Variant FCC Test Report

APPLICANT	:	**ZTE CORPORATION**
EQUIPMENT	:	**Vodafone Smart Tab 10**
BRAND NAME	:	**ZTE**
MODEL NAME	:	**Vodafone Smart Tab 10**
FCC ID	:	**Q78-V11A**
STANDARD	:	**FCC 47 CFR FCC Part 15 Subpart B**
CLASSIFICATION	:	**Certification**

The product was received on Oct. 18, 2011 and completely tested on Nov. 06, 2011. We, SPORTON INTERNATIONAL (KUNSAHN) 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

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

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FD182402-01	Rev. 01	This is a variant report for Vodafone Smart Tab 10. Based on original report, only the worst cases of Radiated Emissions were verified, the detail changes can be referred to the product equality declaration.	Nov. 10, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 7.47 dB at 512.10 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 & Specification	
Equipment	Vodafone Smart Tab 10
Brand Name	ZTE
Model Name	Vodafone Smart Tab 10
FCC ID	Q78-V11A
Tx Frequency Range	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz Bluetooth : 2400 MHz ~ 2483.5 MHz WLAN : 2400 MHz ~ 2483.5 MHz 5150 MHz ~ 5250 MHz 5725 MHz ~ 5825 MHz
Rx Frequency Range	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz Bluetooth : 2400 MHz ~ 2483.5 MHz WLAN : 2400 MHz ~ 2483.5 MHz 5150 MHz ~ 5250 MHz 5725 MHz ~ 5825 MHz GPS : 1.57542 GHz
Antenna Type	Fixed internal antenna
HW Version	110403
SW Version	SmartTab10-MSM8260-V02c-Oct192011-Vodafone-DE
Type of Modulation	GSM / GPRS : GMSK EDGE : 8PSK Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : π/4-DQPSK Bluetooth EDR (3Mbps) : 8-DPSK 802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) GPS : BPSK
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. 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.**
	03CH01-KS

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

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This report is intention of applying for FCC 15B Certification only.

1.6. Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	PC	Dell	MT380	Fcc DoC	N/A	Unshielded, 1.8 m
2.	Monitor	Dell	ST2220Lb	Fcc DoC	shielded, 1.2 m	Unshielded, 1.8 m
3.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
4.	Printer	HP	Laser Jet 1018	FCC DoC	Shielded, 1.8 m	Unshielded, 1.8 m
5.	Base Station	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
6.	(USB) Keyboard	Dell	L100	FCC DoC	Shielded, 1.8 m with Core	N/A
7.	(USB) Mouse	Dell	MO56UC	FCC DoC	Shielded, 1.8 m	N/A
8.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
9.	Router	D-link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
10.	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 following tables are showing the test modes as the worst cases and recorded in this report.

Item	EUT Configuration	Test Condition	
		EMI RE<1G	EMI RE≥1G
1.	Data application transferred Mode (EUT with PC)	☒	☒

Abbreviations:

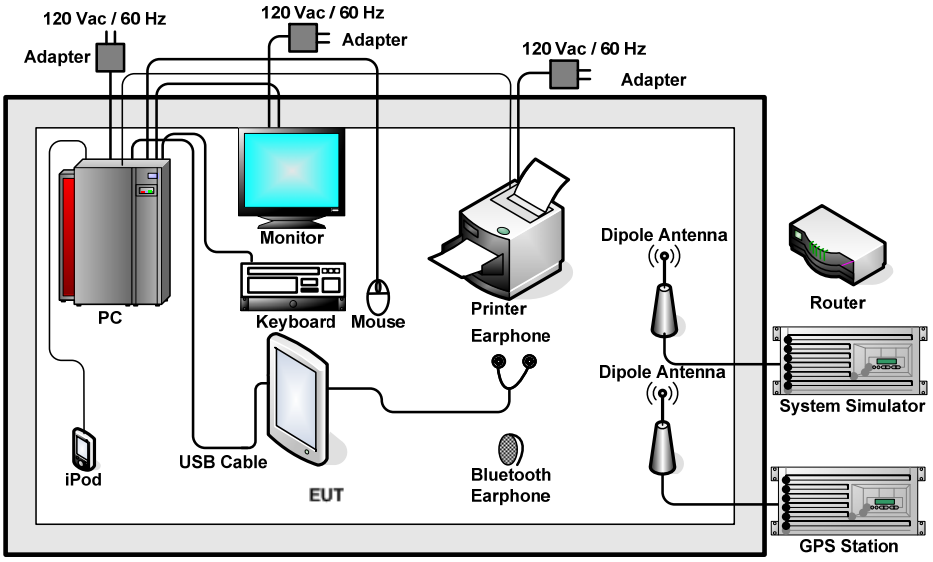
- EMI AC: AC conducted emissions
- EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

Test Items	EUT Configure Mode	Function Type
Radiated Emissions < 1GHz	1	Mode 1: GPRS 1900 Idle + Bluetooth Idle + WLAN Idle + MP4 + GPS Rx + Earphone 1 + USB Cable (Data Link with PC) Mode 2: GPRS 1900 Idle + Bluetooth Idle + WLAN Idle + MP4 + GPS Rx + Earphone 2 + USB Cable (Data Link with PC)
Radiated Emissions ≥ 1GHz	1	Mode 1: GPRS 1900 Idle + Bluetooth Idle + WLAN Idle + MP4 + GPS Rx + Earphone 2 + USB Cable (Data Link with PC)

Remark:

1. The worst case of RE < 1G is mode 2; only the test data of this mode was reported.
2. Data link with PC means data application transferred mode between DUT and PC.

2.2. Connection Diagram of Test System



2.3. Test Software

The EUT was in GPRS 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 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 or PC for active sync files transfer with EUT via USB cable / iPod.
2. Turn on GPS function to make the EUT receive signals from GPS station continuously.
3. Execute "Video Player" to play MPEG4 files.
4. To keep EUT receiving signals from Base Station continuously.

3. Test Result

3.1. Test of Radiated Emission Measurement

3.1.1. 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

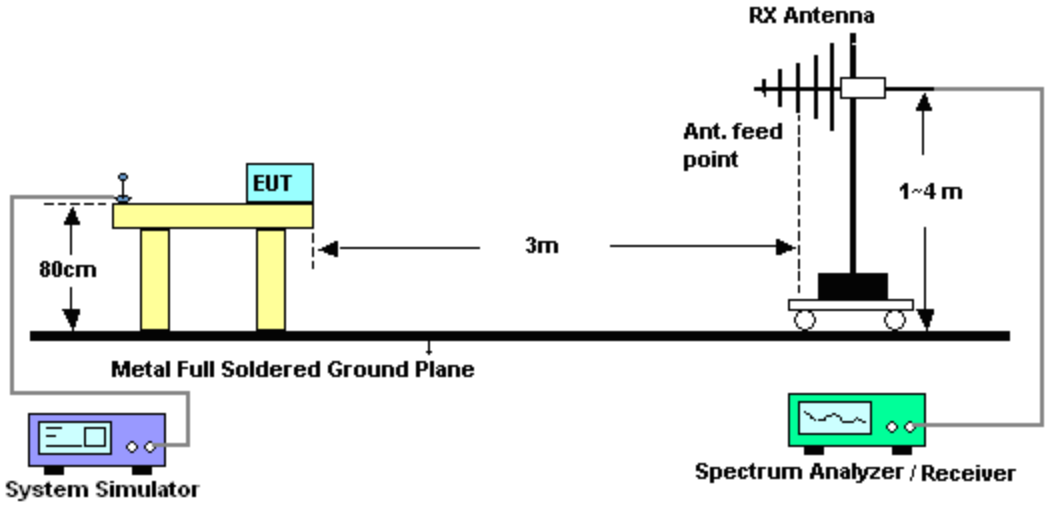
3.1.2. Measuring Instruments

See list of measuring instruments of this test report.

3.1.3. Test Procedures

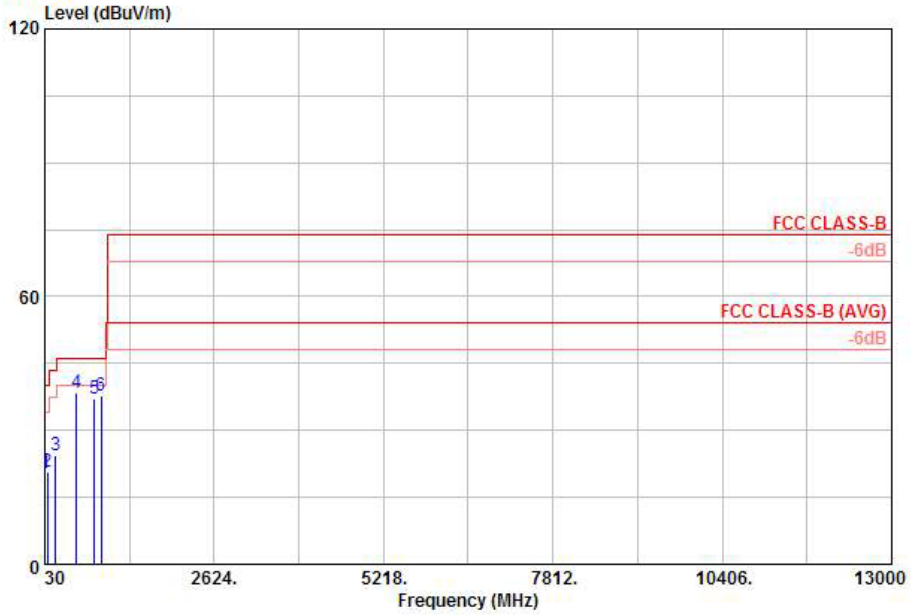
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one meter and 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, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one 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

3.1.4. Test Setup of Radiated Emission



3.1.5. Test Result of Radiated Emission

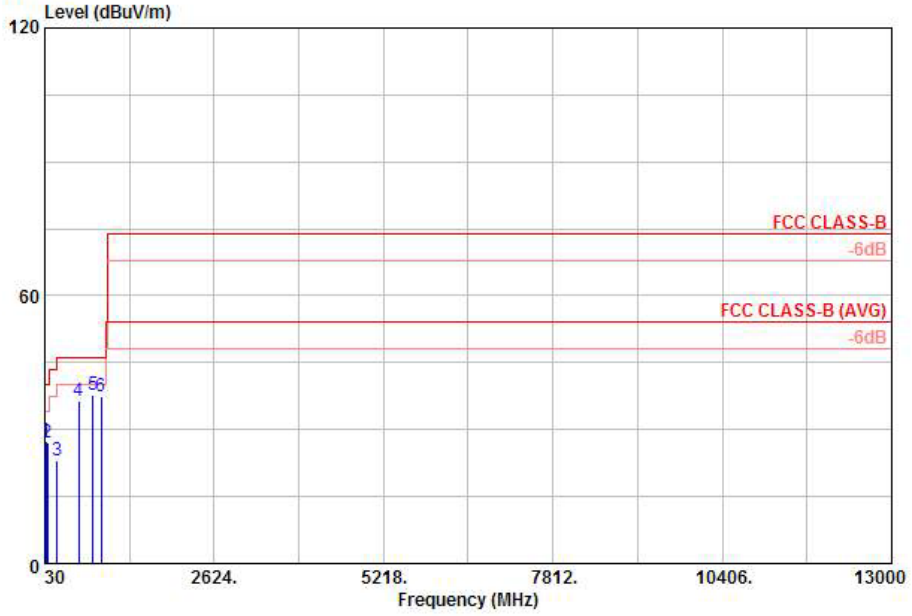
Test Mode :	Mode 2	Temperature :	21~22°C
Test Engineer :	Jack Li	Relative Humidity :	42~43%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	GPRS 1900 Idle + Bluetooth Idle + WLAN Idle + MP4 + GPS Rx + Earphone 2 + USB Cable (Data Link with PC)		



Site : 03CH01-KS
Condition: FCC CLASS-B 3m LF_ANT_100803 HORIZONTAL
Project : (FD) 182402-01
Mode : mode 2

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.00	20.41	-19.59	40.00	32.23	18.00	0.26	30.08	---	---	Peak
2	72.93	20.65	-19.35	40.00	44.83	5.55	0.34	30.07	---	---	Peak
3	192.00	24.29	-19.21	43.50	45.08	8.59	0.58	29.96	---	---	Peak
4	512.10	38.53	-7.47	46.00	49.83	17.45	0.97	29.72	149	258	Peak
5	792.10	37.23	-8.77	46.00	45.71	19.86	1.24	29.58	---	---	Peak
6	892.20	37.68	-8.32	46.00	45.42	20.46	1.30	29.50	---	---	Peak

Test Mode :	Mode 2	Temperature :	21~22℃
Test Engineer :	Jack Li	Relative Humidity :	42~43%
Test Distance :	3m	Polarization :	Vertical
Function Type :	GPRS 1900 Idle + Bluetooth Idle + WLAN Idle + MP4 + GPS Rx + Earphone 2 + USB Cable (Data Link with PC)		



Site : 03CH01-KS
Condition: FCC CLASS-B 3m LF_ANT_100803 VERTICAL
Project : (FD) 182402-01
Mode : mode 2

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	49.98	27.50	-12.50	40.00	49.95	7.40	0.28	30.13	---	---	Peak
2	71.85	26.91	-13.09	40.00	51.18	5.46	0.34	30.07	---	---	Peak
3	219.54	22.95	-23.05	46.00	42.28	10.03	0.62	29.98	---	---	Peak
4	548.50	36.53	-9.47	46.00	46.73	18.48	1.00	29.68	---	---	Peak
5	767.60	37.87	-8.13	46.00	46.33	19.89	1.20	29.55	100	0	Peak
6	892.20	37.38	-8.62	46.00	45.12	20.46	1.30	29.50	---	---	Peak

4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 16, 2010	Nov. 15, 2011	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 07, 2010	Dec. 06, 2011	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Dec. 09, 2010	Dec. 08, 2011	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1G-18GHz	Nov. 09, 2010	Nov. 08, 2011	Radiation (03CH01-KS)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	837587/066	Full-Band	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)

5. Uncertainty of Evaluation

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**		

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

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
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 EP182402-01 as below.