



FCC Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : Rogers HSPA/LTE CPE
BRAND NAME : ZTE
MODEL NAME : MF275R
FCC ID : SRQ-MF275R
STANDARD : FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION : Certification

The product was received on Jun. 05, 2015 and testing was completed on Jun. 24, 2015. 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.

Reviewed by: Louis Wu / Manager

Approved by: Jones Tsai / Manager



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



TABLE OF CONTENTS

REVISION HISTORY.....	3
SUMMARY OF TEST RESULT	4
1. GENERAL DESCRIPTION	5
1.1. Applicant.....	5
1.2. Manufacturer	5
1.3. Product Feature of Equipment Under Test	5
1.4. Product Specification subjective to this standard.....	6
1.5. Modification of EUT.....	7
1.6. Test Location.....	7
1.7. Applicable Standards	7
2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST.....	8
2.1. Test Mode	8
2.2. Connection Diagram of Test System	9
2.3. Support Unit used in test configuration and system.....	9
2.4. EUT Operation Test Setup.....	10
3. TEST RESULT.....	11
3.1. Test of AC Conducted Emission Measurement	11
3.2. Test of Radiated Emission Measurement	15
4. LIST OF MEASURING EQUIPMENT	20
5. UNCERTAINTY OF EVALUATION.....	21
APPENDIX A. SETUP PHOTOGRAPHS	



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 14.14 dB at 0.430 MHz
3.2	15.109	ICES003 Section 6.2	Radiated Emission	< 15.109 limits < ICES003 6.2 limits	PASS	Under limit 6.27 dB at 35.820 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	Rogers HSPA/LTE CPE
Brand Name	ZTE
Model Name	MF275R
FCC ID	SRQ-MF275R
EUT supports Radios application	WCDMA/HSPA/HSPA+(Downlink Only)/DC-HSDPA/LTE/ WLAN2.4GHz 802.11b/g/n HT20/HT40/ WLAN5GHz 802.11a/n HT20/HT40
IMEI Code	Conduction: 004401783465632 Radiation: 004401783465632
HW Version	dgpB
SW Version	MF275R1.0.5
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	WCDMA Band V: 826.4 MHz ~ 846.6 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 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 12 : 699.7 MHz ~ 715.3 MHz LTE Band 17 : 706.5 MHz ~ 713.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n: 5180 MHz ~ 5240 MHz; 5745 MHz ~ 5825 MHz
Rx Frequency	WCDMA Band V: 871.4 MHz ~ 891.6 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 7 : 2622.5MHz ~ 2687.5 MHz LTE Band 12 : 729.7 MHz ~ 745.3 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n: 5180 MHz ~ 5240 MHz; 5745 MHz ~ 5825 MHz GPS : 1.57542 GHz
Antenna Type	WWAN : Monopole Antenna WLAN Chain Port 0 : Monopole Antenna WLAN Chain Port 1 : Monopole Antenna GPS: PIFA Antenna
Type of Modulation	WCDMA: QPSK (Uplink) HSDPA/DC-HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) HSPA+: 16QAM (Downlink Only) DC-HSDPA: 64QAM LTE: QPSK / 16QAM 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) GPS : 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/IC Registration No.
	CO01-KS	03CH02-KS	418269/4086E

Note: The test site complies with ANSI C63.4 2009 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 C63.4-2009
- ♦ IC ICES-003 Issue 5
- ♦ 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 C63.4-2009 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.

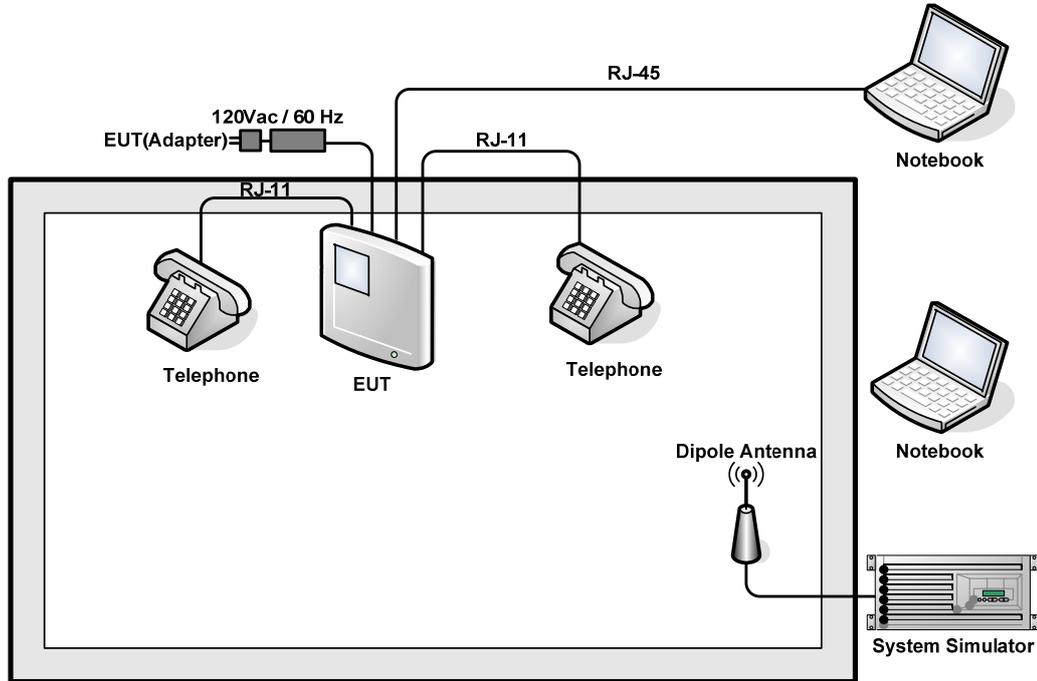
Item	EUT Configuration	Test Condition	
		EMI AC	EMI RE
1.	Charging Mode (EUT with adapter)	☒	☒

Abbreviations:

- EMI AC: AC conducted emissions
- EMI RE: EUT radiated emissions

Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1	Mode 1: WCDMA Band V Idle + Adapter + WLAN Idle + Lan Link + Phone Link
Radiated Emissions	1	Mode 1: WCDMA Band V Idle + Adapter + WLAN Idle + Lan Link + Phone Link

2.2. Connection Diagram of Test System



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	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	Telephone	Bubugao	HCD007(6082)TSD	N/A	N/A	N/A
3.	Notebook	Lenovo	G480	PRC4	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m



2.4. EUT Operation Test Setup

The EUT was in WCDMA 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. The EUT is connected with notebook via RJ-45 cable and execute "PING IP" function under the "cmd" of Window system to transfer packet bi-directionally.

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.

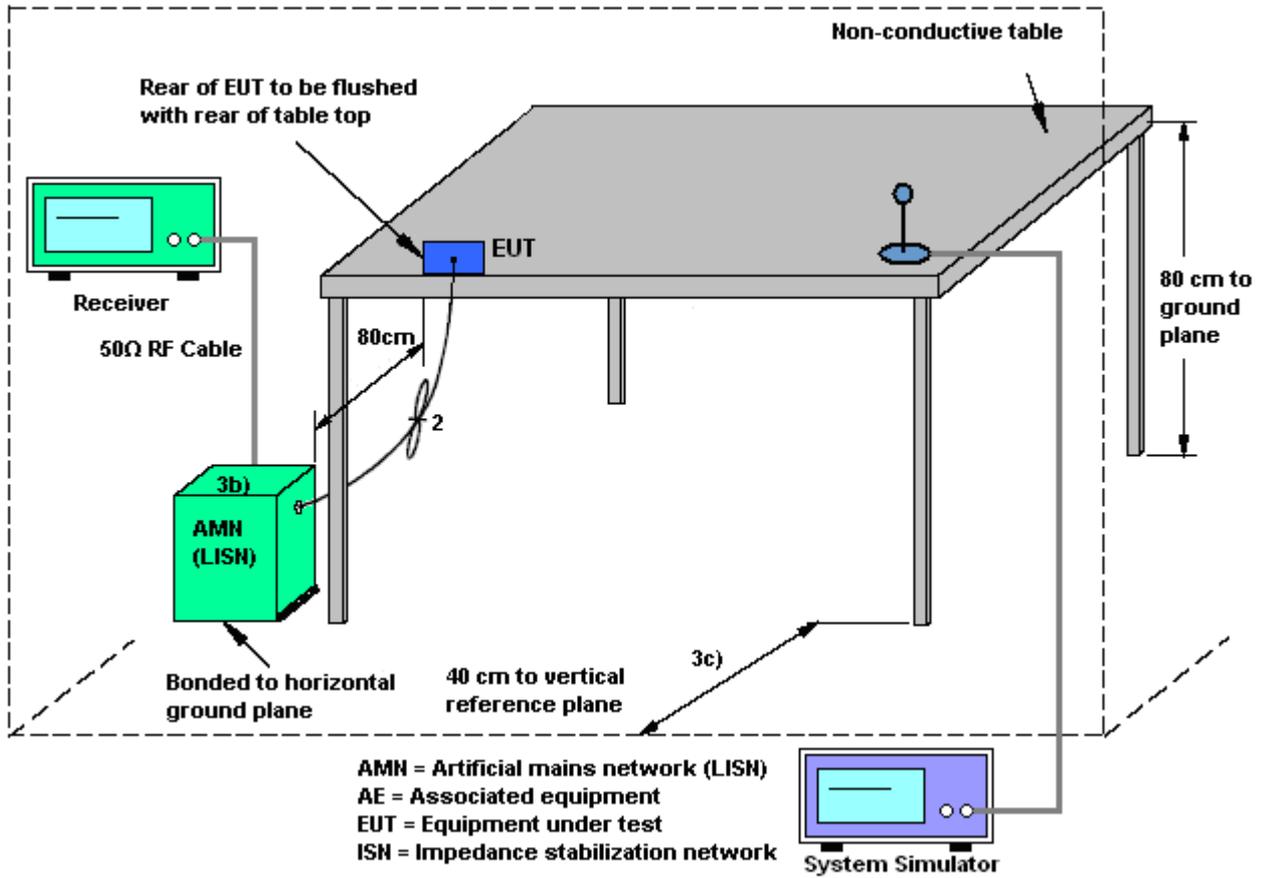
3.1.2 Measuring Instruments

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.

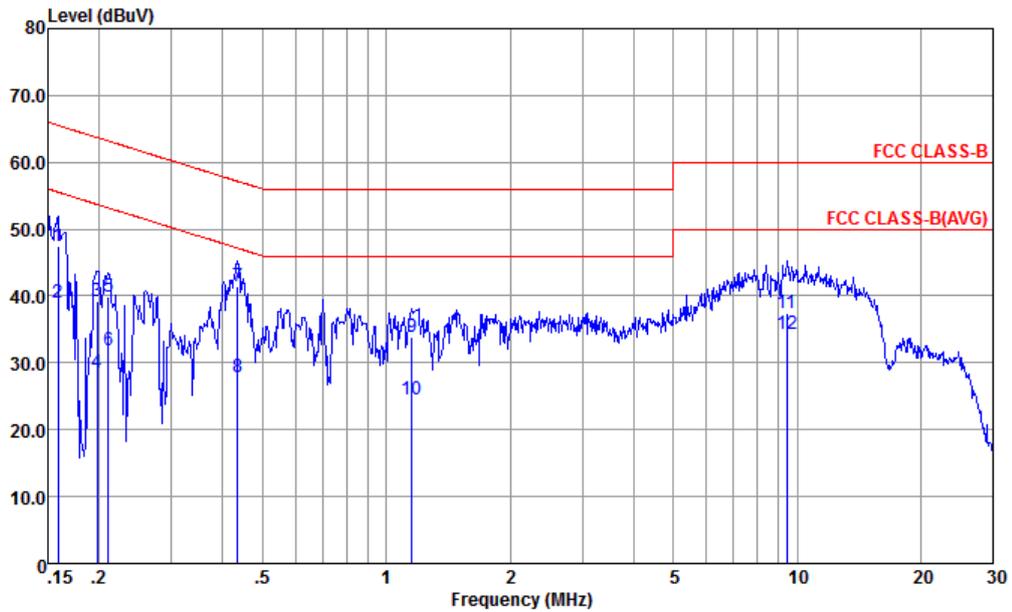
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Eko Guan	Relative Humidity :	43~45%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + Adapter + WLAN Idle + Lan Link + Phone Link		

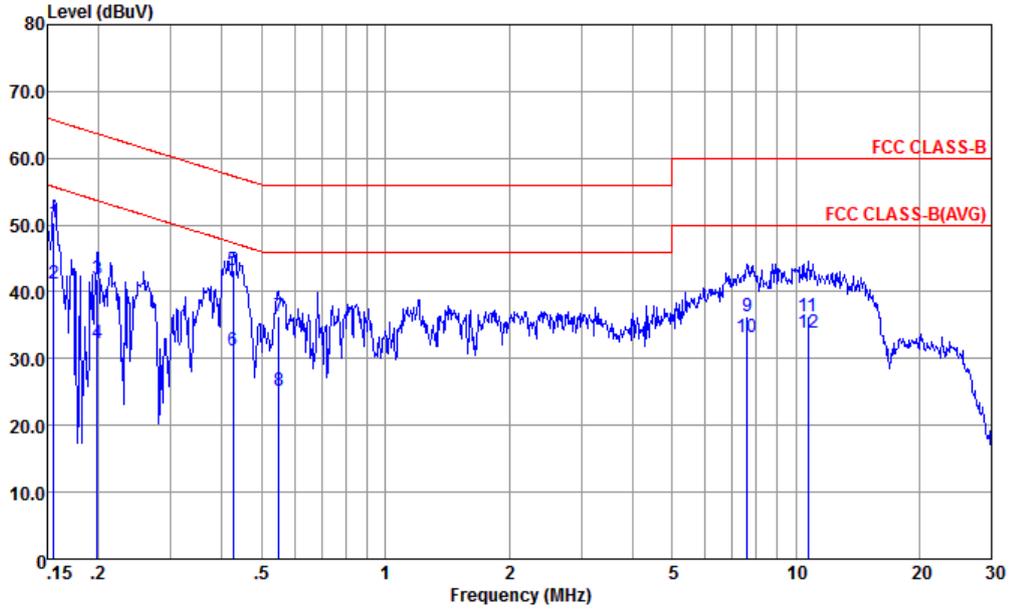


Site : CO01-KS
 Condition : FCC CLASS-B LISN-L20140306 LINE
 Project : (FC) 560506
 mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.16	47.39	-18.13	65.52	35.20	1.80	10.39	QP
2	0.16	39.09	-16.43	55.52	26.90	1.80	10.39	Average
3	0.20	39.32	-24.39	63.71	27.80	1.02	10.50	QP
4	0.20	28.42	-25.29	53.71	16.90	1.02	10.50	Average
5	0.21	39.88	-23.30	63.18	28.39	0.98	10.51	QP
6	0.21	31.78	-21.40	53.18	20.29	0.98	10.51	Average
7	0.44	41.39	-15.76	57.15	30.50	0.27	10.62	QP
8	0.44	27.79	-19.36	47.15	16.90	0.27	10.62	Average
9	1.15	33.96	-22.04	56.00	23.20	0.10	10.66	QP
10	1.15	24.56	-21.44	46.00	13.80	0.10	10.66	Average
11	9.45	37.36	-22.64	60.00	26.20	0.20	10.96	QP
12 *	9.45	34.36	-15.64	50.00	23.20	0.20	10.96	Average



Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Eko Guan	Relative Humidity :	43~45%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + Adapter + WLAN Idle + Lan Link + Phone Link		



Site : CO01-KS
 Condition : FCC CLASS-B LISN-N20140306 NEUTRAL
 Project : (FC) 560506
 mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
		dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	50.30	-15.39	65.69	38.10	1.82	10.38	QP
2	0.16	41.30	-14.39	55.69	29.10	1.82	10.38	Average
3	0.20	41.81	-21.86	63.67	30.30	1.01	10.50	QP
4	0.20	32.41	-21.26	53.67	20.90	1.01	10.50	Average
5 *	0.43	43.19	-14.14	57.33	32.20	0.37	10.62	QP
6	0.43	31.29	-16.04	47.33	20.30	0.37	10.62	Average
7	0.55	36.41	-19.59	56.00	25.50	0.28	10.63	QP
8	0.55	25.11	-20.89	46.00	14.20	0.28	10.63	Average
9	7.61	36.33	-23.67	60.00	25.20	0.20	10.93	QP
10	7.61	33.23	-16.77	50.00	22.10	0.20	10.93	Average
11	10.73	36.28	-23.72	60.00	25.11	0.21	10.96	QP
12	10.73	33.78	-16.22	50.00	22.61	0.21	10.96	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.

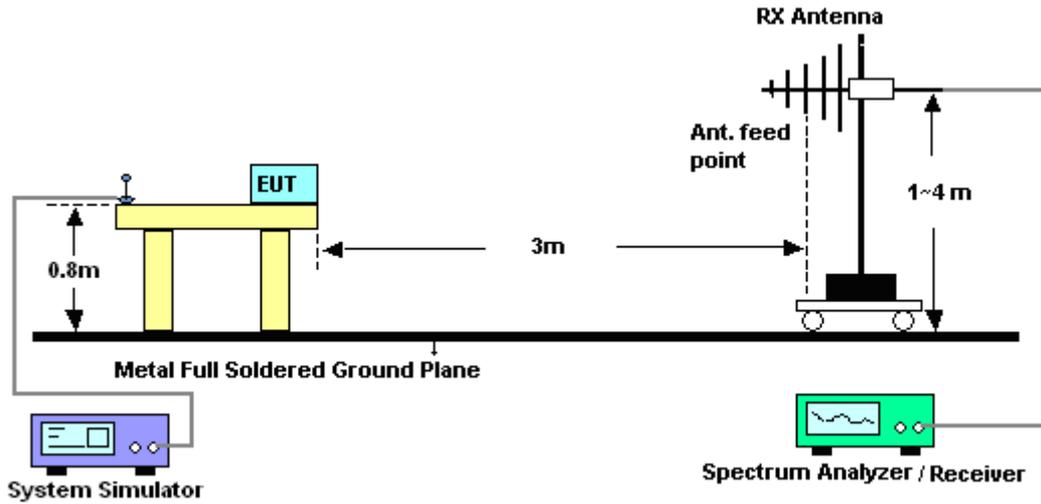


3.2.3. Test Procedures

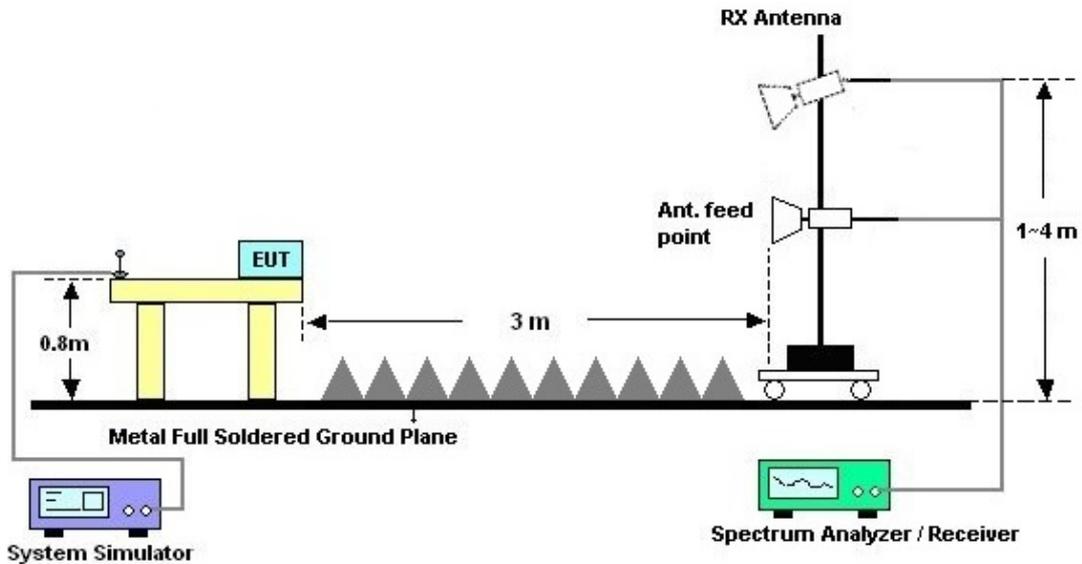
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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



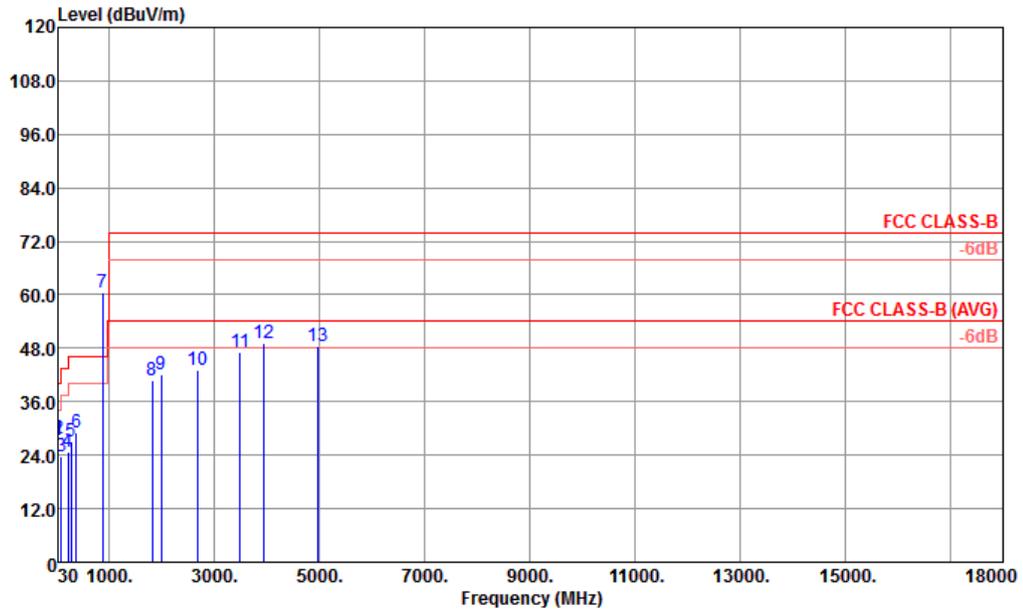
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Nick Su	Relative Humidity :	40~41%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	WCDMA Band V Idle + Adapter + WLAN Idle + Lan Link + Phone Link		
Remark :	#7 is system simulator signal which can be ignored.		

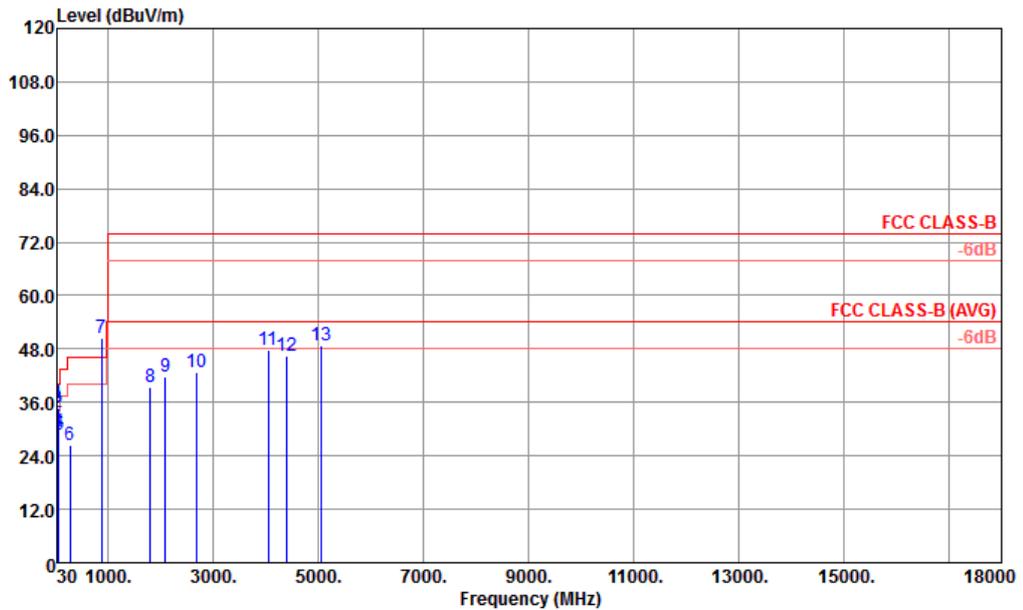


Site : 03CHO2-KS
 Condition : FCC CLASS-B 3m LF_ANT_37879 HORIZONTAL
 Project : (FC) 560506
 Mode : 1

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	27.38	-12.62	40.00	40.05	19.20	0.79	32.66	---	---	Peak
2	35.82	27.82	-12.18	40.00	43.39	16.26	0.79	32.62	134	226	Peak
3	88.20	23.75	-19.75	43.50	45.35	9.98	1.04	32.62	---	---	Peak
4	226.91	24.90	-21.10	46.00	44.74	11.04	1.61	32.49	---	---	Peak
5	278.32	27.12	-18.88	46.00	45.06	12.61	1.90	32.45	---	---	Peak
6	375.32	29.01	-16.99	46.00	43.44	15.76	2.15	32.34	---	---	Peak
7 *	881.66	60.61			66.83	22.08	3.50	31.80	---	---	Peak
8	1818.00	40.65	-33.35	74.00	40.78	29.43	5.39	34.95	---	---	Peak
9	1998.00	42.05	-31.95	74.00	39.63	30.80	5.64	34.02	---	---	Peak
10	2676.00	43.06	-30.94	74.00	35.59	31.99	6.57	31.09	---	---	Peak
11	3495.00	47.22	-26.78	74.00	36.61	33.50	7.53	30.42	---	---	Peak
12	3957.00	49.30	-24.70	74.00	37.26	34.49	8.44	30.89	---	---	Peak
13	4968.00	48.35	-25.65	74.00	38.99	34.97	8.84	34.45	---	---	Peak



Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Nick Su	Relative Humidity :	40~41%
Test Distance :	3m	Polarization :	Vertical
Function Type :	WCDMA Band V Idle + Adapter + WLAN Idle + Lan Link + Phone Link		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH02-KS
 Condition : FCC CLASS-B 3m LF_ANT_37879 VERTICAL
 Project : (FC) 560506
 Mode : 1

	Freq	Level	Over Limit	Limit Line	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 !	30.00	35.82	-4.18	40.00	48.49	19.20	0.79	32.66	---	Peak
2	35.82	33.73	-6.27	40.00	49.30	16.26	0.79	32.62	100	87 QP
3 !	55.22	34.62	-5.38	40.00	59.03	7.40	0.79	32.60	---	Peak
4	62.01	29.29	-10.71	40.00	54.57	6.52	0.79	32.59	---	Peak
5	69.77	28.91	-11.09	40.00	52.32	8.20	1.04	32.65	---	Peak
6	278.32	26.46	-19.54	46.00	44.40	12.61	1.90	32.45	---	Peak
7 *	880.69	50.37			56.62	22.05	3.50	31.80	---	Peak
8	1814.00	39.35	-34.65	74.00	39.48	29.43	5.39	34.95	---	Peak
9	2094.00	41.73	-32.27	74.00	38.44	30.92	5.80	33.43	---	Peak
10	2686.00	42.91	-31.09	74.00	35.44	31.99	6.57	31.09	---	Peak
11	4047.00	47.72	-26.28	74.00	35.86	34.61	8.52	31.27	---	Peak
12	4413.00	46.62	-27.38	74.00	35.75	34.73	8.52	32.38	---	Peak
13	5058.00	48.73	-25.27	74.00	39.37	35.02	8.93	34.59	---	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	May 04, 2015	Jun. 24, 2015	May 03, 2016	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 25, 2014	Jun. 24, 2015	Oct. 24, 2015	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 25, 2014	Jun. 24, 2015	Oct. 24, 2015	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V, 45Hz~1000Hz	Oct. 25, 2014	Jun. 24, 2015	Oct. 24, 2015	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Sep. 29, 2014	Jun. 17, 2015	Sep. 28, 2015	Radiation (03CH02-KS)
Spectrum Analyzer	R&S	FSV40	101040	10kHz~40GHz; Max 30dBm	Sep. 25, 2014	Jun. 17, 2015	Sep. 24, 2015	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	37879	30MHz~2GHz	Sep. 13, 2014	Jun. 17, 2015	Sep. 12, 2015	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 08, 2014	Jun. 17, 2015	Nov. 07, 2015	Radiation (03CH02-KS)
SHF-EHF Horn	com-power	AH-840	101070	18GHz~40GHz	Sep. 04, 2014	Jun. 17, 2015	Sep. 03, 2015	Radiation (03CH02-KS)
Amplifier	com-power	PA-103A	161069	1kHz~1000MHz / 32 dB	May 04, 2015	Jun. 17, 2015	May 03, 2016	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1GHz~26.5GHz Gain 30dB	Oct. 28, 2014	Jun. 17, 2015	Oct. 27, 2015	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	61601000247 3	N/A	NCR	Jun. 17, 2015	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Jun. 17, 2015	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Jun. 17, 2015	NCR	Radiation (03CH02-KS)



5. Uncertainty of Evaluation

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

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

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