FCC Test Report

APPLICANT	:	Essential Products Inc.
EQUIPMENT	:	SmartPhone
BRAND NAME	:	Essential Products Inc
MODEL NAME	:	A11
MARKETING NAME	:	PH-1
FCC ID	:	2ALBB-A11
STANDARD	:	FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION	:	Certification

The product was received on Apr. 08, 2017 and testing was completed on Jun. 11, 2017. We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.

Louis Wu

Reviewed by: Louis Wu / Manager

Jones Tsai

Approved by: Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.

TABLE OF CONTENTS

REVISION HISTORY **3**

SUMMARY OF TEST RESULT **4**

1. GENERAL DESCRIPTION **5**

1.1. Applicant 5
1.2. Manufacturer 5
1.3. Product Feature of Equipment Under Test 5
1.4. Product Specification of Equipment Under Test 6
1.5. Modification of EUT 7
1.6. Test Location 8
1.7. Applicable Standards 8

2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST **9**

2.1. Test Mode 9
2.2. Connection Diagram of Test System 11
2.3. Support Unit used in test configuration and system 13
2.4. EUT Operation Test Setup 14

3. TEST RESULT **15**

3.1. Test of AC Conducted Emission Measurement 15
3.2. Test of Radiated Emission Measurement 22

4. LIST OF MEASURING EQUIPMENT **29**

6. UNCERTAINTY OF EVALUATION **30**

APPENDIX A. SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC740822	Rev. 01	Initial issue of report	Jun. 15, 2017

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 7.0 dB at 0.486 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 4.08 dB at 192.000 MHz for peak

1. General Description

1.1. Applicant

Essential Products Inc.
380 Portage Ave., Palo Alto, CA 94306

1.2. Manufacturer

FIH Mobile Limited
No.4, Mingsheng St.,Tu-Cheng Dist., New Taipei City 23679, Taiwan

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	SmartPhone
Brand Name	Essential Products Inc
Model Name	A11
Marketing Name	PH-1
FCC ID	2ALBB-A11
EUT supports Radios application	CDMA/EVDO/GSM/GPRS/EGPRS/WCDMA/HSPA/ /HSPA+(16QAM uplink is not supported)/LTE/NFC WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80/ Bluetooth v3.0 + EDR/ Bluetooth v 4.0 LE/ Bluetooth v4.1 LE
IMEI Code	Radiation: 990010040032774 Conduction: 990010040031339
HW Version	DVT
SW Version	NMF26X 99
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 17 : 706.5 MHz ~ 713.5 MHz LTE Band 25 : 1850.7 MHz ~ 1914.3 MHz LTE Band 26 : 814.7 MHz ~ 848.3 MHz LTE Band 30 : 2307.5 MHz ~ 2312.5 MHz LTE Band 38 : 2572.5 MHz ~ 2617.5 MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 MHz LTE Band 43 : 3602.5 MHz ~ 3797.5 MHz LTE Band 66 : 1710.7 MHz ~ 1779.3 MHz CDMA2000 BC0: 824.70 MHz ~ 848.31 MHz CDMA2000 BC1: 1851.25 MHz ~ 1908.75 MHz CDMA2000 BC10 : 817.9 MHz ~ 823.1 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500MHz ~ 5700 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 13 : 748.5 MHz ~ 753.5 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz LTE Band 25 : 1930.7 MHz ~ 1994.3 MHz LTE Band 26 : 859.7 MHz ~ 893.3 MHz LTE Band 30 : 2352.5 MHz ~ 2357.5 MHz LTE Band 38 : 2572.5 MHz ~ 2617.5 MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 MHz LTE Band 43 : 3602.5 MHz ~ 3797.5 MHz LTE Band 66 : 2110.7 MHz~ 2199.3 MHz CDMA2000 BC0: 869.70 MHz ~ 893.31 MHz CDMA2000 BC1: 1931.25 MHz ~ 1988.75 MHz CDMA2000 BC10 : 862.9 MHz ~ 868.1 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320

	MHz; 5500MHz ~ 5700 MHz ;5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz GPS : 1.57542 GHz Glonass: 1602 MHz + n× 0.5625MHz (n=−7,−6,−5,...0,...,6) BDS/SBAS/Galileo : 1559 MHz ~1610 MHz
Antenna Type	WWAN : PIFA Antenna WLAN : Monopole Antenna Bluetooth : Monopole Antenna GPS/Glonass/BDS/SBAS/Galileo: Monopole Antenna NFC: Loop Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA : BPSK (Uplink) HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM uplink is not supported LTE: QPSK / 16QAM / 64QAM CDMA2000 1xRTT: QPSK CDMA2000 1xEV-DO: QPSK/8PSK 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 GPS/Glonass/BDS/SBAS/Galileo: BPSK NFC: ASK

Note： WLAN operation in 5600 MHz ~ 5650 MHz is notched

1.5. Modification of EUT

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

1.6. Test Location

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	CO05-HY

Test Site	SPORTON International (ShenZhen) INC.	
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755- 3320-2398	
Test Site No.	**Sporton Site No.**	**FCC Registration No.**
	03CH03-SZ	565805

1.7. 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.

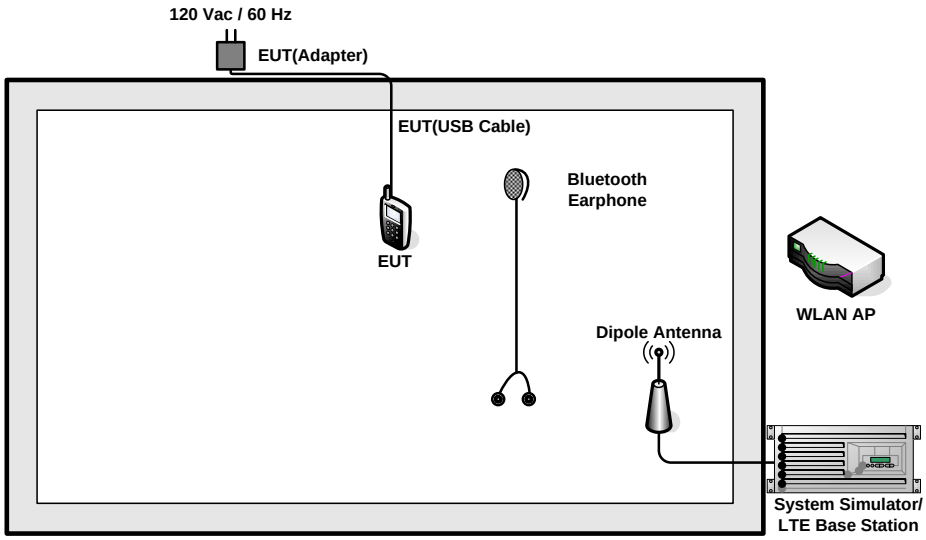
Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
AC Conducted Emission	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + NFC On <Fig.1> Mode 2: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + GPS Rx <Fig.2> Mode 3: LTE Band 7 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Camera(Front) <Fig.1> Mode 4: GSM1900 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Camera(Rear) <Fig.1> Mode 5: WCDMA Band V Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Color Bar <Fig.1> Mode 6: LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Glonass Rx <Fig.3>
Radiated Emissions < 1GHz	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + NFC On <Fig.4> Mode 2: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + GPS Rx <Fig.2> Mode 3: LTE Band 7 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Camera(Front) <Fig.1> Mode 4: GSM1900 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Camera(Rear) <Fig.1> Mode 5: WCDMA Band V Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Color Bar <Fig.1> Mode 6: LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Glonass Rx <Fig.3>
Radiated Emissions ≥ 1GHz	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + NFC On <Fig.4> Mode 2: LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Glonass Rx <Fig.3>

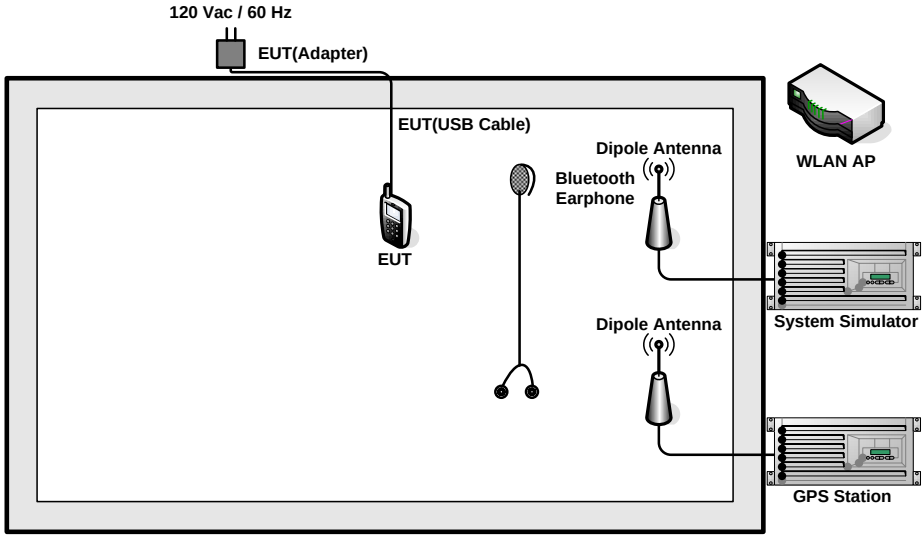
Remark:

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

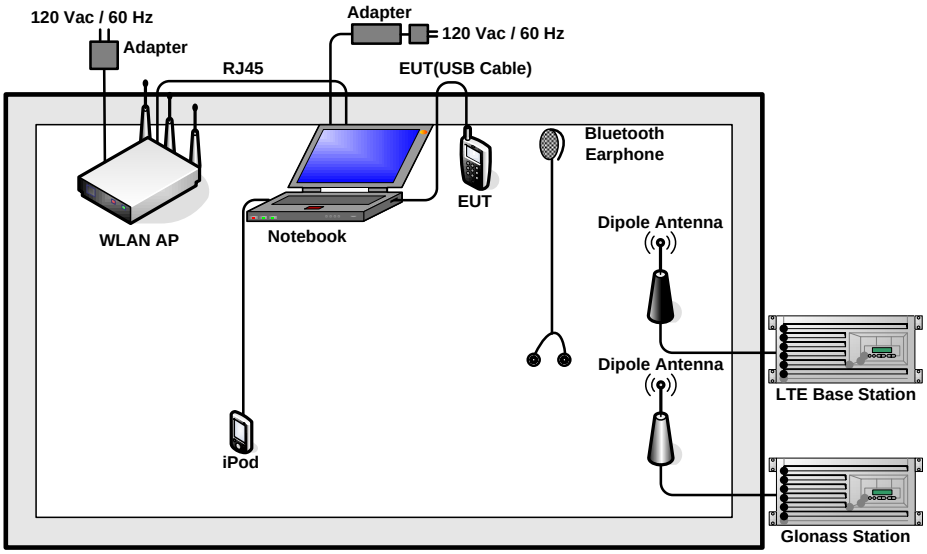
2.2. Connection Diagram of Test System



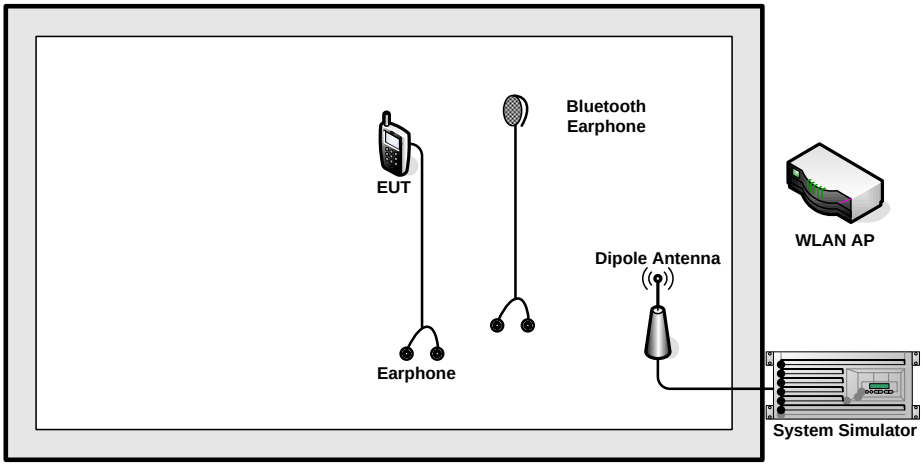
<Fig.1>



<Fig.2>


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

<Fig.3>


Bluetooth
Earphone
EUT
WLAN AP
Dipole Antenna
Earphone
System Simulator

<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	Anritus	MT8820C	N/A	N/A	Unshielded, 1.8 m
3.	GPS Station	ADIVIC	MP9000	N/A	N/A	Unshielded, 1.8 m
4.	Glonass Station	RACELOGIC	RLLS03-2RP	N/A	N/A	Unshielded, 1.8 m
5.	WLAN AP	D-link	DIR-820L	KA2IR820LA1	N/A	Unshielded,1.8m
6.	WLAN AP	ASUSTek	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
7.	Bluetooth Earphone	Sony Ericsson	MW600	PY700A2029	N/A	N/A
8.	Bluetooth Earphone	Samsung	HS3000	A3LHS3000	N/A	N/A
9.	Bluetooth Earphone	SonyErricsson	MW600	PY700A2029	N/A	N/A
10.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
11.	Notebook	Dell	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
12.	iPod	Apple	A1285	DoC	Shielded, 1.0m	N/A
13.	iPod	Apple	MC525 ZP/A	FCC DoC	Shielded, 1.0m	N/A
14.	Earphone	Apple	MC690ZP/A	FCC DoC	UnShielded, 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. Execute "Video Player" to play MPEG4 files.
4. Turn on camera to capture images.
5. Turn on NFC function.
6. Turn on Color Bar function.

3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

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.

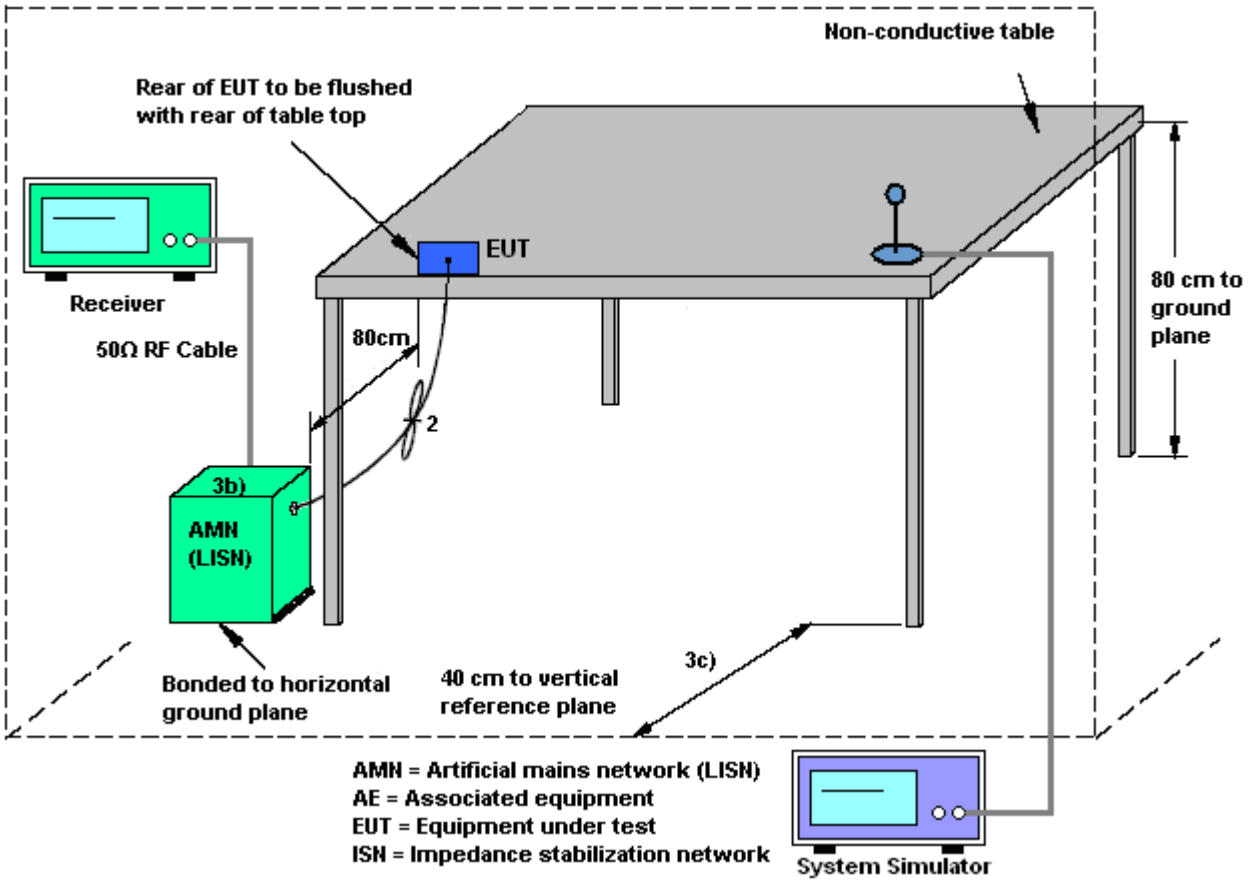
3.1.2 Measuring Instruments

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

3.1.3 Test Procedure

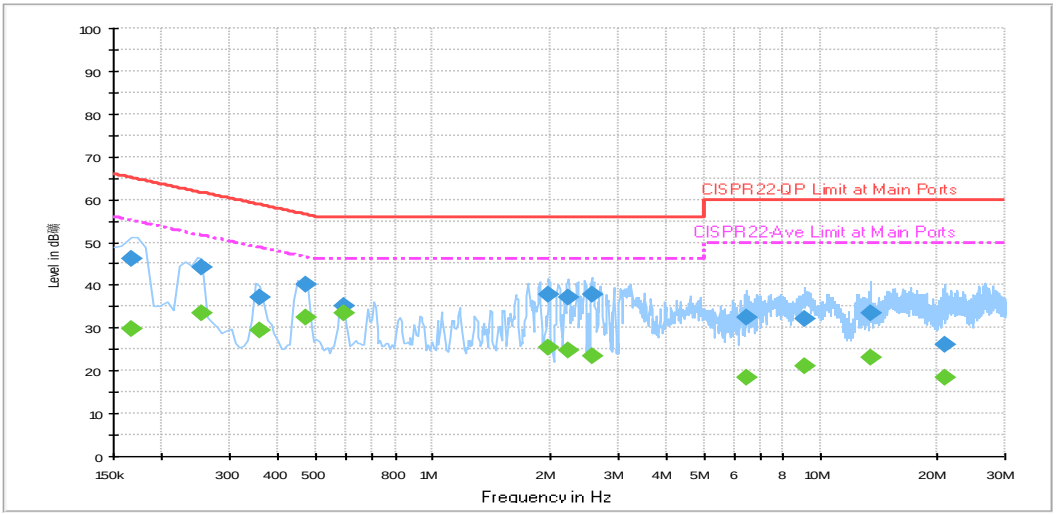
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

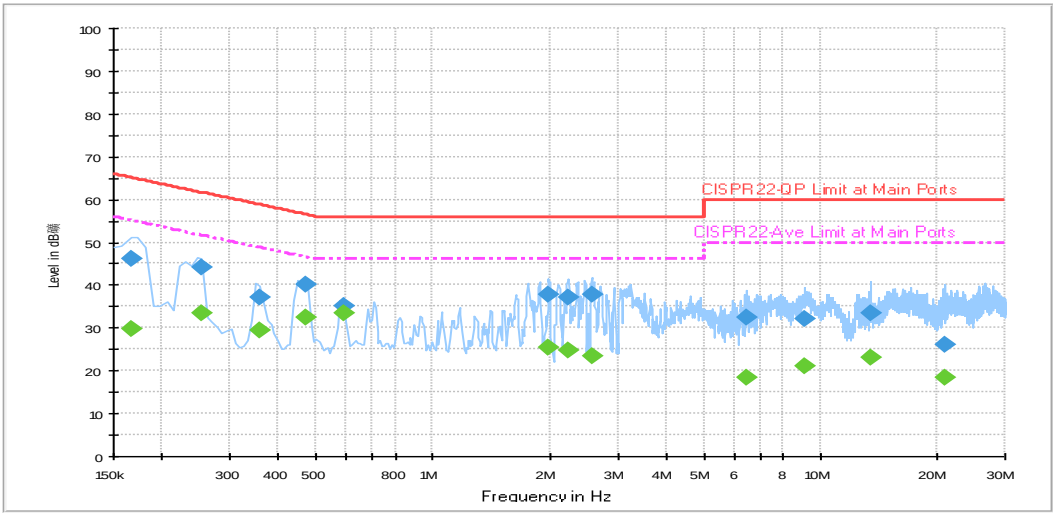
Test Mode :	Mode 1	**Temperature :**	22~25℃
Test Engineer :	Arthur Hsieh	**Relative Humidity :**	51~55%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + NFC On		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	46.1	Off	L1	19.6	19.1	65.2
0.254000	44.1	Off	L1	19.6	17.5	61.6
0.358000	37.2	Off	L1	19.6	21.6	58.8
0.470000	40.3	Off	L1	19.6	16.2	56.5
0.590000	35.0	Off	L1	19.6	21.0	56.0
1.990000	37.9	Off	L1	19.6	18.1	56.0
2.246000	37.1	Off	L1	18.7	18.9	56.0
2.574000	37.8	Off	L1	19.3	18.2	56.0
6.438000	32.6	Off	L1	19.8	27.4	60.0
9.078000	32.0	Off	L1	20.0	28.0	60.0
13.558000	33.3	Off	L1	20.2	26.7	60.0
20.878000	26.1	Off	L1	20.6	33.9	60.0

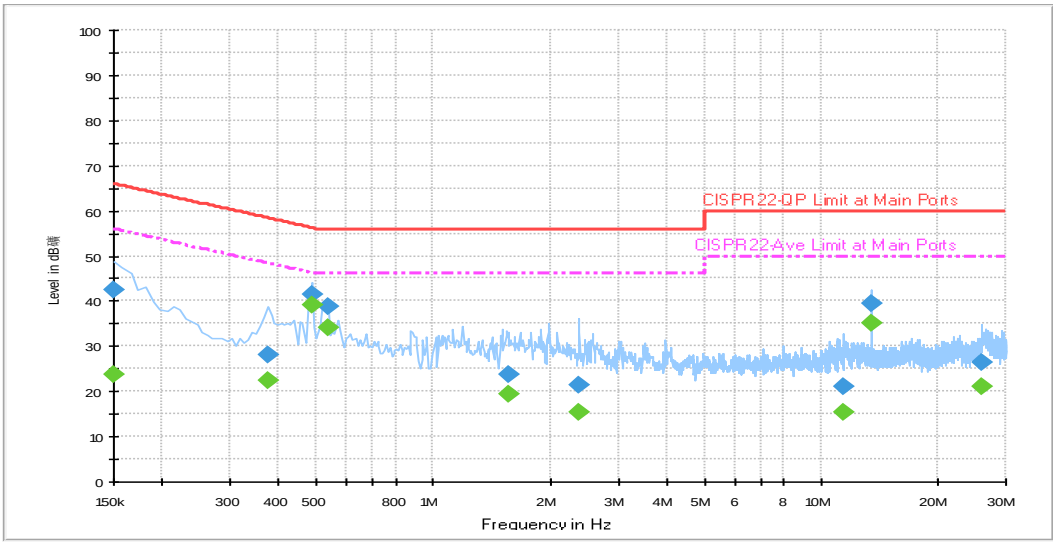
Test Mode :	Mode 1	Temperature :	22~25℃
Test Engineer :	Arthur Hsieh	Relative Humidity :	51~55%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + NFC On		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	29.9	Off	L1	19.6	25.3	55.2
0.254000	33.3	Off	L1	19.6	18.3	51.6
0.358000	29.5	Off	L1	19.6	19.3	48.8
0.470000	32.6	Off	L1	19.6	13.9	46.5
0.590000	33.5	Off	L1	19.6	12.5	46.0
1.990000	25.5	Off	L1	19.6	20.5	46.0
2.246000	24.7	Off	L1	18.7	21.3	46.0
2.574000	23.3	Off	L1	19.3	22.7	46.0
6.438000	18.5	Off	L1	19.8	31.5	50.0
9.078000	21.0	Off	L1	20.0	29.0	50.0
13.558000	23.1	Off	L1	20.2	26.9	50.0
20.878000	18.4	Off	L1	20.6	31.6	50.0

Test Mode :	Mode 1	Temperature :	22~25℃
Test Engineer :	Arthur Hsieh	Relative Humidity :	51~55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band II Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + GPS Rx		



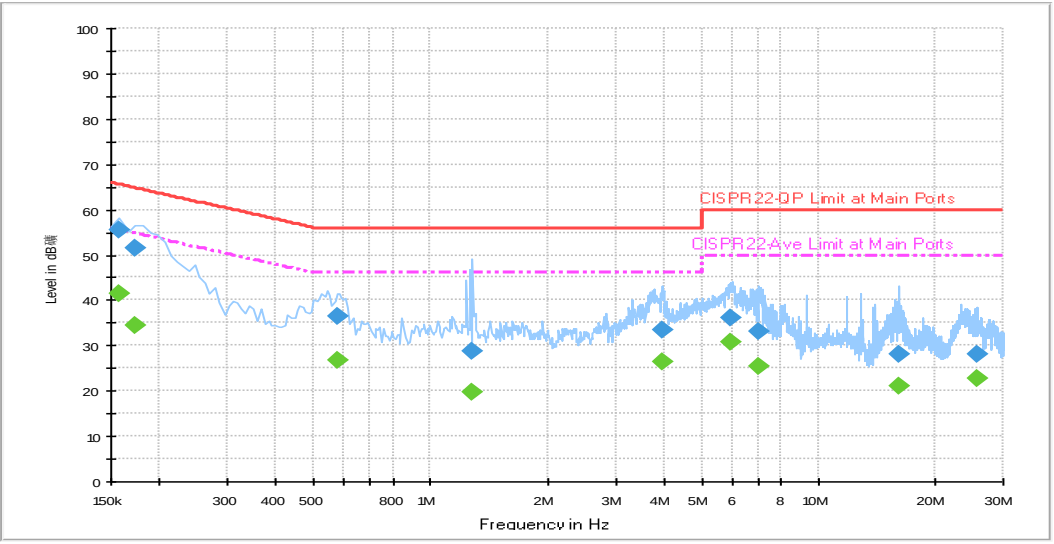
Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	42.4	Off	N	19.5	23.6	66.0
0.374000	28.0	Off	N	19.5	30.4	58.4
0.486000	41.6	Off	N	19.5	14.6	56.2
0.534000	38.7	Off	N	19.5	17.3	56.0
1.566000	23.6	Off	N	19.6	32.4	56.0
2.374000	21.4	Off	N	19.0	34.6	56.0
11.470000	21.2	Off	N	20.2	38.8	60.0
13.558000	39.5	Off	N	20.3	20.5	60.0
26.038000	26.4	Off	N	21.0	33.6	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	23.8	Off	N	19.5	32.2	56.0
0.374000	22.4	Off	N	19.5	26.0	48.4
0.486000	39.2	Off	N	19.5	7.0	46.2
0.534000	34.2	Off	N	19.5	11.8	46.0
1.566000	19.5	Off	N	19.6	26.5	46.0
2.374000	15.4	Off	N	19.0	30.6	46.0
11.470000	15.3	Off	N	20.2	34.7	50.0
13.558000	35.0	Off	N	20.3	15.0	50.0
26.038000	21.2	Off	N	21.0	28.8	50.0

Test Mode :	Mode 6	Temperature :	22~25℃
Test Engineer :	Arthur Hsieh	Relative Humidity :	51~55%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Glonass Rx		



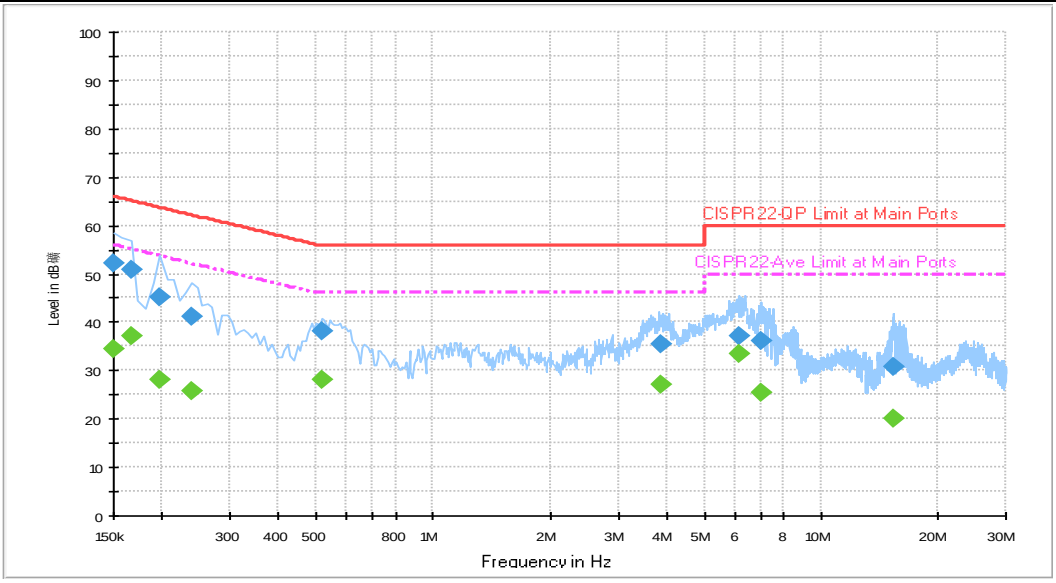
Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	55.4	Off	L1	19.6	10.2	65.6
0.174000	51.7	Off	L1	19.6	13.1	64.8
0.574000	36.3	Off	L1	19.6	19.7	56.0
1.286000	28.7	Off	L1	19.6	27.3	56.0
3.966000	33.4	Off	L1	19.7	22.6	56.0
5.926000	36.3	Off	L1	19.8	23.7	60.0
6.990000	33.0	Off	L1	19.9	27.0	60.0
16.174000	28.2	Off	L1	20.4	31.8	60.0
25.614000	28.1	Off	L1	20.8	31.9	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	41.5	Off	L1	19.6	14.1	55.6
0.174000	34.3	Off	L1	19.6	20.5	54.8
0.574000	26.8	Off	L1	19.6	19.2	46.0
1.286000	19.9	Off	L1	19.6	26.1	46.0
3.966000	26.6	Off	L1	19.7	19.4	46.0
5.926000	30.7	Off	L1	19.8	19.3	50.0
6.990000	25.3	Off	L1	19.9	24.7	50.0
16.174000	21.1	Off	L1	20.4	28.9	50.0
25.614000	22.8	Off	L1	20.8	27.2	50.0

Test Mode :	Mode 6	Temperature :	22~25℃
Test Engineer :	Arthur Hsieh	Relative Humidity :	51~55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Glonass Rx		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	52.1	Off	N	19.5	13.9	66.0
0.166000	51.0	Off	N	19.5	14.2	65.2
0.198000	45.1	Off	N	19.5	18.6	63.7
0.238000	41.0	Off	N	19.5	21.2	62.2
0.518000	38.2	Off	N	19.5	17.8	56.0
3.878000	35.3	Off	N	19.7	20.7	56.0
6.182000	37.0	Off	N	19.8	23.0	60.0
7.006000	36.0	Off	N	19.9	24.0	60.0
15.454000	30.8	Off	N	20.4	29.2	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	34.5	Off	N	19.5	21.5	56.0
0.166000	37.1	Off	N	19.5	18.1	55.2
0.198000	28.1	Off	N	19.5	25.6	53.7
0.238000	25.6	Off	N	19.5	26.6	52.2
0.518000	27.9	Off	N	19.5	18.1	46.0
3.878000	27.2	Off	N	19.7	18.8	46.0
6.182000	33.5	Off	N	19.8	16.5	50.0
7.006000	25.4	Off	N	19.9	24.6	50.0
15.454000	20.0	Off	N	20.4	30.0	50.0

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

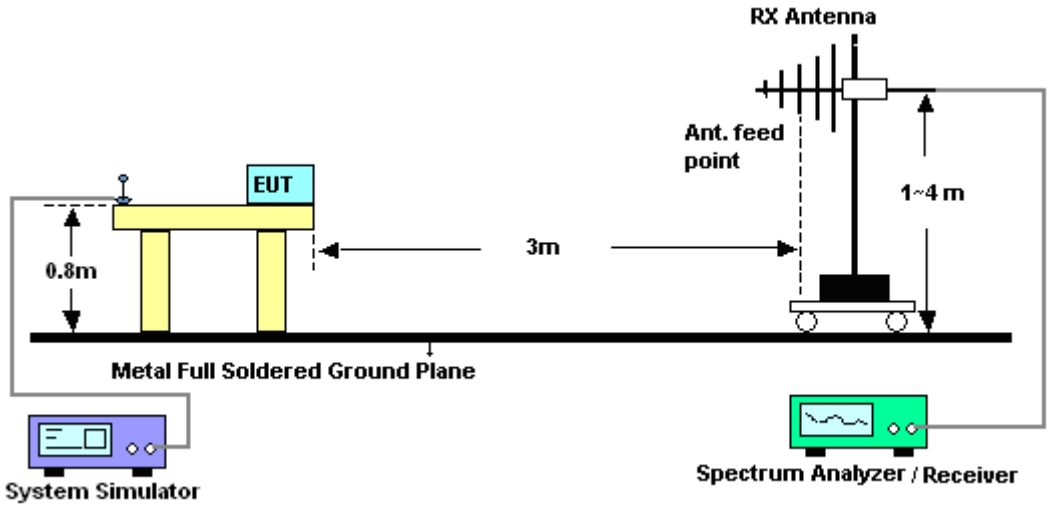
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

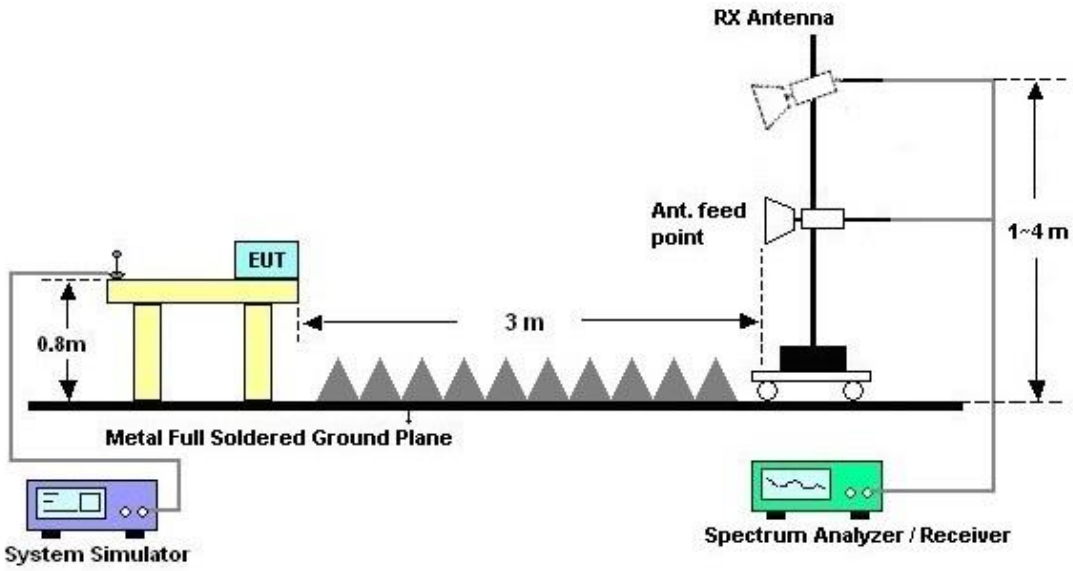
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

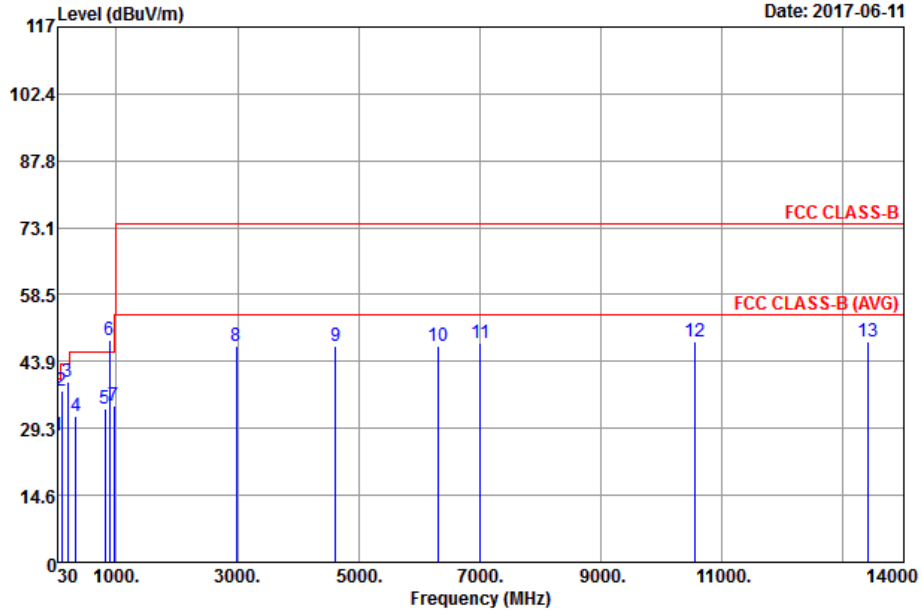


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

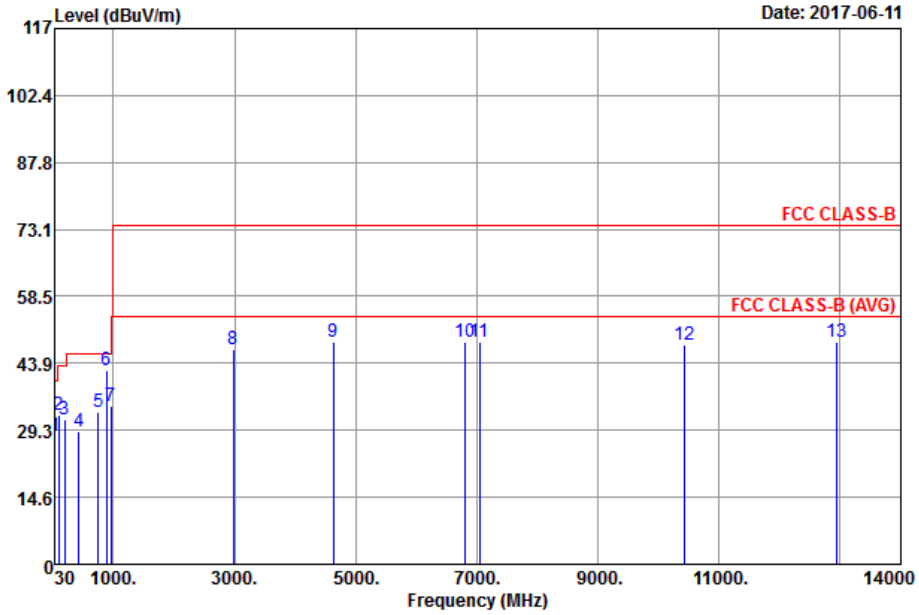
Test Mode :	Mode 1	**Temperature :**	24~25°C
Test Engineer :	Peng Wang	**Relative Humidity :**	48~49%
Test Distance :	3m	**Polarization :**	Horizontal
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + NFC On		
Remark :	#6 is system simulator signal which can be ignored.		



Site : 03CH03-SZ
Condition : FCC CLASS-B 3m LF_ANT(35407)_6 HORIZONTAL
Project : 740822
Mode : Mode 1
IMEI : 990010040032774
Plane : Y

		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		33.51	27.62	-12.38	40.00	33.57	25.40	0.30	31.65	---	---	Peak
2		98.31	37.63	-5.87	43.50	49.62	18.78	0.83	31.60	---	---	Peak
3		192.00	39.42	-4.08	43.50	52.67	16.41	1.56	31.22	100	85	Peak
4		335.70	31.91	-14.09	46.00	41.19	19.85	2.17	31.30	---	---	Peak
5		810.30	33.72	-12.28	46.00	33.47	28.12	3.63	31.50	---	---	Peak
6	*	881.00	48.68			48.09	28.32	3.77	31.50	---	---	Peak
7		958.70	34.07	-11.93	46.00	31.81	29.77	3.99	31.50	---	---	Peak
8		2978.00	47.30	-26.70	74.00	62.19	33.03	8.91	56.83	---	---	Peak
9		4618.00	47.41	-26.59	74.00	60.66	33.17	10.68	57.10	---	---	Peak
10		6310.00	47.13	-26.87	74.00	53.47	36.08	14.51	56.93	---	---	Peak
11		7006.00	47.85	-26.15	74.00	55.44	35.90	14.56	58.05	---	---	Peak
12		10546.00	48.20	-25.80	74.00	52.09	37.91	14.66	56.46	---	---	Peak
13		13397.00	48.26	-25.74	74.00	51.61	38.57	15.18	57.10	100	329	Peak

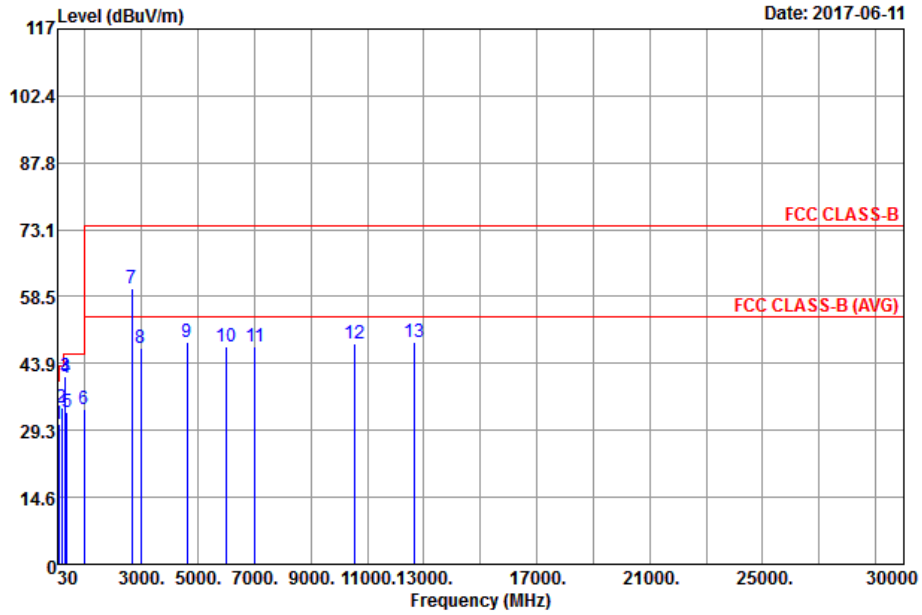
Test Mode :	Mode 1	**Temperature :**	24~25°C
Test Engineer :	Peng Wang	**Relative Humidity :**	48~49%
Test Distance :	3m	**Polarization :**	Vertical
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + Earphone + NFC On		
Remark :	#6 is system simulator signal which can be ignored.		



Site : 03CH03-SZ
Condition : FCC CLASS-B 3m LF_ANT(35407)_6 VERTICAL
Project : 740822
Mode : Mode 1
IMEI : 990010040032774
Plane : Y

	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	40.80	28.18	-11.82	40.00	37.22	22.02	0.39	31.45	---	---	Peak
2	95.88	32.69	-10.81	43.50	45.23	18.26	0.80	31.60	100	221	Peak
3	192.00	31.77	-11.73	43.50	45.02	16.41	1.56	31.22	---	---	Peak
4	434.40	28.86	-17.14	46.00	33.33	24.32	2.51	31.30	---	---	Peak
5	750.10	33.26	-12.74	46.00	33.30	28.00	3.46	31.50	---	---	Peak
6	881.70	42.52			41.92	28.33	3.77	31.50	---	---	Peak
7	959.40	34.50	-11.50	46.00	32.23	29.78	3.99	31.50	---	---	Peak
8	2976.00	46.95	-27.05	74.00	61.84	33.03	8.91	56.83	---	---	Peak
9	4632.00	48.51	-25.49	74.00	61.71	33.18	10.68	57.06	---	---	Peak
10	6812.00	48.44	-25.56	74.00	54.40	35.94	15.85	57.75	---	---	Peak
11	7048.00	48.43	-25.57	74.00	56.31	35.82	14.36	58.06	---	---	Peak
12	10424.00	47.95	-26.05	74.00	51.98	37.83	14.63	56.49	---	---	Peak
13	12935.00	48.62	-25.38	74.00	51.49	39.15	15.12	57.14	100	237	Peak

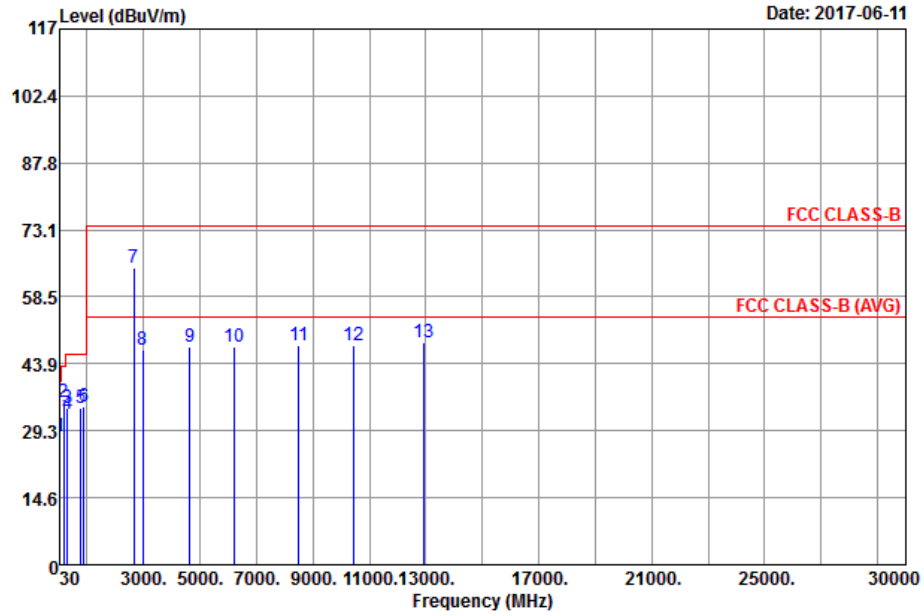
Test Mode :	Mode 6	**Temperature :**	24~25°C
Test Engineer :	Peng Wang	**Relative Humidity :**	48~49%
Test Distance :	3m	**Polarization :**	Horizontal
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Glonass Rx		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH03-SZ
Condition : FCC CLASS-B 3m LF_ANT(35407)_6 HORIZONTAL
Project : 740822
Mode : Mode 6
IMEI : 990010040032774
Plane : Y

	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	67.80	30.74	-9.26	40.00	48.18	13.60	0.56	31.60	---	---	Peak
2	177.15	34.09	-9.41	43.50	46.90	17.00	1.47	31.28	---	---	Peak
3	298.65	41.12	-4.88	46.00	51.89	18.48	2.04	31.29	100	208	Peak
4	300.00	40.81	-5.19	46.00	51.57	18.50	2.04	31.30	---	---	Peak
5	358.80	33.26	-12.74	46.00	41.29	21.02	2.25	31.30	---	---	Peak
6	959.40	34.04	-11.96	46.00	31.77	29.78	3.99	31.50	---	---	Peak
7	2654.00	60.22			77.39	32.40	7.15	56.72	---	---	Peak
8	2978.00	47.30	-26.70	74.00	62.19	33.03	8.91	56.83	---	---	Peak
9	4618.00	48.41	-25.59	74.00	61.66	33.17	10.68	57.10	---	---	Peak
10	6026.00	47.60	-26.40	74.00	54.53	36.19	13.37	56.49	---	---	Peak
11	7024.00	47.73	-26.27	74.00	55.35	35.87	14.56	58.05	---	---	Peak
12	10546.00	48.20	-25.80	74.00	52.09	37.91	14.66	56.46	---	---	Peak
13	12674.00	48.59	-25.41	74.00	51.99	38.95	15.09	57.44	100	119	Peak

Test Mode :	Mode 6	**Temperature :**	24~25°C
Test Engineer :	Peng Wang	**Relative Humidity :**	48~49%
Test Distance :	3m	**Polarization :**	Vertical
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Glonass Rx		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH03-SZ
Condition : FCC CLASS-B 3m LF_ANT(35407)_6 VERTICAL
Project : 740822
Mode : Mode 6
IMEI : 990010040032774
Plane : Y

	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	30.81	27.88	-12.12	40.00	33.03	26.30	0.25	31.70	---	---	Peak
2	177.42	35.56	-7.94	43.50	48.37	17.00	1.47	31.28	100	341	Peak
3	298.65	34.17	-11.83	46.00	44.94	18.48	2.04	31.29	---	---	Peak
4	300.00	32.84	-13.16	46.00	43.60	18.50	2.04	31.30	---	---	Peak
5	796.30	34.08	-11.92	46.00	33.89	28.09	3.60	31.50	---	---	Peak
6	896.40	34.59	-11.41	46.00	33.90	28.38	3.81	31.50	---	---	Peak
7	2656.00	64.86			82.03	32.40	7.15	56.72	---	---	Peak
8	2976.00	46.95	-27.05	74.00	61.84	33.03	8.91	56.83	---	---	Peak
9	4632.00	47.51	-26.49	74.00	60.71	33.18	10.68	57.06	---	---	Peak
10	6236.00	47.68	-26.32	74.00	54.27	36.11	14.12	56.82	---	---	Peak
11	8494.00	47.91	-26.09	74.00	53.81	36.30	12.59	54.79	---	---	Peak
12	10424.00	47.95	-26.05	74.00	51.98	37.83	14.63	56.49	---	---	Peak
13	12935.00	48.62	-25.38	74.00	51.49	39.15	15.12	57.14	100	261	Peak

4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jun. 06, 2017	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 30, 2016	Jun. 06, 2017	Aug. 29, 2017	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	May. 02, 2017	Jun. 06, 2017	May. 01, 2018	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 29, 2016	Jun. 06, 2017	Nov. 28, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Dec. 06, 2016	Jun. 06, 2017	Dec. 05, 2017	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 05, 2017	Jun. 06, 2017	Jan. 04, 2018	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Jan. 05, 2017	Jun. 06, 2017	Jan. 04, 2018	Conduction (CO05-HY)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr.20, 2017	Jun. 11, 2017	Apr.19, 2018	Radiation (03CH03-SZ)
EXA Spectrum Anaiyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr.20, 2017	Jun. 11, 2017	Apr.19, 2018	Radiation (03CH03-SZ
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	May. 14, 2017	Jun. 11, 2017	May. 13, 2018	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Nov. 19, 2016	Jun. 11, 2017	Nov. 18, 2017	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Aug.10, 2016	Jun. 11, 2017	Aug. 09, 2017	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102210	0.01Hz ~3000MHz	Oct. 11, 2016	Jun. 11, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 11, 2016	Jun. 11, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 16. 2016	Jun. 11, 2017	Jul. 15. 2017	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Jun. 11, 2017	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jun. 11, 2017	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jun. 11, 2017	NCR	Radiation (03CH03-SZ)

5. NCR: No Calibration Required

6. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.7dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.1dB**

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

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

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

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