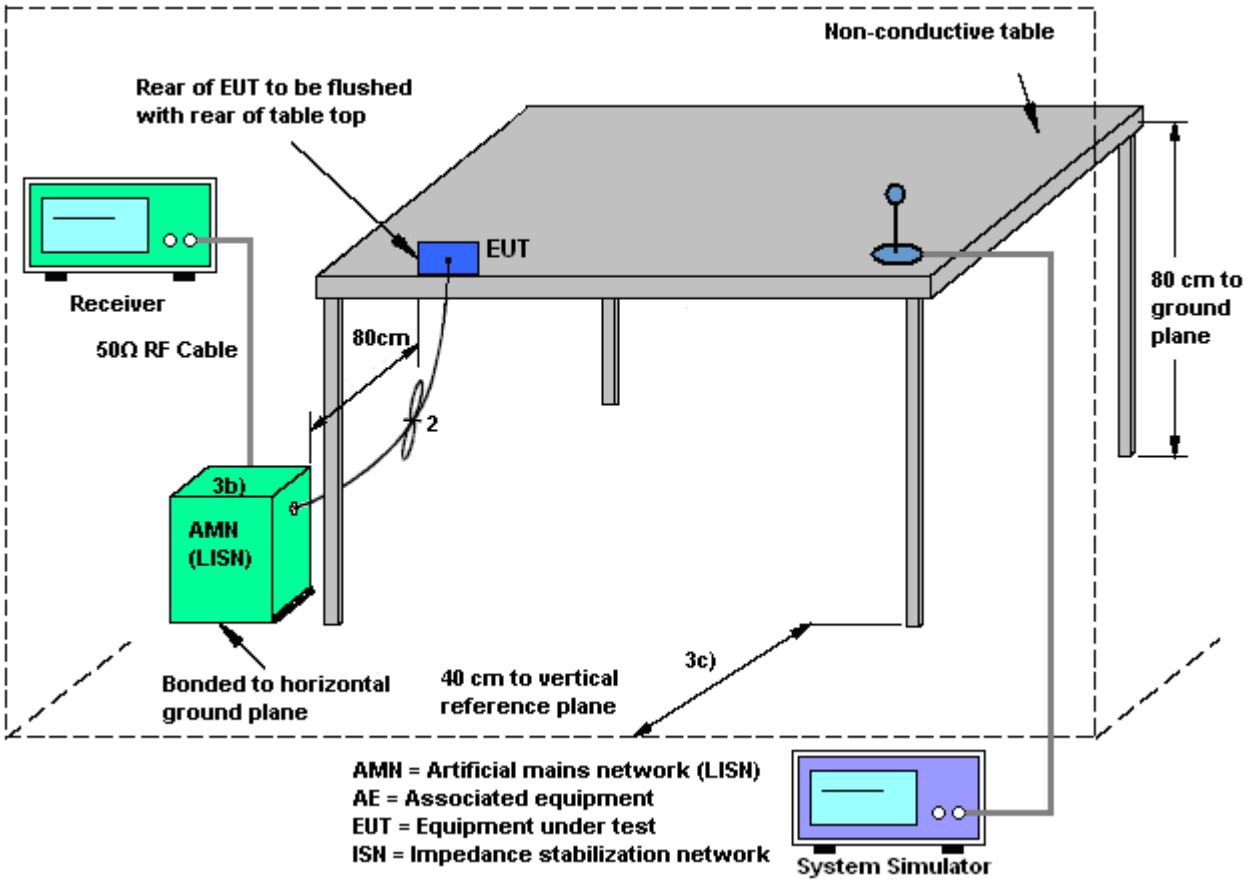
3.1.2 Measuring Instruments

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

3.1.3 Test Procedure

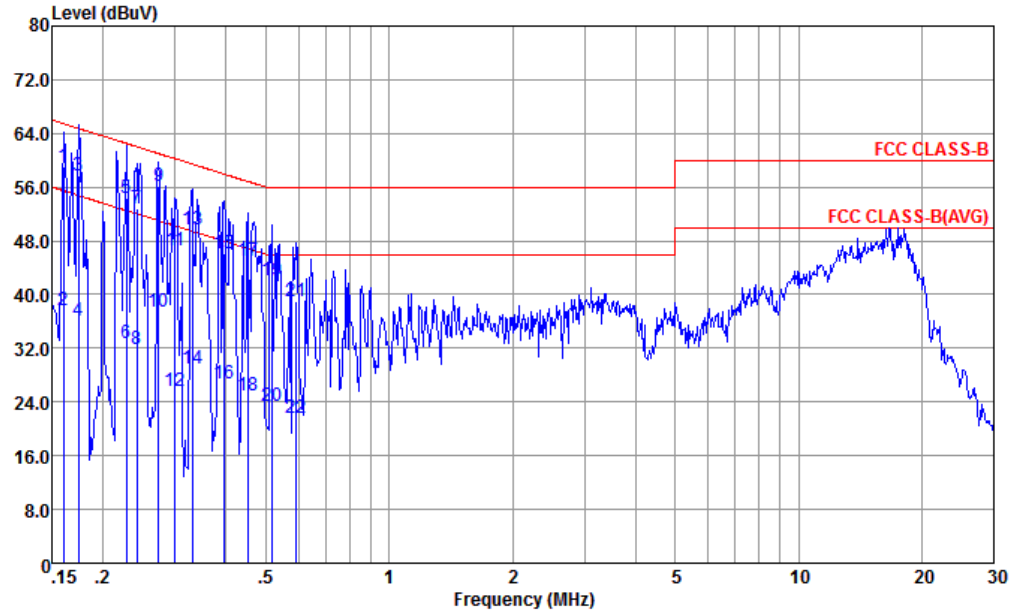
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

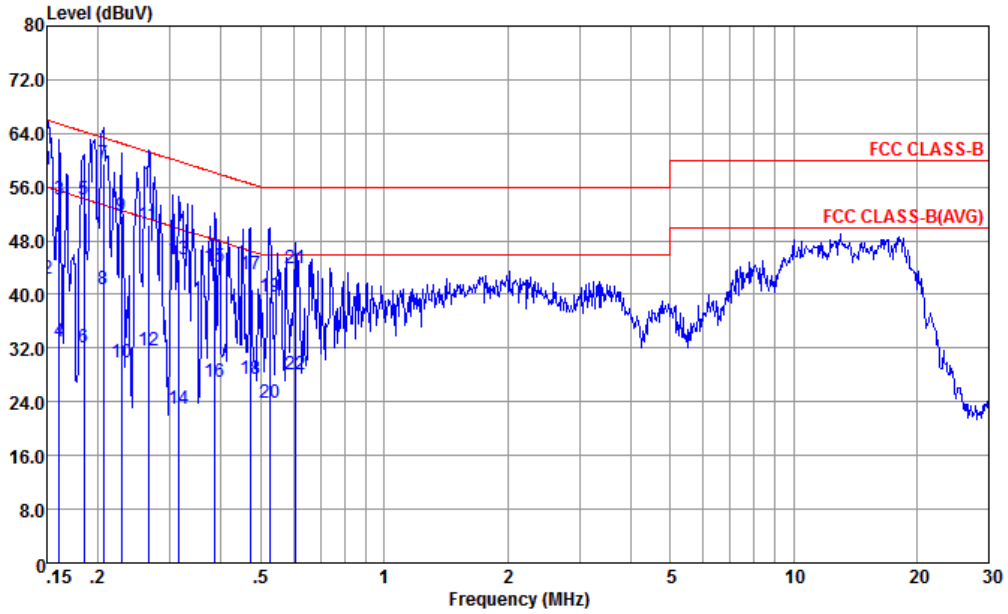
Test Engineer :	Amos Zhang	Temperature :	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line



Site : CO01-KS
Condition : FCC CLASS-B LISN-L-181119-060105 LINE
Project : (FC) 981517
mode : Mode 2
: 357226100002971 #5

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.160	59.15	-6.32	65.47	48.60	0.10	10.45	QP
2		0.160	37.75	-17.72	55.47	27.20	0.10	10.45	Average
3		0.174	57.83	-6.94	64.77	47.30	0.11	10.42	QP
4		0.174	36.13	-18.64	54.77	25.60	0.11	10.42	Average
5		0.228	54.37	-8.15	62.52	43.89	0.13	10.35	QP
6		0.228	32.77	-19.75	52.52	22.29	0.13	10.35	Average
7		0.242	52.77	-9.27	62.04	42.30	0.13	10.34	QP
8		0.242	31.77	-20.27	52.04	21.30	0.13	10.34	Average
9	*	0.273	56.06	-4.97	61.03	45.60	0.14	10.32	QP
10		0.273	37.36	-13.67	51.03	26.90	0.14	10.32	Average
11		0.300	46.65	-13.59	60.24	36.20	0.14	10.31	QP
12		0.300	25.55	-24.69	50.24	15.10	0.14	10.31	Average
13		0.330	49.64	-9.80	59.44	39.20	0.15	10.29	QP
14		0.330	29.04	-20.40	49.44	18.60	0.15	10.29	Average
15		0.396	46.23	-11.72	57.95	35.80	0.16	10.27	QP
16		0.396	26.73	-21.22	47.95	16.30	0.16	10.27	Average
17		0.452	44.91	-11.94	56.85	34.50	0.16	10.25	QP
18		0.452	25.01	-21.84	46.85	14.60	0.16	10.25	Average
19		0.516	42.21	-13.79	56.00	31.80	0.17	10.24	QP
20		0.516	23.31	-22.69	46.00	12.90	0.17	10.24	Average
21		0.592	39.02	-16.98	56.00	28.60	0.18	10.24	QP
22		0.592	21.72	-24.28	46.00	11.30	0.18	10.24	Average

Test Engineer :	Amos Zhang	Temperature :	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral



Site : CO01-KS
Condition : FCC CLASS-B LISN-N-181119-060105 NEUTRAL
Project : (FC) 981517
mode : Mode 2
: 357226100002971 #5

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.150	58.56	-7.44	66.00	47.90	0.18	10.48	QP
2		0.150	42.26	-13.74	56.00	31.60	0.18	10.48	Average
3		0.161	54.23	-11.20	65.43	43.60	0.18	10.45	QP
4		0.161	32.93	-22.50	55.43	22.30	0.18	10.45	Average
5		0.184	54.17	-10.11	64.28	43.60	0.17	10.40	QP
6		0.184	32.07	-22.21	54.28	21.50	0.17	10.40	Average
7	*	0.206	59.43	-3.93	63.36	48.90	0.17	10.36	QP
8		0.206	40.73	-12.63	53.36	30.20	0.17	10.36	Average
9		0.228	51.72	-10.80	62.52	41.20	0.17	10.35	QP
10		0.228	29.82	-22.70	52.52	19.30	0.17	10.35	Average
11		0.266	50.39	-10.86	61.25	39.91	0.16	10.32	QP
12		0.266	31.69	-19.56	51.25	21.21	0.16	10.32	Average
13		0.315	45.26	-14.58	59.84	34.80	0.16	10.30	QP
14		0.315	23.06	-26.78	49.84	12.60	0.16	10.30	Average
15		0.385	44.03	-14.14	58.17	33.60	0.16	10.27	QP
16		0.385	27.03	-21.14	48.17	16.60	0.16	10.27	Average
17		0.471	42.99	-13.50	56.49	32.60	0.15	10.24	QP
18		0.471	27.49	-19.00	46.49	17.10	0.15	10.24	Average
19		0.527	39.58	-16.42	56.00	29.19	0.15	10.24	QP
20		0.527	23.88	-22.12	46.00	13.49	0.15	10.24	Average
21		0.608	43.98	-12.02	56.00	33.60	0.14	10.24	QP
22		0.608	28.08	-17.92	46.00	17.70	0.14	10.24	Average

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

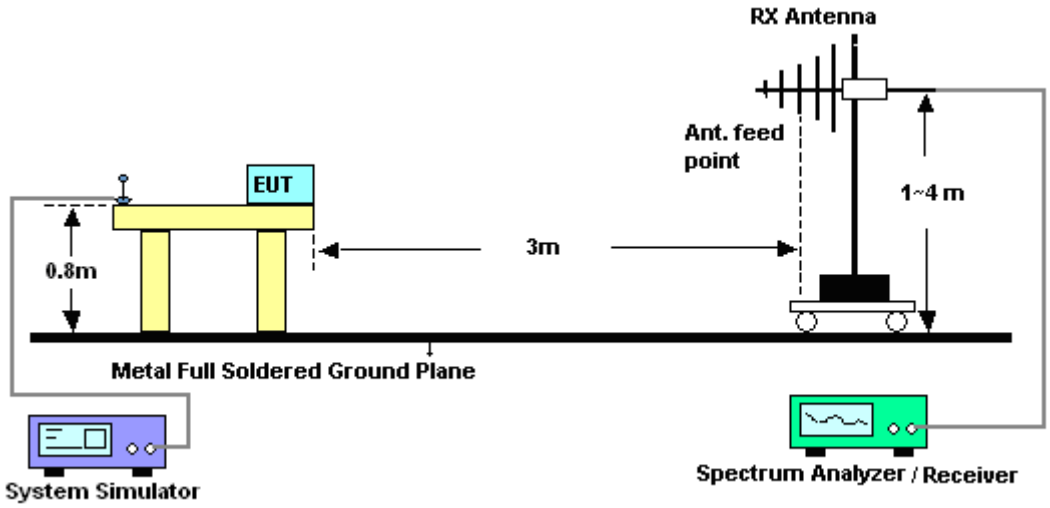
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

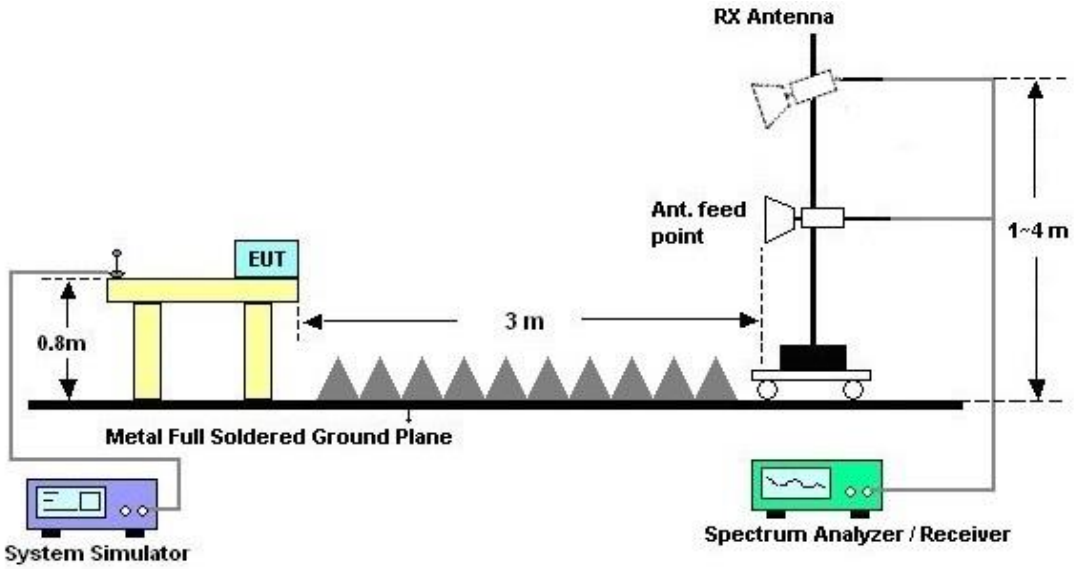
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz

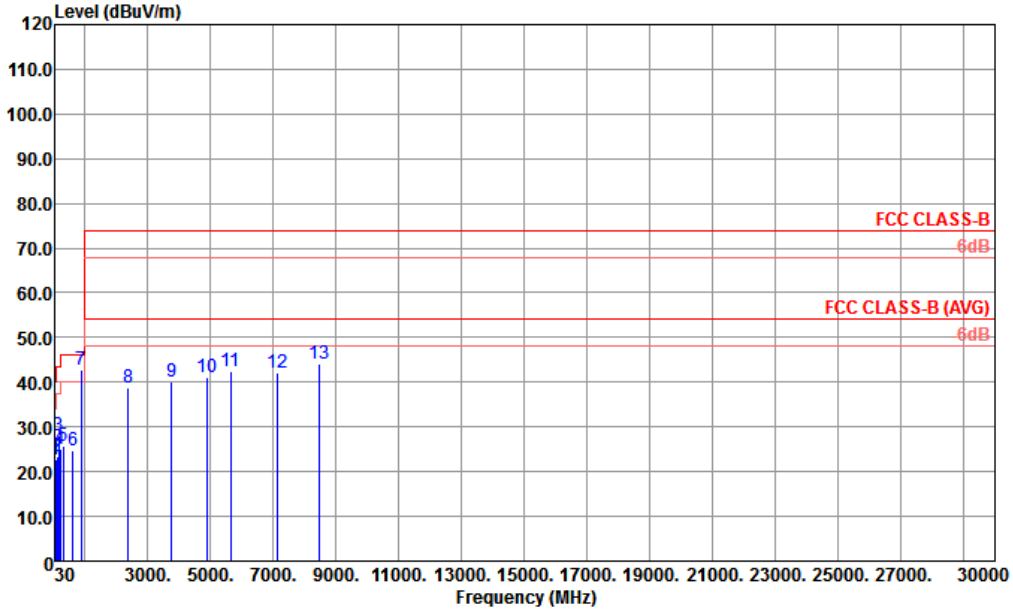


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

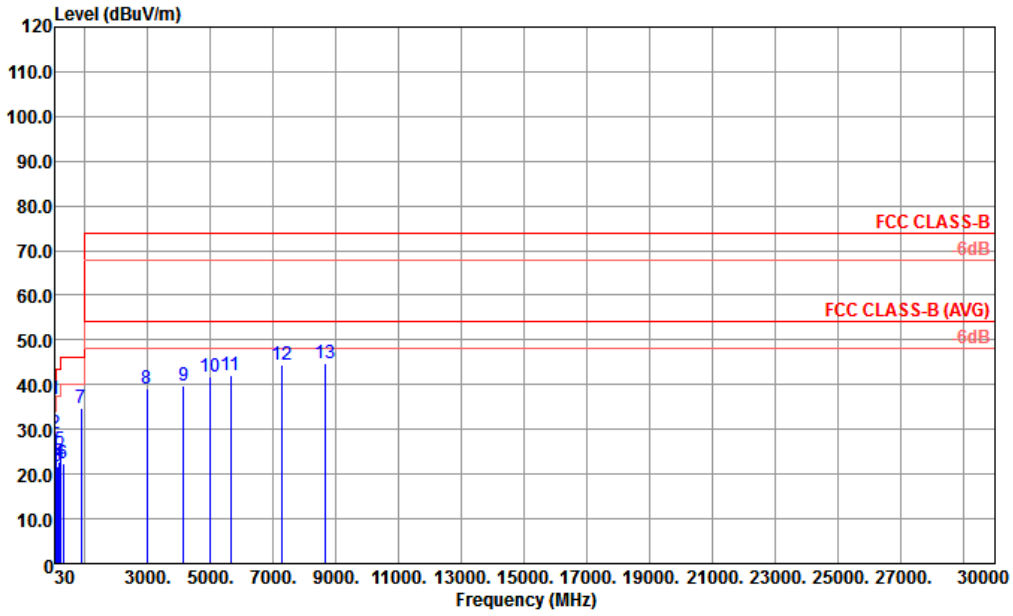
Test Engineer :	Carl Ni	**Temperature :**	21~22°C
		Relative Humidity :	41~42%
Test Distance :	3m	**Polarization :**	Horizontal
Remark	#7 is system simulator signal which can be ignored.		



Site : 03CH06-KS
Condition : FCC CLASS-B 3m LF 49922-3M 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		67.83	22.72	-17.28	40.00	41.23	12.44	0.98	31.93	---	---	Peak
2		105.66	23.35	-20.15	43.50	37.77	16.32	1.19	31.93	---	---	Peak
3		168.71	27.98	-15.52	43.50	41.97	16.42	1.52	31.93	100	0	Peak
4		210.42	25.08	-18.42	43.50	39.45	15.86	1.68	31.91	---	---	Peak
5		298.69	25.67	-20.33	46.00	36.48	19.29	1.98	32.08	---	---	Peak
6		607.15	24.69	-21.31	46.00	28.25	26.08	2.76	32.40	---	---	Peak
7	!	874.00	42.69			41.67	29.25	3.40	31.63	---	---	Peak
8		2368.00	38.71	-35.29	74.00	34.94	31.18	5.56	32.97	---	---	Peak
9		3768.00	40.22	-33.78	74.00	31.43	33.61	7.20	32.02	---	---	Peak
10		4880.00	41.16	-32.84	74.00	30.53	33.77	8.20	31.34	---	---	Peak
11		5632.00	42.33	-31.67	74.00	29.71	34.68	8.94	31.00	---	---	Peak
12		7112.00	42.15	-31.85	74.00	28.00	35.52	10.04	31.41	---	---	Peak
13		8456.00	44.02	-29.98	74.00	28.34	36.47	11.17	31.96	---	---	Peak

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



Site : 03CH06-KS
Condition : FCC CLASS-B 3m LF 49922-3M 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 !	40.67	36.80	-3.20	40.00	48.89	19.16	0.71	31.96	100	30	QP
2	67.83	29.09	-10.91	40.00	47.60	12.44	0.98	31.93	---	---	Peak
3	104.69	21.69	-21.81	43.50	36.14	16.30	1.18	31.93	---	---	Peak
4	176.47	22.86	-20.64	43.50	37.16	16.09	1.53	31.92	---	---	Peak
5	207.51	25.42	-18.08	43.50	40.00	15.65	1.68	31.91	---	---	Peak
6	300.63	22.42	-23.58	46.00	33.12	19.32	1.98	32.00	---	---	Peak
7	874.87	34.66			33.64	29.25	3.40	31.63	---	---	Peak
8	2976.00	39.03	-34.97	74.00	32.25	32.72	6.28	32.22	---	---	Peak
9	4136.00	39.92	-34.08	74.00	30.50	33.78	7.58	31.94	---	---	Peak
10	4968.00	41.76	-32.24	74.00	30.84	33.85	8.34	31.27	---	---	Peak
11	5648.00	42.19	-31.81	74.00	29.53	34.70	8.95	30.99	---	---	Peak
12	7296.00	44.39	-29.61	74.00	30.09	35.83	10.14	31.67	---	---	Peak
13	8664.00	44.68	-29.32	74.00	28.58	36.40	11.48	31.78	---	---	Peak

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	Aug .06, 2019	Sep. 19, 2019	Aug. 05, 2020	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz-44G,MAX 30dB	Apr. 15, 2019	Sep. 19, 2019	Apr. 16, 2020	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	23182	30MHz-2GHz	Dec. 29, 2018	Sep. 19, 2019	Dec. 28, 2019	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Jan. 27, 2019	Sep. 19, 2019	Jan. 26, 2020	Radiation (03CH02-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2019	Sep. 19, 2019	Jan. 04, 2020	Radiation (03CH02-KS)
Amplifier	MITEQ	TTA1840-35-HG	1887435	18~40GHz	Jan. 14, 2019	Sep. 19, 2019	Jan. 13, 2020	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Aug. 06, 2019	Sep. 19, 2019	Aug. 05, 2020	Radiation (03CH02-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Apr. 15, 2019	Sep. 19, 2019	Apr. 14, 2020	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Sep. 19, 2019	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Sep. 19, 2019	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Sep. 19, 2019	NCR	Radiation (03CH02-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 16, 2019	Sep. 26, 2019	Apr. 15, 2020	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 12, 2018	Sep. 26, 2019	Oct. 11, 2019	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Nov. 19, 2018	Sep. 26, 2019	Nov. 18, 2019	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2018	Sep. 26, 2019	Oct. 11, 2019	Conduction (CO01-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**

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

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

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

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

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

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