

FCC Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : LTE/WCDMA/GSM(GPRS) Multi-Mode Digital
Mobile Phone
BRAND NAME : ZTE
MODEL NAME : Z978
FCC ID : SRQ-Z978
STANDARD : FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION : Certification

The product was received on Aug. 31, 2016 and testing was completed on Oct. 02, 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 C63.4-2014 and has been in compliance with the applicable technical standards.

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



Prepared by: James Huang / Manager



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC683106	Rev. 01	Initial issue of report	Oct. 25, 2016



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.107	ICES003 Section 6.1	AC Conducted Emission	< 15.107 limits < ICES003 6.1 limits	PASS	Under limit 7.62 dB at 13.560 MHz
0	15.109	ICES003 Section 6.2	Radiated Emission	< 15.109 limits < ICES003 6.2 limits	PASS	Under limit 5.53 dB at 35.670 MHz for Quasi-Peak



1. General Description

1.1. Applicant

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057,
P.R.China

1.2. Manufacturer

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057,
P.R.China

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone
Brand Name	ZTE
Model Name	Z978
FCC ID	SRQ-Z978
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/ HSPA+ (16QAM uplink is not supported)/LTE/NFC WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth v3.0 + EDR/ Bluetooth v4.0 LE/Bluetooth v4.2 LE
HW Version	u1xB
SW Version	Z978V1.0.0B08
IMEI Code	Conduction: 862424030003981 Radiation: 862424030004021
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 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 12: 699.7 MHz ~ 715.3 MHz LTE Band 13 : 779.5 MHz ~ 784.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5745 MHz ~ 5805 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 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 7 : 2622.5MHz ~ 2687.5 MHz LTE Band 12 : 729.7 MHz ~ 745.3 MHz LTE Band 13 : 748.5 MHz ~ 753.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5745 MHz ~ 5805 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 : IFA Antenna WLAN : IFA Antenna Bluetooth : IFA Antenna GPS/Glonass : IFA Antenna NFC : Loop 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 v4.0 LE : GFSK Bluetooth v4.2 LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : $\pi/4$ -DQPSK Bluetooth (3Mbps) : 8-DPSK GPS/Glonass : BPSK NFC: ASK
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1.5. Modification of EUT

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

1.6. 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/IC Registration No.
	CO01-KS	03CH02-KS	418269/4086E

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
- ♦ IC ICES-003 Issue 6
- ♦ IC RSS-Gen Issue 4

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).

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)	☒	☒	☒
2.	Data application transferred mode (EUT with notebook)	☒	☒	☒

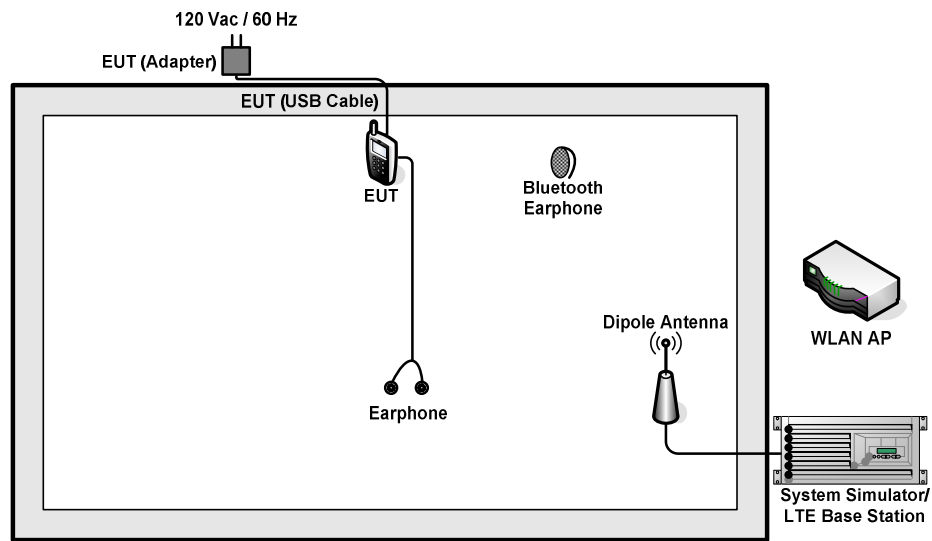
Abbreviations:

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

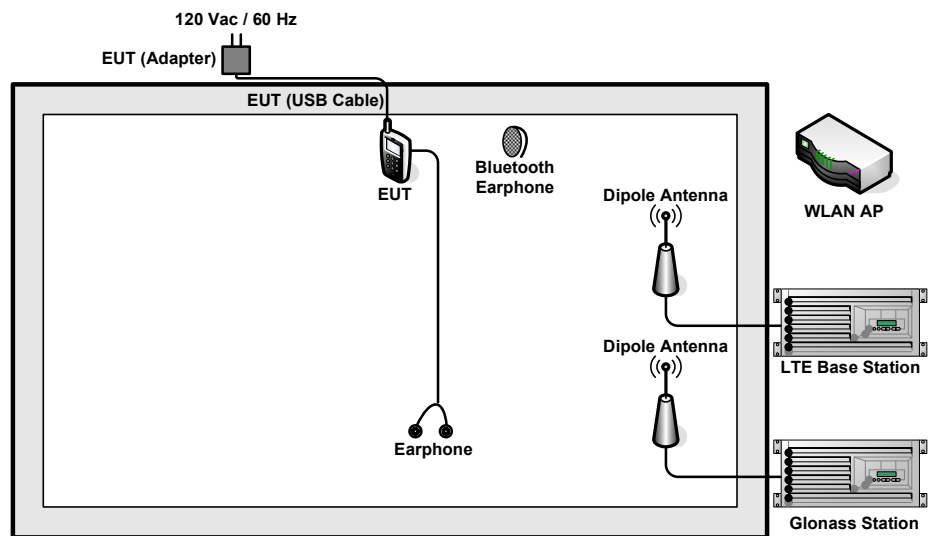
Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1/2	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter) + Earphone + Camera (Rear) + SIM 1<Fig.1> Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Charging from Adapter) + Earphone + Camera (Front) + SIM 2<Fig.1> Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter) + Earphone + MPEG4 + SIM 1<Fig.1> Mode 4: LTE Band 4 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Charging from Adapter) + Earphone + NFC On + SIM 2<Fig.1> Mode 5: LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter) + Earphone + Glonass Rx + SIM 1<Fig.2> Mode 6: LTE Band 12 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1<Fig.3>

Radiated Emissions < 1GHz	1/2	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter) + Earphone + Camera (Rear) + SIM 1<Fig.1> Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Charging from Adapter) + Earphone + Camera (Front) + SIM 2<Fig.1> Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter) + Earphone + MPEG4 + SIM 1<Fig.1> Mode 4: LTE Band 4 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Charging from Adapter) + Earphone + NFC On + SIM 2<Fig.1> Mode 5: LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter) + Earphone + Glonass Rx + SIM 1<Fig.2> Mode 6: LTE Band 12 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1<Fig.3>
Radiated Emissions ≥ 1GHz	1/2	Mode 1: LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter) + Earphone + Glonass Rx + SIM 1<Fig.2> Mode 2: LTE Band 12 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1<Fig.3>
Remark: 1. The worst case of AC is mode 4; and the USB Link mode of AC is mode 6, only the test data of these modes were reported. 2. The worst case of RE < 1G is mode 5; and the USB Link mode of RE is mode 6, only the test data of these modes were reported. 3. Data Link with Notebook means data application transferred mode between EUT and Notebook.		

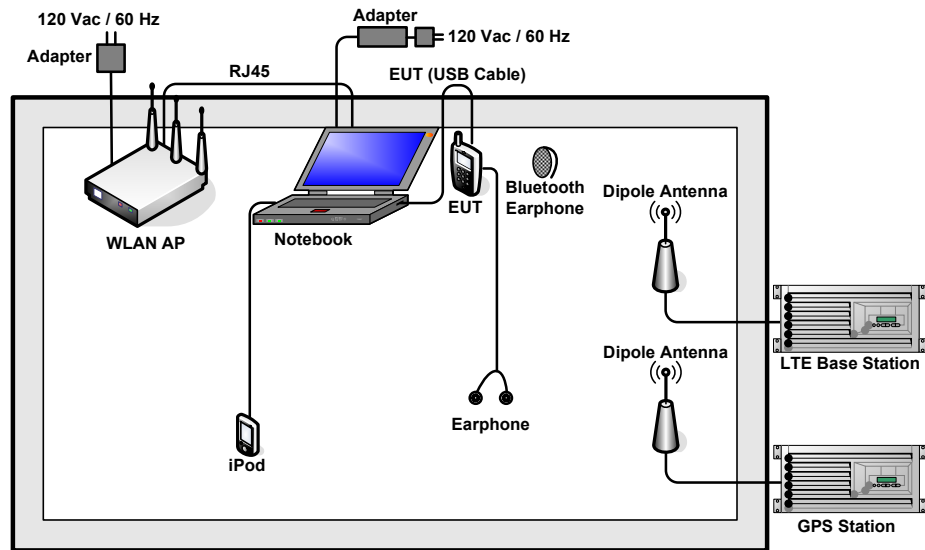
2.2. Connection Diagram of Test System



<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	RLLS03-2P	N/A	N/A	Unshielded, 1.8 m
5.	Bluetooth Earphone	Lenovo	LBH308	2010DP1340	N/A	N/A
6.	Bluetooth Earphone	Lenovo	LBH301	2010DP1340	N/A	N/A
7.	WLAN AP	LINKSYS	WRT600N	Q87-WRT600NV11	N/A	Unshielded, 1.8 m
8.	WLAN AP	TP-LINK	TL-WDR5600	N/A	N/A	Unshielded, 1.8 m
9.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
10.	Notebook	DELL	Latitude3440	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
11.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
12.	SD Card	Kingston	SD4 8GB	N/A	N/A	N/A
13.	SD Card	Kingston	4GB	N/A	N/A	N/A
14.	iPod	Apple	A1199	FCC DoC	Shielded, 1.2 m	N/A
15.	Earphone	Lenovo	SH100	N/A	Unshielded, 1.2 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 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.
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.

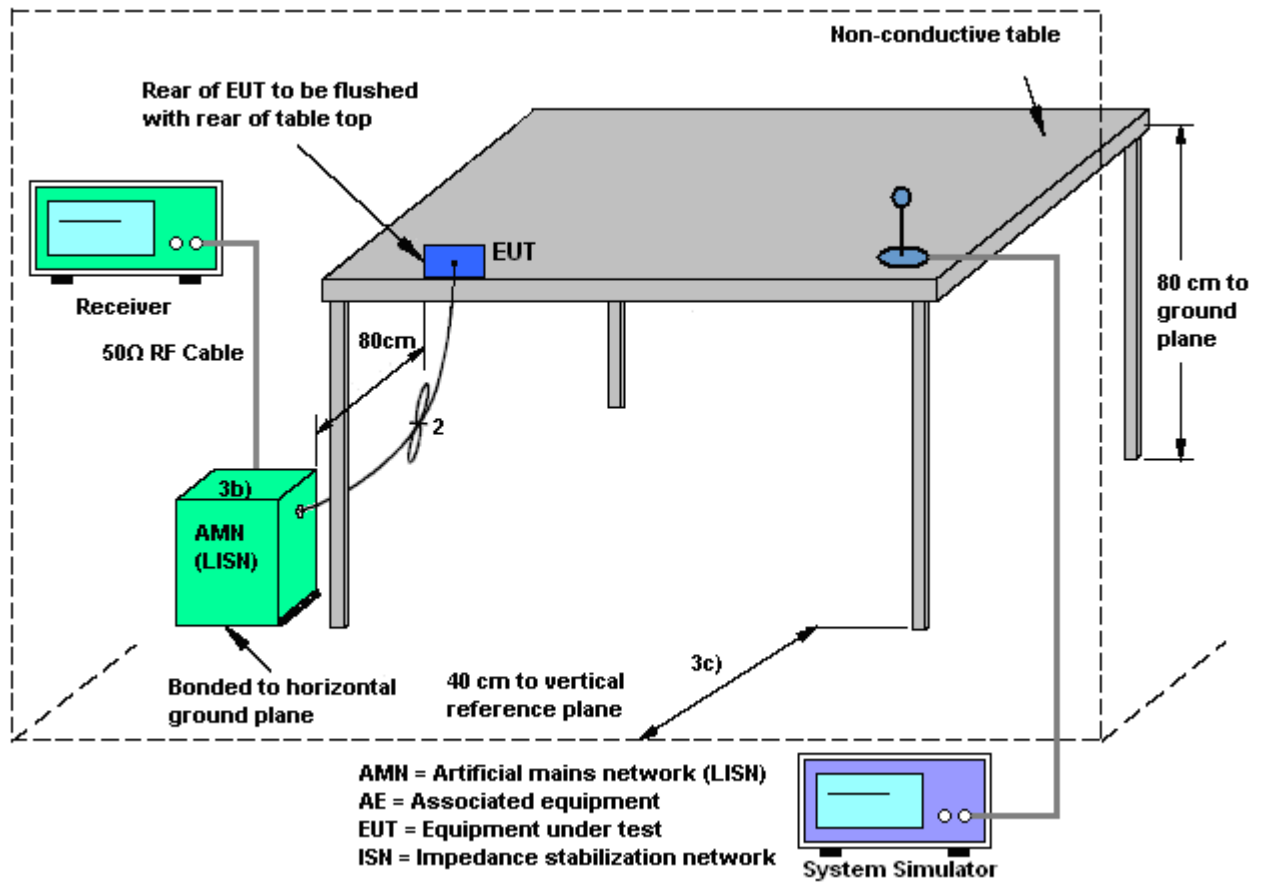
3.1.2 Measuring Instruments

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.

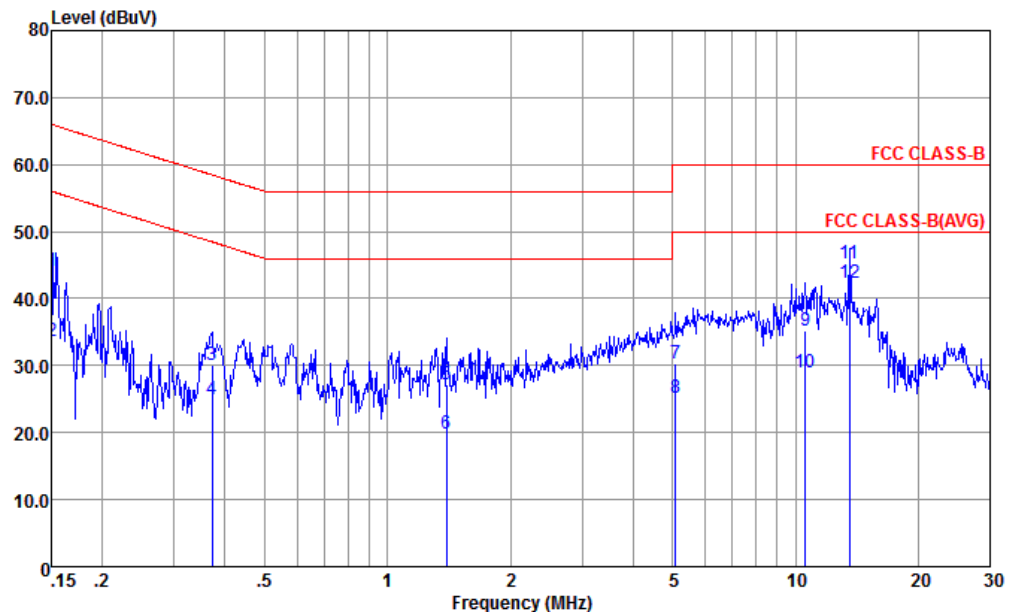
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 4	Temperature :	22~24℃
Test Engineer :	Morris Li	Relative Humidity :	52~54%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Charging from Adapter) + Earphone + NFC On + SIM 2		

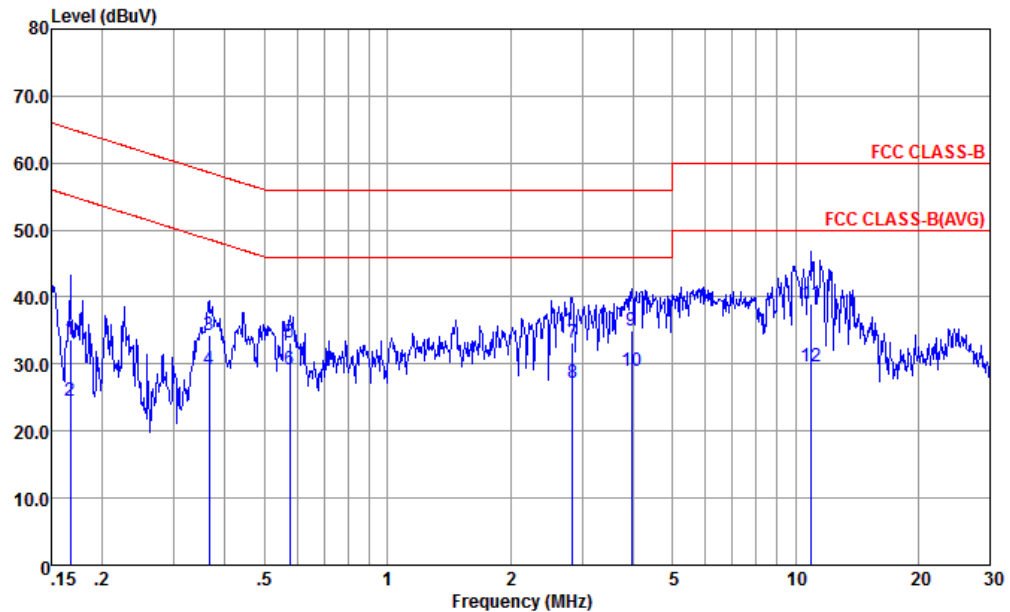


Site : CO01-KS
Condition : FCC CLASS-B LISN-L-20151024 LINE
Project : (FC) 683106
mode : Mode 4
IMEI : 862424030003981
: #1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.150	44.12	-21.88	66.00	33.20	0.53	10.39	QP
2	0.150	33.62	-22.38	56.00	22.70	0.53	10.39	Average
3	0.371	30.14	-28.33	58.47	19.70	0.23	10.21	QP
4	0.371	25.04	-23.43	48.47	14.60	0.23	10.21	Average
5	1.396	27.10	-28.90	56.00	16.69	0.22	10.19	QP
6	1.396	19.90	-26.10	46.00	9.49	0.22	10.19	Average
7	5.085	30.24	-29.76	60.00	19.80	0.19	10.25	QP
8	5.085	25.14	-24.86	50.00	14.70	0.19	10.25	Average
9	10.564	35.20	-24.80	60.00	24.60	0.25	10.35	QP
10	10.564	29.00	-21.00	50.00	18.40	0.25	10.35	Average
11	13.560	45.28	-14.72	60.00	34.60	0.26	10.42	QP
12 *	13.560	42.38	-7.62	50.00	31.70	0.26	10.42	Average



Test Mode :	Mode 4	Temperature :	22~24℃
Test Engineer :	Morris Li	Relative Humidity :	52~54%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Charging from Adapter) + Earphone + NFC On + SIM 2		

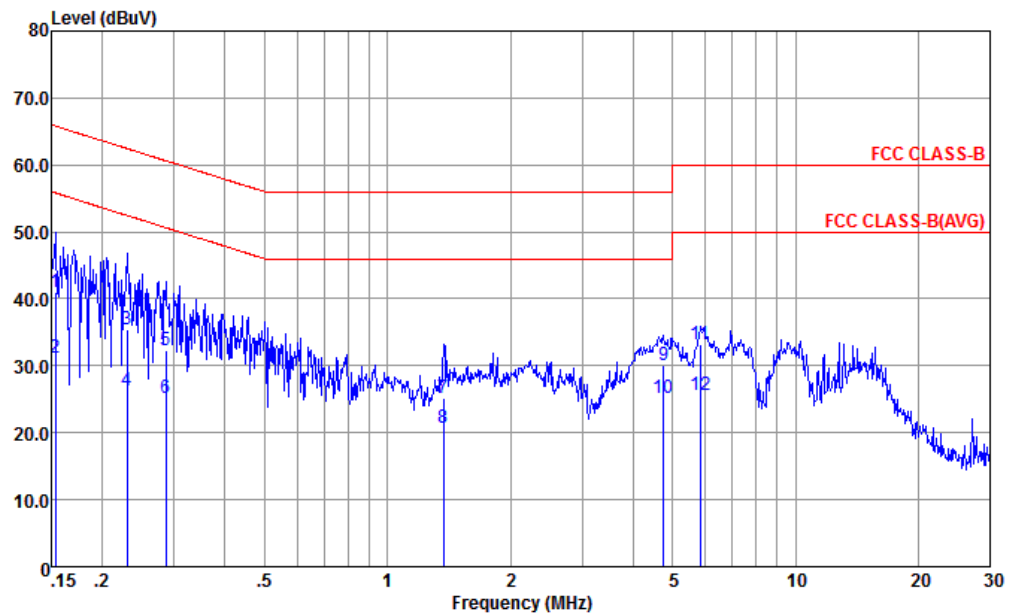


Site : CO01-KS
Condition : FCC CLASS-B LISN-N-20151024 NEUTRAL
Project : (FC) 683106
mode : Mode 4
IMEI : 862424030003981
: #1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.167	33.58	-31.54	65.12	22.91	0.30	10.37	QP
2	0.167	24.58	-30.54	55.12	13.91	0.30	10.37	Average
3	0.365	34.33	-24.28	58.61	23.79	0.32	10.22	QP
4	0.365	29.23	-19.38	48.61	18.69	0.32	10.22	Average
5	0.576	33.31	-22.69	56.00	22.80	0.33	10.18	QP
6 *	0.576	29.11	-16.89	46.00	18.60	0.33	10.18	Average
7	2.839	33.29	-22.71	56.00	22.71	0.37	10.21	QP
8	2.839	27.19	-18.81	46.00	16.61	0.37	10.21	Average
9	3.964	34.90	-21.10	56.00	24.29	0.37	10.24	QP
10	3.964	29.00	-17.00	46.00	18.39	0.37	10.24	Average
11	10.963	39.04	-20.96	60.00	28.40	0.28	10.36	QP
12	10.963	29.54	-20.46	50.00	18.90	0.28	10.36	Average



Test Mode :	Mode 6	Temperature :	22~24℃
Test Engineer :	Morris Li	Relative Humidity :	52~54%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 12 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1		

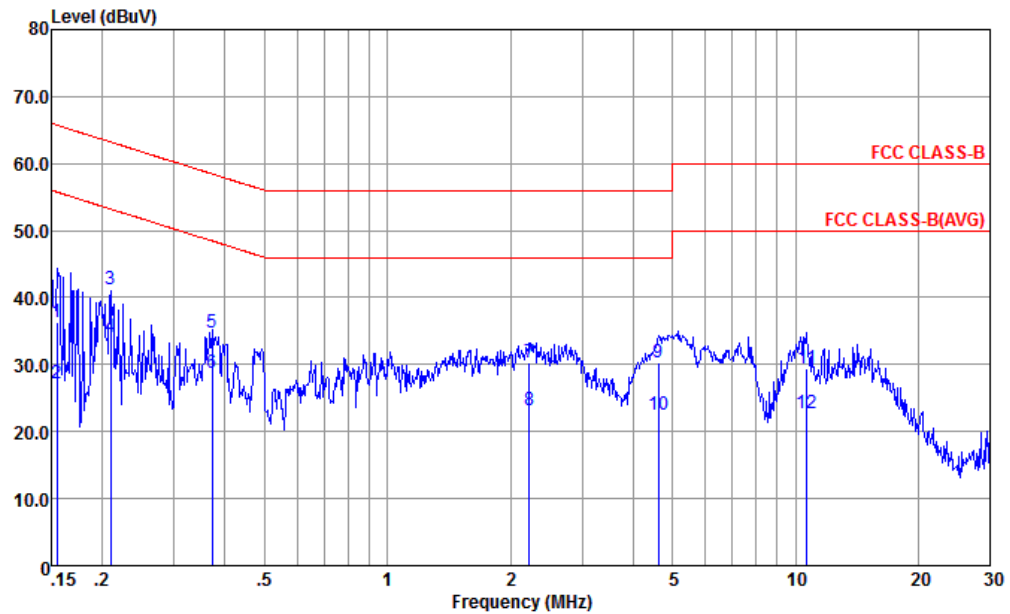


Site : CO01-KS
 Condition : FCC CLASS-B LISN-L-20151024 LINE
 Project : (FC) 683106
 mode : Mode 6
 IMEI : 862424030003981
 : #1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.153	41.10	-24.72	65.82	30.20	0.51	10.39	QP
2	0.153	31.30	-24.52	55.82	20.40	0.51	10.39	Average
3	0.230	35.33	-27.11	62.44	24.80	0.22	10.31	QP
4	0.230	26.23	-26.21	52.44	15.70	0.22	10.31	Average
5	0.286	32.39	-28.24	60.63	21.91	0.22	10.26	QP
6	0.286	25.09	-25.54	50.63	14.61	0.22	10.26	Average
7	1.374	25.21	-30.79	56.00	14.80	0.22	10.19	QP
8	1.374	20.81	-25.19	46.00	10.40	0.22	10.19	Average
9	4.746	30.13	-25.87	56.00	19.70	0.19	10.24	QP
10 *	4.746	25.13	-20.87	46.00	14.70	0.19	10.24	Average
11	5.836	33.26	-26.74	60.00	22.79	0.21	10.26	QP
12	5.836	25.66	-24.34	50.00	15.19	0.21	10.26	Average



Test Mode :	Mode 6	Temperature :	22~24℃
Test Engineer :	Morris Li	Relative Humidity :	52~54%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 12 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1		



Site : CO01-KS
 Condition : FCC CLASS-B LISN-N-20151024 NEUTRAL
 Project : (FC) 683106
 mode : Mode 6
 IMEI : 862424030003981
 : #1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.155	36.39	-29.35	65.74	25.70	0.30	10.39	QP
2	0.155	27.19	-28.55	55.74	16.50	0.30	10.39	Average
3	0.209	41.23	-22.00	63.23	30.60	0.31	10.32	QP
4 *	0.209	34.13	-19.10	53.23	23.50	0.31	10.32	Average
5	0.371	34.83	-23.64	58.47	24.30	0.32	10.21	QP
6	0.371	28.73	-19.74	48.47	18.20	0.32	10.21	Average
7	2.225	30.27	-25.73	56.00	19.69	0.38	10.20	QP
8	2.225	23.07	-22.93	46.00	12.49	0.38	10.20	Average
9	4.622	30.40	-25.60	56.00	19.80	0.36	10.24	QP
10	4.622	22.40	-23.60	46.00	11.80	0.36	10.24	Average
11	10.676	29.43	-30.57	60.00	18.79	0.28	10.36	QP
12	10.676	22.83	-27.17	50.00	12.19	0.28	10.36	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

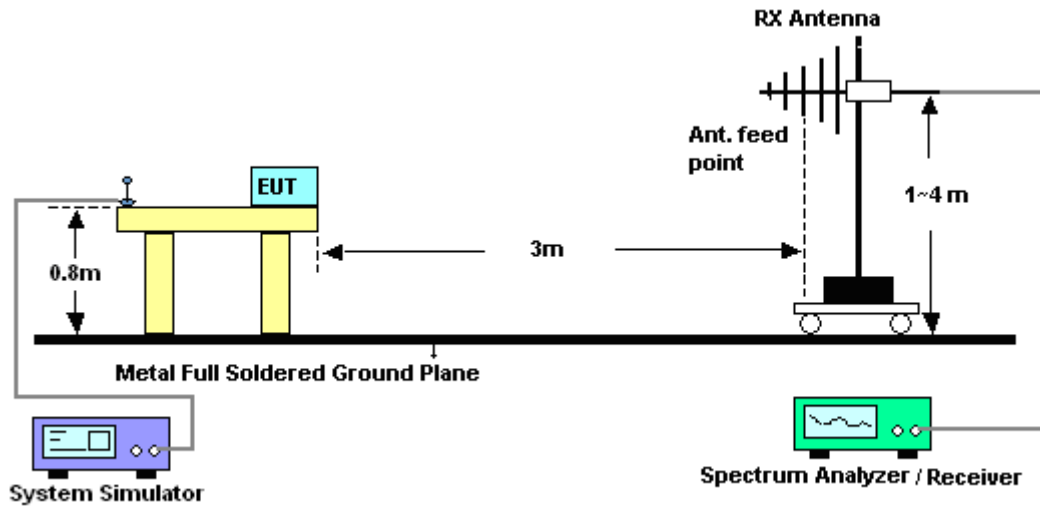
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

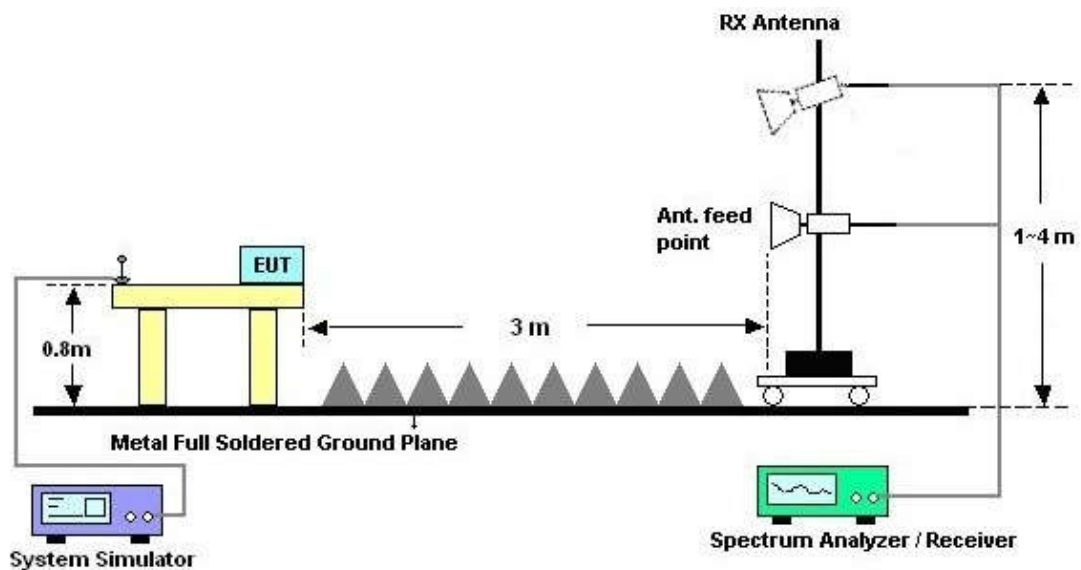
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

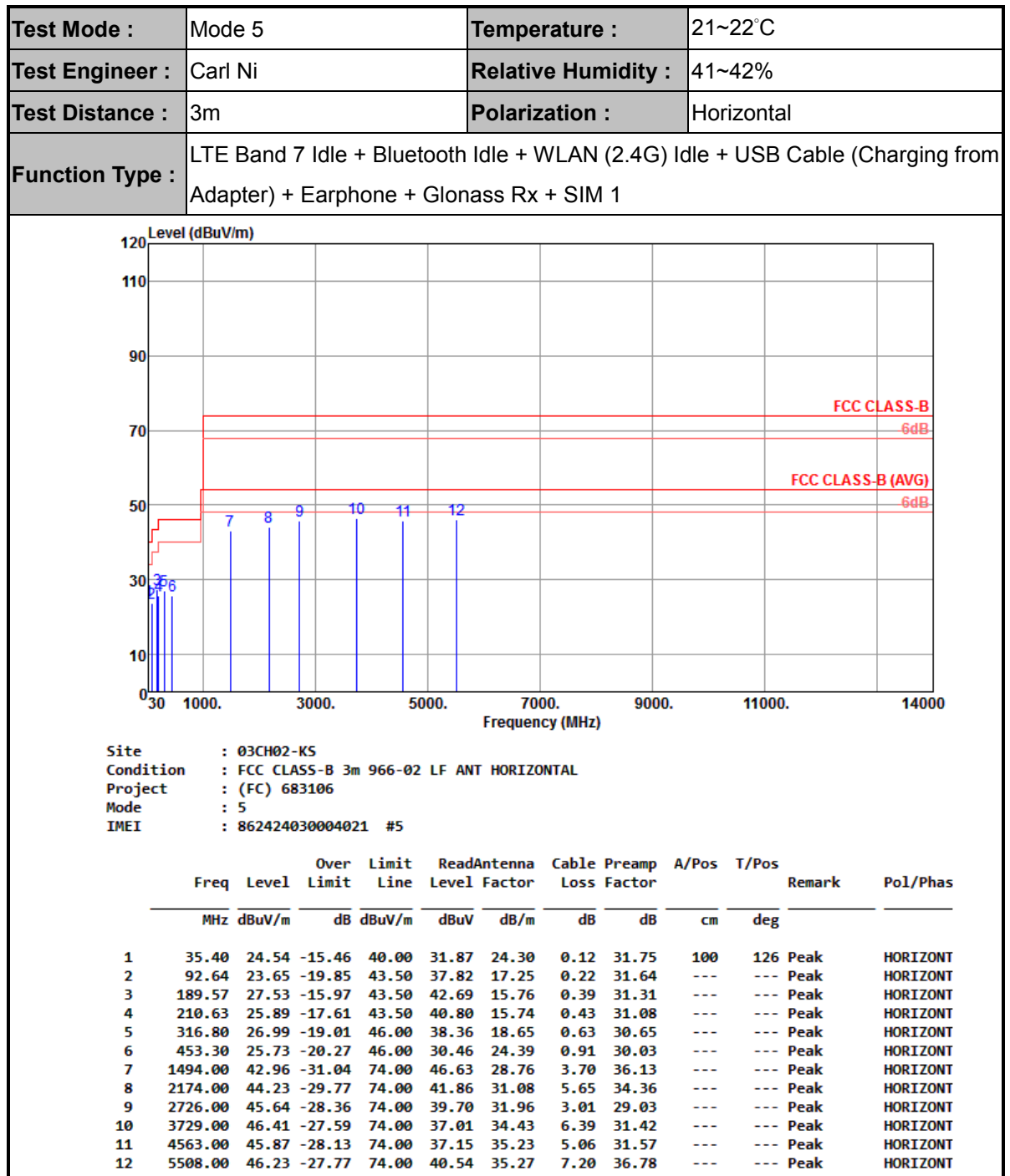


For radiated emissions above 1GHz



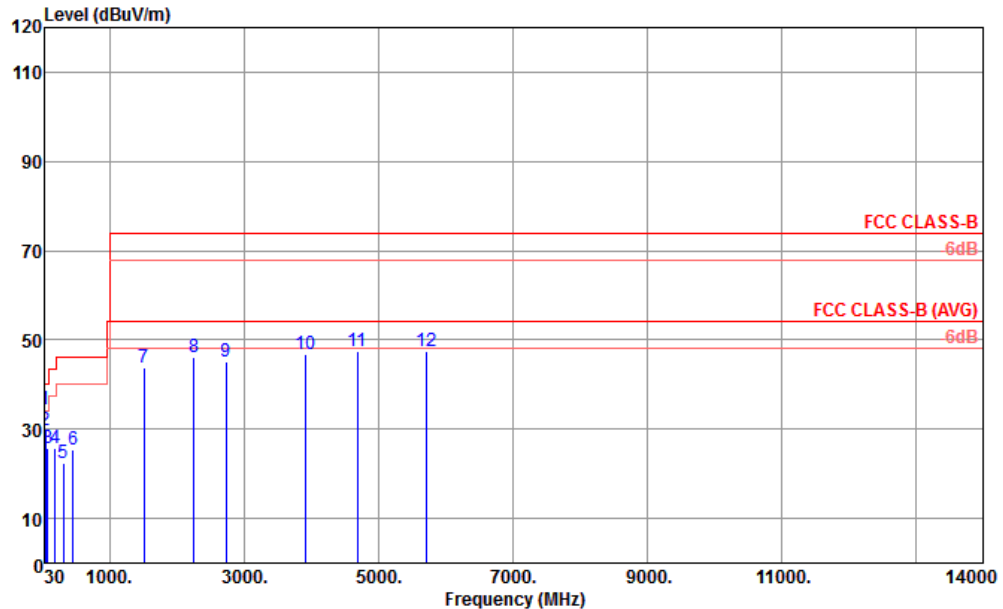


3.2.5. Test Result of Radiated Emission





Test Mode :	Mode 5	Temperature :	21~22°C
Test Engineer :	Carl Ni	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Function Type :	LTE Band 7 Idle + Bluetooth Idle + WLAN (2.4G) Idle + USB Cable (Charging from Adapter) + Earphone + Glonass Rx + SIM 1		

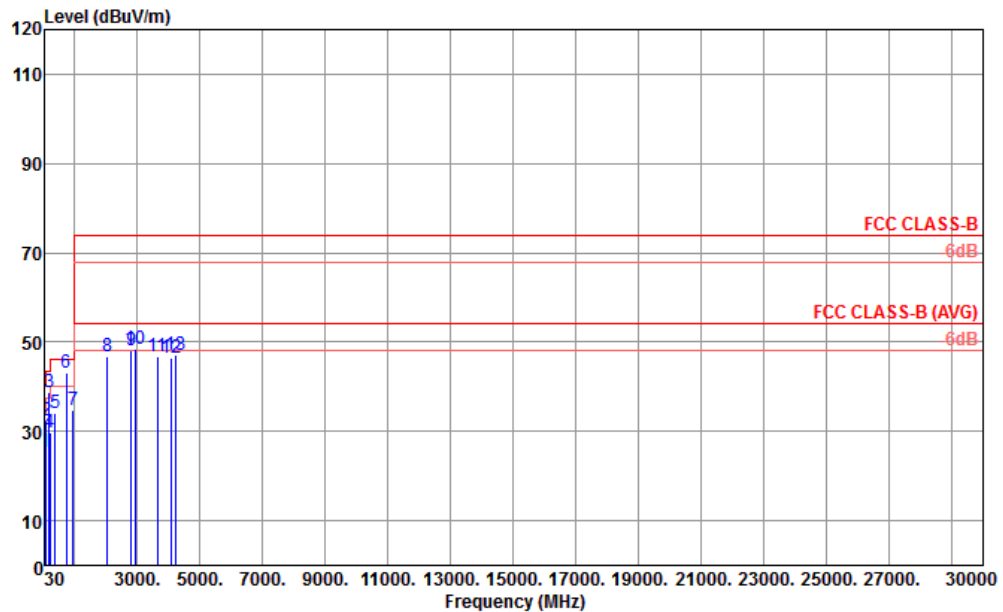


Site : 03CH02-KS
 Condition : FCC CLASS-B 3m 966-02 LF ANT VERTICAL
 Project : (FC) 683106
 Mode : 5
 IMEI : 862424030004021 #5

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	Pol/Phas
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	35.67	34.47	-5.53	40.00	41.80	24.30	0.12	31.75	100	0 QP	VERTICAL
2	47.55	29.79	-10.21	40.00	44.10	17.35	0.14	31.80	---	--- Peak	VERTICAL
3	81.03	25.86	-14.14	40.00	42.03	15.33	0.20	31.70	---	--- Peak	VERTICAL
4	193.89	25.66	-17.84	43.50	40.84	15.58	0.40	31.16	---	--- Peak	VERTICAL
5	316.10	22.49	-23.51	46.00	33.86	18.65	0.63	30.65	---	--- Peak	VERTICAL
6	455.40	25.41	-20.59	46.00	30.22	24.32	0.91	30.04	---	--- Peak	VERTICAL
7	1508.00	43.80	-30.20	74.00	47.38	28.79	3.79	36.16	---	--- Peak	VERTICAL
8	2252.00	46.24	-27.76	74.00	43.27	31.25	5.75	34.03	---	--- Peak	VERTICAL
9	2734.00	45.15	-28.85	74.00	39.21	31.96	3.01	29.03	---	--- Peak	VERTICAL
10	3921.00	46.95	-27.05	74.00	37.51	34.74	6.36	31.66	---	--- Peak	VERTICAL
11	4683.00	47.36	-26.64	74.00	38.82	35.12	5.65	32.23	---	--- Peak	VERTICAL
12	5718.00	47.52	-26.48	74.00	41.57	35.28	7.23	36.56	---	--- Peak	VERTICAL



Test Mode :	Mode 6	Temperature :	21~22°C
Test Engineer :	Carl Ni	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	LTE Band 12 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1		
Remark :	#6 is system simulator signal which can be ignored.		

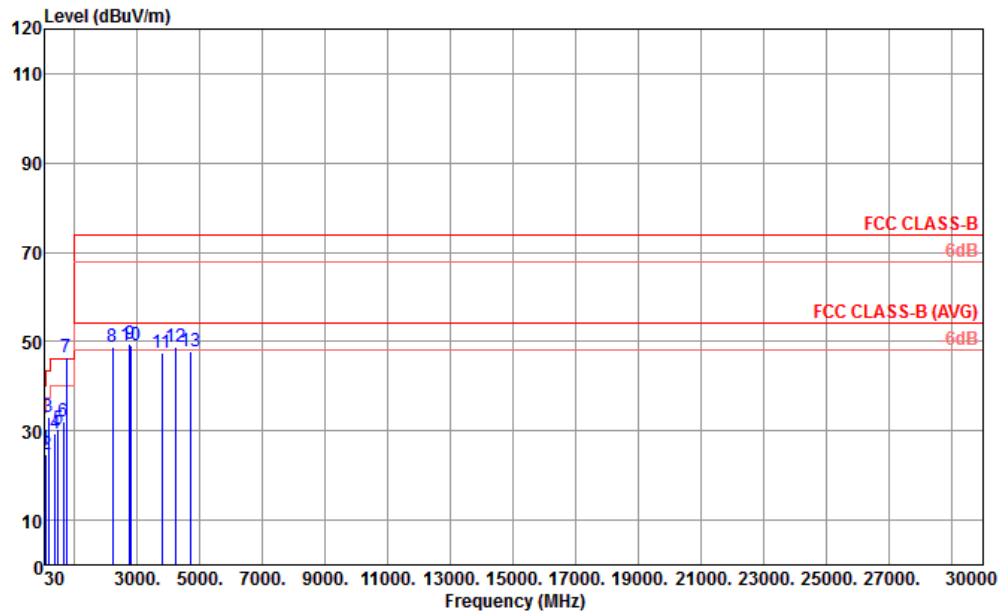


Site : 03CH02-KS
Condition : FCC CLASS-B 3m 966-02 LF ANT HORIZONTAL
Project : (FC) 683106
Mode : 6
IMEI : 862424030004021 #5

	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	42.61	25.53	-14.47	40.00	36.57	20.70	0.13	31.87	---	---	Peak HORIZONTAL
2	92.08	32.48	-11.02	43.50	46.65	17.25	0.22	31.64	---	---	Peak HORIZONTAL
3	174.53	38.91	-4.59	43.50	53.62	16.50	0.37	31.58	100	200	Peak HORIZONTAL
4	211.39	29.85	-13.65	43.50	44.71	15.78	0.43	31.07	---	---	Peak HORIZONTAL
5	368.53	34.19	-11.81	46.00	41.81	22.13	0.80	30.55	---	---	Peak HORIZONTAL
6	737.13	43.03			43.44	26.35	1.31	28.07	---	---	Peak HORIZONTAL
7	949.56	34.66	-11.34	46.00	31.05	28.39	1.71	26.49	---	---	Peak HORIZONTAL
8	2034.00	46.66	-27.34	74.00	45.90	30.62	4.76	34.62	---	---	Peak HORIZONTAL
9	2798.00	48.22	-25.78	74.00	41.03	32.10	2.71	27.62	---	---	Peak HORIZONTAL
10	2954.00	48.39	-25.61	74.00	41.49	32.47	3.04	28.61	---	---	Peak HORIZONTAL
11	3642.00	46.73	-27.27	74.00	37.70	34.03	6.19	31.19	---	---	Peak HORIZONTAL
12	4095.00	46.53	-27.47	74.00	36.97	34.98	6.39	31.81	---	---	Peak HORIZONTAL
13	4212.00	47.04	-26.96	74.00	37.38	35.12	6.38	31.84	---	---	Peak HORIZONTAL



Test Mode :	Mode 6	Temperature :	21~22°C
Test Engineer :	Carl Ni	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Function Type :	LTE Band 12 Idle + Bluetooth Idle + WLAN (5G) Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx + SIM 1		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH02-KS
Condition : FCC CLASS-B 3m 966-02 LF ANT VERTICAL
Project : (FC) 683106
Mode : 6
IMEI : 862424030004021 #5

	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	42.61	26.10	-13.90	40.00	37.14	20.70	0.13	31.87	---	---	Peak	VERTICAL
2	92.08	24.61	-18.89	43.50	38.78	17.25	0.22	31.64	---	---	Peak	VERTICAL
3	165.80	33.03	-10.47	43.50	47.21	16.91	0.35	31.44	100	0	Peak	VERTICAL
4	368.53	29.38	-16.62	46.00	37.00	22.13	0.80	30.55	---	---	Peak	VERTICAL
5	480.08	30.38	-15.62	46.00	35.79	23.37	0.92	29.70	---	---	Peak	VERTICAL
6	644.98	32.17	-13.83	46.00	34.74	25.10	1.01	28.68	---	---	Peak	VERTICAL
7 *	736.16	46.41			46.81	26.36	1.31	28.07	---	---	Peak	VERTICAL
8	2198.00	48.67	-25.33	74.00	46.04	31.14	5.80	34.31	---	---	Peak	VERTICAL
9	2748.00	49.44	-24.56	74.00	43.10	31.99	2.91	28.56	---	---	Peak	VERTICAL
10	2790.00	49.23	-24.77	74.00	42.55	32.06	2.71	28.09	---	---	Peak	VERTICAL
11	3792.00	47.32	-26.68	74.00	37.77	34.55	6.51	31.51	---	---	Peak	VERTICAL
12	4227.00	48.91	-25.09	74.00	39.17	35.13	6.38	31.77	---	---	Peak	VERTICAL
13	4722.00	47.75	-26.25	74.00	39.41	35.08	5.83	32.57	---	---	Peak	VERTICAL



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 29, 2016	Oct. 02, 2016	Apr. 28, 2017	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 24, 2015	Oct. 02, 2016	Oct. 23, 2016	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 24, 2015	Oct. 02, 2016	Oct. 23, 2016	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V, 45Hz~1000Hz	Oct. 24, 2015	Oct. 02, 2016	Oct. 23, 2016	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Aug. 09, 2016	Sep. 23, 2016	Aug. 08, 2017	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz~44GHz; Max 30dB	Apr. 22, 2016	Sep. 23, 2016	Apr. 21, 2017	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz~2GHz	Apr. 16, 2016	Sep. 23, 2016	Apr. 15, 2017	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 07, 2015	Sep. 23, 2016	Nov. 06, 2016	Radiation (03CH02-KS)
SHF-EHF Horn	com-power	AH-840	101070	18GHz~40GHz	Oct. 10, 2015	Sep. 23, 2016	Oct. 09, 2016	Radiation (03CH02-KS)
Amplifier	com-power	PA-103A	161069	1kHz~1000MHz / 32 dB	Apr. 22, 2016	Sep. 23, 2016	Apr. 21, 2017	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1~26.5GHz Gain 30dB	Oct. 24, 2015	Sep. 23, 2016	Oct. 23, 2016	Radiation (03CH02-KS)
Amplifier	MITEQ	TTA1840-35-H G	1887435	18GHz~40GHz	Jan. 20, 2016	Sep. 23, 2016	Jan. 19, 2017	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	61601000247 3	N/A	NCR	Sep. 23, 2016	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Sep. 23, 2016	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Sep. 23, 2016	NCR	Radiation (03CH02-KS)

NCR: No Calibration Required

5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.3dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

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

Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$)	4.5dB
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Uncertainty of Radiated Emission Measurement (18GHz~40GHz)

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