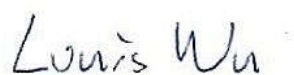


FCC Test Report

APPLICANT : OnePlus Technology (shenzhen) Co., Ltd
EQUIPMENT : Smart Phone
BRAND NAME : ONEPLUS
MODEL NAME : ONEPLUS A5000
FCC ID : 2ABZ2-A5000
STANDARD : FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION : Certification

The product was received on Jan. 22, 2017 and testing was completed on Apr. 19, 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.



Reviewed by: Louis Wu / Manager



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC712206	Rev. 01	Initial issue of report	May 27, 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 16.36 dB at 0.150 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 3.25 dB at 155.550 MHz

1. General Description

1.1. Applicant

OnePlus Technology (shenzhen) Co., Ltd

18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen

1.2. Manufacturer

OnePlus Technology (shenzhen) Co., Ltd

18C02, 18C03, 18C04 and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Smart Phone
Brand Name	ONEPLUS
Model Name	ONEPLUS A5000
FCC ID	2ABZ2-A5000
EUT supports Radios application	CDMA/EVDO/GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HS DPA/HSPA+/LTE/NFC WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 2.4GHz 802.11ac VHT20/VHT40 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/ Bluetooth v4.2 LE/ Bluetooth v5.0 LE
IMEI Code	Radiation:001001228265465/001001228265465 Conduction: 001001228265465/001001228265465
HW Version	EB101
SW Version	H2OS V3.5
EUT Stage	Production Unit

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 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 66 : 1710.7 MHz ~ 1779.3 MHz CDMA2000 BC0: 824.70 MHz ~ 848.31 MHz 802.11ac/b/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 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 29 : 718.5 MHz ~ 726.5 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 66 : 2110.7 MHz~ 2199.3 MHz CDMA2000 BC0: 869.70 MHz ~ 893.31 MHz 802.11ac/b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5260 MHz ~ 5320 MHz; 5500MHz ~ 5720 MHz ; 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz GPS : 1.57542 GHz

	Glonass: 1602 MHz + $n \times 0.5625\text{MHz}$ ($n=-7,-6,-5,...,0,...,6$) NFC : 13.56 MHz
Antenna Type	WWAN : PIFA Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GPS/Glonass: PIFA Antenna NFC : PIFA 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 DC-HSDPA : 64QAM 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) : $\pi/4$ -DQPSK Bluetooth (3Mbps) : 8-DPSK GPS/Glonass : BPSK NFC: ASK

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 1 st 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.		FCC Registration No.
	CO05-HY	03CH06-HY	TW1022

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

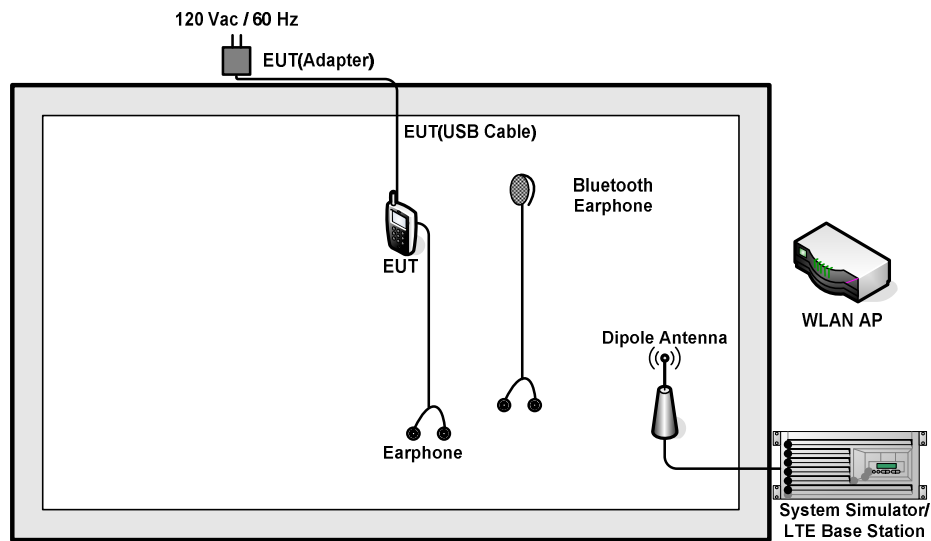
The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

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).

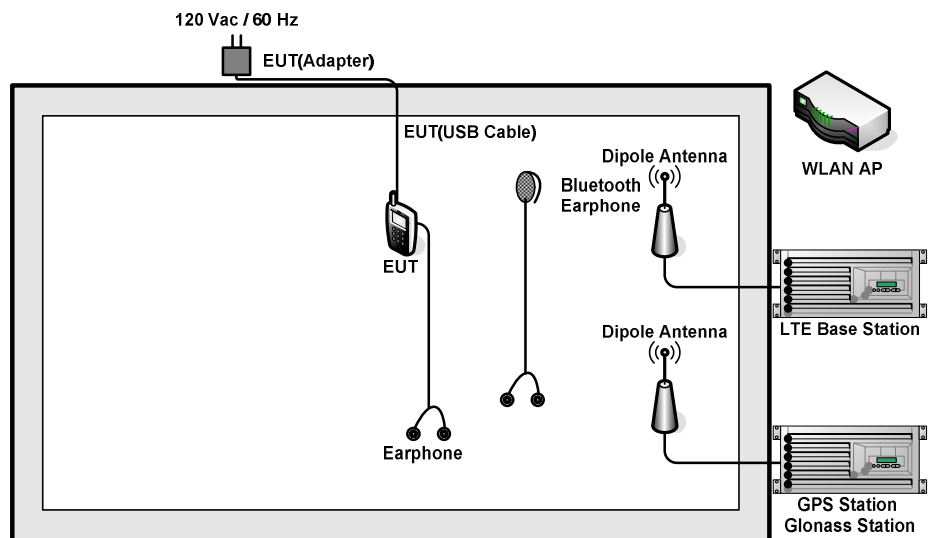
Test Items	Function Type
AC Conducted Emission	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Earphone + Camera(Rear) + SIM 1<Fig.1>
	Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Earphone + Camera(Front) + SIM 2<Fig.1>
	Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Earphone + MPEG4 + SIM 1<Fig.1>
	Mode 4: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Earphone + NFC On + SIM 2<Fig.1>
	Mode 5: LTE Band 2 Idle + Bluetooth Idle + WLAN Idle (2.4G) + USB Cable (Charging from Adapter) + Earphone + Glonass Rx + SIM 1<Fig.2>
	Mode 6: LTE Band 5 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Earphone + GPS Rx + SIM 2<Fig.2>
	Mode 7: LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1<Fig.3>

Radiated Emissions < 1GHz	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Earphone + Camera(Rear) + SIM 1<Fig.1> Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Earphone + Camera(Front) + SIM 2<Fig.1> Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Earphone + MPEG4 + SIM 1<Fig.1> Mode 4: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Earphone + NFC On + SIM 2<Fig.1> Mode 5: LTE Band 2 Idle + Bluetooth Idle + WLAN Idle (2.4G) + USB Cable (Charging from Adapter) + Earphone + Glonass Rx + SIM 1<Fig.2> Mode 6: LTE Band 5 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Earphone + GPS Rx + SIM 2<Fig.2> Mode 7: LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1<Fig.3>
Radiated Emissions ≥ 1GHz	Mode 1: LTE Band 5 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Earphone + GPS Rx + SIM 2<Fig.2>
Remark: 1. The worst case of AC is mode 3; and the USB Link mode of AC is mode 7, the test data of this mode was reported. 2. The worst case of RE < 1G is mode 6; and the USB Link mode of RE is mode 7, the test data of this mode was reported. 3. Data Link with Notebook means data application transferred mode between EUT and Notebook.	

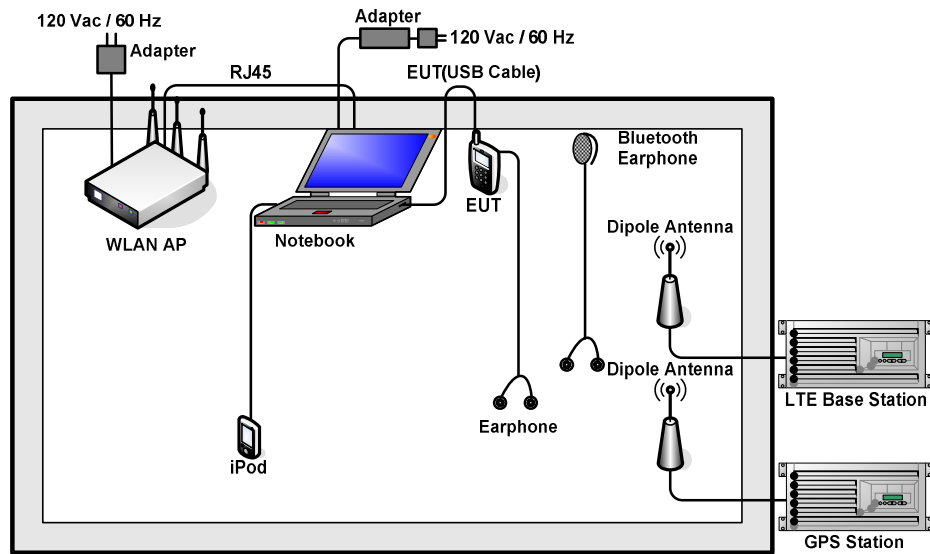
2.2. Connection Diagram of Test System



<Fig.1>



<Fig.2>



<Fig.3>

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	Nokia	BH-108	PYAHS-107W	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.	iPod Earphone	Apple	A1285	DoC	UnShielded, 1.2m	N/A
12.	iPod	Apple	MC525 ZP/A	FCC DoC	Shielded, 1.0m	N/A
13.	Earphone	Apple	JBL	FCC DoC	Shielded, 1.0m	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 GPS/Glonass function to make the EUT receive continuous signals from GPS/Glonass 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.

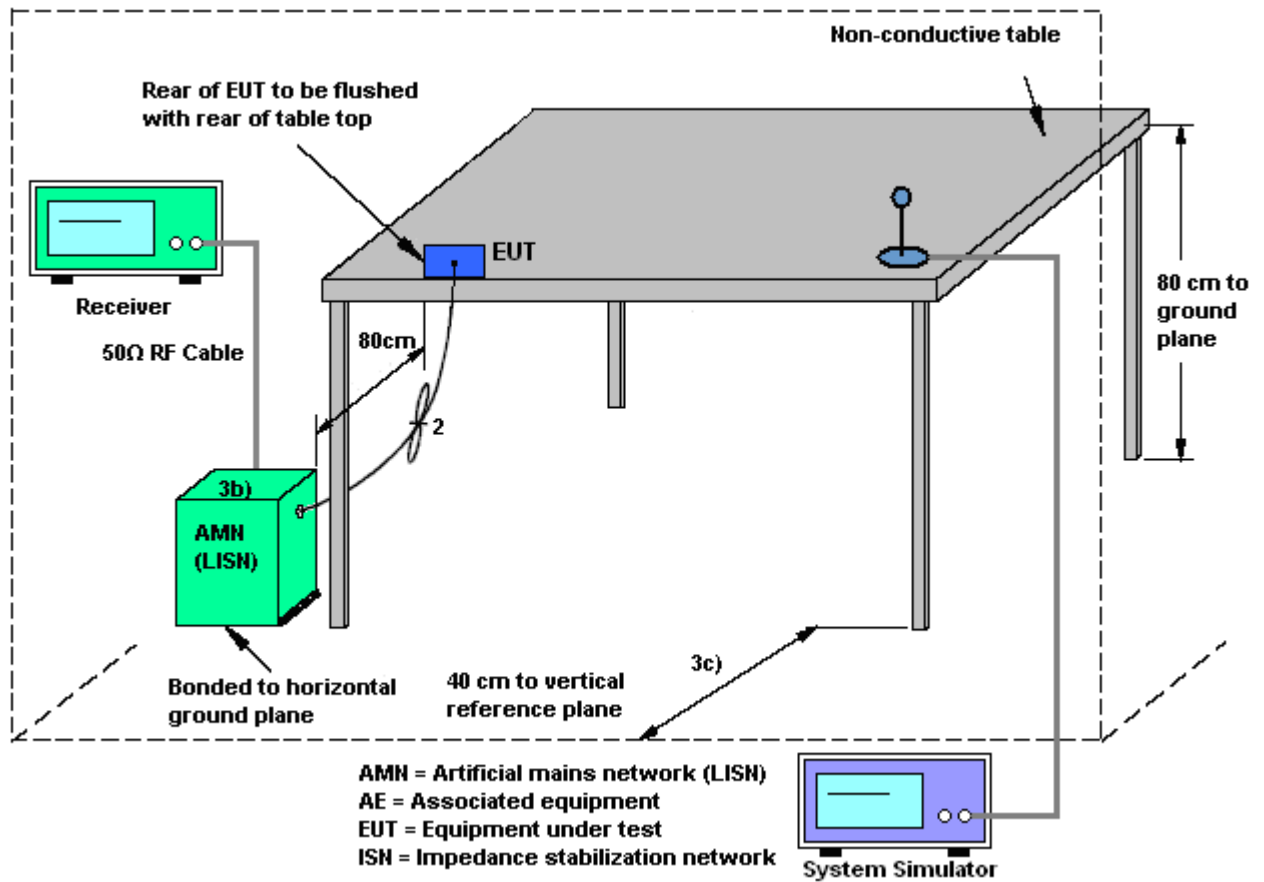
3.1.2 Measuring Instruments

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.

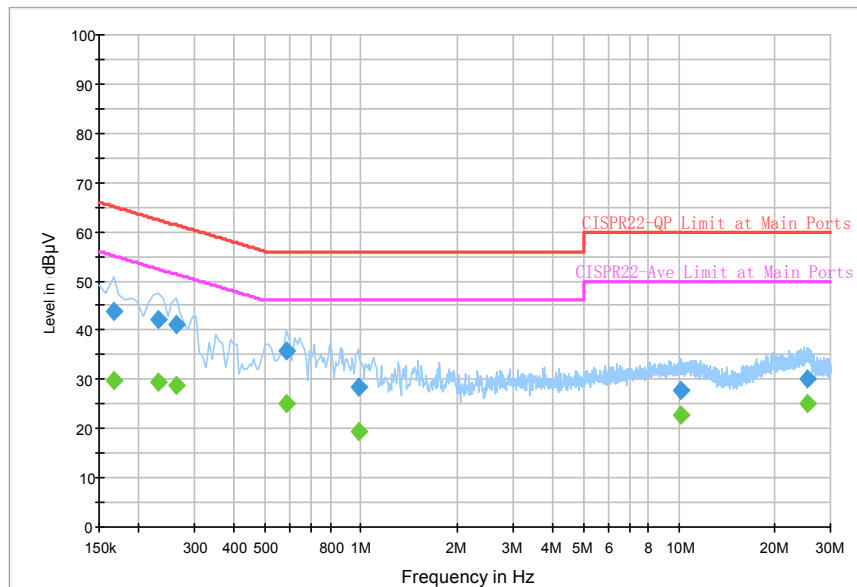
3.1.4 Test Setup



3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 3	Temperature :	23~25°C
Test Engineer :	Eric Jeng	Relative Humidity :	59~61%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Earphone + MPEG4 + SIM 1		

ENV216 Auto Test FCC Power Bar - L



Final Result : Quasi-Peak

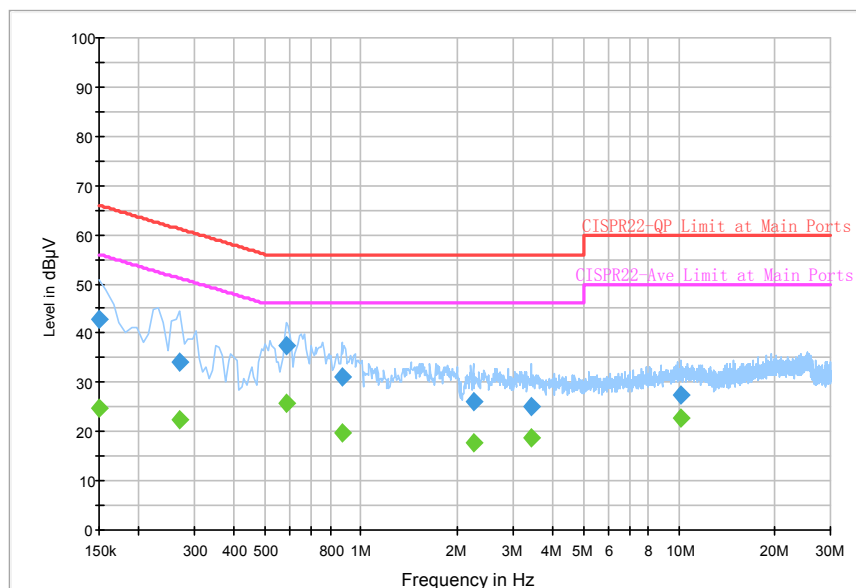
Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	44.0	Off	L1	19.6	21.2	65.2
0.230000	42.3	Off	L1	19.6	20.1	62.4
0.262000	41.2	Off	L1	19.6	20.2	61.4
0.582000	35.7	Off	L1	19.6	20.3	56.0
0.982000	28.6	Off	L1	19.6	27.4	56.0
10.110000	27.7	Off	L1	20.0	32.3	60.0
25.278000	30.1	Off	L1	20.8	29.9	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	29.7	Off	L1	19.6	25.5	55.2
0.230000	29.5	Off	L1	19.6	22.9	52.4
0.262000	28.9	Off	L1	19.6	22.5	51.4
0.582000	25.0	Off	L1	19.6	21.0	46.0
0.982000	19.4	Off	L1	19.6	26.6	46.0
10.110000	22.8	Off	L1	20.0	27.2	50.0
25.278000	25.1	Off	L1	20.8	24.9	50.0

Test Mode :	Mode 3	Temperature :	23~25°C
Test Engineer :	Eric Jeng	Relative Humidity :	59~61%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Earphone + MPEG4 + SIM 1		

ENV216 Auto Test FCC Power Bar - N


Final Result : Quasi-Peak

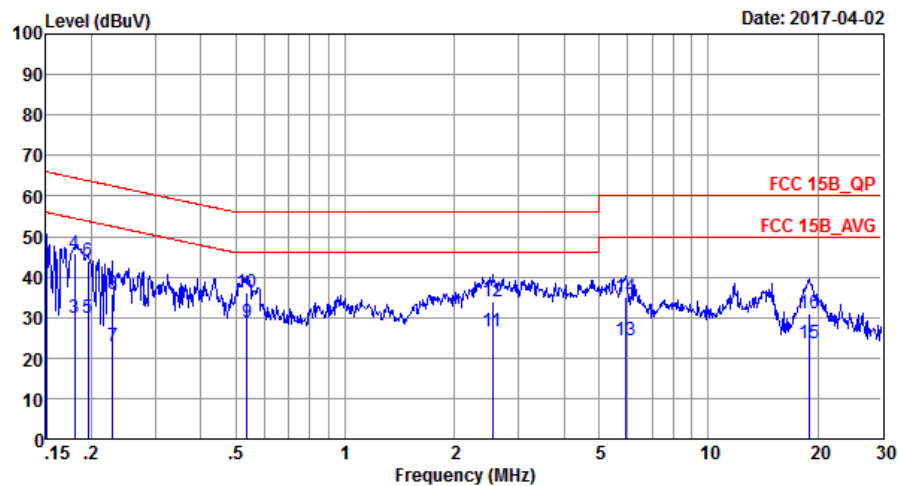
Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	42.8	Off	N	19.5	23.2	66.0
0.270000	34.1	Off	N	19.5	27.0	61.1
0.582000	37.6	Off	N	19.5	18.4	56.0
0.870000	31.2	Off	N	19.6	24.8	56.0
2.254000	26.2	Off	N	18.7	29.8	56.0
3.446000	25.1	Off	N	19.6	30.9	56.0
10.142000	27.6	Off	N	20.1	32.4	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	24.7	Off	N	19.5	31.3	56.0
0.270000	22.5	Off	N	19.5	28.6	51.1
0.582000	25.6	Off	N	19.5	20.4	46.0
0.870000	19.7	Off	N	19.6	26.3	46.0
2.254000	17.7	Off	N	18.7	28.3	46.0
3.446000	18.6	Off	N	19.6	27.4	46.0
10.142000	22.7	Off	N	20.1	27.3	50.0



Test Mode :	Mode 7	Temperature :	21~23℃
Test Engineer :	Tao Cheng	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1		

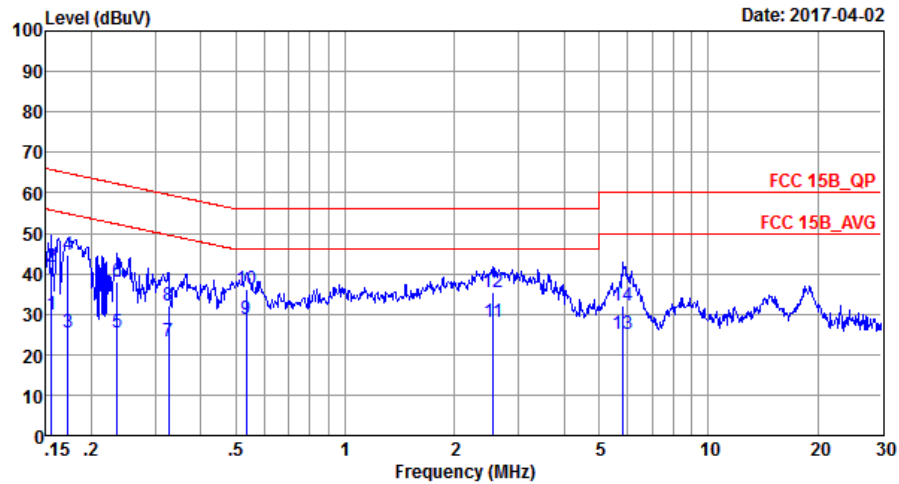


Site : CO01-SZ
Condition: FCC 15B_QP LISN_20170301_L LINE
Project : (FC)711206
Mode : Mode 7
IMEI : 001001227890453/001001227890453

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.15	39.64	-16.36	56.00	29.20	0.03	10.41	Average
2	0.15	43.34	-22.66	66.00	32.90	0.03	10.41	QP
3	0.18	29.72	-24.78	54.50	19.40	0.03	10.29	Average
4	0.18	45.62	-18.88	64.50	35.30	0.03	10.29	QP
5	0.20	29.76	-24.04	53.80	19.50	0.03	10.23	Average
6	0.20	43.86	-19.94	63.80	33.60	0.03	10.23	QP
7	0.23	22.85	-29.63	52.48	12.60	0.03	10.22	Average
8	0.23	35.85	-26.63	62.48	25.60	0.03	10.22	QP
9	0.54	28.90	-17.10	46.00	18.70	0.02	10.18	Average
10	0.54	36.10	-19.90	56.00	25.90	0.02	10.18	QP
11	2.54	26.73	-19.27	46.00	16.40	0.14	10.19	Average
12	2.54	34.03	-21.97	56.00	23.70	0.14	10.19	QP
13	5.90	24.51	-25.49	50.00	14.00	0.21	10.30	Average
14	5.90	35.21	-24.79	60.00	24.70	0.21	10.30	QP
15	18.92	23.74	-26.26	50.00	12.00	1.15	10.59	Average
16	18.92	30.94	-29.06	60.00	19.20	1.15	10.59	QP



Test Mode :	Mode 7	Temperature :	21~23℃
Test Engineer :	Tao Cheng	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1		



Site : CO01-SZ
Condition: FCC 15B_QP LISN_20170301_N NEUTRAL
Project : (FC)711206
Mode : Mode 7
IMEI : 001001227890453/001001227890453

	Freq	Level	Over Limit	Limit	Read	LISN	Cable	
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	Remark
1	0.16	29.82	-25.87	55.69	19.40	0.03	10.39	Average
2	0.16	41.52	-24.17	65.69	31.10	0.03	10.39	QP
3	0.17	25.45	-29.41	54.86	15.10	0.03	10.32	Average
4	0.17	44.55	-20.31	64.86	34.20	0.03	10.32	QP
5	0.24	25.45	-26.81	52.26	15.20	0.03	10.22	Average
6	0.24	37.95	-24.31	62.26	27.70	0.03	10.22	QP
7	0.33	23.24	-26.29	49.53	13.00	0.03	10.21	Average
8	0.33	32.14	-27.39	59.53	21.90	0.03	10.21	QP
9 *	0.53	28.80	-17.20	46.00	18.60	0.02	10.18	Average
10	0.53	36.20	-19.80	56.00	26.00	0.02	10.18	QP
11	2.55	28.13	-17.87	46.00	17.90	0.04	10.19	Average
12	2.55	35.53	-20.47	56.00	25.30	0.04	10.19	QP
13	5.84	24.97	-25.03	50.00	14.60	0.07	10.30	Average
14	5.84	32.27	-27.73	60.00	21.90	0.07	10.30	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

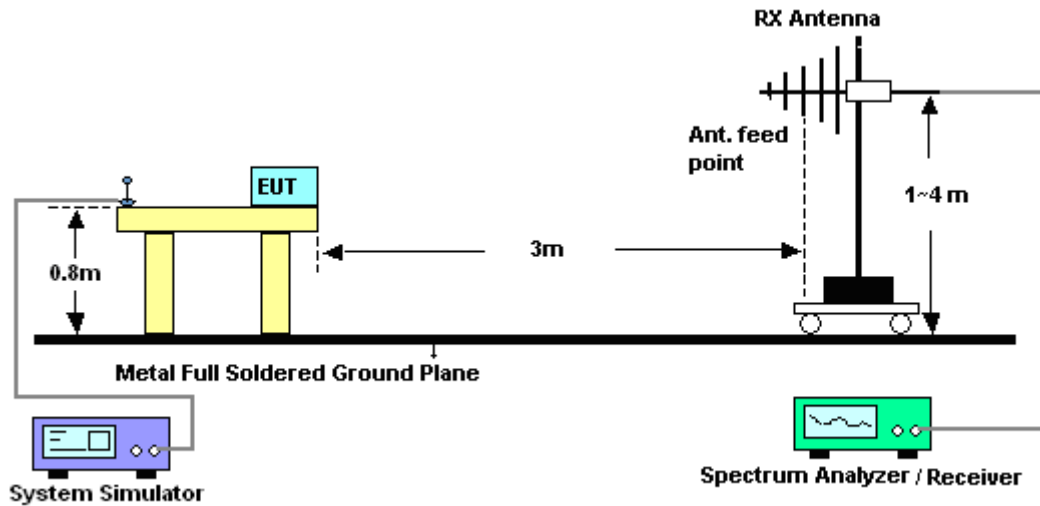
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

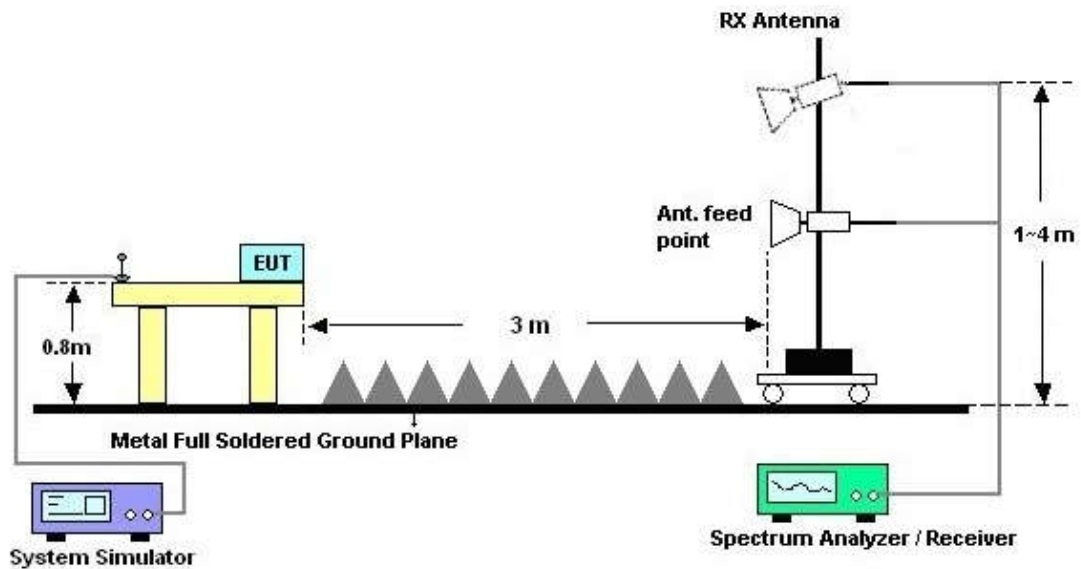
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

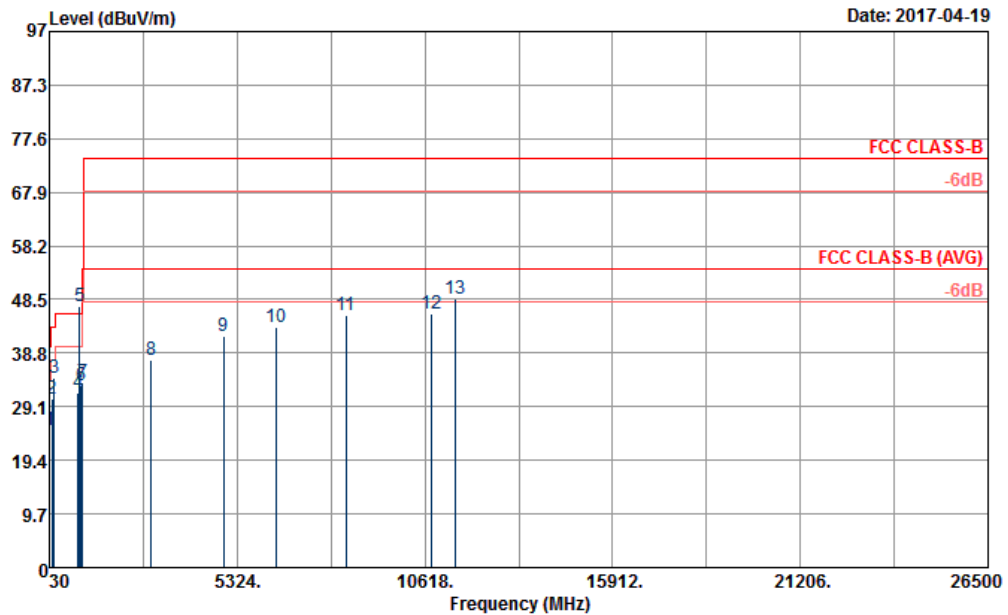


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 6	Temperature :	23~25°C
Test Engineer :	Donny Tang	Relative Humidity :	59~61%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	LTE Band 5 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Earphone + GPS Rx + SIM 2		
Remark :	#5 is system simulator signal which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN HORIZONTAL

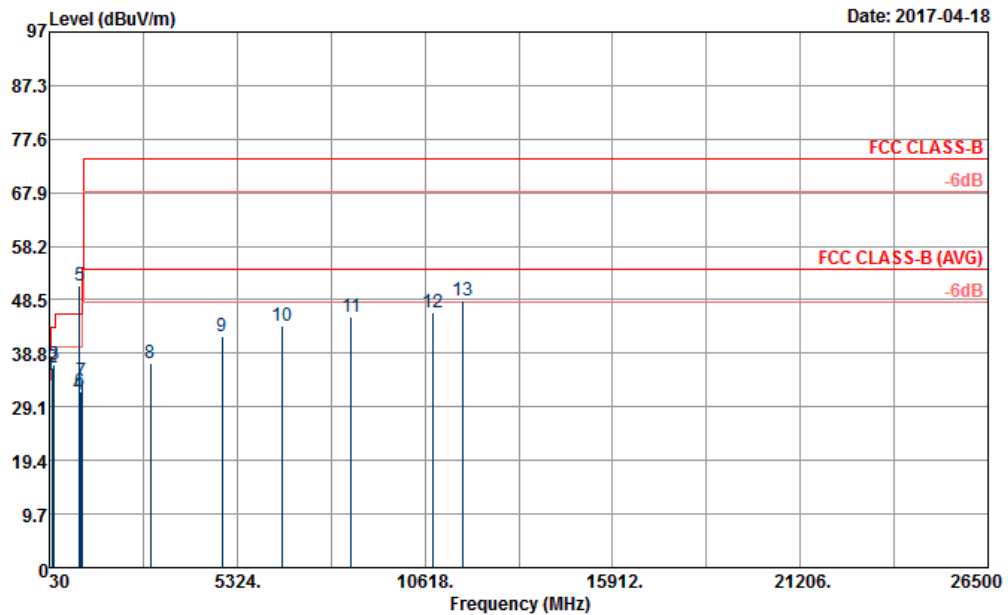
Power : 120Vac/60Hz

Memo : Mode 6

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	A/Pos	T/Pos	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.35	24.74	-15.26	40.00	30.94	23.77	1.90	31.87	---	---	Peak
2	95.34	30.44	-13.06	43.50	44.91	15.23	2.07	31.77	---	---	Peak
3	173.37	34.18	-9.32	43.50	48.72	15.20	2.03	31.77	100	132	Peak
4	848.10	31.68	-14.32	46.00	30.57	29.44	3.31	31.64	---	---	Peak
5 *	881.50	47.25			46.18	29.22	3.36	31.51	---	---	Peak
6	925.80	32.84	-13.16	46.00	30.47	30.37	3.21	31.21	---	---	Peak
7	958.00	33.54	-12.46	46.00	30.36	31.06	3.06	30.94	---	---	Peak
8	2908.00	37.65	-36.35	74.00	62.04	28.70	7.63	60.72	---	---	Peak
9	4946.00	41.76	-32.24	74.00	58.75	31.71	11.17	59.87	---	---	Peak
10	6418.00	43.42	-30.58	74.00	55.68	35.43	12.08	59.77	---	---	Peak
11	8394.00	45.59	-28.41	74.00	52.52	38.38	13.89	59.20	---	---	Peak
12	10790.00	46.06	-27.94	74.00	49.57	41.00	14.73	59.24	---	---	Peak
13	11460.00	48.65	-25.35	74.00	48.49	42.35	15.88	58.07	100	135	Peak



Test Mode :	Mode 6	Temperature :	23~25°C
Test Engineer :	Donny Tang	Relative Humidity :	59~61%
Test Distance :	3m	Polarization :	Vertical
Function Type :	LTE Band 5 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Earphone + GPS Rx + SIM 2		
Remark :	#5 is system simulator signal which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m SHF-EHF HORN VERTICAL

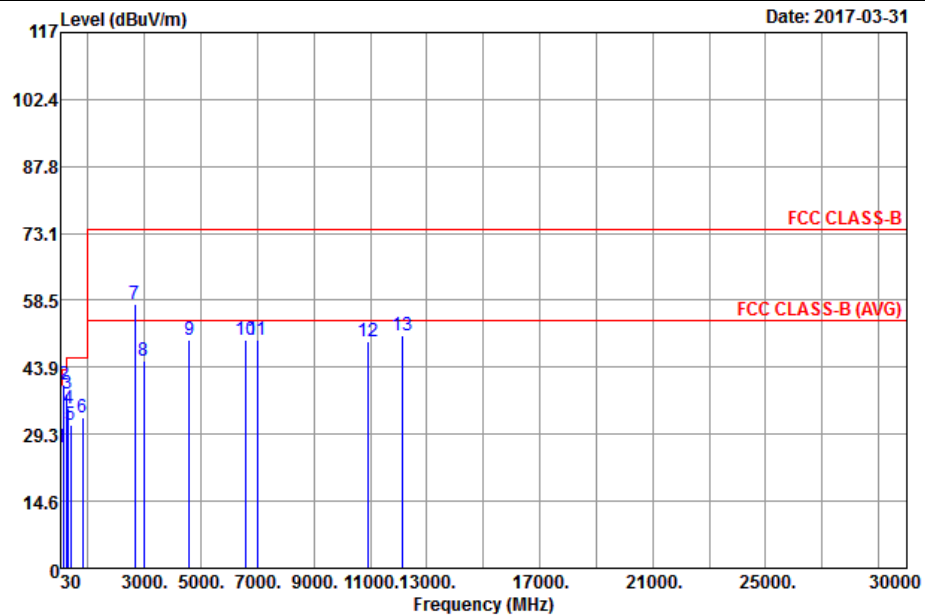
Power : 120Vac/60Hz

Memo : Mode 6

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamplifier Loss	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	32.97	34.76	-5.24	40.00	42.01	22.71	1.91	31.87	100	124 Peak
2	132.33	36.25	-7.25	43.50	48.32	17.61	2.08	31.76	---	---
3	165.54	36.67	-6.83	43.50	50.56	15.79	2.09	31.77	---	---
4	853.70	31.42	-14.58	46.00	30.28	29.43	3.32	31.61	---	---
5 *	881.50	50.94			49.87	29.22	3.36	31.51	---	---
6	905.50	31.84	-14.16	46.00	30.14	29.73	3.36	31.39	---	---
7	944.00	33.86	-12.14	46.00	31.02	30.81	3.09	31.06	---	---
8	2888.00	37.01	-36.99	74.00	61.50	28.63	7.59	60.71	---	---
9	4896.00	41.76	-32.24	74.00	59.07	31.61	11.11	60.03	---	---
10	6610.00	43.74	-30.26	74.00	55.53	35.77	12.40	59.96	---	---
11	8542.00	45.37	-28.63	74.00	52.25	38.46	13.93	59.27	---	---
12	10826.00	46.23	-27.77	74.00	49.58	41.00	14.80	59.15	---	---
13	11666.00	48.44	-25.56	74.00	48.58	41.76	16.22	58.12	---	---



Test Mode :	Mode 7	Temperature :	23~25°C
Test Engineer :	Peng Wang	Relative Humidity :	48~52%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1		
Remark :	#7 is system simulator signal which can be ignored.		

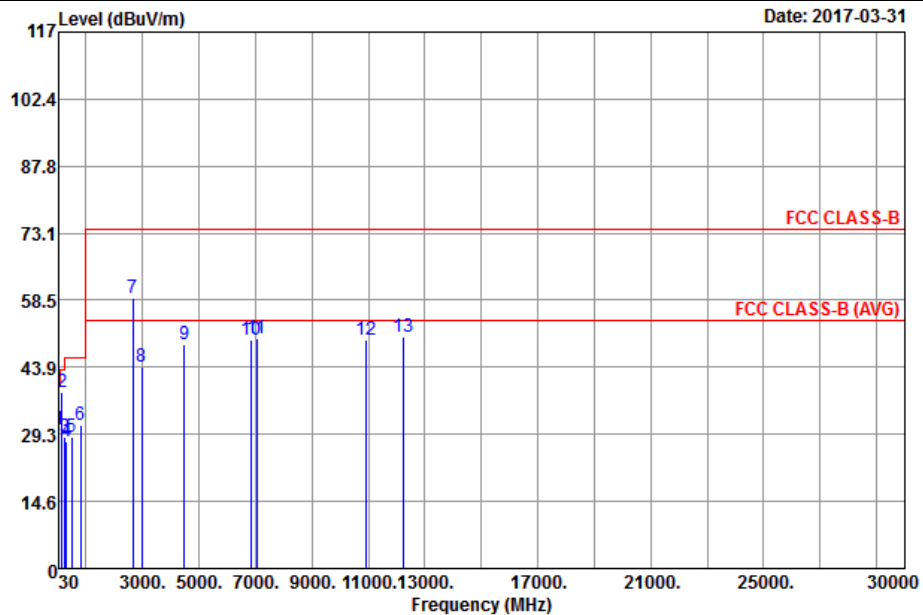


Site : 03CH03-SZ
Condition : FCC CLASS-B 3m LF_ANT(23188)_6 HORIZONTAL
Project : (FC)712206
Mode : Mode 7
IMEI : 001001228265465/001001228265465

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	42.96	26.56	-13.44	40.00	36.86	20.74	0.41	31.45	---	---	Peak
2	155.55	40.25	-3.25	43.50	53.56	16.73	1.34	31.38	200	145	Peak
3	244.11	38.23	-7.77	46.00	50.26	17.25	1.83	31.11	---	---	Peak
4	300.00	34.72	-11.28	46.00	45.78	18.20	2.04	31.30	---	---	Peak
5	399.40	31.36	-14.64	46.00	38.87	21.40	2.39	31.30	---	---	Peak
6	799.80	32.90	-13.10	46.00	33.79	27.00	3.61	31.50	---	---	Peak
7	2656.00	57.80			74.97	32.40	7.15	56.72	---	---	Peak
8	2982.00	45.30	-28.70	74.00	60.15	33.07	8.91	56.83	---	---	Peak
9	4592.00	49.74	-24.26	74.00	63.13	33.15	10.64	57.18	---	---	Peak
10	6562.00	49.97	-24.03	74.00	55.85	35.99	15.47	57.34	---	---	Peak
11	7006.00	49.99	-24.01	74.00	57.58	35.90	14.56	58.05	---	---	Peak
12	10894.00	49.60	-24.40	74.00	52.68	37.98	14.74	55.80	---	---	Peak
13	12158.00	50.85	-23.15	74.00	53.96	38.80	15.02	56.93	100	0	Peak



Test Mode :	Mode 7	Temperature :	23~25°C
Test Engineer :	Peng Wang	Relative Humidity :	48~52%
Test Distance :	3m	Polarization :	Vertical
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN Idle (5G) + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH03-SZ
Condition : FCC CLASS-B 3m LF_ANT(23188)_6 VERTICAL
Project : (FC)712206
Mode : Mode 7
IMEI : 001001228265465/001001228265465

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	42.69	30.46	-9.54	40.00	40.76	20.74	0.41	31.45	---	---	Peak
2	156.90	38.60	-4.90	43.50	51.90	16.70	1.36	31.36	100	154	Peak
3	264.90	28.77	-17.23	46.00	40.38	17.64	1.91	31.16	---	---	Peak
4	300.00	27.78	-18.22	46.00	38.84	18.20	2.04	31.30	---	---	Peak
5	498.10	28.78	-17.22	46.00	34.21	23.27	2.70	31.40	---	---	Peak
6	799.10	31.28	-14.72	46.00	32.18	26.99	3.61	31.50	---	---	Peak
7	2656.00	59.06			76.23	32.40	7.15	56.72	---	---	Peak
8	2982.00	44.08	-29.92	74.00	58.93	33.07	8.91	56.83	---	---	Peak
9	4472.00	48.75	-25.25	74.00	62.57	33.04	10.54	57.40	---	---	Peak
10	6836.00	50.01	-23.99	74.00	56.27	35.93	15.59	57.78	---	---	Peak
11	7034.00	50.34	-23.66	74.00	58.19	35.84	14.36	58.05	---	---	Peak
12	10944.00	49.71	-24.29	74.00	52.67	37.99	14.75	55.70	---	---	Peak
13	12220.00	50.51	-23.49	74.00	53.76	38.80	15.03	57.08	150	100	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	NCR	Apr. 14, 2017	NCR	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 30, 2016	Apr. 14, 2017	Aug. 29, 2017	Conduction (CO05-HY)
Hygrometer	Testo	608-H1	34913912	N/A	Apr. 19, 2016	Apr. 14, 2017	Apr. 18, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 29, 2016	Apr. 14, 2017	Nov. 28, 2017	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Jan. 05, 2017	Apr. 14, 2017	Jan. 04, 2018	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Jan. 05, 2017	Apr. 14, 2017	Jan. 04, 2018	Conduction (CO05-HY)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Jan.06, 2017	Apr. 02, 2017	Jan. 05, 2018	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Jan.05, 2017	Apr. 02, 2017	Jan. 04, 2018	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	MessTec	3816/2SH	00103892	9kHz~30MHz	Jan.05, 2017	Apr. 02, 2017	Jan. 04, 2018	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	61602000089 1	100Vac~250Vac	Jul. 16, 2016	Apr. 02, 2017	Jul. 15, 2017	Conduction (CO01-SZ)
Bilog Antenna	Schaffner	CBL6111C&N-6-06	2725&AT-N06 01	30MHz~1GHz	Oct. 15, 2016	Apr. 18, 2017 ~ Apr. 19, 2017	Oct. 14, 2017	Radiation (03CH06-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100472	20Hz~26.5GHz	Dec. 29, 2016	Apr. 18, 2017 ~ Apr. 19, 2017	Dec. 28, 2017	Radiation (03CH06-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1156	1GHz~18GHz	Aug. 05, 2016	Apr. 18, 2017 ~ Apr. 19, 2017	Aug. 04, 2017	Radiation (03CH06-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1850117	1GHz ~ 18GHz	Jun. 22, 2016	Apr. 18, 2017 ~ Apr. 19, 2017	Jun. 21, 2017	Radiation (03CH06-HY)
Controller	INN-CO	EM1000	060782	Control Turn table & Ant Mast	NCR	Apr. 18, 2017 ~ Apr. 19, 2017	NCR	Radiation (03CH06-HY)
Antenna Mast	MF	MF-7802	MF78020821 2	1m~4m	NCR	Apr. 18, 2017 ~ Apr. 19, 2017	NCR	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0-360 degree	NCR	Apr. 18, 2017 ~ Apr. 19, 2017	NCR	Radiation (03CH06-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Oct. 12, 2016	Apr. 18, 2017 ~ Apr. 19, 2017	Oct. 11, 2017	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917025 1	18GHz ~ 40GHz	Nov. 08, 2016	Apr. 18, 2017 ~ Apr. 19, 2017	Nov. 07, 2017	Radiation (03CH06-HY)
Amplifier	SONOMA	310N	187231	9kHz~1GHz	Jan. 09, 2017	Apr. 18, 2017 ~ Apr. 19, 2017	Jan. 08, 2018	Radiation (03CH06-HY)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr. 20, 2016	Mar. 31, 2017	Apr.19, 2017	Radiation (03CH03-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr. 20, 2016	Mar. 31, 2017	Apr.19, 2017	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	May. 14, 2016	Mar. 31, 2017	May. 13, 2017	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	May. 07, 2016	Mar. 31, 2017	May.06, 2017	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Aug.10, 2016	Mar. 31, 2017	Aug. 09, 2017	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102210	0.01Hz ~3000MHz	Oct. 11, 2016	Mar. 31, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)



HF Amplifier	MITEQ	AMF-7D-0010 1800-30-10P-R	1943528	1GHz~18GHz	Oct. 11, 2016	Mar. 31, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-H G	1871923	18GHz~40GHz	Jul.16, 2016	Mar. 31, 2017	Jul.15, 2017	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	61601000198 5	N/A	NCR	Mar. 31, 2017	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Mar. 31, 2017	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Mar. 31, 2017	NCR	Radiation (03CH03-SZ)

NCR: No Calibration Required

5. Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz) for CO05-HY

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.7dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz) for 03CH06-HY

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	3.9dB
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Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz) for 03CH06-HY

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.7dB
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Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz) for 03CH06-HY

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.5dB
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Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz) for CO01-SZ

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.5dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz) for 03CH03-SZ

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5.1dB
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Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz) for 03CH03-SZ

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5.0dB
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Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz) for 03CH03-SZ

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5.0dB
--	-------