FCC Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT1924-7
FCC ID	:	IHDT56XA2
STANDARD	:	FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION	:	Certification

The product was received on Dec. 29, 2017 and testing was completed on Feb. 13, 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.

James Huang

Approved by: James Huang / Manager

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TESTING
NVLAP LAB CODE 600155-0

Sporton International (Kunshan) Inc.
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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC7D2903	Rev. 01	Initial issue of report	Mar. 08, 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 3.28 dB at 0.152 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 5.56 dB at 41.610 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	XT1924-7
FCC ID	IHDT56XA2
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/ Bluetooth v3.0 + EDR/Bluetooth v4.0 LE/ Bluetooth v4.1 LE/Bluetooth v4.2 LE
IMEI Code	Conduction: 351883090028550 Radiation: 351883090033436
HW Version	DVT 1B
SW Version	OPP27.66
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 13 : 779.5 MHz ~ 784.5 MHz LTE Band 38 : 2572.5 MHz ~ 2617.5 MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 MHz LTE Band 66 : 1710.7 MHz ~ 1779.3 MHz LTE Band 71 : 665.5 MHz ~ 695.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n: 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 13 : 748.5 MHz ~ 753.5 MHz LTE Band 38: 2572.5 MHz ~ 2617.5 MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 MHz LTE Band 66 : 2110.7 MHz~ 2199.3 MHz LTE Band 71 : 619.5 MHz~ 649.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n: 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 : 88 MHz ~ 108 MHz
Antenna Type	WWAN : PIFA Antenna WLAN : IFA Antenna Bluetooth : IFA Antenna GNSS: IFA 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 (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) : π/4-DQPSK Bluetooth (3Mbps) : 8-DPSK GNSS : BPSK FM

GNSS Rx = GPS Rx + Glonass Rx

1.5. Specification of Accessory

Specification of Accessory				
AC Adapter 1	**Brand Name**	Motorola (Salom)	**Model Name**	SPN5970A SC-22
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5 Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
AC Adapter 2	**Brand Name**	Motorola (Chenyang)	**Model Name**	SPN5993A SC-22
	Power Rating	I/P: 100-240 Vac, 500mA, O/P: 5 Vdc,3000mA or 9Vdc,1600mA or 12Vdc,1200mA		
Earphone	**Brand Name**	Motorola (NEW Leader)	**Model Name**	NLD-EM300V-01SF
	Signal Line	1.25 meter, non-shielded cable, without ferrite core		
Battery	**Brand Name**	Motorola (Amperex)	**Model Name**	HE50
	Power Rating	3.8Vdc,4850/5000mAh	**Type**	Li-ion
USB Cable (Black/White)	**Brand Name**	Motorola (SaiBao)	**Model Name**	SLQ-A081A
	Signal Line	1.02 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 International (Kunshan) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600155-0) and the FCC designation No. is CN5013.

Test Site	Sporton International (Kunshan) Inc.		
Test Site Location	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	**Sporton Site No.**		**FCC Test Firm Registration No.**
	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).

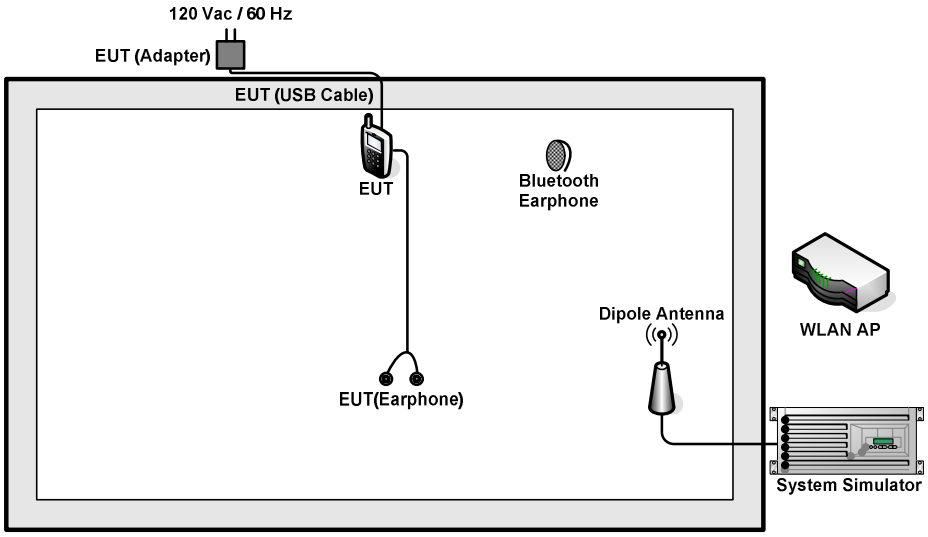
Test Items	Function Type
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter 1) + Earphone + Battery + Camera (Rear) <Fig.1> Mode 2 : GSM1900 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Charging from Adapter 1) + Earphone + Battery + Camera (Front) <Fig.1> Mode 3 : WCDMA Band V Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Charging from Adapter 1) + Earphone + Battery + MPEG4 <Fig.1> Mode 4 : WCDMA Band II Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter 1) + Earphone + Battery + GNSS Rx <Fig.2> Mode 5 : GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery + Camera (Rear) <Fig.1> Mode 6 : LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Data Link with Notebook) + Earphone + Battery + GNSS Rx <Fig.3> Mode 7 : USB Cable (Charging from Adapter 1) + FM Rx (88MHz) + Earphone + Battery <Fig.4> Mode 8 : USB Cable (Charging from Adapter 1) + FM Rx (98MHz) + Earphone + Battery <Fig.4> Mode 9 : USB Cable (Charging from Adapter 1) + FM Rx (108MHz) + Earphone + Battery <Fig.4> Mode 10 : USB Cable (Charging from Adapter 2) + FM Rx (88MHz) + Earphone + Battery <Fig.4>

Radiated Emissions < 1GHz	Mode 1 : GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter 1) + Earphone + Battery + Camera (Rear) <Fig.1> Mode 2 : GSM1900 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Charging from Adapter 1) + Earphone + Battery + Camera (Front) <Fig.1> Mode 3 : WCDMA Band V Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Charging from Adapter 1) + Earphone + Battery + MPEG4 <Fig.1> Mode 4 : WCDMA Band II Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter 1) + Earphone + Battery + GNSS Rx <Fig.2> Mode 5 : WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery + MPEG4 <Fig.1> Mode 6 : LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Data Link with Notebook) + Earphone + Battery + GNSS Rx <Fig.3> Mode 7 : USB Cable (Charging from Adapter 1) + FM Rx (88MHz) + Earphone + Battery <Fig.4> Mode 8 : USB Cable (Charging from Adapter 1) + FM Rx (98MHz) + Earphone + Battery <Fig.4> Mode 9 : USB Cable (Charging from Adapter 1) + FM Rx (108MHz) + Earphone + Battery <Fig.4> Mode 10 : USB Cable (Charging from Adapter 2) + FM Rx (108MHz) + Earphone + Battery <Fig.4>
Radiated Emissions ≥ 1GHz	Mode 1 : USB Cable (Charging from Adapter 2) + FM Rx (108MHz) + Earphone + Battery <Fig.4> Mode 2 : LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Data Link with Notebook) + Earphone + Battery + GNSS Rx <Fig.3>

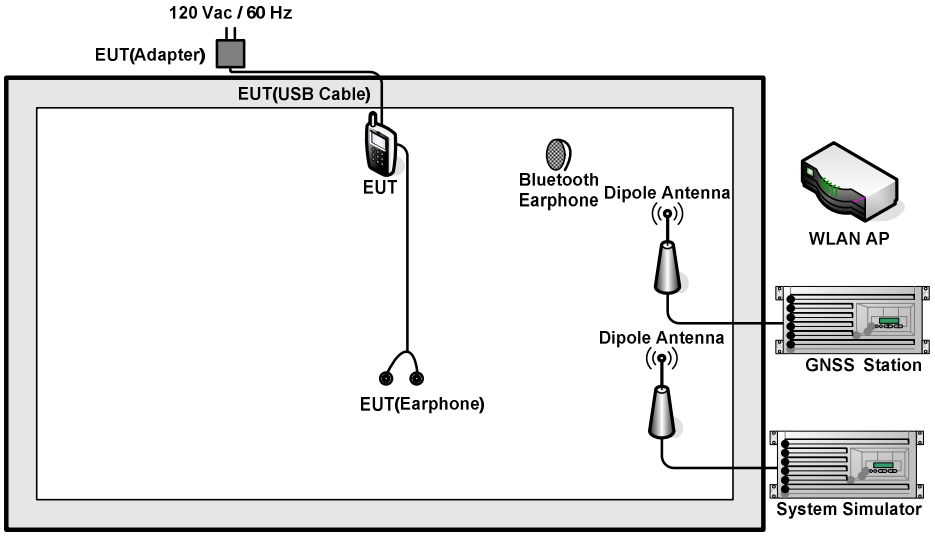
Remark:

1. The worst case of AC is mode 5; and the USB data link mode is mode 6, the test data of these modes are reported.
2. The worst case of RE < 1G is mode 10; and the USB data link mode is mode 6, the test data of these modes are reported.
3. Data Link with Notebook means data application transferred mode between EUT and Notebook.

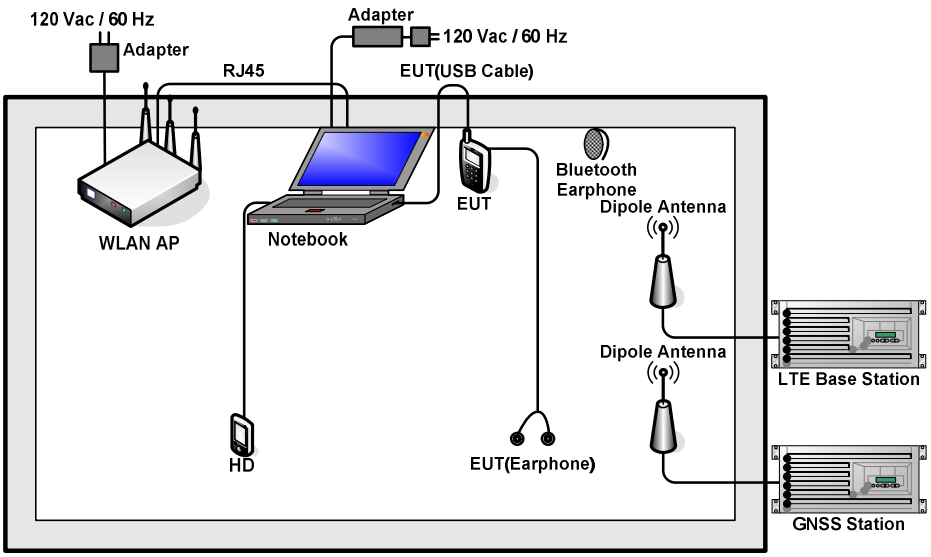
2.2. Connection Diagram of Test System



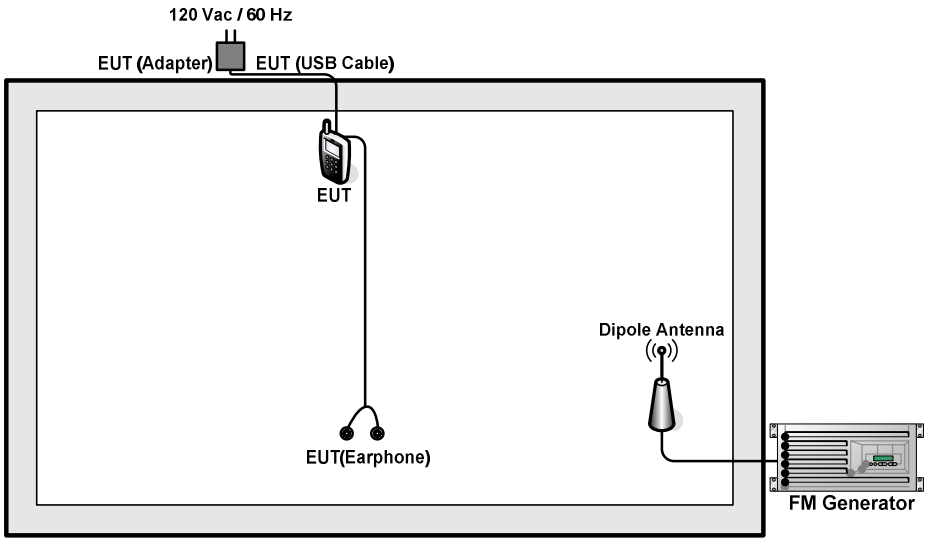
<Fig.1>



<Fig.2>


120 Vac / 60 Hz
Adapter
RJ45
Adapter
120 Vac / 60 Hz
EUT(USB Cable)
WLAN AP
Notebook
EUT
Bluetooth
Earphone
Dipole Antenna
Dipole Antenna
LTE Base Station
HD
EUT(Earphone)
GNSS Station

<Fig.3>


120 Vac / 60 Hz
EUT (Adapter)
EUT (USB Cable)
EUT
Dipole Antenna
EUT(Earphone)
FM Generator

<Fig.4>

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	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
3.	FM Generator	R&S	SMBV100A	N/A	N/A	Unshielded, 1.8 m
4.	GNSS Station	ADIVIC	MP9000	N/A	N/A	Unshielded, 1.8 m
5.	GNSS Station	RACELOGIC	RLLS03-2RP	N/A	N/A	Unshielded, 1.8 m
6.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
7.	WLAN AP	TP-Link	TL-WDR5600	N/A	N/A	Unshielded, 1.8 m
8.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
9.	Notebook	Lenovo	Y510P	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
10.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
11.	Hard Disk	Lenovo	F310	FCC DoC	Shielded, 0.5 m	N/A
12.	SD Card	SanDisk	Uitra	N/A	N/A	N/A
13.	SD Card	Kingston	8GB	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 GNSS function to make the EUT receive continuous signals from GNSS station.
3. Execute "Video Player" to play MPEG4 files.
4. Turn on camera to capture images.
5. The EUT was turned to Radio frequency channels, FM88 MHz, FM98 MHz and 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.

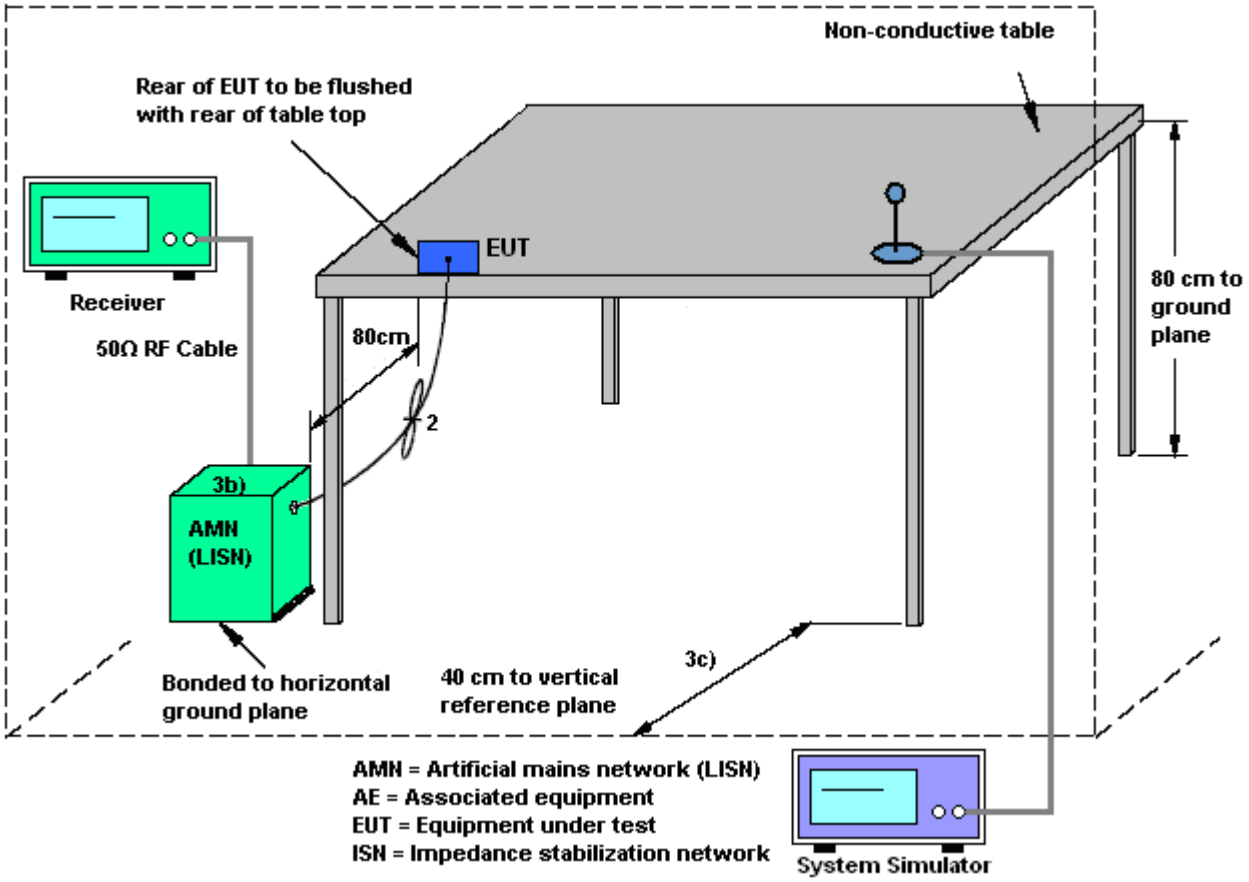
3.1.2 Measuring Instruments

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

3.1.3 Test Procedure

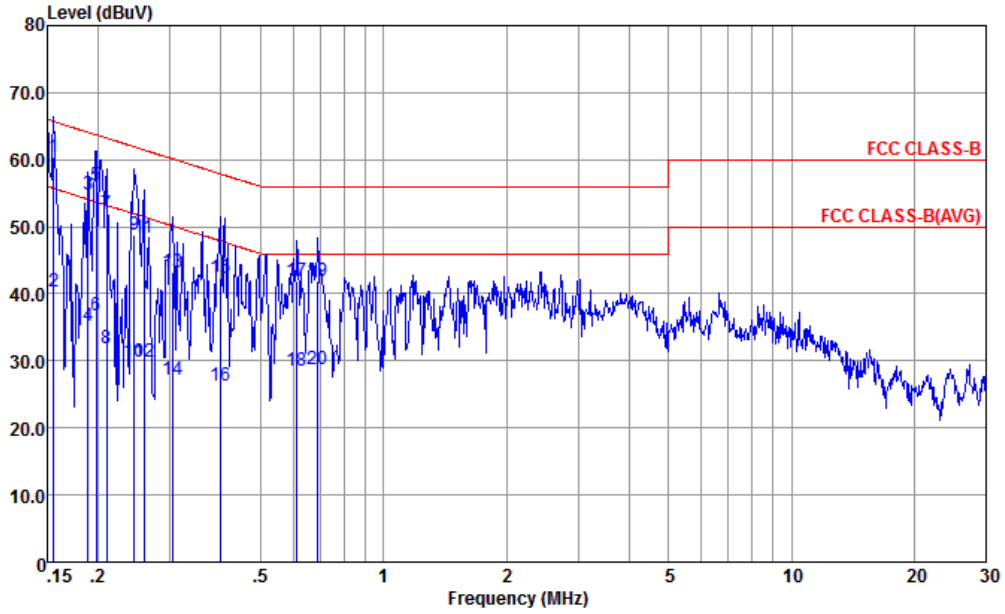
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

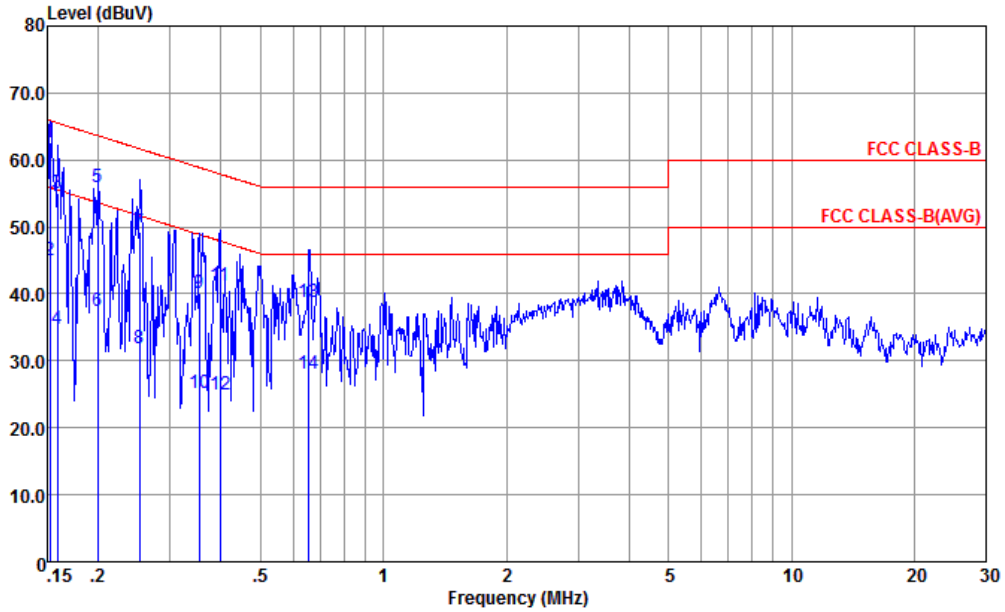
Test Mode :	Mode 5	**Temperature :**	22~24℃
Test Engineer :	Amos Zhang	**Relative Humidity :**	42~45%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery + Camera (Rear)		



Site : CO01-KS
Condition : FCC CLASS-B LISN-L-171013-060103 LINE
Project : (FC) 7D2903
mode : Mode 5
: 351883090028550 #8

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	*	0.156	60.36	-5.33	65.69	49.60	0.16	10.60	QP
2		0.156	40.26	-15.43	55.69	29.50	0.16	10.60	Average
3		0.188	54.88	-9.23	64.11	44.20	0.19	10.49	QP
4		0.188	35.28	-18.83	54.11	24.60	0.19	10.49	Average
5		0.198	56.16	-7.55	63.71	45.50	0.20	10.46	QP
6		0.198	36.86	-16.85	53.71	26.20	0.20	10.46	Average
7		0.209	51.86	-11.37	63.23	41.21	0.20	10.45	QP
8		0.209	31.76	-21.47	53.23	21.11	0.20	10.45	Average
9		0.246	48.85	-13.06	61.91	38.20	0.21	10.44	QP
10		0.246	29.95	-21.96	51.91	19.30	0.21	10.44	Average
11		0.259	48.25	-13.22	61.47	37.59	0.22	10.44	QP
12		0.259	29.85	-21.62	51.47	19.19	0.22	10.44	Average
13		0.305	43.25	-16.85	60.10	32.59	0.23	10.43	QP
14		0.305	27.25	-22.85	50.10	16.59	0.23	10.43	Average
15		0.398	42.25	-15.65	57.90	31.59	0.25	10.41	QP
16		0.398	26.25	-21.65	47.90	15.59	0.25	10.41	Average
17		0.614	41.98	-14.02	56.00	31.50	0.26	10.22	QP
18		0.614	28.58	-17.42	46.00	18.10	0.26	10.22	Average
19		0.690	41.93	-14.07	56.00	31.50	0.26	10.17	QP
20		0.690	28.73	-17.27	46.00	18.30	0.26	10.17	Average

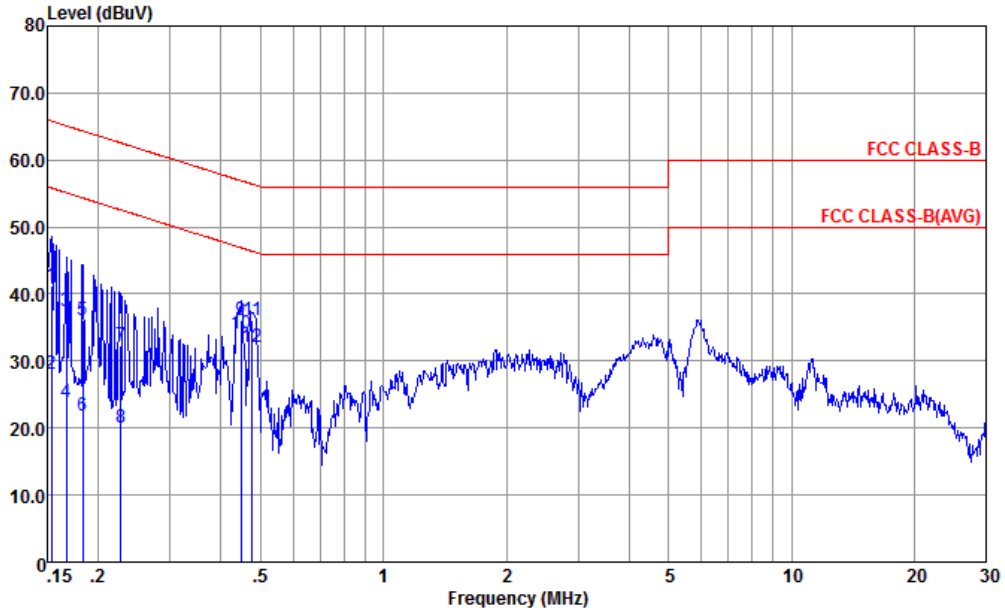
Test Mode :	Mode 5	**Temperature :**	22~24℃
Test Engineer :	Amos Zhang	**Relative Humidity :**	42~45%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery + Camera (Rear)		



Site : CO01-KS
Condition : FCC CLASS-B LISN-N-171013-060103 NEUTRAL
Project : (FC) 7D2903
mode : Mode 5
: 351883090028550 #8

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.152	62.59	-3.28	65.87	51.70	0.28	10.61	QP
2	0.152	44.99	-10.88	55.87	34.10	0.28	10.61	Average
3	0.159	55.07	-10.45	65.52	44.20	0.28	10.59	QP
4	0.159	34.67	-20.85	55.52	23.80	0.28	10.59	Average
5	0.200	55.84	-7.78	63.62	45.10	0.28	10.46	QP
6	0.200	37.54	-16.08	53.62	26.80	0.28	10.46	Average
7	0.252	49.32	-12.37	61.69	38.60	0.28	10.44	QP
8	0.252	31.82	-19.87	51.69	21.10	0.28	10.44	Average
9	0.354	40.00	-18.87	58.87	29.29	0.29	10.42	QP
10	0.354	25.20	-23.67	48.87	14.49	0.29	10.42	Average
11	0.398	41.29	-16.61	57.90	30.59	0.29	10.41	QP
12	0.398	24.89	-23.01	47.90	14.19	0.29	10.41	Average
13	0.658	38.69	-17.31	56.00	28.20	0.30	10.19	QP
14	0.658	28.09	-17.91	46.00	17.60	0.30	10.19	Average

Test Mode :	Mode 6	Temperature :	22~24℃
Test Engineer :	Amos Zhang	Relative Humidity :	42~45%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Data Link with Notebook) + Earphone + Battery + GNSS Rx		

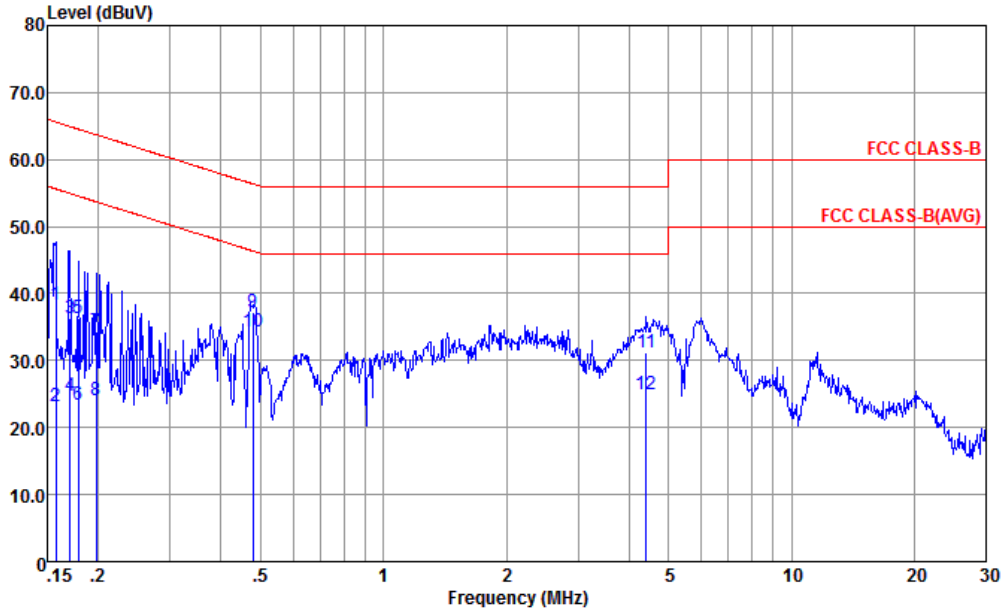


Site : CO01-KS
Condition : FCC CLASS-B LISN-L-171013-060103 LINE
Project : (FC) 7D2903

: 351883090028550 #8

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.153	41.27	-24.55	65.82	30.50	0.16	10.61	QP
2	0.153	27.97	-27.85	55.82	17.20	0.16	10.61	Average
3	0.167	37.33	-27.79	65.12	26.60	0.17	10.56	QP
4	0.167	23.93	-31.19	55.12	13.20	0.17	10.56	Average
5	0.183	36.20	-28.13	64.33	25.50	0.19	10.51	QP
6	0.183	21.90	-32.43	54.33	11.20	0.19	10.51	Average
7	0.227	32.25	-30.32	62.57	21.59	0.21	10.45	QP
8	0.227	19.95	-32.62	52.57	9.29	0.21	10.45	Average
9	0.447	36.21	-20.72	56.93	25.60	0.25	10.36	QP
10 *	0.447	34.11	-12.82	46.93	23.50	0.25	10.36	Average
11	0.476	36.18	-20.23	56.41	25.59	0.26	10.33	QP
12	0.476	32.08	-14.33	46.41	21.49	0.26	10.33	Average

Test Mode :	Mode 6	**Temperature :**	22~24℃
Test Engineer :	Amos Zhang	**Relative Humidity :**	42~45%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Data Link with Notebook) + Earphone + Battery + GNSS Rx		



Site : CO01-KS
Condition : FCC CLASS-B LISN-N-171013-060103 NEUTRAL
Project : (FC) 7D2903

: 351883090028550 #8

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.157	38.37	-27.23	65.60	27.50	0.28	10.59	QP
2	0.157	23.07	-32.53	55.60	12.20	0.28	10.59	Average
3	0.170	36.43	-28.51	64.94	25.60	0.28	10.55	QP
4	0.170	24.73	-30.21	54.94	13.90	0.28	10.55	Average
5	0.179	36.40	-28.15	64.55	25.60	0.28	10.52	QP
6	0.179	23.30	-31.25	54.55	12.50	0.28	10.52	Average
7	0.198	34.34	-29.37	63.71	23.60	0.28	10.46	QP
8	0.198	24.04	-29.67	53.71	13.30	0.28	10.46	Average
9	0.479	37.21	-19.15	56.36	26.60	0.29	10.32	QP
10 *	0.479	34.41	-11.95	46.36	23.80	0.29	10.32	Average
11	4.407	31.13	-24.87	56.00	20.59	0.34	10.20	QP
12	4.407	25.03	-20.97	46.00	14.49	0.34	10.20	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

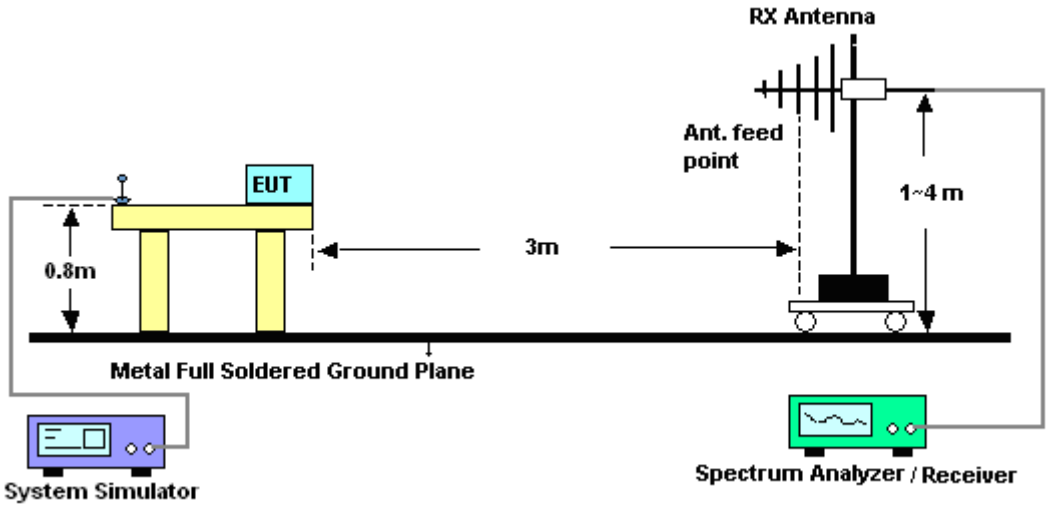
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

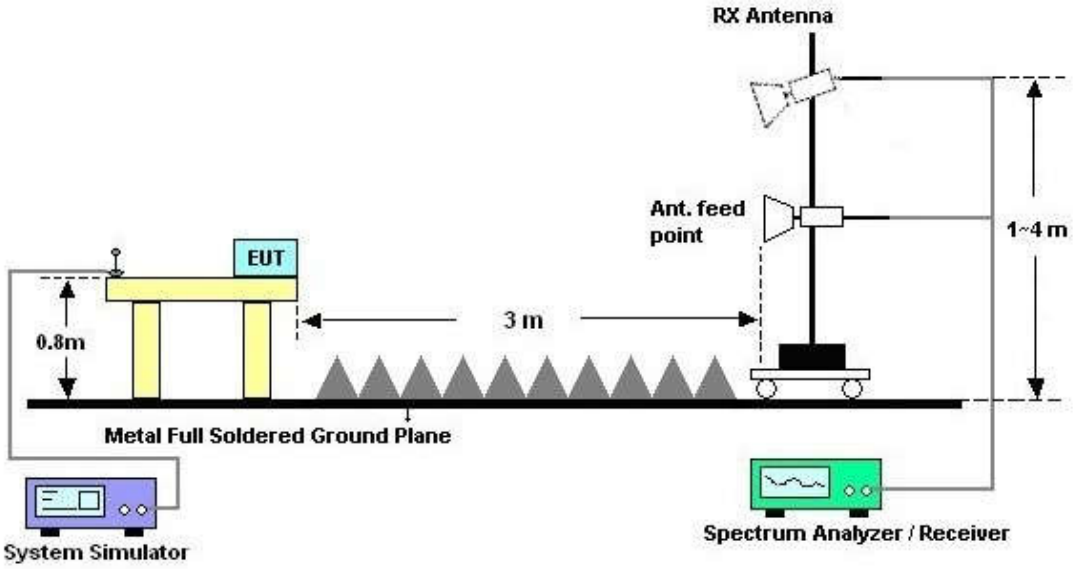
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

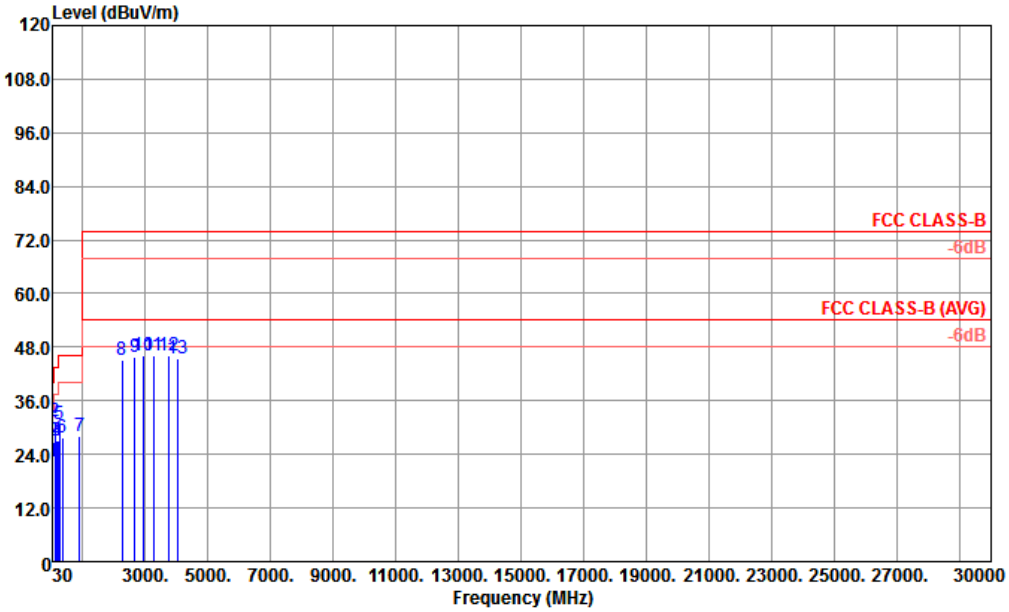


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 10	**Temperature :**	21~22°C
Test Engineer :	Leo Liao	**Relative Humidity :**	41~42%
Test Distance :	3m	**Polarization :**	Horizontal
Function Type :	USB Cable (Charging from Adapter 2) + FM Rx (108MHz) + Earphone + Battery		
Remark :	#2 is System Simulator (FM Option) signal which can be ignored.		

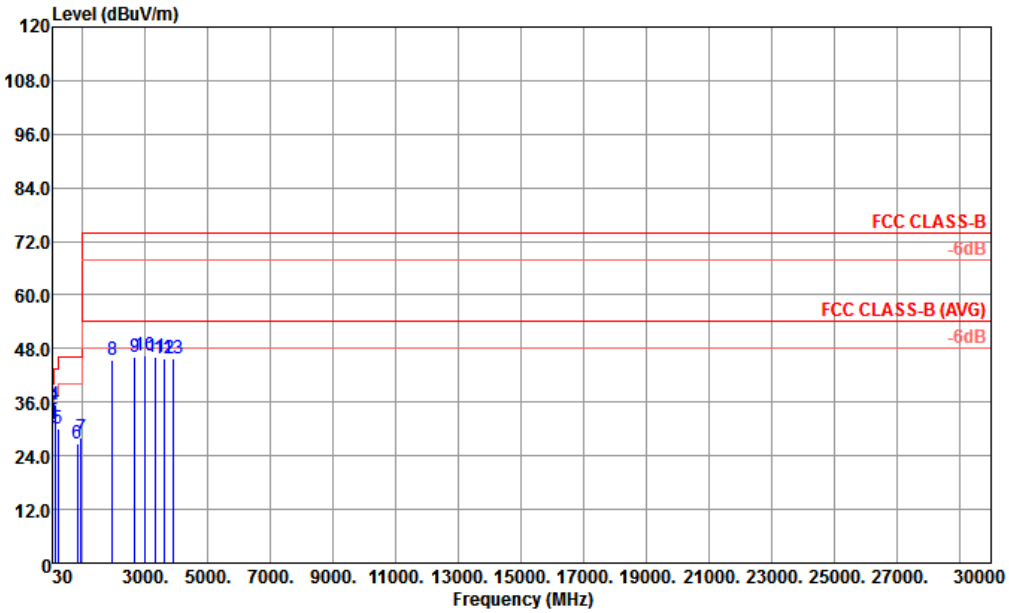


Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF 47610 HORIZONTAL
Project : (FC)7D2903

IMEI : 351883090033436 #18

	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	31.08	22.43	-17.57	40.00	29.43	24.44	0.59	32.03	---	---	Peak
2	108.03	31.48			44.67	17.68	1.05	31.92	---	---	Peak
3	168.24	26.94	-16.56	43.50	41.65	15.74	1.33	31.78	---	---	Peak
4	207.93	27.22	-16.28	43.50	42.05	15.33	1.49	31.65	---	---	Peak
5	256.80	30.84	-15.16	46.00	41.18	19.38	1.77	31.49	100	0	Peak
6	346.90	27.66	-18.34	46.00	36.42	20.24	1.91	30.91	---	---	Peak
7	910.40	28.04	-17.96	46.00	25.69	26.66	3.12	27.43	---	---	Peak
8	2260.00	45.02	-28.98	74.00	40.77	31.08	4.99	31.82	---	---	Peak
9	2674.00	45.91	-28.09	74.00	38.95	31.76	5.54	30.34	---	---	Peak
10	2940.00	46.18	-27.82	74.00	37.83	32.40	5.92	29.97	---	---	Peak
11	3264.00	45.96	-28.04	74.00	36.32	33.19	6.23	29.78	---	---	Peak
12	3732.00	46.28	-27.72	74.00	35.14	34.59	6.57	30.02	---	---	Peak
13	4032.00	45.46	-28.54	74.00	33.63	35.15	6.79	30.11	---	---	Peak

Test Mode :	Mode 10	**Temperature :**	21~22°C
Test Engineer :	Leo Liao	**Relative Humidity :**	41~42%
Test Distance :	3m	**Polarization :**	Vertical
Function Type :	USB Cable (Charging from Adapter 2) + FM Rx (108MHz) + Earphone + Battery		
Remark :	#4 is System Simulator (FM Option) signal which can be ignored.		

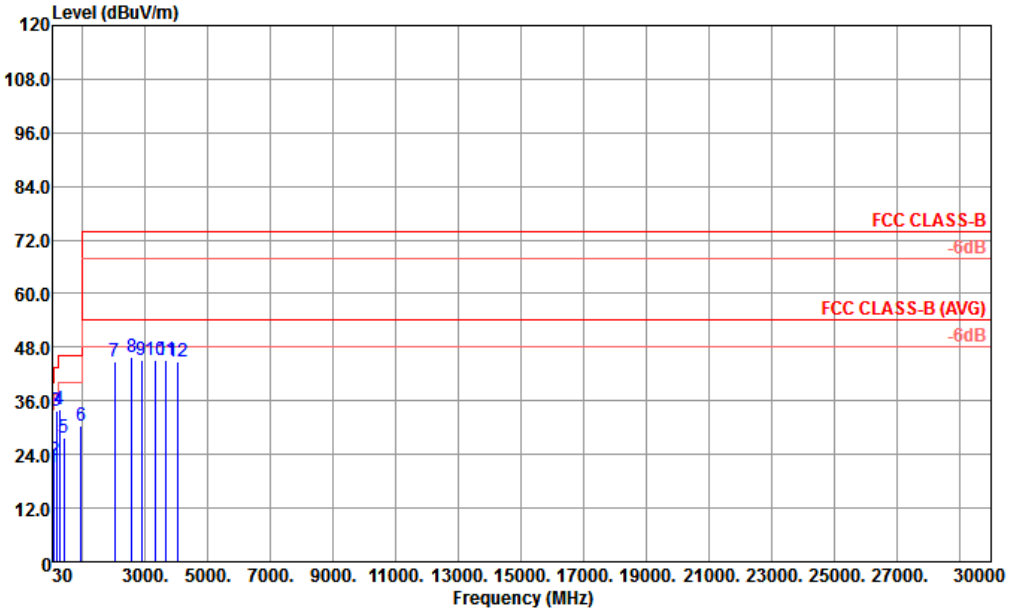


Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF 47610 VERTICAL
Project : (FC)7D2903

IMEI : 351883090033436 #18

		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		31.62	31.79	-8.21	40.00	39.34	23.88	0.60	32.03	---	---	Peak
2	!	41.61	34.44	-5.56	40.00	47.82	18.04	0.65	32.07	100	0	Peak
3		44.04	30.94	-9.06	40.00	45.50	16.88	0.66	32.10	---	---	Peak
4		108.03	35.55			48.74	17.68	1.05	31.92	---	---	Peak
5		206.31	29.98	-13.52	43.50	44.81	15.34	1.48	31.65	---	---	Peak
6		832.70	26.71	-19.29	46.00	25.68	26.17	2.91	28.05	---	---	Peak
7		957.30	28.04	-17.96	46.00	24.95	26.98	3.21	27.10	---	---	Peak
8		1948.00	45.41	-28.59	74.00	44.35	29.96	4.59	33.49	---	---	Peak
9		2656.00	46.17	-27.83	74.00	39.37	31.74	5.48	30.42	---	---	Peak
10		2992.00	46.47	-27.53	74.00	37.94	32.55	5.95	29.97	---	---	Peak
11		3327.00	46.08	-27.92	74.00	36.51	33.28	6.25	29.96	---	---	Peak
12		3624.00	45.86	-28.14	74.00	35.24	33.81	6.47	29.66	---	---	Peak
13		3897.00	45.74	-28.26	74.00	34.26	34.92	6.67	30.11	---	---	Peak

Test Mode :	Mode 6	**Temperature :**	21~22°C
Test Engineer :	Leo Liao	**Relative Humidity :**	41~42%
Test Distance :	3m	**Polarization :**	Horizontal
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Data Link with Notebook) + Earphone + Battery + GNSS Rx		

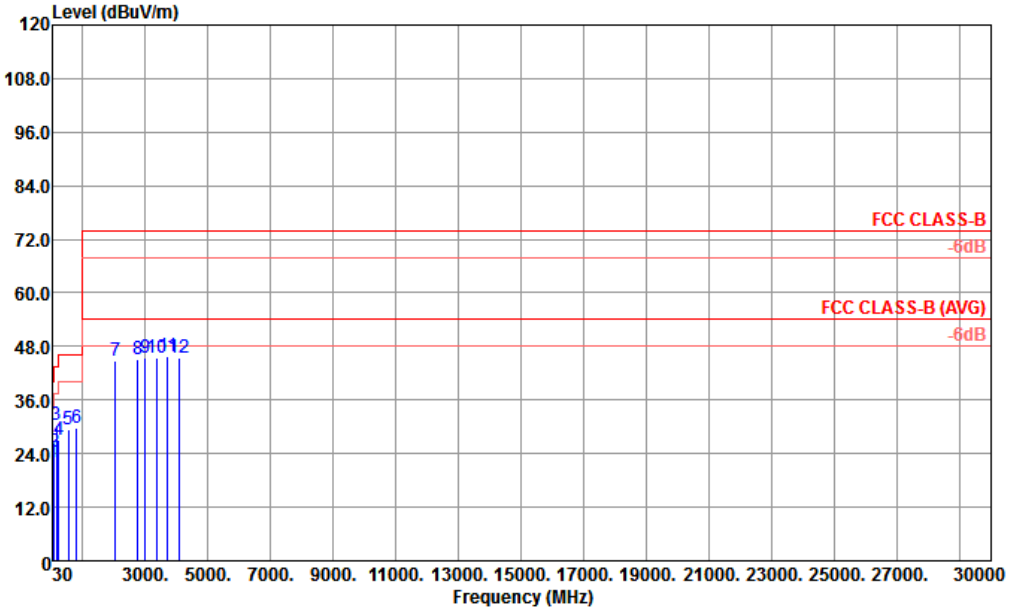


Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF 47610 HORIZONTAL
Project : (FC)7D2903

IMEI : 351883090033436 #18

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	21.21	-18.79	40.00	27.67	25.00	0.57	32.03	---	---	Peak
2	84.54	22.84	-17.16	40.00	40.12	13.82	0.95	32.05	---	---	Peak
3	165.54	33.91	-9.59	43.50	48.52	15.86	1.32	31.79	100	0	Peak
4	254.37	34.16	-11.84	46.00	44.96	18.96	1.76	31.52	---	---	Peak
5	399.40	27.71	-18.29	46.00	34.65	21.70	2.07	30.71	---	---	Peak
6	948.90	30.54	-15.46	46.00	27.60	26.89	3.20	27.15	---	---	Peak
7	2018.00	44.90	-29.10	74.00	43.13	30.36	4.63	33.22	---	---	Peak
8	2560.00	45.72	-28.28	74.00	39.52	31.59	5.31	30.70	---	---	Peak
9	2868.00	45.06	-28.94	74.00	36.96	32.20	5.88	29.98	---	---	Peak
10	3297.00	45.07	-28.93	74.00	35.46	33.23	6.25	29.87	---	---	Peak
11	3660.00	45.03	-28.97	74.00	34.24	34.03	6.51	29.75	---	---	Peak
12	4044.00	44.77	-29.23	74.00	32.84	35.18	6.86	30.11	---	---	Peak

Test Mode :	Mode 6	**Temperature :**	21~22°C
Test Engineer :	Leo Liao	**Relative Humidity :**	41~42%
Test Distance :	3m	**Polarization :**	Vertical
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Data Link with Notebook) + Earphone + Battery + GNSS Rx		



Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF 47610 VERTICAL
Project : (FC)7D2903

IMEI : 351883090033436 #18

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.27	21.93	-18.07	40.00	28.39	25.00	0.57	32.03	---	---	Peak
2	101.01	24.48	-19.02	43.50	38.48	16.91	1.02	31.93	---	---	Peak
3	153.12	30.41	-13.09	43.50	44.59	16.38	1.27	31.83	100	0	Peak
4	243.57	27.22	-18.78	46.00	39.32	17.76	1.71	31.57	---	---	Peak
5	535.90	29.40	-16.60	46.00	32.44	24.52	2.51	30.07	---	---	Peak
6	796.30	29.82	-16.18	46.00	29.64	25.88	2.65	28.35	---	---	Peak
7	2048.00	44.90	-29.10	74.00	42.75	30.47	4.71	33.03	---	---	Peak
8	2748.00	45.10	-28.90	74.00	37.59	31.91	5.72	30.12	---	---	Peak
9	2986.00	45.37	-28.63	74.00	36.84	32.55	5.95	29.97	---	---	Peak
10	3384.00	45.30	-28.70	74.00	35.68	33.35	6.27	30.00	---	---	Peak
11	3717.00	45.84	-28.16	74.00	34.83	34.48	6.55	30.02	---	---	Peak
12	4089.00	45.44	-28.56	74.00	33.28	35.26	7.01	30.11	---	---	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. 20, 2017	Jan. 08, 2018	Apr. 19, 2018	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2017	Jan. 08, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2017	Jan. 08, 2018	Oct. 12, 2018	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2017	Jan. 08, 2018	Oct. 11, 2018	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Aug. 08, 2017	Feb. 13, 2018	Aug. 07, 2018	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz~44GHz, MAX 30dB	Apr. 18, 2017	Feb. 13, 2018	Apr. 17, 2018	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	23182	30MHz~2GHz	Nov. 29, 2017	Feb. 13, 2018	Nov. 28, 2018	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 21, 2017	Feb. 13, 2018	Oct. 20, 2018	Radiation (03CH02-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Feb. 15, 2017	Feb. 13, 2018	Feb. 14, 2018	Radiation (03CH02-KS)
Amplifier	MITEQ	TTA1840-35-HG	1887435	18GHz~40GHz	Oct. 12, 2017	Feb. 13, 2018	Oct. 11, 2018	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	187289	9kHz~1GHz	Aug. 07, 2017	Feb. 13, 2018	Aug. 06, 2018	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1-26.5GHz Gain 30dB	Oct. 12, 2017	Feb. 13, 2018	Oct. 11, 2018	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Feb. 13, 2018	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Feb. 13, 2018	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Feb. 13, 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))	2.3dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.5dB

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.2dB

Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

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