

FCC/IC RF Test Report

APPLICANT : VERTU Corporation Limited
EQUIPMENT : Cellular Telephone
BRAND NAME : VERTU
MODEL NAME : ASTER
TYPE NAME (LTE) : VM-01
TYPE NAME (WCDMA) : VM-01C
FCC ID : P7QVM-01
IC : 4299A-VM01
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E) , 27(L)
IC RSS-132 issue 3
IC RSS-133 issue 6
IC RSS-139 issue 2
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Jun. 23, 2014 and testing was completed on Jul. 17, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 and has been in 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 INC., the test report shall not be reproduced except in full.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



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FCC ID : P7QVM-01

IC : 4299A-VM01

Page Number : 1 of 48

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG462340A	Rev. 01	Initial issue of report	Jul. 30, 2014



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
-	§2.1046	RSS-132 (5.4) RSS-133 (6.4) RSS-139 (6.4)	Conducted Output Power	Reporting Only	PASS	-
-	§24.232(d) §27.50(d)(5)	RSS-132 (5.4) RSS-133 (6.4) RSS-139 (6.4)	Peak-to-Average Ratio	< 13 dB	Not Performed	Please refer to Sporton Report No. : FG430469A
3.1	§22.913(a)(2)	RSS-132(5.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts	PASS	-
	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
	§27.50(d)(4)	RSS-139 (6.4) SRSP-513(5.1.2)	Equivalent Isotropic Radiated Power	< 1 Watts	PASS	-
-	§2.1049 §22.917(b) §24.238(b) §27.53(g)	RSS-GEN(4.6.1) RSS-133(6.5) RSS-139 (6.5)	Occupied Bandwidth	Reporting Only	Not Performed	Please refer to Sporton Report No. : FG430469A
-	§2.1051 §22.917(a) §24.238(a) §27.53(g)	RSS-GEN(4.9) RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.5)	Band Edge Measurement	< 43+10log10(P[Watts])	Not Performed	Please refer to Sporton Report No. : FG430469A
-	§2.1051 §22.917(a) §24.238(a) §27.53(g)	RSS-GEN(4.9) RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.5)	Conducted Emission	< 43+10log10(P[Watts])	Not Performed	Please refer to Sporton Report No. : FG430469A
3.2	§2.1053 §22.917(a) §24.238(a) §27.53(g)	RSS-GEN(4.9) RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.5)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 14.41 dB at 2472.000 MHz
-	§2.1055 §22.355 §24.235 §27.54	RSS-GEN(4.7) RSS-132 (5.3) RSS-133 (6.3) RSS-139 (6.3)	Frequency Stability for Temperature & Voltage	< 2.5 ppm	Not Performed	Please refer to Sporton Report No. : FG430469A



1 General Description

1.1 Applicant

VERTU Corporation Limited

Beacon Hill Road, Church Crookham, Hampshire GU52 8DY, United Kingdom

1.2 Manufacturer

VERTU Corporation Limited

Beacon Hill Road, Church Crookham, Hampshire GU52 8DY, United Kingdom

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Cellular Telephone
Brand Name	VERTU
Model Name	ASTER
Type Name (LTE)	VM-01
Type Name (WCDMA)	VM-01C
Sample 1	LTE Sku
Sample 2	WCDMA Sku
FCC ID	P7QVM-01
IC	4299A-VM01
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/NFC WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth v4.0 EDR/LE
HW Version	F2
SW Version	000C_1_420
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. There are two different types of EUT sample #1, and sample #2. For WWAN bands, Sample 1 support GSM, WCDMA and LTE bands. Sample #2 only support GSM and WCDMA bands, and LTE band is disabled by software.

List of Accessory:

Specification of Accessory		
AC Adapter	Brand Name	VERTU
	Model Name	AC-32V
Battery	Brand Name	VERTU
	Model Name	BP-9V
Car Charger	Brand Name	VERTU
	Model Name	DC-30V
Portable Power Charger	Brand Name	VERTU
	Model Name	DC-15V
Earphone 1	Brand Name	VERTU
	Model Name	WH-4V
Earphone 2	Brand Name	VERTU
	Model Name	WH-5V
Earphone 3	Brand Name	VERTU
	Model Name	HP-1V
USB Cable	Brand Name	VERTU
	Model Name	CA-225DV
Wireless Charger	Brand Name	VERTU
	Model Name	AC-35V
Wireless Speaker	Brand Name	VERTU
	Model Name	SP-1V

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna	GSM850 : 32.89 dBm GSM1900 : 29.80 dBm WCDMA Band V : 22.50 dBm WCDMA Band IV : 22.90 dBm WCDMA Band II : 22.68 dBm
Antenna Type	Monopole + Parasitic Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink)

1.5 Modification of EUT

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

1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)
Part 22	GSM850 GPRS class 8	GMSK	0.55
Part 22	GSM850 EDGE class 8	8PSK	0.16
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.06
Part 24	GSM1900 GPRS class 8	GMSK	0.56
Part 24	GSM1900 EDGE class 8	8PSK	0.21
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.12
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK	0.13

1.7 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	Sporton Site No.		IC Registration No.
	TH02-HY	03CH07-HY	4086B-1

1.8 Applicable Standards

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

- ♦ 47 CFR Part 2, 22(H), 24(E), 27(L)
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v02r01
- ♦ IC RSS-132 Issue 3
- ♦ IC RSS-133 Issue 6
- ♦ IC RSS-139 Issue 2
- ♦ IC RSS-Gen Issue 3
- ♦ NOTICE 2012-DRS0126

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.
3. Per the section 2.2.3 of Notice of 2012-DRS0126, " Receivers Excluded from Industry Canada Requirements", only radiocommunication receivers operating in stand-alone mode within the band 30-960 MHz and scanner receivers are subject to Industry Canada requirements.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r01 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V.
2. 30 MHz to 19000 MHz for GSM1900 and WCDMA Band II.
3. 30 MHz to 18000 MHz for WCDMA Band IV.

Test Modes		
Band	Radiated TCs	Conducted TCs
GSM 850	■ GPRS class 8 Link ■ EDGE class 8 Link ■ GPRS class 8 Link+ WPC Charging	■ GPRS class 8 Link ■ EDGE class 8 Link
GSM 1900	■ GPRS class 8 Link ■ EDGE class 8 Link	■ GPRS class 8 Link ■ EDGE class 8 Link
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

Note: The maximum power levels are chosen to test as the worst case configuration as follows:

GPRS multi-slot class 8 mode for GMSK modulation,

EDGE multi-slot class 8 mode for 8PSK modulation,

RMC 12.2Kbps mode for WCDMA band V, RMC 12.2Kbps mode for WCDMA band IV,

RMC 12.2Kbps mode for WCDMA band II, only these modes were used for all tests.

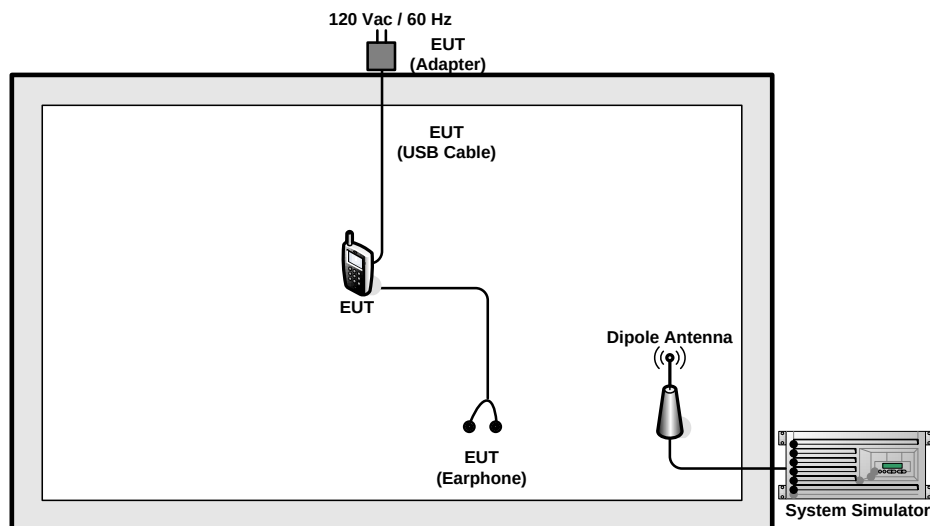
Conducted Power Measurement Results:

Conducted Power (*Unit: dBm)						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM	32.85	32.83	32.80	29.50	29.47	29.77
GPRS class 8	32.89	32.88	32.85	29.52	29.50	29.80
GPRS class 10	30.38	30.32	30.18	26.33	26.25	26.52
GPRS class 11	27.37	27.35	27.31	24.56	24.51	24.74
GPRS class 12	26.51	26.50	26.46	23.41	23.30	23.46
EGPRS class 8	27.43	27.23	27.21	25.57	25.56	25.75
EGPRS class 10	25.29	25.19	25.16	23.09	23.00	23.27
EGPRS class 11	22.96	22.80	22.79	20.78	20.76	20.85
EGPRS class 12	21.86	21.76	21.73	19.88	19.86	20.02

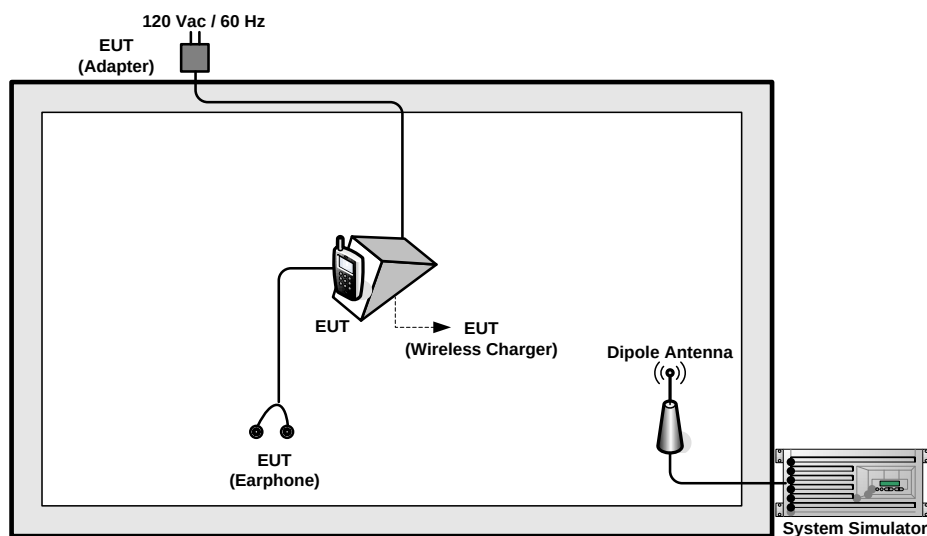
Conducted Power (*Unit: dBm)									
Band	WCDMA Band V			WCDMA Band II			WCDMA Band IV		
Channel	4132	4182	4233	9262	9400	9538	1312	1413	1513
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
RMC 12.2K	22.39	22.37	22.50	22.68	22.51	22.57	22.90	22.88	22.80
HSDPA Subtest-1	21.45	21.30	21.63	21.73	21.58	21.58	21.94	21.90	21.86
HSDPA Subtest-2	21.43	21.29	21.52	21.65	21.54	21.56	21.92	21.89	21.83
HSDPA Subtest-3	20.96	20.92	21.06	21.26	21.01	21.08	21.44	21.40	21.38
HSDPA Subtest-4	20.94	20.82	21.05	21.23	20.98	21.04	21.40	21.38	21.33
HSUPA Subtest-1	21.28	21.03	21.50	21.51	21.36	21.41	21.70	21.63	21.45
HSUPA Subtest-2	20.34	20.11	20.51	20.13	20.00	20.10	20.37	20.37	20.10
HSUPA Subtest-3	20.20	20.06	20.30	20.16	20.06	20.12	20.90	20.82	20.65
HSUPA Subtest-4	20.44	20.33	20.73	20.88	20.46	20.63	21.41	21.38	21.22
HSUPA Subtest-5	21.14	21.09	21.17	21.71	21.46	21.51	21.90	21.88	21.77

2.2 Connection Diagram of Test System

<EUT with Adapter Mode>



<EUT with WPC charging mode>



2.3 Support Unit used in test configuration

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



2.4 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 RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.

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

Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 4.2 dB and a 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 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

3.1.1 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 v02r01. The ERP of mobile transmitters must not exceed 7 Watts (Cellular Band) and the EIRP of mobile transmitters are limited to 2 Watts (PCS Band) and 1 Watts (AWS Band).

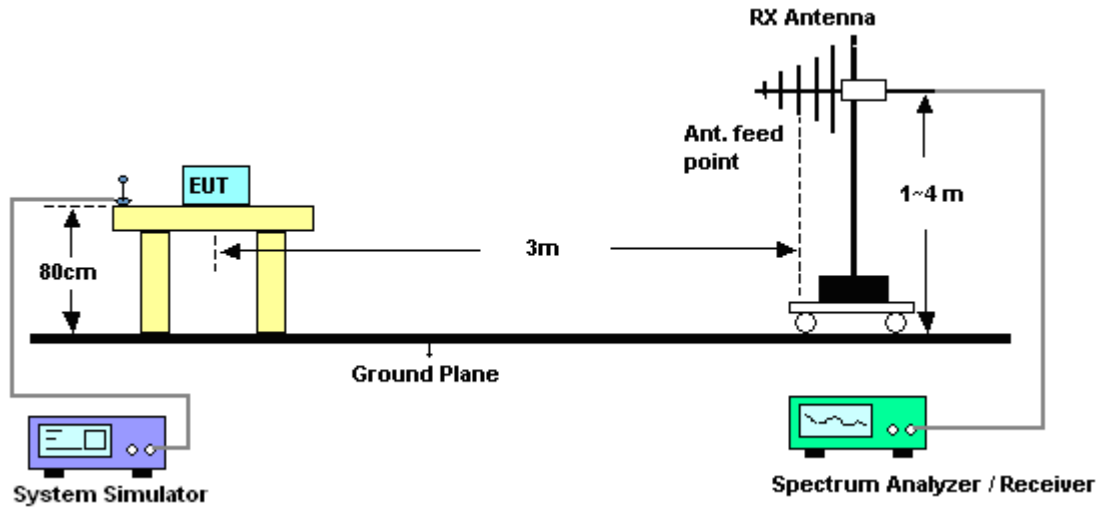
3.1.2 Measuring Instruments

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 non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
2. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
3. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by dipole antenna (substitution antenna) at the same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor, $EIRP = LVL + \text{Correction factor}$ and $ERP = EIRP - 2.15$.

3.1.4 Test Setup



3.1.5 Test Result of ERP

GSM850 (GPRS class 8) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-12.02	31.54	17.37	0.05
836.4	-12.09	32.04	17.80	0.06
848.8	-12.44	32.59	18.00	0.06
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-3.40	32.93	27.38	0.55
836.4	-3.46	32.82	27.21	0.53
848.8	-4.54	33.62	26.93	0.49

* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

GSM850 (EDGE class 8) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-17.84	31.54	11.55	0.01
836.4	-17.63	32.04	12.26	0.02
848.8	-17.43	32.59	13.01	0.02
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-9.40	32.93	21.38	0.14
836.4	-8.98	32.82	21.69	0.15
848.8	-9.52	33.62	21.95	0.16

* ERP = LVL (dBm) + Correction Factor (dB) – 2.15



WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
826.4	-20.88	31.44	8.41	0.01
836.4	-21.47	32.04	8.42	0.01
846.6	-21.80	32.63	8.68	0.01
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
826.4	-12.66	32.78	17.97	0.06
836.4	-12.86	32.82	17.81	0.06
846.6	-13.31	33.4	17.94	0.06

* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

3.1.6 Test Result of EIRP

GSM1900 (GPRS class 8) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-21.35	45.34	23.99	0.25
1880.0	-21.51	46.01	24.50	0.28
1909.8	-21.53	45.81	24.28	0.27
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-22.17	49.22	27.05	0.51
1880.0	-22.96	50.42	27.46	0.56
1909.8	-21.71	49.00	27.29	0.54

* EIRP = LVL (dBm) + Correction Factor (dB)

<WPC Charging Mode>

GSM1900 (GPRS class 8) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-20.70	45.34	24.64	0.29
1880.0	-21.01	46.01	25.00	0.32
1909.8	-22.13	45.81	23.68	0.23
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-28.09	49.22	21.13	0.13
1880.0	-28.82	50.42	21.60	0.14
1909.8	-26.84	49.00	22.16	0.16

* EIRP = LVL (dBm) + Correction Factor (dB)

GSM1900 (EDGE class 8) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-25.16	45.34	20.18	0.10
1880.0	-25.73	46.01	20.28	0.12
1909.8	-25.96	45.81	19.85	0.10
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-26.38	49.22	22.84	0.19
1880.0	-27.15	50.42	23.27	0.21
1909.8	-26.02	49.00	22.98	0.20

* EIRP = LVL (dBm) + Correction Factor (dB)

WCDMA Band IV (RMC 12.2Kbps) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1712.4	-23.97	43.22	19.25	0.08
1732.6	-24.55	43.49	18.94	0.08
1752.6	-24.77	43.54	18.77	0.08
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1712.4	-25.23	46.53	21.30	0.13
1732.6	-25.35	46.43	21.08	0.13
1752.6	-27.11	48.05	20.94	0.12

* EIRP = LVL (dBm) + Correction Factor (dB)



WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1852.4	-27.64	45.37	17.73	0.06
1880.0	-27.27	46.01	18.74	0.07
1907.6	-27.27	45.87	18.60	0.07
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1852.4	-28.37	49.23	20.86	0.12
1880.0	-29.56	50.42	20.86	0.12
1907.6	-28.30	49.04	20.74	0.12

* EIRP = LVL (dBm) + Correction Factor (dB)



3.2 Field Strength of Spurious Radiation Measurement

3.2.1 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.

3.2.2 Measuring Instruments

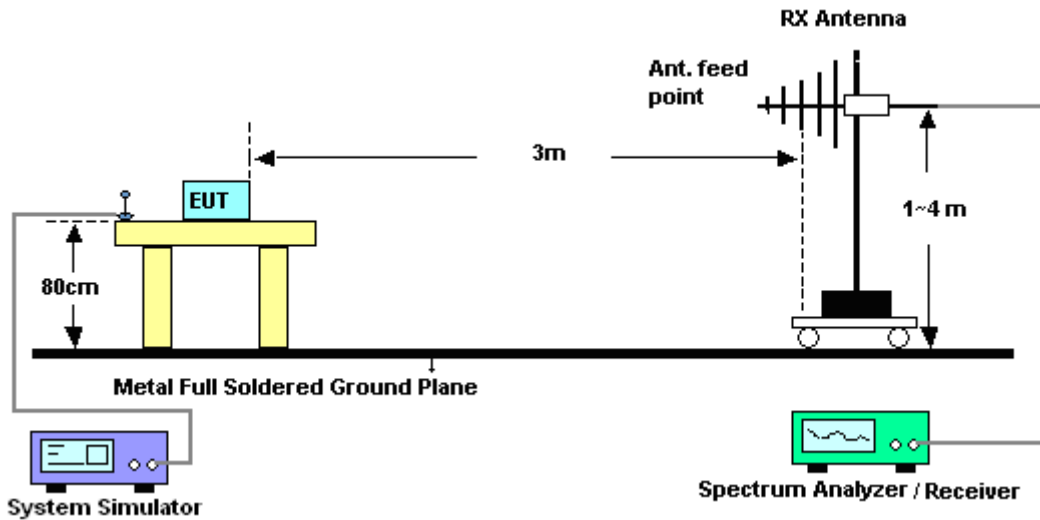
The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

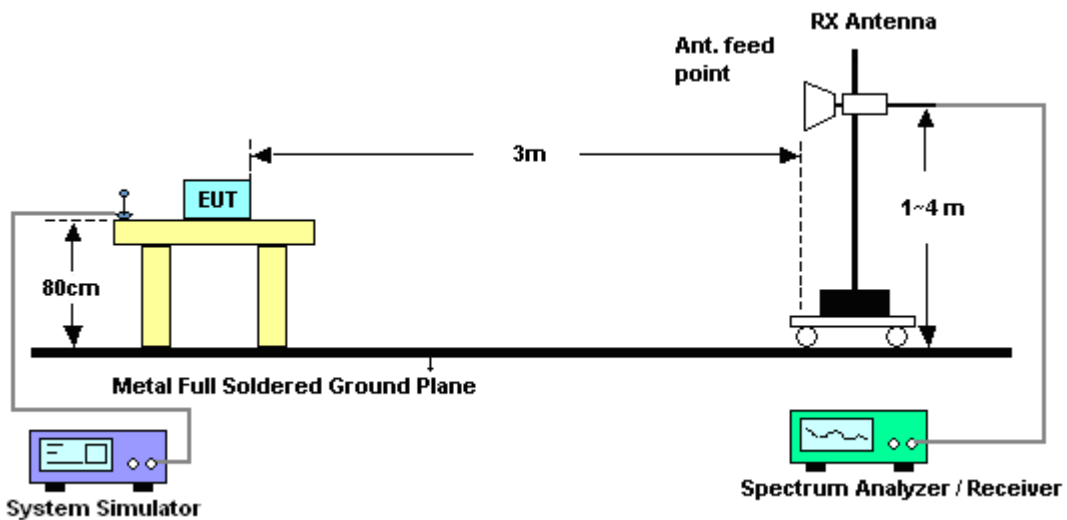
1. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving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

3.2.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.2.5 Test Result of Field Strength of Spurious Radiated

<Low Channel>

Band :	GSM850					Temperature :	23~25°C		
Test Mode :	GPRS class 8 Link (GMSK)					Relative Humidity :	44~48%		
Test Engineer :	Stan Hsieh					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1648	-48.00	-13	-35.00	-56.76	-52	1.53	5.53	H	Pass
2472	-27.41	-13	-14.41	-40.71	-31.5	2.06	6.15	H	Pass
3298	-53.45	-13	-40.45	-67.07	-58.9	2.48	7.93	H	Pass
4120	-43.47	-13	-30.47	-59.87	-50.1	2.54	9.17	H	Pass

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
1648	-48.10	-13	-35.10	-59.2	-52.1	1.53	5.53	V	Pass
2472	-29.81	-13	-16.81	-43.55	-33.9	2.06	6.15	V	Pass
3298	-52.35	-13	-39.35	-67.59	-57.8	2.48	7.93	V	Pass
4120	-47.07	-13	-34.07	-64.24	-53.7	2.54	9.17	V	Pass



<Middle Channel>

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-51.33	-13	-38.33	-60.35	-55.2	1.62	5.49	H	Pass
2512	-48.98	-13	-35.98	-62.2	-53.1	2.1	6.22	H	Pass
3345	-52.56	-13	-39.56	-66.94	-57.6	3.03	8.07	H	Pass

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-47.03	-13	-34.03	-58.23	-50.9	1.62	5.49	V	Pass
2512	-34.58	-13	-21.58	-48.47	-38.7	2.1	6.22	V	Pass
3345	-52.06	-13	-39.06	-67.6	-57.1	3.03	8.07	V	Pass



<High Channel>

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1696	-48.02	-13	-35.02	-57.5	-51.9	1.57	5.45	H	Pass
2544	-29.94	-13	-16.94	-43.31	-34.2	2.02	6.28	H	Pass
3392	-52.70	-13	-39.70	-66.93	-58.6	2.3	8.20	H	Pass

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1696	-52.82	-13	-39.82	-64.26	-56.7	1.57	5.45	V	Pass
2544	-34.54	-13	-21.54	-48.6	-38.8	2.02	6.28	V	Pass
3392	-51.20	-13	-38.20	-66.84	-57.1	2.3	8.20	V	Pass



<For WPC Mode>

<Low Channel>

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
1648	-40.62	-13	-27.62	-49.17	-44.62	1.53	5.53	H	Pass
2472	-32.72	-13	-19.72	-45.71	-36.81	2.06	6.15	H	Pass
4120	-44.13	-13	-31.13	-60.19	-50.76	2.54	9.17	H	Pass

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1648	-40.02	-13	-27.02	-50.8	-44.02	1.53	5.53	V	Pass
2472	-31.28	-13	-18.28	-44.72	-35.37	2.06	6.15	V	Pass
4120	-40.99	-13	-27.99	-57.86	-47.62	2.54	9.17	V	Pass



<Middle Channel>

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-44.75	-13	-31.75	-53.47	-48.62	1.62	5.49	H	Pass
2509	-32.16	-13	-19.16	-45.25	-36.28	2.1	6.22	H	Pass
4182	-43.70	-13	-30.70	-59.75	-50.39	2.52	9.21	H	Pass

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-43.89	-13	-30.89	-54.85	-47.76	1.62	5.49	V	Pass
2509	-31.73	-13	-18.73	-45.27	-35.85	2.1	6.22	V	Pass
4182	-36.44	-13	-23.44	-53.32	-43.13	2.52	9.21	V	Pass

**<High Channel>**

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1696	-44.39	-13	-31.39	-53.2	-48.27	1.57	5.45	H	Pass
2544	-26.71	-13	-13.71	-39.81	-30.97	2.02	6.28	H	Pass
4241	-41.78	-13	-28.78	-57.81	-48.29	2.73	9.24	H	Pass

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1696	-43.68	-13	-30.68	-54.64	-47.56	1.57	5.45	V	Pass
2544	-25.65	-13	-12.65	-39.32	-29.91	2.02	6.28	V	Pass
4241	-40.34	-13	-27.34	-57.24	-46.85	2.73	9.24	V	Pass



<Low Channel>

Band :	GSM850					Temperature :	23~25°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	44~48%		
Test Engineer :	Stan Hsieh					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1648	-54.90	-13	-41.90	-63.44	-58.90	1.53	5.53	H	Pass
2472	-40.88	-13	-27.88	-53.86	-44.97	2.06	6.15	H	Pass
3298	-53.77	-13	-40.77	-67.57	-59.22	2.48	7.93	H	Pass

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
1648	-54.18	-13	-41.18	-64.9	-58.18	1.53	5.53	V	Pass
2472	-42.78	-13	-29.78	-56.2	-46.87	2.06	6.15	V	Pass
3298	-51.69	-13	-38.69	-67.09	-57.14	2.48	7.93	V	Pass

**<Middle Channel>**

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-56.09	-13	-43.09	-64.79	-59.96	1.62	5.49	H	Pass
2512	-40.29	-13	-27.29	-53.37	-44.41	2.1	6.22	H	Pass
3345	-53.90	-13	-40.90	-67.79	-58.94	3.03	8.07	H	Pass

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
1672	-54.66	-13	-41.66	-65.61	-58.53	1.62	5.49	V	Pass
2512	-37.98	-13	-24.98	-51.52	-42.10	2.1	6.22	V	Pass
3345	-52.45	-13	-39.45	-67.83	-57.49	3.03	8.07	V	Pass



<High Channel>

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1696	-54.94	-13	-41.94	-63.74	-58.82	1.57	5.45	H	Pass
2544	-38.65	-13	-25.65	-51.74	-42.91	2.02	6.28	H	Pass
3393	-53.84	-13	-40.84	-67.81	-59.74	2.3	8.20	H	Pass

Band :	GSM850	Temperature :	23~25°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1696	-54.79	-13	-41.79	-65.84	-58.67	1.57	5.45	V	Pass
2544	-37.85	-13	-24.85	-51.52	-42.11	2.02	6.28	V	Pass
3393	-52.40	-13	-39.40	-67.76	-58.30	2.3	8.20	V	Pass



<Low Channel>

Band :	GSM1900	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss	Gain	(H/V)	
3700	-52.74	-13	-39.74	-67.68	-58.89	2.59	8.74	H	Pass
5548	-37.17	-13	-24.17	-57.34	-44.83	3.04	10.70	H	Pass
7400	-42.01	-13	-29.01	-69.16	-50.75	3.28	12.02	H	Pass

Band :	GSM1900	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading	Power	loss	Gain	(H/V)	
3700	-52.34	-13	-39.34	-68.26	-58.49	2.59	8.74	V	Pass
5548	-36.11	-13	-23.11	-56.17	-43.77	3.04	10.70	V	Pass
7400	-42.50	-13	-29.50	-69.3	-51.24	3.28	12.02	V	Pass



<Middle Channel>

Band :	GSM1900	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss	Gain	(H/V)	
3760	-53.13	-13	-40.13	-68.38	-59.43	2.51	8.81	H	Pass
5639	-36.85	-13	-23.85	-57.4	-44.56	2.99	10.70	H	Pass
7520	-42.15	-13	-29.15	-69.12	-50.68	3.59	12.12	H	Pass

Band :	GSM1900	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3760	-51.70	-13	-38.70	-67.85	-58.00	2.51	8.81	V	Pass
5639	-36.12	-13	-23.12	-56.44	-43.83	2.99	10.70	V	Pass
7520	-42.35	-13	-29.35	-69.18	-50.88	3.59	12.12	V	Pass



<High Channel>

Band :	GSM1900	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3820	-52.57	-13	-39.57	-67.98	-58.98	2.47	8.88	H	Pass
5730	-38.57	-13	-25.57	-59.45	-46.27	3	10.70	H	Pass
7640	-43.18	-13	-30.18	-69.33	-51.96	3.43	12.21	H	Pass

Band :	GSM1900	Temperature :	23~25°C						
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3820	-51.69	-13	-38.69	-67.99	-58.10	2.47	8.88	V	Pass
5730	-38.00	-13	-25.00	-58.66	-45.70	3	10.70	V	Pass
7640	-43.24	-13	-30.24	-69.18	-52.02	3.43	12.21	V	Pass



<Low Channel>

Band :	GSM1900	Temperature :	23~25°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss	Gain	(H/V)	
3700	-54.12	-13	-41.12	-69.04	-60.27	2.59	8.74	H	Pass
5548	-39.64	-13	-26.64	-59.86	-47.30	3.04	10.70	H	Pass
7400	-42.15	-13	-29.15	-69.3	-50.89	3.28	12.02	H	Pass

Band :	GSM1900	Temperature :	23~25°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3700	-53.20	-13	-40.20	-69.15	-59.35	2.59	8.74	V	Pass
5548	-39.05	-13	-26.05	-59.13	-46.71	3.04	10.70	V	Pass
7400	-42.45	-13	-29.45	-69.24	-51.19	3.28	12.02	V	Pass

**<Middle Channel>**

Band :	GSM1900	Temperature :	23~25°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3760	-53.60	-13	-40.60	-68.81	-59.90	2.51	8.81	H	Pass
5639	-40.42	-13	-27.42	-60.97	-48.13	2.99	10.70	H	Pass
7520	-41.70	-13	-28.70	-68.77	-50.23	3.59	12.12	H	Pass

Band :	GSM1900	Temperature :	23~25°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3760	-52.06	-13	-39.06	-68.18	-58.36	2.51	8.81	V	Pass
5639	-40.15	-13	-27.15	-60.52	-47.86	2.99	10.70	V	Pass
7520	-42.54	-13	-29.54	-69.37	-51.07	3.59	12.12	V	Pass



<High Channel>

Band :	GSM1900	Temperature :	23~25°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss	Gain	(H/V)	
3820	-50.52	-13	-37.52	-65.92	-56.93	2.47	8.88	H	Pass
5730	-41.25	-13	-28.25	-62.13	-48.95	3	10.70	H	Pass
7640	-42.18	-13	-29.18	-68.33	-50.96	3.43	12.21	H	Pass

Band :	GSM1900	Temperature :	23~25°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3820	-50.98	-13	-37.98	-67.28	-57.39	2.47	8.88	V	Pass
5730	-39.65	-13	-26.65	-60.29	-47.35	3	10.70	V	Pass
7640	-42.69	-13	-29.69	-68.64	-51.47	3.43	12.21	V	Pass

**<Low Channel>**

Band :	WCDMA Band V	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1648	-56.85	-13	-43.85	-65.39	-60.85	1.53	5.53	H	Pass
2480	-49.33	-13	-36.33	-62.31	-53.42	2.06	6.15	H	Pass
3304	-53.98	-13	-40.98	-67.81	-59.43	2.48	7.93	H	Pass

Band :	WCDMA Band V	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain		
			(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1648	-54.61	-13	-41.61	-65.37	-58.61	1.53	5.53	V	Pass
2480	-51.62	-13	-38.62	-65.04	-55.71	2.06	6.15	V	Pass
3304	-52.32	-13	-39.32	-67.71	-57.77	2.48	7.93	V	Pass



<Middle Channel>

Band :	WCDMA Band V	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1672	-56.65	-13	-43.65	-65.36	-60.52	1.62	5.49	H	Pass
2504	-46.83	-13	-33.83	-59.89	-50.95	2.1	6.22	H	Pass
3345	-53.54	-13	-40.54	-67.41	-58.58	3.03	8.07	H	Pass

Band :	WCDMA Band V	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1672	-55.56	-13	-42.56	-66.51	-59.43	1.62	5.49	V	Pass
2504	-49.76	-13	-36.76	-63.21	-53.88	2.1	6.22	V	Pass
3345	-52.65	-13	-39.65	-68.03	-57.69	3.03	8.07	V	Pass

**<High Channel>**

Band :	WCDMA Band V	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
1690	-57.98	-13	-44.98	-66.68	-61.86	1.57	5.45	H	Pass
2536	-47.81	-13	-34.81	-60.9	-52.07	2.02	6.28	H	Pass
3381	-53.70	-13	-40.70	-67.64	-59.60	2.3	8.20	H	Pass

Band :	WCDMA Band V	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
1690	-57.68	-13	-44.68	-66.39	-61.56	1.57	5.45	V	Pass
2536	-46.86	-13	-33.86	-59.95	-51.12	2.02	6.28	V	Pass
3381	-53.47	-13	-40.47	-67.4	-59.37	2.3	8.20	V	Pass



<Low Channel>

Band :	WCDMA Band IV	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss	Gain	(H/V)	
3424	-52.37	-13	-39.37	-66.73	-56.2	4.48	8.31	H	Pass
5136	-49.86	-13	-36.86	-68.55	-54.5	5.332	9.98	H	Pass
6850	-42.46	-13	-29.46	-67.86	-47.7	6.1	11.34	H	Pass

Band :	WCDMA Band IV	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3424	-51.57	-13	-38.57	-67.08	-55.4	4.48	8.31	V	Pass
5136	-48.16	-13	-35.16	-66.93	-52.8	5.332	9.98	V	Pass
6850	-43.86	-13	-30.86	-68.63	-49.1	6.1	11.34	V	Pass



<Middle Channel>

Band :	WCDMA Band IV	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3462	-50.27	-13	-37.27	-64.52	-54.1	4.48	8.31	H	Pass
5198	-38.46	-13	-25.46	-57.25	-43.1	5.332	9.98	H	Pass
6930	-42.66	-13	-29.66	-68.58	-47.9	6.1	11.34	H	Pass

Band :	WCDMA Band IV	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3465	-47.27	-13	-34.27	-62.68	-51.1	4.48	8.31	V	Pass
5197	-36.46	-13	-23.46	-55.79	-41.1	5.332	9.98	V	Pass
6930	-43.46	-13	-30.46	-68.44	-48.7	6.1	11.34	V	Pass

**<High Channel>**

Band :	WCDMA Band IV	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss	Gain	(H/V)	
3505	-52.53	-13	-39.53	-67.02	-56.8	4.16	8.43	H	Pass
5258	-49.74	-13	-36.74	-68.92	-54.7	5.13	10.09	H	Pass
7010	-42.82	-13	-29.82	-69.35	-48.1	6.15	11.43	H	Pass

Band :	WCDMA Band IV	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3505	-50.83	-13	-37.83	-67.03	-55.1	4.16	8.43	V	Pass
5258	-49.34	-13	-36.34	-68.26	-54.3	5.13	10.09	V	Pass
7010	-43.32	-13	-30.32	-69.27	-48.6	6.15	11.43	V	Pass

**<Low Channel>**

Band :	WCDMA Band II				Temperature :	23~25°C			
Test Mode :	RMC 12.2Kbps Link (QPSK)				Relative Humidity :	44~48%			
Test Engineer :	Stan Hsieh				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3704	-51.34	-13	-38.34	-66.27	-57.49	2.59	8.74	H	Pass
5562	-44.73	-13	-31.73	-64.96	-52.39	3.04	10.70	H	Pass
7410	-41.97	-13	-28.97	-69.12	-50.71	3.28	12.02	H	Pass

Band :	WCDMA Band II	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3704	52.12	-13	65.12	-68.13	45.97	2.59	8.74	V	Pass
5562	-43.57	-13	-30.57	-63.63	-51.23	3.04	10.70	V	Pass
7410	-41.57	-13	-28.57	-68.37	-50.31	3.28	12.02	V	Pass

**<Middle Channel>**

Band :	WCDMA Band II	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)			(dB)	(dBm)	(dBm)	(dB)	(dBi)		
3762	-52.60	-13	-39.60	-67.81	-58.90	2.51	8.81	H	Pass
5646	-44.00	-13	-31.00	-64.56	-51.71	2.99	10.70	H	Pass
7528	-41.80	-13	-28.80	-68.86	-50.33	3.59	12.12	H	Pass

Band :	WCDMA Band II	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3762	-52.34	-13	-39.34	-68.48	-58.64	2.51	8.81	V	Pass
5636	-42.93	-13	-29.93	-63.29	-50.64	2.99	10.70	V	Pass
7528	-42.73	-13	-29.73	-69.57	-51.26	3.59	12.12	V	Pass

**<High Channel>**

Band :	WCDMA Band II	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3815	-51.49	-13	-38.49	-66.83	-57.90	2.47	8.88	H	Pass
5723	-44.65	-13	-31.65	-65.53	-52.35	3	10.70	H	Pass
7630	-42.60	-13	-29.60	-68.87	-51.38	3.43	12.21	H	Pass

Band :	WCDMA Band II	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	44~48%						
Test Engineer :	Stan Hsieh	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3815	-51.30	-13	-38.30	-67.55	-57.71	2.47	8.88	V	Pass
5723	-43.81	-13	-30.81	-64.47	-51.51	3	10.70	V	Pass
7630	-42.38	-13	-29.38	-68.46	-51.16	3.43	12.21	V	Pass



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
System Simulator	Rohde & Schwarz	CMU200	117995	N/A	Aug. 01, 2013	Jul. 02, 2014	Jul. 31, 2014	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV30	101749	10Hz ~ 30GHz	Feb. 10, 2014	Jul. 14, 2014 ~ Jul. 17, 2014	Feb. 09, 2015	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 10, 2013	Jul. 14, 2014 ~ Jul. 17, 2014	Oct. 09, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 22, 2013	Jul. 14, 2014 ~ Jul. 17, 2014	Aug. 21, 2014	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10 MHz ~ 1000MHz	Mar. 17, 2014	Jul. 14, 2014 ~ Jul. 17, 2014	Mar. 16, 2015	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1 GHz~26.5 GHz	Nov. 29, 2013	Jul. 14, 2014 ~ Jul. 17, 2014	Nov. 28, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Jul. 14, 2014 ~ Jul. 17, 2014	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	M-400-0	114/8000604/L	N/A	N/A	Jul. 14, 2014 ~ Jul. 17, 2014	N/A	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 03, 2013	Jul. 14, 2014 ~ Jul. 17, 2014	Oct. 02, 2014	Radiation (03CH07-HY)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.50
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