



# FCC Test Report

**APPLICANT** : Motorola Mobility LLC  
**EQUIPMENT** : Mobile Cellular Phone  
**BRAND NAME** : Motorola  
**MODEL NAME** : XT1941-5, XT1941-3  
**FCC ID** : IHDT56XK1  
**STANDARD** : FCC 47 CFR FCC Part 15 Subpart B  
**CLASSIFICATION** : Certification

The product was received on Jun. 04, 2018 and testing was completed on Jun. 28, 2018. 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.



Approved by: James Huang / Manager

**Sporton International (Kunshan) Inc.**

**No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China**



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### REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC860402	Rev. 01	Initial issue of report	Jul. 12, 2018



### 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 5.39 dB at 0.162 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 3.85 dB at 41.640 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	XT1941-5, XT1941-3
FCC ID	IHDT56XK1
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 Bluetooth BR/EDR/LE
IMEI Code	Conduction: 355542090025752/355542090025760 Radiation: 355542090027873/355542090027881
HW Version	DVT1B
SW Version	fastboot_deen_oem_userdebug_8.1.0_OPK28.26_f325_int cfg-test-keys_oem
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 (XT1941-3) is dual SIM sample, sample 2 (XT1941-5) is single SIM sample. According to the difference, sample1 perform full test and sample 2 verify the worst cases for the test item of Radiated Emission.



### 1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
<b>Tx Frequency</b>	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 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500MHz ~ 5720 MHz ; 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
<b>Rx Frequency</b>	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 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500MHz ~ 5720 MHz ; 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz GPS/GLONASS : 1559 MHz ~ 1610 MHz FM : 88 MHz ~ 108 MHz NFC : 13.56 MHz
<b>Antenna Type</b>	WWAN : Fixed Internal Antenna Bluetooth/WLAN/GNSS : IFA Antenna NFC : Loop Antenna FM: External headset Antenna
<b>Type of Modulation</b>	GSM/GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA : BPSK (Uplink) HSPA : QPSK (Uplink) HSPA+ : 16QAM (16QAM uplink is not supported) DC-HSDPA : 64QAM LTE: QPSK / 16QAM 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : $\pi/4$ -DQPSK Bluetooth (3Mbps) : 8-DPSK GPS/GLONASS : BPSK NFC: ASK FM



### 1.5. 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: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 1(EU)	Brand Name	Motorola(Salom)	Model Name	SC-52
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 1(UK)	Brand Name	Motorola(Salom)	Model Name	SC-53
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 1(India)	Brand Name	Motorola(Salom)	Model Name	SC-54
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 1(AU)	Brand Name	Motorola(Salom)	Model Name	SC-55
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 1(AR)	Brand Name	Motorola(Salom)	Model Name	SC-56
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 1(BR)	Brand Name	Motorola(Salom)	Model Name	SC-57
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 1(PRC)	Brand Name	Motorola(Salom)	Model Name	SC-58
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 1(Chile)	Brand Name	Motorola(Salom)	Model Name	SC-52
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 2(US)	Brand Name	Motorola(chenyang)	Model Name	SC-51
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 2(EU)	Brand Name	Motorola(chenyang)	Model Name	SC-52
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 2(UK)	Brand Name	Motorola(chenyang)	Model Name	SC-53
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 2(AU)	Brand Name	Motorola(chenyang)	Model Name	SC-55
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 2(AR)	Brand Name	Motorola(chenyang)	Model Name	SC-56
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 2(PRC)	Brand Name	Motorola(chenyang)	Model Name	SC-58
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 3(BR)	Brand Name	Motorola(Salom/Flex)	Model Name	SC-57
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
AC Adapter 4(BR)	Brand Name	Motorola (Tenpao/Cliptech)	Model Name	SC-57
	Power Rating	I/P: 100-240 Vac, 600mA, O/P: 5/9/12 Vdc, 3000/2000/1500 mA		
Battery	Brand Name	Motorola	Model Name	JE40
	Power Rating	3.8Vdc,2820mAh	Type	Li-ion
Earphone 1	Brand Name	Motorola (New Leader)	Model Name	NLD-EM307E-09SF
	Signal Line Type	1.2 meter, non-shielded cable, without ferrite core		
Earphone 2	Brand Name	Motorola	Model Name	SH38C16618 (L20)
	Signal Line Type	1.2 meter, non-shielded cable, without ferrite core		



USB Cable 1	Brand Name	Motorola (Liqi)	Model Name	LQ-03500079
	Signal Line Type	1.0 meter, shielded cable, without ferrite core		
USB Cable 2	Brand Name	Motorola (Saibao)	Model Name	SLQ-A1111A
	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		

### 1.6. Modification of EUT

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



### 1.7. Test Location

Sporton Lab is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600155-0) and the FCC designation No is CN5013.

<b>Test Site</b>	Sporton International (Kunshan) Inc.		
<b>Test Site Location</b>	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL: +86-512-57900158 FAX: +86-512-57900958		
<b>Test Site No.</b>	<b>Sporton Site No.</b>		<b>FCC Test Firm Registration No.</b>
	CO01-KS	03CH02-KS	630927

**Note:** The test site complies with ANSI C63.4 2014 requirement.

### 1.8. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC 47 CFR FCC 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

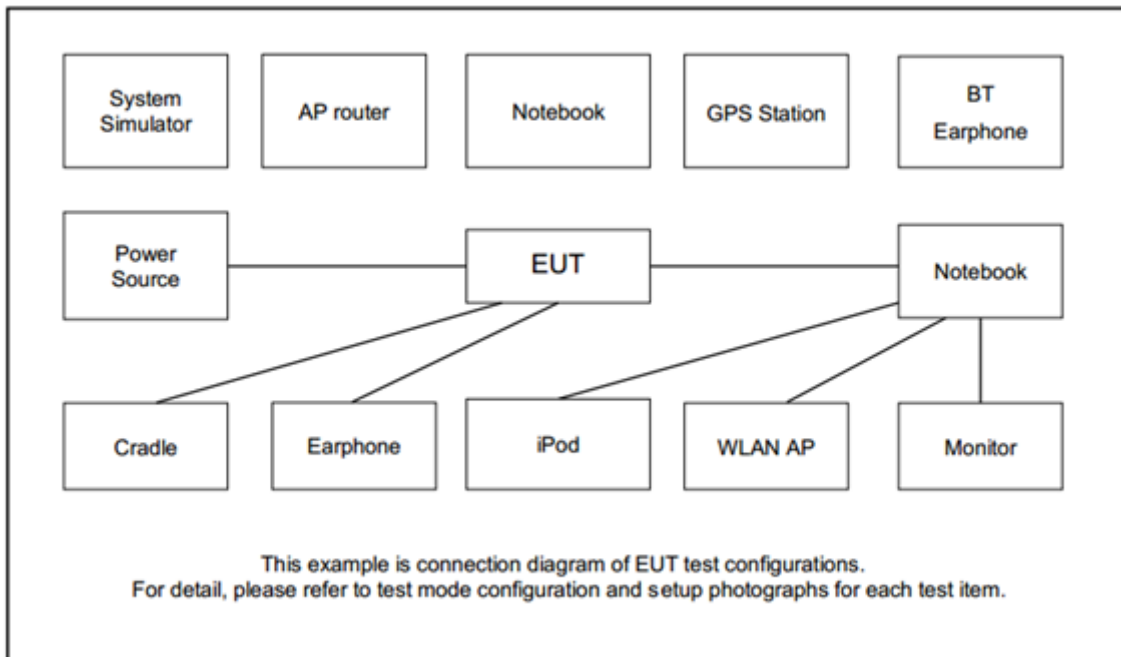
The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (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: GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 1) + Earphone 1 + Camera(Rear) for Sample 1
	Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 1 (Charging from Adapter 1) + Earphone 1 + Camera(Front) for Sample 1
	Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 1) + Earphone 1 + MPEG4 for Sample 1
	Mode 4: LTE Band 4 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 1 (Charging from Adapter 1) + Earphone 1 + NFC On for Sample 1
	Mode 5: LTE Band 2 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Data Link with Notebook) + Earphone 1 + GNSS Rx for Sample 1
	Mode 6: LTE Band 7 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2 (Data Link with Notebook) + Earphone 1 + GNSS Rx for Sample 1
	Mode 7: LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 3 (Data Link with Notebook) + Earphone 1 + GNSS Rx for Sample 1
	Mode 8: USB Cable 1 (Charging from Adapter 1) + FM Rx (88MHz) + Earphone 1 for Sample 1
	Mode 9: USB Cable 1 (Charging from Adapter 1) + FM Rx (98MHz) + Earphone 1 for Sample 1
	Mode 10: USB Cable 1 (Charging from Adapter 1) + FM Rx (108MHz) + Earphone 1 for Sample 1
	Mode 11: LTE Band 2 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 2 (Charging from Adapter 2) + Earphone 2 + Camera(Rear) for Sample 1
	Mode 12: LTE Band 2 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 3 (Charging from Adapter 3) + Earphone 1 + Camera(Rear) for Sample 1
	Mode 13: LTE Band 2 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 4) + Earphone 1 + Camera(Rear) for Sample 1

Radiated Emissions	<p>Mode 1: GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 1) + Earphone 1 + Camera(Rear) for Sample 1</p> <p>Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 1 (Charging from Adapter 1) + Earphone 1 + Camera(Front) for Sample 1</p> <p>Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 1) + Earphone 1 + MPEG4 for Sample 1</p> <p>Mode 4: WCDMA Band II Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 1 (Charging from Adapter 1) + Earphone 1 + NFC On for Sample 1</p> <p>Mode 5: LTE Band 2 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Data Link with Notebook) + Earphone 1 + GNSS Rx for Sample 1</p> <p>Mode 6: LTE Band 7 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable 2 (Data Link with Notebook) + Earphone 1 + GNSS Rx for Sample 1</p> <p>Mode 7: LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 3 (Data Link with Notebook) + Earphone 1 + GNSS Rx for Sample 1</p> <p>Mode 8: USB Cable 1 (Charging from Adapter 1) + FM Rx (88MHz) + Earphone 1 for Sample 1</p> <p>Mode 9: USB Cable 1 (Charging from Adapter 1) + FM Rx (98MHz) + Earphone 1 for Sample 1</p> <p>Mode 10: USB Cable 1 (Charging from Adapter 1) + FM Rx (108MHz) + Earphone 1 for Sample 1</p> <p>Mode 11: WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 2 (Charging from Adapter 2) + Earphone 2 + MPEG4 for Sample 1</p> <p>Mode 12: WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 3 (Charging from Adapter 3) + Earphone 1 + MPEG4 for Sample 1</p> <p>Mode 13: WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 4) + Earphone 1 + MPEG4 for Sample 1</p> <p>Mode 14: WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 1) + Earphone 1 + MPEG4 for Sample 2</p>
<b>Remark:</b>	
<ol style="list-style-type: none"> <li>1. The worst case of AC is mode 13; only the test data of this mode is reported.</li> <li>2. The worst case of RE is mode 3; only the test data of this mode is reported.</li> <li>3. Data Link with Notebook means data application transferred mode between EUT and Notebook.</li> </ol>	

## 2.2. Connection Diagram of Test System



## 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, 1.8 m
2.	GPS Station	ADIVIC	MP9000	N/A	N/A	Unshielded, 1.8 m
3.	FM Generator	R&S	SMBV100A	N/A	N/A	Unshielded, 1.8 m
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.	Notebook	DELL	Latitude3440	N/A	N/A	shielded cable DC O/P 1.8m Unshielded AC I/P cable 1.8m
8.	Notebook	Lenovo	G480	PRC4	N/A	shielded cable DC O/P 1.8m Unshielded AC I/P cable 1.8m
9.	SD Card	Kingston	8GB	N/A	N/A	N/A
10.	SD Card	SanDisk	Uitra	N/A	N/A	N/A
11.	Hard Disk	Lenovo	F310	FCC DoC	Shielded, 1.2m	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 GNSS function to make the EUT receive continuous signals from GNSS station.
3. Turn on NFC function.
4. Turn on camera to capture images.
5. Execute "Video player" to play MPEG4 files.
6. The EUT was turned to Radio frequency channels, FM88 MHz, FM98 MHz, FM108 MHz from FM Generator.

### 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.

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.

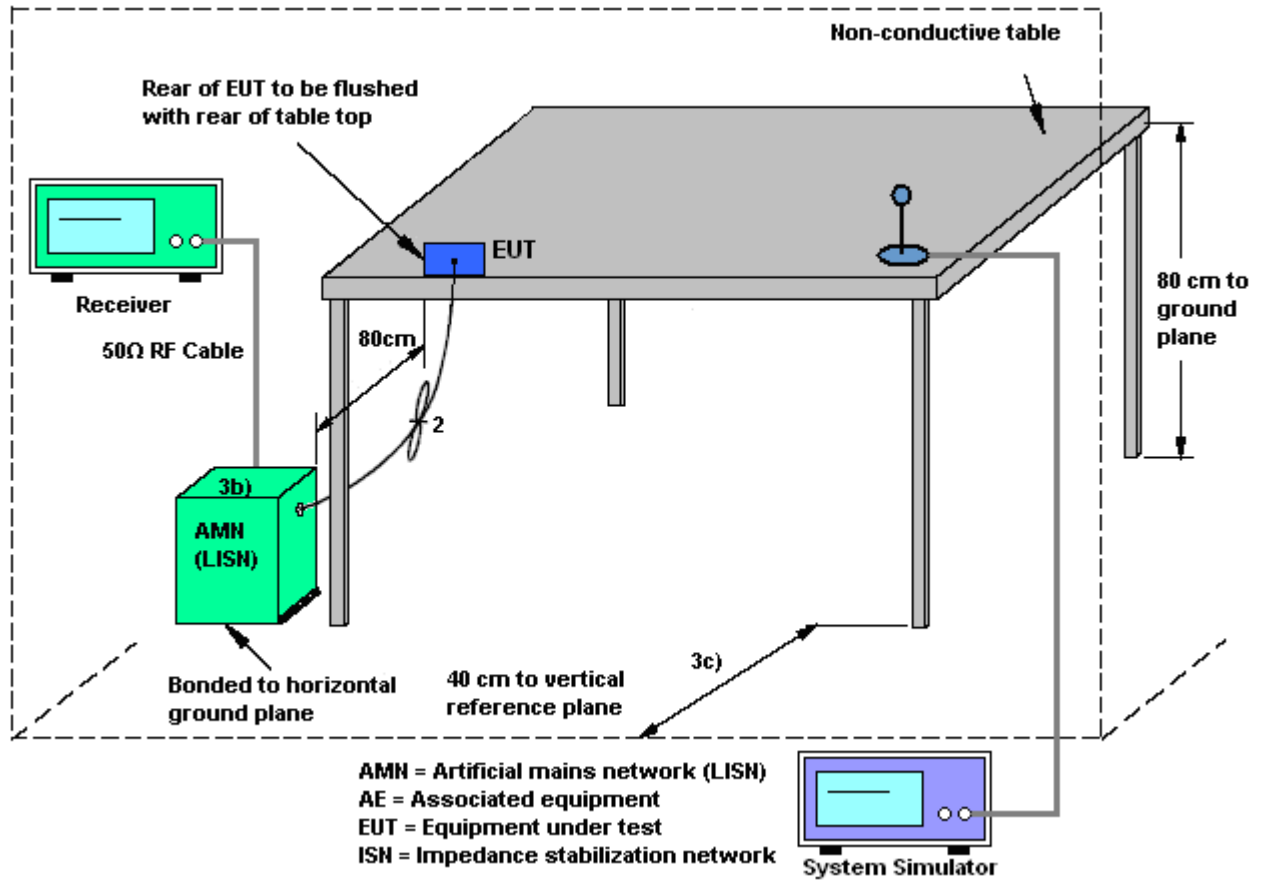
##### 3.1.2 Measuring Instruments

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.

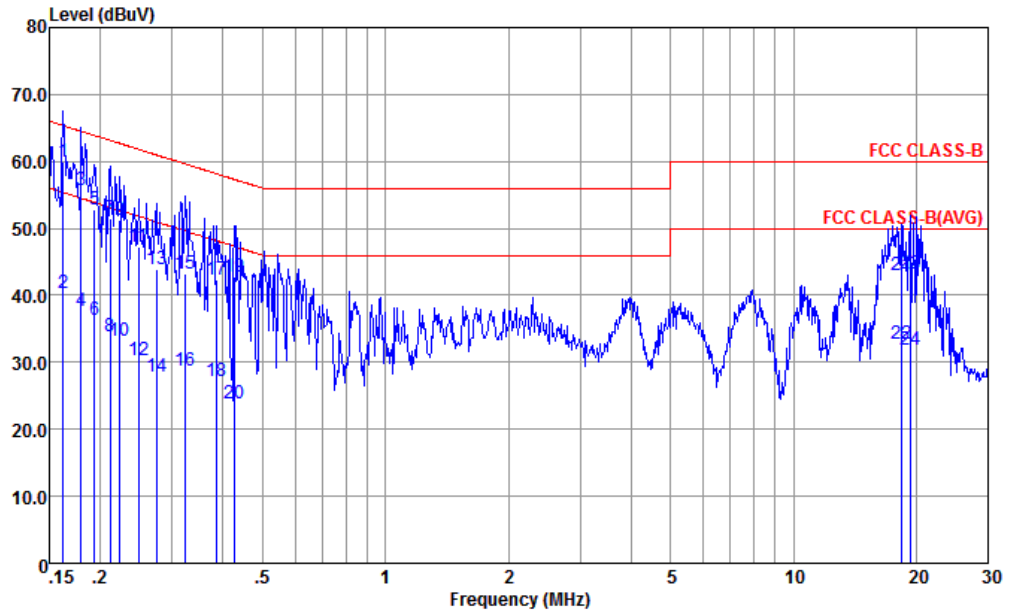
### 3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 13	Temperature :	25.1~25.2°C
Test Engineer :	Amos Zhang	Relative Humidity :	44~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 2 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 4) + Earphone 1 + Camera(Rear) for Sample 1		

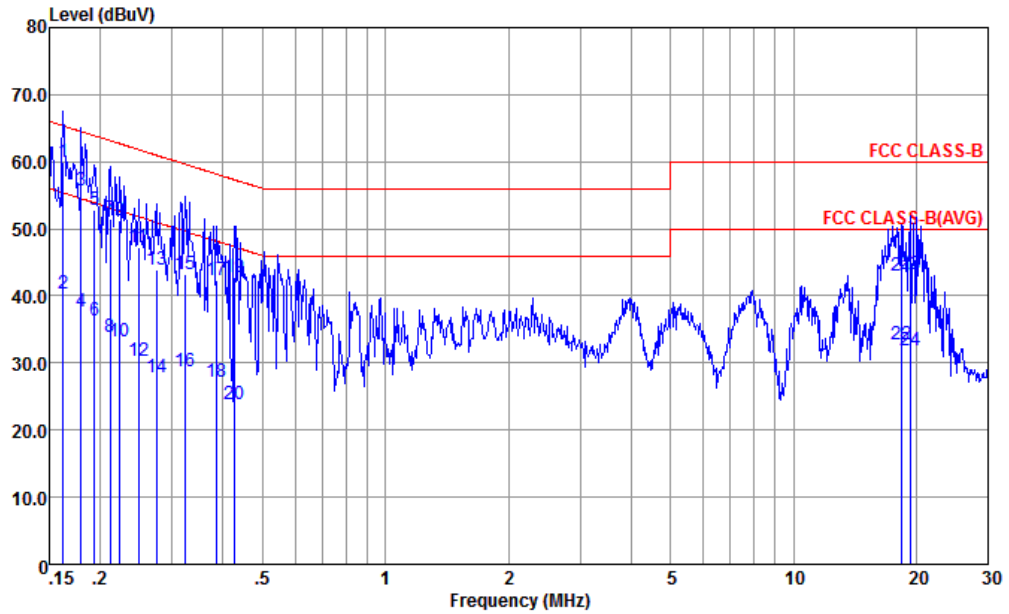


Site : CO01-KS  
 Condition : FCC CLASS-B LISN-L-171013-060103 LINE  
 Project : (FC) 860402  
 mode : Mode 13  
 : 355542090025752/355542090025760 #13

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1 *	0.162	59.95	-5.39	65.34	49.21	0.17	10.57	QP
2	0.162	40.35	-14.99	55.34	29.61	0.17	10.57	Average
3	0.180	55.60	-8.90	64.50	44.89	0.19	10.52	QP
4	0.180	37.60	-16.90	54.50	26.89	0.19	10.52	Average
5	0.193	52.87	-11.02	63.89	42.20	0.20	10.47	QP
6	0.193	36.27	-17.62	53.89	25.60	0.20	10.47	Average
7	0.212	51.56	-11.58	63.14	40.91	0.20	10.45	QP
8	0.212	33.96	-19.18	53.14	23.31	0.20	10.45	Average
9	0.223	51.15	-11.55	62.70	40.49	0.21	10.45	QP
10	0.223	33.25	-19.45	52.70	22.59	0.21	10.45	Average
11	0.248	47.25	-14.57	61.82	36.60	0.21	10.44	QP
12	0.248	30.25	-21.57	51.82	19.60	0.21	10.44	Average
13	0.274	43.85	-17.13	60.98	33.20	0.22	10.43	QP
14	0.274	27.85	-23.13	50.98	17.20	0.22	10.43	Average
15	0.323	43.25	-16.37	59.62	32.60	0.23	10.42	QP
16	0.323	28.85	-20.77	49.62	18.20	0.23	10.42	Average
17	0.385	42.25	-15.92	58.17	31.60	0.24	10.41	QP



Test Mode :	Mode 13	Temperature :	25.1~25.2°C
Test Engineer :	Amos Zhang	Relative Humidity :	44~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 2 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 4) + Earphone 1 + Camera(Rear) for Sample 1		

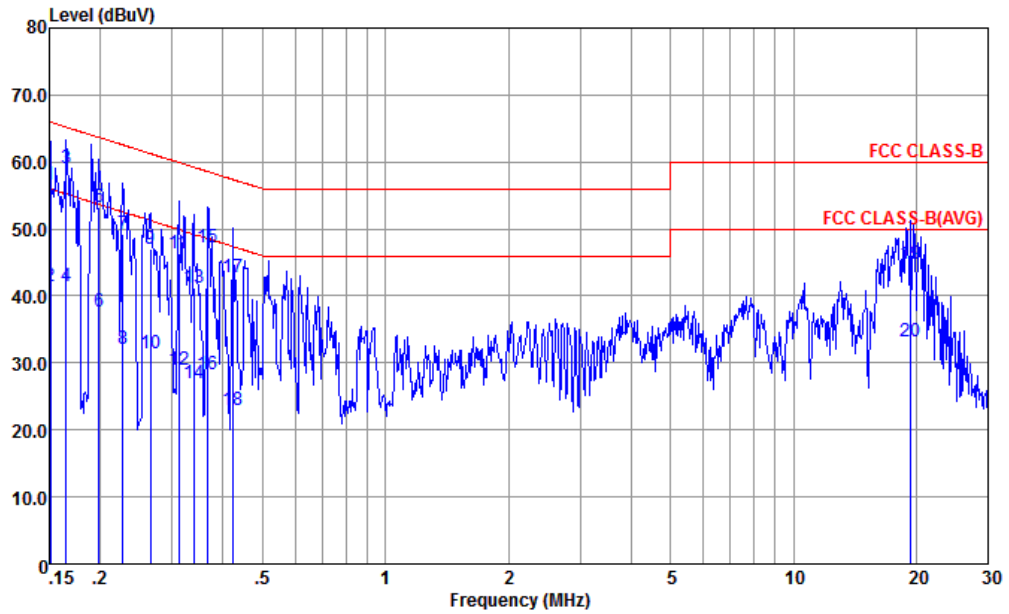


Site : CO01-KS  
 Condition : FCC CLASS-B LISN-L-171013-060103 LINE  
 Project : (FC) 860402  
 mode : Mode 13  
 : 355542090025752/355542090025760 #13

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
18	0.385	27.25	-20.92	48.17	16.60	0.24	10.41	Average
19	0.426	42.83	-14.50	57.33	32.20	0.25	10.38	QP
20	0.426	23.83	-23.50	47.33	13.20	0.25	10.38	Average
21	18.328	42.96	-17.04	60.00	32.29	0.21	10.46	QP
22	18.328	32.76	-17.24	50.00	22.09	0.21	10.46	Average
23	19.326	43.26	-16.74	60.00	32.60	0.19	10.47	QP
24	19.326	31.76	-18.24	50.00	21.10	0.19	10.47	Average



Test Mode :	Mode 13	Temperature :	25.1~25.2°C
Test Engineer :	Amos Zhang	Relative Humidity :	44~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 2 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 4) + Earphone 1 + Camera(Rear) for Sample 1		

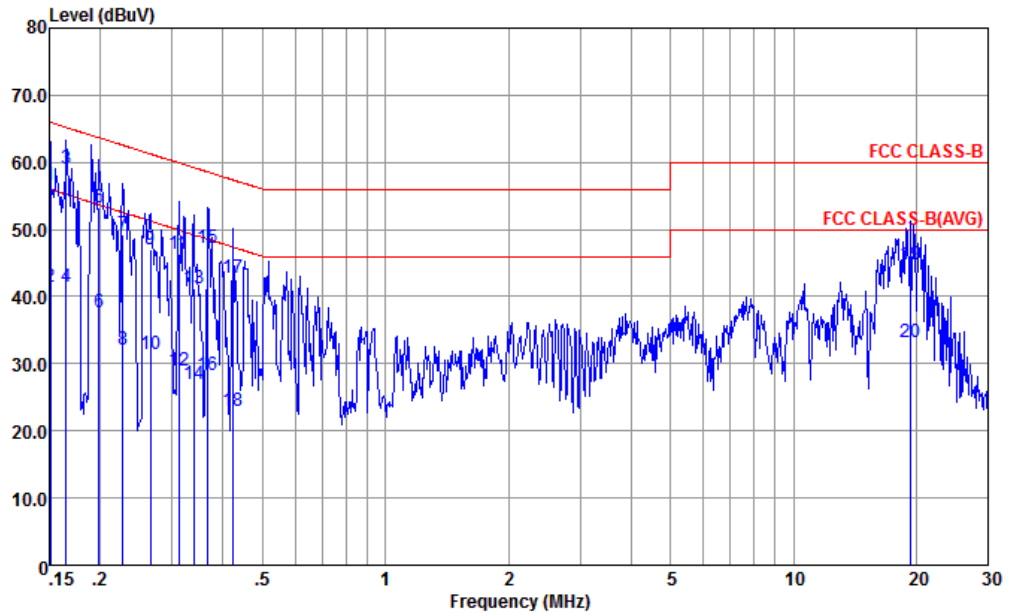


Site : CO01-KS  
 Condition : FCC CLASS-B LISN-N-171013-060103 NEUTRAL  
 Project : (FC) 860402  
 mode : Mode 13  
 : 355542090025752/355542090025760 #13

	Freq	Level	Over Limit	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.151	56.50	-9.46	65.96	45.60	0.28	10.62	QP
2	0.151	41.40	-14.56	55.96	30.50	0.28	10.62	Average
3 *	0.165	59.04	-6.17	65.21	48.20	0.28	10.56	QP
4	0.165	41.44	-13.77	55.21	30.60	0.28	10.56	Average
5	0.199	53.24	-10.43	63.67	42.50	0.28	10.46	QP
6	0.199	37.64	-16.03	53.67	26.90	0.28	10.46	Average
7	0.227	49.33	-13.24	62.57	38.60	0.28	10.45	QP
8	0.227	32.03	-20.54	52.57	21.30	0.28	10.45	Average
9	0.266	46.92	-14.33	61.25	36.20	0.28	10.44	QP
10	0.266	31.32	-19.93	51.25	20.60	0.28	10.44	Average
11	0.312	46.31	-13.62	59.93	35.61	0.28	10.42	QP
12	0.312	28.91	-21.02	49.93	18.21	0.28	10.42	Average
13	0.339	41.30	-17.92	59.22	30.59	0.29	10.42	QP
14	0.339	26.90	-22.32	49.22	16.19	0.29	10.42	Average
15	0.367	47.30	-11.26	58.56	36.60	0.29	10.41	QP
16	0.367	28.20	-20.36	48.56	17.50	0.29	10.41	Average
17	0.424	42.87	-14.50	57.37	32.20	0.29	10.38	QP



Test Mode :	Mode 13	Temperature :	25.1~25.2°C
Test Engineer :	Amos Zhang	Relative Humidity :	44~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 2 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 4) + Earphone 1 + Camera(Rear) for Sample 1		



Site : CO01-KS  
 Condition : FCC CLASS-B LISN-N-171013-060103 NEUTRAL  
 Project : (FC) 860402  
 mode : Mode 13  
 : 355542090025752/355542090025760 #13

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
18	0.424	22.87	-24.50	47.37	12.20	0.29	10.38	Average
19	19.428	44.79	-15.21	60.00	34.20	0.12	10.47	QP
20	19.428	33.19	-16.81	50.00	22.60	0.12	10.47	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:

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

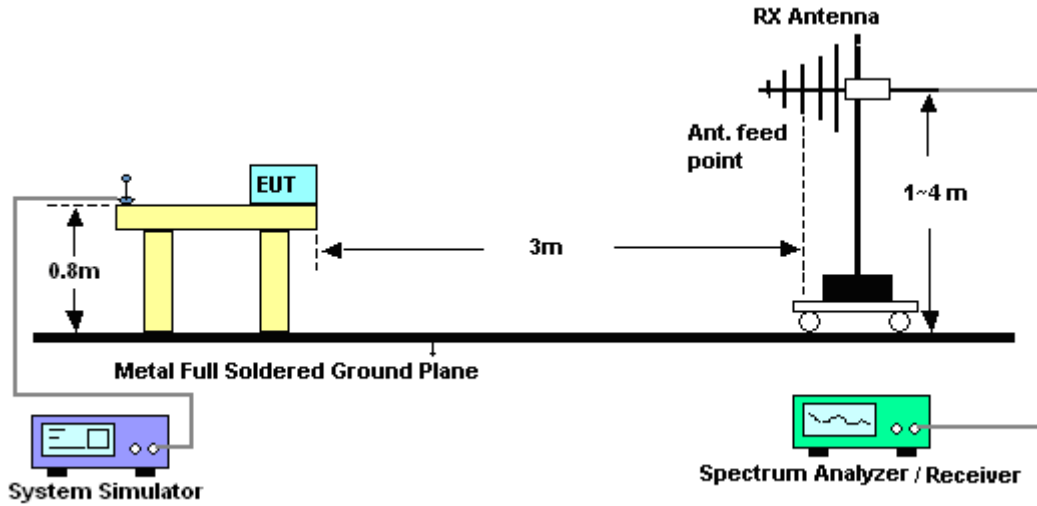
The measuring equipment is listed in the section 4 of this test report.

#### 3.2.3. Test Procedures

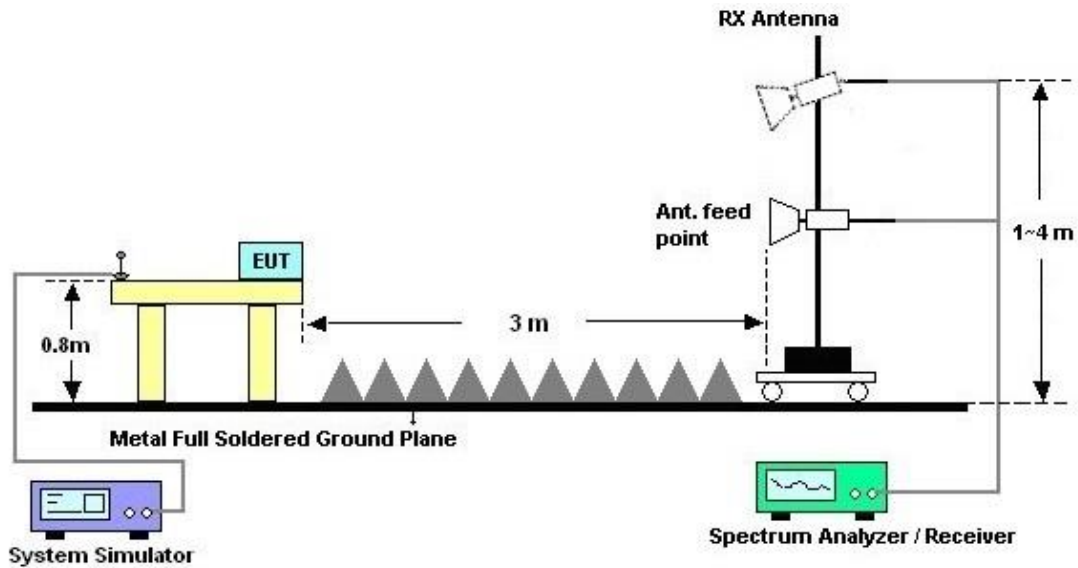
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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



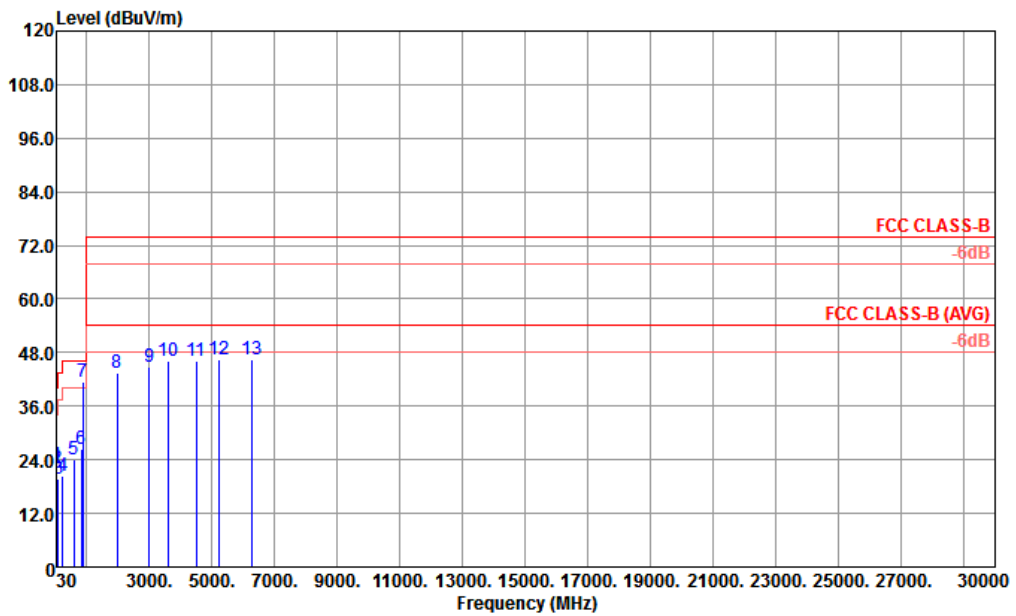
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Rock Shi	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 1) + Earphone 1 + MPEG4 for Sample 1		
Remark :	#7 is system simulator signal which can be ignored.		

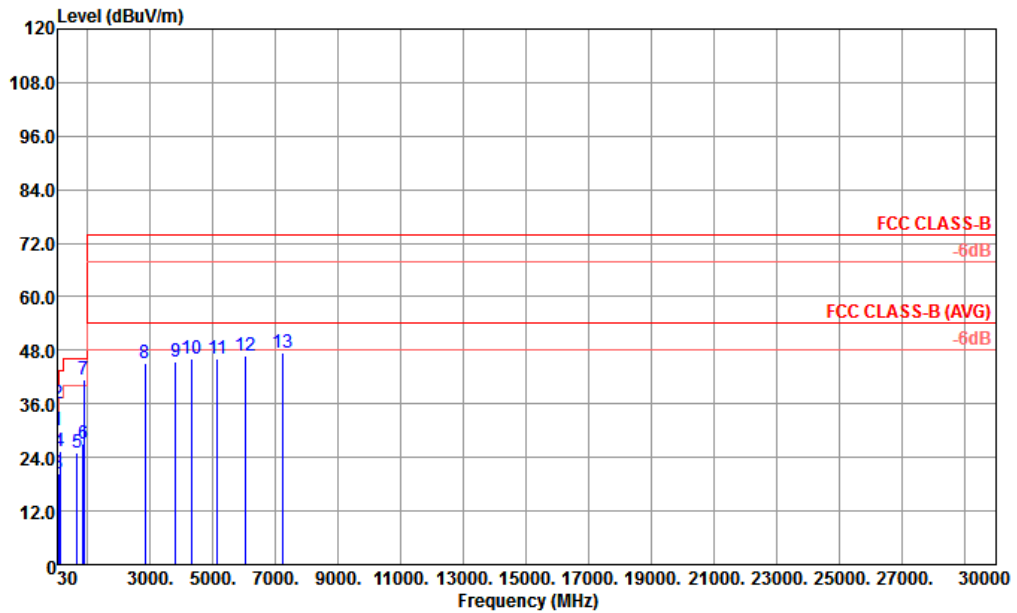


Site : 03CH02-KS  
 Condition : FCC CLASS-B 3m LF 23182-3M HORIZONTAL  
 Project : (FC)860402  
 Mode : 3  
 IMEI : 355542090027873 355542090027881 #15  
 Battery : 16%

	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	30.97	22.75	-17.25	40.00	30.26	23.93	0.59	32.03	100	0 Peak	
2	39.70	22.22	-17.78	40.00	34.82	18.80	0.64	32.04	---	---	Peak
3	98.87	19.60	-23.90	43.50	33.72	16.81	1.01	31.94	---	---	Peak
4	238.55	20.47	-25.53	46.00	33.18	17.19	1.68	31.58	---	---	Peak
5	583.87	23.99	-22.01	46.00	27.03	24.12	2.60	29.76	---	---	Peak
6	816.67	26.50	-19.50	46.00	26.01	25.90	2.78	28.19	---	---	Peak
7 !	881.66	41.56			39.85	26.29	3.08	27.66	---	---	Peak
8	1976.00	43.29	-30.71	74.00	44.47	30.97	4.61	36.76	---	---	Peak
9	2992.00	44.86	-29.14	74.00	43.20	32.88	5.95	37.17	---	---	Peak
10	3616.00	46.17	-27.83	74.00	43.01	33.13	6.47	36.44	---	---	Peak
11	4504.00	46.16	-27.84	74.00	41.82	33.80	7.39	36.85	---	---	Peak
12	5240.00	46.50	-27.50	74.00	40.83	34.57	7.79	36.69	---	---	Peak
13	6280.00	46.62	-27.38	74.00	39.41	35.16	8.84	36.79	---	---	Peak



Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Rock Shi	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Function Type :	WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable 1 (Charging from Adapter 1) + Earphone 1 + MPEG4 for Sample 1		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH02-KS  
 Condition : FCC CLASS-B 3m LF 23182-3M VERTICAL  
 Project : (FC)860402  
 Mode : 3  
 IMEI : 355542090027873 355542090027881 #15  
 Battery : 16%

	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	32.91	30.09	-9.91	40.00	38.73	22.79	0.61	32.04	---	---	Peak
2 !	41.64	36.15	-3.85	40.00	49.68	17.89	0.65	32.07	100	0	Peak
3	73.65	20.33	-19.67	40.00	38.77	12.75	0.87	32.06	---	---	Peak
4	103.72	25.39	-18.11	43.50	39.07	17.21	1.03	31.92	---	---	Peak
5	669.23	25.23	-20.77	46.00	27.16	24.51	2.71	29.15	---	---	Peak
6	852.56	27.00	-19.00	46.00	25.73	26.11	3.06	27.90	---	---	Peak
7 !	881.66	41.31			39.60	26.29	3.08	27.66	---	---	Peak
8	2840.00	44.99	-29.01	74.00	43.36	32.73	5.87	36.97	---	---	Peak
9	3808.00	45.59	-28.41	74.00	42.10	33.42	6.63	36.56	---	---	Peak
10	4304.00	46.00	-28.00	74.00	41.97	33.67	7.21	36.85	---	---	Peak
11	5136.00	46.22	-27.78	74.00	40.60	34.54	7.78	36.70	---	---	Peak
12	6016.00	46.72	-27.28	74.00	40.32	34.93	8.40	36.93	---	---	Peak
13	7224.00	47.37	-26.63	74.00	39.35	35.73	9.19	36.90	---	---	Peak



### 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;	Apr. 19, 2018	Jun. 28, 2018	Apr. 18, 2019	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2017	Jun. 28, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2017	Jun. 28, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2017	Jun. 28, 2018	Oct. 11, 2018	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Ma x 30dBm	Aug. 08, 2017	Jun. 21, 2018	Aug. 07, 2018	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz~44G,MAX 30dB	Apr. 17, 2018	Jun. 21, 2018	Apr. 16, 2019	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	23182	30MHz~2GHz	Jan. 29, 2018	Jun. 21, 2018	Jan. 28, 2019	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 21, 2017	Jun. 21, 2018	Oct. 20, 2018	Radiation (03CH02-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Feb. 07, 2018	Jun. 21, 2018	Feb. 06, 2019	Radiation (03CH02-KS)
Amplifier	MITEQ	TTA1840-35-H G	1887435	18~40GHz	Oct. 12, 2017	Jun. 21, 2018	Oct. 11, 2018	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	187289	9KHz~1GHz	Aug. 07, 2017	Jun. 21, 2018	Aug. 06, 2018	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1~26.5GHz Gain 30dB	Oct. 12, 2017	Jun. 21, 2018	Oct. 11, 2018	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	61601000247 3	N/A	NCR	Jun. 21, 2018	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Jun. 21, 2018	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Jun. 21, 2018	NCR	Radiation (03CH02-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% ( $U = 2Uc(y)$ )	4.2dB
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### Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.2dB
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### Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.7dB
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