Variant FCC Test Report

APPLICANT	**:**	**ZTE CORPORATION**
EQUIPMENT	**:**	**CDMA/LTE Digital Mobile Handset**
BRAND NAME	**:**	**ZTE**
MODEL NAME	**:**	**ZTE FLASH 4G LTE**
FCC ID	**:**	**Q78-ZTEN9500**
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 Nov. 01, 2012 and completely tested on Nov. 08, 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 C63.4-2003 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
FC270201-03	Rev. 01	This is a variant report for ZTE FLASH 4G LTE. The product equality declaration could be referred to Appendix C. All the test cases were performed on the original test report which can be referred to Sporton Report Number FC270201. Based on the original test report, only the worst cases were verified for the differences.	Jan. 14, 2013

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.107	7.2.4	AC Conducted Emission	< 15.107 limits < RSS-Gen table 2 limits	PASS	Under limit 16.09 dB at 4.360 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 4.96 dB at 159.980 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. Feature of Equipment Under Test

Product Feature	
Equipment	CDMA/LTE Digital Mobile Handset
Brand Name	ZTE
Model Name	ZTE FLASH 4G LTE
FCC ID	Q78-ZTEN9500
EUT supports Radios application	CDMA/EV-DO/LTE/WLAN 11bgn/Bluetooth/Bluetooth4.0 – LE/NFC
HW Version	c7zB
SW Version	N9500V1.0.0B13
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.

Product Specification subjective to this standard	
Tx Frequency	CDMA2000 BC0: 824.70 MHz ~ 848.31 MHz CDMA2000 BC1: 1815.25 MHz ~ 1908.75 MHz CDMA2000 BC10: 817.90 MHz ~ 823.10 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz NFC : 13.56 MHz
Rx Frequency Range	CDMA2000 BC0: 869.70 MHz ~ 893.31 MHz CDMA2000 BC1: 1931.25 MHz ~ 1988.75 MHz CDMA2000 BC10: 903.8 MHz ~ 914.2 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz GPS : 1.57542 GHz NFC : 13.56 MHz
Antenna Type	WWAN : PIFA Antenna LTE : PIFA Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna NFC: Internal coil Antenna (on battery cover)
Type of Modulation	CDMA2000 : QPSK CDMA2000 1xEV-DO : 8PSK LTE: QPSK / 16QAM 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth BDR (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π/4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK Bluetooth V4.0 LE : GFSK GPS : BPSK NFC: ASK

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:

- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2003
- IC RSS-Gen Issue 3

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

1.6. Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	ANRITUS	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	ADIVIC	MP9000	N/A	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	VOSTRO 1450	PPD-AR5B195	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
4.	Notebook	DELL	P08S	QDS-BRCM1030	N/A	AC I/P: Unshielded, 0.9 m DC O/P: Shielded, 1.8 m
5.	WLAN AP	D-link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
6.	Bluetooth Earphone	Nokia	BH-106	QTLBH-106	N/A	N/A
7.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
8.	Monitor	Dell	E1910Hc	FCC DoC	Shielded, 1.2 m	Unshielded, 1.8 m
9.	(USB) Keyboard	Dell	SK-8115	FCC DoC	Shielded, 1.8 m with Core	N/A
10.	(USB) Mouse	Dell	N231	FCC DoC	Shielded, 1.8 m	N/A
11.	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 C63.4-2003 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 EUT uses a USB interface and microprocessor operating 1.5 GHz which is the maximum frequency used.

The following tables are showing the test modes as the worst cases and recorded in this report.

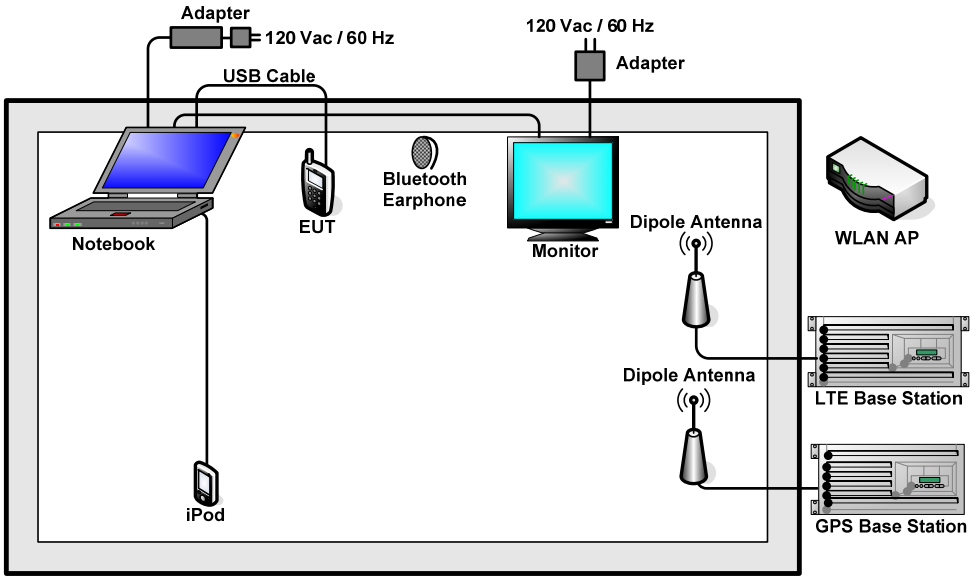
Item	EUT Configuration	Test Condition	
		EMI AC	EMI RE<1G
1.	Data application transferred mode (EUT with notebook)	☒	☒

Abbreviations:

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

Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1	Mode 1: LTE Band 25 Idle + WLAN Idle + Bluetooth Idle + GPS Rx + USB Cable (Data Link with Notebook)
Radiated Emissions	1	Mode 1: LTE Band 25 Idle + WLAN Idle + Bluetooth Idle + GPS Rx + USB Cable (Data Link with Notebook)
Remark: Link with Notebook means data application transferred mode between EUT and Notebook.		

2.2. Connection Diagram of Test System



2.3. Test Software

The EUT was in LTE idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting LTE Base Station'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 notebook for files transfer with EUT via USB cable.
2. Turn on "GPS function" to make the EUT receive continuous signals from GPS station.

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.

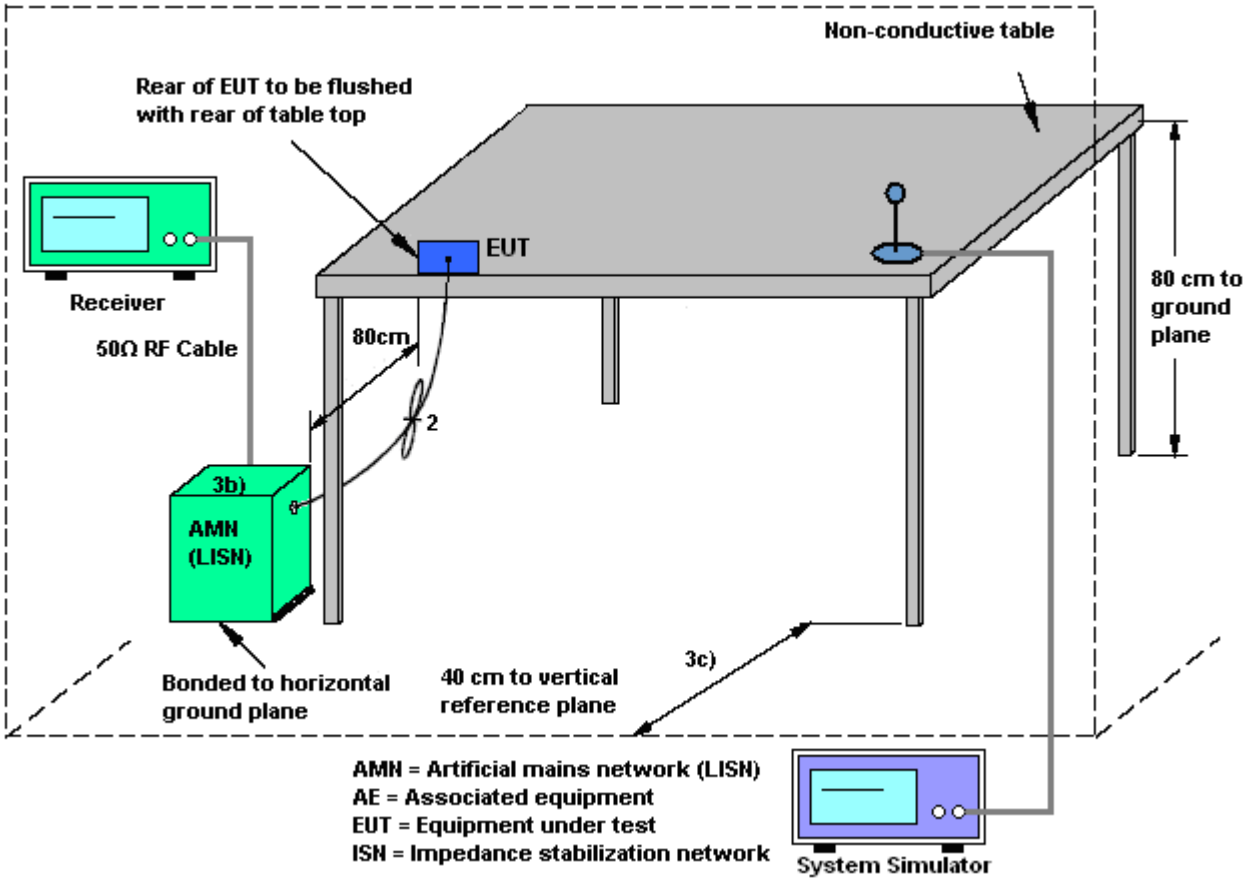
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedure

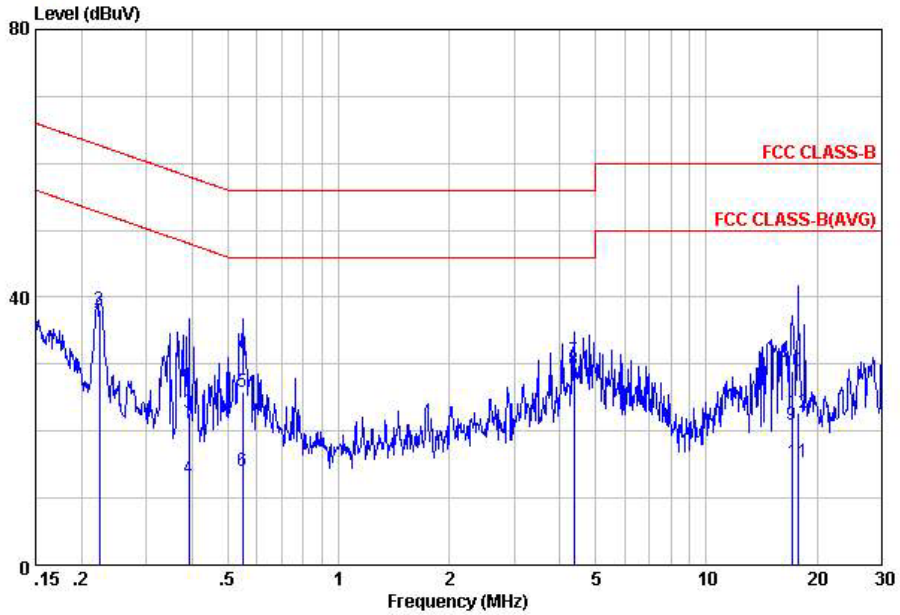
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

3.1.4 Test Setup



3.1.5 Test Result of AC Conducted Emission

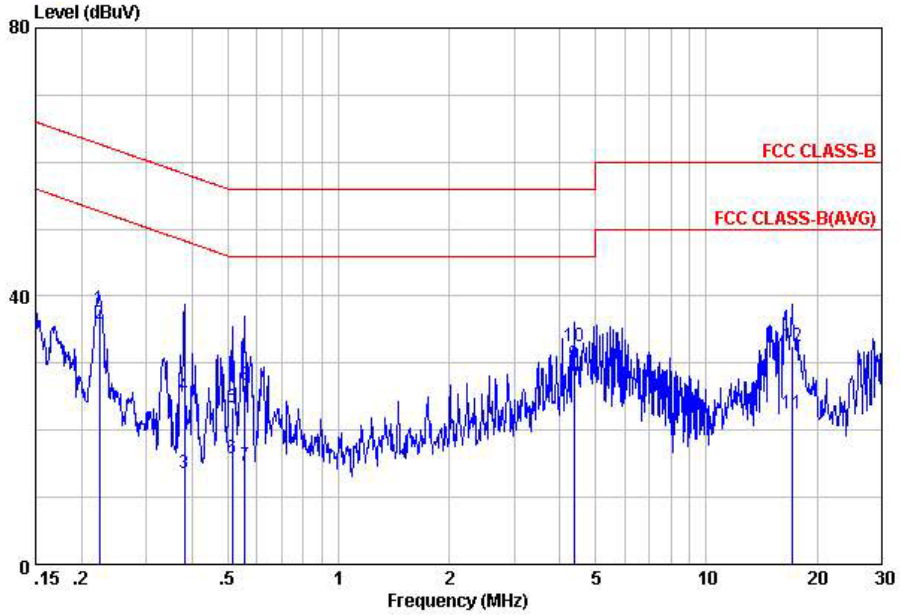
Test Mode :	Mode 1	**Temperature :**	19~20℃
Test Engineer :	Tom Wang	**Relative Humidity :**	39~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	LTE Band 25 Idle + WLAN Idle + Bluetooth Idle + GPS Rx + USB Cable (Data Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC CLASS-B LISN-111230 LINE
Project : (FC) 270201-03

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.22	36.30	-16.40	52.70	26.15	-0.07	10.22	Average
2	0.22	38.10	-24.60	62.70	27.95	-0.07	10.22	QP
3	0.39	22.84	-35.19	58.03	12.67	-0.08	10.25	QP
4	0.39	12.84	-35.19	48.03	2.67	-0.08	10.25	Average
5	0.55	25.84	-30.16	56.00	15.66	-0.08	10.26	QP
6	0.55	14.14	-31.86	46.00	3.96	-0.08	10.26	Average
7	4.36	30.51	-25.49	56.00	20.31	-0.13	10.33	QP
8	4.36	29.21	-16.79	46.00	19.01	-0.13	10.33	Average
9	17.11	20.86	-29.14	50.00	10.41	0.02	10.43	Average
10	17.11	29.06	-30.94	60.00	18.61	0.02	10.43	QP
11	17.85	15.31	-34.69	50.00	4.80	0.05	10.46	Average
12	17.85	22.81	-37.19	60.00	12.30	0.05	10.46	QP

Test Mode :	Mode 1	**Temperature :**	19~20℃
Test Engineer :	Tom Wang	**Relative Humidity :**	39~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	LTE Band 25 Idle + WLAN Idle + Bluetooth Idle + GPS Rx + USB Cable (Data Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC CLASS-B LISN-111230 NEUTRAL
Project : (FC) 270201-03

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.22	38.20	-24.50	62.70	28.05	-0.07	10.22	QP
2	0.22	35.80	-16.90	52.70	25.65	-0.07	10.22	Average
3	0.38	13.50	-34.75	48.25	3.33	-0.08	10.25	Average
4	0.38	25.10	-33.15	58.25	14.93	-0.08	10.25	QP
5	0.51	23.50	-32.50	56.00	13.32	-0.08	10.26	QP
6	0.51	15.85	-30.15	46.00	5.67	-0.08	10.26	Average
7	0.56	14.80	-31.20	46.00	4.62	-0.08	10.26	Average
8	0.56	26.85	-29.15	56.00	16.67	-0.08	10.26	QP
9	4.36	29.91	-16.09	46.00	19.71	-0.13	10.33	Average
10	4.36	32.61	-23.39	56.00	22.41	-0.13	10.33	QP
11	17.11	22.54	-27.46	50.00	12.10	0.01	10.43	Average
12	17.11	32.64	-27.36	60.00	22.20	0.01	10.43	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

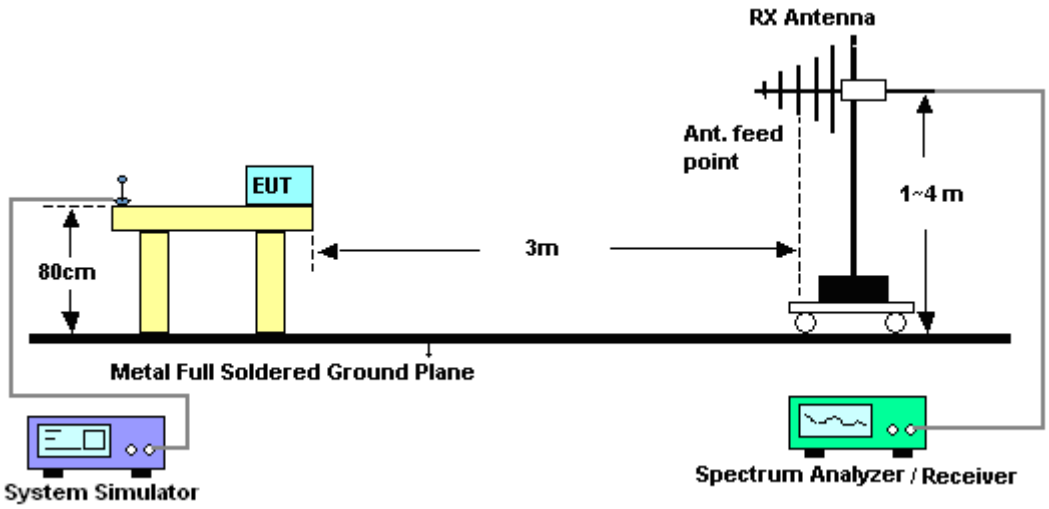
See list of measuring instruments of this test report.

3.2.3. Test Procedures

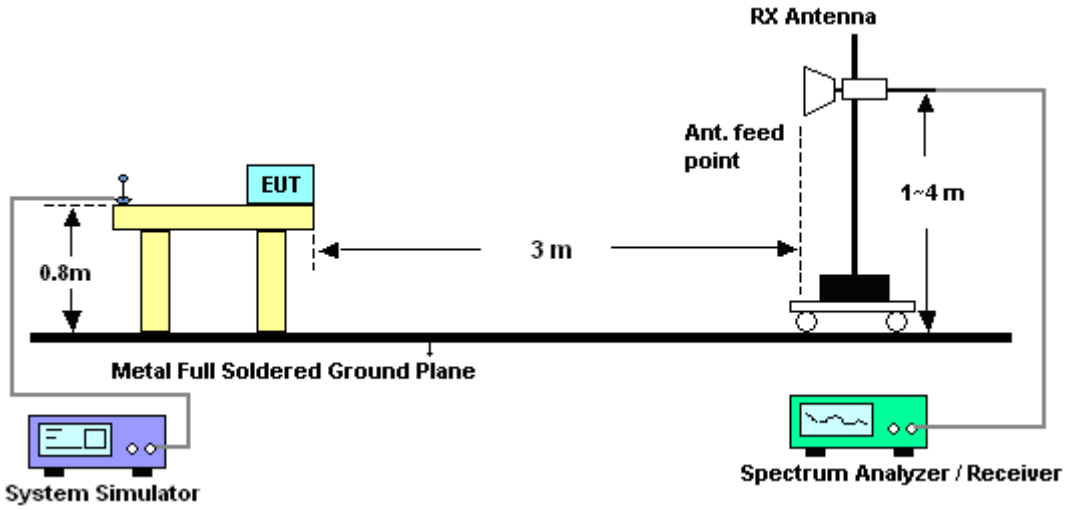
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

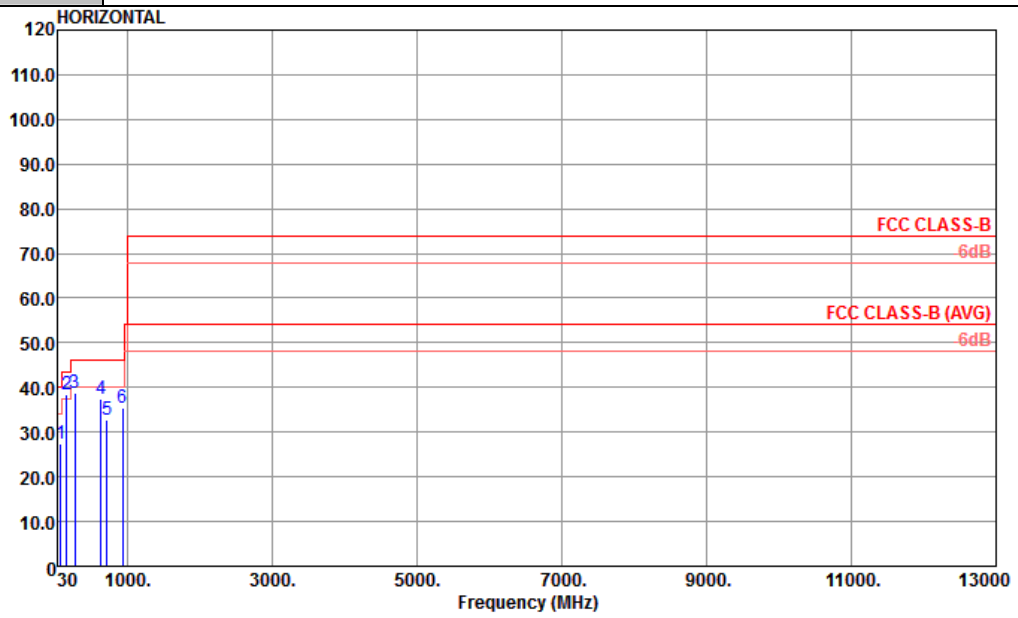


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Stone Gu	Relative Humidity :	42~43%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	LTE Band 25 Idle + WLAN Idle + Bluetooth Idle + GPS Rx + USB Cable (Data Link with Notebook)		

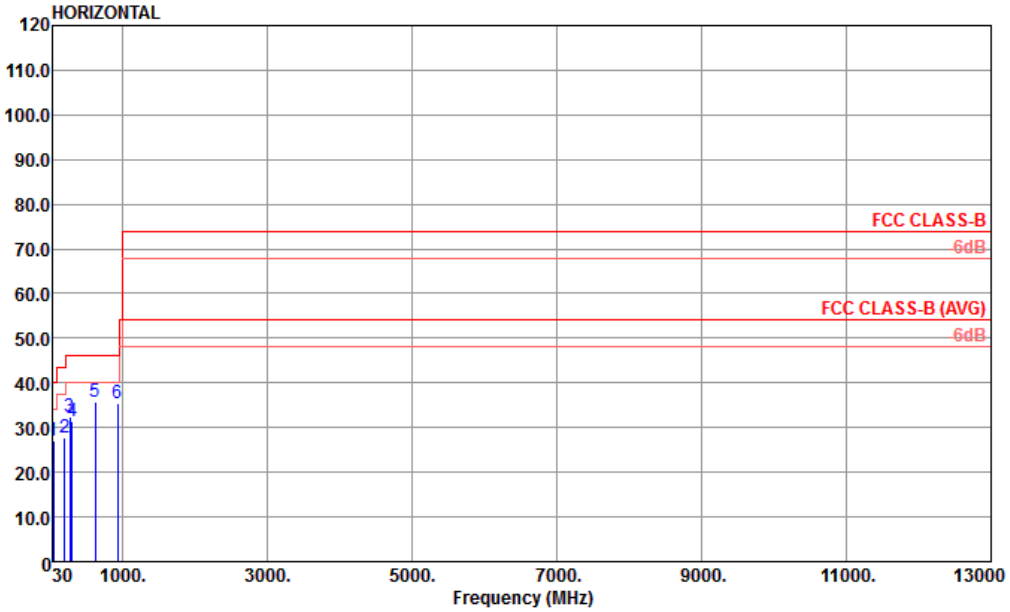


Site : 03CH01-KS
Condition : FCC CLASS-B 3m LF_ANT_100803 HORIZONTAL
: RBW:100.000KHz VBW:300.000KHz SWT:Auto

Mode : mode 1

		Freq	HORIZON	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
		MHz	/m	dB	/m		dB/m	dB	dB	cm	deg	
1		77.53	27.45	-12.55	40.00	54.31	6.20	0.54	33.60	---	---	Peak
2	!	159.98	38.54	-4.96	43.50	61.78	9.60	0.74	33.58	100	120	Peak
3		268.62	38.76	-7.24	46.00	58.90	12.34	0.94	33.42	---	---	Peak
4		633.34	37.29	-8.71	46.00	49.99	18.81	1.44	32.95	---	---	Peak
5		714.82	32.59	-13.41	46.00	44.48	19.45	1.52	32.86	---	---	Peak
6		935.98	35.28	-10.72	46.00	45.30	20.67	1.75	32.44	---	---	Peak

Test Mode :	Mode 1	**Temperature :**	21~22°C
Test Engineer :	Stone Gu	**Relative Humidity :**	42~43%
Test Distance :	3m	**Polarization :**	Vertical
Function Type :	LTE Band 25 Idle + WLAN Idle + Bluetooth Idle + GPS Rx + USB Cable (Data Link with Notebook)		



Site : 03CH01-KS
Condition : FCC CLASS-B 3m LF_ANT_100803 VERTICAL
: RBW:100.000KHz VBW:300.000KHz SWT:Auto

Mode : mode 1

	Freq	HORIZON	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	/m	dB	/m		dB/m	dB	dB	cm	deg	
1	43.58	27.09	-12.91	40.00	50.27	10.03	0.41	33.62	---	---	Peak
2	199.75	27.63	-15.87	43.50	51.37	9.00	0.82	33.56	---	---	Peak
3	270.56	32.59	-13.41	46.00	52.66	12.39	0.95	33.41	---	---	Peak
4	298.69	31.31	-14.69	46.00	50.71	12.99	0.99	33.38	---	---	Peak
5	620.73	35.74	-10.26	46.00	48.56	18.71	1.42	32.95	200	0	Peak
6	935.98	35.57	-10.43	46.00	45.59	20.67	1.75	32.44	---	---	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. 01, 2012	Nov. 08, 2012	May 31, 2013	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 30, 2011	Nov. 08, 2012	Dec. 29, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Dec. 30, 2011	Nov. 08, 2012	Dec. 29, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 16, 2011	Nov. 08, 2012	Nov. 15, 2012	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Nov. 08, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Nov. 08, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Nov. 08, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	Nov. 08, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060007	30MHz~2GHz	Dec. 30, 2011	Nov. 08, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 30, 2011	Nov. 08, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
GPS Station	ADIVIC	MP9000	MP9000-111046	N/A	Dec. 15, 2011	Nov. 08, 2012	Dec. 14, 2012	-
LTE Base Station	Anritsu	MT8820C	6201074235	LTE_FDD full band	Nov. 30, 2011	Nov. 08, 2012	Nov. 29, 2012	-

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))	**2.26**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**

Appendix A. Photographs of EUT

Please refer to Sporton report number EP280201-03 as below.

Appendix C. Product Equality Declaration

ZTE中兴

ZTE CORPORATION

Product Change Description

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

[ZTE N9500]
[ZTE Corporation]

is the variant of the initial certified product,

[ZTE N9500]
[ZTE Corporation]
[Project Number:12ZTE132]
FCC ID: Q78-ZTEN9500

SOFTWARE MODIFICATIONS:

Protocol Stack changes: NO
MMS/STK changes: NO
JAVA changes: NO
Other changes detailed: NO

HARDWARE MODIFICATION:

Band changes: NO
Power Amplifier changes: NO
Antenna changes: YES, new WIFI/Bluetooth antenna with higher gain (1dB up).
PCB Layout changes: NO
Components on PCB changes: Yes

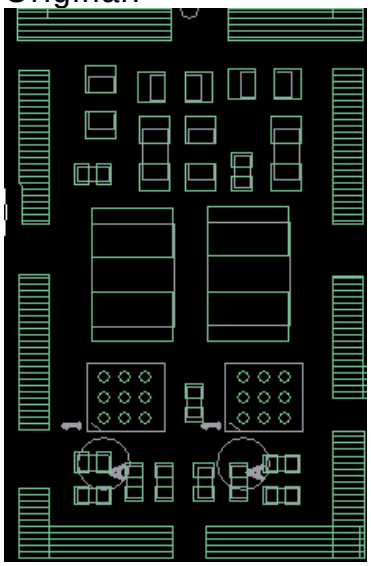
A: Optimize PDN and change below filter capacitances from top layer to bottom.
VREG_S6_1P05：C271
VREG_L27_1P05：C238
VREG_L26_1P05：C279
VREG_L28_1P05：C242

B: Delete redundant components:
S4200, C4221, C4220, L4215, L4210, L4216, L4208, L5121, L5120, L5119, C5121, C5122, S5100, C5118.

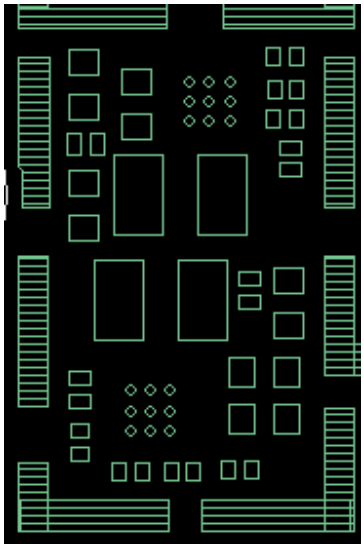
C: Component packaging updated:
L5101 now be packaged with 0402 instead of 0201.

D: Optimize ADP components layout.
Please notice that only change components layout but PCB layout is same.

Original:



Now:



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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

Min Zhang

_____
APPROVED BY: Min Zhang

Project Manager: Yongliang Zhang

Date:2013-1-10

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