



FCC Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : LTE/CDMA Multi-Mode Digital
Mobile Phone
BRAND NAME : ZTE
MODEL NAME : Z837VL
FCC ID : SRQ-Z837VL
STANDARD : FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION : Certification

The product was received on Sep. 26, 2016 and testing was completed on Nov. 03, 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.

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SPORTON INTERNATIONAL (KUNSHAN) INC.
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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.107	AC Conducted Emission	< 15.107 limits	PASS	Under limit 7.21 dB at 0.182 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 0.33 dB at 35.400 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/CDMA Multi-Mode Digital Mobile Phone
Brand Name	ZTE
Model Name	Z837VL
FCC ID	SRQ-Z837VL
EUT supports Radios application	CDMA/EV-DO/LTE/ WLAN2.4GHz 802.11b/g/n HT20/HT40 Bluetooth v3.0 + EDR/Bluetooth v4.0/4.2 LE
IMEI Code	Conduction: 990006880007199/990006880007101 Radiation: 990006880007199/990006880007101
HW Version	Z837VLHWV1.0
SW Version	Z837VLV1.0.0B02
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	CDMA2000 BC0: 824.70 MHz ~ 848.31 MHz CDMA2000 BC1: 1851.25 MHz ~ 1908.75 MHz LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 13 : 779.5 MHz ~ 784.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Rx Frequency	CDMA2000 BC0: 869.70 MHz ~ 893.31 MHz CDMA2000 BC1: 1931.25 MHz ~ 1988.75 MHz LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 13 : 748.5 MHz ~ 753.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz GPS : 1.57542 GHz Glonass: 1602 MHz + n× 0.5625MHz (n=-7,-6,-5,...0,...,6)
Antenna Type	WWAN : PIFA Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GPS/Glonass : PIFA Antenna
Type of Modulation	CDMA2000 : QPSK CDMA2000 1xEV-DO : QPSK/8PSK LTE: QPSK / 16QAM 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : $\pi/4$ -DQPSK Bluetooth (3Mbps) : 8-DPSK GPS/Glonass : BPSK



1.5. Modification of EUT

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

1.6. Test Location

Test Site	SPORTON INTERNATIONAL (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

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).

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



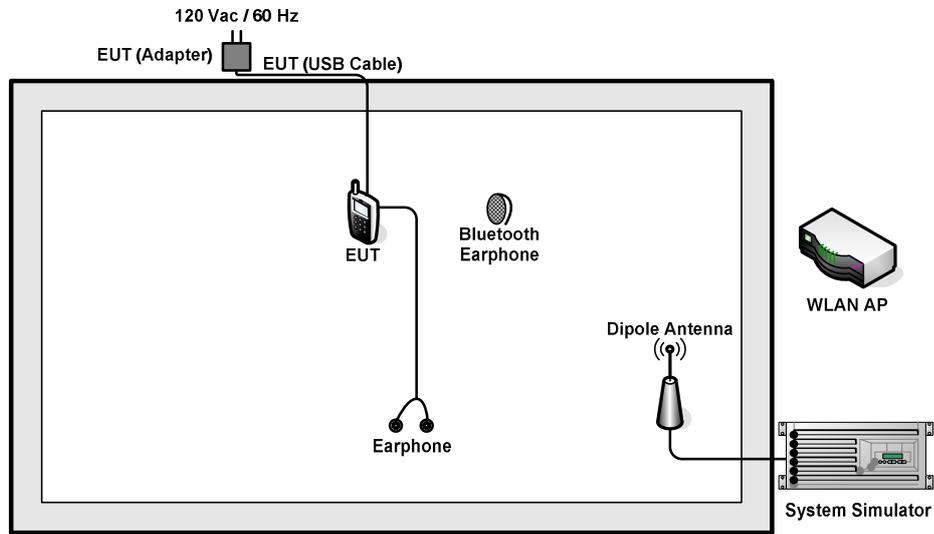
Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1/2	<p>Mode 1: CDMA2000 BC0 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 1) + Earphone + Battery 1 + Camera(Rear) <Fig.1></p> <p>Mode 2: CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery 2 + Camera(Front) <Fig.1></p> <p>Mode 3: CDMA2000 BC0 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 3) + Earphone + Battery 2 + MPEG4 <Fig.1></p> <p>Mode 4: CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery 2 + Glonass Rx<Fig.2></p> <p>Mode 5: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + Battery 2 + GPS Rx <Fig.3></p>
Radiated Emissions < 1GHz	1/2	<p>Mode 1: CDMA2000 BC0 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 1) + Earphone + Battery 1 + Camera(Rear) <Fig.1></p> <p>Mode 2: CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery 2 + Camera(Front) <Fig.1></p> <p>Mode 3: CDMA2000 BC0 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 3) + Earphone + Battery 2 + MPEG4 <Fig.1></p> <p>Mode 4: CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery 2 + Glonass Rx <Fig.2></p> <p>Mode 5: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + Battery 2 + GPS Rx<Fig.3></p>
Radiated Emissions ≥ 1GHz	1/2	<p>Mode 1: CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery 2 + Camera(Front) <Fig.1></p> <p>Mode 2: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + Battery 2 + GPS Rx <Fig.3></p>



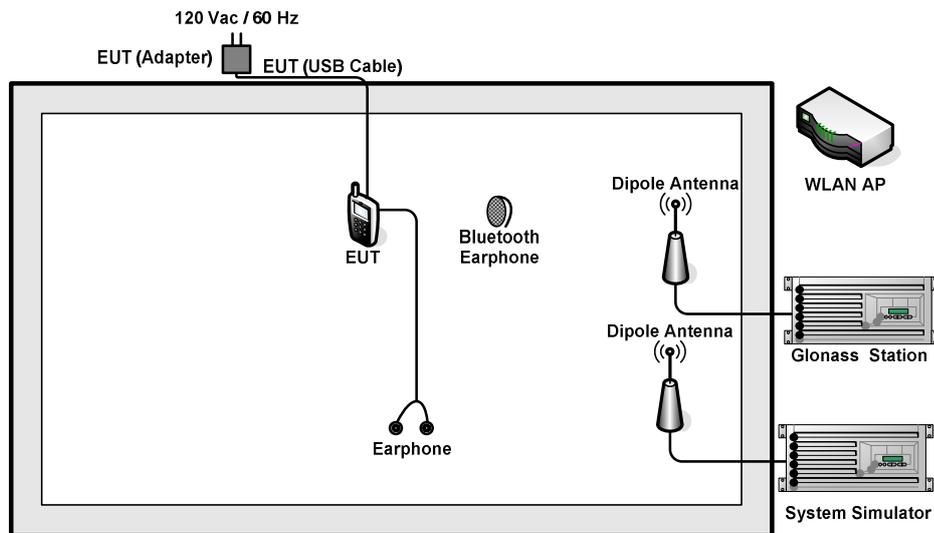
Remark:

1. The worst case of AC is mode 4; and the USB Link mode of AC is mode 5, the test data of these modes were reported.
2. The worst case of RE < 1G is mode 2; and the USB Link mode of RE is mode 5, the test data of these modes were reported.
3. Data Link with Notebook means data application transferred mode between EUT and Notebook.

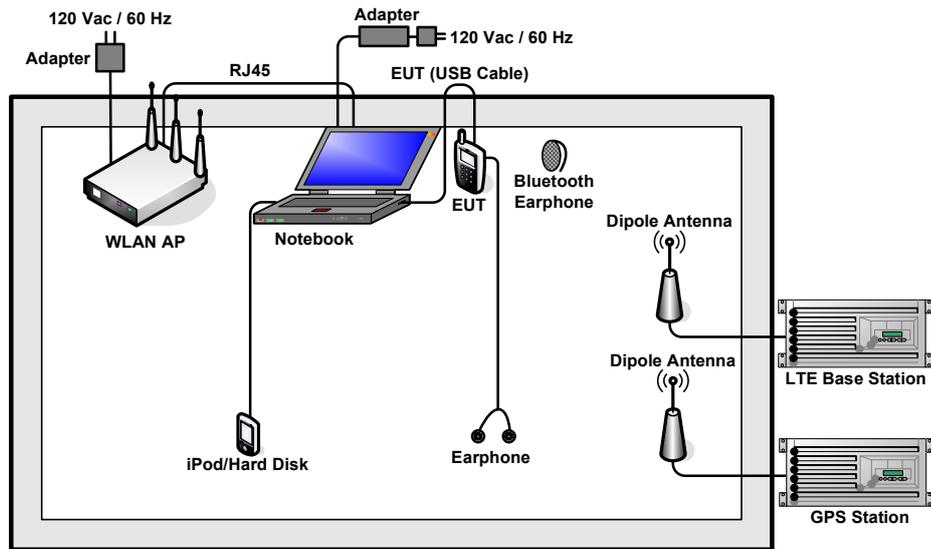
2.2. Connection Diagram of Test System



<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	Anritsu	MT8820C	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	LINKSYS	WRT600N	Q87-WRT600NV11	N/A	Unshielded, 2.7 m
6.	WLAN AP	D-link	DIR855	KA2DIR855A2	N/A	Unshielded, 1.8 m
7.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
8.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
9.	Notebook	DELL	Latitude3440	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
10.	SD Card	Kingston	4GB	N/A	N/A	N/A
11.	SD Card	SanDisk	Uitra	N/A	N/A	N/A
12.	iPod	Apple	A1199	FCC DoC	Shielded, 1.2 m	N/A
13.	Hard Disk	Lenovo	F310	FCC DoC	Shielded, 0.5 m	N/A
14.	Earphone	Lenovo	SH100	N/A	Unshielded, 1.2m	N/A



2.4. EUT Operation Test Setup

The EUT was in CDMA2000 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.

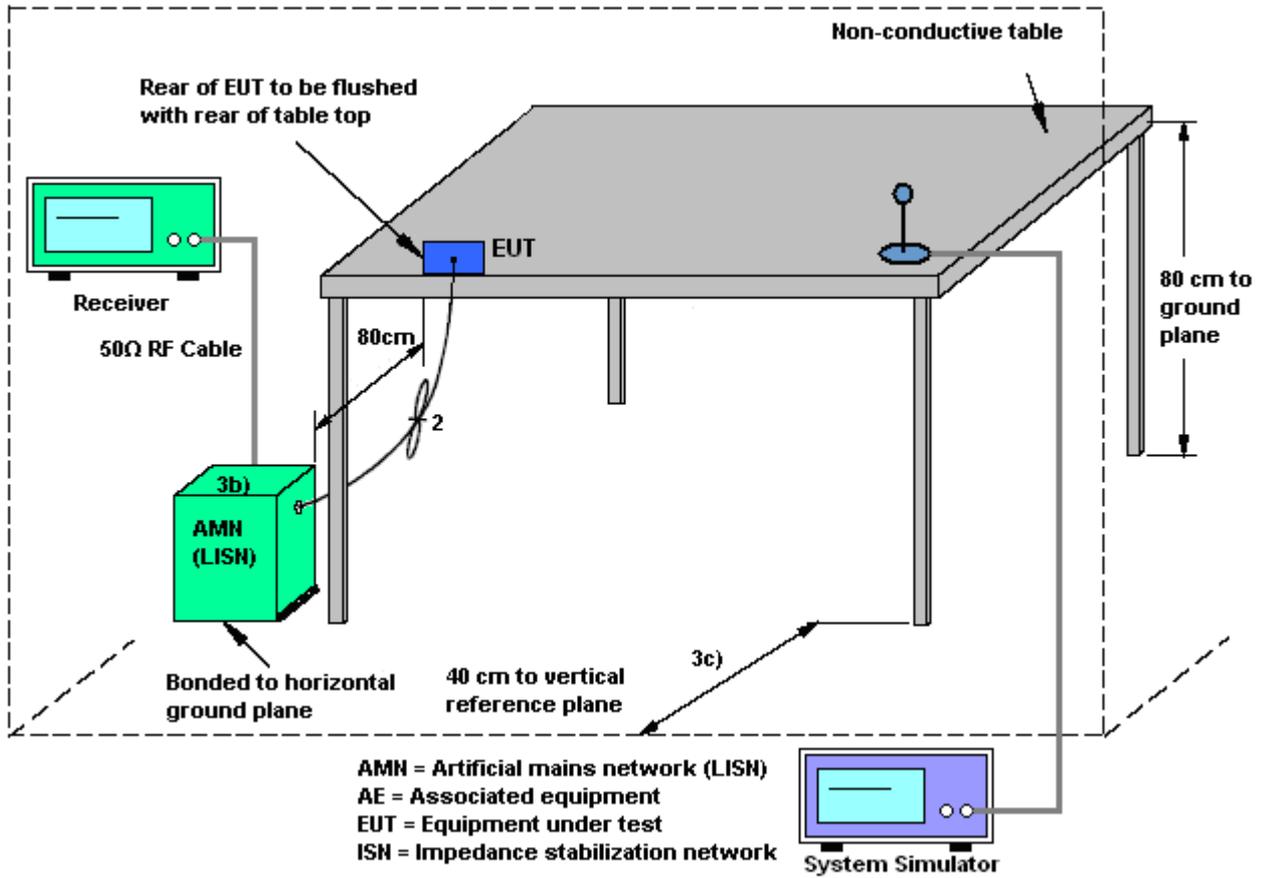
3.1.2 Measuring Instruments

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.

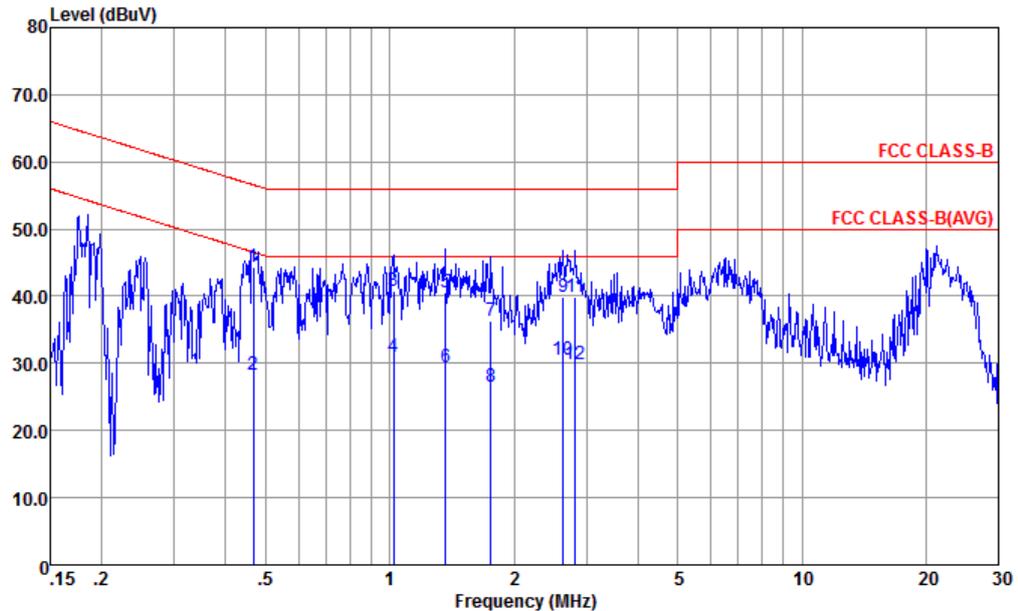
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 4	Temperature :	20~22°C
Test Engineer :	Morris Li	Relative Humidity :	48~50%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery 2 + Glonass Rx		

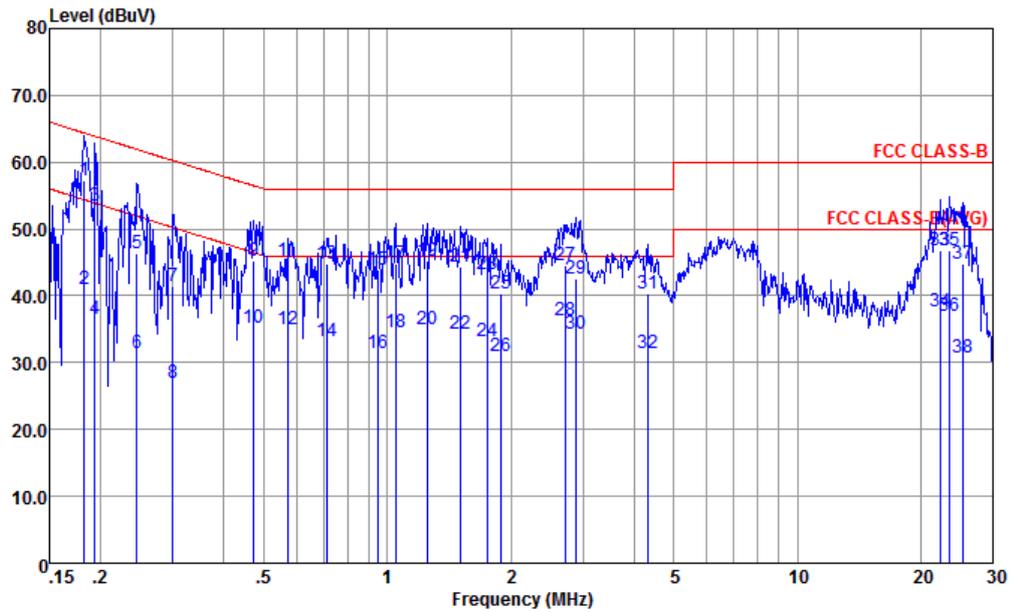


Site : CO01-KS
 Condition : FCC CLASS-B LISN-L-20151024 LINE
 Project : (FC) 692603
 mode : Mode 4
 IMEI : 990006880007199/01

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.466	44.32	-12.26	56.58	33.90	0.23	10.19	QP
2	0.466	28.22	-18.36	46.58	17.80	0.23	10.19	Average
3	1.021	40.84	-15.16	56.00	30.40	0.25	10.19	QP
4	1.021	31.04	-14.96	46.00	20.60	0.25	10.19	Average
5	1.367	40.61	-15.39	56.00	30.20	0.22	10.19	QP
6	1.367	29.31	-16.69	46.00	18.90	0.22	10.19	Average
7	1.762	36.28	-19.72	56.00	25.90	0.19	10.19	QP
8	1.762	26.58	-19.42	46.00	16.20	0.19	10.19	Average
9	2.636	39.89	-16.11	56.00	29.50	0.18	10.21	QP
10	2.636	30.49	-15.51	46.00	20.10	0.18	10.21	Average
11	2.824	39.90	-16.10	56.00	29.51	0.18	10.21	QP
12	2.824	29.80	-16.20	46.00	19.41	0.18	10.21	Average



Test Mode :	Mode 4	Temperature :	20~22°C
Test Engineer :	Morris Li	Relative Humidity :	48~50%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery 2 + Glonass Rx		

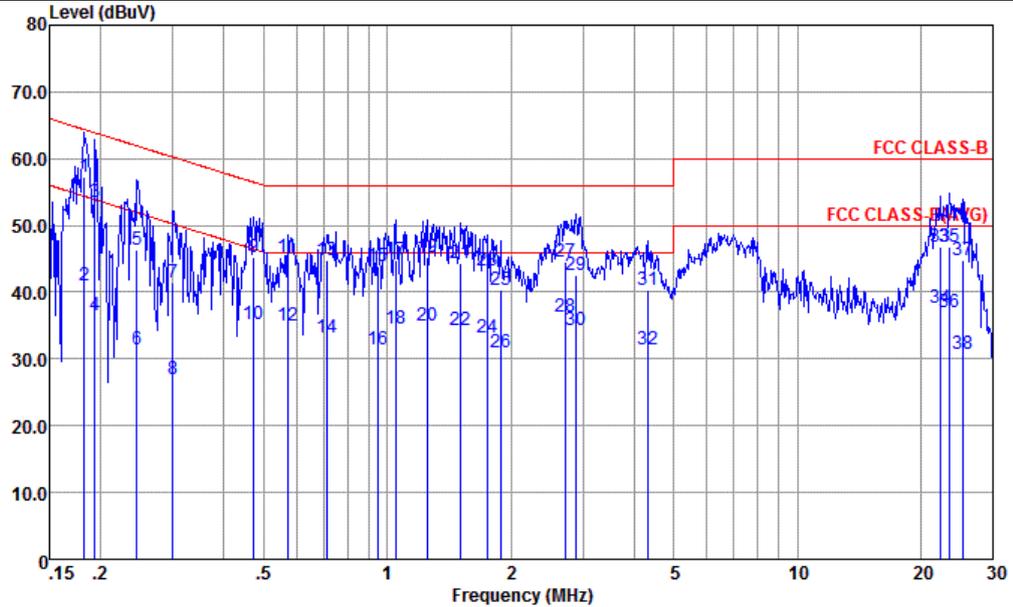


Site : CO01-KS
 Condition : FCC CLASS-B LISN-N-20151024 NEUTRAL
 Project : (FC) 692603
 mode : Mode 4
 IMEI : 990006880007199/01

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 *	0.182	57.16	-7.21	64.37	46.50	0.31	10.35	QP
2	0.182	41.06	-13.31	54.37	30.40	0.31	10.35	Average
3	0.193	53.55	-10.34	63.89	42.90	0.31	10.34	QP
4	0.193	36.45	-17.44	53.89	25.80	0.31	10.34	Average
5	0.246	46.31	-15.60	61.91	35.71	0.31	10.29	QP
6	0.246	31.41	-20.50	51.91	20.81	0.31	10.29	Average
7	0.300	41.37	-18.87	60.24	30.81	0.31	10.25	QP
8	0.300	26.97	-23.27	50.24	16.41	0.31	10.25	Average
9	0.474	45.21	-11.24	56.45	34.70	0.32	10.19	QP
10	0.474	35.31	-11.14	46.45	24.80	0.32	10.19	Average
11	0.570	45.21	-10.79	56.00	34.70	0.33	10.18	QP
12	0.570	34.91	-11.09	46.00	24.40	0.33	10.18	Average
13	0.712	44.72	-11.28	56.00	34.20	0.34	10.18	QP
14	0.712	33.22	-12.78	46.00	22.70	0.34	10.18	Average
15	0.948	43.95	-12.05	56.00	33.39	0.37	10.19	QP
16	0.948	31.35	-14.65	46.00	20.79	0.37	10.19	Average



Test Mode :	Mode 4	Temperature :	20~22°C
Test Engineer :	Morris Li	Relative Humidity :	48~50%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery 2 + Glonass Rx		

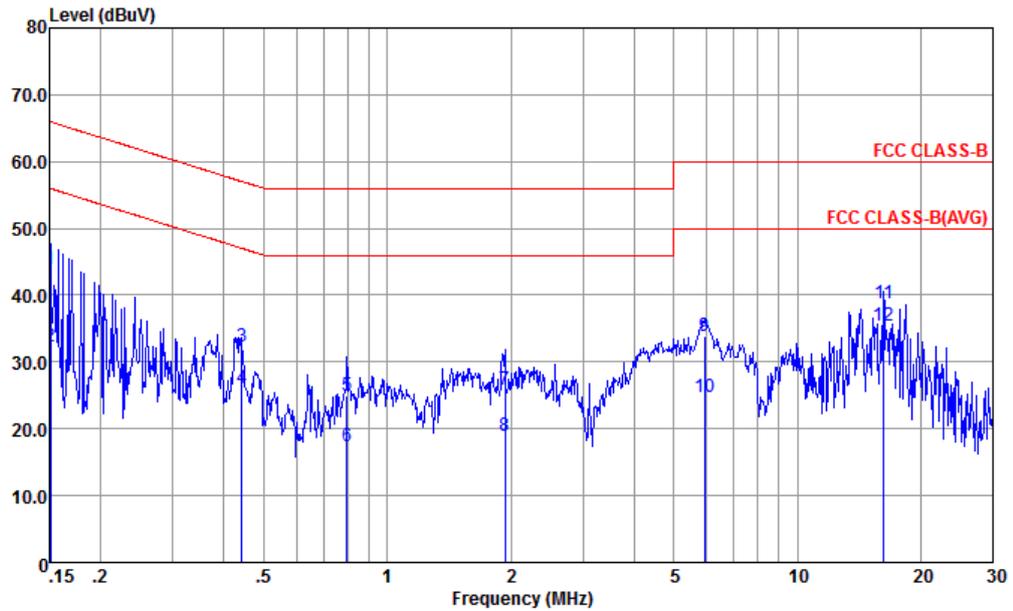


Site : CO01-KS
 Condition : FCC CLASS-B LISN-N-20151024 NEUTRAL
 Project : (FC) 692603
 mode : Mode 4
 IMEI : 990006880007199/01

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
17	1.049	44.76	-11.24	56.00	34.20	0.37	10.19	QP
18	1.049	34.46	-11.54	46.00	23.90	0.37	10.19	Average
19	1.249	45.26	-10.74	56.00	34.70	0.37	10.19	QP
20	1.249	35.06	-10.94	46.00	24.50	0.37	10.19	Average
21	1.511	44.26	-11.74	56.00	33.69	0.38	10.19	QP
22	1.511	34.36	-11.64	46.00	23.79	0.38	10.19	Average
23	1.753	43.17	-12.83	56.00	32.60	0.38	10.19	QP
24	1.753	33.27	-12.73	46.00	22.70	0.38	10.19	Average
25	1.888	40.37	-15.63	56.00	29.80	0.38	10.19	QP
26	1.888	31.07	-14.93	46.00	20.50	0.38	10.19	Average
27	2.721	44.48	-11.52	56.00	33.90	0.37	10.21	QP
28	2.721	36.28	-9.72	46.00	25.70	0.37	10.21	Average
29	2.884	42.49	-13.51	56.00	31.91	0.37	10.21	QP
30	2.884	34.39	-11.61	46.00	23.81	0.37	10.21	Average
31	4.315	40.40	-15.60	56.00	29.80	0.36	10.24	QP
32	4.315	31.40	-14.60	46.00	20.80	0.36	10.24	Average
33	22.298	46.77	-13.23	60.00	35.70	0.25	10.82	QP
34	22.298	37.57	-12.43	50.00	26.50	0.25	10.82	Average
35	23.511	46.83	-13.17	60.00	35.81	0.24	10.78	QP
36	23.511	36.93	-13.07	50.00	25.91	0.24	10.78	Average
37	25.321	44.79	-15.21	60.00	33.80	0.24	10.75	QP
38	25.321	30.69	-19.31	50.00	19.70	0.24	10.75	Average



Test Mode :	Mode 5	Temperature :	20~22°C
Test Engineer :	Morris Li	Relative Humidity :	48~50%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + Battery 2 + GPS Rx		

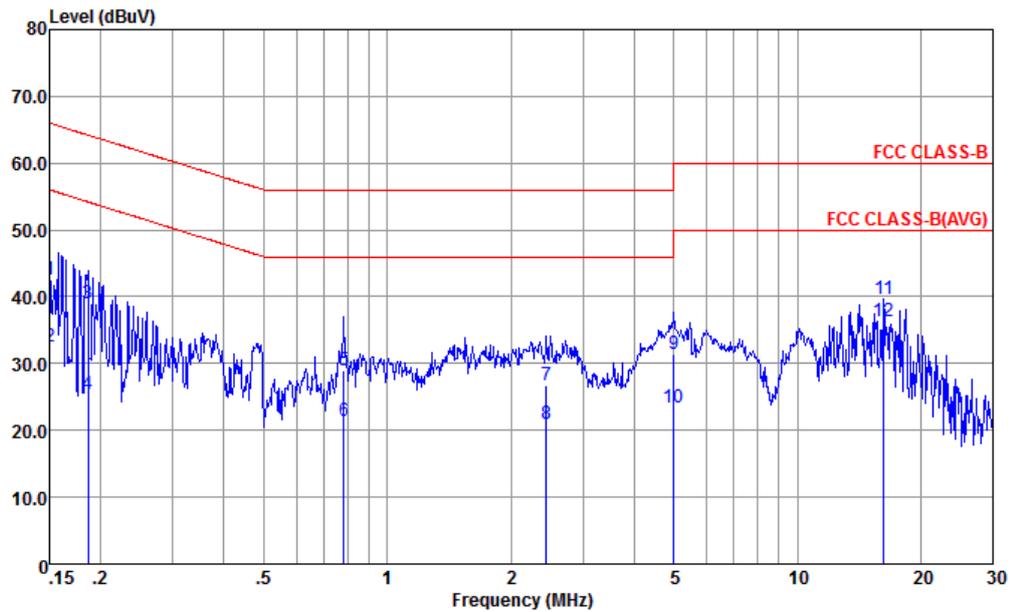


Site : CO01-KS
 Condition : FCC CLASS-B LISN-L-20151024 LINE
 Project : (FC) 692603
 mode : Mode 5
 IMEI : 990006880007199/01

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.151	43.82	-22.14	65.96	32.90	0.53	10.39	QP
2	0.151	32.32	-23.64	55.96	21.40	0.53	10.39	Average
3	0.442	32.22	-24.80	57.02	21.80	0.23	10.19	QP
4	0.442	26.12	-20.90	47.02	15.70	0.23	10.19	Average
5	0.796	24.92	-31.08	56.00	14.51	0.24	10.17	QP
6	0.796	17.32	-28.68	46.00	6.91	0.24	10.17	Average
7	1.939	25.77	-30.23	56.00	15.40	0.18	10.19	QP
8	1.939	18.87	-27.13	46.00	8.50	0.18	10.19	Average
9	5.929	33.97	-26.03	60.00	23.50	0.21	10.26	QP
10	5.929	24.67	-25.33	50.00	14.20	0.21	10.26	Average
11	16.226	38.74	-21.26	60.00	27.90	0.26	10.58	QP
12 *	16.226	35.44	-14.56	50.00	24.60	0.26	10.58	Average



Test Mode :	Mode 5	Temperature :	20~22°C
Test Engineer :	Morris Li	Relative Humidity :	48~50%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + Battery 2 + GPS Rx		



Site : CO01-KS
 Condition : FCC CLASS-B LISN-N-20151024 NEUTRAL
 Project : (FC) 692603
 mode : Mode 5
 IMEI : 990006880007199/01

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.150	42.49	-23.51	66.00	31.80	0.30	10.39	QP
2	0.150	32.49	-23.51	56.00	21.80	0.30	10.39	Average
3	0.186	39.06	-25.14	64.20	28.40	0.31	10.35	QP
4	0.186	25.36	-28.84	54.20	14.70	0.31	10.35	Average
5	0.783	29.02	-26.98	56.00	18.50	0.35	10.17	QP
6	0.783	21.42	-24.58	46.00	10.90	0.35	10.17	Average
7	2.448	26.78	-29.22	56.00	16.20	0.38	10.20	QP
8	2.448	20.98	-25.02	46.00	10.40	0.38	10.20	Average
9	5.005	31.50	-28.50	60.00	20.90	0.36	10.24	QP
10	5.005	23.30	-26.70	50.00	12.70	0.36	10.24	Average
11	16.226	39.74	-20.26	60.00	28.90	0.26	10.58	QP
12 *	16.226	36.34	-13.66	50.00	25.50	0.26	10.58	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

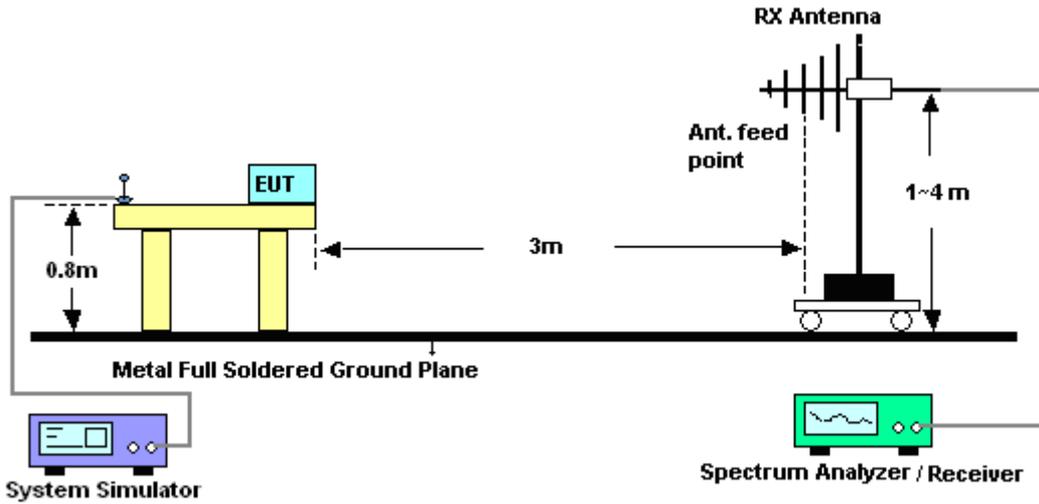
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

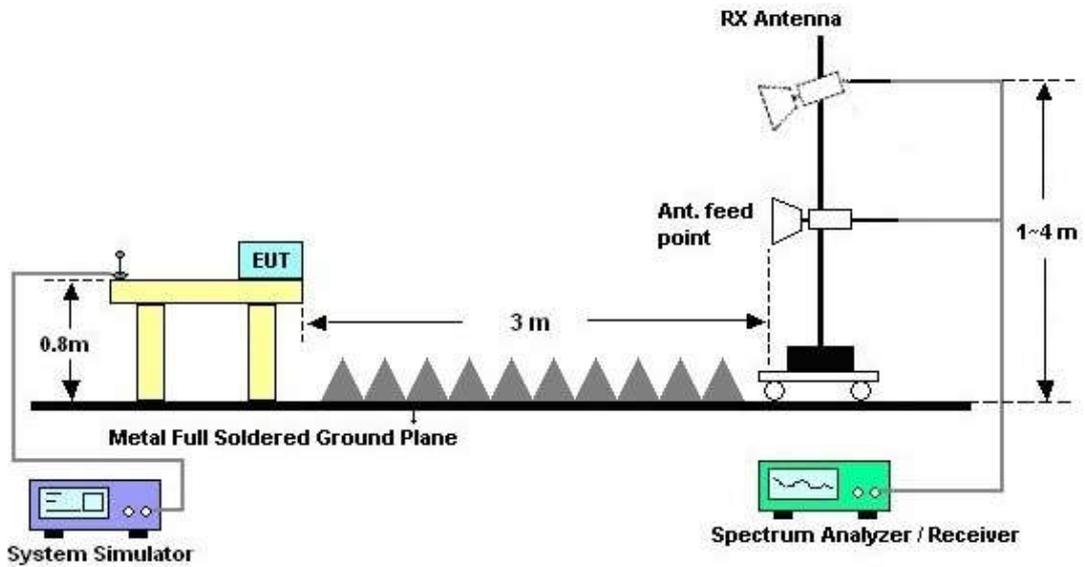
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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



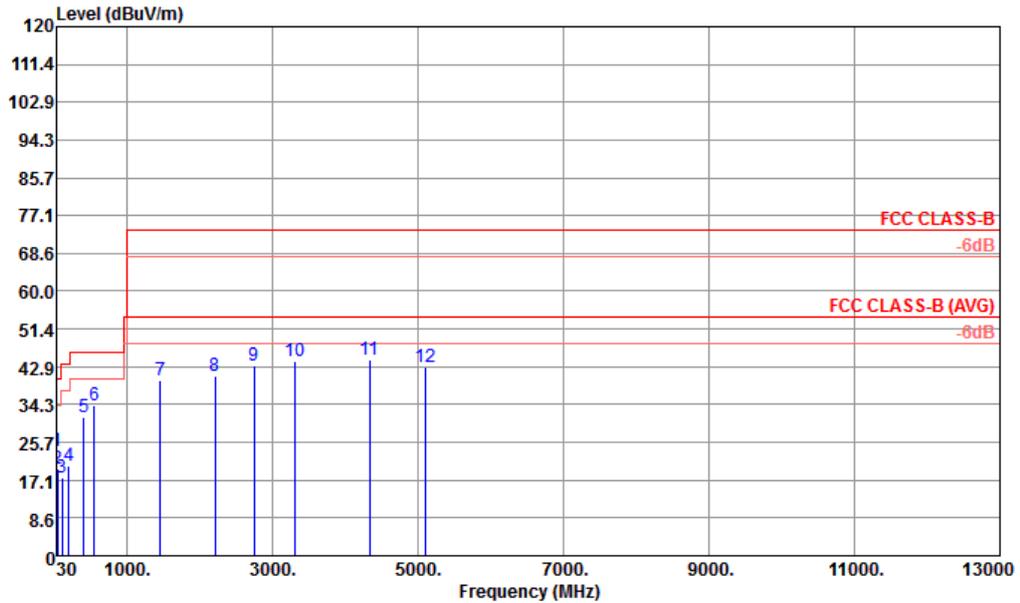
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 2	Temperature :	21~22°C
Test Engineer :	Carl Ni	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery 2 + Camera(Front)		

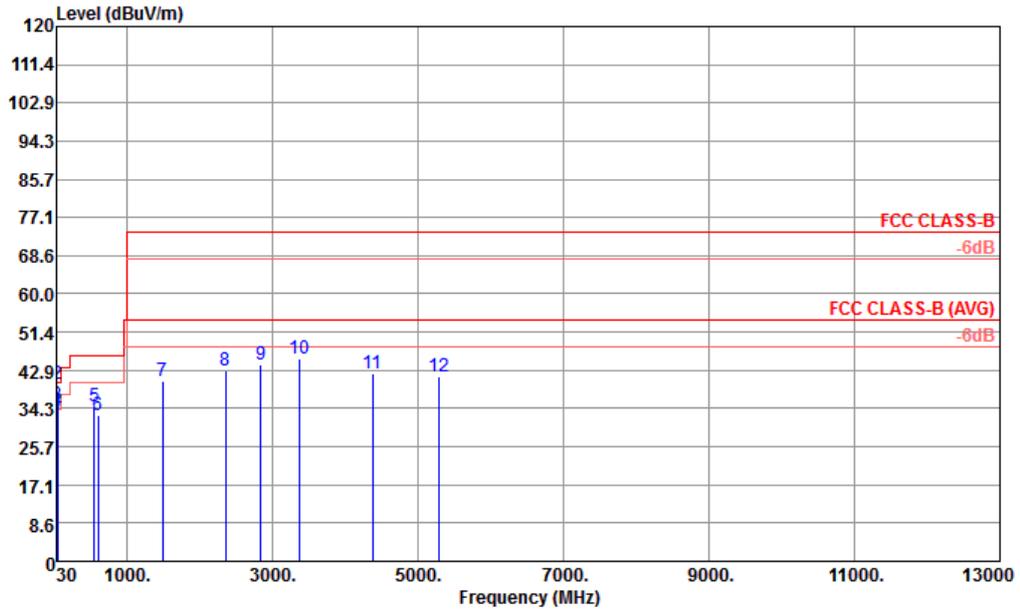


Site : 03CH02-KS
 Condition : FCC CLASS-B 3m 966-02 LF ANT HORIZONTAL
 Project : (FC) 692603
 Mode : 2
 IMEI : 990006880007199/01

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	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	23.69	-16.31	40.00	31.02	24.30	0.12	31.75	---	---	Peak	HORIZONTAL
2	50.25	19.80	-20.20	40.00	36.32	14.98	0.15	31.65	---	---	Peak	HORIZONTAL
3	106.95	17.80	-25.70	43.50	30.89	18.22	0.25	31.56	---	---	Peak	HORIZONTAL
4	200.64	20.36	-23.14	43.50	35.52	15.38	0.41	30.95	---	---	Peak	HORIZONTAL
5	407.80	31.50	-14.50	46.00	35.78	25.17	0.93	30.38	---	---	Peak	HORIZONTAL
6	552.00	33.99	-12.01	46.00	37.70	24.78	0.86	29.35	100	257	Peak	HORIZONTAL
7	1456.00	39.90	-34.10	74.00	43.71	28.69	3.61	36.11	---	---	Peak	HORIZONTAL
8	2210.00	40.67	-33.33	74.00	38.00	31.20	5.78	34.31	---	---	Peak	HORIZONTAL
9	2744.00	43.07	-30.93	74.00	37.20	31.99	2.91	29.03	---	---	Peak	HORIZONTAL
10	3318.00	44.13	-29.87	74.00	35.56	33.56	5.97	30.96	---	---	Peak	HORIZONTAL
11	4332.00	44.55	-29.45	74.00	35.51	35.19	5.34	31.49	---	---	Peak	HORIZONTAL
12	5109.00	42.72	-31.28	74.00	36.30	34.90	6.43	34.91	---	---	Peak	HORIZONTAL



Test Mode :	Mode 2	Temperature :	21~22°C
Test Engineer :	Carl Ni	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Function Type :	CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter 2) + Earphone + Battery 2 + Camera(Front)		

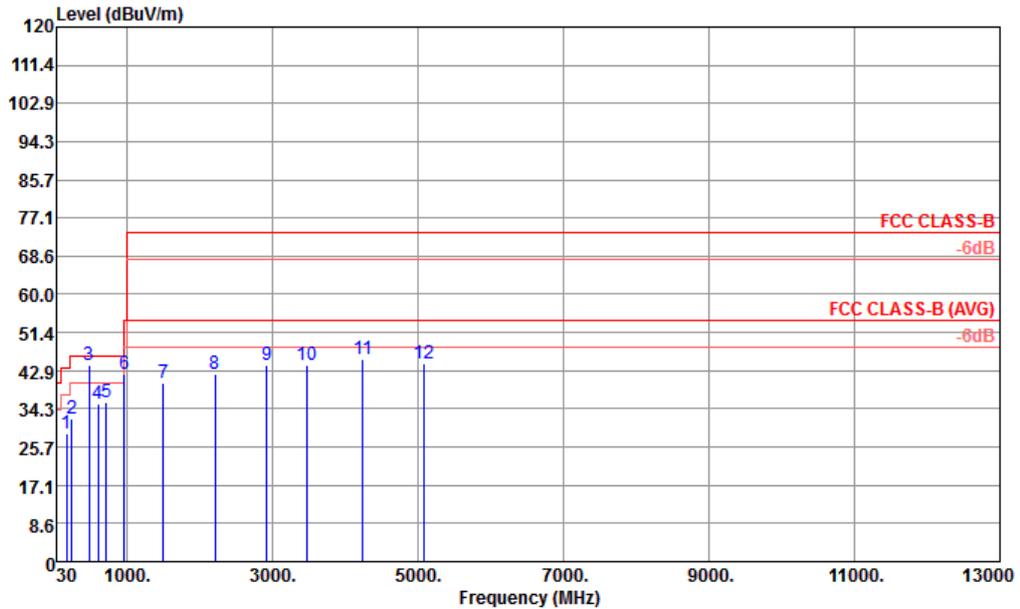


Site : 03CH02-KS
 Condition : FCC CLASS-B 3m 966-02 LF ANT VERTICAL
 Project : (FC) 692603
 Mode : 2
 IMEI : 990006880007199/01

	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	30.00	33.33	-6.67	40.00	39.17	25.80	0.11	31.75	---	---	Peak	VERTICAL
2 !	35.40	39.67	-0.33	40.00	47.00	24.30	0.12	31.75	100	226	QP	VERTICAL
3 !	42.42	35.10	-4.90	40.00	46.14	20.70	0.13	31.87	---	---	Peak	VERTICAL
4	45.39	33.68	-6.32	40.00	45.94	19.50	0.14	31.90	---	---	Peak	VERTICAL
5	552.00	34.87	-11.13	46.00	38.58	24.78	0.86	29.35	---	---	Peak	VERTICAL
6	599.60	32.63	-13.37	46.00	36.29	24.34	0.90	28.90	---	---	Peak	VERTICAL
7	1488.00	40.43	-33.57	74.00	44.10	28.76	3.70	36.13	---	---	Peak	VERTICAL
8	2354.00	42.72	-31.28	74.00	39.23	31.36	5.62	33.49	---	---	Peak	VERTICAL
9	2842.00	44.00	-30.00	74.00	36.79	32.18	2.81	27.78	---	---	Peak	VERTICAL
10	3378.00	45.53	-28.47	74.00	36.88	33.64	5.94	30.93	---	---	Peak	VERTICAL
11	4377.00	42.14	-31.86	74.00	33.40	35.23	4.93	31.42	---	---	Peak	VERTICAL
12	5292.00	41.51	-32.49	74.00	35.36	35.06	6.82	35.73	---	---	Peak	VERTICAL



Test Mode :	Mode 5	Temperature :	21~22°C
Test Engineer :	Carl Ni	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + Battery 2 + GPS Rx		



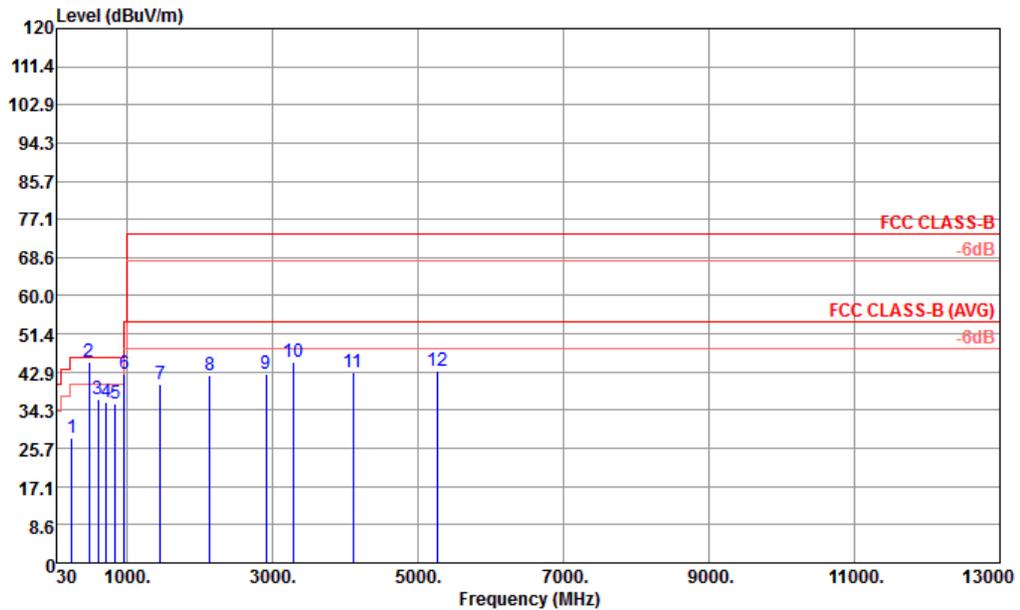
Site : 03CH02-KS
 Condition : FCC CLASS-B 3m 966-02 LF ANT HORIZONTAL
 Project : (FC) 692603
 Mode : 5
 IMEI : 990006880007199/01

: EUT (eMMC) USB Data Link to PC/NB
 : from mode 2

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna 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	164.83	28.81	-14.69	43.50	42.94	16.96	0.35	31.44	---	---	Peak	HORIZONTAL
2	239.52	32.02	-13.98	46.00	45.67	16.96	0.48	31.09	---	---	Peak	HORIZONTAL
3 !	480.08	44.28	-1.72	46.00	49.69	23.37	0.92	29.70	100	264	QP	HORIZONTAL
4	600.36	35.57	-10.43	46.00	39.22	24.34	0.90	28.89	---	---	Peak	HORIZONTAL
5	719.67	35.77	-10.23	46.00	36.09	26.56	1.25	28.13	---	---	Peak	HORIZONTAL
6 !	959.90	42.02	-3.98	46.00	38.00	28.66	1.75	26.39	100	36	QP	HORIZONTAL
7	1496.00	40.17	-33.83	74.00	43.75	28.76	3.79	36.13	---	---	Peak	HORIZONTAL
8	2206.00	42.26	-31.74	74.00	39.57	31.20	5.80	34.31	---	---	Peak	HORIZONTAL
9	2924.00	44.14	-29.86	74.00	37.03	32.39	3.00	28.28	---	---	Peak	HORIZONTAL
10	3483.00	44.14	-29.86	74.00	35.36	33.76	6.00	30.98	---	---	Peak	HORIZONTAL
11	4239.00	45.58	-28.42	74.00	36.04	35.14	6.17	31.77	---	---	Peak	HORIZONTAL
12	5091.00	44.45	-29.55	74.00	38.07	34.88	6.29	34.79	---	---	Peak	HORIZONTAL



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 4 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + Battery 2 + GPS Rx		



Site : 03CH02-KS
 Condition : FCC CLASS-B 3m 966-02 LF ANT VERTICAL
 Project : (FC) 692603
 Mode : 5
 IMEI : 990006880007199/01

: EUT (eMMC) USB Data Link to PC/NB
 : from mode 2

	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	239.52	28.00	-18.00	46.00	41.65	16.96	0.48	31.09	---	---	Peak	VERTICAL
2 !	480.08	44.98	-1.02	46.00	50.39	23.37	0.92	29.70	100	239	QP	VERTICAL
3	600.36	36.82	-9.18	46.00	40.47	24.34	0.90	28.89	---	---	Peak	VERTICAL
4	719.67	36.15	-9.85	46.00	36.47	26.56	1.25	28.13	---	---	Peak	VERTICAL
5	839.95	35.66	-10.34	46.00	34.55	27.08	1.39	27.36	---	---	Peak	VERTICAL
6 !	959.90	42.50	-3.50	46.00	38.48	28.66	1.75	26.39	---	---	Peak	VERTICAL
7	1456.00	40.22	-33.78	74.00	44.03	28.69	3.61	36.11	---	---	Peak	VERTICAL
8	2134.00	42.00	-32.00	74.00	40.14	30.97	5.35	34.46	---	---	Peak	VERTICAL
9	2916.00	42.35	-31.65	74.00	35.29	32.39	2.95	28.28	---	---	Peak	VERTICAL
10	3291.00	44.99	-29.01	74.00	36.48	33.53	5.99	31.01	---	---	Peak	VERTICAL
11	4110.00	42.91	-31.09	74.00	33.36	35.00	6.39	31.84	---	---	Peak	VERTICAL
12	5265.00	42.96	-31.04	74.00	36.63	35.04	6.90	35.61	---	---	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	ESC17	100768	9kHz~7GHz;	Apr. 29, 2016	Oct. 31, 2016	Apr. 28, 2017	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2016	Oct. 31, 2016	Oct. 12, 2017	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 13, 2016	Oct. 31, 2016	Oct. 12, 2017	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 13, 2016	Oct. 31, 2016	Oct. 12, 2017	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Aug. 09, 2016	Nov. 03, 2016	Aug. 08, 2017	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz~44GHz; Max 30dB	Apr. 22, 2016	Nov. 03, 2016	Apr. 21, 2017	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	37879	30MHz~2GHz	Aug. 20, 2016	Nov. 03, 2016	Aug. 19, 2017	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 07, 2015	Nov. 03, 2016	Nov. 06, 2016	Radiation (03CH02-KS)
Amplifier	com-power	PA-103A	161069	1kHz~1000MHz / 32 dB	Apr. 22, 2016	Nov. 03, 2016	Apr. 21, 2017	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1~26.5GHz Gain 30dB	Oct. 13, 2016	Nov. 03, 2016	Oct. 12, 2017	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Nov. 03, 2016	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Nov. 03, 2016	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Nov. 03, 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% ($U = 2Uc(y)$)	2.3dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.5dB
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