

Partial FCC RF Test Report

APPLICANT : Quanta Computer Inc.
EQUIPMENT : HSPA Module
BRAND NAME : HUAWEI
MODEL NAME : EM770W
FCC ID : QISEM770W
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E)
CLASSIFICATION : PCS Licensed Transmitter (PCB)
Tx/Rx FREQUENCY RANGE : GSM850 : 824.2 ~ 848.8 MHz /
869.2 ~ 893.8 MHz
GSM1900 : 1850.2 ~ 1909.8 MHz /
1930.2 ~ 1989.8 MHz
WCDMA Band V : 826.4 ~ 846.6 MHz /
871.4 ~ 891.6 MHz
WCDMA Band II : 1852.4 ~ 1907.6 MHz /
1932.4 ~ 1987.6 MHz
MAX. ERP/EIRP POWER : GSM850 (GPRS 8) : 0.72 W
GSM850 (EDGE 8) : 0.32 W
GSM1900 (GPRS 8) : 1.63 W
GSM1900 (EDGE 8) : 0.62 W
WCDMA Band V (RMC 12.2Kbps) : 0.08 W
WCDMA Band II (RMC 12.2Kbps) : 0.27 W

This is a partial report which is only valid combined with the WWAN Module (Brand Name: HUAWEI / Model Name: EM770W, FCC ID: QISEM770W) Report.

The product was installed into Convertible Tablet Computer [Model Name: NL2** (The "*" can be 0-9, A-Z or blank for the marketing purpose)] during the test.

The product was received on Jan. 29, 2010 and completely tested on Feb. 20, 2010. We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.

Reviewed by:



Roy Wu / 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	IC Rule	Description	Limit	Result	Remark
3.1	§22.913(a)(2)	RSS-132(4.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts	PASS	-
3.1	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.2	§2.1053 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Field Strength of Spurious Radiation	$< 43+10\log_{10}(P[\text{Watts}])$	PASS	Under limit 1.20 dB at 3760.00 MHz



1 General Description

1.1 Applicant

Quanta Computer Inc.

No. 188, Wen Hwa 2nd Rd., Kuei Shan Hsiang, Tao Yuan Shien, Taiwan

1.2 Manufacturer

Quanta Computer Inc.

No. 188, Wen Hwa 2nd Rd., Kuei Shan Hsiang, Tao Yuan Shien, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	HSPA Module
Brand Name	HUAWEI
Model Name	EM770W
FCC ID	QISEM770W
Host Convertible Tablet Computer	Model Name: NL2** (The "*" can be 0-9, A-Z or blank for the marketing purpose) HW Version: Version B SW Version: Version 10
Tx Frequency	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz WCDMA Band V : 824 MHz ~ 849 MHz WCDMA Band II : 1850 MHz ~ 1910 MHz
Rx Frequency	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz WCDMA Band V : 869 MHz ~ 894 MHz WCDMA Band II : 1930 MHz ~ 1990 MHz
Maximum ERP/EIRP	GSM850 (GPRS 8) : 0.72 W (28.59 dBm) GSM850 (EDGE 8) : 0.32 W (25.04 dBm) GSM1900 (GPRS 8) : 1.63 W (32.12 dBm) GSM1900 (EDGE 8) : 0.62 W (27.89 dBm) WCDMA Band V (RMC 12.2Kbps) : 0.08 W (19.22 dBm) WCDMA Band II (RMC 12.2Kbps) : 0.27 W (24.34 dBm)
Antenna Type	Fixed Internal Antenna
HW Version	MD32TCPU
SW Version	11.108.02.00.00
Type of Modulation	GSM / GPRS : GMSK EDGE : 8PSK WCDMA : QPSK HSDPA : QPSK / 16QAM HSUPA : BPSK
EUT Stage	Production Unit

Remark:

1. This test report recorded only product characteristics and test results of PCS Licensed Transmitter (PCB).
2. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



1.4 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958
Test Site No.	SPORTON Site No.
	03CH01-KS

1.5 Applied Standards

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

- 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
- IC RSS-132 Issue 2
- IC RSS-133 Issue 5

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 (DoC), recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU200	N/A	N/A	Unshielded, 1.8 m

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.

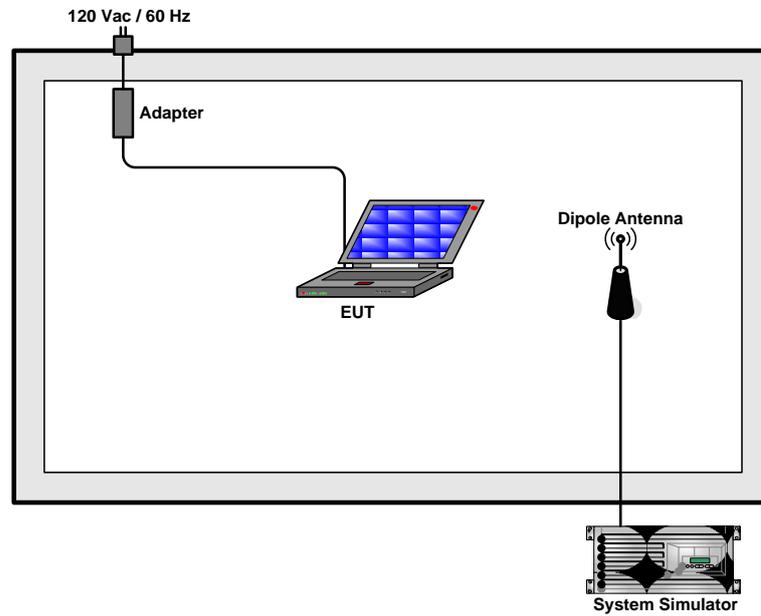
Frequency range investigated for radiated emission is as follows:

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

Test Modes	
Band	Radiated TCs
GSM 850	<ul style="list-style-type: none"> ■ GPRS 8 Link ■ EDGE 8 Link
GSM 1900	<ul style="list-style-type: none"> ■ GPRS 8 Link ■ EDGE 8 Link
WCDMA Band V	<ul style="list-style-type: none"> ■ RMC 12.2Kbps Link
WCDMA Band II	<ul style="list-style-type: none"> ■ RMC 12.2Kbps Link

Remark: Only the radiated emission of the WWAN module on the host Convertible Tablet Computer was performed in this report, and the conducted test cases can be referred to WWAN Module (Brand Name: HUAWEI / Model Name: EM770W, FCC ID: QISEM770W) Report.

2.2 Connection Diagram of Test System



Remark: The EUT was HSPA Module which was installed in the Host Convertible Tablet Computer [Model Name: NL2** (The "*" can be 0-9, A-Z or blank for the marketing purpose)].



3 Test Result

3.1 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

3.1.1 Description of the ERP/EIRP Measurement

ERP/EIRP is measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The ERP of mobile transmitters must not exceed 7 Watts and the EIRP of mobile transmitters are limited to 2 Watts.

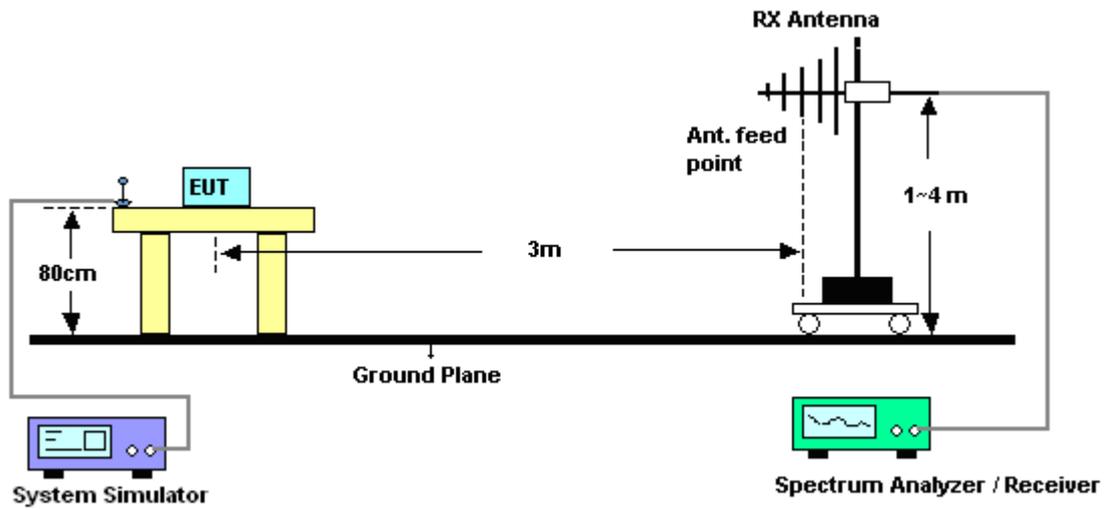
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The EUT was placed on an non-conductive rotating platform with 0.8 meter height 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 RBW= 3MHz,VBW= 3MHz, and peak detector settings.
2. During the measurement, the EUT was enforced in maximum power and linked with a base station. The highest 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 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 8) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	1.78	28.11	27.74	0.59
837.0	2.58	27.85	28.28	0.67
848.8	2.84	27.90	28.59	0.72
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-5.75	32.22	24.32	0.27
837.0	-5.70	31.78	23.93	0.25
848.8	-4.90	32.24	25.19	0.33

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

GSM850 (EDGE 8) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-1.52	28.11	24.44	0.28
837.0	-1.24	27.85	24.46	0.28
848.8	-0.71	27.90	25.04	0.32
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-9.82	32.22	20.25	0.11
837.0	-9.72	31.78	19.91	0.10
848.8	-8.73	32.24	21.36	0.14

* 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	-6.61	27.98	19.22	0.08
836.4	-6.66	27.85	19.04	0.08
846.6	-6.96	27.87	18.76	0.08
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
826.4	-14.75	32.14	15.24	0.03
836.4	-14.80	31.78	14.83	0.03
846.6	-15.13	32.19	14.91	0.03

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

3.1.6 Test Result of EIRP

GSM1900 (GPRS 8) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-12.16	39.03	26.87	0.49
1880.0	-14.45	40.19	25.74	0.37
1909.8	-15.51	39.07	23.56	0.23
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-10.68	42.21	31.53	1.42
1880.0	-11.78	43.90	32.12	1.63
1909.8	-11.95	43.38	31.43	1.39

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

GSM1900 (EDGE 8) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-16.14	39.03	22.89	0.19
1880.0	-15.82	40.19	24.37	0.27
1909.8	-17.07	39.07	22.00	0.16
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-14.94	42.21	27.27	0.53
1880.0	-16.01	43.90	27.89	0.62
1909.8	-17.80	43.38	25.58	0.36

* 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	-20.03	38.17	18.14	0.07
1880.0	-21.95	40.19	18.24	0.07
1907.6	-22.81	38.94	16.13	0.04
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1852.4	-18.67	42.46	23.79	0.24
1880.0	-19.56	43.90	24.34	0.27
1907.6	-18.96	42.99	24.03	0.25

* 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 radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. 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.

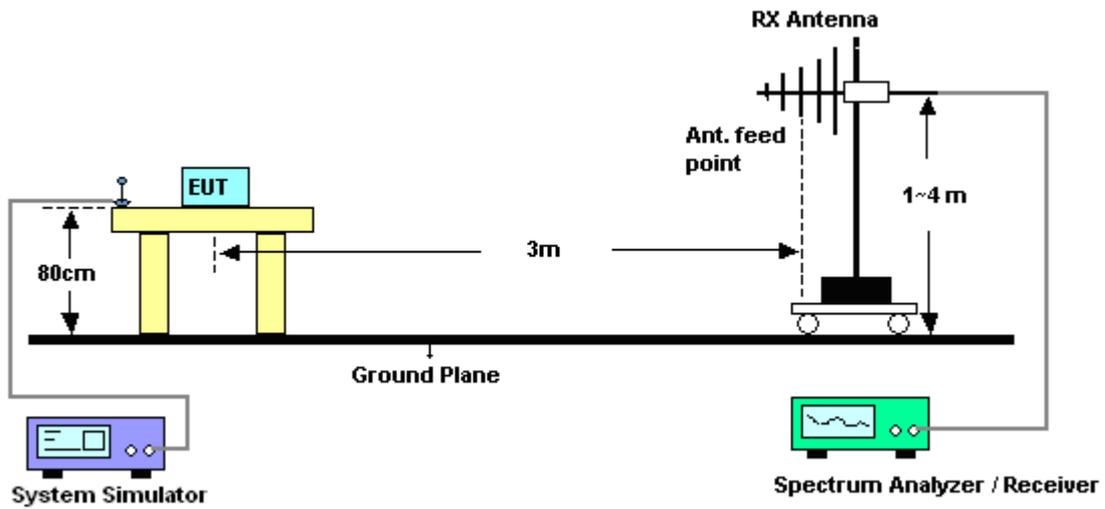
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The EUT was placed on a rotatable wooden table with 0.8 meter about 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 the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, Sweep = 500ms, Taking the 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. $EIRP (dBm) = S.G. Power - Tx Cable Loss + Tx Antenna Gain$
11. $ERP (dBm) = EIRP - 2.15$

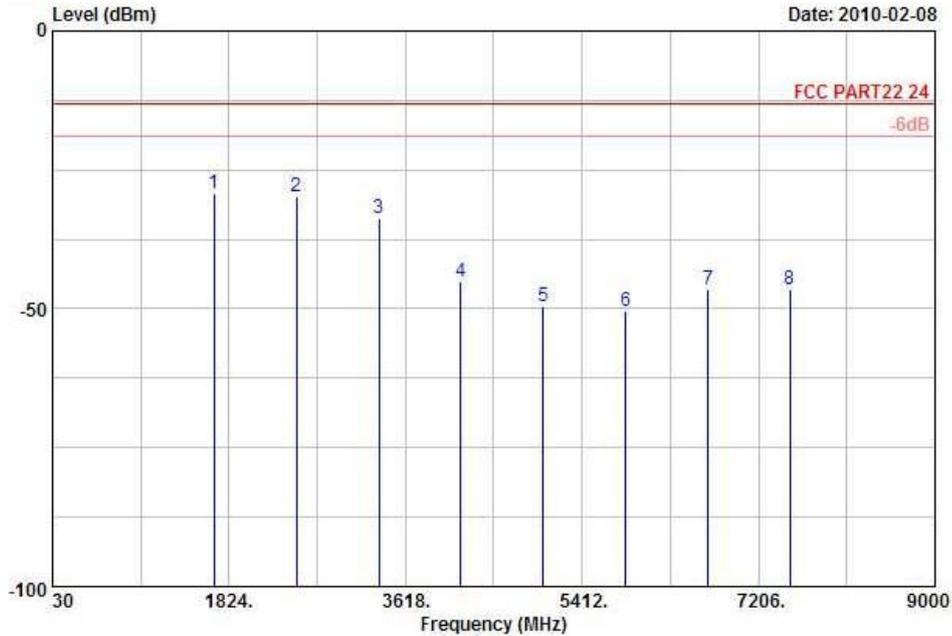
3.2.4 Test Setup





3.2.5 Test Result of Field Strength of Spurious Radiated

Band :	GSM850	Temperature :	23~24°C
Test Mode :	GPRS 8 Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

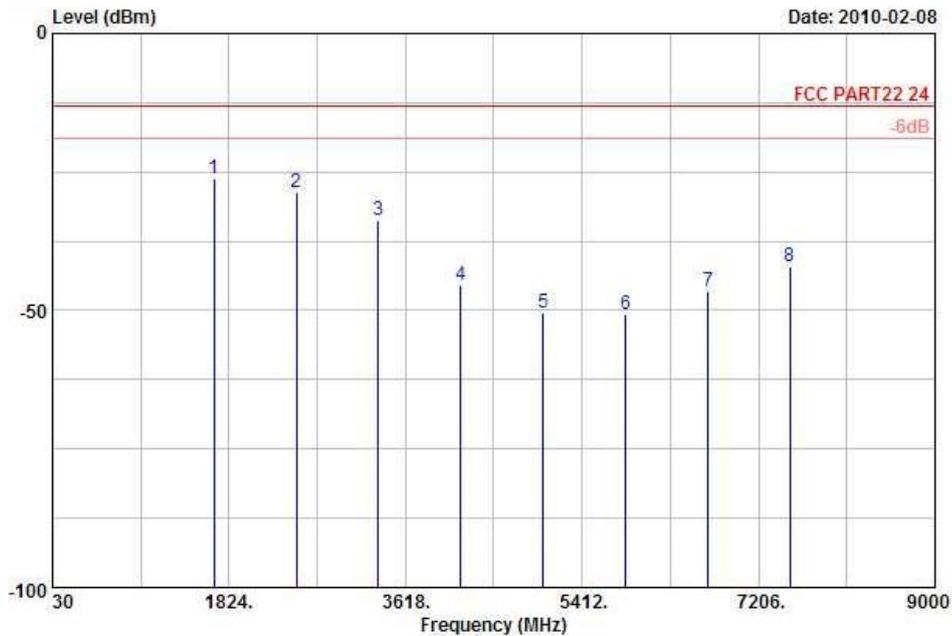


Site : 03CH01-KS
 Condition: FCC PART22 24 HF EIRP FACTOR-09020 HORIZONTAL

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	-29.14	-13.00	-16.14	-29.78	-29.79	0.57	3.37	H	Pass
2510	-29.79	-13.00	-16.79	-34.68	-32.02	0.78	5.16	H	Pass
3346	-33.80	-13.00	-20.80	-38.99	-37.44	0.87	6.66	H	Pass
4182	-44.99	-13.00	-31.99	-49.41	-49.58	0.97	7.71	H	Pass
5016	-49.60	-13.00	-36.60	-55.89	-55.27	1.09	8.91	H	Pass
5854	-50.42	-13.00	-37.42	-59.31	-56.86	1.22	9.81	H	Pass
6692	-46.50	-13.00	-33.50	-57.91	-53.72	1.25	10.62	H	Pass
7526	-46.58	-13.00	-33.58	-59.09	-54.48	1.42	11.47	H	Pass



Band :	GSM850	Temperature :	23~24°C
Test Mode :	GPRS 8 Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

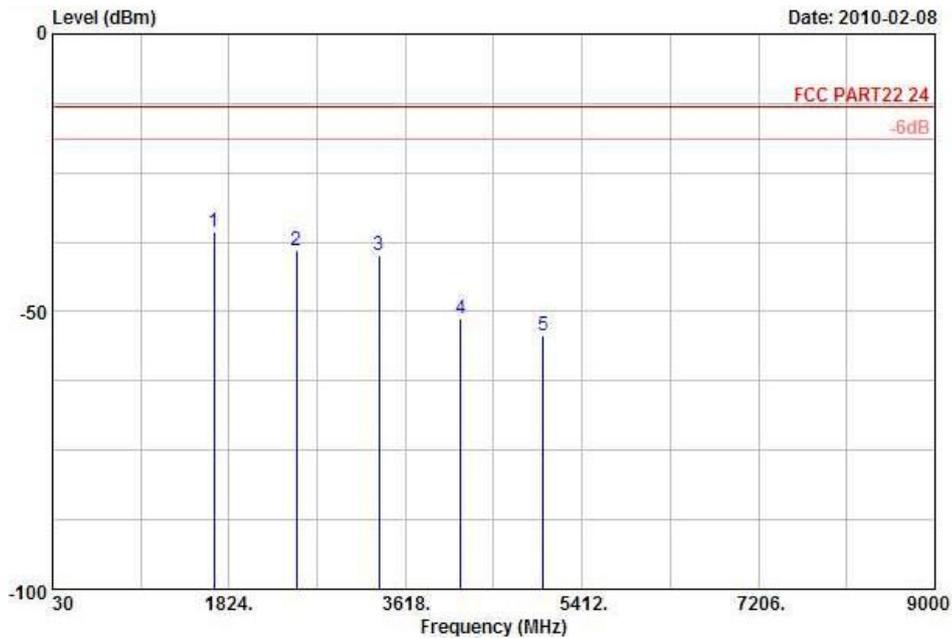


Site : 03CH01-KS
 Condition: FCC PART22 24 HF EIRP FACTOR-09020 VERTICAL

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	-26.06	-13.00	-13.06	-32.37	-26.71	0.57	3.37	V	Pass
2510	-28.80	-13.00	-15.80	-35.83	-31.03	0.78	5.16	V	Pass
3344	-33.64	-13.00	-20.64	-40.31	-37.28	0.87	6.66	V	Pass
4182	-45.28	-13.00	-32.28	-50.66	-49.87	0.97	7.71	V	Pass
5018	-50.43	-13.00	-37.43	-55.60	-56.10	1.09	8.91	V	Pass
5854	-50.81	-13.00	-37.81	-59.13	-57.25	1.22	9.81	V	Pass
6692	-46.51	-13.00	-33.51	-57.38	-53.73	1.25	10.62	V	Pass
7528	-41.94	-13.00	-28.94	-55.67	-49.84	1.42	11.47	V	Pass



Band :	GSM850	Temperature :	23~24°C
Test Mode :	EDGE 8 Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

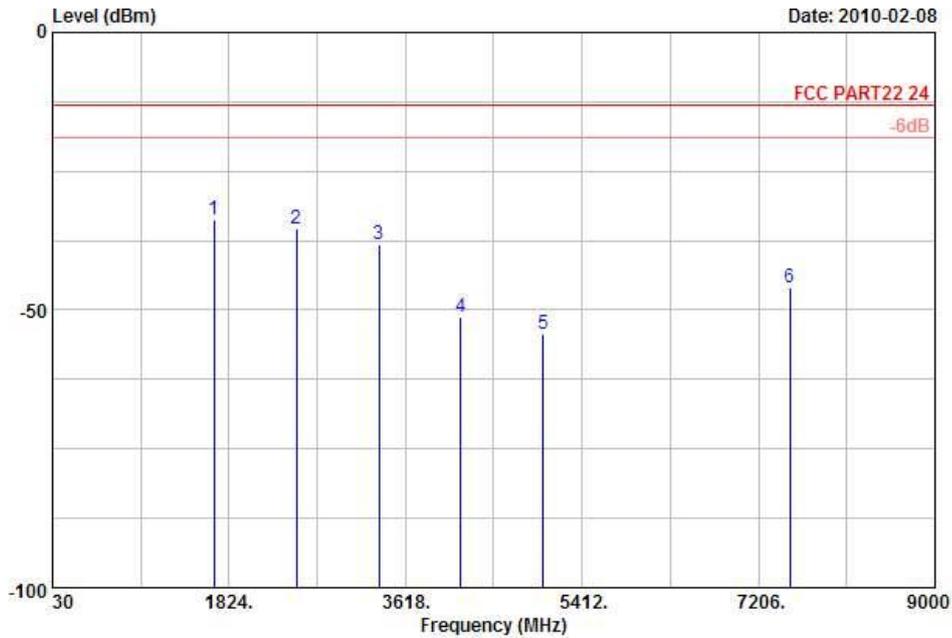


Site : 03CH01-KS
 Condition: FCC PART22 24 HF EIRP FACTOR-09020 HORIZONTAL

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	-35.68	-13.00	-22.68	-36.04	-36.33	0.57	3.37	H	Pass
2510	-38.88	-13.00	-25.88	-43.24	-41.11	0.78	5.16	H	Pass
3346	-39.74	-13.00	-26.74	-44.19	-43.38	0.87	6.66	H	Pass
4182	-51.27	-13.00	-38.27	-54.93	-55.86	0.97	7.71	H	Pass
5016	-54.28	-13.00	-41.28	-59.63	-59.95	1.09	8.91	H	Pass



Band :	GSM850	Temperature :	23~24°C
Test Mode :	EDGE 8 Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

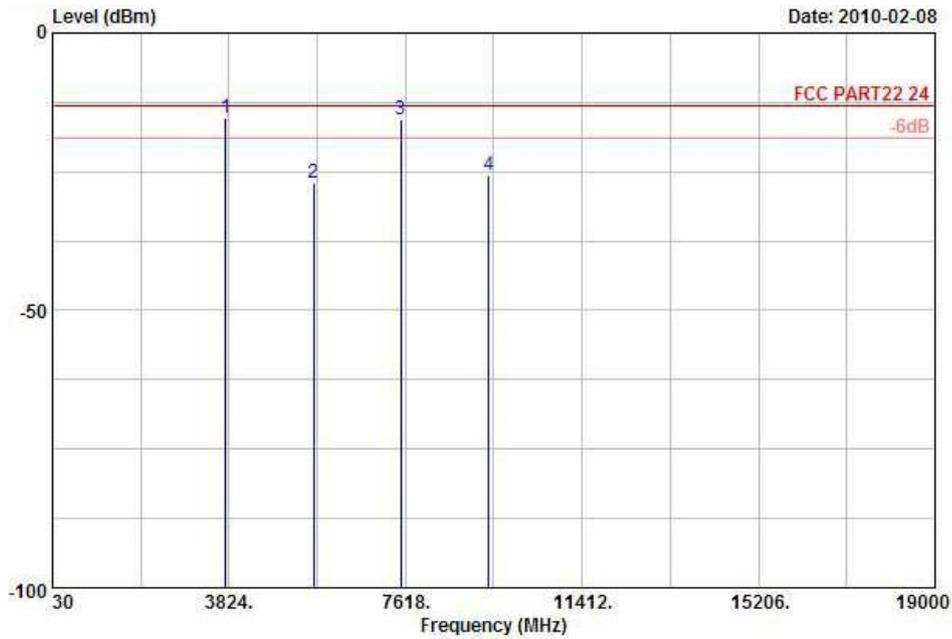


Site : 03CH01-KS
 Condition: FCC PART22 24 HF EIRP FACTOR-09020 VERTICAL

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	-33.67	-13.00	-20.67	-39.31	-34.32	0.57	3.37	V	Pass
2510	-35.35	-13.00	-22.35	-41.98	-37.58	0.78	5.16	V	Pass
3344	-38.07	-13.00	-25.07	-44.12	-41.71	0.87	6.66	V	Pass
4182	-51.27	-13.00	-38.27	-55.48	-55.86	0.97	7.71	V	Pass
5018	-54.33	-13.00	-41.33	-59.99	-60.00	1.09	8.91	V	Pass
7528	-45.85	-13.00	-32.85	-59.08	-53.75	1.42	11.47	V	Pass



Band :	GSM1900	Temperature :	23~24°C
Test Mode :	GPRS 8 Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

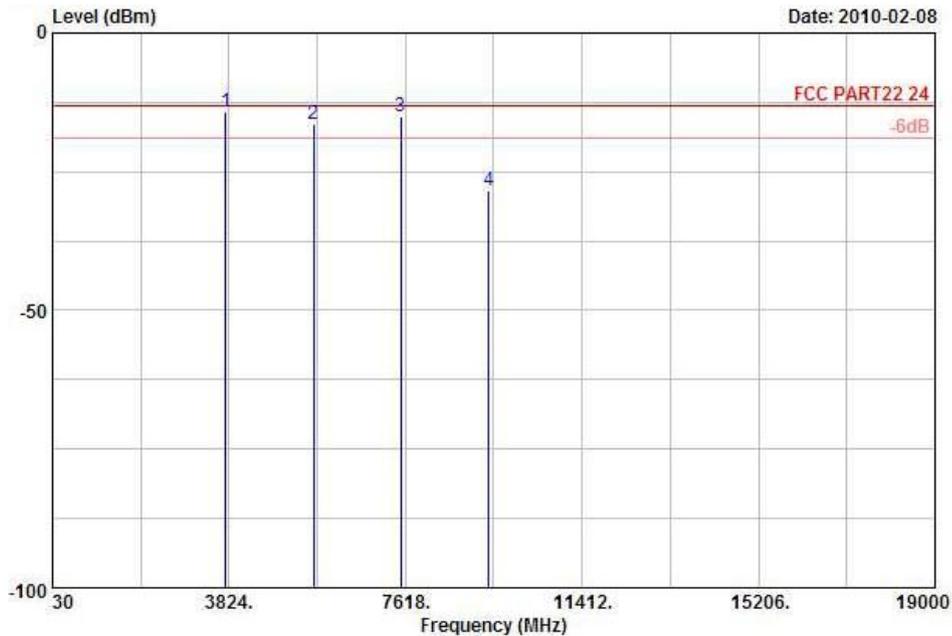


Site : 03CH01-KS
 Condition: FCC PART22 24 HF EIRP FACTOR-09020 HORIZONTAL

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
3760	-15.22	-13.00	-2.22	-23.25	-21.60	0.78	7.16	H	Pass
5639	-27.09	-13.00	-14.09	-41.05	-35.63	1.04	9.58	H	Pass
7520	-15.58	-13.00	-2.58	-33.94	-25.69	1.35	11.46	H	Pass
9401	-25.70	-13.00	-12.70	-44.63	-36.76	1.75	12.81	H	Pass



Band :	GSM1900	Temperature :	23~24°C
Test Mode :	GPRS 8 Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

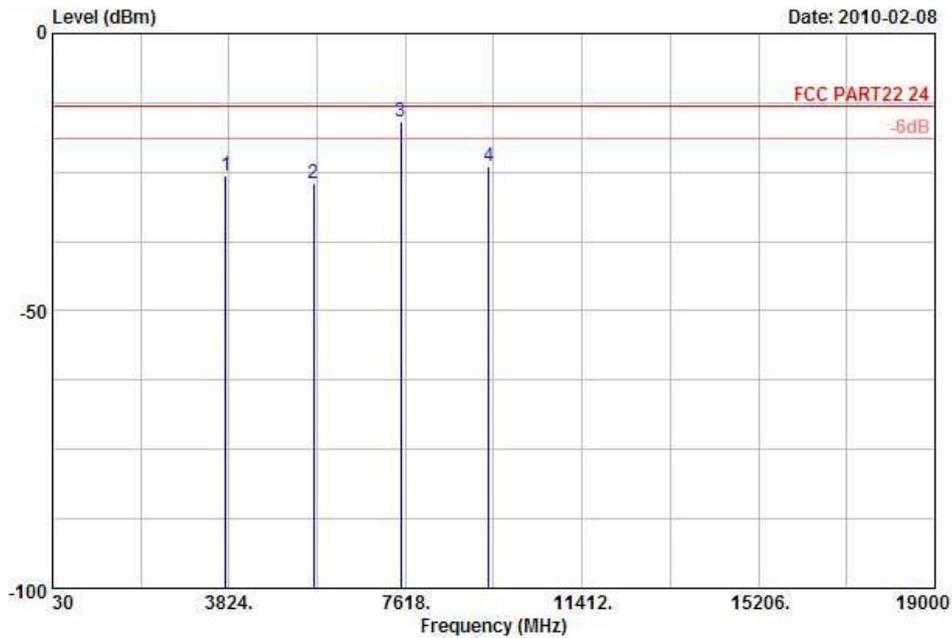


Site : 03CH01-KS
 Condition: FCC PART22 24 HF EIRP FACTOR-09020 VERTICAL

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
3760	-14.20	-13.00	-1.20	-26.20	-20.58	0.78	7.16	V	Pass
5639	-16.30	-13.00	-3.30	-31.14	-24.84	1.04	9.58	V	Pass
7520	-15.13	-13.00	-2.13	-33.64	-25.24	1.35	11.46	V	Pass
9401	-28.47	-13.00	-15.47	-46.28	-39.53	1.75	12.81	V	Pass



Band :	GSM1900	Temperature :	23~24°C
Test Mode :	EDGE 8 Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

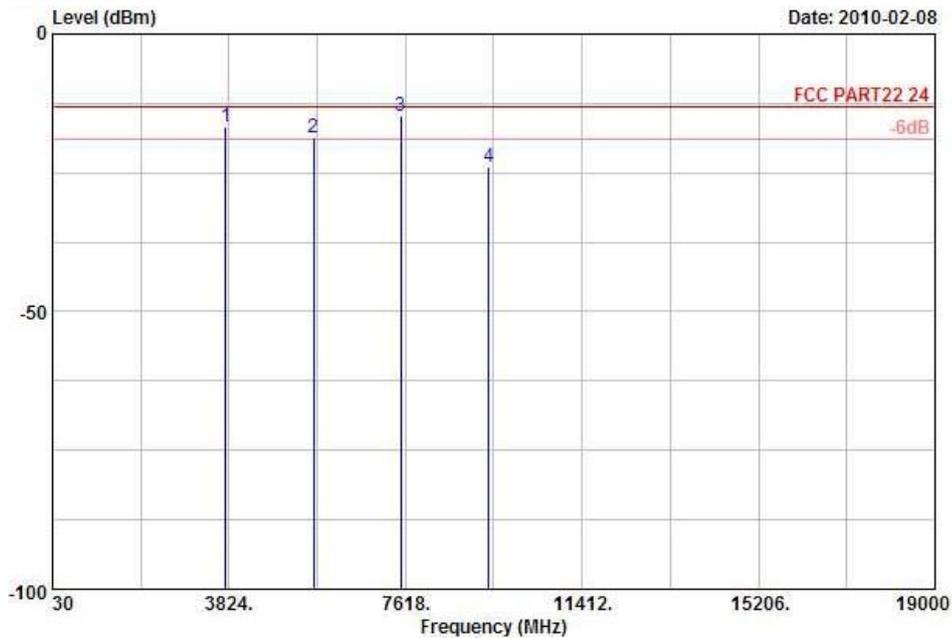


Site : 03CH01-KS
 Condition: FCC PART22 24 HF EIRP FACTOR-09020 HORIZONTAL

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
3760	-25.71	-13.00	-12.71	-33.54	-32.09	0.78	7.16	H	Pass
5639	-27.10	-13.00	-14.10	-41.06	-35.64	1.04	9.58	H	Pass
7520	-15.83	-13.00	-2.83	-34.18	-25.94	1.35	11.46	H	Pass
9401	-23.86	-13.00	-10.86	-42.86	-34.92	1.75	12.81	H	Pass



Band :	GSM1900	Temperature :	23~24°C
Test Mode :	EDGE 8 Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

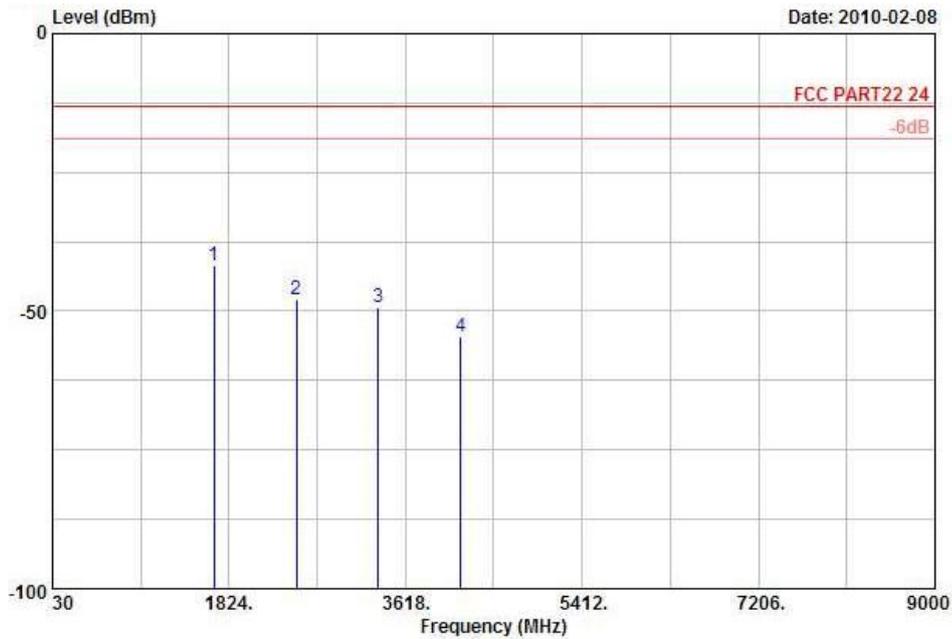


Site : 03CH01-KS
 Condition: FCC PART22 24 HF EIRP FACTOR-09020 VERTICAL

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
3760	-16.79	-13.00	-3.79	-28.77	-23.17	0.78	7.16	V	Pass
5639	-18.78	-13.00	-5.78	-33.48	-27.32	1.04	9.58	V	Pass
7520	-14.63	-13.00	-1.63	-33.17	-24.74	1.35	11.46	V	Pass
9401	-24.04	-13.00	-11.04	-42.78	-35.10	1.75	12.81	V	Pass



Band :	WCDMA Band V	Temperature :	23~24°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

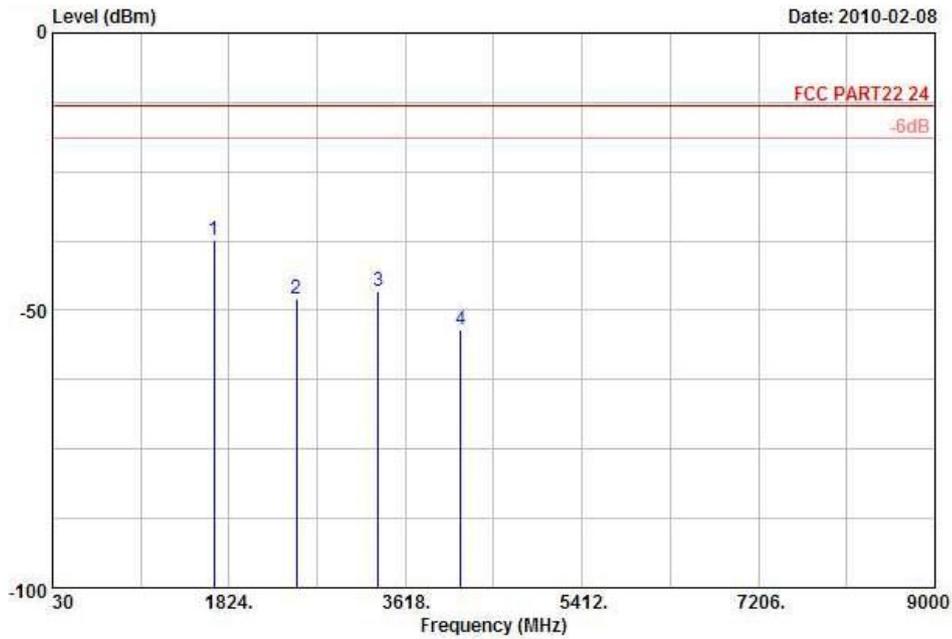


Site : 03CH01-KS
 Condition: FCC PART22 24 HF EIRP FACTOR-09020 HORIZONTAL

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	-41.72	-13.00	-28.72	-41.72	-42.37	0.57	3.37	H	Pass
2510	-47.97	-13.00	-34.97	-50.47	-50.20	0.78	5.16	H	Pass
3346	-49.36	-13.00	-36.36	-51.22	-53.00	0.87	6.66	H	Pass
4182	-54.54	-13.00	-41.54	-57.53	-59.13	0.97	7.71	H	Pass



Band :	WCDMA Band V	Temperature :	23~24°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

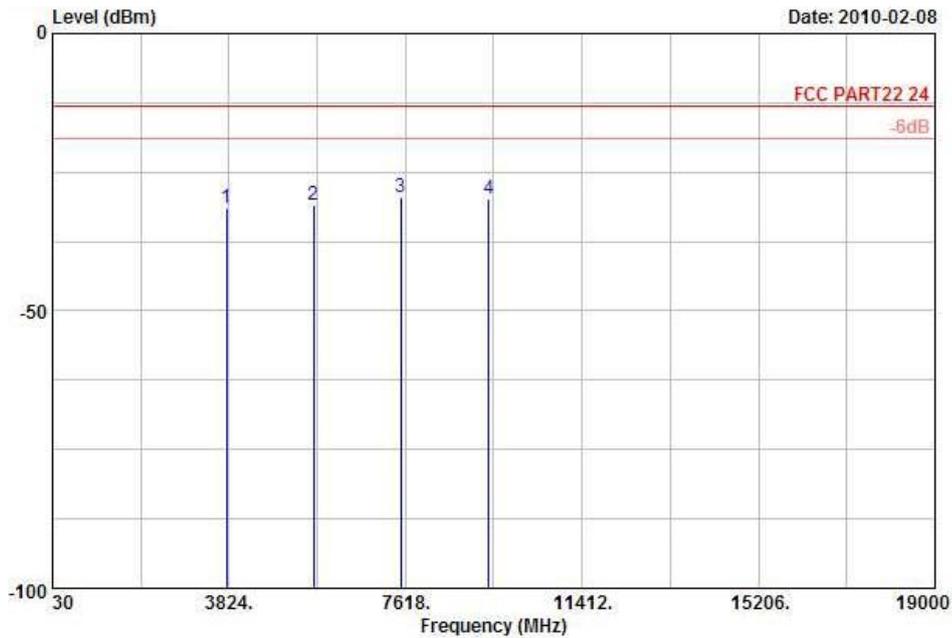


Site : 03CH01-KS
 Condition: FCC PART22 24 HF EIRP FACTOR-09020 VERTICAL

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	-37.45	-13.00	-24.45	-42.59	-38.10	0.57	3.37	V	Pass
2510	-47.83	-13.00	-34.83	-51.75	-50.06	0.78	5.16	V	Pass
3344	-46.50	-13.00	-33.50	-50.18	-50.14	0.87	6.66	V	Pass
4182	-53.45	-13.00	-40.45	-57.87	-58.04	0.97	7.71	V	Pass



Band :	WCDMA Band II	Temperature :	23~24°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

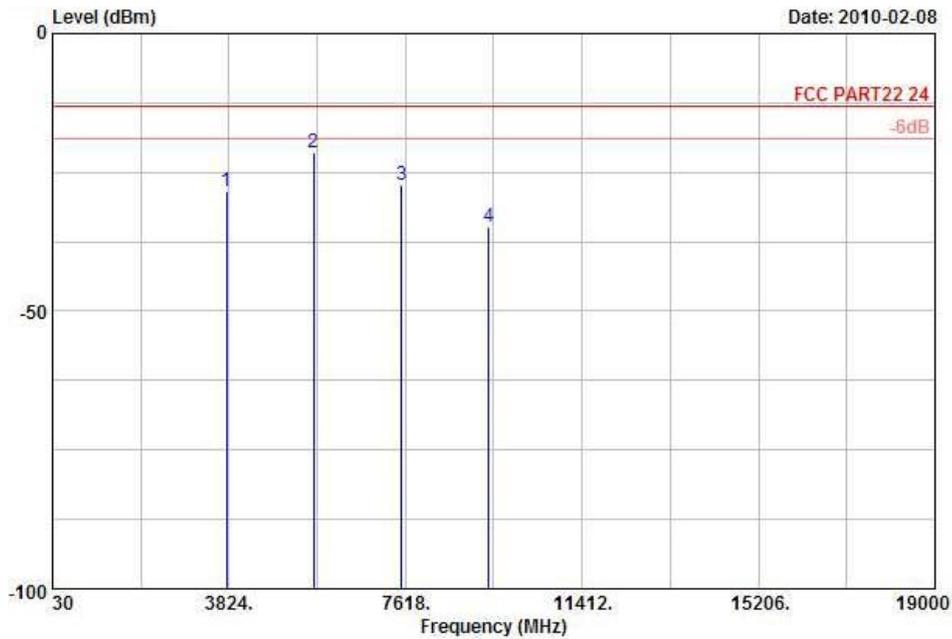


Site : 03CH01-KS
 Condition: FCC PART22 24 HF EIRP FACTOR-09020 HORIZONTAL

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
3760	-31.51	-13.00	-18.51	-39.12	-37.89	0.78	7.16	H	Pass
5639	-31.00	-13.00	-18.00	-44.53	-39.54	1.04	9.58	H	Pass
7520	-29.46	-13.00	-16.46	-46.23	-39.57	1.35	11.46	H	Pass
9401	-29.71	-13.00	-16.71	-47.84	-40.77	1.75	12.81	H	Pass



Band :	WCDMA Band II	Temperature :	23~24°C
Test Mode :	RMC 12.2Kbps Link	Relative Humidity :	45~46%
Test Engineer :	Harvey Tang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS
 Condition: FCC PART22 24 HF EIRP FACTOR-09020 VERTICAL

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
3760	-28.29	-13.00	-15.29	-39.61	-34.67	0.78	7.16	V	Pass
5639	-21.51	-13.00	-8.51	-36.11	-30.05	1.04	9.58	V	Pass
7520	-27.19	-13.00	-14.19	-45.04	-37.30	1.35	11.46	V	Pass
9401	-34.89	-13.00	-21.89	-50.57	-45.95	1.75	12.81	V	Pass

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMI Test Receiver	R&S	ESCI	100724	9kHz – 2.75GHz	Mar. 04, 2009	Mar. 03, 2010	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Jan. 18, 2010	Jan. 17, 2011	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Jan. 18, 2010	Jan. 17, 2011	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	75959	1GHz~18GHz	Jan. 18, 2010	Jan. 17, 2011	Radiation (03CH01-KS)
Amplifier	Wireless	FPA6592G	60004	30MHz~2GHz	Feb. 02, 2010	Feb. 01, 2011	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Jan. 18, 2010	Jan. 17, 2011	Radiation (03CH01-KS)
active hore antenna	com-power	AHA-118	701023	1G-18GHz	Nov. 18, 2009	Nov. 17, 2010	Radiation (03CH01-KS)
Signal Generator	R&S	SMR40	100455	10MHz~40GHz	Jan. 18, 2010	Jan. 17, 2011	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15-40GHz	Oct. 22, 2009	Oct. 21, 2010	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	837587/066	Full-Band	Jan. 08, 2009	Jan. 07, 2011	Radiation (03CH01-KS)

5 Uncertainty of Evaluation

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

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

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

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ 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
Combined Standard Uncertainty $Uc(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.72				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP021101-02 as below.