

FCC Test Report

APPLICANT : Yulong Computer
Telecommunication Scientific
(Shenzhen) Co., Ltd

EQUIPMENT : Smartphone

BRAND NAME : Coolpad

MODEL NAME : Coolpad 3701A

FCC ID : R38YL3701A

STANDARD : FCC 47 CFR FCC Part 15 Subpart B

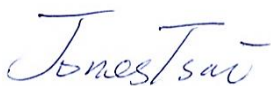
CLASSIFICATION : Certification

The product was received on Apr. 24, 2017 and testing was completed on Jun. 22, 2017. We, SPORTON International (ShenZhen) 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.

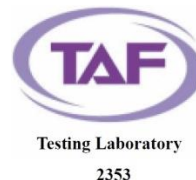
The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON International (ShenZhen) INC., the test report shall not be reproduced except in full.



Prepared by: Eric Shih / Manager



Approved by: Jones Tsai / Manager



SPORTON International (ShenZhen) INC.

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan District, Shenzhen City,
Guangdong Province, China



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	7
1.7. Applicable Standards	7
2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST	8
2.1. Test Mode	8
2.2. Connection Diagram of Test System	9
2.3. Support Unit used in test configuration and system.....	10
2.4. EUT Operation Test Setup	11
3. TEST RESULT	12
3.1. Test of AC Conducted Emission Measurement	12
3.2. Test of Radiated Emission Measurement	20
4. LIST OF MEASURING EQUIPMENT	27
5. UNCERTAINTY OF EVALUATION	28
APPENDIX A. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC742403	Rev. 01	Initial issue of report	Jul. 12, 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 9.43 dB at 0.170 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 3.13 dB at 34.580 MHz for QP



1. General Description

1.1. Applicant

Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd

Coolpad Information Harbor, High-tech Industrial Park (North), Nanshan District, Shenzhen, P.R.C.

1.2. Manufacturer

Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd

Coolpad Information Harbor, High-tech Industrial Park (North), Nanshan District, Shenzhen, P.R.C.

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Smartphone
Brand Name	Coolpad
Model Name	Coolpad 3701A
FCC ID	R38YL3701A
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/ HSPA+(16QAM uplink is not supported)/LTE WLAN2.4GHz802.11b/g/n HT20/HT40 WLAN5GHz802.11a/n HT20/HT40 WLAN5GHz802.11ac VHT20/VHT40/VHT80 Bluetooth V2.1 + EDR/ Bluetooth V 4.0LE
IMEI Code	Conduction: 861273030007810 Radiation: 861273030007877
HW Version	V2
SW Version	117.00.170706.3701A-TMO
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 5 : 824.7 MHz ~ 848.3 MHz LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 66 : 1710.7 MHz ~ 1779.3 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5720 MHz ; 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 12 : 729.7 MHz ~ 745.3 MHz LTE Band 66 : 2110.7 MHz ~ 2199.3 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500 MHz ~ 5720 MHz ; 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz GPS : 1.57542 GHz
Antenna Type	WWAN : Coupling type (LDS) WLAN : IFA Antenna Bluetooth : IFA Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA: BPSK (Uplink) HSDPA/DC-HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM (16QAM uplink is not supported) DC-HSDPA : 64QAM LTE: QPSK / 16QAM 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) : $\pi/4$ -DQPSK Bluetooth (3Mbps) : 8-DPSK GPS : BPSK

1.5. Modification of EUT

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

1.6. Test Location

Test Site	SPORTON International (ShenZhen) INC.	
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan District, Shenzhen City, Guangdong Province, China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595	
Test Site No.	Sporton Site No.	
	CO01-SZ	

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

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

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

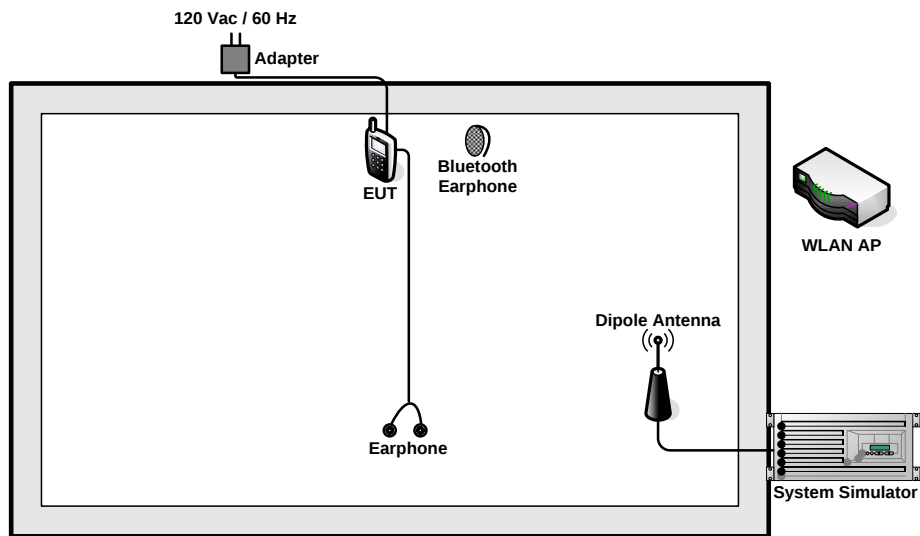
2.1. Test Mode

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.

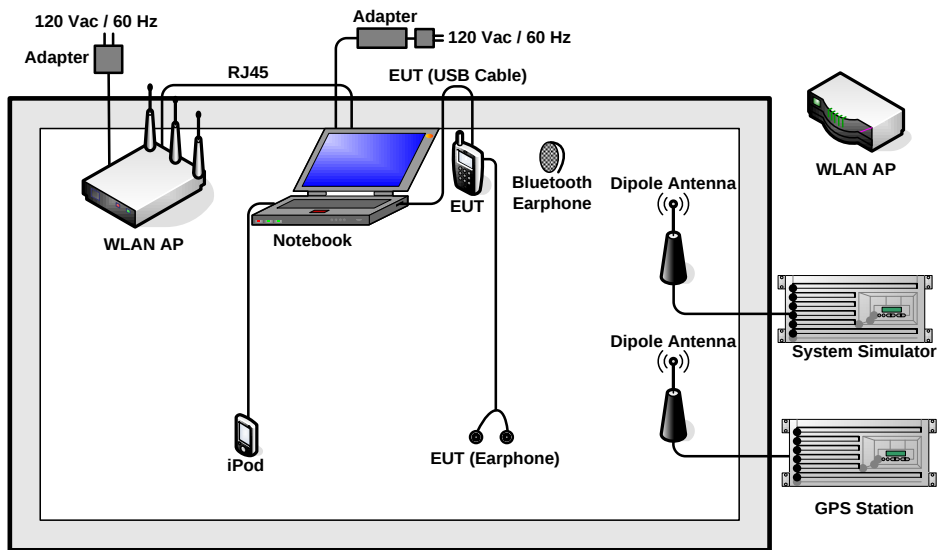
Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
AC Conducted Emission	Mode 1: GSM 850 Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + Camera(Rear)<fig1> Mode 2: GSM 1900 Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(5G) + Camera(Front) <fig1> Mode 3: WCDMA Band V Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + MPEG4<fig1> Mode 4: LTE Band 12 Idle + USB Cable(Data Link from Notebook) + Earphone + Bluetooth Idle + WLAN Idle(5G) + GPS RX<fig2>
Radiated Emissions < 1GHz	Mode 1: GSM 850 Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + Camera(Rear) <fig1> Mode 2: GSM 1900 Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(5G) + Camera(Front) <fig1> Mode 3: WCDMA Band V Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + MPEG4<fig1> Mode 4: LTE Band 12 Idle + USB Cable(Data Link from Notebook) + Earphone + Bluetooth Idle + WLAN Idle(5G) + GPS RX <fig2>
Radiated Emissions ≥ 1GHz	Mode 1: GSM 1900 Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(5G) + Camera(Front) <fig1> Mode 2: LTE Band 12 Idle + USB Cable(Data Link from Notebook) + Earphone + Bluetooth Idle + WLAN Idle(5G) + GPS RX<fig2>
Remark: - The worst case of AC is mode 3; and data link mode is mode 4, the test data of the mode was reported. - The worst case of RE < 1G is mode 2; and data link mode is mode4, the test data of the mode was reported. - Data Link with Notebook means data application transferred mode between EUT and Notebook.	

2.2. Connection Diagram of Test System



<fig1>



<fig2>

2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	ADIVIE	MP9000	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
4.	WLAN AP	D-Link	DIR-865L	KA2IR865LA1	N/A	Unshielded, 1.8 m
5.	Bluetooth Earphone	NOKIA	BH-108	CE0979	N/A	N/A
6.	Bluetooth Earphone	Samsung	HS3000	A3LHS3000	N/A	N/A
7.	Notebook	Lenovo	E540	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
8.	iPod nano 8GB	Apple	MC690ZP/A	FCC DoC	N/A	Unshielded, 1.8 m
9.	iPod	Apple	MC525 ZP/A	DoC	N/A	Unshielded, 1.2 m
10.	SD Card	Kingston	MicroSD HC	FCC DoC	N/A	N/A



2.4. EUT Operation Test Setup

The EUT was in GSM or WCDMA or LTE or EDGE or HSDPA 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 Laptop and EUT via USB cable.
2. Execute "GPS Test" to make the EUT receive continuous signals from GPS station.
3. Execute "Video Player" to play MPEG4 files.
4. Turn on camera to capture images.

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.

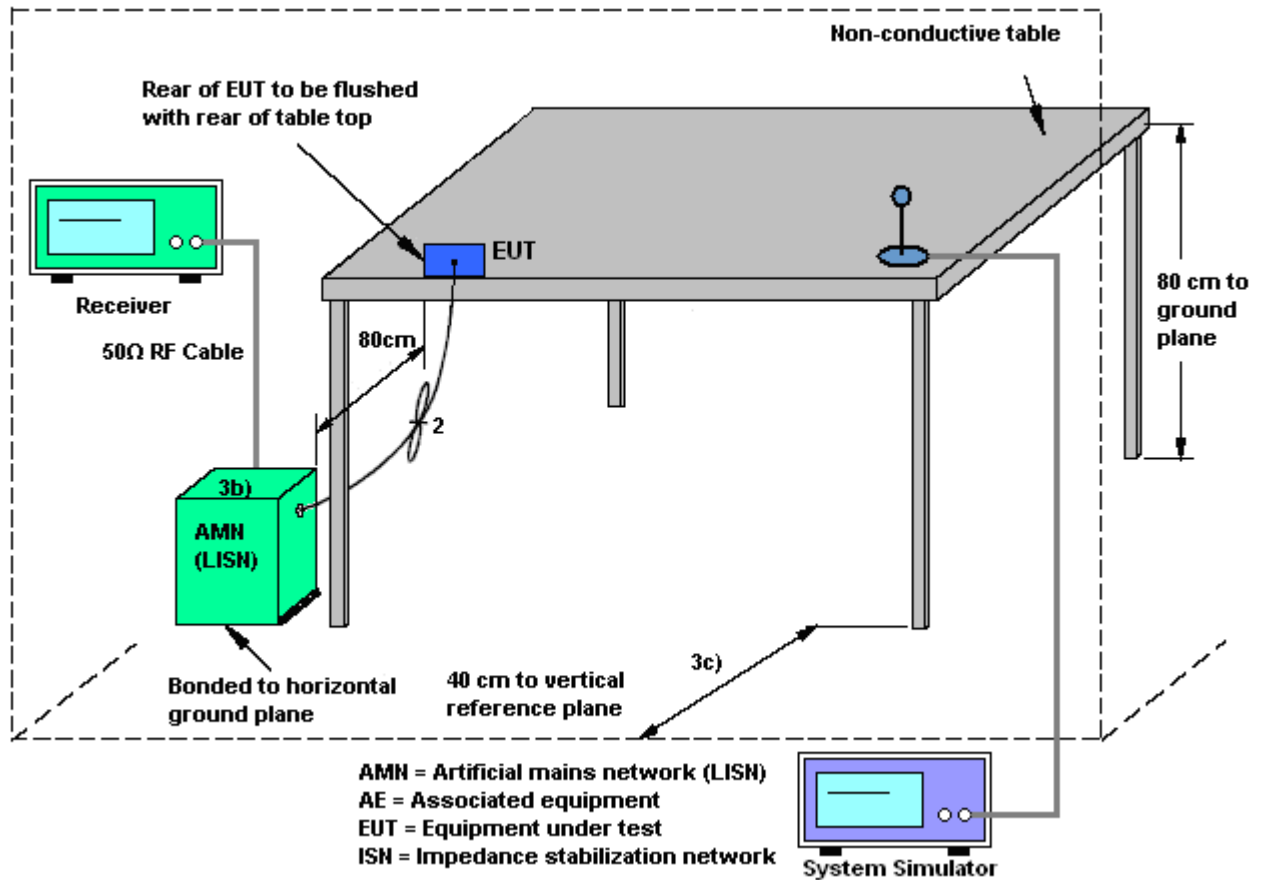
3.1.2 Measuring Instruments

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.

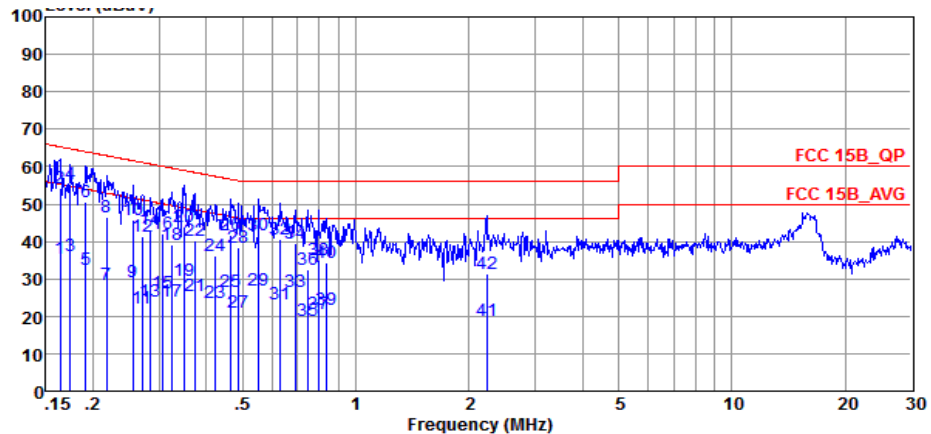
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 3	Temperature :	24 ~25℃
Test Engineer :	HaiHao YE	Relative Humidity :	50 ~ 55%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + MPEG4		

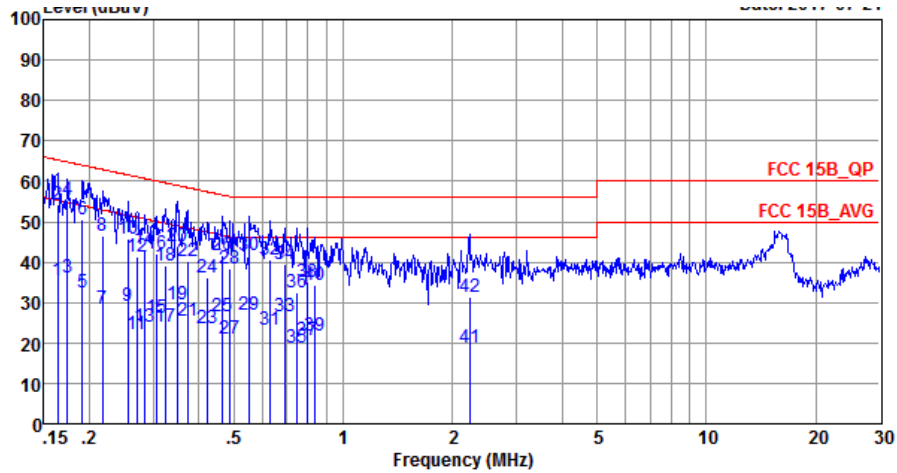


Site : CO01-SZ
Condition: FCC 15B_QP LISN_20170301_L LINE
Project : (FC) 742403
Mode : mode 3
IMEI : 861273030007810

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBμV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBμV	dBμV	dB	dB	
1	0.16	35.38	-19.92	55.30	25.00	0.03	10.35	Average
2	0.16	54.18	-11.12	65.30	43.80	0.03	10.35	QP
3	0.17	36.24	-18.53	54.77	25.90	0.03	10.31	Average
4 *	0.17	55.34	-9.43	64.77	45.00	0.03	10.31	QP
5	0.19	32.48	-21.50	53.98	22.20	0.03	10.25	Average
6	0.19	50.38	-13.60	63.98	40.10	0.03	10.25	QP
7	0.22	28.55	-24.37	52.92	18.30	0.03	10.22	Average
8	0.22	46.45	-16.47	62.92	36.20	0.03	10.22	QP
9	0.25	29.15	-22.45	51.60	18.90	0.03	10.22	Average
10	0.25	45.85	-15.75	61.60	35.60	0.03	10.22	QP
11	0.27	22.25	-28.87	51.12	12.00	0.03	10.22	Average
12	0.27	41.45	-19.67	61.12	31.20	0.03	10.22	QP
13	0.28	23.95	-26.73	50.68	13.70	0.03	10.22	Average
14	0.28	43.05	-17.63	60.68	32.80	0.03	10.22	QP
15	0.31	26.25	-23.85	50.10	16.00	0.03	10.22	Average
16	0.31	42.15	-17.95	60.10	31.90	0.03	10.22	QP
17	0.32	23.94	-25.68	49.62	13.70	0.03	10.21	Average
18	0.32	39.14	-20.48	59.62	28.90	0.03	10.21	QP
19	0.35	29.53	-19.47	49.00	19.30	0.03	10.20	Average
20	0.35	43.93	-15.07	59.00	33.70	0.03	10.20	QP
21	0.37	25.63	-22.80	48.43	15.40	0.03	10.20	Average
22	0.37	40.23	-18.20	58.43	30.00	0.03	10.20	QP
23	0.42	23.51	-23.86	47.37	13.29	0.03	10.19	Average
24	0.42	36.31	-21.06	57.37	26.09	0.03	10.19	QP
25	0.47	26.71	-19.87	46.58	16.51	0.02	10.18	Average
26	0.47	41.61	-14.97	56.58	31.41	0.02	10.18	QP
27	0.49	21.10	-25.09	46.19	10.90	0.02	10.18	Average
28	0.49	38.20	-17.99	56.19	28.00	0.02	10.18	QP
29	0.55	27.10	-18.90	46.00	16.90	0.02	10.18	Average



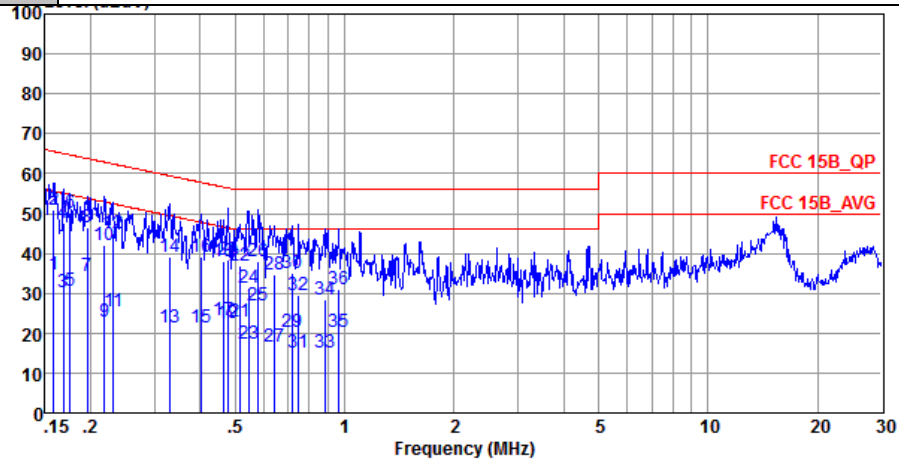
Test Mode :	Mode 3	Temperature :	24 ~25℃
Test Engineer :	HaiHao YE	Relative Humidity :	50 ~ 55%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + MPEG4		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
30	0.55	41.70	-14.30	56.00	31.50	0.02	10.18	QP
31	0.63	23.19	-22.81	46.00	13.00	0.02	10.17	Average
32	0.63	40.59	-15.41	56.00	30.40	0.02	10.17	QP
33	0.69	26.39	-19.61	46.00	16.20	0.02	10.17	Average
34	0.69	39.49	-16.51	56.00	29.30	0.02	10.17	QP
35	0.74	18.99	-27.01	46.00	8.80	0.03	10.16	Average
36	0.74	32.29	-23.71	56.00	22.10	0.03	10.16	QP
37	0.80	20.70	-25.30	46.00	10.50	0.04	10.16	Average
38	0.80	34.90	-21.10	56.00	24.70	0.04	10.16	QP
39	0.83	21.60	-24.40	46.00	11.40	0.04	10.16	Average
40	0.83	34.50	-21.50	56.00	24.30	0.04	10.16	QP
41	2.22	18.90	-27.10	46.00	8.61	0.12	10.17	Average
42	2.22	31.20	-24.80	56.00	20.91	0.12	10.17	QP



Test Mode :	Mode 3	Temperature :	24 ~25°C
Test Engineer :	HaiHao YE	Relative Humidity :	50 ~ 55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + MPEG4		

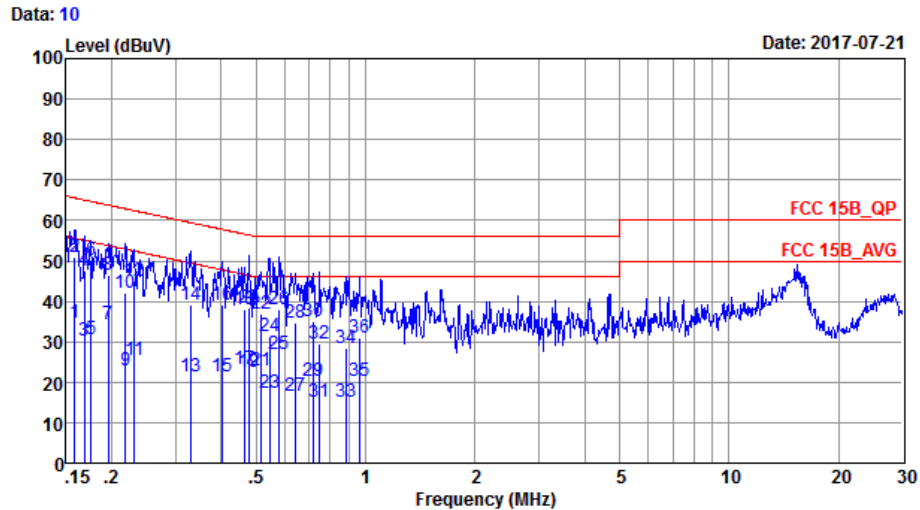


Site : CO01-SZ
 Condition: FCC 15B_QP LISN_20170301_N NEUTRAL
 Project : (FC)742403
 Mode : mode 3
 IMEI : 861273030007810

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	34.60	-20.96	55.56	24.20	0.03	10.37	Average
2	0.16	50.80	-14.76	65.56	40.40	0.03	10.37	QP
3	0.17	30.16	-24.87	55.03	19.80	0.03	10.33	Average
4	0.17	47.56	-17.47	65.03	37.20	0.03	10.33	QP
5	0.18	30.56	-24.12	54.68	20.23	0.03	10.30	Average
6 *	0.18	50.33	-14.35	64.68	40.00	0.03	10.30	QP
7	0.20	34.26	-19.54	53.80	24.00	0.03	10.23	Average
8	0.20	46.36	-17.44	63.80	36.10	0.03	10.23	QP
9	0.22	22.75	-30.13	52.88	12.50	0.03	10.22	Average
10	0.22	42.25	-20.63	62.88	32.00	0.03	10.22	QP
11	0.23	25.55	-26.84	52.39	15.30	0.03	10.22	Average
12	0.23	44.85	-17.54	62.39	34.60	0.03	10.22	QP
13	0.33	21.34	-28.10	49.44	11.10	0.03	10.21	Average
14	0.33	39.14	-20.30	59.44	28.90	0.03	10.21	QP
15	0.40	21.31	-26.46	47.77	11.10	0.02	10.19	Average
16	0.40	39.11	-18.66	57.77	28.90	0.02	10.19	QP
17	0.46	23.30	-23.33	46.63	13.10	0.02	10.18	Average
18	0.46	37.90	-18.73	56.63	27.70	0.02	10.18	QP
19	0.48	22.60	-23.76	46.36	12.40	0.02	10.18	Average
20	0.48	38.40	-17.96	56.36	28.20	0.02	10.18	QP
21	0.52	23.00	-23.00	46.00	12.80	0.02	10.18	Average
22	0.52	36.90	-19.10	56.00	26.70	0.02	10.18	QP
23	0.54	17.20	-28.80	46.00	7.00	0.02	10.18	Average
24	0.54	31.50	-24.50	56.00	21.30	0.02	10.18	QP
25	0.58	26.79	-19.21	46.00	16.60	0.02	10.17	Average
26	0.58	38.09	-17.91	56.00	27.90	0.02	10.17	QP
27	0.64	16.59	-29.41	46.00	6.40	0.02	10.17	Average
28	0.64	34.79	-21.21	56.00	24.60	0.02	10.17	QP
29	0.72	20.19	-25.81	46.00	10.01	0.02	10.16	Average



Test Mode :	Mode 3	Temperature :	24 ~25℃
Test Engineer :	HaiHao YE	Relative Humidity :	50 ~ 55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(2.4G) + MPEG4		

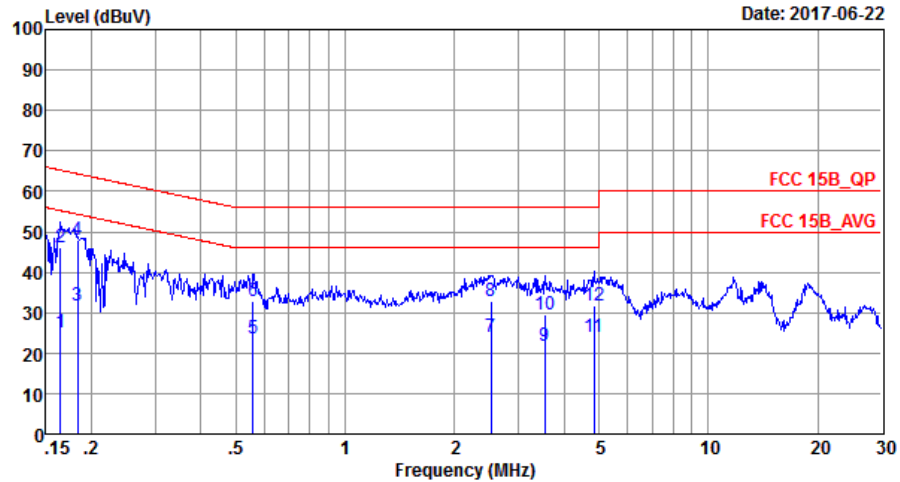


Site : CO01-SZ
Condition: FCC 15B_QP LISN_20170301_N NEUTRAL
Project : (FC) 742403
Mode : mode 3
IMEI : 861273030007810

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
30	0.72	34.99	-21.01	56.00	24.81	0.02	10.16	QP
31	0.75	15.19	-30.81	46.00	5.00	0.03	10.16	Average
32	0.75	29.69	-26.31	56.00	19.50	0.03	10.16	QP
33	0.88	15.19	-30.81	46.00	4.99	0.04	10.16	Average
34	0.88	28.59	-27.41	56.00	18.39	0.04	10.16	QP
35	0.96	20.20	-25.80	46.00	10.00	0.05	10.15	Average
36	0.96	31.10	-24.90	56.00	20.90	0.05	10.15	QP



Test Mode :	Mode 4	Temperature :	24 ~25℃
Test Engineer :	HaiHao YE	Relative Humidity :	50 ~ 55%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 12 Idle + USB Cable(Data Link from Notebook) + Earphone + Bluetooth Idle + WLAN Idle(5G) + GPS RX		

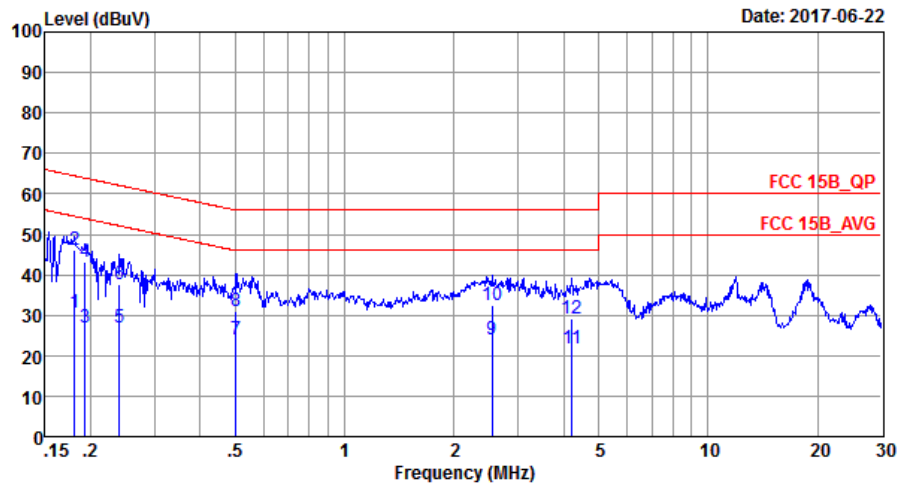


Site : CO01-SZ
Condition: FCC 15B_QP LISN_20170301_L LINE
Project : (FC)742403
Mode : Mode 4
IMEI : 861273030007810

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	24.98	-30.27	55.25	14.60	0.03	10.35	Average
2	0.16	46.08	-19.17	65.25	35.70	0.03	10.35	QP
3	0.18	31.81	-22.52	54.33	21.50	0.03	10.28	Average
4 *	0.18	47.91	-16.42	64.33	37.60	0.03	10.28	QP
5	0.56	23.70	-22.30	46.00	13.50	0.02	10.18	Average
6	0.56	32.80	-23.20	56.00	22.60	0.02	10.18	QP
7	2.53	24.13	-21.87	46.00	13.80	0.14	10.19	Average
8	2.53	32.93	-23.07	56.00	22.60	0.14	10.19	QP
9	3.55	21.80	-24.20	46.00	11.40	0.17	10.23	Average
10	3.55	29.40	-26.60	56.00	19.00	0.17	10.23	QP
11	4.85	23.96	-22.04	46.00	13.50	0.19	10.27	Average
12	4.85	31.56	-24.44	56.00	21.10	0.19	10.27	QP



Test Mode :	Mode 4	Temperature :	24 ~25℃
Test Engineer :	HaiHao YE	Relative Humidity :	50 ~ 55%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 12 Idle + USB Cable(Data Link from Notebook) + Earphone + Bluetooth Idle + WLAN Idle(5G) + GPS RX		



Site : CO01-SZ
Condition: FCC 15B_QP LISN_20170301_N NEUTRAL
Project : (FC)742403
Mode : Mode 4
IMEI : 861273030007810

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.18	30.72	-23.74	54.46	20.40	0.03	10.29	Average
2 *	0.18	46.02	-18.44	64.46	35.70	0.03	10.29	QP
3	0.19	27.07	-26.82	53.89	16.80	0.03	10.24	Average
4	0.19	43.17	-20.72	63.89	32.90	0.03	10.24	QP
5	0.24	26.95	-25.13	52.08	16.70	0.03	10.22	Average
6	0.24	37.55	-24.53	62.08	27.30	0.03	10.22	QP
7	0.50	24.00	-22.00	46.00	13.80	0.02	10.18	Average
8	0.50	30.90	-25.10	56.00	20.70	0.02	10.18	QP
9	2.54	24.03	-21.97	46.00	13.80	0.04	10.19	Average
10	2.54	32.63	-23.37	56.00	22.40	0.04	10.19	QP
11	4.22	21.71	-24.29	46.00	11.39	0.06	10.26	Average
12	4.22	29.21	-26.79	56.00	18.89	0.06	10.26	QP

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

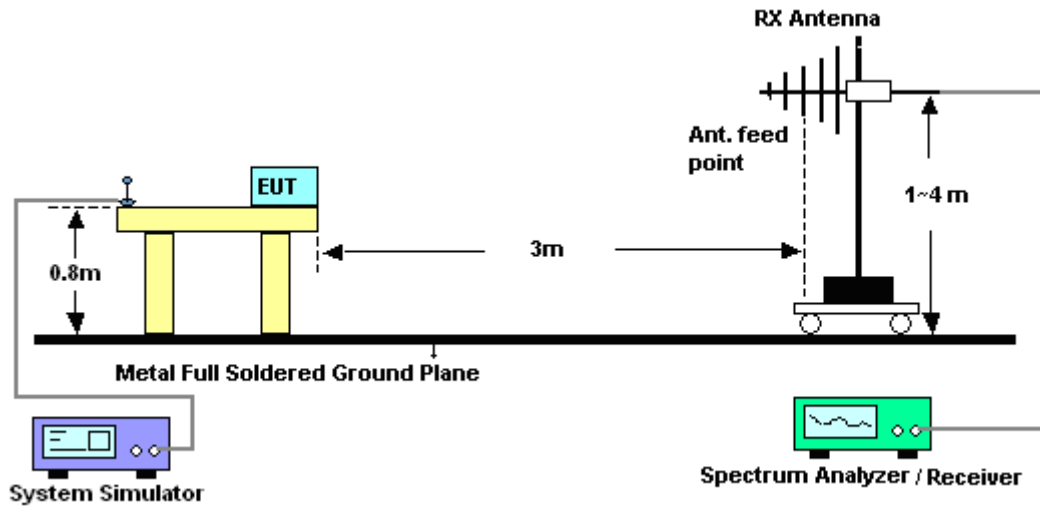
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

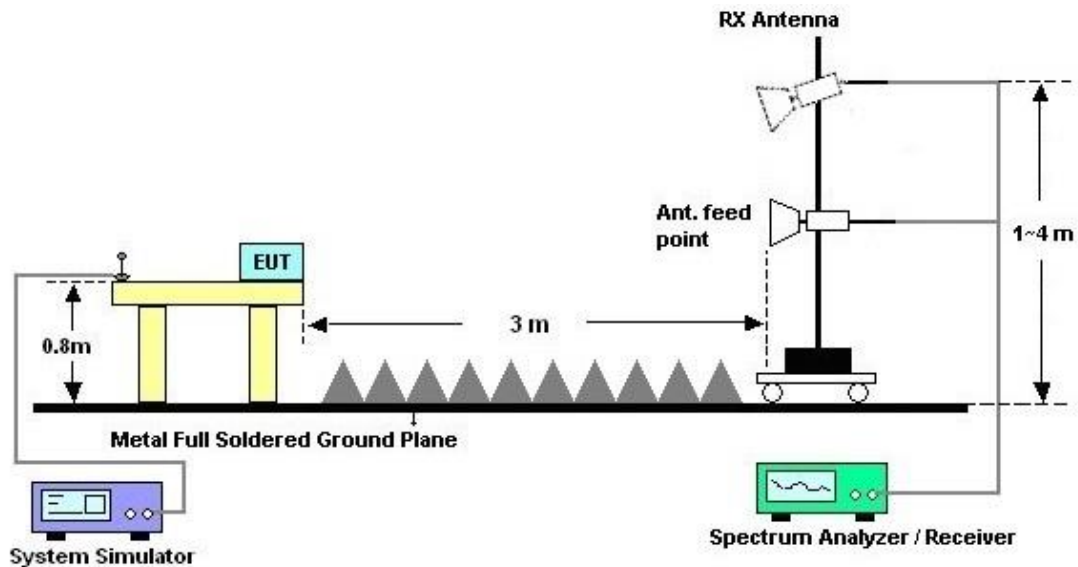
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna 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 (dB μ V/m) = 20 log Emission level (μ V/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

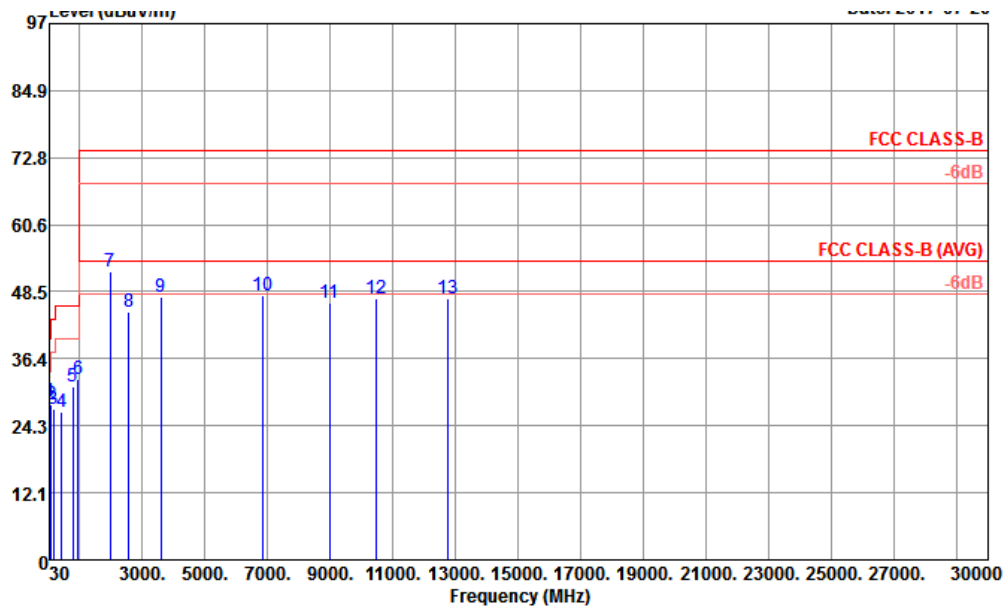


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 2	Temperature :	24 ~ 25°C
Test Engineer :	Clear Peng	Relative Humidity :	48~49%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	GSM 1900 Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(5G) + Camera(Front)		
Remark :	#7 is system simulator signal which can be ignored.		

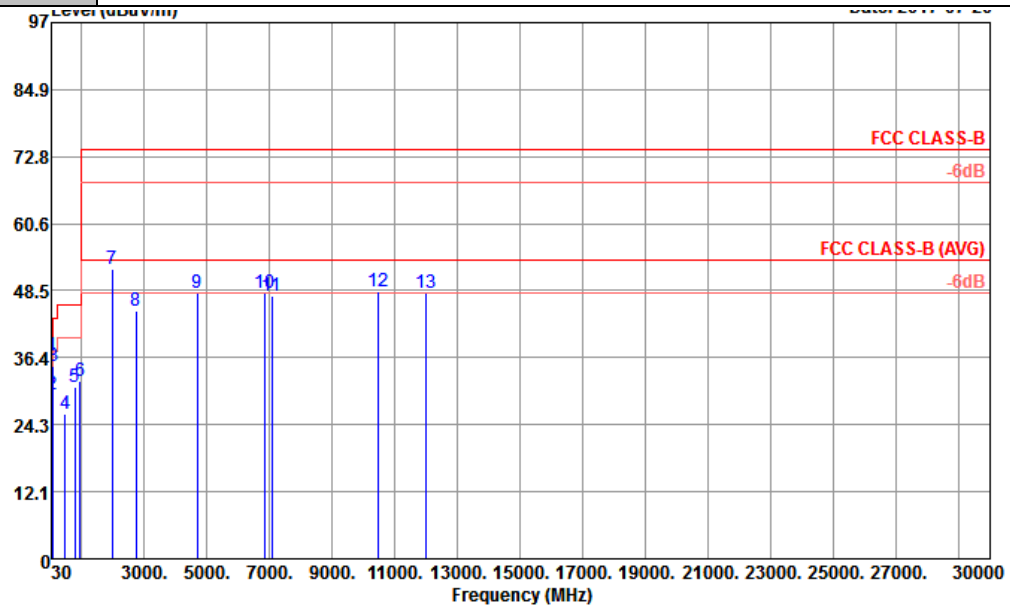


Site : 03CH03-SZ
 Condition : FCC CLASS-B 3m HF_ANT(3117)_119436 HORIZONTAL
 Mode : Mode 2
 IMEI : 861273030005657
 Plane : X
 Adaptor : # 1

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	cm	deg
1	35.82	28.68	-11.32	40.00	35.33	24.62	0.33	31.60	100	231 Peak
2	90.14	28.23	-15.27	43.50	41.46	17.60	0.77	31.60	---	Peak
3	170.65	27.36	-16.14	43.50	39.97	17.28	1.43	31.32	---	Peak
4	422.85	26.75	-19.25	46.00	31.40	24.18	2.47	31.30	---	Peak
5	780.78	31.38	-14.62	46.00	31.27	28.06	3.55	31.50	---	Peak
6	935.98	32.72	-13.28	46.00	30.97	29.34	3.91	31.50	---	Peak
7	1960.00	52.27			74.97	28.56	6.03	57.29	---	Peak
8	2564.00	44.87	-29.13	74.00	62.31	32.23	7.02	56.69	---	Peak
9	3586.00	47.57	-26.43	74.00	62.83	32.45	9.61	57.32	---	Peak
10	6844.00	47.74	-26.26	74.00	54.02	35.93	15.59	57.80	200	340 Peak
11	8982.00	46.40	-27.60	74.00	52.10	36.49	12.85	55.04	---	Peak
12	10444.00	47.27	-26.73	74.00	51.30	37.86	14.63	56.52	---	Peak
13	12766.00	47.29	-26.71	74.00	50.52	39.01	15.10	57.34	---	Peak



Test Mode :	Mode 2	Temperature :	24 ~ 25°C
Test Engineer :	Clear Peng	Relative Humidity :	48~49%
Test Distance :	3m	Polarization :	Vertical
Function Type :	GSM 1900 Idle + USB Cable(Charging from Adapter) + Earphone + Bluetooth Idle + WLAN Idle(5G) + Camera(Front)		
Remark :	#7 is system simulator signal which can be ignored.		



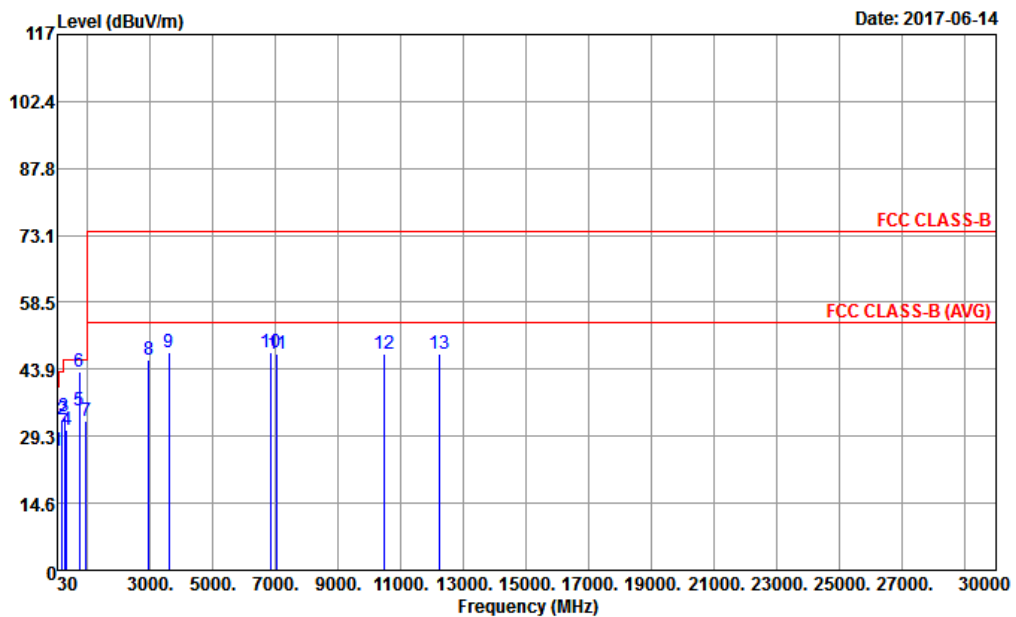
Site : 03CH03-SZ
Condition : FCC CLASS-B 3m HF_ANT(3117)_119436 VERTICAL

Mode : Mode 2
IMEI : 861273030005657
Plane : X
Adaptor : # 1

	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	34.85	36.87	-3.13	40.00	43.05	25.10	0.32	31.60	100	63 QP
2	51.34	29.69	-10.31	40.00	45.02	15.78	0.49	31.60	---	Peak
3	89.17	34.84	-8.66	43.50	48.34	17.34	0.76	31.60	---	Peak
4	459.71	26.18	-19.82	46.00	30.67	24.23	2.60	31.32	---	Peak
5	783.69	31.07	-14.93	46.00	30.94	28.07	3.56	31.50	---	Peak
6	951.50	32.12	-13.88	46.00	29.95	29.72	3.95	31.50	---	Peak
7	1960.00	52.44			75.14	28.56	6.03	57.29	---	Peak
8	2728.00	44.98	-29.02	74.00	61.84	32.57	7.32	56.75	---	Peak
9	4688.00	48.05	-25.95	74.00	61.00	33.21	10.77	56.93	---	Peak
10	6836.00	48.01	-25.99	74.00	54.27	35.93	15.59	57.78	---	Peak
11	7078.00	47.44	-26.56	74.00	55.58	35.76	14.16	58.06	---	Peak
12	10446.00	48.24	-25.76	74.00	52.27	37.86	14.63	56.52	100	350 Peak
13	11968.00	48.12	-25.88	74.00	50.90	38.79	14.99	56.56	---	Peak



Test Mode :	Mode 4	Temperature :	24 ~ 25°C
Test Engineer :	Clear Peng	Relative Humidity :	48~49%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	LTE Band 12 Idle + USB Cable(Data Link from Notebook) + Earphone + Bluetooth Idle + WLAN Idle(5G) + GPS RX		
Remark :	#5 is system simulator signal which can be ignored. #6 is system simulator signal which can be ignored.		



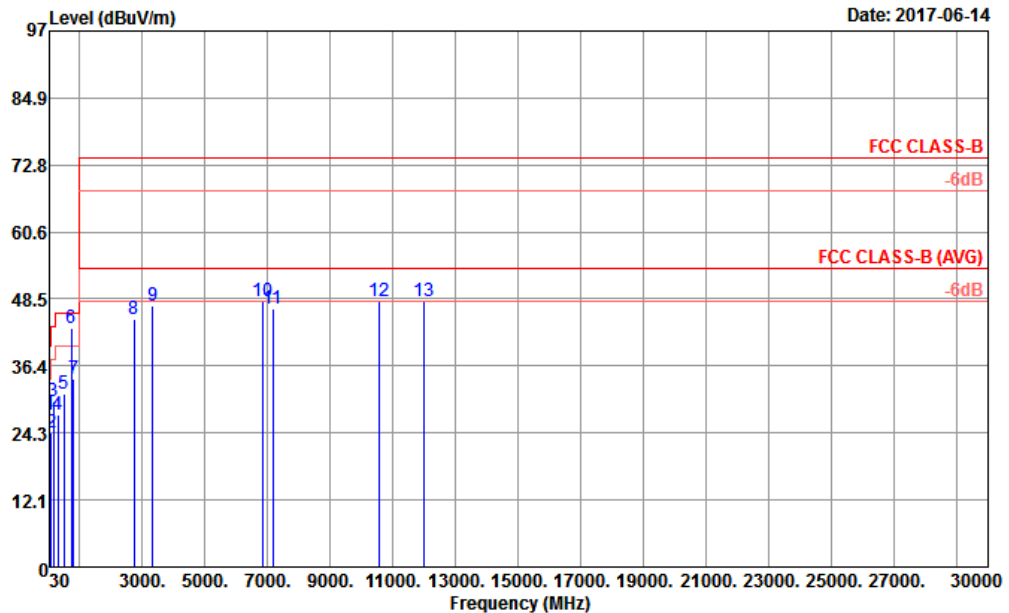
Site : 03CH03-SZ
Condition : FCC CLASS-B 3m LF_ANT(35407)_6 HORIZONTAL

Mode : Mode 4
IMEI : 861273030007877
Plane : X

	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	30.27	26.03	-13.97	40.00	30.90	26.60	0.23	31.70	---	Peak
2	173.37	33.07	-10.43	43.50	45.77	17.16	1.45	31.31	100	Peak
3	266.52	33.52	-12.48	46.00	44.94	17.83	1.92	31.17	---	Peak
4	318.20	30.78	-15.22	46.00	40.78	19.19	2.11	31.30	---	Peak
5	731.90	34.83			35.36	27.58	3.39	31.50	---	Peak
6	737.50	43.22			43.62	27.69	3.41	31.50	---	Peak
7	941.20	32.57	-13.43	46.00	30.68	29.47	3.92	31.50	---	Peak
8	2938.00	45.95	-28.05	74.00	61.18	32.97	8.62	56.82	---	Peak
9	3586.00	47.57	-26.43	74.00	62.83	32.45	9.61	57.32	---	Peak
10	6866.00	47.70	-26.30	74.00	54.01	35.93	15.59	57.83	200	Peak
11	7040.00	47.36	-26.64	74.00	55.21	35.84	14.36	58.05	---	Peak
12	10444.00	47.27	-26.73	74.00	51.30	37.86	14.63	56.52	---	Peak
13	12234.00	47.14	-26.86	74.00	50.42	38.80	15.03	57.11	---	Peak



Test Mode :	Mode 4	Temperature :	24 ~ 25°C
Test Engineer :	Clear Peng	Relative Humidity :	48~49%
Test Distance :	3m	Polarization :	Vertical
Function Type :	LTE Band 12 Idle + USB Cable(Data Link from Notebook) + Earphone + Bluetooth Idle + WLAN Idle(5G) + GPS RX		
Remark :	#6 is system simulator signal which can be ignored.		



Site : 03CH03-SZ
Condition : FCC CLASS-B 3m HF_ANT(3117)_119436 VERTICAL
Project : 742403
Mode : Mode 4
IMEI : 861273030007877
Plane : X

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	cm	deg	
			dB	dBuV/m	dBuV	dB/m	dB			
1	40.53	27.67	-12.33	40.00	36.71	22.02	0.39	31.45	---	Peak
2	99.84	24.22	-19.28	43.50	35.67	19.30	0.85	31.60	---	Peak
3	171.21	30.05	-13.45	43.50	42.68	17.24	1.44	31.31	---	Peak
4	299.73	27.60	-18.40	46.00	38.36	18.50	2.04	31.30	---	Peak
5	499.50	31.31	-14.69	46.00	36.87	23.13	2.71	31.40	---	Peak
6	736.80	43.30			43.70	27.69	3.41	31.50	---	Peak
7	799.80	33.92	-12.08	46.00	33.71	28.10	3.61	31.50	120	150 Peak
8	2728.00	44.98	-29.02	74.00	61.84	32.57	7.32	56.75	---	Peak
9	3326.00	47.23	-26.77	74.00	62.42	32.71	9.23	57.13	---	Peak
10	6836.00	48.01	-25.99	74.00	54.27	35.93	15.59	57.78	---	Peak
11	7172.00	46.81	-27.19	74.00	55.51	35.62	13.75	58.07	---	Peak
12	10552.00	48.14	-25.86	74.00	52.03	37.91	14.66	56.46	100	140 Peak
13	11968.00	48.12	-25.88	74.00	50.90	38.79	14.99	56.56	---	Peak



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Jan.06, 2017	Jun.22, 2017	Jan. 5, 2018	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Jan.05, 2017	Jun.22, 2017	Jan. 4, 2018	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103892	9kHz~30MHz	Jan.05, 2017	Jun.22, 2017	Jan. 4, 2018	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 16, 2016	Jun.22, 2017	Jul. 15, 2017	Conduction (CO01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr.20, 2017	Jun.14, 2017	Apr.19, 2018	Radiation (03CH03-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr.20, 2017	Jun.14, 2017	Apr.19, 2018	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz~2GHz	May 14, 2017	Jun.14, 2017	May 13, 2018	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	Jul. 9, 2017	Jun.14, 2017	Jul. 8, 2018	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz~40GHz	Aug.10, 2016	Jun.14, 2017	Aug. 9, 2017	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102210	0.01Hz~3000MHz	OCT. 11, 2016	Jun.14, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	AMF-7D-0010 1800-30-10P-R	1943528	1GHz~18GHz	OCT. 11, 2016	Jun.14, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul.16.2016	Jun.14, 2017	Jul.15.2017	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Jun.14, 2017	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jun.14, 2017	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jun.14, 2017	NCR	Radiation (03CH03-SZ)

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% ($U = 2U_c(y)$)	2.5dB
--	-------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5.1 dB
--	--------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5 dB
--	------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5 dB
--	------