FCC Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2019-2
FCC ID	:	IHDT56YG2
STANDARD	:	47 CFR Part 15 Subpart B
CLASSIFICATION	:	Certification

The product was received on Jun. 25, 2019 and testing was completed on Aug. 08, 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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC962524	Rev. 01	Initial issue of report	Aug. 27, 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 4.67 dB at 0.198 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 5.23 dB at 42.610 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	XT2019-2
FCC ID	IHDT56YG2
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/ HSPA+(16QAM uplink is not supported)/LTE 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: 357207100020114/357207100020122 Radiation: 357207100019355/357207100019363
HW Version	DVT2
SW Version	PPI29.35
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, sample 1 is dual SIM card, sample 2 is single SIM card, all the others are the same. We choice the sample 1 to full test.

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
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 FM : 87.5MHz ~ 108MHz
Antenna Type	WWAN : Fixed Internal Antenna WLAN 2.4GHz : Loop Antenna WLAN 5GHz : PIFA Antenna Bluetooth : Loop Antenna GNSS: Loop Antenna FM : External Headset 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 FM

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 03CH02-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, 0.6A, 50/60Hz; 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, 0.6A, 50/60Hz; 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, 0.6A, 50/60Hz; 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, 0.6A, 50/60Hz; 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, 0.6A, 50/60Hz; 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, 0.6A, 50/60Hz; 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, 0.6A, 50/60Hz; 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, 0.6A, 50/60Hz; 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, 0.6A, 50/60Hz; 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, 0.6A, 50/60Hz; 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, 0.6A, 50/60Hz; 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, 0.6A, 50/60Hz; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 3(BR)	Brand Name	Motorola(Cliptech/Tenpao)	Model Name	SC-57
	Power Rating	I/P: 100-240 Vac, 0.6A, 50/60Hz; O/P: 5/9/12Vdc, 3000/2000/1500mA		
AC Adapter 4(BR)	Brand Name	Motorola(Flex/Salom)	Model Name	SC-57
	Power Rating	I/P: 100-240 Vac, 0.6A, 50/60Hz; O/P: 5/9/12Vdc, 3000/2000/1500mA		
Battery	Brand Name	Motorola (Sunwoda)	Model Name	KD40
	Power Rating	3.8Vdc,4000mAh	Type	Li-ion
Earphone 1	Brand Name	Motorola (Lianyun)	Model Name	SH38C37773
	Signal Line Type	1.1 meter, non-shielded cable, with w/o ferrite core		
Earphone 2	Brand Name	Motorola (Cosonic)	Model Name	SH38C44959
	Signal Line Type	1.1 meter, non-shielded cable, with w/o ferrite core		
Earphone 3	Brand Name	Motorola (NEW LEADER)	Model Name	NLD-EM303H-10SF
	Signal Line Type	1.2 meter, non-shielded cable, with w/o ferrite core		

USB Cable 1	**Brand Name**	Motorola (LiQi)	**Model Name**	L32B-053000100/ L32B-053000100L
	Signal Line Type	1.0 meter, shielded cable, without ferrite core		
USB Cable 2	**Brand Name**	Motorola (SaiBao)	**Model Name**	S32B-053000100/ S32B-053000100L
	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		

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).

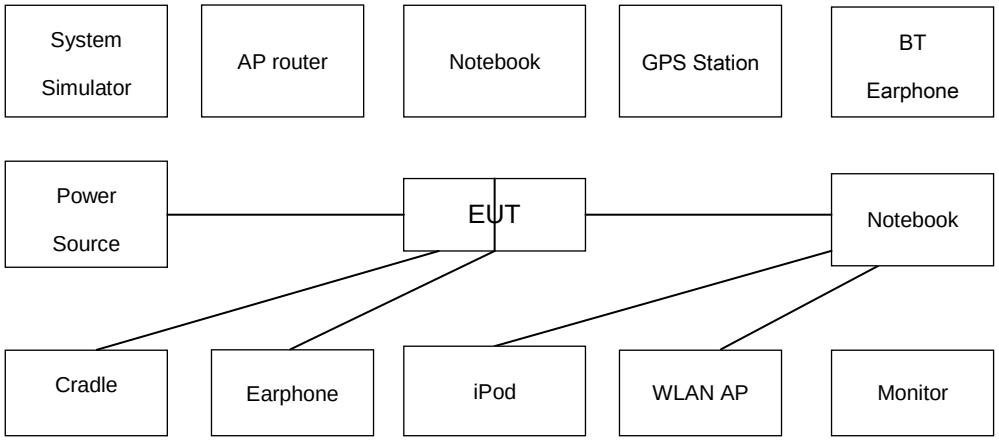
Test Items	Function Type
AC Conducted Emission	Mode 1: GSM 850 Rx(Middle) + Bluetooth Idle + WLAN Idle(2.4G) + Earphone 1 + Camera(Rear) + USB Cable 1(Charging from Adapter 1) + SIM 1 for Sample 1 Mode 2: WCDMA Band II Rx + Bluetooth Idle + WLAN Idle(5G) + Earphone 2 + Camera(Front) + USB Cable 2(Charging from Adapter 2) + SIM 2 for Sample 1 Mode 3: WCDMA Band IV Rx + Bluetooth Idle + WLAN Idle(2.4G) + Earphone 2 + MPEG4 + USB Cable 3(Charging from Adapter 3) + SIM 1 for Sample 1 Mode 4: LTE Band 12 Rx(High) + Bluetooth Idle + WLAN Idle(5G) + Earphone 2 + FM Rx(98MHz) + USB Cable 2(Charging from Adapter 2) + SIM 2 for Sample 1 Mode 5: LTE Band 17 Rx(High) + Bluetooth Idle + WLAN Idle(5G) + Earphone 2 + GNSS Rx + USB Cable 1(Data Link with Notebook) + SIM 1 for Sample 1 Mode 6: LTE Band 5 Rx(Low) + Bluetooth Idle + WLAN Idle(2.4G) + Earphone 2 + GNSS Rx + USB Cable 2(Data Link with Notebook) + SIM 2 for Sample 1 Mode 7: LTE Band 7 Rx + Bluetooth Idle + WLAN Idle(5G) + Earphone 2 + GNSS Rx + USB Cable 3(Data Link with Notebook) + SIM 1 for Sample 1 Mode 8: WCDMA Band II Rx + Bluetooth Idle + WLAN Idle(5G) + Earphone 3 + Camera(Front) + USB Cable 2(Charging from Adapter 2) + SIM 2 for Sample 1

Radiated Emissions	Mode 1: GSM 850 Rx(Middle) + Bluetooth Idle + WLAN Idle(2.4G) + Earphone 1 + Camera(Rear) + USB Cable 1(Charging from Adapter 1) + SIM 1 for Sample 1 Mode 2: WCDMA Band II Rx + Bluetooth Idle + WLAN Idle(5G) + Earphone 2 + Camera(Front) + USB Cable 2(Charging from Adapter 2) + SIM 2 for Sample 1 Mode 3: WCDMA Band IV Rx + Bluetooth Idle + WLAN Idle(2.4G) + Earphone 1 + MPEG4 + USB Cable 3(Charging from Adapter 3) + SIM 1 for Sample 1 Mode 4: LTE Band 12 Rx(High) + Bluetooth Idle + WLAN Idle(5G) + Earphone 1 + FM Rx(88MHz) + USB Cable 3(Charging from Adapter 3) + SIM 2 for Sample 1 Mode 5: LTE Band 17 Rx(High) + Bluetooth Idle + WLAN Idle(5G) + Earphone 1 + GNSS Rx + USB Cable 1(Data Link with Notebook) + SIM 1 for Sample 1 Mode 6: LTE Band 5 Rx(Low) + Bluetooth Idle + WLAN Idle(2.4G) + Earphone 1 + GNSS Rx + USB Cable 2(Data Link with Notebook) + SIM 2 for Sample 1 Mode 7: LTE Band 7 Rx + Bluetooth Idle + WLAN Idle(5G) + Earphone 1 + GNSS Rx + USB Cable 3(Data Link with Notebook) + SIM 1 for Sample 1 Mode 8: WCDMA Band IV Rx + Bluetooth Idle + WLAN Idle(2.4G) + Earphone 3 + MPEG4 + USB Cable 3(Charging from Adapter 3) + SIM 1 for Sample 1

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 3; 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 GSM850/WCDMA Band V/LTE Band 5/12/17, FM Rx. The worst channel was recorded in this report.

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.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
2.	Base Station	R&S	CMU 200	N/A	N/A	Unshielded,1.8m
3.	Signal generator	R&S	SMBV100A	N/A	N/A	Unshielded,1.8m
4.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded,1.8m
5.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded,1.8m
6.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
7.	Bluetooth Earphone	Xiaomi	LYEJ02LM	N/A	N/A	N/A
8.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
9.	Notebook	DELL	Latitude3440	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
10.	Hard Disk	Lenovo	F310	DoC	Shielded, 1.2m	N/A
11.	SD Card	Kingston	8GB	N/A	N/A	N/A
12.	SD Card	SanDisk	Uitra	N/A	N/A	N/A

2.4. EUT Operation Test Setup

The EUT was in GSM or WCDMA or LTE idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

1. Data application is transferred between notebook and EUT via USB cable.
2. Turn on camera to capture images.
3. Turn on MPEG4 function.
4. Turn on FM function.
5. 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.

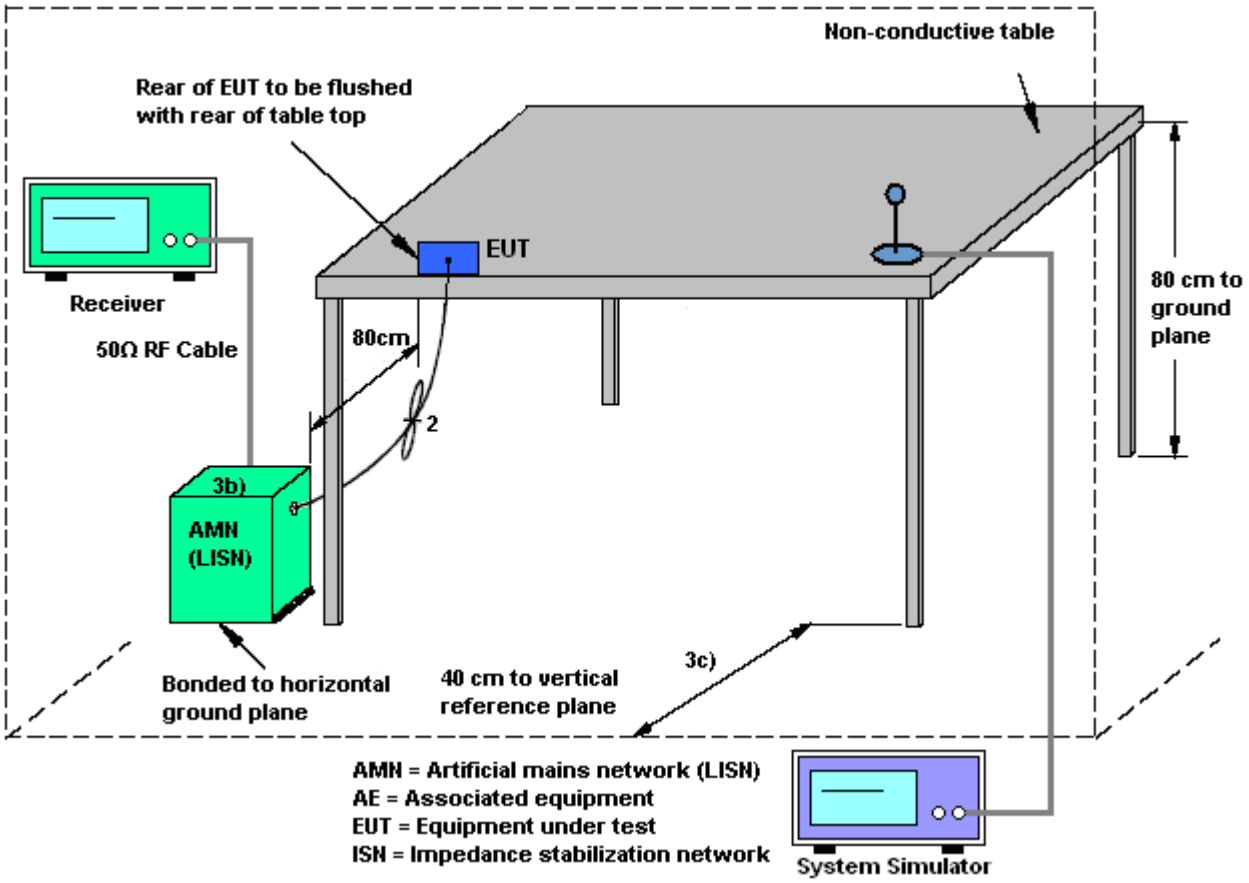
3.1.2 Measuring Instruments

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

3.1.3 Test Procedure

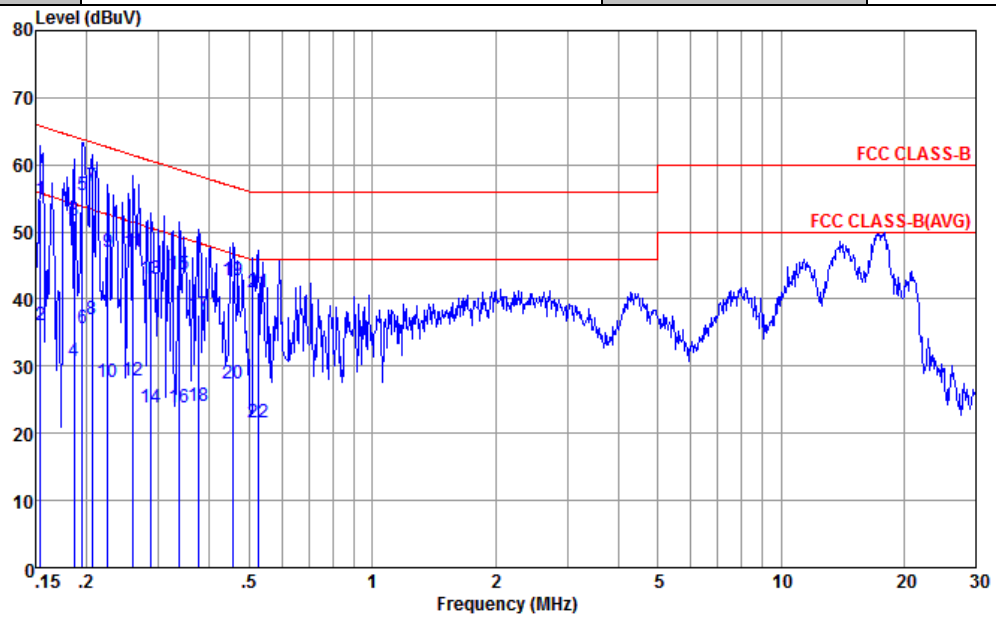
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

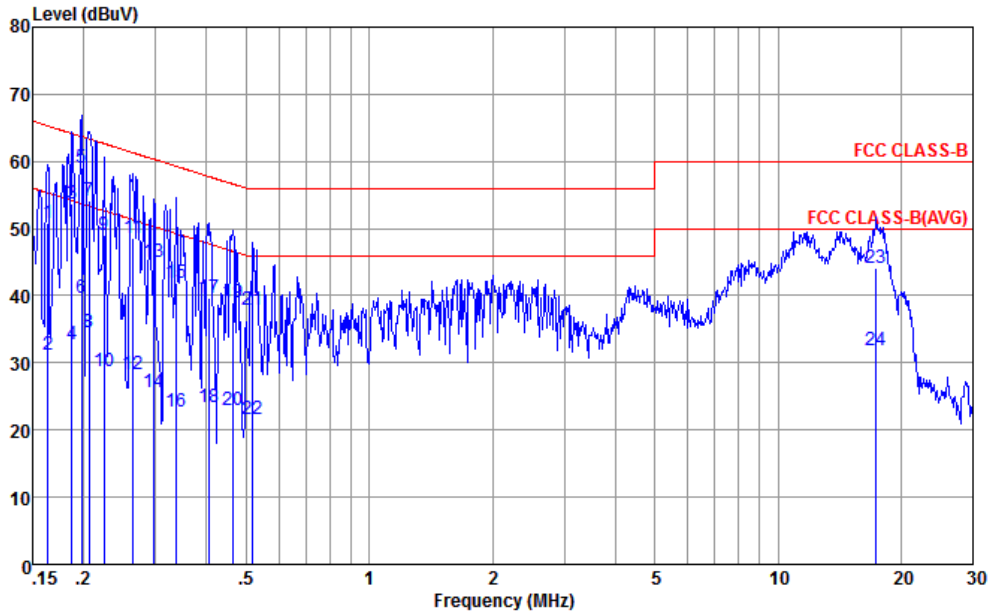
Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line



Site : CO01-KS
Condition : FCC CLASS-B LISN-L-181119-060105 LINE
Project : (FC) 962524
mode : Mode 2
: 357207100020114/357207100020122 #6

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.154	54.76	-11.02	65.78	44.20	0.09	10.47	QP
2		0.154	36.06	-19.72	55.78	25.50	0.09	10.47	Average
3		0.186	51.60	-12.60	64.20	41.10	0.11	10.39	QP
4		0.186	30.80	-23.40	54.20	20.30	0.11	10.39	Average
5		0.195	55.59	-8.21	63.80	45.10	0.12	10.37	QP
6		0.195	35.69	-18.11	53.80	25.20	0.12	10.37	Average
7	*	0.206	56.78	-6.58	63.36	46.30	0.12	10.36	QP
8		0.206	37.08	-16.28	53.36	26.60	0.12	10.36	Average
9		0.226	47.07	-15.54	62.61	36.59	0.13	10.35	QP
10		0.226	27.67	-24.94	52.61	17.19	0.13	10.35	Average
11		0.260	46.96	-14.46	61.42	36.50	0.13	10.33	QP
12		0.260	27.96	-23.46	51.42	17.50	0.13	10.33	Average
13		0.288	43.05	-17.54	60.59	32.60	0.14	10.31	QP
14		0.288	23.75	-26.84	50.59	13.30	0.14	10.31	Average
15		0.337	43.64	-15.63	59.27	33.20	0.15	10.29	QP
16		0.337	23.94	-25.33	49.27	13.50	0.15	10.29	Average
17		0.377	37.63	-20.71	58.34	27.20	0.15	10.28	QP
18		0.377	24.03	-24.31	48.34	13.60	0.15	10.28	Average
19		0.456	42.71	-14.05	56.76	32.29	0.17	10.25	QP
20		0.456	27.31	-19.45	46.76	16.89	0.17	10.25	Average
21		0.527	41.01	-14.99	56.00	30.60	0.17	10.24	QP
22		0.527	21.61	-24.39	46.00	11.20	0.17	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) 962524
mode : Mode 2
: 357207100020114/357207100020122 #6

	Freq MHz	Level dBuV	Over Limit dB	Limit Line dBuV	Read Level dBuV	LISN Factor dB	Cable Loss dB	Remark
1	0.163	50.82	-14.48	65.30	40.19	0.18	10.45	QP
2	0.163	31.22	-24.08	55.30	20.59	0.18	10.45	Average
3	0.187	53.77	-10.38	64.15	43.21	0.17	10.39	QP
4	0.187	32.67	-21.48	54.15	22.11	0.17	10.39	Average
5 *	0.198	59.04	-4.67	63.71	48.50	0.17	10.37	QP
6	0.198	39.74	-13.97	53.71	29.20	0.17	10.37	Average
7	0.206	54.13	-9.23	63.36	43.60	0.17	10.36	QP
8	0.206	34.43	-18.93	53.36	23.90	0.17	10.36	Average
9	0.224	49.12	-13.54	62.66	38.60	0.17	10.35	QP
10	0.224	28.72	-23.94	52.66	18.20	0.17	10.35	Average
11	0.264	48.59	-12.70	61.29	38.11	0.16	10.32	QP
12	0.264	28.39	-22.90	51.29	17.91	0.16	10.32	Average
13	0.297	44.97	-15.35	60.32	34.50	0.16	10.31	QP
14	0.297	25.67	-24.65	50.32	15.20	0.16	10.31	Average
15	0.336	41.95	-17.36	59.31	31.50	0.16	10.29	QP
16	0.336	22.65	-26.66	49.31	12.20	0.16	10.29	Average
17	0.404	39.62	-18.15	57.77	29.21	0.15	10.26	QP
18	0.404	23.32	-24.45	47.77	12.91	0.15	10.26	Average
19	0.464	39.00	-17.63	56.63	28.60	0.15	10.25	QP
20	0.464	23.00	-23.63	46.63	12.60	0.15	10.25	Average
21	0.518	37.98	-18.02	56.00	27.59	0.15	10.24	QP
22	0.518	21.58	-24.42	46.00	11.19	0.15	10.24	Average
23	17.383	44.06	-15.94	60.00	33.50	0.11	10.45	QP
24	17.383	31.76	-18.24	50.00	21.20	0.11	10.45	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

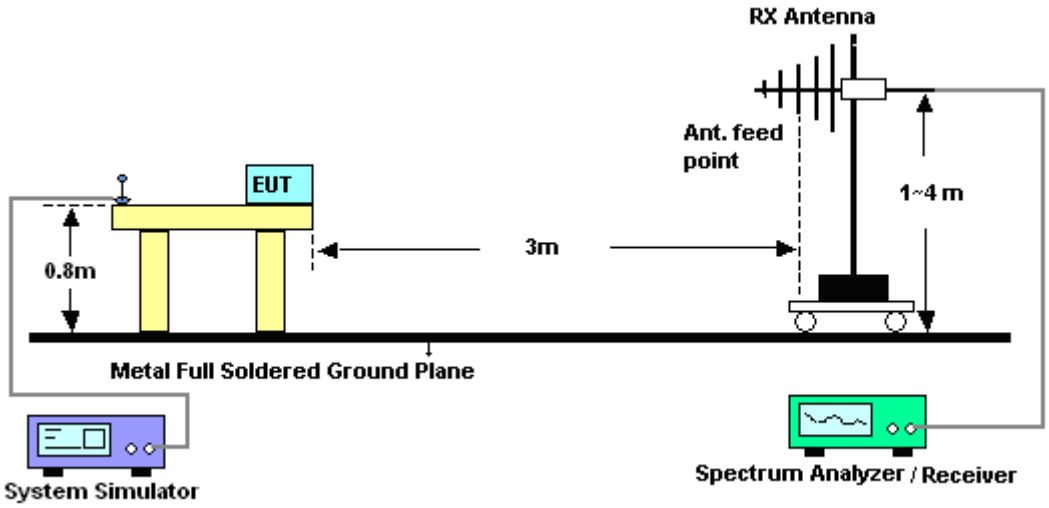
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

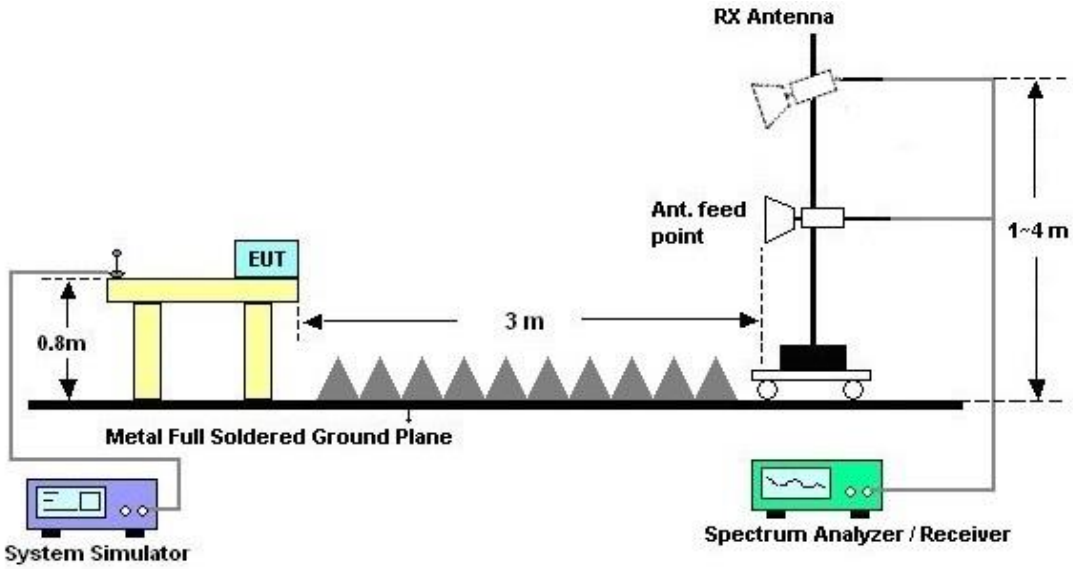
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

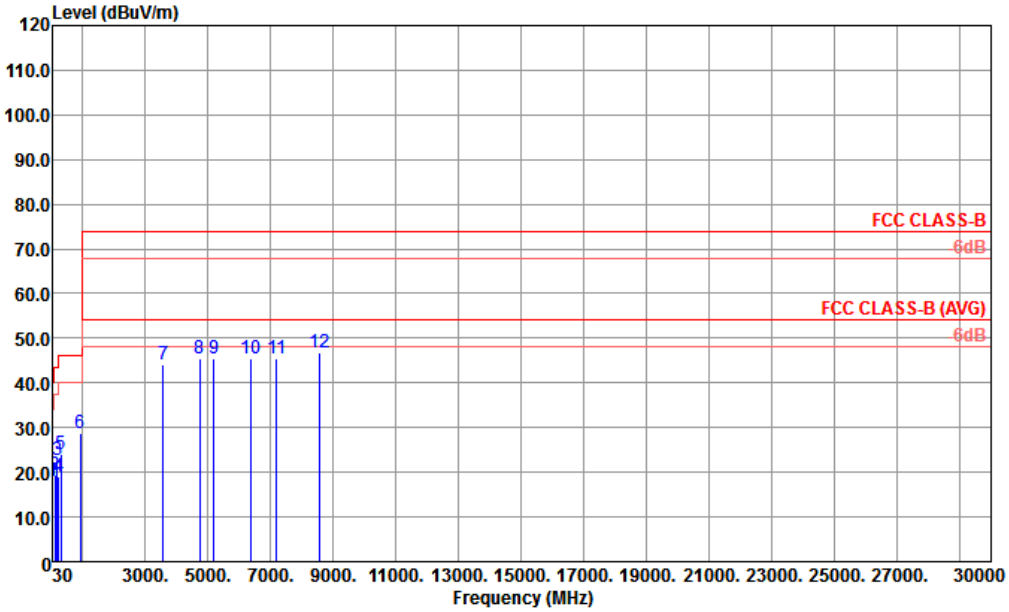


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

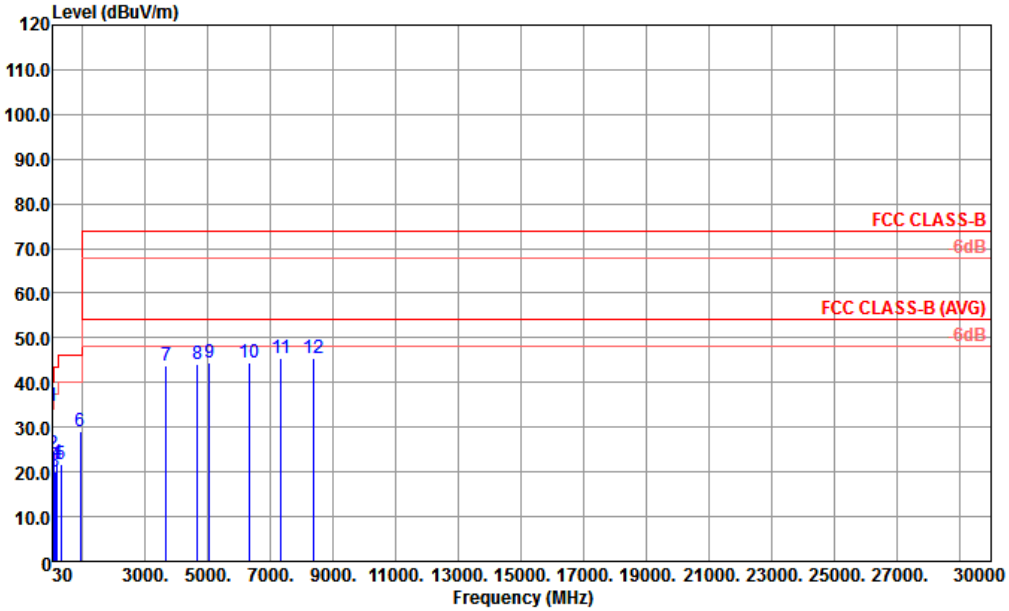
Test Engineer :	Carl Ni	**Temperature :**	21~22°C
		Relative Humidity :	41~42%
Test Distance :	3m	**Polarization :**	Horizontal



Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF 49922-3M HORIZONTAL
Project : (FC)962524
Mode : 3
IEMI : 357207100019355/63

	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	34.85	17.99	-22.01	40.00	27.12	22.10	0.73	31.96	---	---	Peak
2	106.63	19.23	-24.27	43.50	33.64	16.33	1.19	31.93	---	---	Peak
3	176.47	22.71	-20.79	43.50	37.01	16.09	1.53	31.92	---	---	Peak
4	224.00	19.20	-26.80	46.00	32.55	16.83	1.75	31.93	---	---	Peak
5	311.30	24.06	-21.94	46.00	34.47	19.60	2.01	32.02	---	---	Peak
6	922.40	28.67	-17.33	46.00	26.45	29.97	3.50	31.25	100	0	Peak
7	3560.00	44.02	-29.98	74.00	36.14	32.66	7.04	31.82	---	---	Peak
8	4744.00	45.49	-28.51	74.00	35.27	33.63	8.05	31.46	---	---	Peak
9	5192.00	45.34	-28.66	74.00	33.82	34.14	8.54	31.16	---	---	Peak
10	6368.00	45.50	-28.50	74.00	32.44	35.14	9.49	31.57	---	---	Peak
11	7192.00	45.37	-28.63	74.00	31.15	35.64	10.09	31.51	---	---	Peak
12	8560.00	46.68	-27.32	74.00	30.74	36.46	11.36	31.88	---	---	Peak

Test Engineer :	Carl Ni	**Temperature :**	21~22°C
		Relative Humidity :	41~42%
Test Distance :	3m	**Polarization :**	Vertical



Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF 49922-3M VERTICAL
Project : (FC)962524
Mode : 3
IMEI : 357207100019355/63

		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	!	42.61	34.77	-5.23	40.00	47.90	18.08	0.74	31.95	100	0	Peak
2		59.10	24.11	-15.89	40.00	42.73	12.44	0.87	31.93	---	---	Peak
3		107.60	19.95	-23.55	43.50	34.33	16.35	1.20	31.93	---	---	Peak
4		183.26	22.21	-21.29	43.50	36.77	15.80	1.55	31.91	---	---	Peak
5		298.69	21.63	-24.37	46.00	32.44	19.29	1.98	32.08	---	---	Peak
6		934.04	29.12	-16.88	46.00	26.37	30.37	3.52	31.14	---	---	Peak
7		3664.00	43.82	-30.18	74.00	35.47	33.10	7.13	31.88	---	---	Peak
8		4672.00	44.26	-29.74	74.00	34.21	33.57	8.00	31.52	---	---	Peak
9		5056.00	44.48	-29.52	74.00	33.29	33.96	8.44	31.21	---	---	Peak
10		6304.00	44.59	-29.41	74.00	31.59	35.11	9.45	31.56	---	---	Peak
11		7328.00	45.62	-28.38	74.00	31.29	35.89	10.16	31.72	---	---	Peak
12		8384.00	45.51	-28.49	74.00	30.04	36.40	11.04	31.97	---	---	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	Aug. 08, 2019	Aug. 05, 2020	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz-44G,MAX 30dB	Apr. 15, 2019	Aug. 08, 2019	Apr. 16, 2020	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	23182	30MHz-2GHz	Dec. 29, 2018	Aug. 08, 2019	Dec. 28, 2019	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Jan. 27, 2019	Aug. 08, 2019	Jan. 26, 2020	Radiation (03CH02-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2019	Aug. 08, 2019	Jan. 04, 2020	Radiation (03CH02-KS)
Amplifier	MITEQ	TTA1840-35-HG	1887435	18~40GHz	Jan. 14, 2019	Aug. 08, 2019	Jan. 13, 2020	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Aug. 06, 2018	Aug. 08, 2019	Aug. 05, 2019	Radiation (03CH02-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Apr. 15, 2019	Aug. 08, 2019	Apr. 14, 2020	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Aug. 08, 2019	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Aug. 08, 2019	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Aug. 08, 2019	NCR	Radiation (03CH02-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 16, 2019	Jul. 09, 2019	Apr. 15, 2020	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 12, 2018	Jul. 09, 2019	Oct. 11, 2019	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Nov. 19, 2018	Jul. 09, 2019	Nov. 18, 2019	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2018	Jul. 09, 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))	4.9dB

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))	5.1dB