

# FCC Test Report

**APPLICANT** : TCT Mobile Limited  
**EQUIPMENT** : Quad-Band GSM mobile phone  
**BRAND NAME** : ALCATEL  
**MODEL NAME** : one touch 632  
**FCC ID** : RAD282  
**STANDARD** : FCC 47 CFR FCC Part 15 Subpart B  
**CLASSIFICATION** : Certification

The product was received on Apr. 17, 2012 and completely tested on May 04, 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 / Manager



**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
FC241702	Rev. 01	Initial issue of report	May 16, 2012



### 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 7.60 dB at 0.16 MHz
3.2	15.109	Radiated Emission	< 15.109 limits>	PASS	Under limit 3.31 dB at 385.99 MHz for peak Under limit 3.47 dB at 375.32 MHz for Quasi-Peak

# 1. General Description

## 1.1. Applicant

**TCT Mobile Limited**

5F, E building, No. 232, Liang Jing Road, ZhangJiang High-Tech Park, Pudong Area, Shanghai, 201203, P.R.China

## 1.2. Manufacturer

**TCT Mobile Limited**

5F, E building, No. 232, Liang Jing Road, ZhangJiang High-Tech Park, Pudong Area, Shanghai, 201203, P.R.China

## 1.3. Feature of Equipment Under Test

Product Feature & Specification	
<b>Equipment</b>	Quad-Band GSM mobile phone
<b>Brand Name</b>	ALCATEL
<b>Model Name</b>	one touch 632
<b>FCC ID</b>	RAD282
<b>Tx Frequency Range</b>	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz Bluetooth : 2402 MHz ~ 2480 MHz
<b>Rx Frequency Range</b>	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz Bluetooth : 2402 MHz ~ 2480 MHz
<b>Antenna Type</b>	WWAN : Fixed Internal Antenna Bluetooth : PIFA Antenna
<b>HW Version</b>	2610_1_11
<b>SW Version</b>	V1.4
<b>Type of Modulation</b>	GSM / GPRS: GMSK Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK Bluetooth EDR (3Mbps) : 8-DPSK
<b>EUT Stage</b>	Production Unit

**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

<b>Test Site</b>	SPORTON INTERNATIONAL (SHENZHEN) INC.	
<b>Test Site Location</b>	No. 101, Complex Building C, Guanglong Village, Xili Town, Nanshan District, Shenzhen, Guangdong, P.R.C. TEL: +86-755-8637-9589 FAX: +86-755-8637-9595	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	
	CO01-SZ	

<b>Test Site</b>	SPORTON INTERNATIONAL (KUNSHAN) INC.	
<b>Test Site Location</b>	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC/IC Registration No.</b>
	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

**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.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	System Simulator	Agilent	E5515C	N/A	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
4.	Bluetooth Earphone	Nokia	BH-108	N/A	N/A	N/A
5.	Signal Generator	R&S	SMR40	N/A	N/A	Unshielded, 1.8 m
6.	Signal Generator	Agilent	E8257D	N/A	N/A	Unshielded, 1.8 m
7.	Monitor	DELL	E1910Hc	FCC DoC	Shielded, 1.2 m	Unshielded, 1.8 m
8.	Monitor	DELL	1707FPt	FCC DoC	Shielded, 1.2 m	Unshielded, 1.8 m
9.	(USB) Mouse	DELL	MO56UC	FCC DoC	Shielded, 1.8 m	NA
10.	(USB) Keyboard	DELL	L100	FCC DoC	Shielded, 1.8 m with Core	NA
11.	Printer	HP	Laser Jet 1018	FCC DoC	Shielded, 1.8 m	Unshielded, 1.8 m
12.	PC	DELL	MT380	FCC DoC	N/A	Unshielded, 1.8 m
13.	iPod	Apple	A1199	FCC DoC	Shielded, 1.2 m	NA
14.	Notebook	DELL	P08S	FCC DoC	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
15.	Earphone	Eimuse	E-500MV	FCC DoC	Shielded, 2.2 m	N/A
16.	iPod	Apple	MC525 ZP/A	FCC DoC	Shielded, 1.0 m	NA

## 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 AC	EMI RE<1G	EMI RE≥1G
1.	Charging Mode (EUT with adapter)	☒	☒	Note 1
2.	Data application transferred mode (EUT with notebook)	☒	☒	☒

**Abbreviations:**

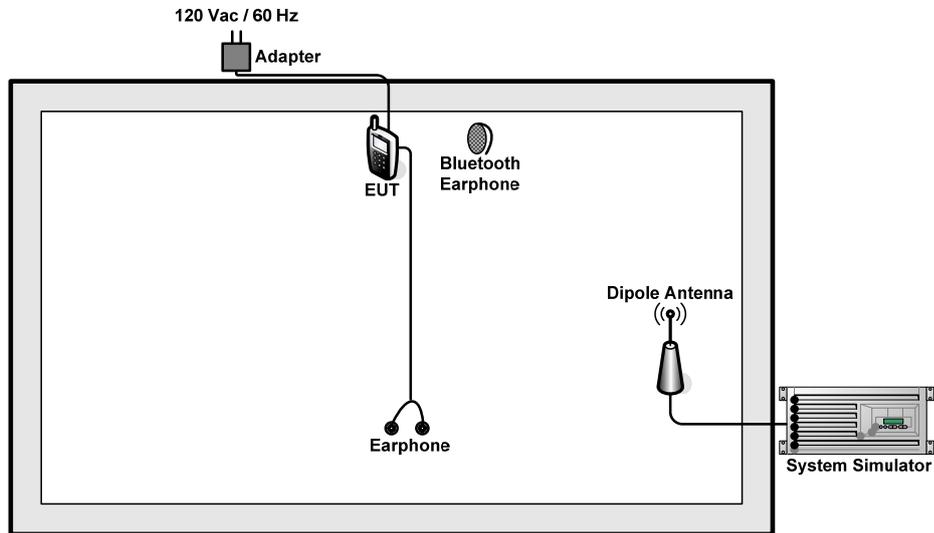
- EMI AC: AC conducted emissions
- EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

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

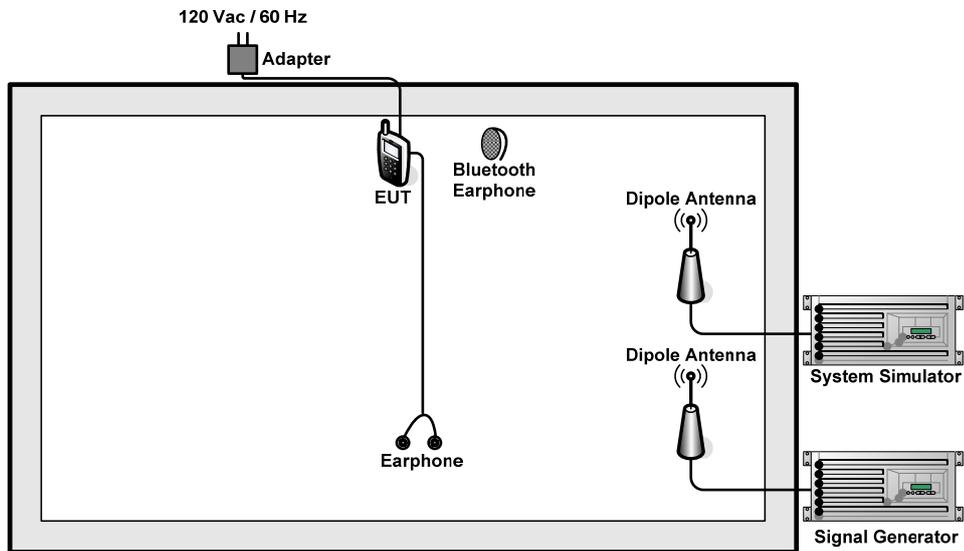
Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1/2	Mode 1: <b>GSM 850 Idle + Bluetooth Idle + Adapter + Earphone + Camera</b> Mode 2: GSM 1900 Idle + Bluetooth Idle + Adapter + Earphone + MP3 Mode 3: GSM 850 Idle + Bluetooth Idle + Adapter + Earphone + FM Rx Mode 4: <b>GSM 1900 Idle + Bluetooth Idle + USB Cable (Date Link with Notebook) + Earphone</b>
Radiated Emissions < 1GHz	1/2	Mode 1: GSM 850 Idle + Bluetooth Idle + Adapter + Earphone + Camera Mode 2: GSM 1900 Idle + Bluetooth Idle + Adapter + Earphone + MP3 Mode 3: GSM 850 Idle + Bluetooth Idle + Adapter + Earphone + FM Rx Mode 4: <b>GSM 1900 Idle + Bluetooth Idle + USB Cable (Date Link with PC) + Earphone</b>
Radiated Emissions ≥ 1GHz	2	Mode 1: GSM 1900 Idle + Bluetooth Idle + USB Cable (Date Link with PC) + Earphone
<b>Remark:</b> <ol style="list-style-type: none"> <li>The worst case of AC Conducted Emission is mode 1; the test data of this mode was reported.</li> <li>The USB Link mode of AC Conducted Emission is mode 4; the test data of this mode was reported.</li> <li>The worst case of RE &lt; 1G is mode 4; and the USB Link mode of RE is also mode 4, only the test data of this mode was reported.</li> <li>Link with PC or Notebook means data application transferred mode between EUT and PC or Notebook.</li> </ol>		

## 2.2. Connection Diagram of Test System

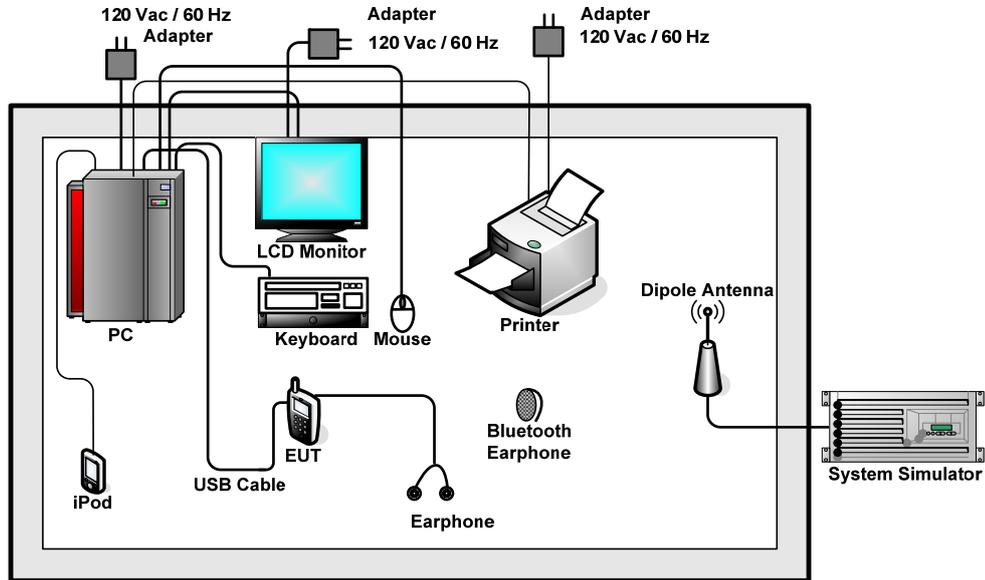
### <EUT with Adapter Mode>



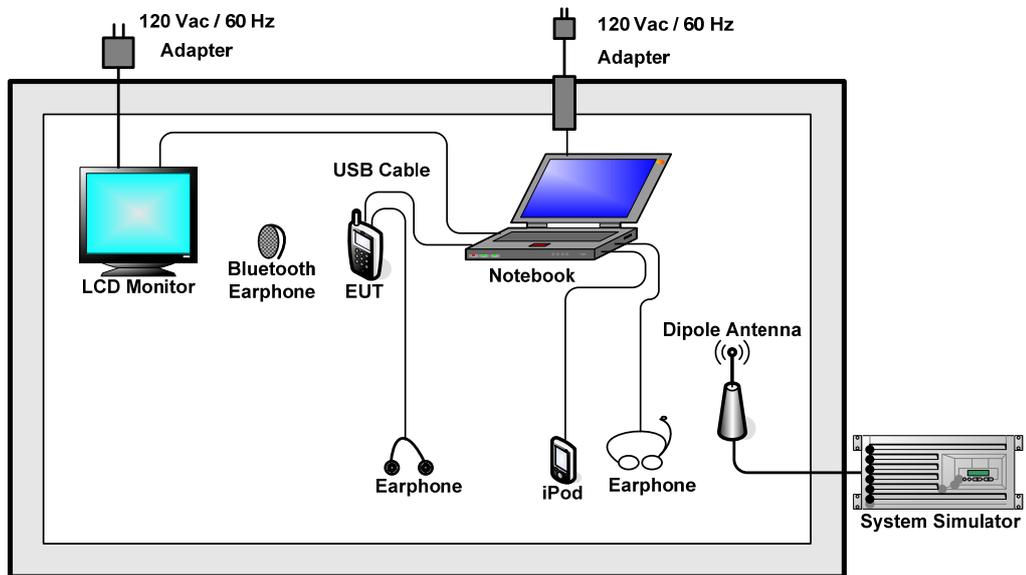
### <EUT with Adapter in FM Rx Mode>



<EUT with USB Cable (Date Link with PC) Mode>



<EUT with USB Cable (Date Link with Notebook) Mode>





## **2.3. Test Software**

The EUT was in GSM 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, and the following programs installed in the EUT were programmed during the test.

1. Execute the program, "Winthrax", installed in PC for active sync files transfer with EUT via USB cable.
2. Execute "Music Player" to play MP3 file.
3. Turn on camera to capture images.
4. Turn on FM function to keep EUT receiving signals continuously in FM Rx mode.

### 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.

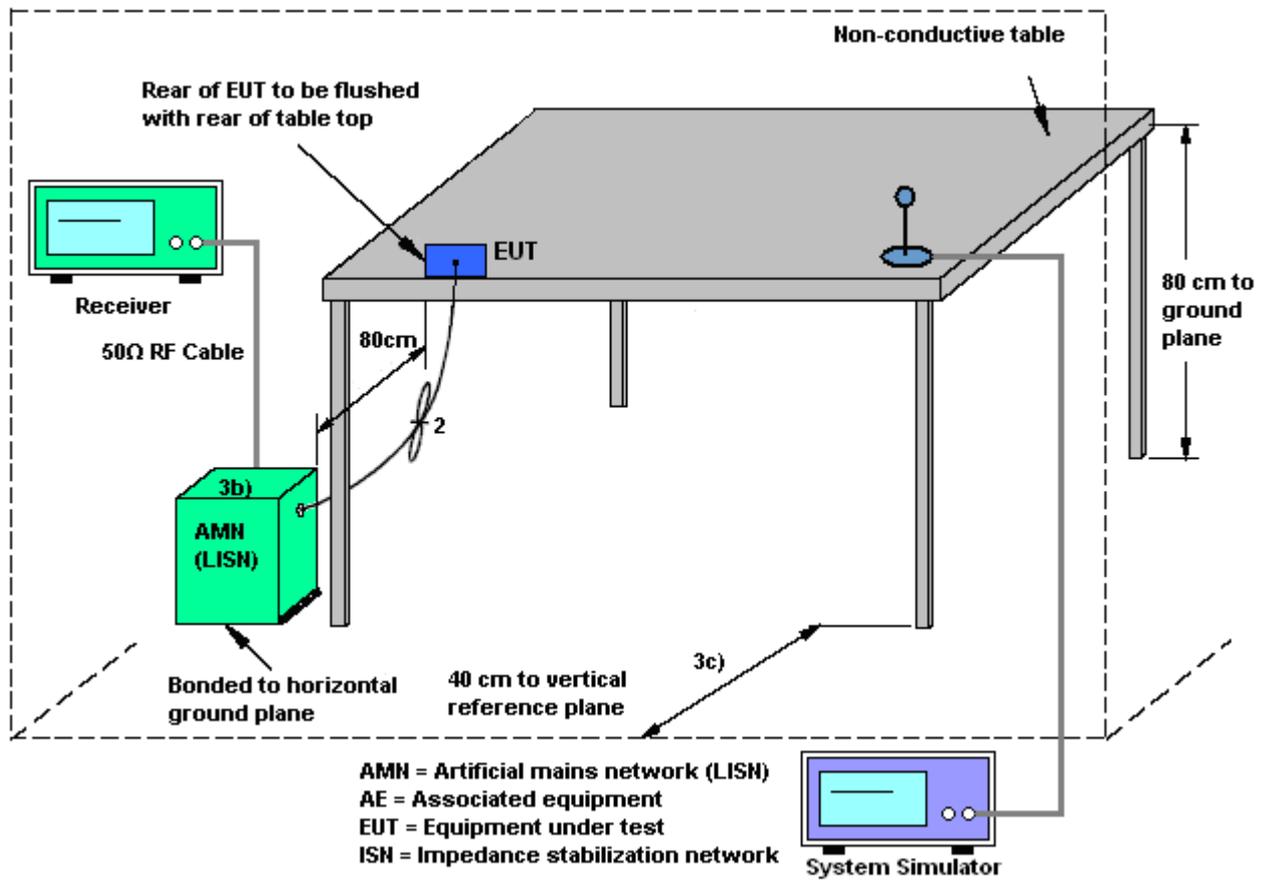
##### 3.1.2 Measuring Instruments

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.

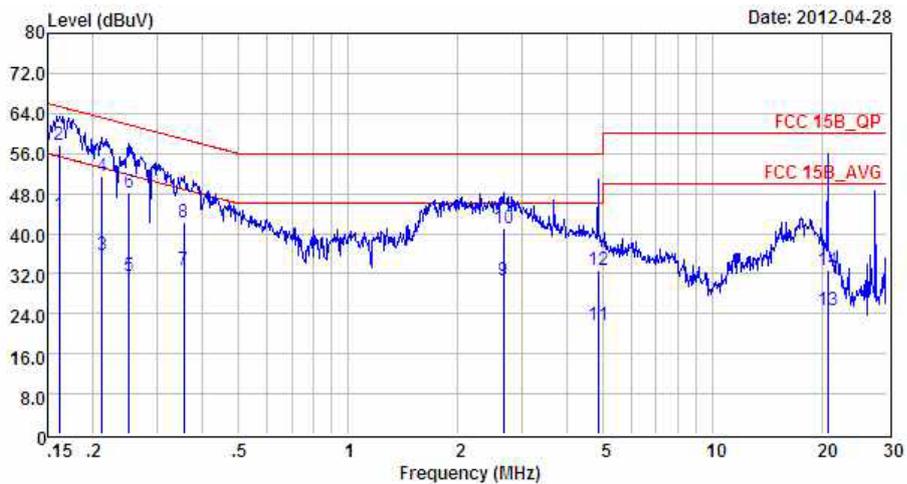
### 3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	25~26°C
Test Engineer :	Chengming Wang	Relative Humidity :	51~52%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM 850 Idle + Bluetooth Idle + Adapter + Earphone + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

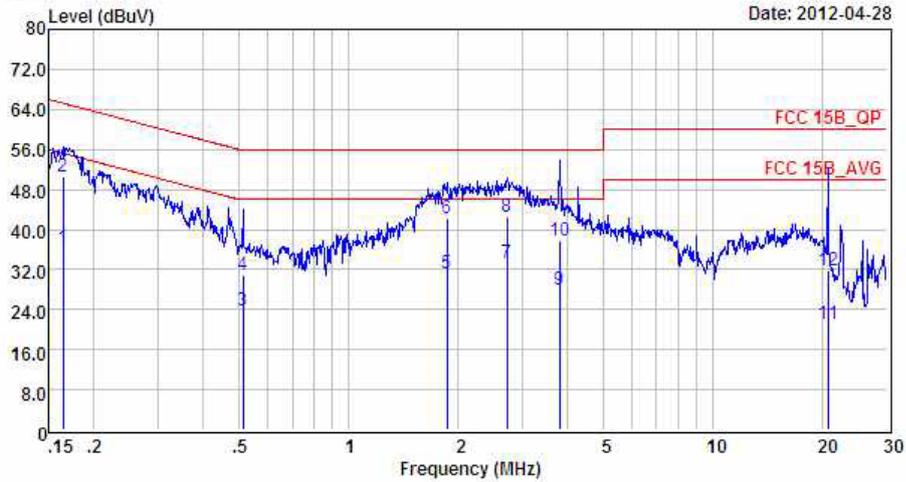


Site : CO01-SZ  
 Condition: FCC 15B\_QP LISN\_L\_2000601 LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.16	43.58	-11.80	55.38	33.50	0.03	10.05	Average
2	0.16	57.78	-7.60	65.38	47.70	0.03	10.05	QP
3	0.21	35.68	-17.46	53.14	25.60	0.02	10.06	Average
4	0.21	51.58	-11.56	63.14	41.50	0.02	10.06	QP
5	0.25	31.58	-20.15	51.73	21.50	0.02	10.06	Average
6	0.25	48.28	-13.45	61.73	38.20	0.02	10.06	QP
7	0.35	32.59	-16.28	48.87	22.50	0.02	10.07	Average
8	0.35	42.29	-16.58	58.87	32.20	0.02	10.07	QP
9	2.66	30.72	-15.28	46.00	20.50	0.04	10.18	Average
10	2.66	40.92	-15.08	56.00	30.70	0.04	10.18	QP
11	4.85	21.66	-24.34	46.00	11.40	0.07	10.19	Average
12	4.85	32.66	-23.34	56.00	22.40	0.07	10.19	QP
13	20.70	24.83	-25.17	50.00	13.90	0.37	10.56	Average
14	20.70	32.63	-27.37	60.00	21.70	0.37	10.56	QP



Test Mode :	Mode 1	Temperature :	25~26°C
Test Engineer :	Chengming Wang	Relative Humidity :	51~52%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM 850 Idle + Bluetooth Idle + Adapter + Earphone + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

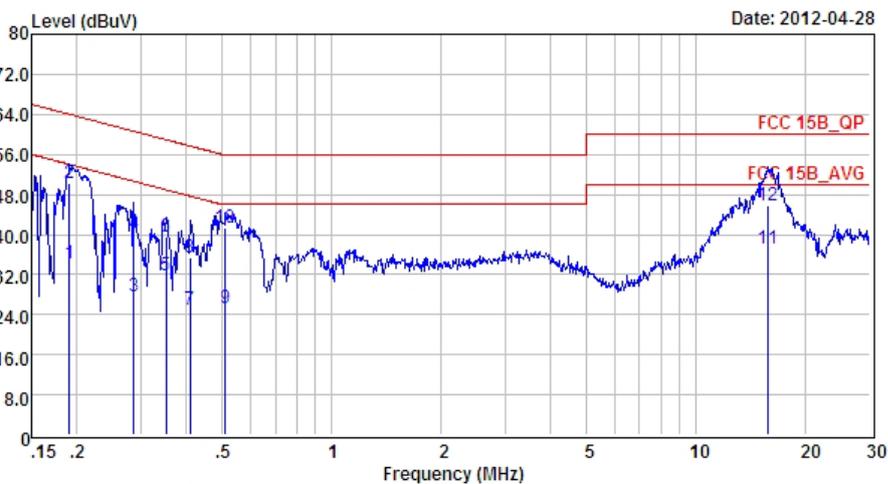


Site : CO01-SZ  
 Condition: FCC 15B\_QP LISN\_N\_2000601 NEUTRAL

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	36.17	-19.08	55.25	26.10	0.02	10.05	Average
2	0.16	50.47	-14.78	65.25	40.40	0.02	10.05	QP
3	0.51	23.70	-22.30	46.00	13.59	0.02	10.09	Average
4	0.51	31.00	-25.00	56.00	20.89	0.02	10.09	QP
5	1.86	31.17	-14.83	46.00	21.00	0.03	10.14	Average
6	1.86	42.27	-13.73	56.00	32.10	0.03	10.14	QP
7	2.72	33.42	-12.58	46.00	23.20	0.04	10.18	Average
8	2.72	42.52	-13.48	56.00	32.30	0.04	10.18	QP
9	3.80	28.05	-17.95	46.00	17.80	0.06	10.19	Average
10	3.80	37.65	-18.35	56.00	27.40	0.06	10.19	QP
11	20.70	21.18	-28.82	50.00	10.09	0.53	10.56	Average
12	20.70	31.78	-28.22	60.00	20.69	0.53	10.56	QP



Test Mode :	Mode 4	Temperature :	25~26°C
Test Engineer :	Chengming Wang	Relative Humidity :	51~52%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM 1900 Idle + Bluetooth Idle + USB Cable (Data Link with Notebook) + Earphone		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

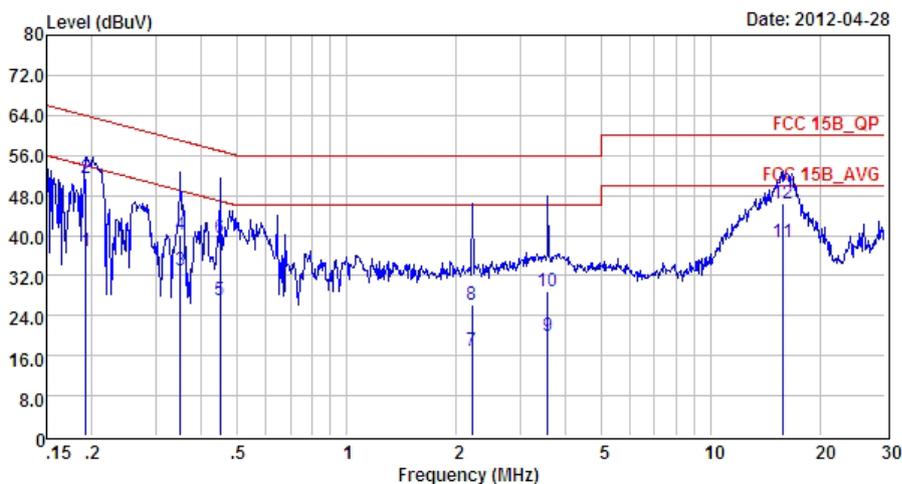


Site : CO01-SZ  
 Condition: FCC 15B\_QP LISN\_L\_2000601 LINE

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.19	34.18	-19.84	54.02	24.10	0.03	10.05	Average
2	0.19	50.18	-13.84	64.02	40.10	0.03	10.05	QP
3	0.29	27.59	-23.04	50.63	17.51	0.02	10.06	Average
4	0.29	40.19	-20.44	60.63	30.11	0.02	10.06	QP
5	0.35	31.89	-17.02	48.91	21.80	0.02	10.07	Average
6	0.35	39.59	-19.32	58.91	29.50	0.02	10.07	QP
7	0.41	25.00	-22.68	47.68	14.90	0.02	10.08	Average
8	0.41	35.40	-22.28	57.68	25.30	0.02	10.08	QP
9	0.51	25.31	-20.69	46.00	15.20	0.02	10.09	Average
10	0.51	41.21	-14.79	56.00	31.10	0.02	10.09	QP
11	15.80	37.12	-12.88	50.00	26.40	0.26	10.46	Average
12	15.80	45.92	-14.08	60.00	35.20	0.26	10.46	QP



Test Mode :	Mode 4	Temperature :	25~26°C
Test Engineer :	Chengming Wang	Relative Humidity :	51~52%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM 1900 Idle + Bluetooth Idle + USB Cable (Data Link with Notebook) + Earphone		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-SZ  
 Condition: FCC 15B\_QP LISN\_N\_2000601 NEUTRAL

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.19	36.77	-17.16	53.93	26.70	0.02	10.05	Average
2	0.19	51.57	-12.36	63.93	41.50	0.02	10.05	QP
3	0.35	33.09	-15.87	48.96	23.00	0.02	10.07	Average
4	0.35	40.19	-18.77	58.96	30.10	0.02	10.07	QP
5	0.45	27.00	-19.89	46.89	16.90	0.02	10.08	Average
6	0.45	39.60	-17.29	56.89	29.50	0.02	10.08	QP
7	2.21	16.90	-29.10	46.00	6.70	0.04	10.16	Average
8	2.21	26.20	-29.80	56.00	16.00	0.04	10.16	QP
9	3.57	20.05	-25.95	46.00	9.80	0.06	10.19	Average
10	3.57	28.95	-27.05	56.00	18.70	0.06	10.19	QP
11	15.80	38.52	-11.48	50.00	27.69	0.37	10.46	Average
12	15.80	46.32	-13.68	60.00	35.49	0.37	10.46	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.

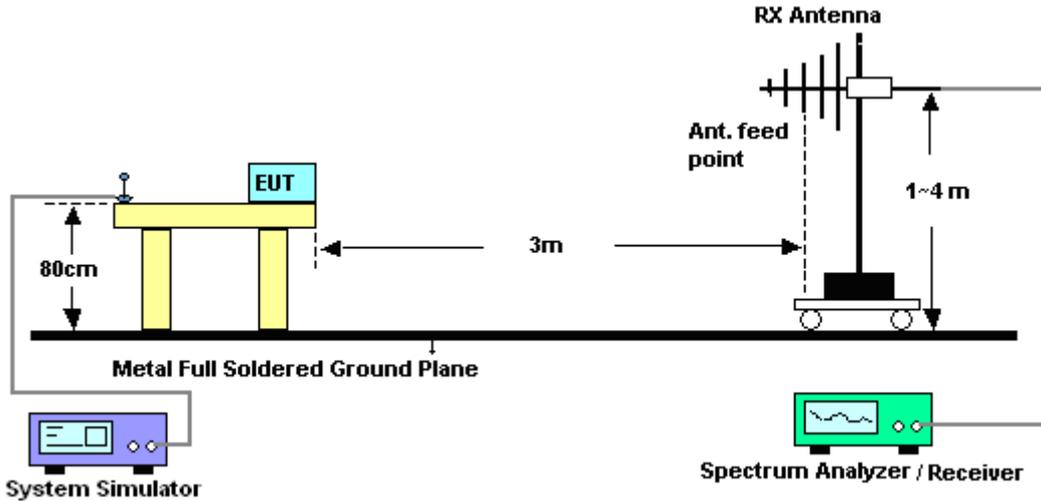


### **3.2.3. Test Procedures**

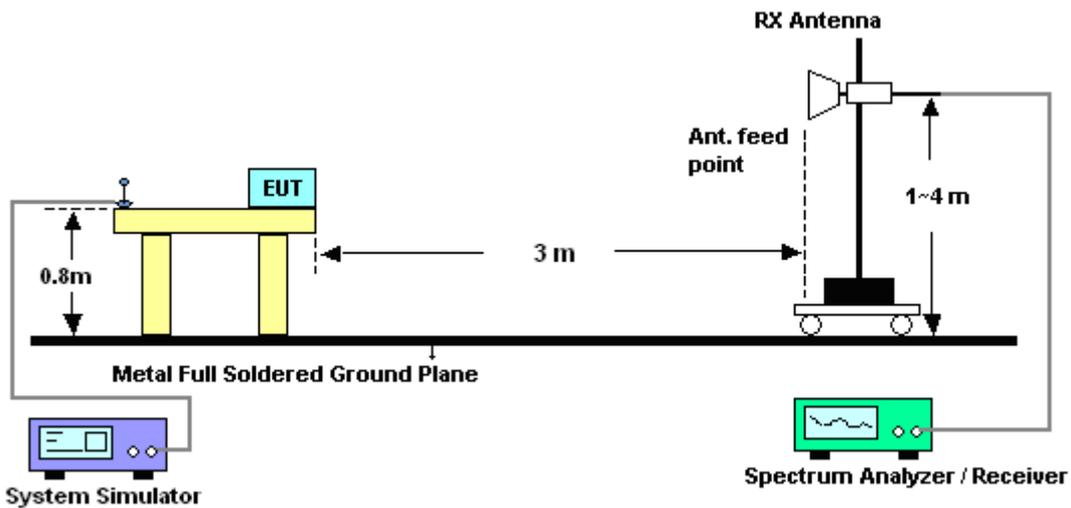
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

### 3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz ~ 1000 MHz



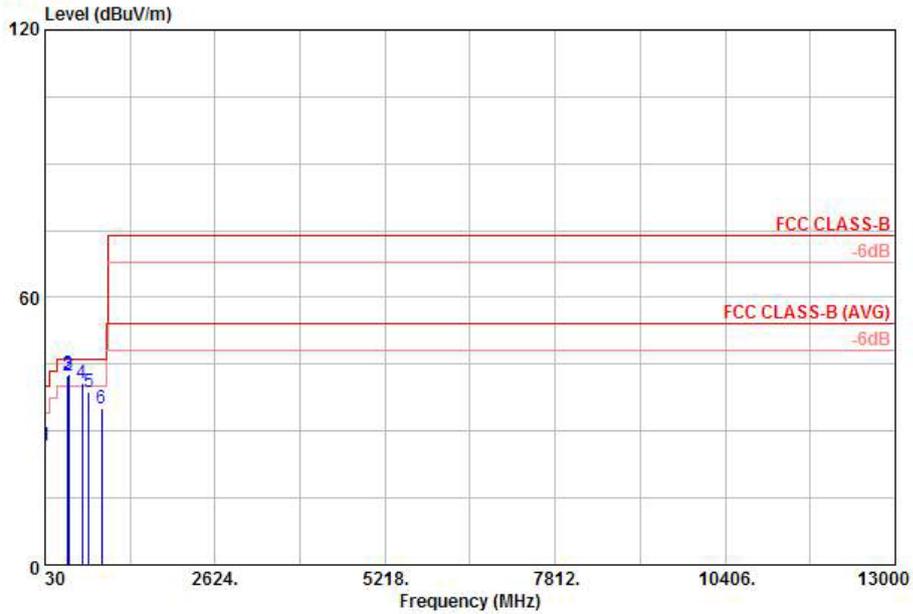
For radiated emissions from above 1000 MHz





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 4	Temperature :	22~23°C
Test Engineer :	Jack Li	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	GSM 1900 Idle + Bluetooth Idle + USB Cable (Date Link with PC) + Earphone		

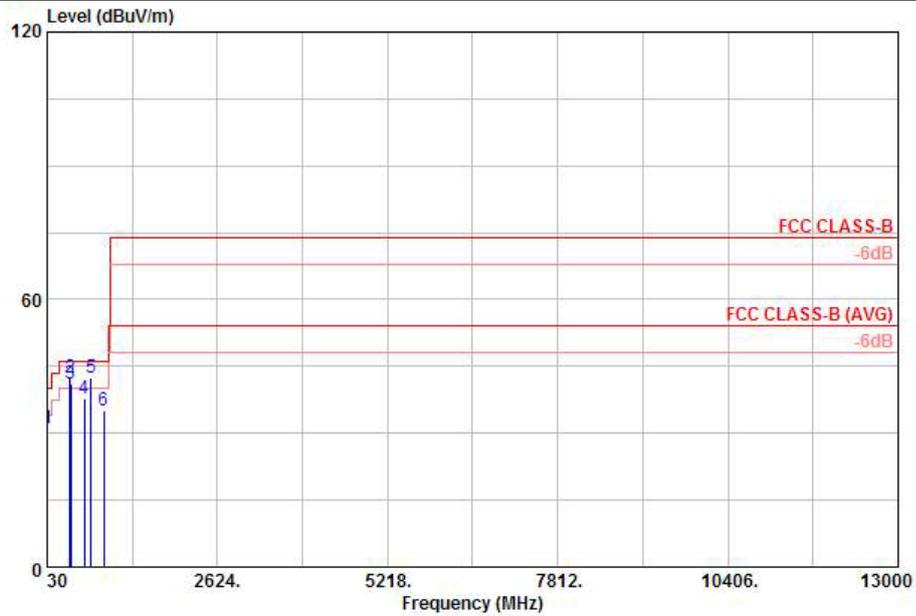


Site : 03CH01-KS  
 Condition: FCC CLASS-B 3m LF\_ANT\_100803 HORIZONTAL

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB	dB	cm	deg	
1	38.73	26.87	-13.13	40.00	43.68	12.98	0.25	30.04	---	Peak
2	375.32	42.57	-3.43	46.00	56.37	15.25	0.83	29.88	---	Peak
3	385.99	42.69	-3.31	46.00	56.05	15.66	0.84	29.86	200	0 Peak
4	594.54	40.82	-5.18	46.00	50.80	18.59	1.06	29.63	---	Peak
5	693.48	38.65	-7.35	46.00	47.98	19.26	1.13	29.72	---	Peak
6	892.33	35.20	-10.80	46.00	42.94	20.46	1.30	29.50	---	Peak



Test Mode :	Mode 4	Temperature :	22~23°C
Test Engineer :	Jack Li	Relative Humidity :	41~42%
Test Distance :	3m	Polarization :	Vertical
Function Type :	GSM 1900 Idle + Bluetooth Idle + USB Cable (Date Link with PC) + Earphone		



Site : 03CH01-KS  
 Condition: FCC CLASS-B 3m LF\_ANT\_100803 VERTICAL

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	32.91	30.92	-9.08	40.00	44.73	16.04	0.24	30.09	---	---	Peak
2 !	375.32	42.53	-3.47	46.00	56.33	15.25	0.83	29.88	115	341	QP
3 !	385.99	40.98	-5.02	46.00	54.34	15.66	0.84	29.86	---	---	Peak
4	594.54	37.72	-8.28	46.00	47.70	18.59	1.06	29.63	---	---	Peak
5 !	693.48	42.60	-3.40	46.00	51.93	19.26	1.13	29.72	---	---	Peak
6	892.33	35.22	-10.78	46.00	42.96	20.46	1.30	29.50	---	---	Peak



## 4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
AC LISN	ETS-LINDGR EN	3816/2SH	00103912	0.1MHz~108MHz	Feb. 27, 2012	Apr. 28, 2012	Feb. 26, 2013	Conduction (CO01-SZ)
AC LISN	ETS-LINDGR EN	3816/2SH	00103892	0.1MHz~108MHz	Feb. 27, 2012	Apr. 28, 2012	Feb. 26, 2013	Conduction (CO01-SZ)
ESCIO TEST Receiver	R&S	1142.8007.0 3	100724	9K-3GHz	Mar. 07, 2012	Apr. 28, 2012	Mar. 06, 2013	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	61602000089 1N/A	N/A	Oct. 12, 2011	Apr. 28, 2012	Oct. 11, 2013	Conduction (CO01-SZ)
AC LISN	SCHWARZBE CK	NNLK 8121	8121370	10KHz-30MHz	Jun. 13, 2011	Apr. 28, 2012	Jun. 12, 2012	Conduction (CO01-SZ)
System Simulator	Agilent	E5515C	MY50264168	GSM/WCDMA /CDMA2000	Sep. 04, 2011	Apr. 28, 2012	Sep. 03, 2012	Conduction (CO01-SZ)
Signal Generator	Agilent	E8257D	MY48050405	250KHZ-50GHZ	Sep. 04, 2011	Mar. 29, 2012	Sep. 03, 2012	Conduction (CO01-SZ)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	May 04, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	May 04, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	May 04, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	May 04, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060007	30MHz~2GHz	Dec. 30, 2011	May 04, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 30, 2011	May 04, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Signal Generator	R&S	SMR40	100455	10GHz~40GHz	Dec. 30, 2011	May 04, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 30, 2011	May 04, 2012	Dec. 29, 2012	Radiation (03CH01-KS)

## 5. Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150 KHz ~ 30 MHz)

Contribution	Uncertainty of $X_i$		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.13</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.26</b>		

### 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
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.27</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.54</b>		



**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	$\pm 0.10$	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	$\pm 1.70$	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	$\pm 0.50$	Normal (k=2)	0.25	1	0.25
Receiver Correction	$\pm 2.00$	Rectangular	1.15	1	1.15
Antenna Factor Directional	$\pm 1.50$	Rectangular	0.87	1	0.87
Site Imperfection	$\pm 2.80$	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>2.36</b>				
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>4.72</b>				



## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP241702 as below.