



FCC Test Report

APPLICANT : TCL Communication Ltd
EQUIPMENT : GSM Quad-band / UMTS Quad-band / LTE
4 band mobile phone
BRAND NAME : ALCATEL ONETOUCH
MODEL NAME : 6045O
MARKETING NAME : ALCATEL ONETOUCH IDOL 3 (5.5)
FCC ID : 2ACCJN005
STANDARD : FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION : Certification

The product was completed on Feb. 27, 2016. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2009 and has been in compliance with the applicable technical standards.

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

Prepared by: James Huang / Manager

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC511301-29	Rev. 01	This is a variant product of 6045O. Added a new battery, and only the worst cases of conducted emission and radiated emission from original test report (Sporton Report Number FC511301-21) were verified for the difference and the original test data were remain representative.	Mar. 07, 2016



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	Under limit 3.09 dB at 0.550 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 3.07 dB at 344.800 MHz for Quasi-Peak



1. General Description

1.1. Applicant

TCL Communication Ltd

FLAT/RM 1910-12A BLOCK 3 19/F CHINA HONG KONG CITY 33 CANTON ROAD TSIMSHATSUI KL

1.2. Manufacturer

TCL Communication Ltd

FLAT/RM 1910-12A BLOCK 3 19/F CHINA HONG KONG CITY 33 CANTON ROAD TSIMSHATSUI KL

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	GSM Quad-band / UMTS Quad-band / LTE 4 band mobile phone
Brand Name	ALCATEL ONETOUCH
Model Name	6045O
Marketing Name	ALCATEL ONETOUCH IDOL 3 (5.5)
FCC ID	2ACCJN005
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/ HSPA+(16QAM uplink is not supported)/LTE/NFC/ WLAN2.4GHz 802.11b/g/n HT20/ WLAN 5GHz 802.11a/n HT20/HT40/ Bluetooth v3.0+EDR/Bluetooth v4.1 LE
IMEI Code	Conduction: 014497000004327 Radiation: 014497000004012 Spot Check: Conduction: 014497000003857 Radiation: 014497000003857
HW Version	03
SW Version	5A18
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 subjective to this standard

Product Specification subjective to this standard	
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 12: 699.7 MHz ~ 715.3 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n: 5180 MHz ~ 5240 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 12 : 729.7 MHz ~ 745.3 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n: 5180 MHz ~ 5240 MHz; 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz GPS : 1.57542 GHz Glonass : 1602 MHz + $n \times 0.5625\text{MHz}$ ($n=-7, -6, -5, \dots, 0, \dots, 6$) NFC : 13.56 MHz

Product Specification subjective to this standard	
Antenna Type	WWAN : PIFA Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GPS/Glonass: IFA Antenna NFC : Loop Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE:GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) HSPA+: 16QAM uplink is not supported LTE: QPSK / 16QAM 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth v4.1 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. Accessories and Support Equipment

Specification of Accessory				
AC Adapter	Brand Name	ALCATEL ONETOUCH	Model Name	UC13US
	Power Rating	I/P: 100-240Vac, 500mA, O/P: 5Vdc, 2000mA		
	P/N	CBA0059AG0C1		
Original Battery	Brand Name	ALCATEL ONETOUCH	Model Name	TLp029A2-S
	Power Rating	3.8Vdc, 2910mAh		
	P/N	C2910002C2YHV0JE		
Added Battery	Brand Name	ALCATEL ONETOUCH	Model Name	TLp029AJ
	Power Rating	3.8Vdc, 2910mAh		
	P/N	C2910003CJY9411D		
USB Cable	Brand Name	ALCATEL ONETOUCH	Model Name	CDA0000043C2
	Signal Line Type	1.01m shielded without core		



1.7. Test Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	Sporton Site No.		FCC Registration No.
	CO01-KS	03CH02-KS	418269

1.8. Applicable Standards

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

- ♦ FCC 47 CFR FCC Part 15 Subpart B
- ♦ ANSI C63.4-2009

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 C63.4-2009 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).

The following tables are showing the test modes as the worst cases and recorded in this report.

Item	EUT Configuration	Test Condition		
		EMI AC	EMI RE<1G	EMI RE≥1G
1.	Charging Mode (EUT with adapter)	☒	☒	Note 1
2.	Data application transferred mode (EUT connected with notebook)	☒	☒	☒

Abbreviations:

- EMI AC: AC conducted emissions
- EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

Note 1: Testing for this mode is not required or not the worst case.

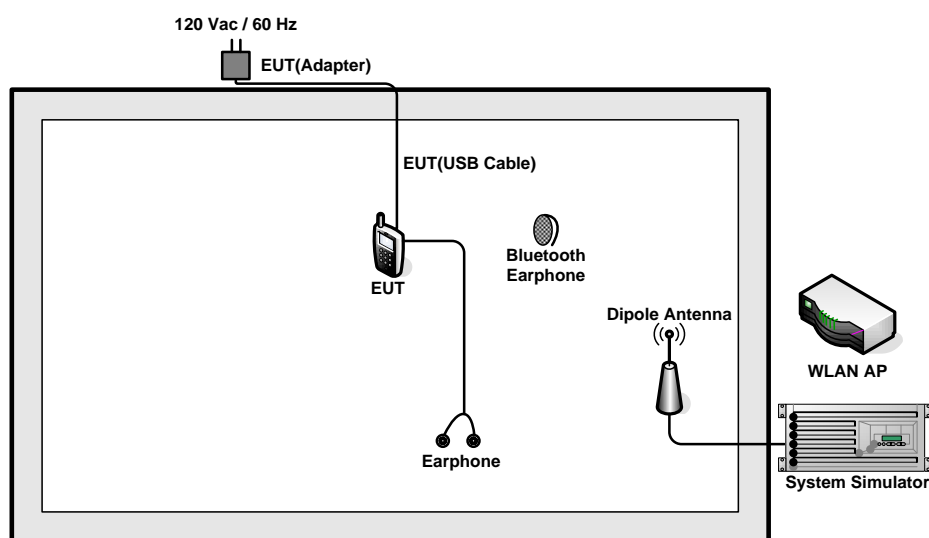
Remark: For signal above 1GHz, the worst case was test item 2.

Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1/2	<p>Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable(Charging from Adapter) + Battery + Earphone + Camera<Fig.1></p> <p>Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Battery + Earphone + MPEG4<Fig.1></p> <p>Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Battery + Earphone + NFC On<Fig.1></p> <p>Mode 4: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Battery + Earphone + Glonass Rx<Fig.2></p> <p>Mode 5: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable(Data Link with Notebook) + Battery + Earphone + GPS Rx<Fig.3></p>
Radiated Emissions < 1GHz	1/2	<p>Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Battery + Earphone + Camera<Fig.1></p> <p>Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Battery + Earphone + MPEG4<Fig.1></p> <p>Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Battery + Earphone + NFC On<Fig.1></p> <p>Mode 4: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Battery + Earphone + Glonass Rx<Fig.2></p> <p>Mode 5: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone + GPS Rx<Fig.3></p>
Radiated Emissions ≥ 1GHz	2	<p>Mode 1: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone + GPS Rx<Fig.3></p>
Remark: <ol style="list-style-type: none"> The worst case of AC is mode 1; and the USB Link mode of AC is mode 5, the test data of these modes were reported. The worst case of RE < 1G is mode 5; only the test data of this mode was reported. Link with Notebook means data application transferred mode between EUT and Notebook. 		

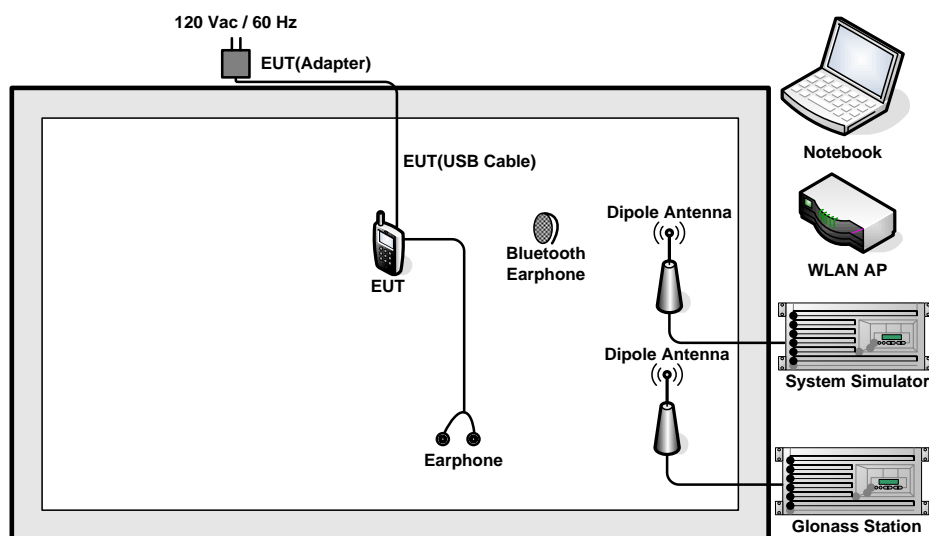
Test Mode for Spot Check

Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1/2	Mode 1 : GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable(Charging from Adapter) + Battery + Earphone + Camera<Fig.1> Mode 2 : LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable(Data Link with Notebook) + Battery + Earphone + GPS Rx<Fig.3>
Radiated Emissions	2	Mode 1 : LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone + GPS Rx<Fig.3>

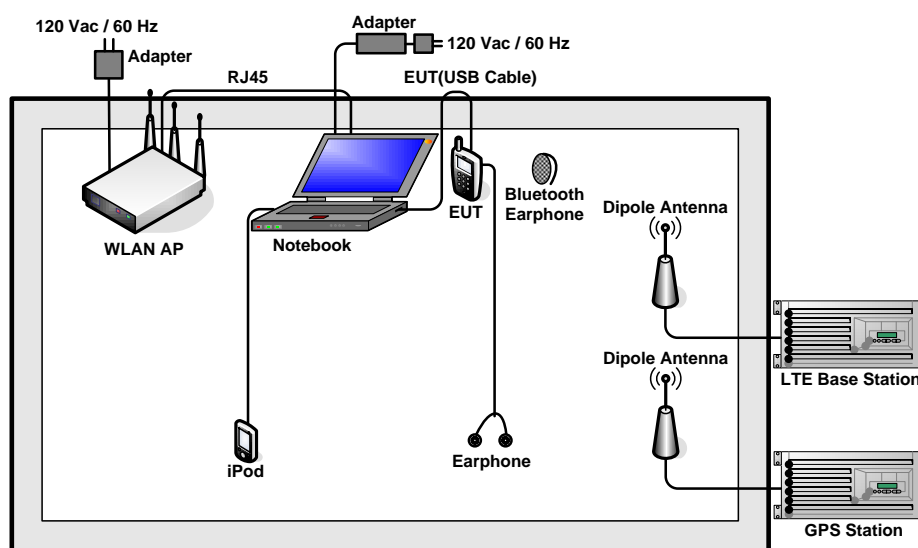
2.2. Connection Diagram of Test System



<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.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	System Simulator	R&S	CMU200	N/A	N/A	Unshielded, 1.8 m
3.	GPS Station	ADIVIC	MP9000	N/A	N/A	Unshielded, 1.8 m
4.	Glomass Station	RACELOGIC	RLLS03-2RP	N/A	N/A	Unshielded, 1.8 m
5.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
6.	WLAN AP	LINKSYS	WRT600N	Q87-WRT600NV11	N/A	Unshielded, 1.8 m
7.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
8.	Bluetooth Earphone	Lenovo	LBH301	N/A	N/A	N/A
9.	Notebook	Lenovo	G480	PRC4	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
10.	iPod	Apple	A1199	FCC DoC	Unshielded, 1.2 m	N/A
11.	SD Card	Kingston	4GB	N/A	N/A	N/A
12.	SD Card	SanDisk	Uitra	N/A	N/A	N/A
13.	Earphone	Lenovo	BH102	N/A	Unshielded, 1.0 m	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 was 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 camera to capture images.
3. Turn on GPS/Glonass function to make the EUT receive continuous signals from GPS/Glonass station.
4. Turn on camera to capture images.
5. Turn on NFC 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.

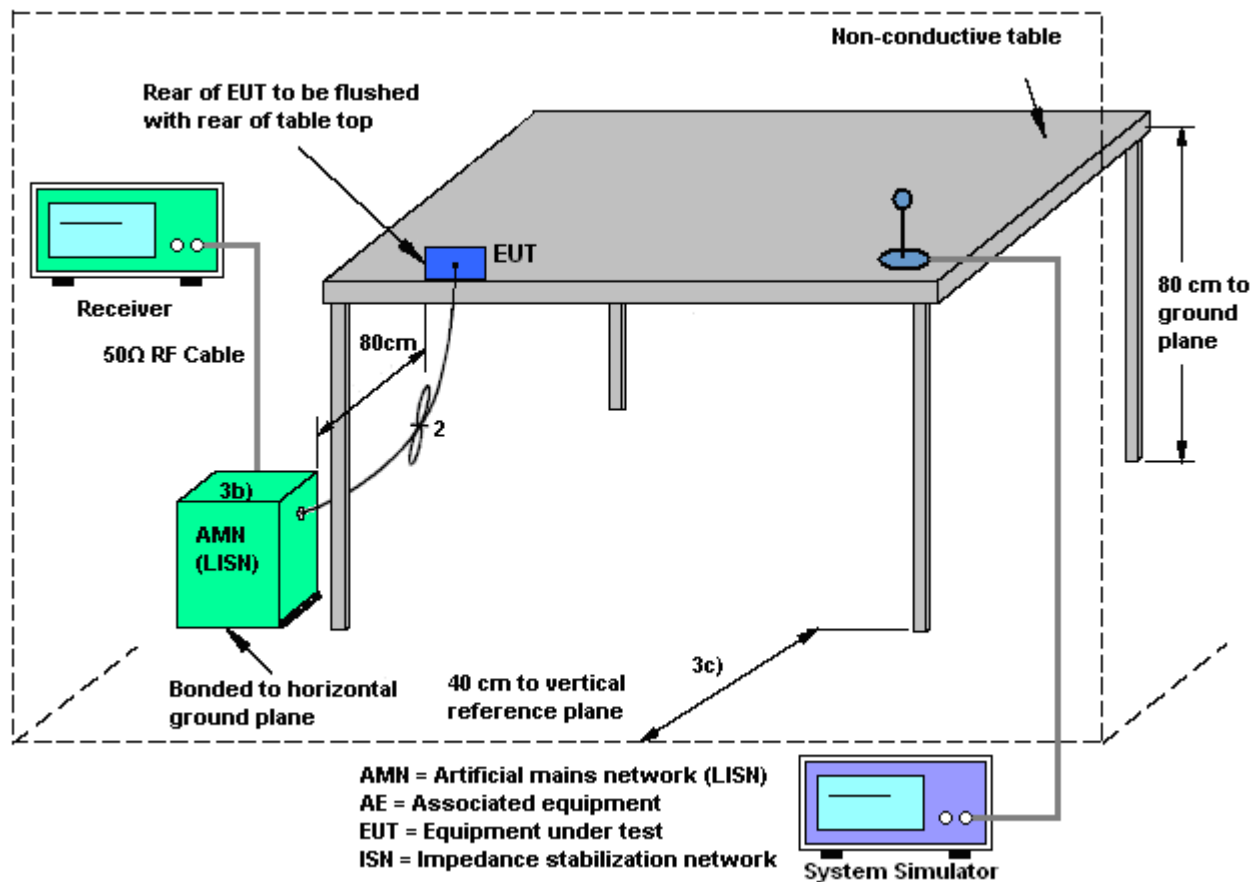
3.1.2 Measuring Instruments

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.

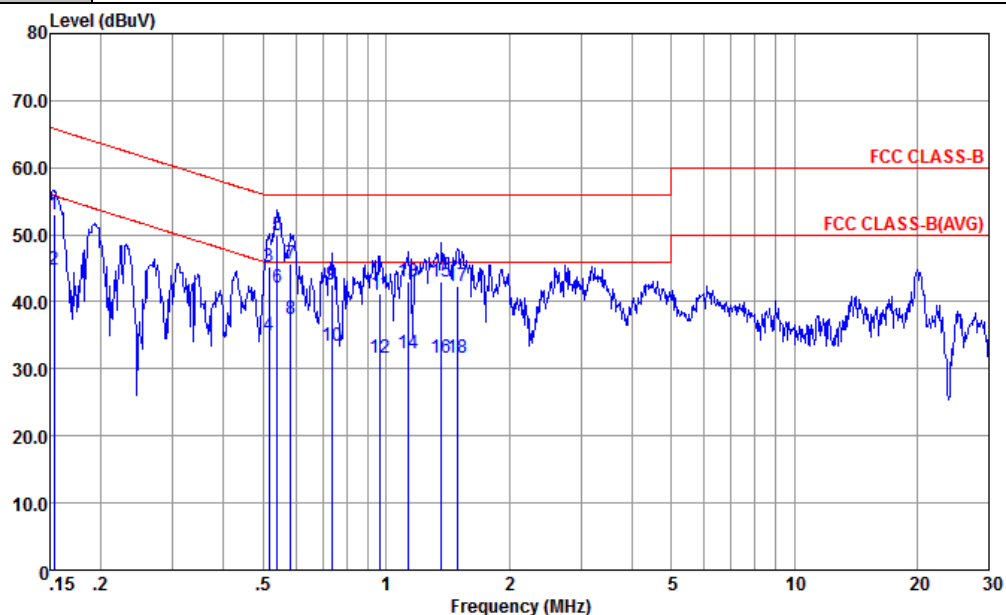
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~24℃
Test Engineer :	Eko Guan	Relative Humidity :	30~33%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable(Charging from Adapter) + Battery + Earphone + Camera		

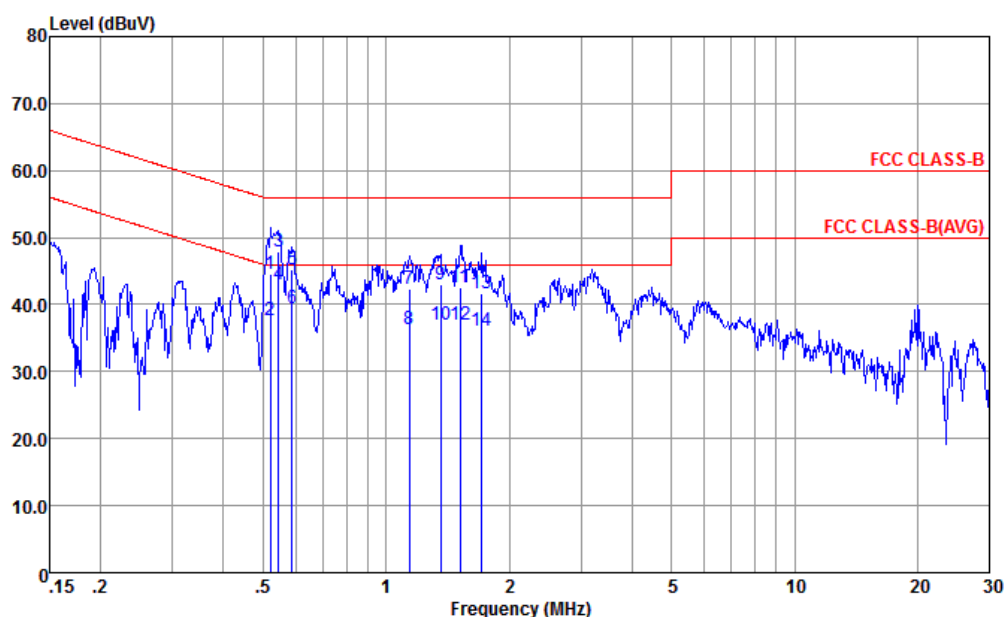


Site : CO01-KS
Condition : FCC CLASS-B LISN-L20140306 LINE
Project : (FC) 511301-21
mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	53.08	-12.74	65.82	40.80	1.90	10.38	QP
2	0.15	44.78	-11.04	55.82	32.50	1.90	10.38	Average
3	0.52	45.33	-10.67	56.00	34.50	0.20	10.63	QP
4	0.52	35.03	-10.97	46.00	24.20	0.20	10.63	Average
5	0.54	50.03	-5.97	56.00	39.20	0.20	10.63	QP
6 *	0.54	42.03	-3.97	46.00	31.20	0.20	10.63	Average
7	0.58	45.63	-10.37	56.00	34.80	0.20	10.63	QP
8	0.58	37.53	-8.47	46.00	26.70	0.20	10.63	Average
9	0.74	42.63	-13.37	56.00	31.80	0.19	10.64	QP
10	0.74	33.33	-12.67	46.00	22.50	0.19	10.64	Average
11	0.97	41.26	-14.74	56.00	30.50	0.11	10.65	QP
12	0.97	31.56	-14.44	46.00	20.80	0.11	10.65	Average
13	1.14	42.96	-13.04	56.00	32.20	0.10	10.66	QP
14	1.14	32.26	-13.74	46.00	21.50	0.10	10.66	Average
15	1.37	42.97	-13.03	56.00	32.20	0.10	10.67	QP
16	1.37	31.67	-14.33	46.00	20.90	0.10	10.67	Average
17	1.50	42.38	-13.62	56.00	31.60	0.10	10.68	QP
18	1.50	31.58	-14.42	46.00	20.80	0.10	10.68	Average



Test Mode :	Mode 1	Temperature :	22~24℃
Test Engineer :	Eko Guan	Relative Humidity :	30~33%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable(Charging from Adapter) + Battery + Earphone + Camera		

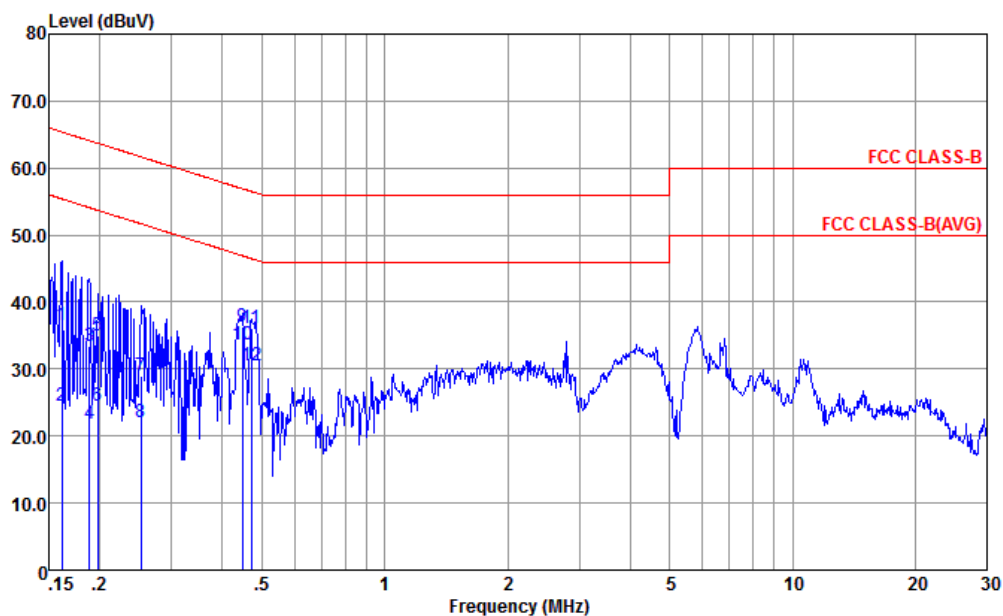


Site : CO01-KS
Condition : FCC CLASS-B LISN-N20140306 NEUTRAL
Project : (FC) 511301-21
mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.52	44.52	-11.48	56.00	33.60	0.29	10.63	QP
2	0.52	37.72	-8.28	46.00	26.80	0.29	10.63	Average
3	0.55	47.81	-8.19	56.00	36.90	0.28	10.63	QP
4 *	0.55	42.91	-3.09	46.00	32.00	0.28	10.63	Average
5	0.59	45.18	-10.82	56.00	34.30	0.25	10.63	QP
6	0.59	39.38	-6.62	46.00	28.50	0.25	10.63	Average
7	1.14	42.26	-13.74	56.00	31.50	0.10	10.66	QP
8	1.14	36.26	-9.74	46.00	25.50	0.10	10.66	Average
9	1.36	42.97	-13.03	56.00	32.20	0.10	10.67	QP
10	1.36	36.97	-9.03	46.00	26.20	0.10	10.67	Average
11	1.52	42.58	-13.42	56.00	31.80	0.10	10.68	QP
12	1.52	36.88	-9.12	46.00	26.10	0.10	10.68	Average
13	1.72	41.59	-14.41	56.00	30.80	0.10	10.69	QP
14	1.72	35.99	-10.01	46.00	25.20	0.10	10.69	Average



Test Mode :	Mode 5	Temperature :	22~24°C
Test Engineer :	Eko Guan	Relative Humidity :	30~33%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable(Data Link with Notebook) + Battery + Earphone + GPS Rx		

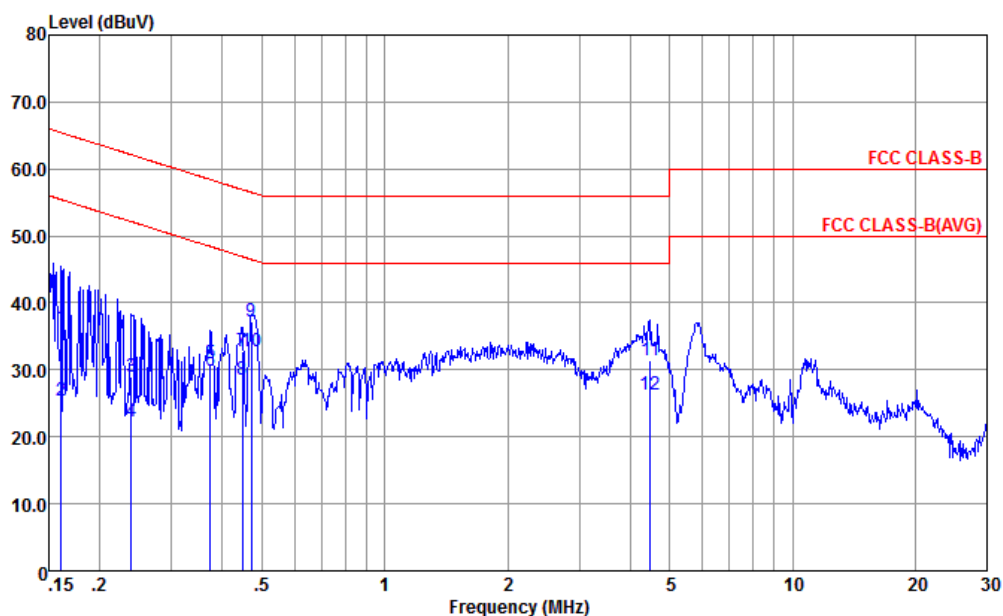


Site : CO01-KS
Condition : FCC CLASS-B LISN-L20140306 LINE
Project : (FC) 511301-21

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
		dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	36.45	-28.93	65.38	24.30	1.75	10.40	QP
2	0.16	24.55	-30.83	55.38	12.40	1.75	10.40	Average
3	0.19	33.33	-30.78	64.11	21.70	1.15	10.48	QP
4	0.19	21.83	-32.28	54.11	10.20	1.15	10.48	Average
5	0.20	35.02	-28.69	63.71	23.50	1.02	10.50	QP
6	0.20	24.62	-29.09	53.71	13.10	1.02	10.50	Average
7	0.25	28.90	-32.79	61.69	17.50	0.87	10.53	QP
8	0.25	22.00	-29.69	51.69	10.60	0.87	10.53	Average
9	0.45	36.27	-20.66	56.93	25.40	0.25	10.62	QP
10 *	0.45	33.67	-13.26	46.93	22.80	0.25	10.62	Average
11	0.47	36.15	-20.34	56.49	25.30	0.23	10.62	QP
12	0.47	30.45	-16.04	46.49	19.60	0.23	10.62	Average



Test Mode :	Mode 5	Temperature :	22~24℃
Test Engineer :	Eko Guan	Relative Humidity :	30~33%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable(Data Link with Notebook) + Battery + Earphone + GPS Rx		



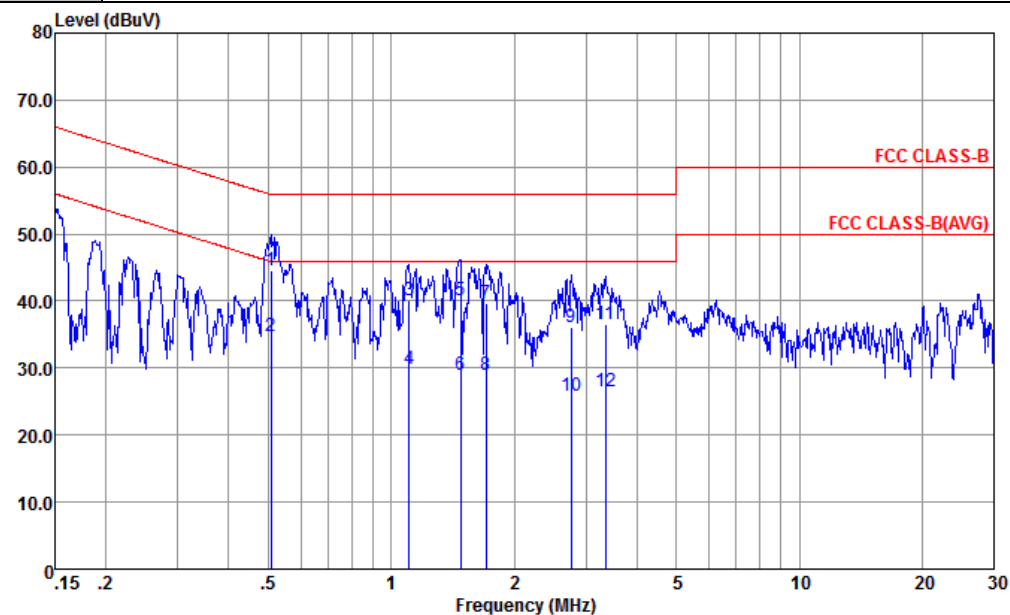
Site : CO01-KS
Condition : FCC CLASS-B LISN-N20140306 NEUTRAL
Project : (FC) 511301-21

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.16	36.32	-29.11	65.43	24.20	1.73	10.39	QP
2	0.16	25.32	-30.11	55.43	13.20	1.73	10.39	Average
3	0.24	29.04	-33.09	62.13	17.60	0.92	10.52	QP
4	0.24	22.24	-29.89	52.13	10.80	0.92	10.52	Average
5	0.37	30.86	-27.57	58.43	19.80	0.45	10.61	QP
6	0.37	29.76	-18.67	48.43	18.70	0.45	10.61	Average
7	0.45	32.77	-24.16	56.93	21.80	0.35	10.62	QP
8	0.45	28.47	-18.46	46.93	17.50	0.35	10.62	Average
9	0.47	37.15	-19.34	56.49	26.21	0.32	10.62	QP
10 *	0.47	32.75	-13.74	46.49	21.81	0.32	10.62	Average
11	4.48	31.33	-24.67	56.00	20.30	0.19	10.84	QP
12	4.48	26.33	-19.67	46.00	15.30	0.19	10.84	Average



3.1.6 Test Result of AC Conducted Emission for Spot Check

Test Mode :	Mode 1	Temperature :	22~24℃
Test Engineer :	Amos Zhang	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable(Charging from Adapter) + Battery + Earphone + Camera		

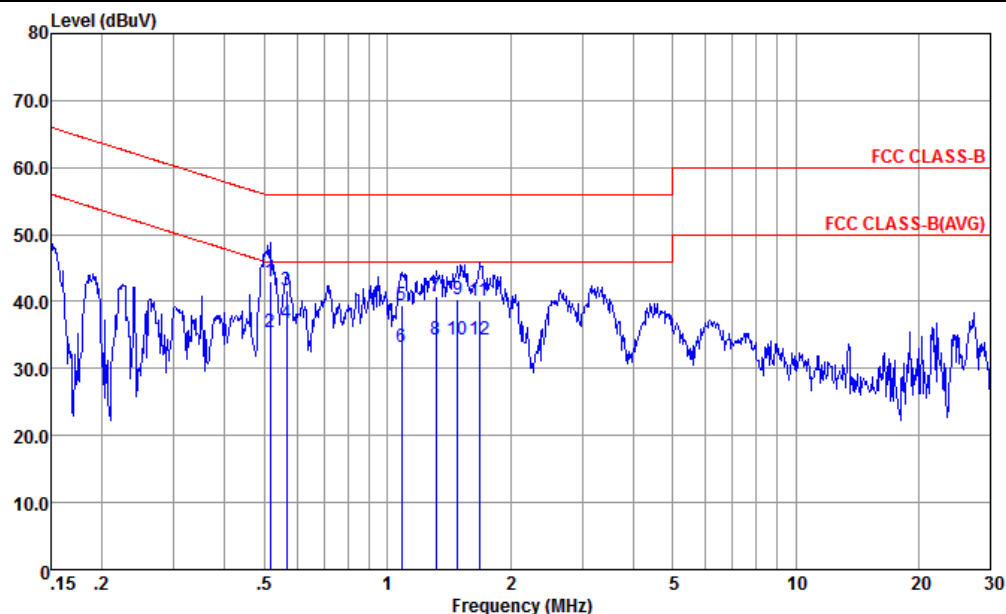


Site : CO01-KS
Condition : FCC CLASS-B LISN-L-20151024 LINE
Project : (FC) 511301-29
mode : Mode 1
: 014497000003857 #1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.51	44.59	-11.41	56.00	34.20	0.23	10.16	QP
2 *	0.51	34.79	-11.21	46.00	24.40	0.23	10.16	Average
3	1.11	40.18	-15.82	56.00	29.80	0.24	10.14	QP
4	1.11	29.88	-16.12	46.00	19.50	0.24	10.14	Average
5	1.48	40.15	-15.85	56.00	29.80	0.21	10.14	QP
6	1.48	28.95	-17.05	46.00	18.60	0.21	10.14	Average
7	1.71	39.64	-16.36	56.00	29.30	0.20	10.14	QP
8	1.71	28.94	-17.06	46.00	18.60	0.20	10.14	Average
9	2.76	36.13	-19.87	56.00	25.80	0.18	10.15	QP
10	2.76	25.93	-20.07	46.00	15.60	0.18	10.15	Average
11	3.35	36.64	-19.36	56.00	26.29	0.19	10.16	QP
12	3.35	26.54	-19.46	46.00	16.19	0.19	10.16	Average



Test Mode :	Mode 1	Temperature :	22~24℃
Test Engineer :	Eko Guan	Relative Humidity :	30~33%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable(Charging from Adapter) + Battery + Earphone + Camera		

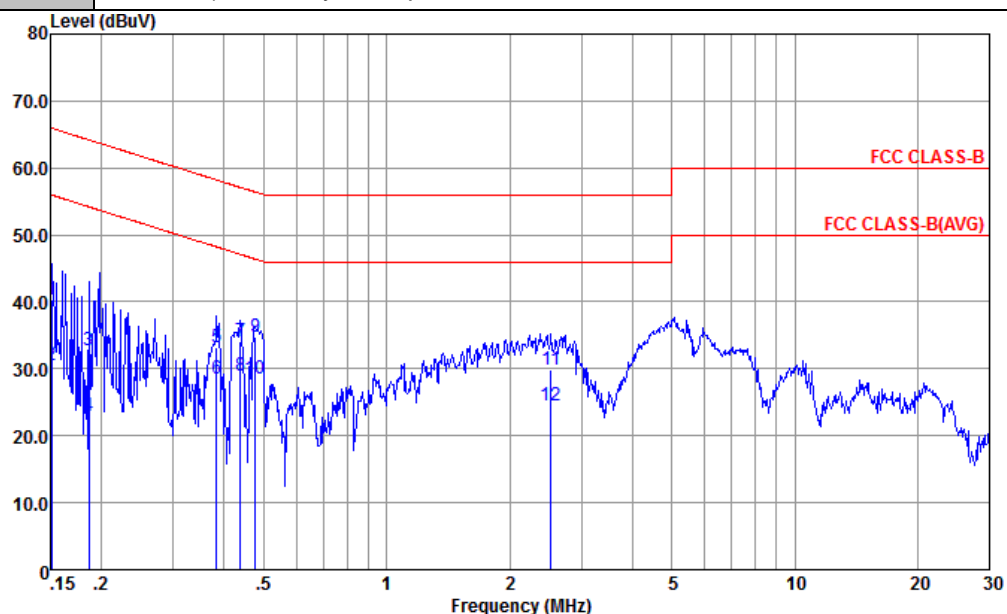


Site : CO01-KS
Condition : FCC CLASS-B LISN-N-20151024 NEUTRAL
Project : (FC) 511301-29
mode : Mode 1
: 014497000003857 #1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.52	42.99	-13.01	56.00	32.51	0.32	10.16	QP
2	0.52	35.39	-10.61	46.00	24.91	0.32	10.16	Average
3	0.57	41.59	-14.41	56.00	31.10	0.33	10.16	QP
4 *	0.57	36.79	-9.21	46.00	26.30	0.33	10.16	Average
5	1.08	39.41	-16.59	56.00	28.90	0.37	10.14	QP
6	1.08	33.11	-12.89	46.00	22.60	0.37	10.14	Average
7	1.32	40.81	-15.19	56.00	30.30	0.37	10.14	QP
8	1.32	34.41	-11.59	46.00	23.90	0.37	10.14	Average
9	1.49	40.31	-15.69	56.00	29.79	0.38	10.14	QP
10	1.49	34.31	-11.69	46.00	23.79	0.38	10.14	Average
11	1.68	40.12	-15.88	56.00	29.60	0.38	10.14	QP
12	1.68	34.32	-11.68	46.00	23.80	0.38	10.14	Average



Test Mode :	Mode 2	Temperature :	22~24°C
Test Engineer :	Amos Zhang	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable(Data Link with Notebook) + Battery + Earphone + GPS Rx		

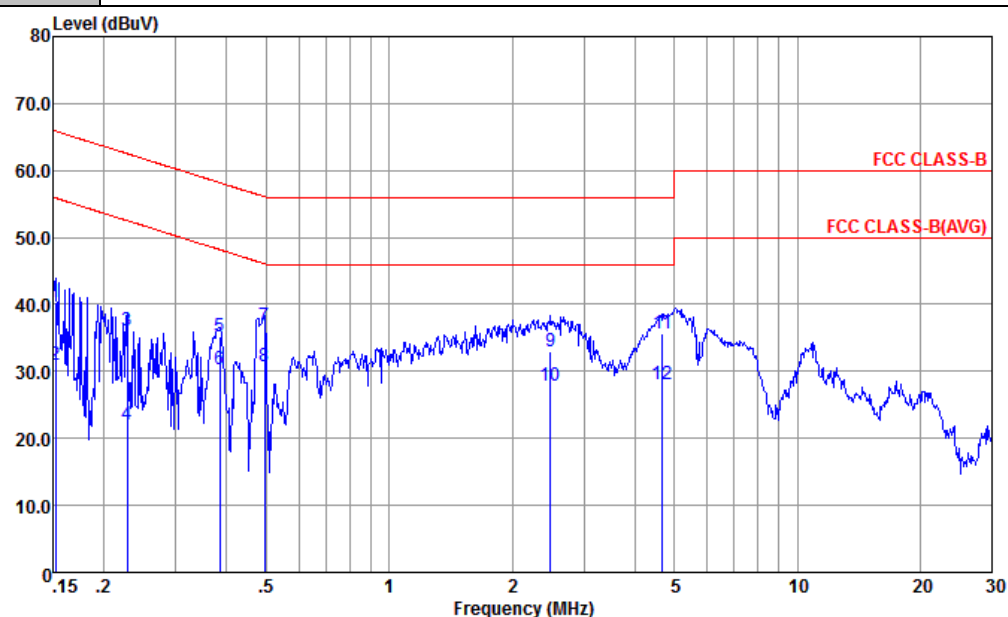


Site : CO01-KS
Condition : FCC CLASS-B LISN-L-20151024 LINE
Project : (FC) 511301-29
mode : Mode 2
: 014497000003857 #1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	40.24	-25.72	65.96	29.60	0.53	10.11	QP
2	0.15	30.44	-25.52	55.96	19.80	0.53	10.11	Average
3	0.19	32.71	-31.49	64.20	22.30	0.29	10.12	QP
4	0.19	23.01	-31.19	54.20	12.60	0.29	10.12	Average
5	0.38	33.30	-24.91	58.21	22.90	0.23	10.17	QP
6	0.38	28.60	-19.61	48.21	18.20	0.23	10.17	Average
7	0.44	34.20	-22.91	57.11	23.80	0.23	10.17	QP
8	0.44	29.00	-18.11	47.11	18.60	0.23	10.17	Average
9	0.48	34.69	-21.72	56.41	24.30	0.23	10.16	QP
10 *	0.48	28.59	-17.82	46.41	18.20	0.23	10.16	Average
11	2.53	29.83	-26.17	56.00	19.50	0.18	10.15	QP
12	2.53	24.53	-21.47	46.00	14.20	0.18	10.15	Average



Test Mode :	Mode 2	Temperature :	22~24°C
Test Engineer :	Eko Guan	Relative Humidity :	30~33%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable(Data Link with Notebook) + Battery + Earphone + GPS Rx		



Site : CO01-KS
 Condition : FCC CLASS-B LISN-N-20151024 NEUTRAL
 Project : (FC) 511301-29
 mode : Mode 2
 : 014497000003857 #1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.15	40.31	-25.56	65.87	29.90	0.30	10.11	QP
2	0.15	30.91	-24.96	55.87	20.50	0.30	10.11	Average
3	0.23	36.05	-26.47	62.52	25.60	0.31	10.14	QP
4	0.23	22.05	-30.47	52.52	11.60	0.31	10.14	Average
5	0.39	35.29	-22.88	58.17	24.80	0.32	10.17	QP
6	0.39	30.29	-17.88	48.17	19.80	0.32	10.17	Average
7	0.49	36.68	-19.42	56.10	26.20	0.32	10.16	QP
8 *	0.49	30.68	-15.42	46.10	20.20	0.32	10.16	Average
9	2.49	33.02	-22.98	56.00	22.49	0.38	10.15	QP
10	2.49	27.82	-18.18	46.00	17.29	0.38	10.15	Average
11	4.67	35.64	-20.36	56.00	25.10	0.36	10.18	QP
12	4.67	28.14	-17.86	46.00	17.60	0.36	10.18	Average

3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.2.2. Measuring Instruments

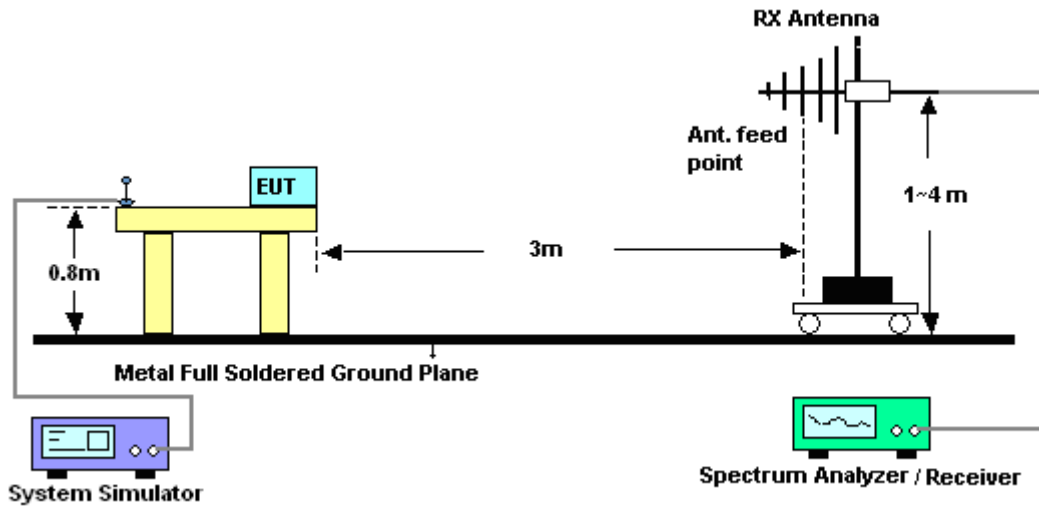
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

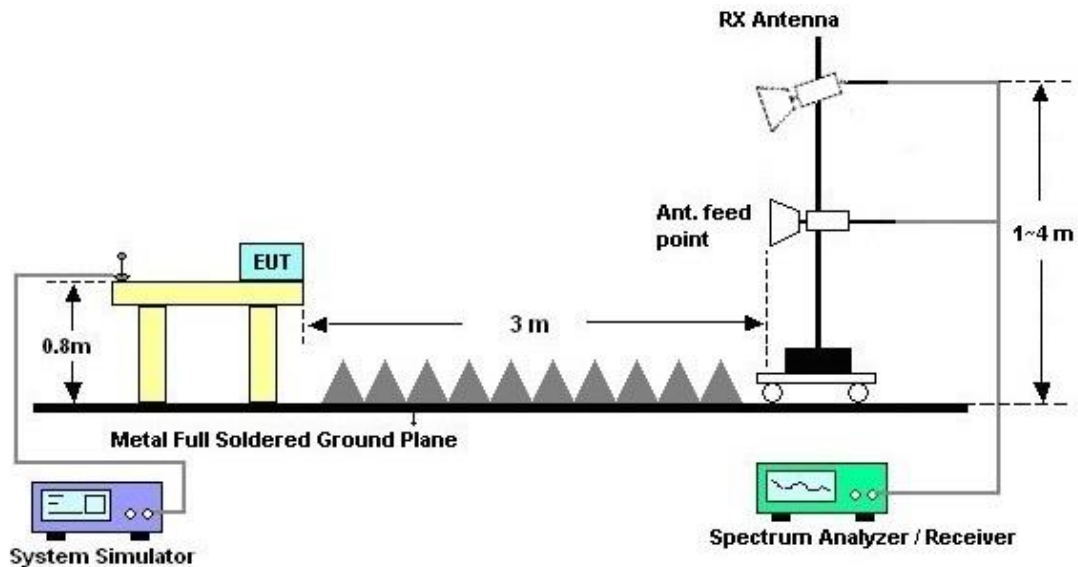
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dBμV/m) = 20 log Emission level (μV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamplifier Factor = Level

3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz

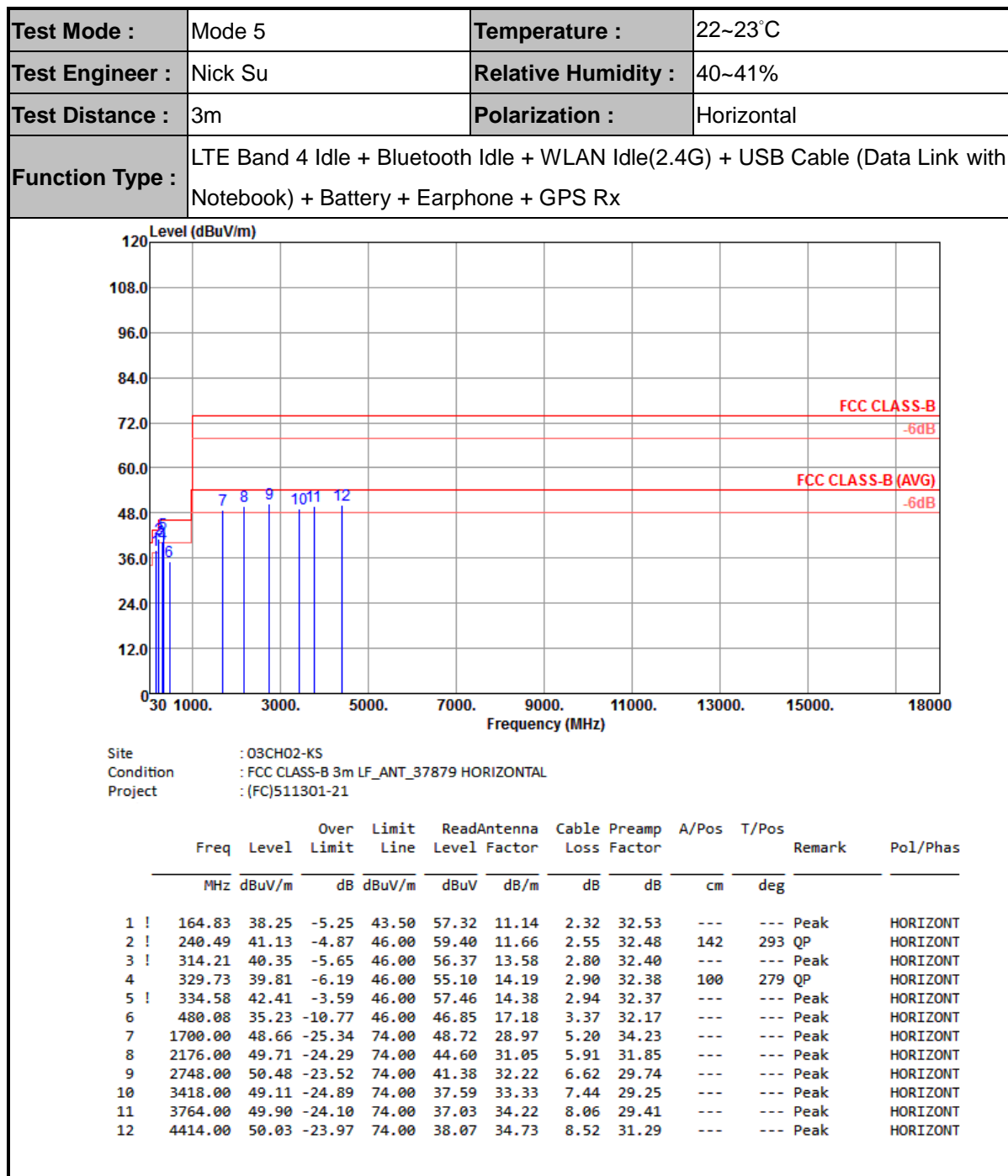


For radiated emissions above 1GHz



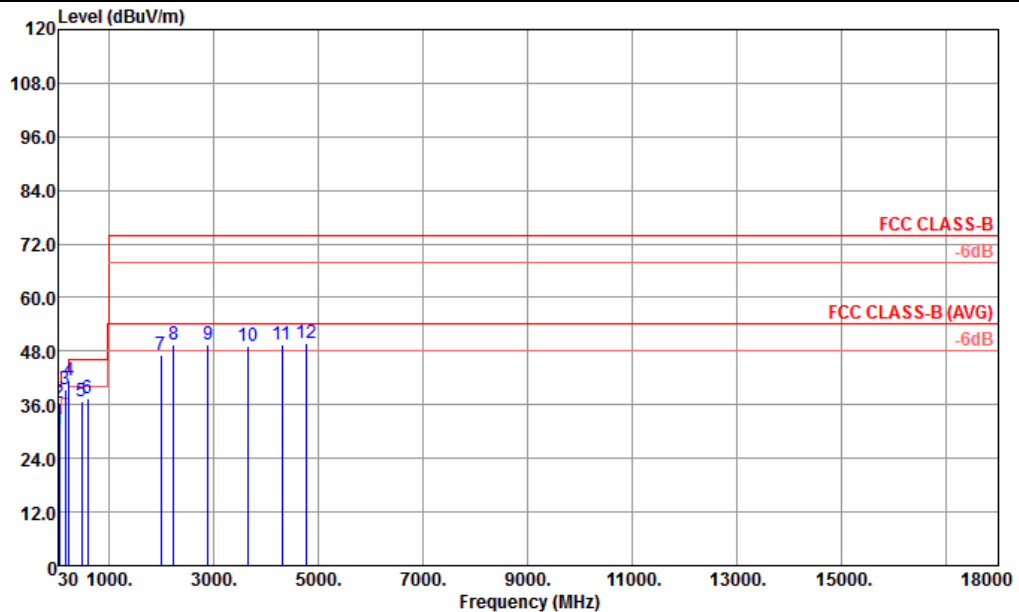


3.2.5. Test Result of Radiated Emission





Test Mode :	Mode 5	Temperature :	22~23°C
Test Engineer :	Nick Su	Relative Humidity :	40~41%
Test Distance :	3m	Polarization :	Vertical
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone + GPS Rx		



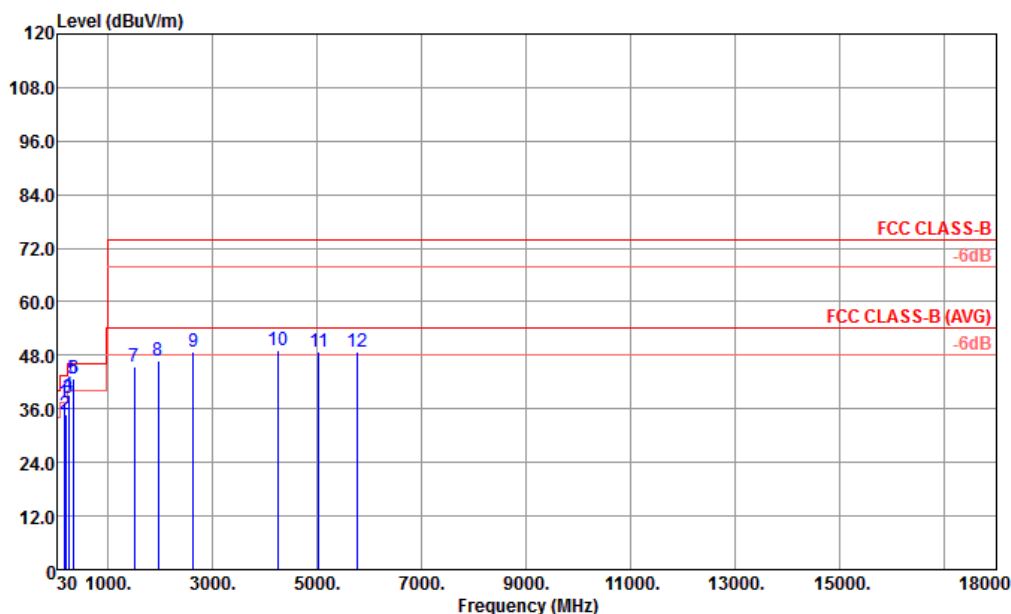
Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF_ANT_37879 VERTICAL
Project : (FC)511301-21

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phas
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		
1	43.58	30.39	-9.61	40.00	49.52	12.26	1.26	32.65	---	---	Peak	VERTICAL
2	57.16	36.46	-3.54	40.00	60.86	6.88	1.32	32.60	109	54	Peak	VERTICAL
3	164.83	39.45	-4.05	43.50	58.52	11.14	2.32	32.53	---	---	Peak	VERTICAL
4	236.61	41.53	-4.47	46.00	59.99	11.48	2.54	32.48	---	---	Peak	VERTICAL
5	480.08	36.65	-9.35	46.00	48.27	17.18	3.37	32.17	---	---	Peak	VERTICAL
6	599.39	37.55	-8.45	46.00	46.64	18.80	4.13	32.02	---	---	Peak	VERTICAL
7	1994.00	47.26	-26.74	74.00	44.08	30.64	5.64	33.10	---	---	Peak	VERTICAL
8	2242.00	49.48	-24.52	74.00	43.89	31.14	6.01	31.56	---	---	Peak	VERTICAL
9	2888.00	49.43	-24.57	74.00	39.68	32.57	6.81	29.63	---	---	Peak	VERTICAL
10	3662.00	49.01	-24.99	74.00	36.79	33.92	7.83	29.53	---	---	Peak	VERTICAL
11	4304.00	49.34	-24.66	74.00	36.73	34.76	8.52	30.67	---	---	Peak	VERTICAL
12	4770.00	49.95	-24.05	74.00	38.69	34.86	8.71	32.31	---	---	Peak	VERTICAL



3.2.6. Test Result of Radiated Emission for Spot Check

Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Jason Peng	Relative Humidity :	42~43%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone + GPS Rx		

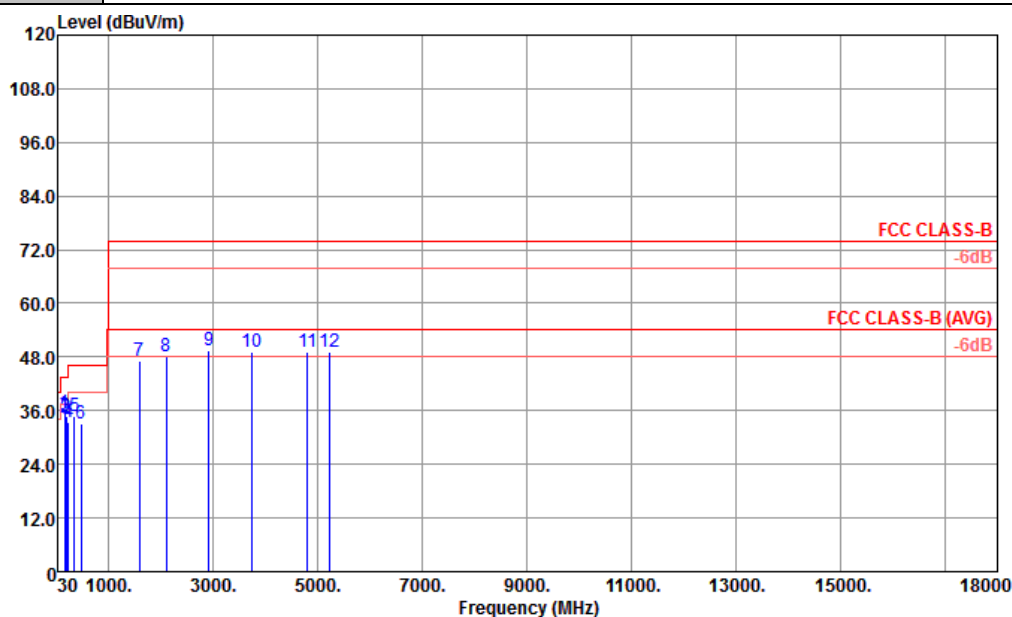


Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF_ANT_37879 HORIZONTAL
Project : (FC) 511301-29
Mode : 1
IMEI : 014497000003857

	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	Pol/Phas
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	165.54	37.49	-6.01	43.50	54.66	11.10	2.13	30.40	---	---	Peak HORIZONTAL
2	196.05	34.85	-8.65	43.50	53.02	9.95	2.28	30.40	---	---	Peak HORIZONTAL
3	248.70	38.47	-7.53	46.00	54.38	12.01	2.58	30.50	---	---	Peak HORIZONTAL
4	254.64	38.98	-7.02	46.00	54.63	12.19	2.66	30.50	---	---	Peak HORIZONTAL
5 !	335.00	42.72	-3.28	46.00	55.94	14.38	2.97	30.57	---	---	Peak HORIZONTAL
6 !	344.80	42.93	-3.07	46.00	55.70	14.81	3.01	30.59	104	157	QP HORIZONTAL
7	1510.00	45.55	-28.45	74.00	47.11	28.34	4.88	34.78	---	---	Peak HORIZONTAL
8	1962.00	46.87	-27.13	74.00	43.99	30.49	5.58	33.19	---	---	Peak HORIZONTAL
9	2638.00	48.94	-25.06	74.00	40.97	31.81	6.52	30.36	---	---	Peak HORIZONTAL
10	4269.00	49.07	-24.93	74.00	36.25	34.77	8.52	30.47	---	---	Peak HORIZONTAL
11	5040.00	48.81	-25.19	74.00	38.46	35.01	8.88	33.54	---	---	Peak HORIZONTAL
12	5763.00	48.65	-25.35	74.00	39.27	35.31	9.66	35.59	---	---	Peak HORIZONTAL



Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Jason Peng	Relative Humidity :	42~43%
Test Distance :	3m	Polarization :	Vertical
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone + GPS Rx		



Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF_ANT_37879 VERTICAL
Project : (FC) 511301-29
Mode : 1
IMEI : 014497000003857

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phas
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		
1	165.81	35.60	-7.90	43.50	52.77	11.10	2.13	30.40	147	325	Peak	VERTICAL
2	174.72	34.27	-9.23	43.50	51.72	10.77	2.18	30.40	---	---	Peak	VERTICAL
3	194.43	34.84	-8.66	43.50	52.97	9.99	2.28	30.40	---	---	Peak	VERTICAL
4	239.52	33.29	-12.71	46.00	49.65	11.61	2.51	30.48	---	---	Peak	VERTICAL
5	344.80	34.76	-11.24	46.00	47.53	14.81	3.01	30.59	---	---	Peak	VERTICAL
6	479.90	32.93	-13.07	46.00	42.51	17.18	3.68	30.44	---	---	Peak	VERTICAL
7	1600.00	47.19	-26.81	74.00	47.99	28.62	5.01	34.43	---	---	Peak	VERTICAL
8	2104.00	47.98	-26.02	74.00	43.55	30.95	5.80	32.32	---	---	Peak	VERTICAL
9	2928.00	49.46	-24.54	74.00	39.67	32.63	6.86	29.70	---	---	Peak	VERTICAL
10	3756.00	49.12	-24.88	74.00	36.29	34.20	8.06	29.43	---	---	Peak	VERTICAL
11	4803.00	49.24	-24.76	74.00	38.15	34.88	8.71	32.50	---	---	Peak	VERTICAL
12	5226.00	49.02	-24.98	74.00	39.16	35.07	9.10	34.31	---	---	Peak	VERTICAL



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Sep. 29, 2014 Sep. 10, 2015	Aug. 25, 2015 Feb. 26, 2016	Sep. 28, 2015 Sep. 09, 2016	Radiation (03CH02-KS)
Spectrum Analyzer	R&S	FSV40	101040	10kHz~40GHz; Max 30dBm	Sep. 25, 2014 Sep. 10, 2015	Aug. 25, 2015 Feb. 26, 2016	Sep. 24, 2015 Sep. 09, 2016	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	37879	30MHz~2GHz	Sep. 13, 2014 Sep. 12, 2015	Aug. 25, 2015 Feb. 26, 2016	Sep. 12, 2015 Sep. 11, 2016	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 08, 2014 Nov. 07, 2015	Aug. 25, 2015 Feb. 26, 2016	Nov. 07, 2015 Nov. 06, 2016	Radiation (03CH02-KS)
Amplifier	com-power	PA-103A	161069	1kHz~1000MHz / 32 dB	May 04, 2015	Aug. 25, 2015 Feb. 26, 2016	May 03, 2016	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1GHz~26.5GHz Gain 30dB	Oct. 28, 2014 Oct. 24, 2015	Aug. 25, 2015 Feb. 26, 2016	Oct. 27, 2015 Oct. 23, 2016	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	61601000247 3	N/A	NCR	Aug. 25, 2015 Feb. 26, 2016	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Aug. 25, 2015 Feb. 26, 2016	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Aug. 25, 2015 Feb. 26, 2016	NCR	Radiation (03CH02-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	May 04, 2015	Aug. 12, 2015~ Feb. 27, 2016	May 03, 2016	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 25, 2014 Oct. 24, 2015	Aug. 12, 2015~ Feb. 27, 2016	Oct. 24, 2015 Oct. 23, 2016	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 25, 2014 Oct. 24, 2015	Aug. 12, 2015~ Feb. 27, 2016	Oct. 24, 2015 Oct. 23, 2016	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V, 45Hz~1000Hz	Oct. 25, 2014 Oct. 24, 2015	Aug. 12, 2015~ Feb. 27, 2016	Oct. 24, 2015 Oct. 23, 2016	Conduction (CO01-KS)

NCR: No Calibration Required



5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.3dB
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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
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