

# Variant FCC Test Report

APPLICANT : ZTE CORPORATION  
EQUIPMENT : cdma2000 Digital Mobile Handset  
BRAND NAME : ZTE  
MODEL NAME : N8000  
FCC ID : Q78-N8000  
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. 14, 2013 and testing was completed on Nov. 16, 2013. We, SPORTON INTERNATIONAL (SHENZHEN) 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 to be compliant with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (SHENZHEN) INC., the test report shall not be reproduced except in full.

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Reviewed by: Louis Wu / Manager

*Jones Tsai*

Approved by: Jones Tsai / Manager



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FCC ID : Q78-N8000

Page Number : 1 of 19

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### SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 3.96 dB at 480.080 MHz



# 1. General Description

## 1.1. Applicant

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China

## 1.2. Manufacturer

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China

## 1.3. Feature of Equipment Under Test

Product Feature	
Equipment	cdma2000 Digital Mobile Handset
Brand Name	ZTE
Model Name	N8000
FCC ID	Q78-N8000
EUT supports Radios application	CDMA/EV-DO/WLAN 2.4GHz 802.11bgn HT20 / Bluetooth 2.1 + EDR
HW Version	QB8655-03A_V1CMB_B
SW Version	N8000_CKT_4.03
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

Product Specification subjective to this standard	
<b>Tx Frequency</b>	CDMA2000 BC0 : 824.70 MHz ~ 848.31 MHz CDMA2000 BC1 : 1851.25 MHz ~ 1908.75 MHz CDMA2000 BC15 : 1711.25 ~ 1753.75 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
<b>Rx Frequency</b>	CDMA2000 BC0 : 869.70 MHz ~ 893.31 MHz CDMA2000 BC1 : 1931.25 MHz ~ 1988.75 MHz CDMA2000 BC15 : 2111.25 ~ 2153.75 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz GPS : 1.57542 GHz
<b>Antenna Type</b>	WWAN : Fixed Internal Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna
<b>Type of Modulation</b>	CDMA2000 : QPSK CDMA2000 1xEV-DO : QPSK/8PSK 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth 2.1 BR (1Mbps) : GFSK Bluetooth 2.1 EDR (2Mbps) : $\pi/4$ -DQPSK Bluetooth 2.1 EDR (3Mbps) : 8-DPSK GPS : BPSK

### 1.5. Modification of EUT

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



### 1.6. Test Site

<b>Test Site</b>	SPORTON INTERNATIONAL (SHENZHEN) INC.	
<b>Test Site Location</b>	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P.R.C. TEL: +86-755-3320-2398	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC Registration No.</b>
	03CH01-SZ	831040

### 1.7. 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:** 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 C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: 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.	Charging Mode (EUT with adapter)	☒	Note 1
2.	Data application transferred mode (EUT with notebook)	☒	☒

**Abbreviations:**

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

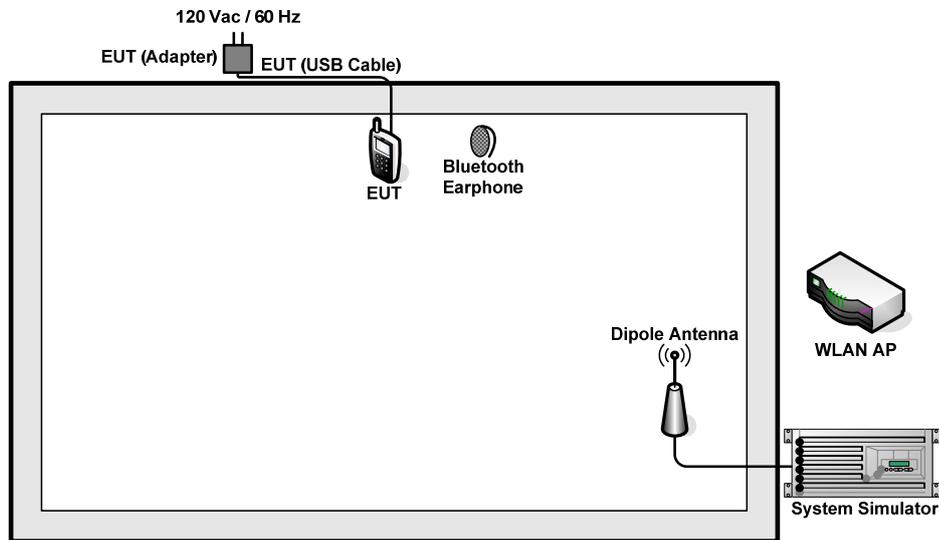
**Note 1:** Testing for this mode is not required or not the worst case.

**Remark:** For signal above 1GHz, the worst case was test item 2.

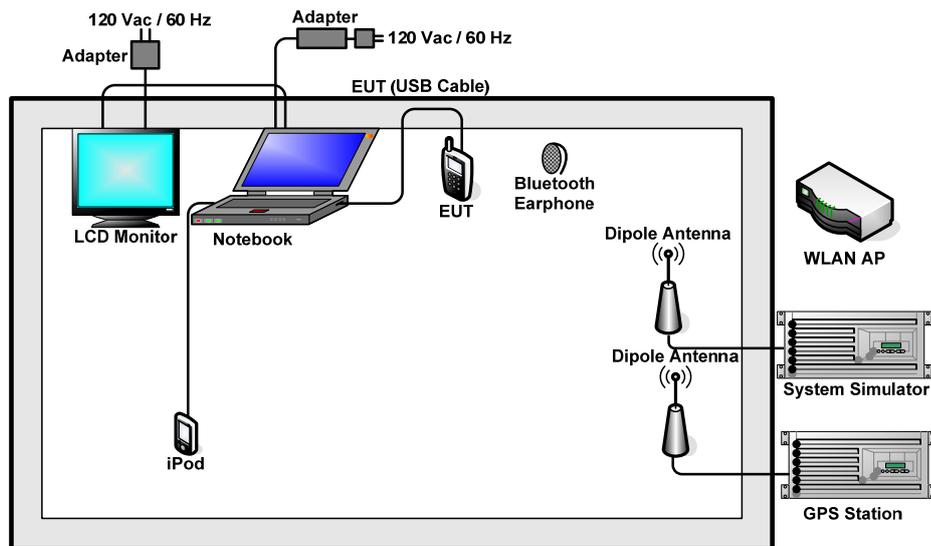


Test Items	EUT Configure Mode	Function Type
Radiated Emissions < 1GHz	1/2	Mode 1: CDMA 2000 BC0 Idle + WLAN Idle + Bluetooth Idle + USB Cable (Charging from Adapter) + Camera<Fig. 1> Mode 2: CDMA 2000 BC15 Idle + WLAN Idle + Bluetooth Idle + USB Cable (Data Link with Notebook) + GPS Rx<Fig. 2>
Radiated Emissions ≥ 1GHz	2	Mode 1: CDMA 2000 BC15 Idle + WLAN Idle + Bluetooth Idle + USB Cable (Data Link with Notebook) + GPS Rx<Fig. 2>
<b>Remark:</b> <ol style="list-style-type: none"><li>1. The worst case of RE &lt; 1G is mode 2; only the test data of this mode was reported.</li><li>2. Link with Notebook means data application transferred mode between EUT and Notebook.</li></ol>		

## 2.2. Connection Diagram of Test System



<Fig. 1>



<Fig. 2>

### 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	Agilent	E5515C	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	ADIVIC	MP9000	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-815	KA2IR815A1	N/A	Unshielded, 1.8m
4.	Notebook	DELL	Vostro 1440	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	LCD Monitor	DELL	IN1940MWB	FCC DoC	Shielded, 1.0 m	Unshielded, 1.8 m
6.	Bluetooth Earphone	Nokia	BH-108	N/A	N/A	N/A
7.	iPod	Apple	MC690ZP/A	FCC DoC	Shielded, 1.2 m	N/A



## **2.4. EUT Operation Test Setup**

The EUT was in CDMA2000 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.

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. Data application is transferred between Laptop and EUT via USB cable.
2. Turn on "GPS function" to make the EUT receive continuous signals from GPS station.
3. Turn on camera to capture images.
4. Execute "H Pattern" to show H Pattern via VGA Cable on the Monitor.

### 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**

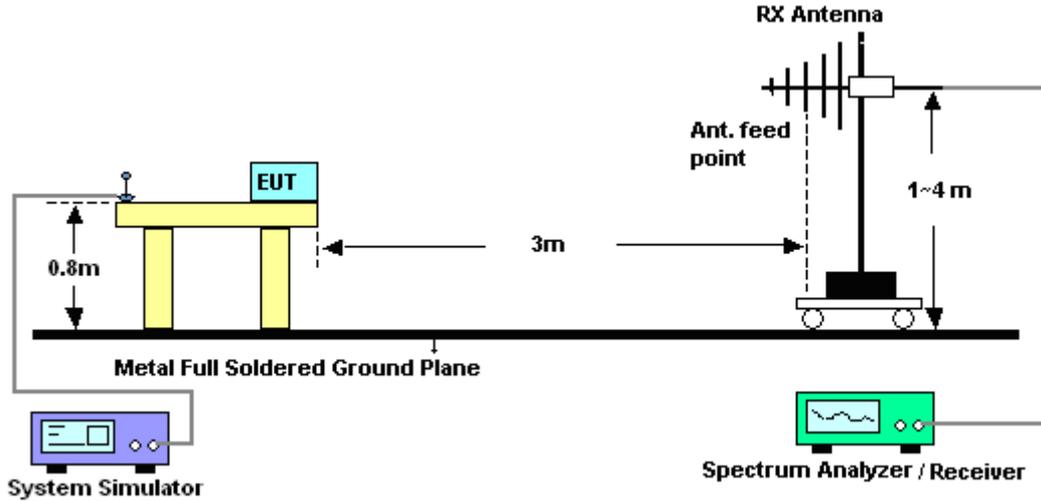
The measuring equipment is listed in the section 4 of this test report.

### **3.1.3. Test Procedures**

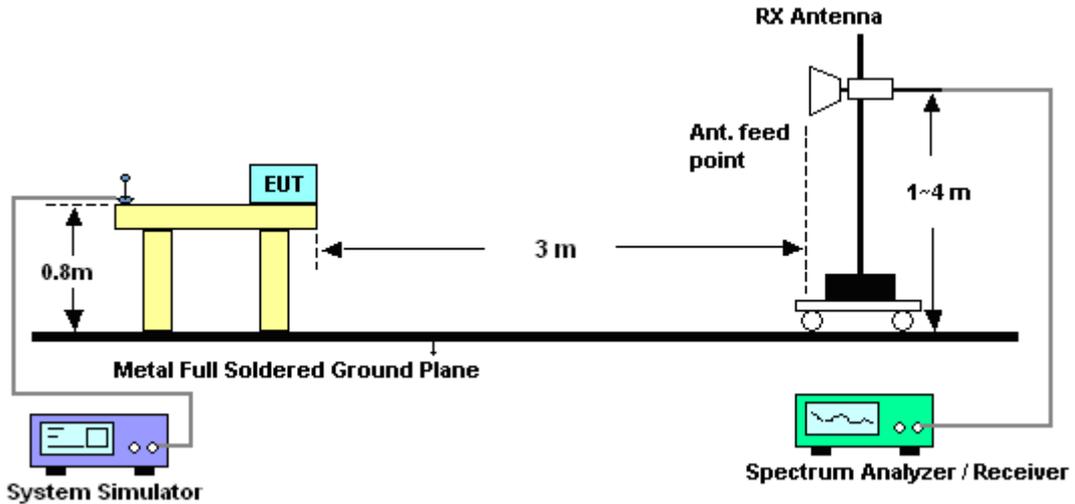
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one 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 (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

### 3.1.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



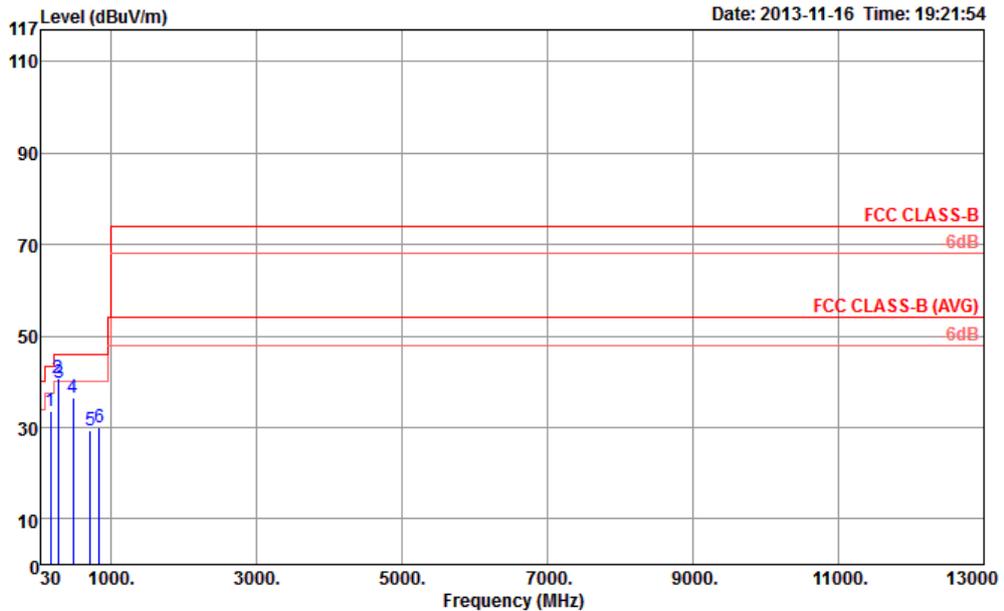
For radiated emissions above 1GHz





3.1.5. Test Result of Radiated Emission

Test Mode :	Mode 2	Temperature :	24~26°C
Test Engineer :	Robin Luo	Relative Humidity :	49~53%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	CDMA 2000 BC15 Idle + WLAN Idle + Bluetooth Idle + USB Cable (Data Link with Notebook) + GPS Rx		

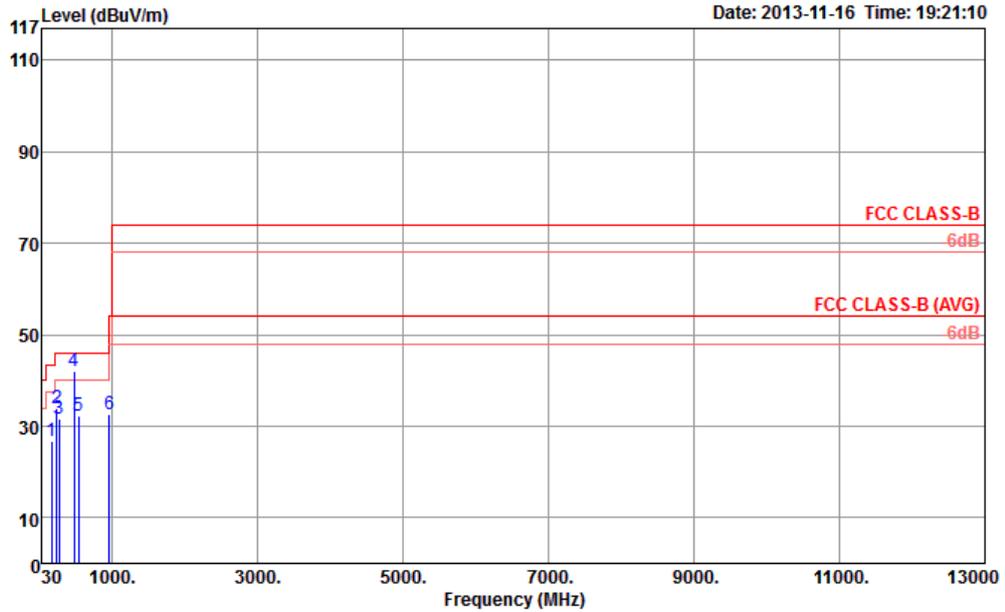


Site : 03CH01-SZ  
 Condition : FCC CLASS-B 3m LF\_ANT\_121103 HORIZONTAL  
 Project : (FC) 280303-02  
 Mode : Mode 2

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	164.83	33.64	-9.86	43.50	52.63	9.90	1.56	30.45	---	---	Peak
2 P	274.44	40.70	-5.30	46.00	56.06	12.80	1.93	30.09	200	0	Peak
3	284.14	39.69	-6.31	46.00	54.58	13.20	1.96	30.05	---	---	Peak
4	480.08	36.46	-9.54	46.00	46.18	17.20	2.48	29.40	---	---	Peak
5	719.67	29.24	-16.76	46.00	35.29	20.00	2.99	29.04	---	---	Peak
6	835.10	29.86	-16.14	46.00	34.39	21.10	3.26	28.89	---	---	Peak



Test Mode :	Mode 2	Temperature :	24~26°C
Test Engineer :	Robin Luo	Relative Humidity :	49~53%
Test Distance :	3m	Polarization :	Vertical
Function Type :	CDMA 2000 BC15 Idle + WLAN Idle + Bluetooth Idle + USB Cable (Data Link with Notebook) + GPS Rx		



Site : 03CH01-SZ  
 Condition : FCC CLASS-B 3m LF\_ANT\_121103 VERTICAL  
 Project : (FC) 280303-02  
 Mode : Mode 2

	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	165.80	26.73	-16.77	43.50	45.72	9.90	1.56	30.45	---	---	Peak
2	239.52	33.83	-12.17	46.00	50.48	11.73	1.82	30.20	---	---	Peak
3	272.50	31.49	-14.51	46.00	46.81	12.85	1.92	30.09	---	---	Peak
4 P	480.08	42.04	-3.96	46.00	51.76	17.20	2.48	29.40	100	0	Peak
5	540.22	32.33	-13.67	46.00	40.88	18.10	2.63	29.28	---	---	Peak
6	960.23	32.44	-21.56	54.00	35.93	21.80	3.43	28.72	---	---	Peak



### 4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Agilent Technologies	N9038A	MY52260185	20Hz~26.5GHz	Apr. 04, 2013	Nov. 16, 2013	Apr. 03, 2014	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Oct. 12, 2013	Nov. 16, 2013	Oct. 11, 2014	Radiation (03CH01-SZ)
Bilog Antenna	SCHAFFNER	CBL6112B	2614	30MHz~2GHz	Nov. 03, 2013	Nov. 16, 2013	Nov. 02, 2014	Radiation (03CH01-SZ)
Amplifier	ADVANTEST	BB525C	E9007003	9kHz~3GHz Gain 30dB	Mar. 28, 2013	Nov. 16, 2013	Mar. 27, 2014	Radiation (03CH01-SZ)
Amplifier	Yiai	AV3860B	04030	2GHz~26.5GHz	Mar. 28, 2013	Nov. 16, 2013	Mar. 27, 2014	Radiation (03CH01-SZ)
Turn Table	EM Electronics	EM 1000	N/A	0 ~ 360 degree	N/A	Nov. 16, 2013	N/A	Radiation (03CH01-SZ)
Antenna Mast	EM Electronics	EM 1000	N/A	1 m ~ 4 m	N/A	Nov. 16, 2013	N/A	Radiation (03CH01-SZ)



## 5. Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	3.90
-------------------------------------------------------------------------	------