



FCC RF Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : WCDMA/LTE multi-mode digital Mobile Phone
BRAND NAME : ZTE
MODEL NAME : Z987
FCC ID : SRQ-Z987
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E)
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Sep. 25, 2014 and testing was completed on Oct. 09, 2014. 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 / TIA / EIA-603-C-2004 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: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



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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	6
1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator	6
1.7 Testing Location	7
1.8 Applicable Standards	7
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	8
2.1 Test Mode.....	8
2.2 Connection Diagram of Test System	10
2.3 Support Unit used in test configuration	10
3 TEST RESULT	11
3.1 Conducted Output Power Measurement.....	11
3.2 Effective Radiated Power and Effective Isotropic Radiated Power Measurement	13
3.3 Field Strength of Spurious Radiation Measurement	19
4 LIST OF MEASURING EQUIPMENT	27
5 UNCERTAINTY OF EVALUATION	29
APPENDIX A. SETUP PHOTOGRAPHS	
APPENDIX B. PRODUCT EQUALITY DECLARATION	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG492504A	Rev. 01	EUT is variant version of Z980L (FCC ID: SRQ-Z980L), and now the variant sample is with FCC ID: SRQ-Z987, The product equality declaration could be referred to Appendix B. Due to the similarity, the parent sample RF performance is representative and part of test data (Sporton Report Number FG472902A with FCC ID: SRQ-Z980L) is referenced; only the conducted power, ERP/EIRP and radiated spurious emission were verified for the differences of the variant sample.	Oct. 22, 2014



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	N/A	PASS	-
3.2	§22.913(a)(2)	Effective Radiated Power	< 7 Watts	PASS	-
	§24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.3	§2.1053 §22.917(a) §24.238(a)	Field Strength of Spurious Radiation	$< 43 + 10 \log_{10}(P[\text{Watts}])$	PASS	Under limit 21.17 dB at 3759.000 MHz



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 multi-mode digital Mobile Phone
Brand Name	ZTE
Model Name	Z987
FCC ID	SRQ-Z987
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/HSPA+(Downlink Only)/LTE WLAN 2.4GHz 802.11b/g/n HT20 Bluetooth v3.0 + EDR/Bluetooth v4.0 LE
HW Version	wvmA
SW Version	Z987V1.2.5
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	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 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 II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna	GSM850 : 32.61 dBm GSM1900 : 28.92 dBm WCDMA Band V : 24.39 dBm WCDMA Band II : 21.55 dBm
Antenna Type	PIFA Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA : QPSK (Uplink) HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM (Downlink Only)

1.5 Modification of EUT

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

1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22	GSM850 GSM	GMSK	0.47	-	-
Part 22	GSM850 EDGE class 8	8PSK	0.13	-	-
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.07	-	-
Part 24	GSM1900 GSM	GMSK	1.04	-	-
Part 24	GSM1900 EDGE class 8	8PSK	0.38	-	-
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.21	-	-



1.7 Testing Location

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 Registration No.
	TH01-KS	03CH01-KS	OTA01-KS	149928

1.8 Applicable Standards

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

- FCC 47 CFR Part 2, 22(H), 24(E)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r01 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V.
2. 30 MHz to 19000 MHz for GSM1900 and WCDMA Band II.

All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

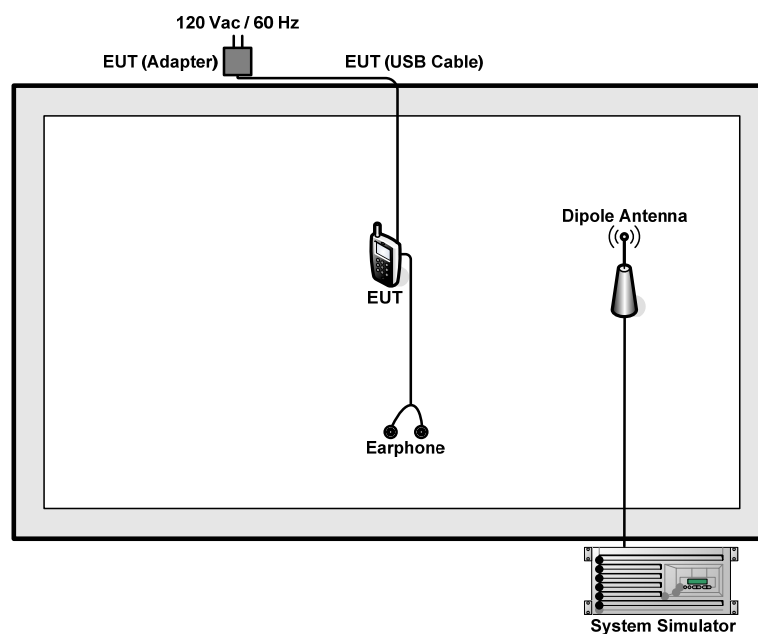
Test Modes		
Band	Radiated TCs	Conducted TCs
GSM 850	■ GSM Link	■ GSM Link
	■ EDGE class 8 Link	■ EDGE class 8 Link
GSM 1900	■ GSM Link	■ GSM Link
	■ EDGE class 8 Link	■ EDGE class 8 Link
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

Conducted Power Measurement Results:

Conducted Power (*Unit: dBm)						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM	32.61	32.46	32.33	28.75	28.92	28.90
GPRS class 8	32.59	32.58	32.36	28.67	28.91	28.80
GPRS class 10	32.50	32.45	32.25	28.62	28.82	28.68
EGPRS class 8	26.57	26.54	26.79	24.43	24.63	24.59
EGPRS class 10	26.46	26.44	26.68	24.38	24.58	24.53

Conducted Power (*Unit: dBm)						
Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4182	4233	9262	9400	9538
Frequency	826.4	836.4	846.6	1852.4	1880.0	1907.6
AMR 12.2K	24.38	24.08	23.97	21.44	21.48	21.54
RMC 12.2K	24.39	24.10	23.98	21.45	21.48	21.55
HSDPA Subtest-1	23.27	22.95	22.89	20.36	20.44	20.56
HSDPA Subtest-2	23.34	22.99	22.94	20.34	20.46	20.55
HSDPA Subtest-3	22.69	22.61	22.49	19.90	19.94	20.08
HSDPA Subtest-4	22.85	22.53	22.50	19.92	19.97	20.10
HSUPA Subtest-1	22.22	22.44	22.52	19.30	20.10	20.27
HSUPA Subtest-2	21.78	21.73	21.71	18.82	19.29	18.76
HSUPA Subtest-3	21.81	21.45	21.34	19.01	19.07	18.39
HSUPA Subtest-4	21.97	21.89	21.90	18.89	19.45	19.85
HSUPA Subtest-5	22.56	22.37	22.30	19.48	19.84	19.75

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Earphone	Lenovo	SH100	N/A	N/A	N/A

3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

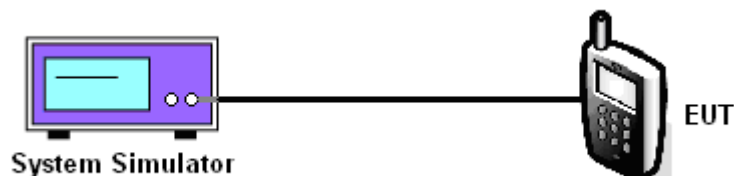
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

3.1.4 Test Setup



3.1.5 Test Result of Conducted Output Power

Cellular Band									
Modes	GSM850 (GSM)			GSM850 (EDGE class 8)			WCDMA Band V (RMC 12.2Kbps)		
Channel	128 (Low)	189 (Mid)	251 (High)	128 (Low)	189 (Mid)	251 (High)	4132 (Low)	4182 (Mid)	4233 (High)
Frequency (MHz)	824.2	836.4	848.8	824.2	836.4	848.8	826.4	836.4	846.6
Conducted Power (dBm)	32.61	32.46	32.33	26.57	26.54	26.79	24.39	24.1	23.98
Conducted Power (dBm)	1.82	1.76	1.71	0.45	0.45	0.48	0.27	0.26	0.25

PCS Band									
Modes	GSM1900 (GSM)			GSM1900 (EDGE class 8)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6
Conducted Power (dBm)	28.75	28.92	28.90	24.43	24.63	24.59	21.45	21.48	21.55
Conducted Power (dBm)	0.75	0.78	0.78	0.28	0.29	0.29	0.14	0.14	0.14

Note: maximum burst average power for GSM, and maximum average power for WCDMA.

3.2 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

3.2.1 Description of the ERP/EIRP Measurement

The substitution method, in ANSI / TIA / EIA-603-C-2004, was used for ERP/EIRP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r01. The ERP of mobile transmitters must not exceed 7 Watts and the EIRP of mobile transmitters are limited to 2 Watts.

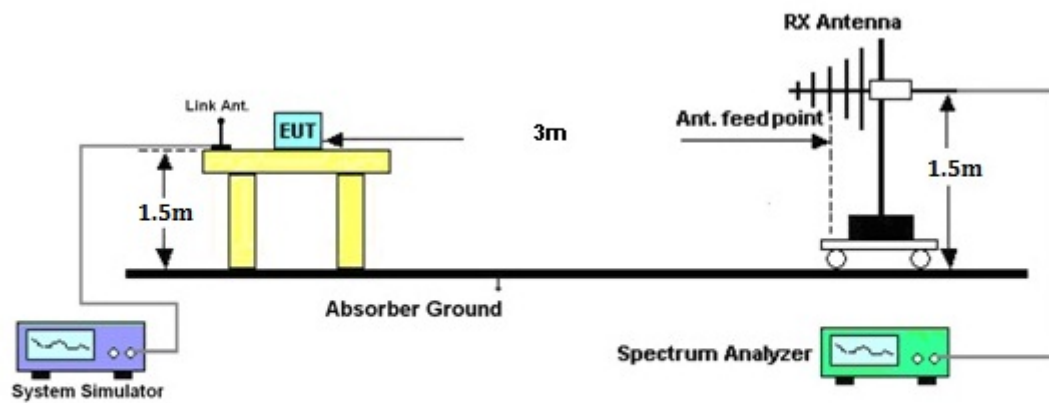
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 5.2.1. (for CDMA/WCDMA), Section 5.2.2.2 (for GSM/GPRS/EDGE) and ANSI / TIA-603-C-2004 Section 2.2.17.
2. The EUT was placed on a turntable 1.5 meters high in a fully anechoic chamber.
3. The EUT was placed 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. GSM operating modes: Set RBW= 1MHz, VBW= 3MHz, RMS detector over burst;
UMTS operating modes: Set RBW= 100 kHz, VBW= 300 kHz, RMS detector over frame, and use channel power option with bandwidth=5MHz, per KDB 971168 D01.
5. The table was rotated 360 degrees to determine the position of the highest radiated power.
6. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
7. Taking the record of maximum ERP/EIRP.
8. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
9. The conducted power at the terminal of the dipole antenna is measured.
10. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
11. $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$
 P_s (dBm) : Input power to substitution antenna.
 G_s (dBi or dBd) : Substitution antenna Gain.
 $E_t = R_t + AF$
 $E_s = R_s + AF$
 AF (dB/m) : Receive antenna factor
 R_t : The highest received signal in spectrum analyzer for EUT.
 R_s : The highest received signal in spectrum analyzer for substitution antenna.

3.2.4 Test Setup



3.2.5 Test Result of ERP

GSM850 (GSM) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-20.40	-48.12	0.00	-1.08	26.64	0.46
836.40	-20.60	-48.28	0.00	-0.93	26.75	0.47
848.80	-21.20	-48.35	0.00	-0.76	26.39	0.44
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-28.89	-47.97	0.00	-1.08	18.00	0.06
836.40	-29.35	-48.01	0.00	-0.93	17.73	0.06
848.80	-29.79	-48.05	0.00	-0.76	17.50	0.06

GSM850 (EDGE class 8) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-26.29	-48.12	0.00	-1.08	20.75	0.12
836.40	-26.11	-48.28	0.00	-0.93	21.24	0.13
848.80	-26.48	-48.35	0.00	-0.76	21.11	0.13
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-35.05	-47.97	0.00	-1.08	11.84	0.02
836.40	-35.22	-48.01	0.00	-0.93	11.86	0.02
848.80	-35.31	-48.05	0.00	-0.76	11.98	0.02



WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-28.89	-48.12	0.00	-1.08	18.15	0.07
836.40	-28.94	-48.28	0.00	-0.93	18.41	0.07
846.60	-29.51	-48.35	0.00	-0.76	18.08	0.06
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-37.47	-47.97	0.00	-1.08	9.42	0.01
836.40	-37.63	-48.01	0.00	-0.93	9.45	0.01
846.60	-38.31	-48.05	0.00	-0.76	8.98	0.01

3.2.6 Test Result of EIRP

GSM1900 (GSM) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-24.75	-51.88	0.00	1.96	29.09	0.81
1880.00	-25.06	-52.99	0.00	2.00	29.93	0.98
1909.80	-26.35	-54.28	0.00	1.98	29.91	0.98
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-25.01	-52.13	0.00	1.96	29.08	0.81
1880.00	-25.38	-53.17	0.00	2.00	29.79	0.95
1909.80	-25.93	-54.13	0.00	1.98	30.18	1.04

GSM1900 (EDGE class 8) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-28.78	-51.88	0.00	1.96	25.06	0.32
1880.00	-29.51	-52.99	0.00	2.00	25.48	0.35
1909.80	-30.52	-54.28	0.00	1.98	25.74	0.38
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-29.21	-52.13	0.00	1.96	24.88	0.31
1880.00	-29.95	-53.17	0.00	2.00	25.22	0.33
1909.80	-30.26	-54.13	0.00	1.98	25.85	0.38



WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-31.38	-51.88	0.00	1.96	22.46	0.18
1880.00	-32.42	-52.99	0.00	2.00	22.57	0.18
1907.60	-33.21	-54.28	0.00	1.98	23.05	0.20
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-31.69	-52.13	0.00	1.96	22.40	0.17
1880.00	-32.70	-53.17	0.00	2.00	22.47	0.18
1907.60	-32.88	-54.13	0.00	1.98	23.23	0.21

3.3 Field Strength of Spurious Radiation Measurement

3.3.1 Description of Field Strength of Spurious Radiated Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.3.2 Measuring Instruments

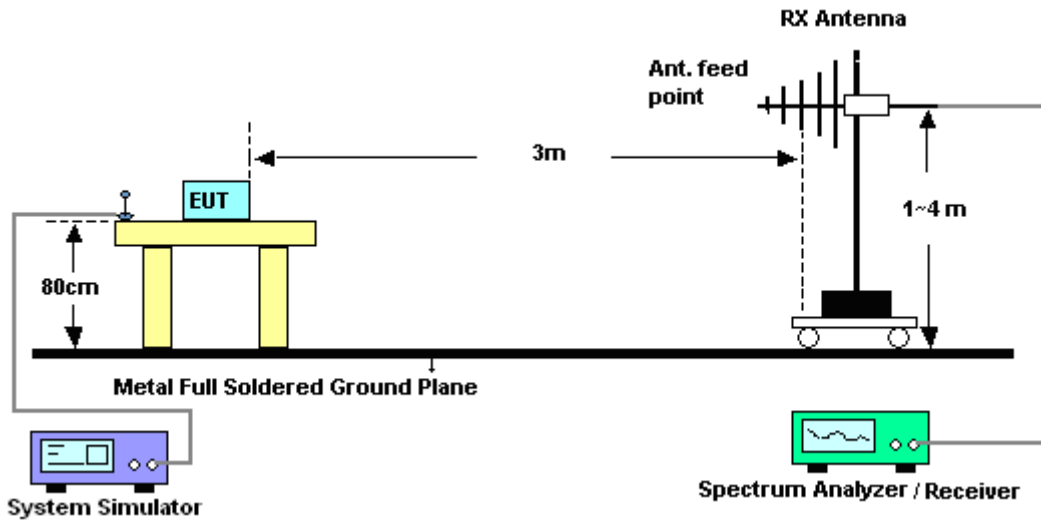
The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

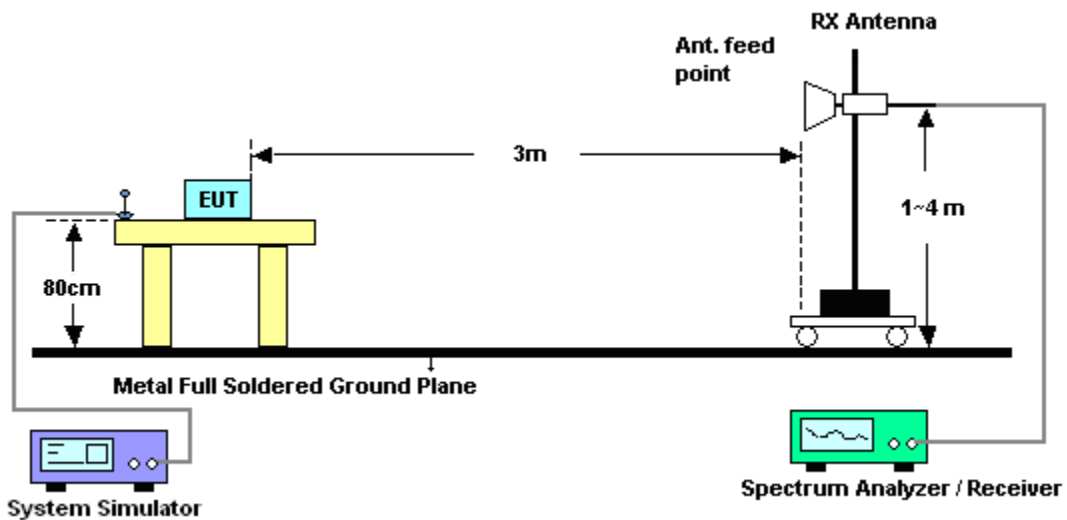
1. The testing follows FCC KDB 971168 v02r01 Section 5.8 and ANSI / TIA-603-C-2004 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
12. $ERP \text{ (dBm)} = EIRP - 2.15$
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$

3.3.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz





3.3.5 Test Result of Field Strength of Spurious Radiated

Band :	GSM850					Temperature :	22~23℃		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	40~41%		
Test Engineer :	Levi Quan					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1674	-64.06	-13	-51.06	-57.69	-64.71	0.57	3.37	H	Pass
2510	-53.42	-13	-40.42	-55.12	-55.65	0.78	5.16	H	Pass
3344	-65.99	-13	-52.99	-65.62	-69.63	0.87	6.66	H	Pass
4182	-66.62	-13	-53.62	-66.31	-71.78	1.04	8.35	H	Pass
5018	-65.32	-13	-52.32	-66.96	-71.98	1.19	10.00	H	Pass
5854	-61.68	-13	-48.68	-67.14	-69.83	1.34	11.64	H	Pass
6692	-58.21	-13	-45.21	-66.80	-67.86	1.49	13.29	H	Pass
7528	-53.25	-13	-40.25	-61.25	-64.39	1.64	14.93	H	Pass
8366	-47.86	-13	-34.86	-58.69	-60.50	1.79	16.58	H	Pass

Band :	GSM850					Temperature :	22~23°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	40~41%		
Test Engineer :	Levi Quan					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1674	-66.45	-13	-53.45	-62.65	-67.10	0.57	3.37	V	Pass
2510	-48.84	-13	-35.84	-55.93	-51.07	0.78	5.16	V	Pass
3344	-64.64	-13	-51.64	-65.70	-68.28	0.87	6.66	V	Pass
4182	-63.91	-13	-50.91	-66.59	-69.07	1.04	8.35	V	Pass
5018	-59.85	-13	-46.85	-66.40	-66.50	1.19	10.00	V	Pass
5854	-61.18	-13	-48.18	-67.18	-69.33	1.34	11.64	V	Pass
6691	-56.72	-13	-43.72	-66.42	-66.36	1.49	13.29	V	Pass
7527	-56.93	-13	-43.93	-66.73	-68.07	1.64	14.93	V	Pass
8366	-50.31	-13	-37.31	-60.92	-62.95	1.79	16.58	V	Pass



Band :	GSM850					Temperature :	22~23°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	40~41%		
Test Engineer :	Levi Quan					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-74.83	-13	-61.83	-65.95	-75.48	0.57	3.37	H	Pass
2510	-56.13	-13	-43.13	-56.90	-58.36	0.78	5.16	H	Pass
3344	-65.97	-13	-52.97	-65.60	-69.61	0.87	6.66	H	Pass

Band :	GSM850					Temperature :	22~23°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	40~41%		
Test Engineer :	Levi Quan					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-70.10	-13	-57.10	-66.30	-70.75	0.57	3.37	V	Pass
2510	-61.60	-13	-48.60	-64.03	-63.83	0.78	5.16	V	Pass
3344	-64.43	-13	-51.43	-65.49	-68.07	0.87	6.66	V	Pass



Band :	GSM1900					Temperature :	22~23℃		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	40~41%		
Test Engineer :	Levi Quan					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3759	-34.17	-13	-21.17	-44.59	-40.55	0.78	7.16	H	Pass
5643	-41.17	-13	-28.17	-55.54	-49.71	1.04	9.58	H	Pass
7521	-48.61	-13	-35.61	-60.95	-58.72	1.35	11.46	H	Pass

Band :	GSM1900					Temperature :	22~23℃		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	40~41%		
Test Engineer :	Levi Quan					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3759	-38.19	-13	-25.19	-50.02	-44.57	0.78	7.16	V	Pass
5643	-46.00	-13	-33.00	-53.93	-54.54	1.04	9.58	V	Pass
7521	-51.71	-13	-38.71	-65.8	-61.82	1.35	11.46	V	Pass



Band :	GSM1900					Temperature :	22~23℃		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	40~41%		
Test Engineer :	Levi Quan					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3759	-55.20	-13	-42.20	-60.39	-61.58	0.78	7.16	H	Pass
5643	-54.20	-13	-41.20	-64.26	-62.74	1.04	9.58	H	Pass
7521	-53.32	-13	-40.32	-64.86	-63.43	1.35	11.46	H	Pass

Band :	GSM1900					Temperature :	22~23℃		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	40~41%		
Test Engineer :	Levi Quan					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3759	-52.27	-13	-39.27	-60.67	-58.65	0.78	7.16	V	Pass
5643	-51.41	-13	-38.41	-64.06	-59.95	1.04	9.58	V	Pass
7521	-52.35	-13	-39.35	-66.44	-62.46	1.35	11.46	V	Pass



Band :	WCDMA Band V					Temperature :	22~23°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	40~41%		
Test Engineer :	Levi Quan					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-75.32	-13	-62.32	-66.44	-75.97	0.57	3.37	H	Pass
2508	-67.01	-13	-54.01	-65.68	-69.24	0.78	5.16	H	Pass
3344	-65.83	-13	-52.83	-65.46	-69.47	0.87	6.66	H	Pass

Band :	WCDMA Band V					Temperature :	22~23°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	40~41%		
Test Engineer :	Levi Quan					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-70.08	-13	-57.08	-66.28	-70.73	0.57	3.37	V	Pass
2509	-64.26	-13	-51.26	-66.69	-66.49	0.78	5.16	V	Pass
3344	-64.89	-13	-51.89	-65.95	-68.53	0.87	6.66	V	Pass



Band :	WCDMA Band II					Temperature :	22~23°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	40~41%		
Test Engineer :	Levi Quan					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3756	-56.07	-13	-43.07	-61.22	-62.45	0.78	7.16	H	Pass
5634	-54.92	-13	-41.92	-64.98	-63.46	1.04	9.58	H	Pass
7521	-53.00	-13	-40.00	-64.54	-63.11	1.35	11.46	H	Pass

Band :	WCDMA Band II					Temperature :	22~23°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	40~41%		
Test Engineer :	Levi Quan					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3759	-53.37	-13	-40.37	-61.77	-59.75	0.78	7.16	V	Pass
5640	-54.28	-13	-41.28	-66.93	-62.82	1.04	9.58	V	Pass
7521	-52.01	-13	-39.01	-66.1	-62.12	1.35	11.46	V	Pass



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 28, 2013	Oct. 08, 2014	Dec. 27, 2014	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 05, 2013	Oct. 04, 2014	Nov. 04, 2014	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	May 04, 2014	Oct. 04, 2014	May 03, 2015	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Jan. 08, 2014	Oct. 04, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Jan. 08, 2014	Oct. 04, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 18, 2013	Oct. 04, 2014	Nov. 17, 2014	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Mar. 10, 2014	Oct. 04, 2014	Mar. 09, 2015	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161073	1MHz~1GHz	May 04, 2014	Oct. 04, 2014	May 03, 2015	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02371	1GHz~26.5GHz	Dec. 10, 2013	Oct. 04, 2014	Dec. 09, 2014	Radiation (03CH01-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Oct. 04, 2014	NCR	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Oct. 04, 2014	NCR	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Oct. 04, 2014	NCR	Radiation (03CH01-KS)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP 7	100819	9kHz~7GHz	May 04, 2014	Oct. 09, 2014	May 03, 2015	ERP/EIRP (OTA01-KS)
Switch Control Manframe	Agilent	3499A	MY42005452	N/A	N/A	Oct. 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Dual 1-to-6(4) MW MUX	Agilent	N2276A	MY42000841	N/A	N/A	Oct. 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Microwave Switch	Agilent	44476A	MY42002573	N/A	N/A	Oct. 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Microwave Switch	Agilent	44476A	MY42002586	N/A	N/A	Oct. 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Diagonal Dual Polarized Horn	ETS-Lindgren	3164-04	00066993	700MHz~6GHz	N/A	Oct. 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Multi-Devices Controller	ETS-Lindgren	2090-OPT1	00066604	N/A	N/A	Oct. 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Conical Log Spiral (Small)	ETS-Lindgren	3102	00066951	1~10GHz	N/A	Oct. 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Turn Table	ETS-Lindgren	2088	N/A	Resolution : 0.1degree	N/A	Oct. 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Limiting Amplifier	ETS-lindgren	109643	920326	10MHz~2.5GHz	N/A	Oct. 09, 2014	N/A	ERP/EIRP (OTA01-KS)
EMQuest	ETS-Lindgren	EMQ-100	1125	N/A	N/A	Oct. 09, 2014	N/A	ERP/EIRP (OTA01-KS)
Medium Duty Holder	ETS-Lindgren	2015	N/A	N/A	N/A	Oct. 09, 2014	N/A	ERP/EIRP (OTA01-KS)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.5
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Appendix B. Product Equality Declaration

ZTE CORPORATION**Product Change Description**

As the applicant of the below model, [ZTE Corporation] declares that the product,

[Z987]
[ZTE Corporation]

is the variant of the initial certified product,

[Z980L]
[ZTE Corporation]
[Project Number:14ZTE130]

SOFTWARE MODIFICATIONS:

Protocol Stack changes: NO

MMS/STK changes: NO

JAVA changes: NO

Other changes detailed: Yes. No longer support UMTS BAND IV.

HARDWARE MODIFICATION:

Band changes: Yes, No longer support UMTS BAND IV.

Power Amplifier changes: NO

Antenna changes: Changed all main antenna. (Bluetooth/WIFI antenna is same as previous Z980L)

PCB Layout changes: NO

Components on PCB changes: NO

LCD changes: NO

Speaker changes: NO

Camera changes: NO

Vibrator changes: NO

Bluetooth changes: NO

FM changes: NO

Other changes: NO

MECHANICAL MODIFICATIONS:

Use new metal front/back cover or keypad: NO

Mechanical shell changes: NO

Other changes detailed: NO

ACCESSORY MODIFICATIONS:

Battery changes:No

AC Adaptor changes:No

Earphone changes:No

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