



# Variant FCC RF Test Report

APPLICANT : Lenovo (Shanghai) Electronics Technology Co., Ltd.  
EQUIPMENT : Tablet PC IdeaTab A3000-H  
BRAND NAME : lenovo  
MODEL NAME : 60030, Z0A3  
FCC ID : O57A3000H  
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E)  
CLASSIFICATION : PCS Licensed Transmitter (PCB)

This is a variant report which is only valid together with the original test report. The product was received on May 11, 2013 and completely tested on May 21, 2013. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 and shown 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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### SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	N/A	PASS	-
3.2	§22.913(a)(2)	Effective Radiated Power	< 7 Watts	PASS	-
3.2	§24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.3	§2.1053 §22.917(a) §24.238(a)	Field Strength of Spurious Radiated	$< 43 + 10 \log_{10}(P[\text{Watts}])$	PASS	Under limit 20.16 dB at 5644.000 MHz



# 1 General Description

## 1.1 Applicant

**Lenovo (Shanghai) Electronics Technology Co., Ltd.**  
No. 68 Building, 199 Fenju Road, Wai Gao Qiao FTZ , Shanghai , China

## 1.2 Manufacturer

**Lenovo PC HK Limited**  
23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong

## 1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Tablet PC IdeaTab A3000-H
Brand Name	lenovo
Model Name	60030, Z0A3
FCC ID	O57A3000H
EUT supports Radios application	GPRS/EGPRS/WCDMA/HSPA/HSPA+/DC-HSDPA/ WLAN 11bgn/Bluetooth/Bluetooth 4.0 - LE
HW Version	LepadA3000-H
SW Version	A3000_130125
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>	GPRS850: 824.2 MHz ~ 848.8 MHz GPRS1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
<b>Rx Frequency</b>	GPRS850: 869.2 MHz ~ 893.8 MHz GPRS1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz
<b>Maximum Output Power to Antenna</b>	GPRS850 : 31.51 dBm GPRS1900 : 29.27 dBm WCDMA Band V : 22.02 dBm WCDMA Band II : 22.20 dBm
<b>Antenna Type</b>	Fixed Internal Antenna
<b>Type of Modulation</b>	GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA/DC-HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) HSPA+: 16QAM (Uplink) DC-HSDPA: 64QAM (Downlink Only)

### 1.5 Maximum ERP/EIRP Power

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)
Part 22	GSM850 GPRS 8	GMSK	0.7739
Part 22	GSM850 EDGE 8	8PSK	0.2207
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.1294
Part 24	GSM1900 GPRS 8	GMSK	0.6195
Part 24	GSM1900 EDGE 8	8PSK	0.2655
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.1487

### 1.6 Testing Site

<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>
	TH01-KS	03CH01-KS	149928/4086E-1

### 1.7 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ Preliminary Guidance for Receiving Applications for Certification of 3G Device. May 9, 2006.
- ♦ FCC 47 CFR Part 2, 22(H), 24(E)
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v01

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Frequency range investigated for radiated emission is as follows:

1. 30 MHz to 9000 MHz for GSM850.
2. 30 MHz to 19000 MHz for WCDMA Band II.

Band	Test Modes
<b>GSM 850</b>	<ul style="list-style-type: none"> <li>■ GPRS 8 Link for Conducted Power and ERP</li> <li>■ EDGE 8 Link for Conducted Power and ERP</li> <li>■ EDGE 8 Link for Radiated Spurious Emissions</li> </ul>
<b>GSM 1900</b>	<ul style="list-style-type: none"> <li>■ GPRS 8 Link for Conducted Power and EIRP</li> <li>■ EDGE 8 Link for Conducted Power and EIRP</li> </ul>
<b>WCDMA Band V</b>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link for Conducted Power and ERP</li> </ul>
<b>WCDMA Band II</b>	<ul style="list-style-type: none"> <li>■ RMC 12.2Kbps Link for Conducted Power and EIRP</li> <li>■ RMC 12.2Kbps Link for Radiated Spurious Emissions</li> </ul>

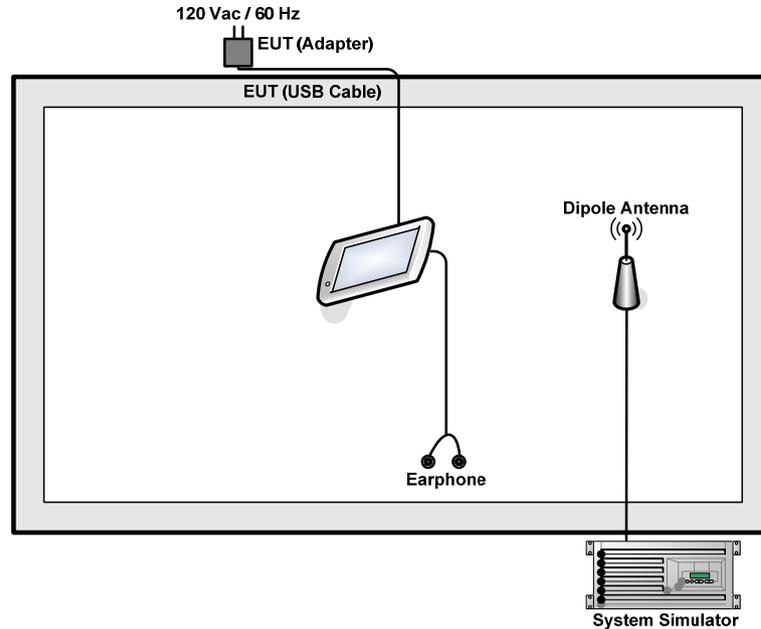


The conducted power tables are as follows:

Conducted Power (*Unit: dBm)						
Band	GPRS850			GPRS1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880.0	1909.8
GPRS (GMSK, 1 Tx slot) – CS1	31.26	31.47	31.51	28.94	29.27	29.00
GPRS (GMSK, 2 Tx slots) – CS1	28.97	29.11	29.15	26.41	26.69	26.47
GPRS (GMSK, 3 Tx slots) – CS1	27.37	27.54	27.58	24.82	25.13	24.89
GPRS (GMSK, 4 Tx slots) – CS1	26.09	26.31	26.35	23.66	23.97	23.76
EDGE (8PSK, 1 Tx slot) – MCS5	26.45	25.94	25.80	25.40	25.43	24.94
EDGE (8PSK, 2 Tx slots) – MCS5	22.87	22.46	22.40	21.89	21.82	21.58
EDGE (8PSK, 3 Tx slots) – MCS5	20.81	20.44	20.32	19.82	19.66	18.98
EDGE (8PSK, 4 Tx slots) – MCS5	19.49	19.04	18.94	18.64	18.24	17.64

Conducted Power (*Unit: dBm)						
Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4182	4233	9262	9400	9538
Frequency	826.4	836.4	846.6	1852.4	1880.0	1907.6
RMC 12.2K	21.98	22.02	21.89	22.05	22.16	22.20
HSDPA Subtest-1	21.86	21.99	21.91	21.65	21.70	21.94
HSDPA Subtest-2	21.83	21.98	21.93	21.63	21.75	21.93
HSDPA Subtest-3	21.36	21.54	21.36	21.24	21.42	21.48
HSDPA Subtest-4	21.33	21.52	21.33	21.21	21.22	21.45
DC-HSDPA Subtest-1	21.96	21.95	21.96	21.27	21.51	21.88
DC-HSDPA Subtest-2	21.76	21.78	21.83	20.89	21.31	21.71
DC-HSDPA Subtest-3	21.29	21.32	21.28	20.75	20.83	20.72
DC-HSDPA Subtest-4	21.26	21.33	21.26	20.66	20.74	20.70
HSUPA Subtest-1	19.36	19.44	19.23	19.53	19.51	19.66
HSUPA Subtest-2	18.66	18.82	18.66	18.78	18.77	18.80
HSUPA Subtest-3	19.64	19.85	19.71	19.61	19.75	19.87
HSUPA Subtest-4	18.18	18.23	18.10	18.24	18.32	18.34
HSUPA Subtest-5	20.15	20.33	20.15	20.29	20.30	20.32
HSPA+ (16QAM) Subtest-1	20.25	20.32	20.20	19.50	19.83	20.23

## 2.2 Connection Diagram of Test System



## 2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m

## 2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

*Offset = RF cable loss + attenuator factor.*

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.2 + 10 = 14.2 \text{ (dB)} \end{aligned}$$

### 3 Test Result

#### 3.1 Conducted Output Power Measurement

##### 3.1.1 Description of the Conducted Output Power Measurement

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals shall be reported.

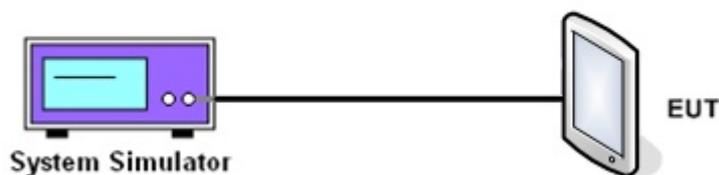
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

##### 3.1.4 Test Setup



### 3.1.5 Test Result of Conducted Output Power

Cellular Band									
Modes	GSM850 (GPRS 8)			GSM850 (EDGE 8)			WCDMA Band V (RMC 12.2Kbps)		
Channel	128 (Low)	189 (Mid)	251 (High)	128 (Low)	189 (Mid)	251 (High)	4132 (Low)	4182 (Mid)	4233 (High)
Frequency (MHz)	824.2	836.4	848.8	824.2	836.4	848.8	826.4	836.4	846.6
Conducted Power (dBm)	31.26	31.47	31.51	26.45	25.94	25.80	21.98	22.02	21.89
Conducted Power (Watts)	1.34	1.40	1.42	0.44	0.39	0.38	0.16	0.16	0.15

PCS Band									
Modes	GSM1900 (GPRS 8)			GSM1900 (EDGE 8)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6
Conducted Power (dBm)	28.94	29.27	29.00	25.40	25.43	24.94	22.05	22.16	22.20
Conducted Power (Watts)	0.78	0.85	0.79	0.35	0.35	0.31	0.16	0.16	0.17

**Note:** maximum burst average power for GSM, and maximum average power for WCDMA.



## 3.2 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

### 3.2.1 Description of the ERP/EIRP Measurement

The substitution method, in ANSI / TIA / EIA-603-C-2004, was used for ERP/EIRP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v01. The ERP of mobile transmitters must not exceed 7 Watts and the EIRP of mobile transmitters are limited to 2 Watts.

### 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 1.5 meter height in a fully anechoic chamber.
2. The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. GSM operating modes: Set RBW= 1MHz, VBW= 3MHz, RMS detector over burst;  
UMTS operating modes: Set RBW= 100 KHz, VBW= 300 KHz, RMS detector over frame, and use channel power option with bandwidth=5MHz, per section 4.0 of KDB 971168 D01.
4. The table was rotated 360 degrees to determine the position of the highest radiated power.
5. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
6. Taking the record of maximum ERP/EIRP.
7. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
8. The conducted power at the terminal of the dipole antenna is measured.
9. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
10.  $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$

$P_s$  (dBm) : Input power to substitution antenna.

$G_s$  (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

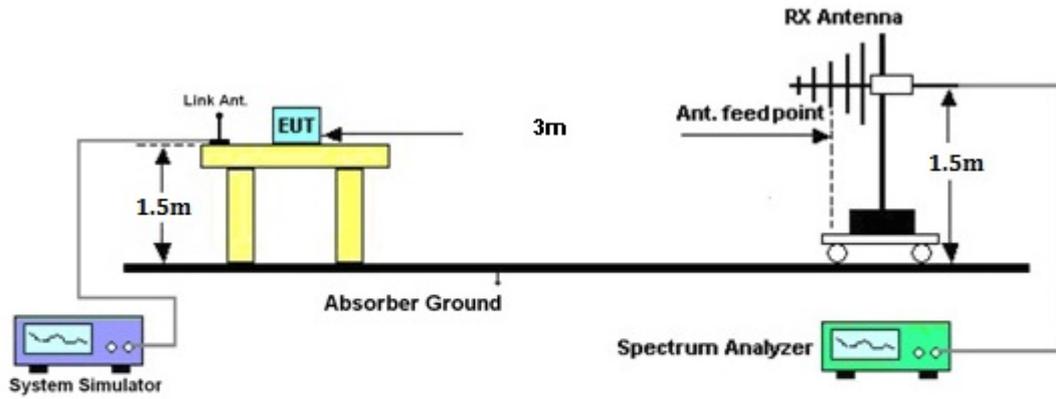
$E_s = R_s + AF$

AF (dB/m) : Receive antenna factor

$R_t$  : The highest received signal in spectrum analyzer for EUT.

$R_s$  : The highest received signal in spectrum analyzer for substitution antenna.

### 3.2.4 Test Setup





3.2.5 Test Result of ERP

GSM850 (GPRS 8) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-20.20	-48.12	0.00	-1.08	26.84	0.4827
836.40	-19.27	-48.28	0.00	-0.93	28.08	0.6421
848.80	-18.70	-48.35	0.00	-0.76	28.89	0.7739
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-20.83	-47.97	0.00	-1.08	26.06	0.4033
836.40	-19.78	-48.01	0.00	-0.93	27.30	0.5372
848.80	-19.11	-48.05	0.00	-0.76	28.18	0.6581

GSM850 (EDGE 8) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-24.19	-48.12	0.00	-1.08	22.85	0.1927
836.40	-24.33	-48.28	0.00	-0.93	23.02	0.2003
848.80	-24.15	-48.35	0.00	-0.76	23.44	0.2207
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.20	-24.83	-47.97	0.00	-1.08	22.06	0.1606
836.40	-24.88	-48.01	0.00	-0.93	22.20	0.1658
848.80	-24.64	-48.05	0.00	-0.76	22.65	0.1841



WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-27.69	-48.12	0.00	-1.08	19.35	0.0861
836.40	-26.23	-48.28	0.00	-0.93	21.12	0.1294
846.60	-27.39	-48.35	0.00	-0.76	20.20	0.1048
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
826.40	-28.29	-47.97	0.00	-1.08	18.60	0.0724
836.40	-26.82	-48.01	0.00	-0.93	20.26	0.1061
846.60	-27.91	-48.05	0.00	-0.76	19.38	0.0868



3.2.6 Test Result of EIRP

GSM1900 (GPRS 8) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-26.84	-51.88	0.00	1.96	27.00	0.5016
1880.00	-27.07	-52.99	0.00	2.00	27.92	0.6195
1909.80	-28.79	-54.28	0.00	1.98	27.47	0.5580
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-26.87	-52.13	0.00	1.96	27.22	0.5276
1880.00	-27.61	-53.17	0.00	2.00	27.56	0.5697
1909.80	-28.69	-54.13	0.00	1.98	27.42	0.5517

GSM1900 (EDGE 8) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-29.66	-51.88	0.00	1.96	24.18	0.2621
1880.00	-30.75	-52.99	0.00	2.00	24.24	0.2655
1909.80	-33.02	-54.28	0.00	1.98	23.24	0.2109
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1850.20	-29.92	-52.13	0.00	1.96	24.17	0.2614
1880.00	-31.33	-53.17	0.00	2.00	23.84	0.2422
1909.80	-33.00	-54.13	0.00	1.98	23.11	0.2049



WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-33.11	-51.88	0.00	1.96	20.73	0.1184
1880.00	-33.36	-52.99	0.00	2.00	21.63	0.1455
1907.60	-34.58	-54.28	0.00	1.98	21.68	0.1471
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	EIRP (W)
1852.40	-33.14	-52.13	0.00	1.96	20.95	0.1245
1880.00	-33.94	-53.17	0.00	2.00	21.23	0.1326
1907.60	-34.39	-54.13	0.00	1.98	21.72	0.1487



### 3.3 Field Strength of Spurious Radiated Measurement

#### 3.3.1 Description of Field Strength of Spurious Radiated Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

#### 3.3.2 Measuring Instruments

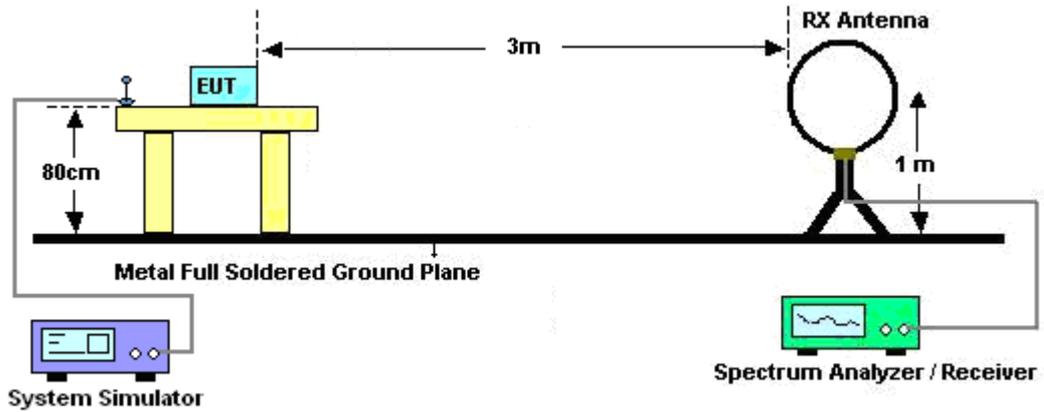
See list of measuring instruments of this test report.

#### 3.3.3 Test Procedures

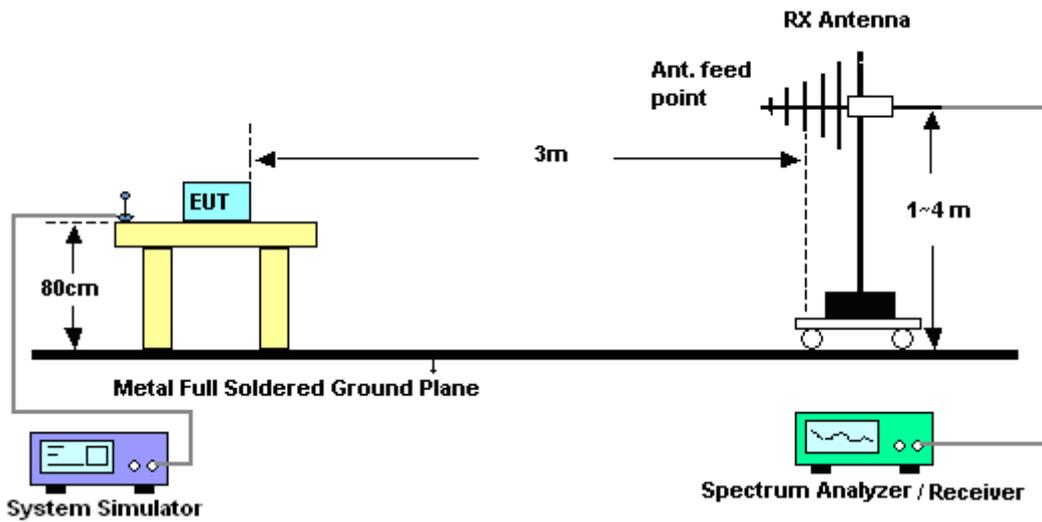
1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
1. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
2. The table was rotated 360 degrees to determine the position of the highest spurious emission.
3. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
4. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
5. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
6. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
7. Taking the record of output power at antenna port.
8. Repeat step 7 to step 8 for another polarization.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from  $43 + 10\log(P)$  dB below the transmitter power P(Watts)  
=  $P(W) - [43 + 10\log(P)]$  (dB)  
=  $[30 + 10\log(P)]$  (dBm) -  $[43 + 10\log(P)]$  (dB)  
= -13dBm.
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15

### 3.3.4 Test Setup

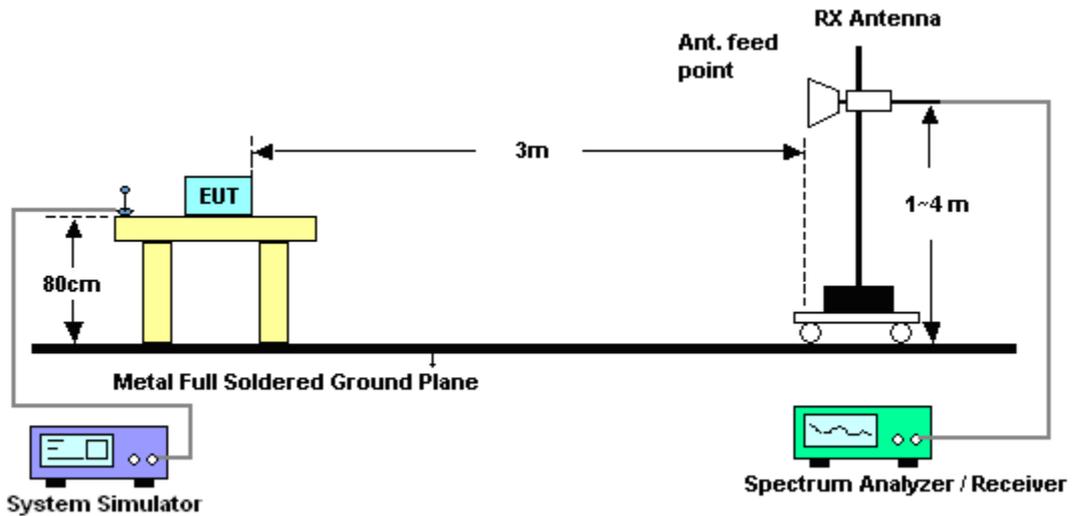
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



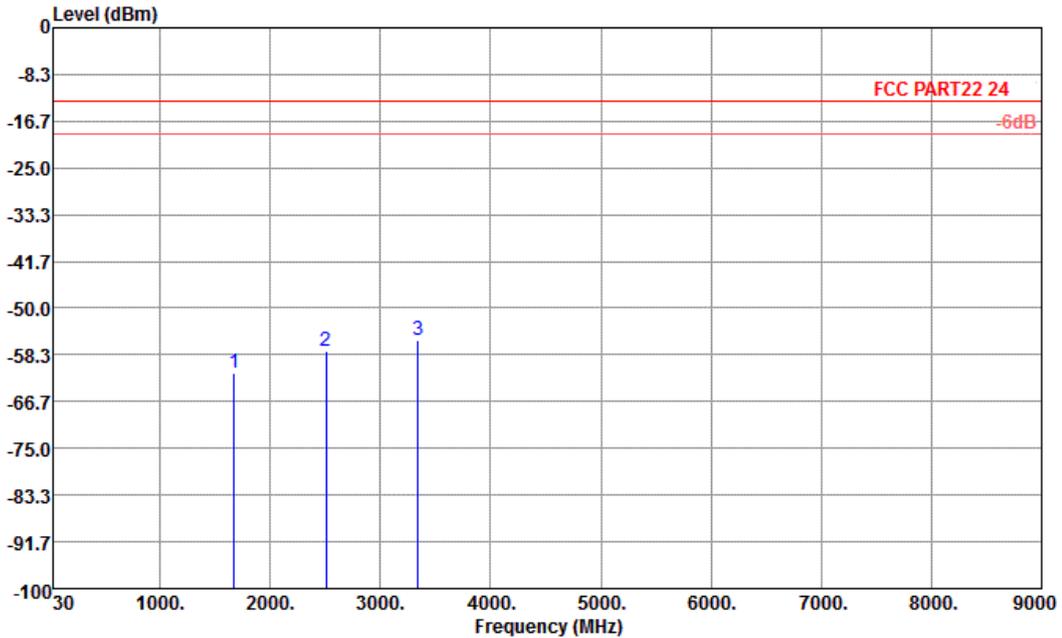
### 3.3.5 Test Results of Radiated Spurious Emissions (9 KHz ~ 30 MHz)

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.



3.3.6 Test Result of Field Strength of Spurious Radiated

Band :	GSM850	Temperature :	23~24°C
Test Mode :	EDGE 8 Link	Relative Humidity :	43~44%
Test Engineer :	Stone Gu	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

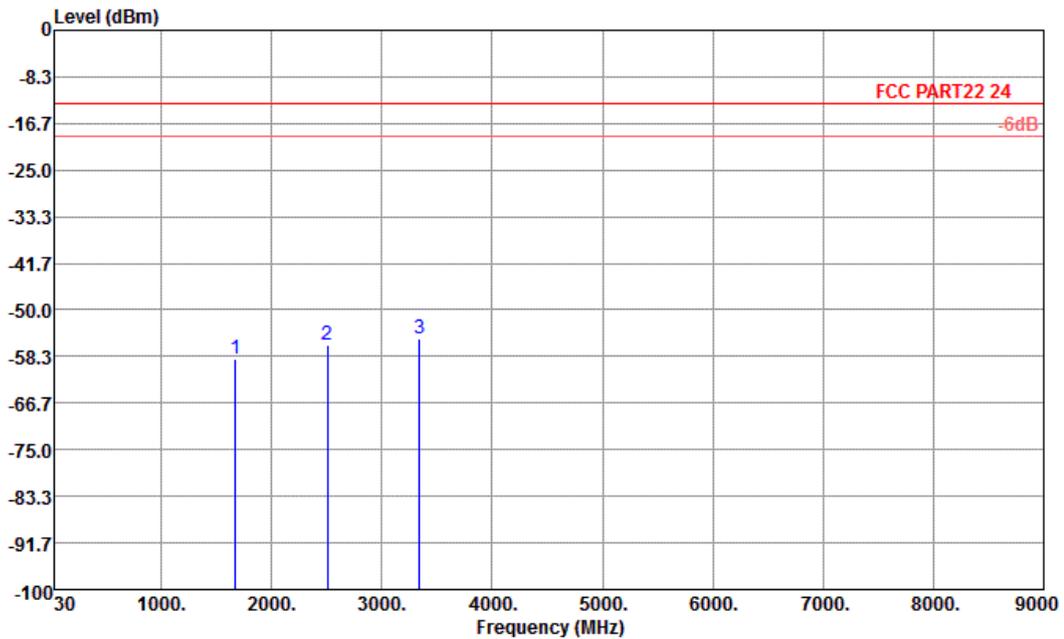


Site : 03CH01-KS  
 Condition : FCC PART22 24 HF EIRP FACTOR HORIZONTAL  
 EUT : (FG) 322704-04

Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
1674	-61.69	-13	-48.69	-60.85	-62.34	0.57	3.37	H	Pass
2508	-57.68	-13	-44.68	-63.39	-59.91	0.78	5.16	H	Pass
3344	-55.73	-13	-42.73	-62.37	-59.37	0.87	6.66	H	Pass



<b>Band :</b>	GSM850	<b>Temperature :</b>	23~24°C
<b>Test Mode :</b>	EDGE 8 Link	<b>Relative Humidity :</b>	43~44%
<b>Test Engineer :</b>	Stone Gu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

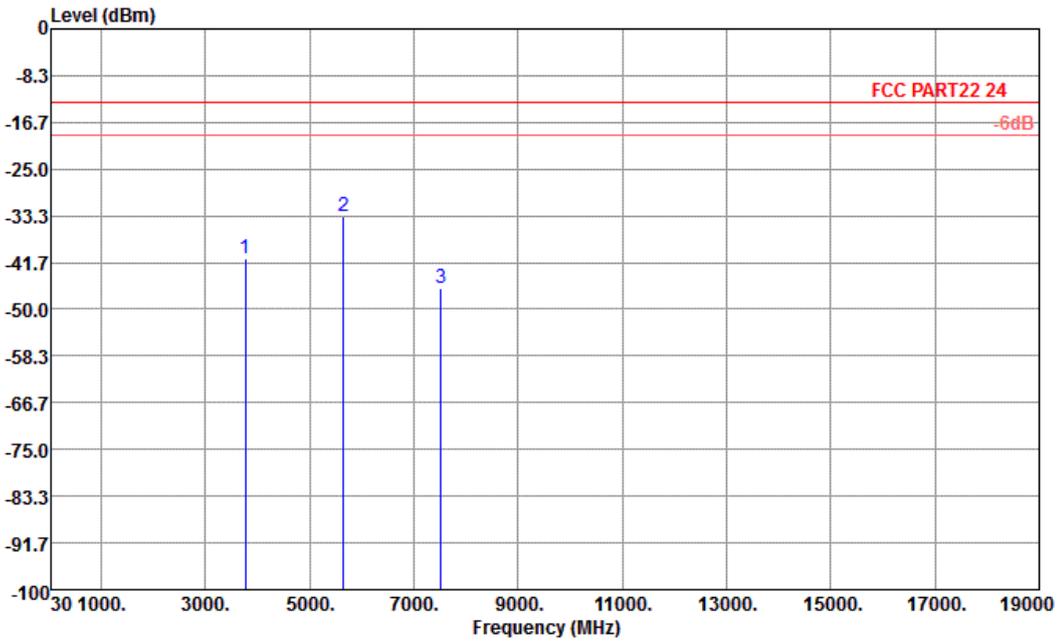


Site : 03CH01-KS  
 Condition : FCC PART22 24 HF EIRP FACTOR VERTICAL  
 EUT : (FG) 322704-04

Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
1674	-58.83	-13	-45.83	-60.29	-59.48	0.57	3.37	V	Pass
2508	-56.23	-13	-43.23	-64.42	-58.46	0.78	5.16	V	Pass
3344	-55.24	-13	-42.24	-63.69	-58.88	0.87	6.66	V	Pass



<b>Band :</b>	WCDMA Band II	<b>Temperature :</b>	23~24°C
<b>Test Mode :</b>	RMC 12.2Kbps Link	<b>Relative Humidity :</b>	43~44%
<b>Test Engineer :</b>	Stone Gu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

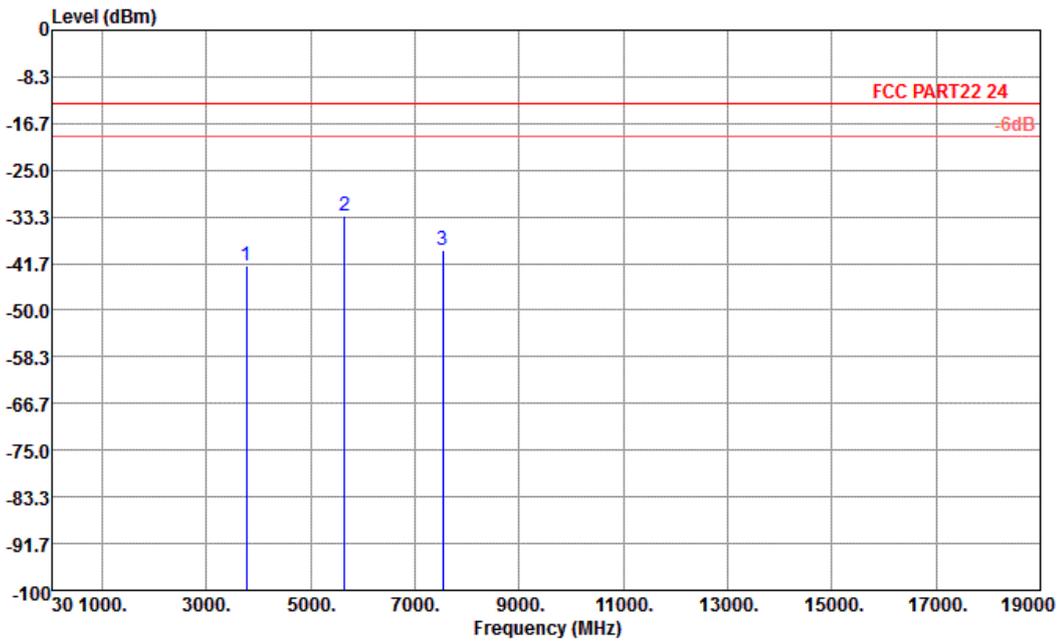


Site : 03CH01-KS  
 Condition : FCC PART22 24 HF EIRP FACTOR HORIZONTAL  
 EUT : (FG) 322704-04

Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3762	-41.00	-13	-28.00	-54.23	-47.38	0.78	7.16	H	Pass
5642	-33.35	-13	-20.35	-53.32	-41.89	1.04	9.58	H	Pass
7516	-46.20	-13	-33.20	-61.62	-56.31	1.35	11.46	H	Pass



<b>Band :</b>	WCDMA Band II	<b>Temperature :</b>	23~24°C
<b>Test Mode :</b>	RMC 12.2Kbps Link	<b>Relative Humidity :</b>	43~44%
<b>Test Engineer :</b>	Stone Gu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS  
 Condition : FCC PART22 24 HF EIRP FACTOR VERTICAL  
 EUT : (FG) 322704-04

Frequency ( MHz )	EIRP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
3762	-42.07	-13	-29.07	-57.1	-48.45	0.78	7.16	V	Pass
5644	-33.16	-13	-20.16	-53.62	-41.70	1.04	9.58	V	Pass
7526	-39.21	-13	-26.21	-60.85	-49.32	1.35	11.46	V	Pass



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 29, 2012	May 21, 2013	Dec. 28, 2013	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSV30	100845	9kHz~30GHz	Nov. 06, 2012	May 21, 2013	Nov. 05, 2013	Conducted (TH01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 29, 2012	May 21, 2013	Dec. 28, 2013	Conducted (TH01-KS)
DC Power Supply	GWINSTEK	GPS-3030D	E1884515	N/A	Aug. 22, 2012	May 21, 2013	Aug. 21, 2013	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 29, 2012	May 21, 2013	Dec. 28, 2013	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 08, 2012	May 15, 2013	Nov. 07, 2013	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	100400	9kHz~30GHz	Jun. 01, 2012	May 15, 2013	May 31, 2013	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 07, 2012	May 15, 2013	Dec. 06, 2013	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2013	May 15, 2013	Jan. 05, 2014	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161069	1MHz~1GHz	Jun. 01, 2012	May 15, 2013	May 31, 2013	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 29, 2012	May 15, 2013	Dec. 28, 2013	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	9170249	15GHz~40GHz	Nov. 23, 2012	May 15, 2013	Nov. 22, 2013	Radiation (03CH01-KS)
HFH2-Z2 Loop Antenna	R&S	HFH2-Z2	100321	9KHZ-30MHZ	Oct. 22, 2012	May 15, 2013	Oct. 21, 2013	Radiation (03CH01-KS)
Signal Generator	R&S	SMR40	100455	10MHz-40GHz	Dec. 29, 2012	May 15, 2013	Dec. 28, 2013	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	116456	Full-Band	Sep. 19, 2012	May 15, 2013	Sep. 18, 2013	Radiation (03CH01-KS)



## 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))	2.54
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### Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.72
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## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP322704-04 as below.



## **Appendix C. Product Equality Declaration**