



Variant FCC Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : Wireless Access Terminal
BRAND NAME : ZTE
MODEL NAME : WF721
FCC ID : SRQ-WF721
STANDARD : FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION : Certification

This is a variant report which is only valid together with the original test report. The product was received on Jun. 21, 2016 and testing was completed on Jul. 08, 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.

Prepared by: James Huang / Manager

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. 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 6.41 dB at 0.560 MHz
3.2	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 5.00 dB at 49.440 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	Wireless Access Terminal
Brand Name	ZTE
Model Name	WF721
FCC ID	SRQ-WF721
EUT supports Radios application	GPRS/WCDMA
HW Version	dekA
SW Version	WF721 1.1.21
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	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 GPS : 1.57542 GHz
Antenna Type	WWAN : PCB Antenna
Type of Modulation	GPRS: GMSK WCDMA: QPSK (Uplink)



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

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.

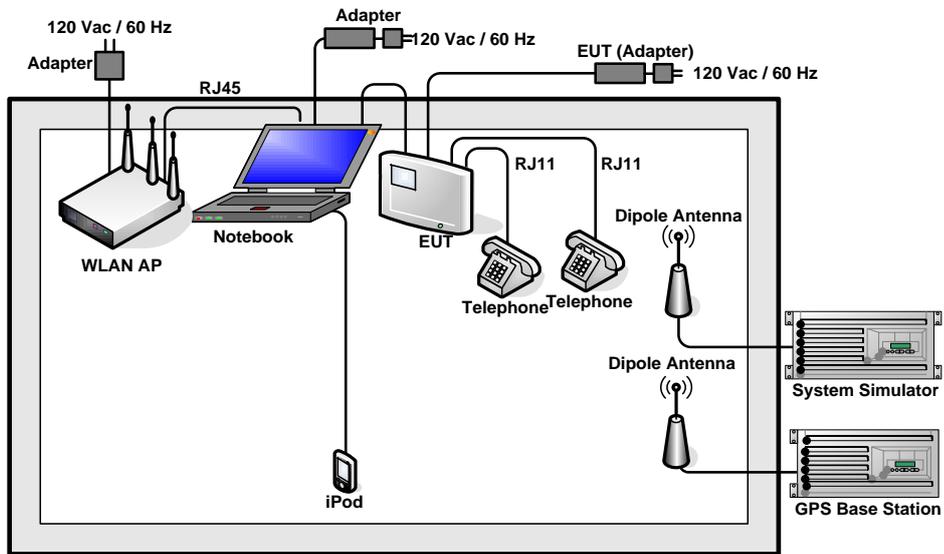
Item	EUT Configuration	Test Condition	
		EMI AC	EMI RE
1.	Charging Mode (EUT with adapter)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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 + Phone Link + GPS Rx
Radiated Emissions	1	Mode 1 : WCDMA Band V Idle + Adapter + Phone Link + GPS 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	Anritus	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	ADIVIC	MP9000	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	LINKSYS	WRT600N	Q87-WRT600NV11	N/A	Unshielded, 1.8 m
4.	Notebook	Lenovo	E40-70	PRC4	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
5.	Telephone	Bubugao	HCD007(6082)TSD	N/A	N/A	N/A
6.	Telephone	Bubugao	HCD007(6082)TSD	N/A	N/A	N/A
7.	iPod	Apple	A1199	FCC DoC	Shielded, 1.2 m	N/A

2.4. EUT Operation Test Setup

The EUT was in WCDMA idle mode during the testing. The EUT was synchronized to the BCCH, and was in continuous receiving mode by setting system simulator's paging reorganization. And the EUT is connected with Telephone via RJ-11 cable.



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.

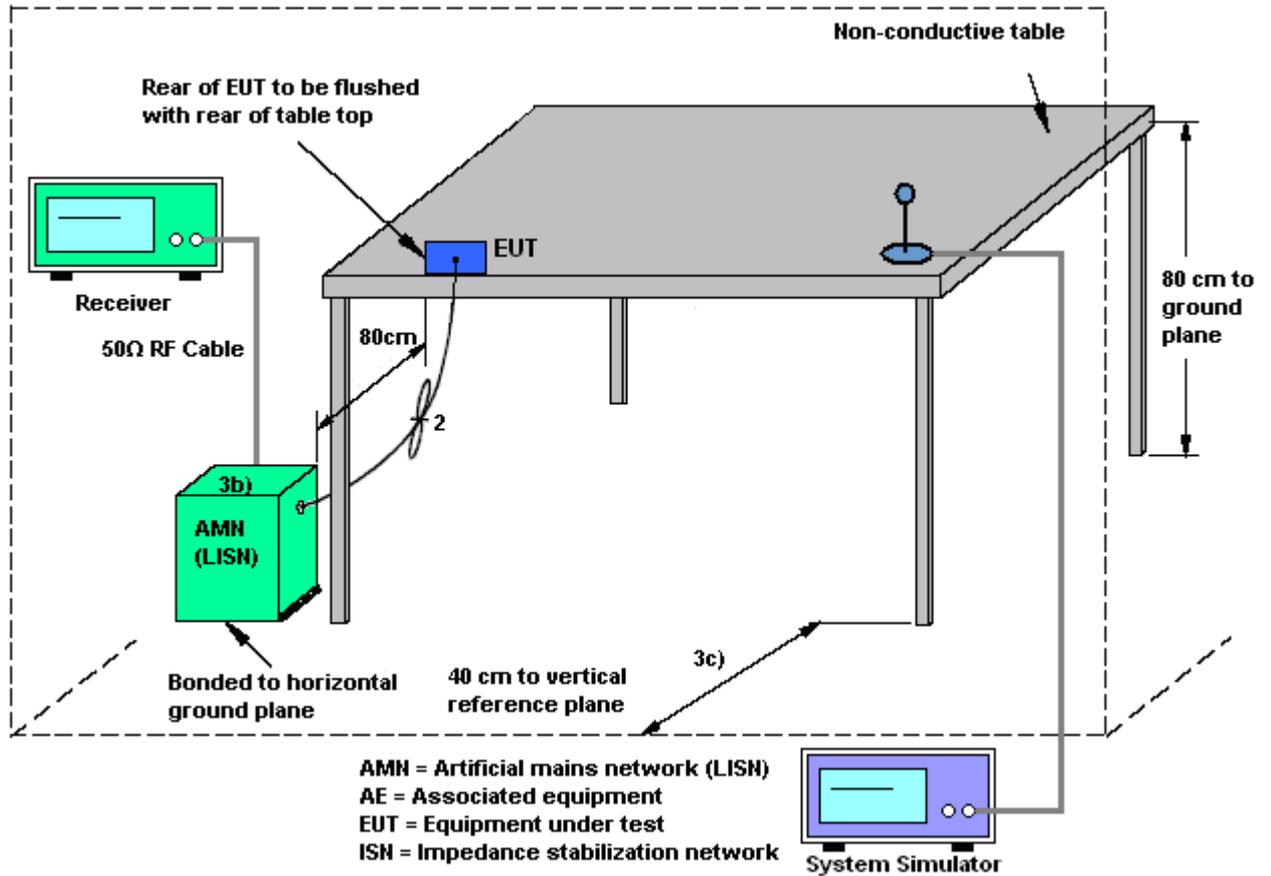
3.1.2 Measuring Instruments

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.

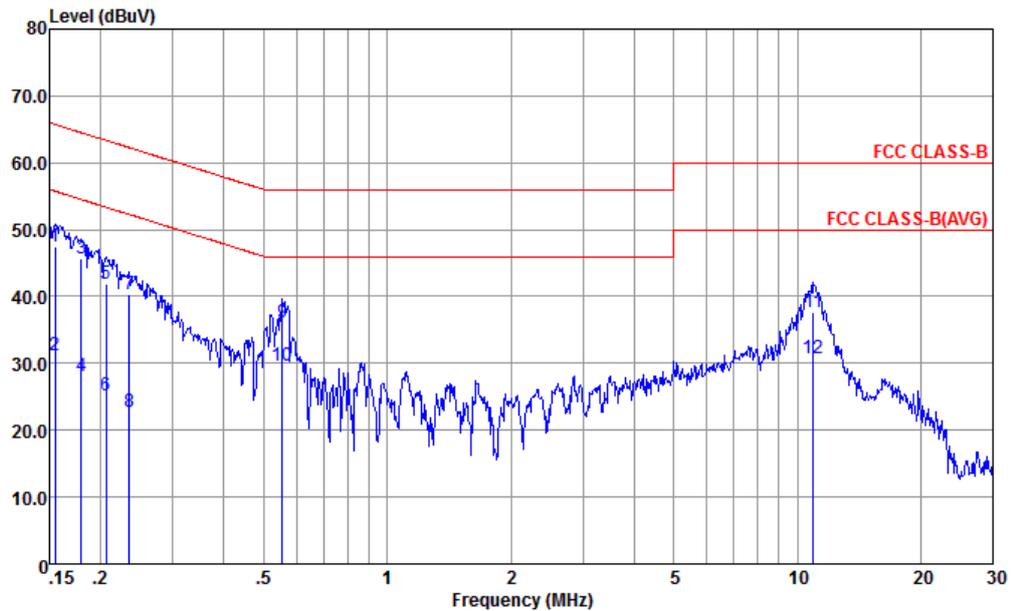
3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Amos Zhang	Relative Humidity :	44~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + Adapter + Phone Link + GPS Rx		

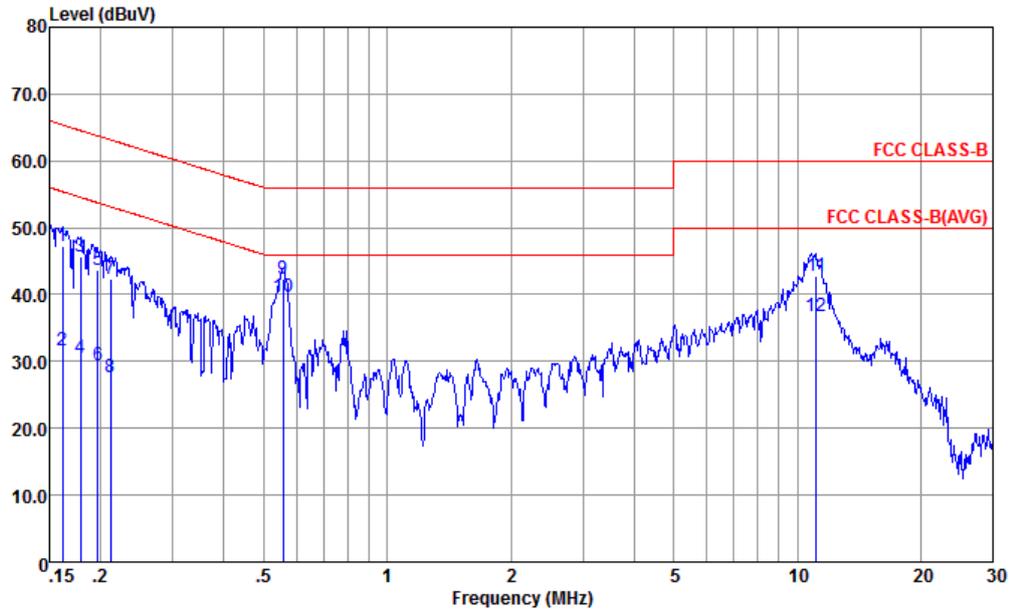


Site : CO01-KS
 Condition : FCC CLASS-B LISN-L-20151024 LINE
 Project : (FC) 3N2101-08
 mode : Mode 1
 : #2

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	47.50	-18.24	65.74	36.90	0.49	10.11	QP
2	0.15	31.10	-24.64	55.74	20.50	0.49	10.11	Average
3	0.18	45.66	-18.84	64.50	35.20	0.34	10.12	QP
4	0.18	28.06	-26.44	54.50	17.60	0.34	10.12	Average
5	0.21	41.95	-21.41	63.36	31.60	0.22	10.13	QP
6	0.21	25.25	-28.11	53.36	14.90	0.22	10.13	Average
7	0.24	40.26	-22.00	62.26	29.90	0.22	10.14	QP
8	0.24	22.66	-29.60	52.26	12.30	0.22	10.14	Average
9	0.56	35.99	-20.01	56.00	25.60	0.23	10.16	QP
10 *	0.56	29.59	-16.41	46.00	19.20	0.23	10.16	Average
11	10.96	37.64	-22.36	60.00	27.10	0.25	10.29	QP
12	10.96	30.64	-19.36	50.00	20.10	0.25	10.29	Average



Test Mode :	Mode 1	Temperature :	22~24°C
Test Engineer :	Amos Zhang	Relative Humidity :	44~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + Adapter + Phone Link + GPS Rx		



Site : CO01-KS
 Condition : FCC CLASS-B LISN-N-20151024 NEUTRAL
 Project : (FC) 3N2101-08
 mode : Mode 1
 : #2

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	47.31	-18.07	65.38	36.90	0.30	10.11	QP
2	0.16	31.71	-23.67	55.38	21.30	0.30	10.11	Average
3	0.18	45.73	-18.82	64.55	35.30	0.31	10.12	QP
4	0.18	30.63	-23.92	54.55	20.20	0.31	10.12	Average
5	0.20	43.64	-20.12	63.76	33.20	0.31	10.13	QP
6	0.20	29.34	-24.42	53.76	18.90	0.31	10.13	Average
7	0.21	42.34	-20.80	63.14	31.90	0.31	10.13	QP
8	0.21	27.64	-25.50	53.14	17.20	0.31	10.13	Average
9	0.56	42.39	-13.61	56.00	31.90	0.33	10.16	QP
10 *	0.56	39.59	-6.41	46.00	29.10	0.33	10.16	Average
11	11.14	42.87	-17.13	60.00	32.30	0.28	10.29	QP
12	11.14	36.77	-13.23	50.00	26.20	0.28	10.29	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

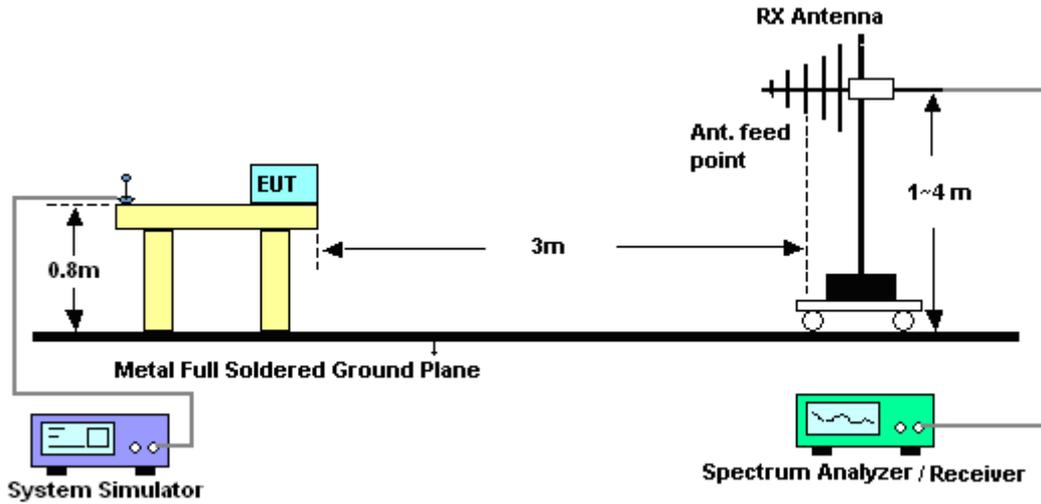
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

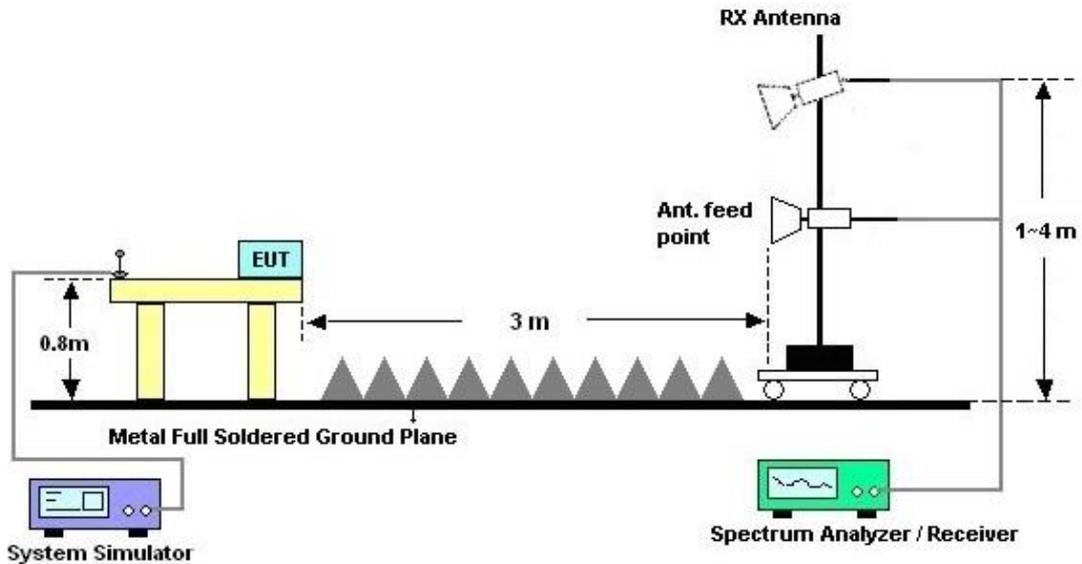
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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



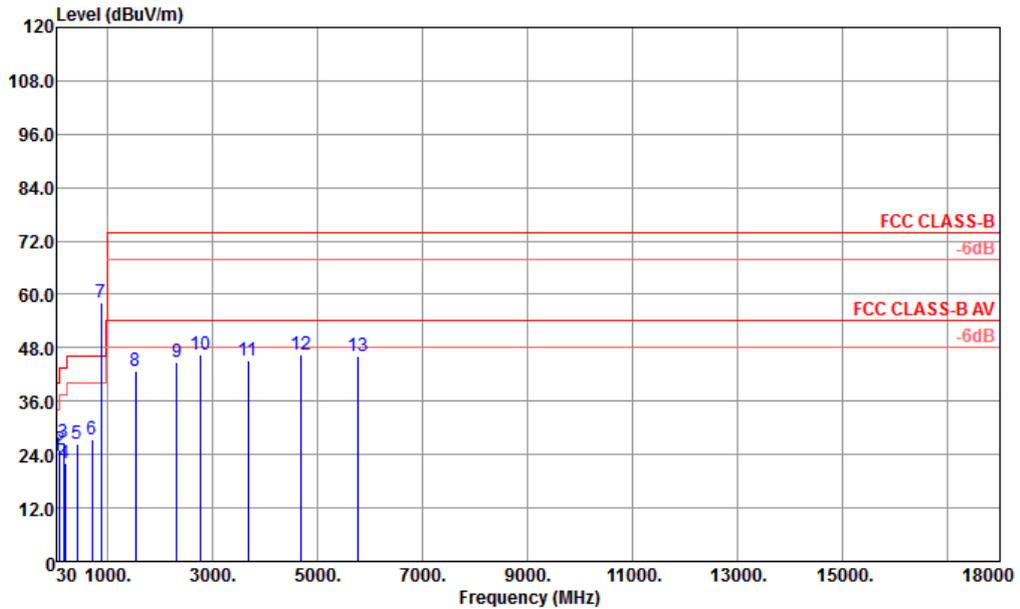
For radiated emissions above 1GHz





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Wizard Chen	Relative Humidity :	42~43%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	WCDMA Band V Idle + Adapter + Phone Link + GPS Rx		
Remark :	#7 is system simulator signal which can be ignored.		

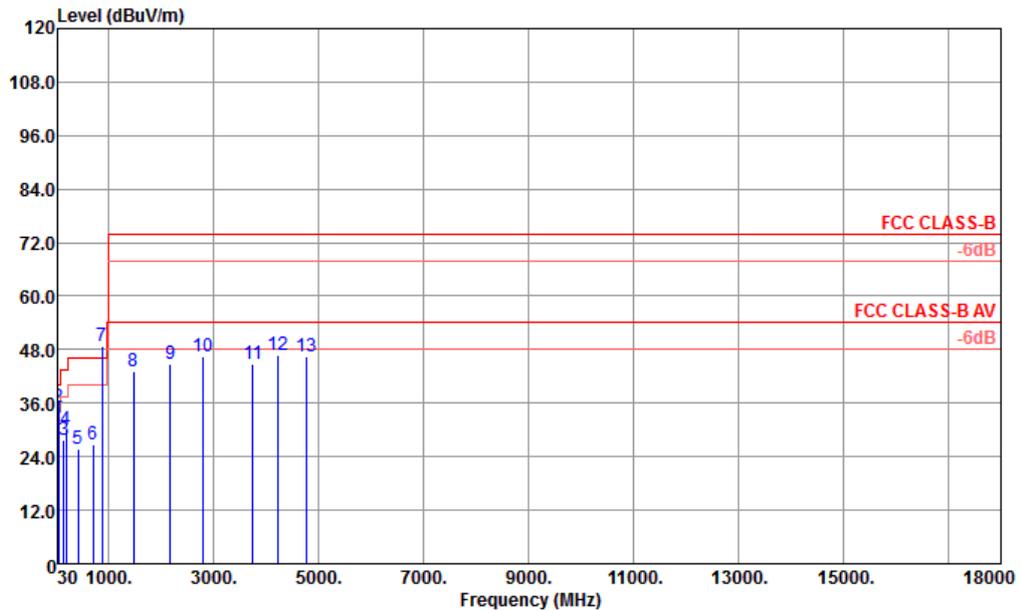


Site : 03CH02-KS
 Condition : FCC CLASS-B 3m 966-02 LF ANT HORIZONTAL
 Project : (FC) 3N2101-08
 Mode : 1
 IMEI : #2
 Battery :

	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	34.05	23.58	-16.42	40.00	29.60	24.80	0.12	30.94	170	260	Peak HORIZONTAL
2	95.61	25.21	-18.29	43.50	37.88	17.50	0.23	30.40	---	---	Peak HORIZONTAL
3	160.41	26.61	-16.89	43.50	39.53	17.14	0.34	30.40	---	---	Peak HORIZONTAL
4	198.75	22.21	-21.29	43.50	36.90	15.30	0.41	30.40	---	---	Peak HORIZONTAL
5	421.10	26.30	-19.70	46.00	31.03	24.95	0.94	30.62	---	---	Peak HORIZONTAL
6	706.70	27.26	-18.74	46.00	29.77	26.70	1.20	30.41	---	---	Peak HORIZONTAL
7 *	882.40	58.15			59.63	27.46	1.59	30.53	---	---	Peak HORIZONTAL
8	1530.00	42.67	-31.33	74.00	46.16	28.82	3.87	36.18	---	---	Peak HORIZONTAL
9	2320.00	44.71	-29.29	74.00	41.33	31.33	5.67	33.62	---	---	Peak HORIZONTAL
10	2770.00	46.36	-27.64	74.00	40.08	32.03	2.81	28.56	---	---	Peak HORIZONTAL
11	3678.00	45.09	-28.91	74.00	35.88	34.23	6.24	31.26	---	---	Peak HORIZONTAL
12	4701.00	46.34	-27.66	74.00	37.90	35.10	5.74	32.40	---	---	Peak HORIZONTAL
13	5760.00	46.17	-27.83	74.00	40.05	35.24	6.91	36.03	---	---	Peak HORIZONTAL



Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Wizard Chen	Relative Humidity :	42~43%
Test Distance :	3m	Polarization :	Vertical
Function Type :	WCDMA Band V Idle + Adapter + Phone Link + GPS Rx		
Remark :	#7 is system simulator signal which can be ignored.		



Site : 03CH02-KS
 Condition : FCC CLASS-B 3m 966-02 LF ANT VERTICAL
 Project : (FC) 3N2101-08
 Mode : 1
 IMEI : #2
 Battery :

	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	41.34	32.51	-7.49	40.00	42.14	21.10	0.13	30.86	---	---	Peak	VERTICAL
2 !	49.44	35.00	-5.00	40.00	50.46	15.20	0.14	30.80	100	230	Peak	VERTICAL
3	150.42	27.85	-15.65	43.50	40.32	17.60	0.33	30.40	---	---	Peak	VERTICAL
4	198.48	30.06	-13.44	43.50	44.75	15.30	0.41	30.40	---	---	Peak	VERTICAL
5	421.10	25.59	-20.41	46.00	30.32	24.95	0.94	30.62	---	---	Peak	VERTICAL
6	708.10	26.68	-19.32	46.00	29.19	26.70	1.21	30.42	---	---	Peak	VERTICAL
7 *	881.00	48.66			50.16	27.45	1.58	30.53	---	---	Peak	VERTICAL
8	1480.00	43.10	-30.90	74.00	46.80	28.73	3.70	36.13	---	---	Peak	VERTICAL
9	2182.00	44.95	-29.05	74.00	42.52	31.14	5.65	34.36	---	---	Peak	VERTICAL
10	2804.00	46.43	-27.57	74.00	39.24	32.10	2.71	27.62	---	---	Peak	VERTICAL
11	3750.00	44.68	-29.32	74.00	35.23	34.50	6.44	31.49	---	---	Peak	VERTICAL
12	4239.00	46.90	-27.10	74.00	37.36	35.14	6.17	31.77	---	---	Peak	VERTICAL
13	4764.00	46.55	-27.45	74.00	38.40	35.05	6.00	32.90	---	---	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	ESCI7	100768	9kHz~7GHz;	Apr. 29, 2016	Jul. 08, 2016	Apr. 28, 2017	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 24, 2015	Jul. 08, 2016	Oct. 23, 2016	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 24, 2015	Jul. 08, 2016	Oct. 23, 2016	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP0000008 11	AC 0V~300V, 45Hz~1000Hz	Oct. 24, 2015	Jul. 08, 2016	Oct. 23, 2016	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Sep. 10, 2015	Jul. 03, 2016	Sep. 09, 2016	Radiation (03CH02-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150208	10Hz~44GHz; Max 30dB	Apr. 22, 2016	Jul. 03, 2016	Apr. 21, 2017	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	37879	30MHz~2GHz	Sep. 12, 2015	Jul. 03, 2016	Sep. 11, 2016	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 07, 2015	Jul. 03, 2016	Nov. 06, 2016	Radiation (03CH02-KS)
SHF-EHF Horn	com-power	AH-840	101070	18GHz~40GHz	Oct. 10, 2015	Jul. 03, 2016	Oct. 09, 2016	Radiation (03CH02-KS)
Amplifier	com-power	PA-103A	161069	1kHz~1000MHz / 32 dB	Apr. 22, 2016	Jul. 03, 2016	Apr. 21, 2017	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1~26.5GHz Gain 30dB	Oct. 24, 2015	Jul. 03, 2016	Oct. 23, 2016	Radiation (03CH02-KS)
Amplifier	MITEQ	TTA1840-35-H G	1887435	18GHz~40GHz	Jan. 20, 2016	Jul. 03, 2016	Jan. 19, 2017	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	61601000247 3	N/A	NCR	Jul. 03, 2016	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Jul. 03, 2016	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Jul. 03, 2016	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% ($U = 2Uc(y)$)	2.3dB
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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
---	-------

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

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

Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

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



Appendix B. Product Equality Declaration

ZTE CORPORATION

Product Change Description

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

[WF721]

[ZTE Corporation]

is the variant of the initial certified product,

[WF721]

[ZTE Corporation]

SOFTWARE MODIFICATIONS:

Protocol Stack changes: NO

MMS/STK changes: NO

JAVA changes: NO

Other changes detailed:

- NV item change to support the new sp8t since its control logic is different with the Original one.
- Code change to detect the device use the original sp8t or new sp8t.

HARDWARE MODIFICATION:

Band changes: NO

Power Amplifier changes: NO

Antenna changes: NO

PCB Layout changes: NO

Components on PCB changes: We changed the original sp8t RF switch to new one because the original one stopped production by the supplier. And these two sp8t RF switches are pin-pin compatible. Two resistors are changed to enforce the hardware detection function so we can know which sp8t we are using.

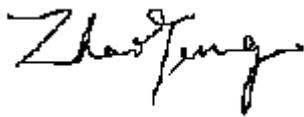
LCD changes: NA
Speaker changes: NA
Camera changes: NA
Vibrator changes: NA
Bluetooth changes: NA
FM changes: NA
Other changes: NO

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



APPROVED BY: zhaoyang

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