FCC/IC Test Report

APPLICANT	: ZTE CORPORATION
EQUIPMENT	: CDMA 1X-EVDO Digital Mobile Phone
BRAND NAME	: ZTE
MODEL NAME	: ZTE N860
FCC ID	: Q78-ZTEN860C
IC	: 5200A-ZTEN860
STANDARD	: ICES-003 Issue 4 FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION	: Certification

The product sample received on Apr. 19, 2012 and completely tested on May 14, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2009 and shown the 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.

Reviewed by:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL (KUNSHAN) INC.

No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC241902	Rev. 01	Initial issue of report	Jun. 01, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.107	7.2.2	AC Conducted Emission	< 15.107 limits or < RSS-Gen table 2 limits	Pass	Under limit 12.56 dB At 17.110 MHz
3.2	15.109	7.2.3.2	Radiated Emission	< 15.109 limits or < RSS-Gen table 1 limits (Section 6)	Pass	Under limit 4.03 dB At 262.800 MHz

1. General Description of Equipment under Test

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 Feature of Equipment under Test

Product Feature & Specification	
Equipment	CDMA 1X-EVDO Digital Mobile Phone
Brand Name	ZTE
Model Name	ZTE N860
FCC ID	Q78-ZTEN860C
IC	5200A-ZTEN860
Tx Frequency Range	CDMA2000 BC0 : 824 MHz ~ 849 MHz CDMA2000 BC1 : 1850 MHz ~1910 MHz CDMA2000 BC14 : 1850 MHz ~ 1915 MHz Bluetooth : 2402 MHz ~ 2480 MHz WLAN : 2412 MHz ~ 2462 MHz
Rx Frequency Range	CDMA2000 BC0 : 869 MHz ~ 894 MHz CDMA2000 BC1 : 1930 MHz ~ 1990 MHz CDMA2000 BC14: 1930 MHz ~ 1995 MHz Bluetooth : 2402 MHz ~ 2480 MHz WLAN : 2412 MHz ~ 2462 MHz GPS : 1.57542 GHz
Antenna Type	WWAN : PIFA Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna
HW Version	c8hA
SW Version	GB_PMI_N860V1.0.0B01
Type of Modulation	CDMA2000 : QPSK Bluetooth (1Mbps) : GFSK Bluetooth 2.1 EDR (2Mbps) : π/4-DQPSK Bluetooth 2.1 EDR (3Mbps) : 8-DPSK 802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) GPS : BPSK
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 Test Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.		
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO01-KS	03CH01-KS	149928/4086E-1

1.5 Applied Standards

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

- IC ICES-003 Issue 4
- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2009
- IC RSS-Gen Issue 3

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The test results for FCC compliance, indicating that these results are deemed satisfactory evidence of compliance with **Industry Canada Interference-Causing Equipment Standard ICES-003**.

1.6 Ancillary Equipment List

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.	GPS Station	ADIVIC	MP9000	N/A	N/A	Unshielded, 1.8 m
3.	Router	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
5.	Bluetooth Earphone	Nokia	BH-106	QTLBH-106	N/A	N/A
6.	PC	DELL	MT380	FCC DoC	N/A	Unshielded, 1.8 m
7.	Monitor	DELL	E1910Hc	FCC DoC	Shielded, 1.2 m	Unshielded, 1.8 m
8.	Printer	HP	Laser Jet 1018	FCC DoC	Shielded, 1.8 m	Unshielded, 1.8 m
9.	(USB)Mouse	DELL	MO56UC	FCC DoC	Shielded, 1.8 m	N/A
10.	(USB)Mouse	DELL	N231	FCC DoC	Shielded, 1.8 m	N/A
11.	(USB)Keyboard	DELL	SK-8115	FCC DoC	Shielded, 1.8m with Core	N/A
12.	iPod	Apple	A1199	FCC DoC	Shielded, 1.2 m	N/A

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 with PC)	☒	☒	☒

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.

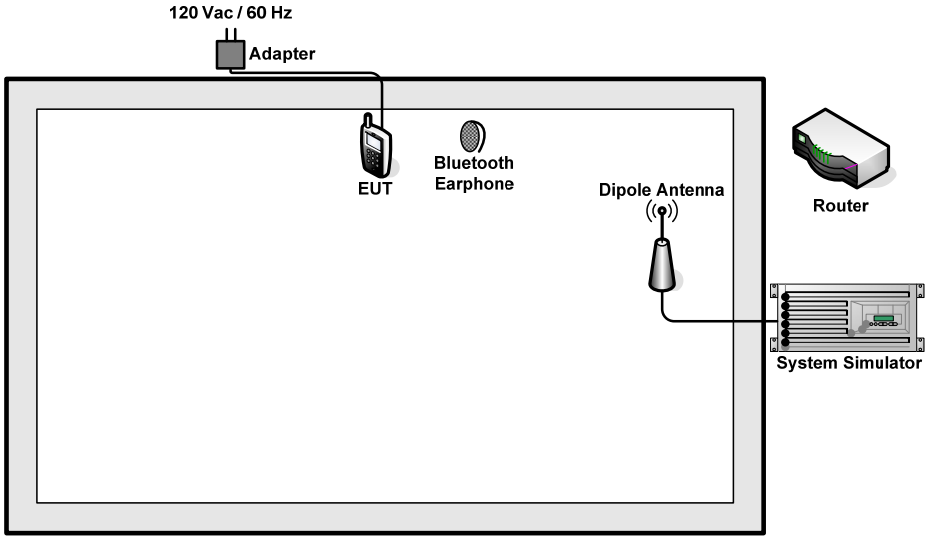
Remark: For signal above 1GHz, the worst case was test item 2.

Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1/2	Mode 1: CDMA2000 BC14 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Camera<Fig. 1> Mode 2: CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + MPEG4<Fig. 1> Mode 3: CDMA2000 BC0 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC) + GPS Rx<Fig. 2>
Radiated Emissions < 1GHz	1/2	Mode 1: CDMA2000 BC14 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Camera<Fig. 1> Mode 2: CDMA2000 BC1 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + MPEG4<Fig. 1> Mode 3: CDMA2000 BC0 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC) + GPS Rx<Fig. 2>
Radiated Emissions ≥ 1GHz	2	Mode 1: CDMA2000 BC0 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC) + GPS Rx<Fig. 2>

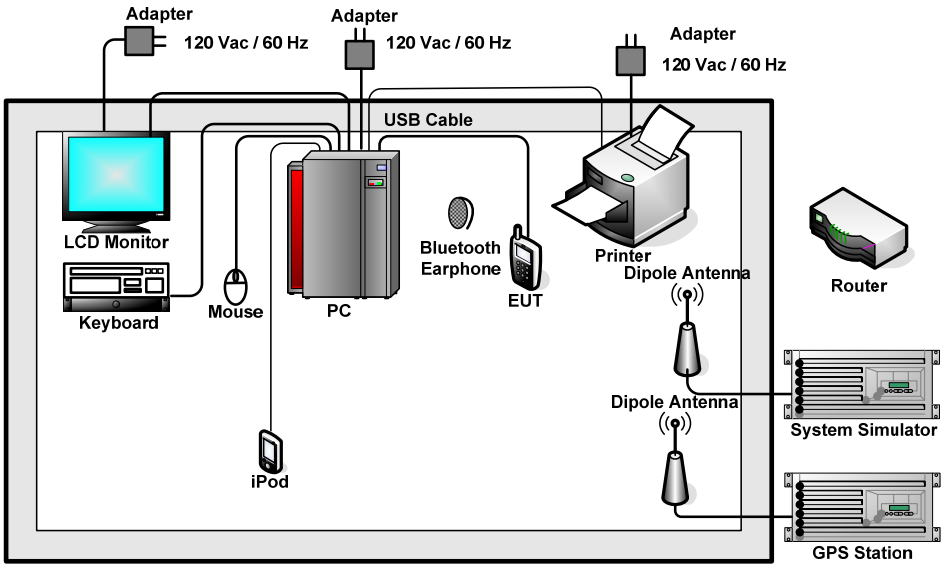
Remark:

1. The worst case of AC Conducted Emission is mode 3; only the test data of this mode was reported.
2. The worst case of RE < 1G is mode 3; only the test data of this mode was reported.
3. Data Link with PC means data application transferred mode between EUT and PC.

2.2 Connection Diagram of Test System



<Fig. 1>



<Fig. 2>

2.3 Test Software

The EUT was in CDMA2000 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. Execute the program, "Winthrax", installed in PC for files transfer with EUT via USB cable.
2. Turn on GPS function to make the EUT receive continuous signals from GPS station.
3. Execute "Windows Media 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.

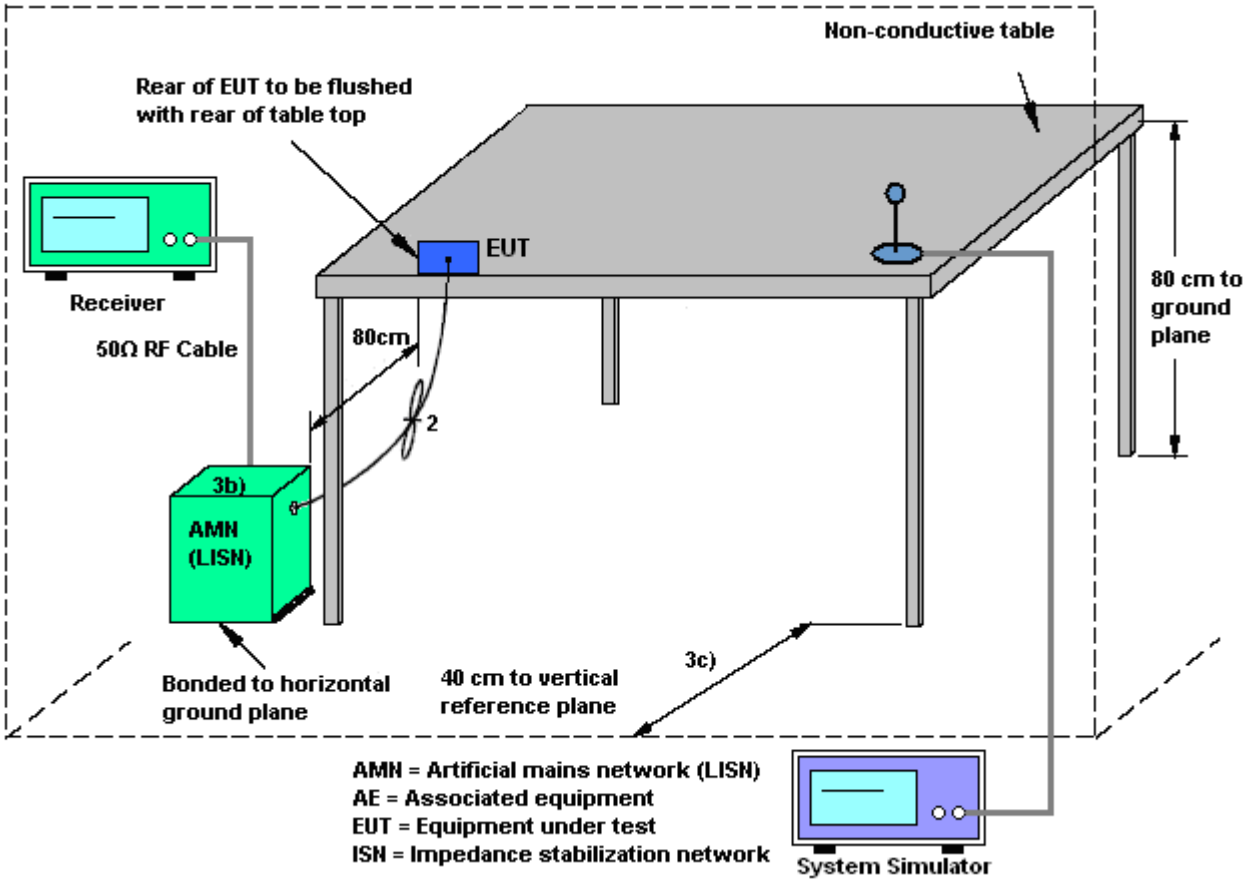
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

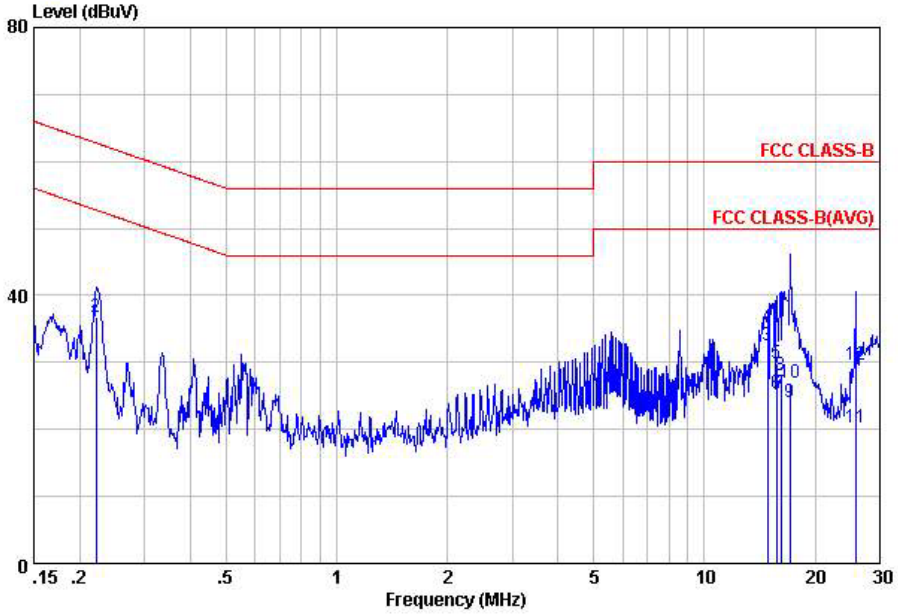
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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 with Maximum Hold Mode.

3.1.4 Test Setup



3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 3	**Temperature :**	19~20℃
Test Engineer :	Tom Wang	**Relative Humidity :**	39~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	CDMA2000 BC0 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC) + GPS Rx		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

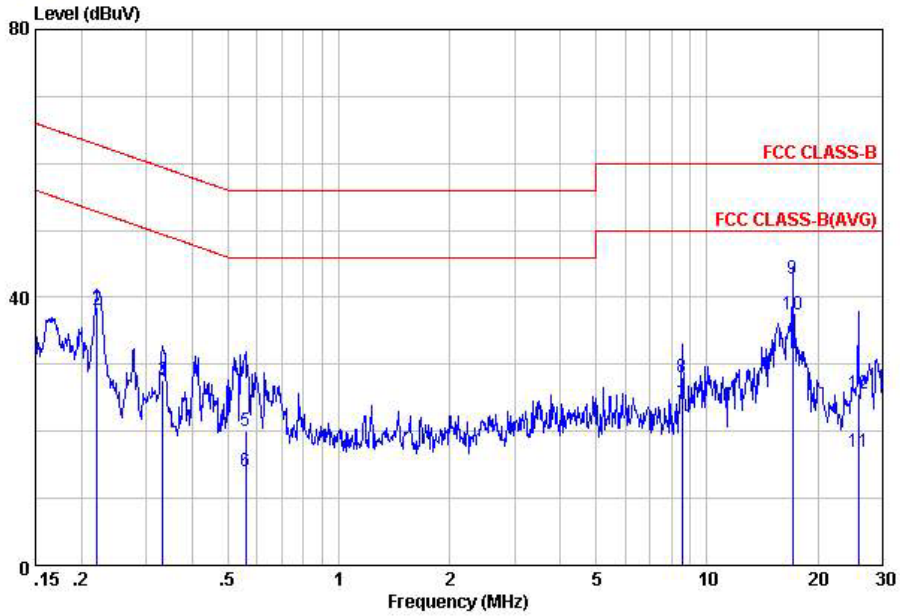


Site : C001-KS
Condition: FCC CLASS-B LISN-100807 LINE

mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.22	36.08	-16.66	52.74	26.00	-0.07	10.15	Average
2	0.22	36.68	-26.06	62.74	26.60	-0.07	10.15	QP
3	14.83	32.48	-17.52	50.00	22.00	-0.03	10.51	Average
4	14.83	35.28	-24.72	60.00	24.80	-0.03	10.51	QP
5	15.72	29.81	-30.19	60.00	19.30	-0.01	10.52	QP
6	15.72	25.51	-24.49	50.00	15.00	-0.01	10.52	Average
7	16.14	25.43	-24.57	50.00	14.90	0.00	10.53	Average
8	16.14	28.03	-31.97	60.00	17.50	0.00	10.53	QP
9	17.11	23.96	-26.04	50.00	13.41	0.02	10.53	Average
10	17.11	26.86	-33.14	60.00	16.31	0.02	10.53	QP
11	25.73	20.36	-29.64	50.00	9.50	0.20	10.66	Average
12	25.73	29.56	-30.44	60.00	18.70	0.20	10.66	QP

Test Mode :	Mode 3	Temperature :	19~20℃
Test Engineer :	Tom Wang	Relative Humidity :	39~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC0 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC) + GPS Rx		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC CLASS-B LISN-100807 NEUTRAL

mode : Mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.22	38.48	-24.31	62.79	28.40	-0.07	10.15	QP
2	0.22	38.08	-14.71	52.79	28.00	-0.07	10.15	Average
3	0.33	27.70	-31.70	59.40	17.60	-0.08	10.18	QP
4	0.33	27.40	-22.00	49.40	17.30	-0.08	10.18	Average
5	0.56	20.04	-35.96	56.00	9.90	-0.08	10.22	QP
6	0.56	14.04	-31.96	46.00	3.90	-0.08	10.22	Average
7	8.55	24.11	-25.89	50.00	13.80	-0.13	10.44	Average
8	8.55	28.11	-31.89	60.00	17.80	-0.13	10.44	QP
9	17.11	42.74	-17.26	60.00	32.20	0.01	10.53	QP
10	17.11	37.44	-12.56	50.00	26.90	0.01	10.53	Average
11	25.73	16.92	-33.08	50.00	6.11	0.15	10.66	Average
12	25.73	25.62	-34.38	60.00	14.81	0.15	10.66	QP

3.2 Test of Radiated Emission Measurement

3.2.1 Limit of Radiated Emission

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

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

3.2.2 Measuring Instruments

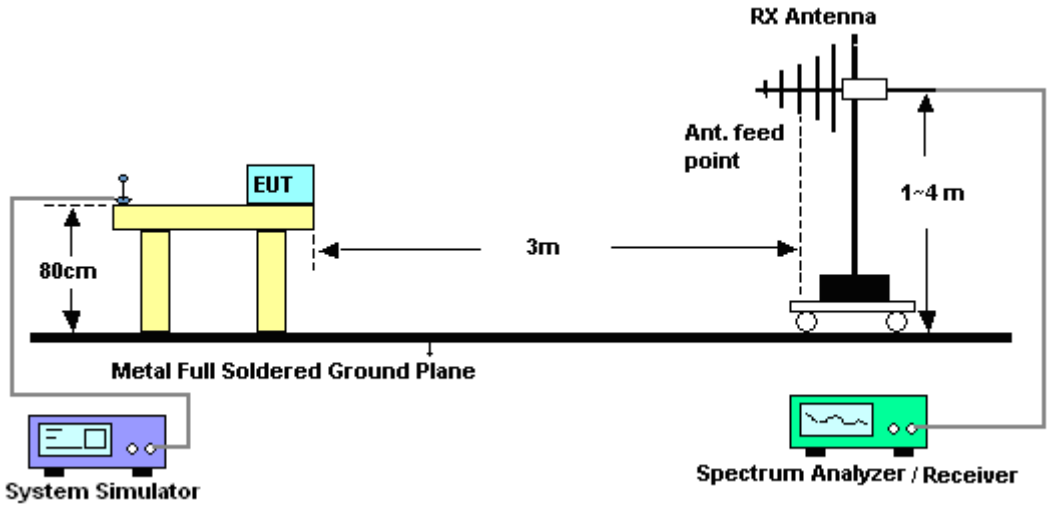
See list of measuring instruments of this test report.

3.2.3 Test Procedures

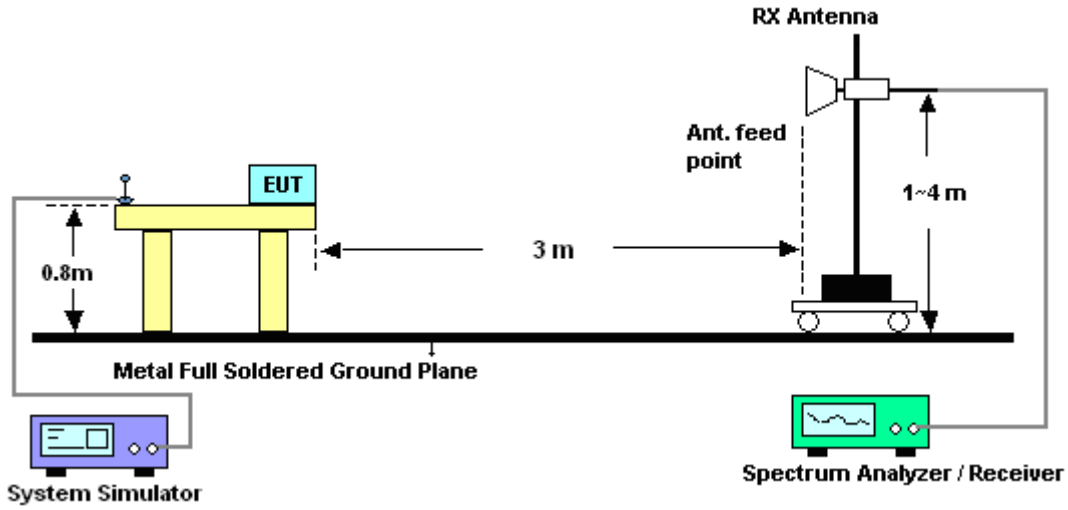
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one meter and 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.
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported
8. Emission level (dBuV/m) = 20 log Emission level (uV/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

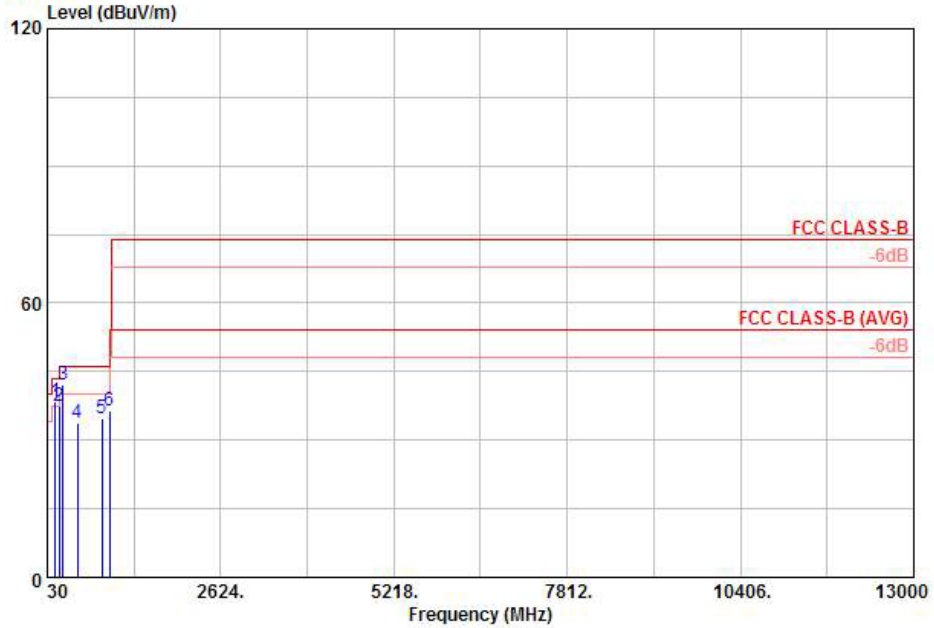


For radiated emissions above 1GHz



3.2.5 Test Result of Radiated Emission

Test Mode :	Mode 3	Temperature :	22~23°C
Test Engineer :	Chenmy Cheng	Relative Humidity :	45~46%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	CDMA2000 BC0 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC) + GPS Rx		

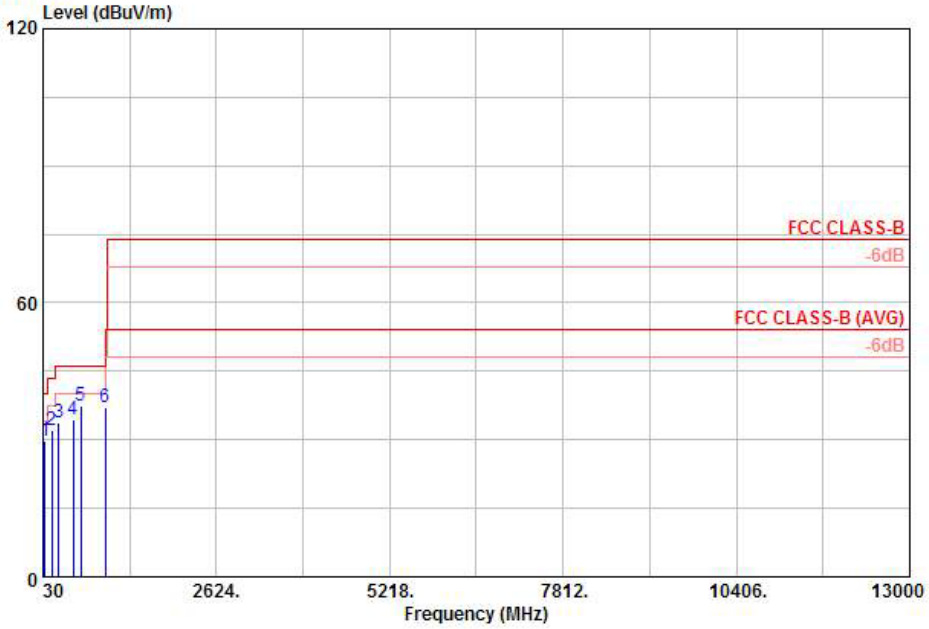


Site : 03CH01-KS
Condition: FCC CLASS-B 3m LF_ANT_100803 HORIZONTAL

Mode : mode 3

		Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	!	144.46	38.51	-4.99	43.50	57.55	10.45	0.50	29.99	---	---	Peak
2		209.45	37.45	-6.05	43.50	57.41	9.44	0.60	30.00	---	---	Peak
3	!	262.80	41.97	-4.03	46.00	58.95	12.21	0.68	29.87	100	137	Peak
4		480.08	33.71	-12.29	46.00	45.65	16.87	0.94	29.75	---	---	Peak
5		848.68	34.86	-11.14	46.00	42.74	20.50	1.28	29.66	---	---	Peak
6		960.23	36.37	-17.63	54.00	43.78	20.79	1.34	29.54	---	---	Peak

Test Mode :	Mode 3	Temperature :	22~23°C
Test Engineer :	Chenmy Cheng	Relative Humidity :	45~46%
Test Distance :	3m	Polarization :	Vertical
Function Type :	CDMA2000 BC0 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with PC) + GPS Rx		



Site : 03CH01-KS
Condition: FCC CLASS-B 3m LF_ANT_100803 VERTICAL

Mode : mode 3

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	57.16	29.73	-10.27	40.00	53.82	5.75	0.30	30.14	---	---	Peak
2	159.01	32.21	-11.29	43.50	51.98	9.64	0.53	29.94	---	---	Peak
3	269.59	33.93	-12.07	46.00	50.78	12.36	0.69	29.90	---	---	Peak
4	480.08	34.54	-11.46	46.00	46.48	16.87	0.94	29.75	---	---	Peak
5	594.54	37.59	-8.41	46.00	47.57	18.59	1.06	29.63	100	126	Peak
6	960.23	37.13	-16.87	54.00	44.54	20.79	1.34	29.54	---	---	Peak

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	Jun. 02, 2011	May 14, 2012	Jun. 01, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 30, 2011	May 14, 2012	Dec. 29, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Dec. 30, 2011	May 14, 2012	Dec. 29, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 16, 2011	May 14, 2012	Nov. 15, 2012	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	May 14, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	May 14, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	May 14, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	May 14, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060007	30MHz~2GHz	Dec. 30, 2011	May 14, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 30, 2011	May 14, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 30, 2011	May 14, 2012	Dec. 29, 2012	-
GPS Station	ADIVIC	MP9000	MP9000-111046	N/A	Dec. 15, 2011	May 14, 2012	Dec. 14, 2012	-

5. Uncertainty Measurement

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty Uc(y)	**1.13**		
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y))	**2.26**		

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.07	Normal (k=2)	0.04
Antenna Factor Calibration	0.92	Normal (k=2)	0.46
Cable Loss Calibration	0.19	Normal (k=2)	0.10
Pre-Amplifier Gain Calibration	0.21	Normal (k=2)	0.11
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.54	Rectangular	0.89
Mismatch	+0.24 / -0.24	U-Shape	0.17
Combined Standard Uncertainty Uc(y)	**1.29**		
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y))	**2.58**		

Appendix A. Photographs of EUT

Please refer to Sporton report number EP241902 as below.