



FCC Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : WCDMA/LTE CPE
BRAND NAME : ZTE
MODEL NAME : MF279T
FCC ID : SRQ-MF279T
STANDARD : FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION : Certification

The product was received on Oct. 18, 2017 and testing was completed on Oct. 31, 2017. 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.



Approved by: James Huang / Manager

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China



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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 11.02 dB at 3.681 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 5.34 dB at 30.81 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	WCDMA/LTE CPE
Brand Name	ZTE
Model Name	MF279T
FCC ID	SRQ-MF279T
EUT supports Radios application	WCDMA/HSPA/HSPA+ (16QAM uplink is not supported)/LTE WLAN 2.4GHz 802.11b/g/n HT20/HT40 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80
IMEI Code	Radiation/Conduction: 990008960001605
HW Version	MF279THW1.0
SW Version	MF279TV1.2
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	WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 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 LTE Band 26 : 814.7MHz ~ 848.3 MHz LTE Band 30 : 2307.5 MHz ~ 2312.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5745 MHz ~ 5825 MHz
Rx Frequency	WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 7: 2622.5 MHz ~ 2687.5 MHz LTE Band 12 : 729.7 MHz ~ 745.3 MHz LTE Band 13 : 748.5 MHz ~ 753.5 MHz LTE Band 26 : 859.7 MHz ~ 893.3 MHz LTE Band 30 : 2352.5 MHz ~ 2357.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz 802.11a/n/ac: 5180 MHz ~ 5240 MHz; 5745 MHz ~ 5825 MHz GNSS : 1559 MHz ~ 1610 MHz
Antenna Type	WWAN : PIFA Antenna WLAN : PIFA Antenna GNSS : PIFA Antenna
Type of Modulation	WCDMA : BPSK (Uplink) HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM (uplink is not supported) LTE: QPSK / 16QAM 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n/ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) GNSS: BPSK

1.5. Modification of EUT

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



1.6. Test Location

Sporton Lab is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600155-0) and the FCC designation No. is CN5013.

Test Site	Sporton International (Kunshan) Inc.		
Test Site Location	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.		FCC Test Firm Registration No.
	CO01-KS	03CH02-KS	630927

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

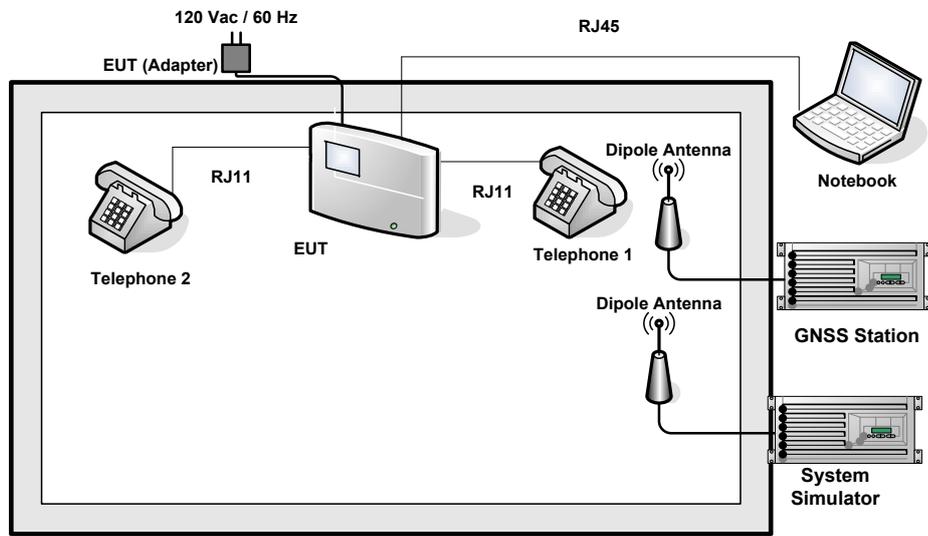
2.1. Test Mode

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).

Test Items	Function Type
AC Conducted Emission	Mode 1: WCDMA Band V Idle + Adapter + WLAN (2.4G) Idle + Phone Link + Lan Link + GNSS Rx Mode 2: LTE Band 2 Idle + Adapter + WLAN (5G) Idle + Phone Link + Lan Link + GNSS Rx
Radiated Emissions < 1GHz	Mode 1: WCDMA Band V Idle + Adapter + WLAN (2.4G) Idle + Phone Link + Lan Link + GNSS Rx Mode 2: LTE Band 2 Idle + Adapter + WLAN (5G) Idle + Phone Link + Lan Link + GNSS Rx
Radiated Emissions ≥ 1GHz	Mode 1: WCDMA Band V Idle + Adapter + WLAN (2.4G) Idle + Phone Link + Lan Link + GNSS Rx
Remark:	
<ol style="list-style-type: none"> 1. The worst case of AC is mode 1; only the test data of this mode was reported. 2. The worst case of RE < 1G is mode 1; only the test data of this mode was reported. 3. GNSS Rx = GPS Rx + Glonass Rx 	

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.	Notebook*2	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
3.	Notebook	Dell	Latitude3440	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
4.	Telephone*2	BBK	HCD007(6082)TSD	N/A	N/A	N/A
5.	GNSS Station	R&S	SMBV100A	N/A	N/A	N/A

2.4. EUT Operation Test Setup

The EUT was in 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 Notebook, and the following programs installed in the EUT were programmed during the test.

1. Turn on GNSS function to make the EUT receive continuous signals from GNSS (GPS/Glonass) station.
2. EUT links with Telephone via RJ11.
3. Lan Link, RJ45 link with Notebook and execute ping.

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.

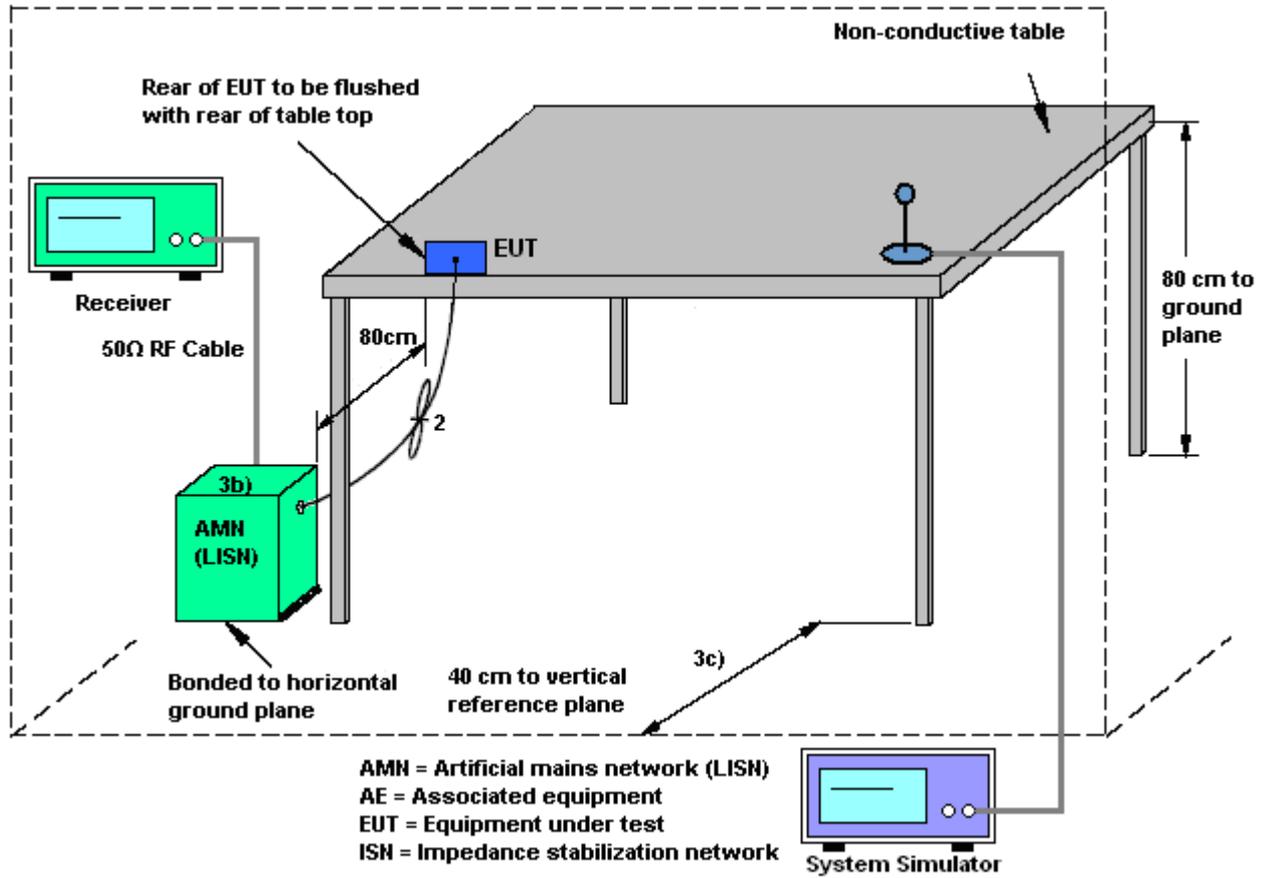
3.1.2 Measuring Instruments

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.

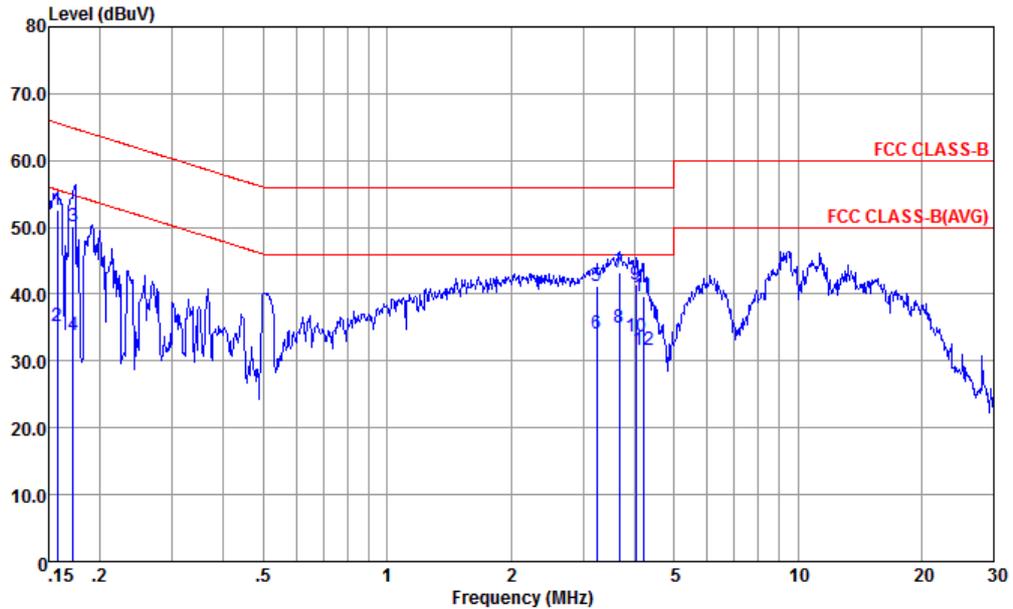
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	23~25°C
Test Engineer :	Amos Zhang	Relative Humidity :	42~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + Adapter + WLAN (2.4G) Idle + Phone Link + Lan Link + GNSS Rx		

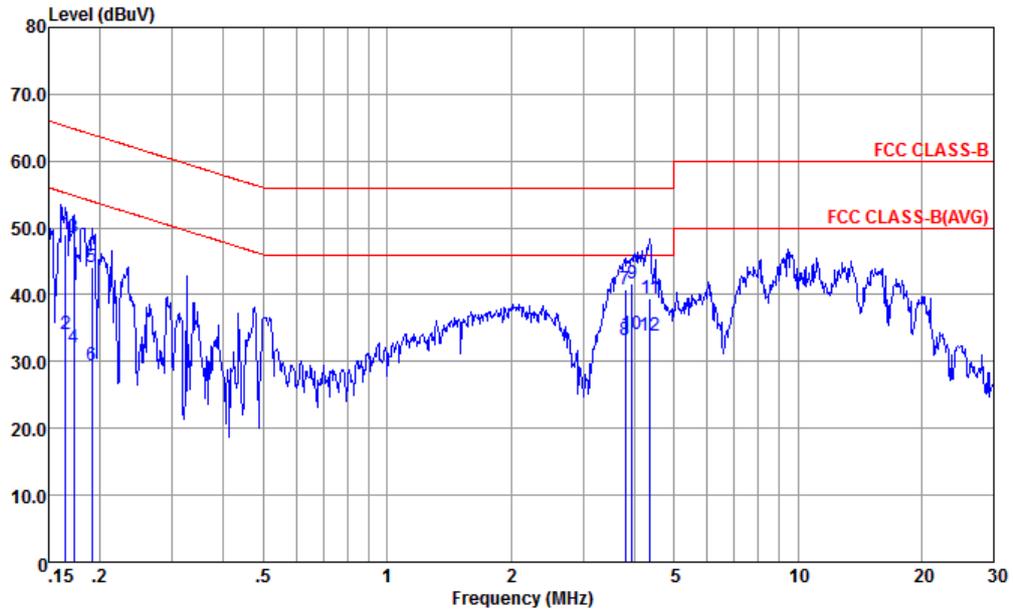


Site : CO01-KS
 Condition : FCC CLASS-B LISN-L-161017-060103 LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.157	52.70	-12.90	65.60	41.61	0.50	10.59	QP
2	0.157	35.30	-20.30	55.60	24.21	0.50	10.59	Average
3	0.172	50.16	-14.70	64.86	39.21	0.41	10.54	QP
4	0.172	33.86	-21.00	54.86	22.91	0.41	10.54	Average
5	3.241	41.19	-14.81	56.00	30.80	0.21	10.18	QP
6	3.241	33.99	-12.01	46.00	23.60	0.21	10.18	Average
7	3.681	43.18	-12.82	56.00	32.80	0.21	10.17	QP
8 *	3.681	34.98	-11.02	46.00	24.60	0.21	10.17	Average
9	4.027	41.48	-14.52	56.00	31.10	0.21	10.17	QP
10	4.027	33.58	-12.42	46.00	23.20	0.21	10.17	Average
11	4.202	39.59	-16.41	56.00	29.20	0.21	10.18	QP
12	4.202	31.59	-14.41	46.00	21.20	0.21	10.18	Average



Test Mode :	Mode 1	Temperature :	23~25°C
Test Engineer :	Amos Zhang	Relative Humidity :	42~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + Adapter + WLAN (2.4G) Idle + Phone Link + Lan Link + GNSS Rx		



Site : CO01-KS
 Condition : FCC CLASS-B LISN-N-161017-060103 NEUTRAL

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.165	49.10	-16.11	65.21	38.20	0.34	10.56	QP
2	0.165	34.10	-21.11	55.21	23.20	0.34	10.56	Average
3	0.173	48.47	-16.34	64.81	37.59	0.34	10.54	QP
4	0.173	32.17	-22.64	54.81	21.29	0.34	10.54	Average
5	0.191	44.01	-19.97	63.98	33.20	0.33	10.48	QP
6	0.191	29.31	-24.67	53.98	18.50	0.33	10.48	Average
7	3.799	40.86	-15.14	56.00	30.30	0.39	10.17	QP
8	3.799	33.16	-12.84	46.00	22.60	0.39	10.17	Average
9	3.943	41.75	-14.25	56.00	31.19	0.39	10.17	QP
10 *	3.943	34.15	-11.85	46.00	23.59	0.39	10.17	Average
11	4.361	39.38	-16.62	56.00	28.81	0.38	10.19	QP
12	4.361	33.88	-12.12	46.00	23.31	0.38	10.19	Average



3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

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

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

3.2.2. Measuring Instruments

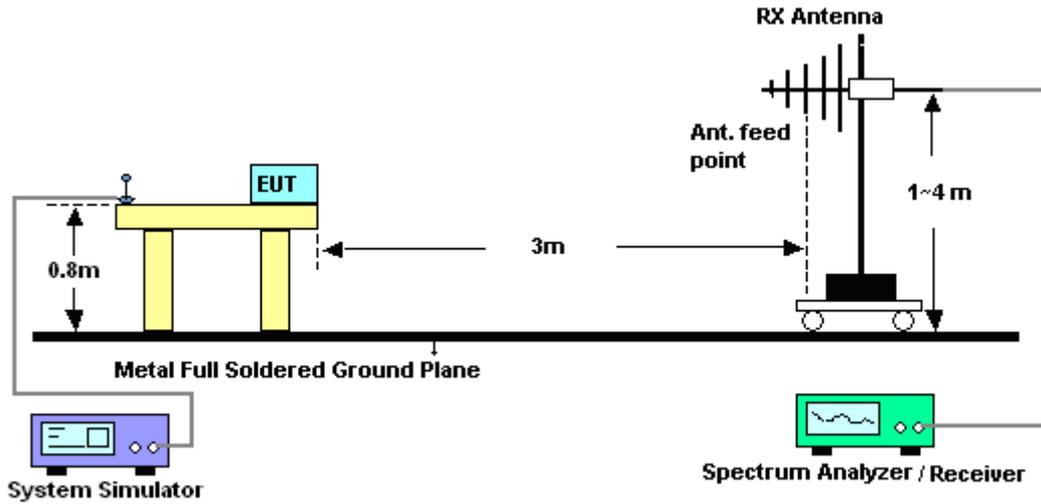
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

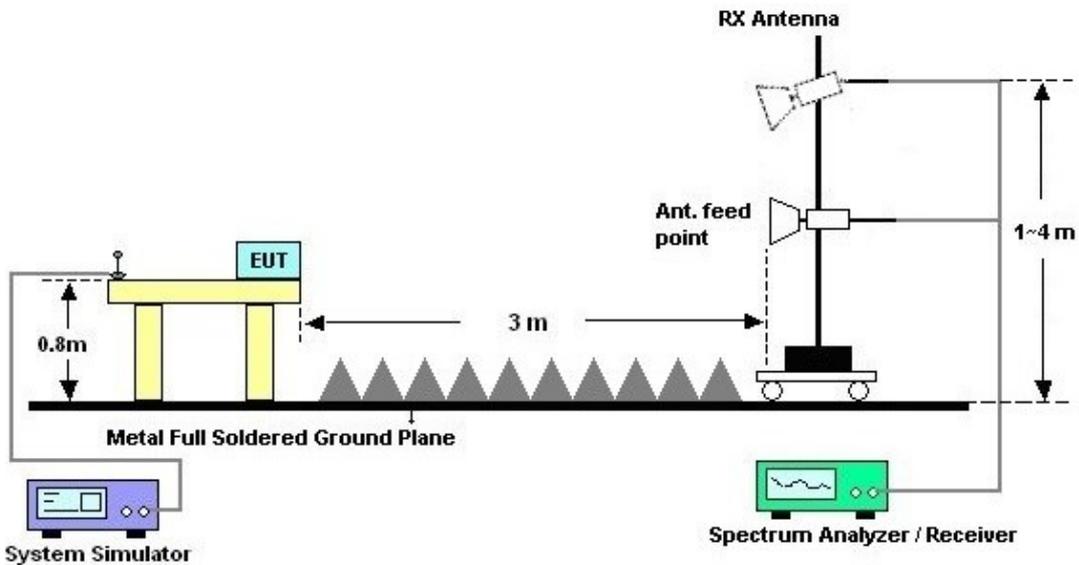
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



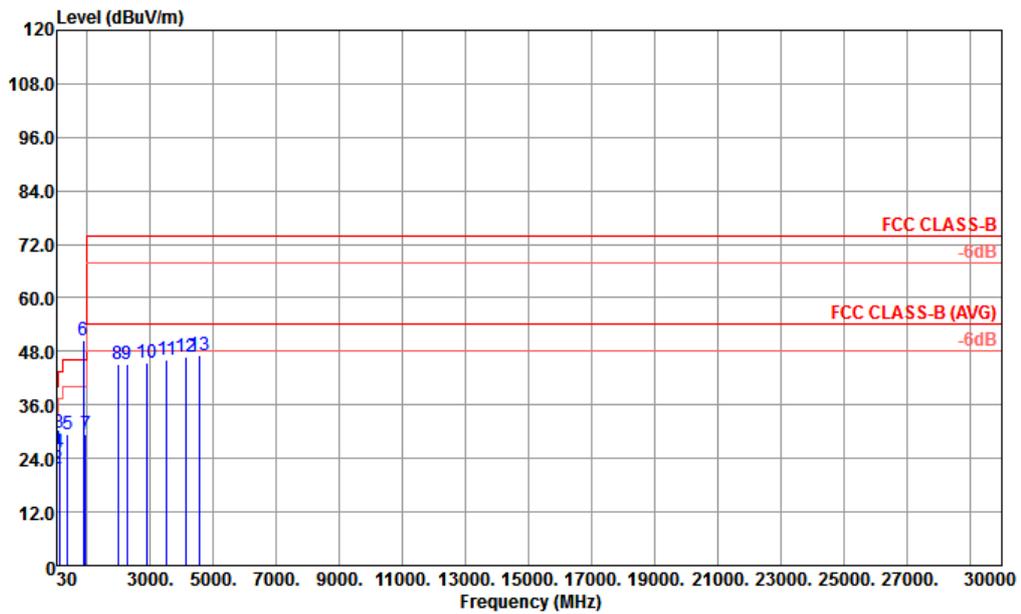
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Carl Ni	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	WCDMA Band V Idle + Adapter + WLAN (2.4G) Idle + Phone Link + Lan Link + GNSS Rx		
Remark :	#6 is system simulator signal which can be ignored.		

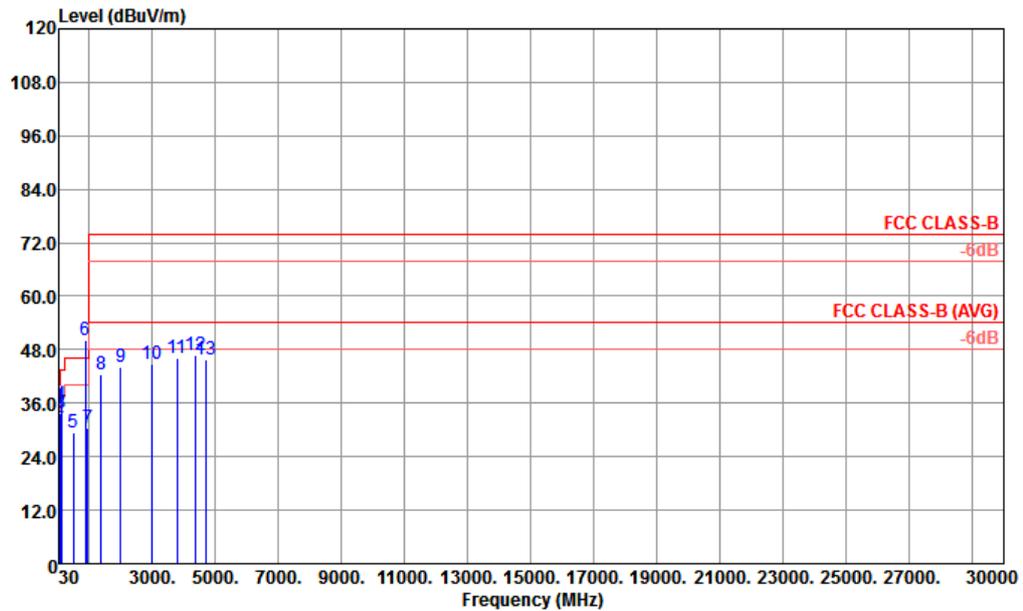


Site : 03CH02-KS
 Condition : FCC CLASS-B 3m 02 LF ANT HORIZONTAL

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	38.10	26.24	-13.76	40.00	34.34	23.30	0.64	32.04	100	0 Peak
2	48.36	21.61	-18.39	40.00	35.31	17.70	0.70	32.10	---	---
3	106.41	29.65	-13.85	43.50	42.68	17.85	1.04	31.92	---	---
4	117.75	25.54	-17.96	43.50	38.57	17.76	1.11	31.90	---	---
5	374.90	29.48	-16.52	46.00	35.53	22.75	2.00	30.80	---	---
6 *	881.70	50.37			47.60	27.35	3.08	27.66	---	---
7	939.80	29.51	-16.49	46.00	25.24	28.30	3.18	27.21	---	---
8	1966.00	45.18	-28.82	74.00	43.49	29.94	4.59	32.84	---	---
9	2264.00	45.16	-28.84	74.00	41.84	30.91	5.02	32.61	---	---
10	2872.00	45.49	-28.51	74.00	37.51	32.00	5.88	29.90	---	---
11	3528.00	46.25	-27.75	74.00	36.54	33.49	6.39	30.17	---	---
12	4128.00	46.64	-27.36	74.00	35.22	35.22	7.09	30.89	---	---
13	4560.00	47.07	-26.93	74.00	35.73	35.56	7.52	31.74	---	---



Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Carl Ni	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Function Type :	WCDMA Band V Idle + Adapter + WLAN (2.4G) Idle + Phone Link + Lan Link + GNSS Rx		
Remark :	#6 is system simulator signal which can be ignored.		



Site : 03CH02-KS
 Condition : FCC CLASS-B 3m 02 LF ANT VERTICAL

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 !	30.81	34.66	-5.34	40.00	40.50	25.60	0.59	32.03	100	0 QP
2	37.02	32.70	-7.30	40.00	40.80	23.30	0.64	32.04	100	15 QP
3	82.65	33.72	-6.28	40.00	49.40	15.43	0.94	32.05	---	Peak
4	107.76	35.76	-7.74	43.50	48.78	17.85	1.05	31.92	---	Peak
5	500.20	29.41	-16.59	46.00	34.44	22.90	2.38	30.31	---	Peak
6 *	882.40	50.11			47.32	27.36	3.08	27.65	---	Peak
7	939.80	30.29	-15.71	46.00	26.02	28.30	3.18	27.21	---	Peak
8	1386.00	42.59	-31.41	74.00	45.22	28.48	3.88	34.99	---	Peak
9	1994.00	43.96	-30.04	74.00	41.90	30.07	4.61	32.62	---	Peak
10	2974.00	44.95	-29.05	74.00	35.75	32.30	5.94	29.04	---	Peak
11	3771.00	46.10	-27.90	74.00	35.05	34.63	6.59	30.17	---	Peak
12	4371.00	46.93	-27.07	74.00	35.53	35.47	7.17	31.24	---	Peak
13	4707.00	45.91	-28.09	74.00	35.10	35.44	7.67	32.30	---	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;	Apr. 20, 2017	Oct. 31, 2017	Apr. 19, 2018	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	60103	9kHz~30MHz	Oct. 13, 2017	Oct. 31, 2017	Oct. 12, 2018	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	60105	9kHz~30MHz	Oct. 13, 2017	Oct. 31, 2017	Oct. 12, 2018	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V,45Hz~ 1000Hz	Oct. 12, 2017	Oct. 31, 2017	Oct. 11, 2018	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Aug. 08, 2017	Oct. 24, 2017	Aug. 07, 2018	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz-44G,MAX 30dB	Apr. 18, 2017	Oct. 24, 2017	Apr. 17, 2018	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	23182	30MHz~2GHz	Jan. 22, 2017	Oct. 24, 2017	Jan. 21, 2018	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 21, 2017	Oct. 24, 2017	Oct. 20, 2018	Radiation (03CH02-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Feb. 15, 2017	Oct. 24, 2017	Feb. 14, 2018	Radiation (03CH02-KS)
Amplifier	MITEQ	TTA1840-35-H G	1887435	18GHz~40GHz	Oct. 12, 2017	Oct. 24, 2017	Oct. 11, 2018	Radiation (03CH02-KS)
Amplifier	SONOMA	310N	187289	9kHz~1GHz	Aug. 07, 2017	Oct. 24, 2017	Aug. 06, 2018	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1-26.5GHz Gain 30dB	Oct. 12, 2017	Oct. 24, 2017	Oct. 11, 2018	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	61601000247 3	N/A	NCR	Oct. 24, 2017	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Oct. 24, 2017	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Oct. 24, 2017	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% ($U = 2Uc(y)$)	5.2dB
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Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.7dB
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Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.3dB
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