

FCC 47 CFR PART 22H and 24E

Product Type : HSPA Module

Applicant : Huawei Technologies Co., Ltd.

Address : Bantian, Longgang District, Shenzhen 518129, P. R. China

Trade Name : HUAWEI

Model Number : EM770W

Test Specification : FCC 47 CFR PART 22H: Oct, 2009
FCC 47 CFR PART 24E: Oct, 2009
CANADA RSS-132 Issue 2: Sep. 2005
CANADA RSS-133 Issue 4: Sep. 2008
ANSI/TIA-603-C 2004

Application Purpose: : Class II Permissive Change

Issue Date : Oct. 05, 2010

Issue by

A Test Lab Techno Corp.
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Taiwan Accreditation Foundation accreditation number: 1330

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	Oct. 05, 2010	Initial Issue	

Verification of Compliance

Issued Date: 2010/10/05

Product Type : HSPA Module
Applicant : Huawei Technologies Co., Ltd.
Address : Bantian, Longgang District, Shenzhen 518129, P. R. China
Trade Name : HUAWEI
Model Number : EM770W
FCC ID : QISEM770W
EUT Rated Voltage : DC 3.3V
Test Voltage : 120 Vac / 60 Hz
Applicable : FCC 47 CFR PART 22H: Oct, 2009
Standard : FCC 47 CFR PART 24E: Oct, 2009
CANADA RSS-132 Issue 2: Sep. 2005
CANADA RSS-133 Issue 4: Sep. 2008
ANSI/TIA-603-C 2004
Application : Class II Permissive Change
Purpose
Test Result : Complied
Performing Lab. : A Test Lab Techno Corp.

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<http://www.atl-lab.com.tw/e-index.htm>



The above equipment was tested by A Test Lab Techno Corp. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003 and the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 22H, Part 24E.

The test results of this report relate only to the tested sample identified in this report.

Approved By : Miller Lee Reviewed By : Gary Wu
(Manager) (Miller Lee) (Testing Engineer) (Gary Wu)

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1 General Information

1.1. EUT Description

Applicant		Huawei Technologies Co., Ltd.			
Applicant Address		Bantian, Longgang District, Shenzhen 518129, P. R. China			
Manufacturer		Huawei Technologies Co., Ltd.			
Manufacturer Address		Bantian, Longgang District, Shenzhen 518129, P. R. China			
Product Type		HSPA Module			
Trade Name		HUAWEI			
Model Number		EM770W			
FCC ID		QISEM770W			
Application Purpose		Class II Permissive Change (Add host)			
Mode	WCDMA/ HSDPA/ HSUPA	Band	UL Frequency (MHz)	DL Frequency (MHz)	Modulation
		II	1852.4 ~ 1907.6	1932.4 ~ 1987.6	QPSK
		V	826.4 ~ 846.6	871.4 ~ 891.6	QPSK
Channel Control		Auto			
Type of Antenna		PIFA Antenan			
Antenna Gain (dBi)		WCDMA/ HSDPA/ HSUPA Band II: 0.65 dBi WCDMA/ HSDPA/ HSUPA Band V: -1.30 dBi			
Max. RF Output power		WCDMA/ HSDPA/ HSUPA Band II: 22.69 dBm / 0.186 W WCDMA/ HSDPA/ HSUPA Band V: 24.22 dBm / 0.264 W			
Max. ERP/EIRP		WCDMA/ HSDPA/ HSUPA Band II: 22.36 dBm / 0.172 W WCDMA/ HSDPA/ HSUPA Band V: 32.81 dBm / 1.910 W			
Host Notebook PC		Trade Name: PEGATRON Model Number: Lucid Manufacturer (1): Pegatron Corporation 5F, No. 76,Ligong St., Beitou District, Taipei City112, Taiwan (R.O.C.) Manufacturer (2): Maintek Computer (Suzhou) Co., Ltd 233 Jin Feng Road, Suzhou City New District, Jiangsu Province, China Manufacturer (3): Protek (Shanghai) Limited No. 3768 Xiu Yan Rd., Nanhui District, Shanghai, China			
Component					
Power Adapter		DELTA, ADP-40PH AB Input:100-240Vac, 1.2A, 50-60Hz Output: 19Vdc, 2.1A Cable in: Non-Shielded, 1.45 m Cable out: Non-Shielded, 1.77 m with a core			

1.2. Mode of Operation

ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: WCDMA Band II Link
Mode 2: WCDMA Band V Link
Mode 3: Receiver Mode

Note: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

Tested System Details

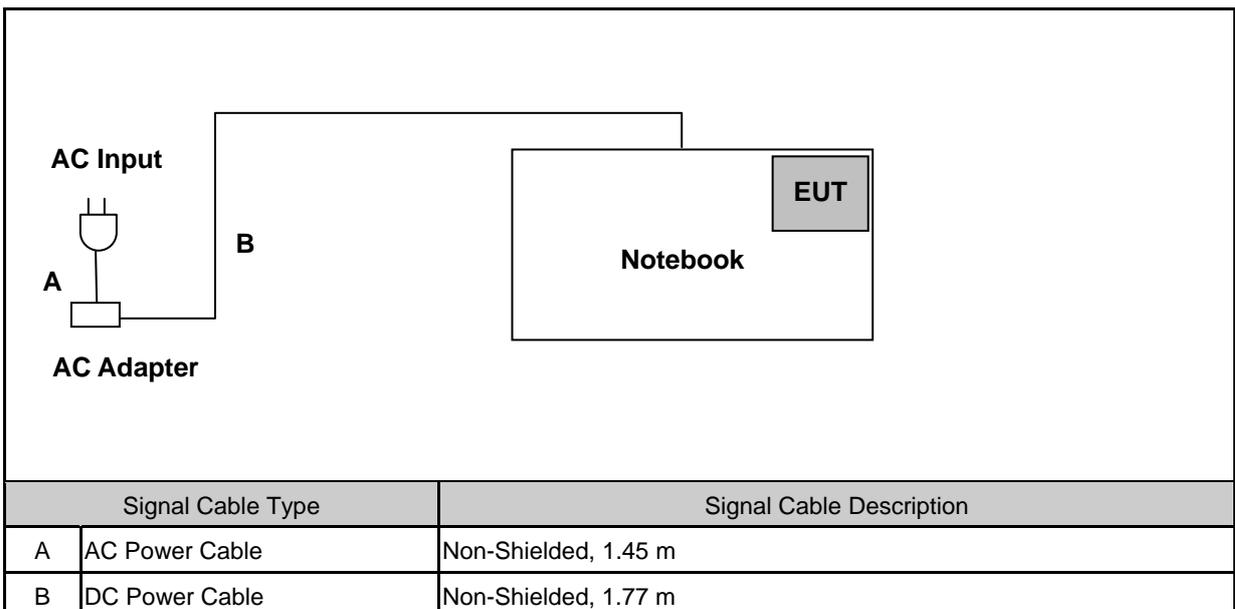
The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model Number	Serial Number	Power Cord
1.	Universal Radio Communication Tester	R&S	CMU200	109369	N/A

1.3. EUT Exercise Software

1.	Setup the EUT and Base Station (CMU200) as shown on 1.4.
2.	Turn on the power of all equipment.

1.4. Configuration of Test System Details



1.5. Test Site Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	25
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950

1.6. Summary of Test Result

Description	FCC Rule	IC Rule	Limit	Result
Conducted Output Power	§2.1046	N/A	N/A	Pass
Effective Radiated Power	§22.913(a)(2)	RSS-132(4.4) SRSP-503(5.1.3)	< 7 Watts for FCC (<6.3 Watts for IC)	Pass
Equivalent Isotropic Radiated Power	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	< 2 Watts	Pass
Occupied Bandwidth	§2.1049 §22.917(a) §24.238(a)	N/A	N/A	Reference original report
Band Edge Measurement	§2.1051 §22.917(a) §24.238(a)	RSS-132 (4.5.1)RSS-133 (6.5.1)	< 43+10log ₁₀ (P[Watts])	Reference original report
Conducted Emission	§2.1051 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	< 43+10log ₁₀ (P[Watts])	Reference original report
Field Strength of Spurious Radiation	§2.1053 §22.917(a) §24.238(a)	RSS-132 (4.5.1) RSS-133 (6.5.1)	< 43+10log ₁₀ (P[Watts])	Pass
Frequency Stability for Temperature & Voltage	§2.1055 §22.355 §24.235	RSS-132(4.3) RSS-133(6.3)	< 2.5 ppm	Reference original report

2 RF Output Power Test

2.1. Limit

N/A

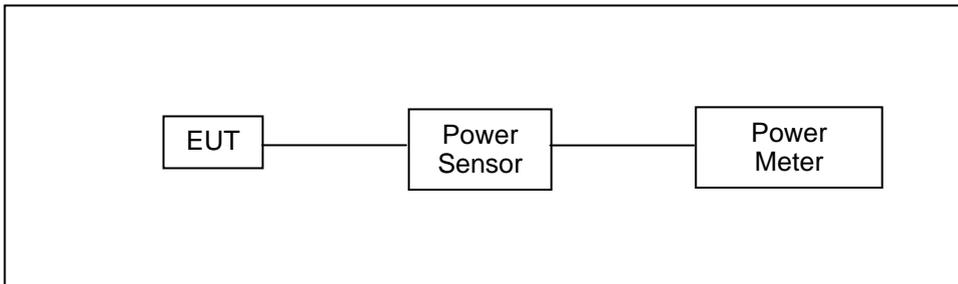
2.2. Test Instruments

Describe	Manufacturer	Model No.	Serial No.	Cal. Date	Remark
Universal Radio Communication Tester	ROHDE & SCHWARZ	CMU200	109369	07/29/2009	(2)
Single Channel PK Power Sensor	Agilent	N1911A	MY45101619	07/19/2010	(1)
Wideband Power Meter	Agilent	N1921A	MY45241957	07/19/2010	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

2.3. Test Setup



2.4. Test Procedure

The measurement is made according to ANSI/TIA-603-C-2004 as follows:

1. The transmitter output was connected to power meter and base station through power divider.
2. Set base station for EUT at GSM 850: PCL=5 and PCS 1900: PCL=0.
3. Set base station for EUT at WCDMA Band V and WCDMA Band II, power level was set to maximum.
4. Select lowest, middle, and highest channels for each band.

2.5. Uncertainty

The measurement uncertainty is defined as for RF output power measurement is 1.2 dB.

2.6. Test Result

Model Number	EM770W					
Test Item	RF Output Power					
Date of Test	09/07/2010			Test Site	TE02	
Bands	Sub-Test	Frequency (MHz)	Average Power		Peak Power	
			(dBm)	(W)	(dBm)	(W)
WCDMA Band II	-----	1852.4	21.16	0.131	22.62	0.183
		1880.0	21.76	0.150	22.61	0.182
		1907.6	21.40	0.138	22.69	0.186
HSDPA Band II	1	1852.4	21.13	0.130	22.59	0.182
		1880.0	21.64	0.146	22.48	0.177
		1907.6	21.22	0.132	22.62	0.183
	2	1852.4	21.05	0.127	22.52	0.179
		1880.0	21.60	0.145	22.43	0.175
		1907.6	21.17	0.131	22.56	0.180
	3	1852.4	20.70	0.117	22.17	0.165
		1880.0	21.20	0.132	22.07	0.161
		1907.6	20.78	0.120	22.14	0.164
	4	1852.4	20.71	0.118	22.10	0.162
		1880.0	21.19	0.132	22.07	0.161
		1907.6	20.74	0.119	22.13	0.163
HSUPA Band II	1	1852.4	20.96	0.125	21.68	0.147
		1880.0	21.22	0.132	22.31	0.170
		1907.6	20.98	0.125	21.79	0.151
	2	1852.4	18.98	0.079	19.72	0.094
		1880.0	19.26	0.084	20.32	0.108
		1907.6	19.00	0.079	19.85	0.097
	3	1852.4	20.02	0.100	20.72	0.118
		1880.0	20.23	0.105	21.32	0.136
		1907.6	20.00	0.100	20.82	0.121
	4	1852.4	18.97	0.079	19.71	0.094
		1880.0	19.27	0.085	20.33	0.108
		1907.6	19.04	0.080	19.81	0.096
	5	1852.4	20.96	0.125	21.65	0.146
		1880.0	21.18	0.131	22.27	0.169
		1907.6	20.96	0.125	21.71	0.148

Note: The peak power testing result was used peak detector.

Model Number	EM770W					
Test Item	RF Output Power					
Date of Test	09/07/2010			Test Site	TE02	
Bands	Sub-Test	Frequency (MHz)	Average Power		Peak Power	
			(dBm)	(W)	(dBm)	(W)
WCDMA Band V	-----	826.4	22.90	0.195	24.15	0.260
		836.4	23.11	0.205	24.22	0.264
		846.4	23.00	0.200	23.98	0.250
HSDPA Band V	1	826.4	22.90	0.195	23.95	0.248
		836.4	23.10	0.204	24.16	0.261
		846.4	22.94	0.197	23.99	0.251
	2	826.4	22.82	0.191	23.89	0.245
		836.4	23.04	0.201	24.13	0.259
		846.4	22.85	0.193	23.89	0.245
	3	826.4	22.44	0.175	23.48	0.223
		836.4	22.61	0.182	23.69	0.234
		846.4	22.49	0.177	23.57	0.228
	4	826.4	22.44	0.175	23.49	0.223
		836.4	22.61	0.182	23.69	0.234
		846.4	22.45	0.176	23.52	0.225
HSUPA Band V	1	826.4	22.38	0.173	22.51	0.178
		836.4	22.20	0.166	22.33	0.171
		846.4	21.91	0.155	22.24	0.167
	2	826.4	20.44	0.111	20.55	0.114
		836.4	20.20	0.105	20.36	0.109
		846.4	19.95	0.099	20.32	0.108
	3	826.4	21.39	0.138	21.51	0.142
		836.4	21.22	0.132	21.36	0.137
		846.4	20.93	0.124	21.32	0.136
	4	826.4	20.46	0.111	20.53	0.113
		836.4	20.24	0.106	20.38	0.109
		846.4	20.00	0.100	20.32	0.108
	5	826.4	22.31	0.170	22.48	0.177
		836.4	22.17	0.165	22.33	0.171
		846.4	21.87	0.154	22.21	0.166

3 Effective Radiated Power / Equivalent Isotropic Radiated Power Test

3.1. Limit

For FCC Part 22.913(a)(2): The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

For FCC Part 24.232(b): The EIRP of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

3.2. Test Instruments

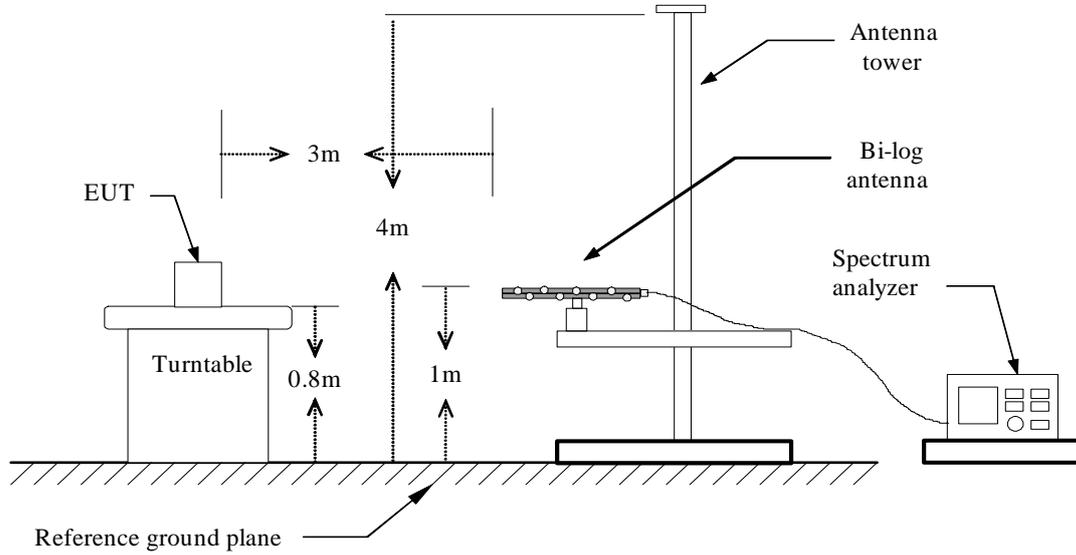
3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/07/2009	(2)
Spectrum Analyzer	Agilent	E4446A	MY46180578	02/24/2010	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/24/2010	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/24/2010	(1)
Bi-log Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	08/02/2010	(1)
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/29/2010	(1)
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/29/2010	(1)
Test Site	ATL	TE01	888001	07/30/2010	(1)

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

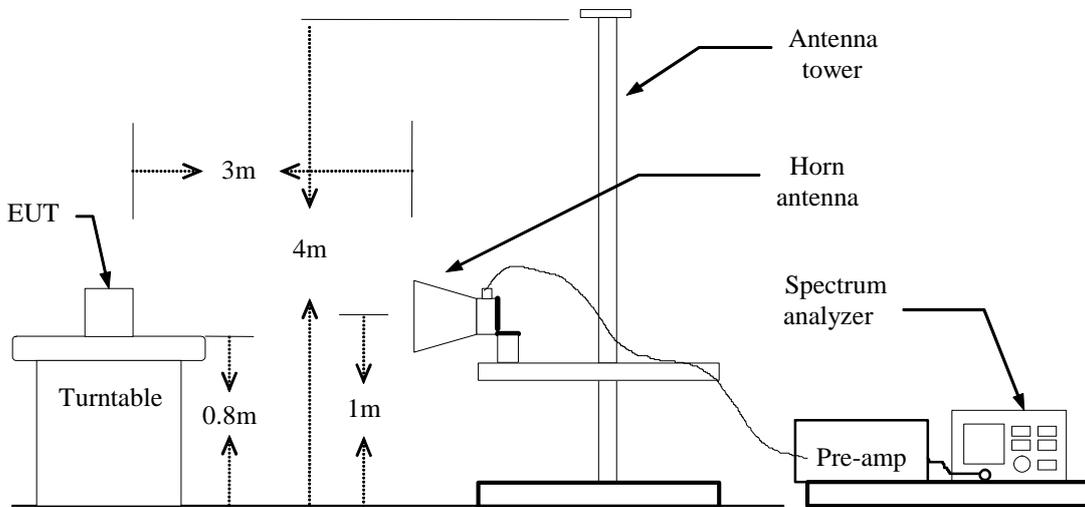
NOTE: N.C.R. = No Calibration Request.

3.3. Setup

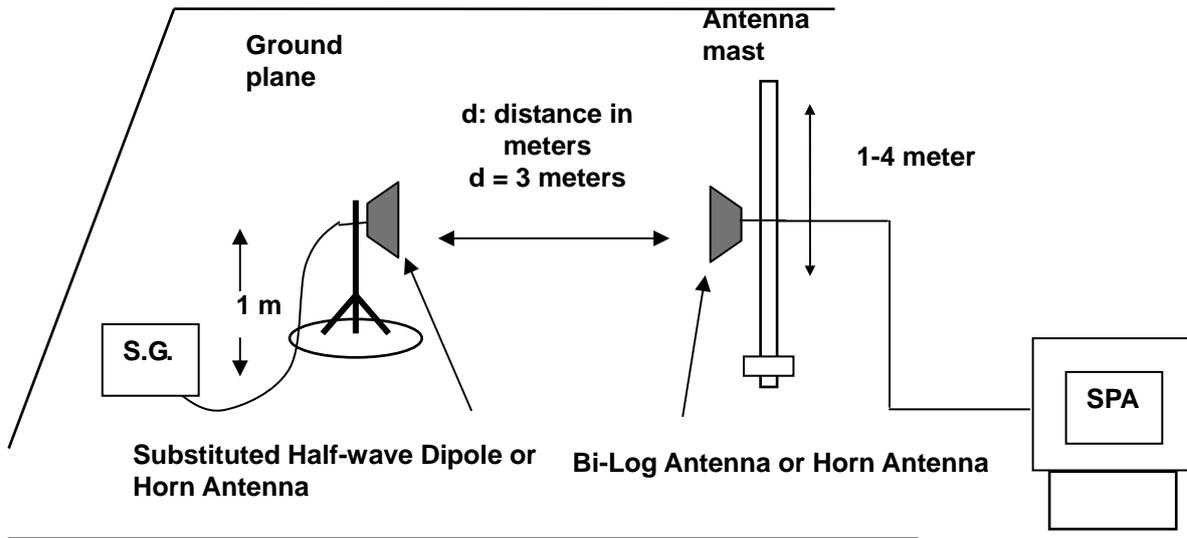
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



3.4. Test Procedure

The measurement is made according to ANSI/TIA-603-C-2004 as follows:

The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement of the EUT, the resolution bandwidth was set to 3MHz and the average bandwidth was set to 3MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable (dB)}$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable (dB)}$$

3.5. Uncertainty

The measurement uncertainty is defined as for Field Strength of Spurious Radiation measurement is ± 3.072 dB.

3.6. Test Result

Model Number	EM770W						
Test Item	ERP/EIRP						
Test Mode	Mode 3: WCDMA Band II Link						
Date of Test	09/24/2010				Test Site	TE01	
Bands	Frequency (MHz)	Ant. Polar.	Read Level (dBm)	Correction factor (dBm)	EIRP		Limit
					(dBm)	(W)	
WCDMA Band II	1852.4	H	9.29	10.42	19.71	0.094	< 2W
		V	12.64	8.29	20.93	0.124	< 2W
	1880.0	H	10.81	10.43	21.24	0.133	< 2W
		V	12.46	8.48	20.94	0.124	< 2W
	1907.6	H	9.13	10.44	19.57	0.091	< 2W
		V	13.67	8.69	22.36	0.172	< 2W

Model Number	EM770W						
Test Item	ERP/EIRP						
Test Mode	Mode 4: WCDMA Band V Link						
Date of Test	07/05/2010				Test Site	TE01	
Bands	Frequency (MHz)	Ant. Polar.	Read Level (dBm)	Correction factor (dBm)	ERP		Limit
					(dBm)	(W)	
WCDMA Band V	826.4	H	7.37	23.40	30.77	1.194	< 7W
		V	10.14	22.16	32.30	1.698	< 7W
	836.4	H	6.16	24.84	31.00	1.259	< 7W
		V	9.76	22.34	32.10	1.622	< 7W
	846.4	H	6.76	26.05	32.81	1.910	< 7W
		V	9.76	22.44	32.20	1.660	< 7W

Note: 1. ERP/EIRP = Read Level + Correction factor.

2. For WCDMA signals, a peak detector is used with RBW = VBW = 5MHz.

3. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW= 1 MHz.

4 Field Strength of Spurious Radiation Test

4.1. Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

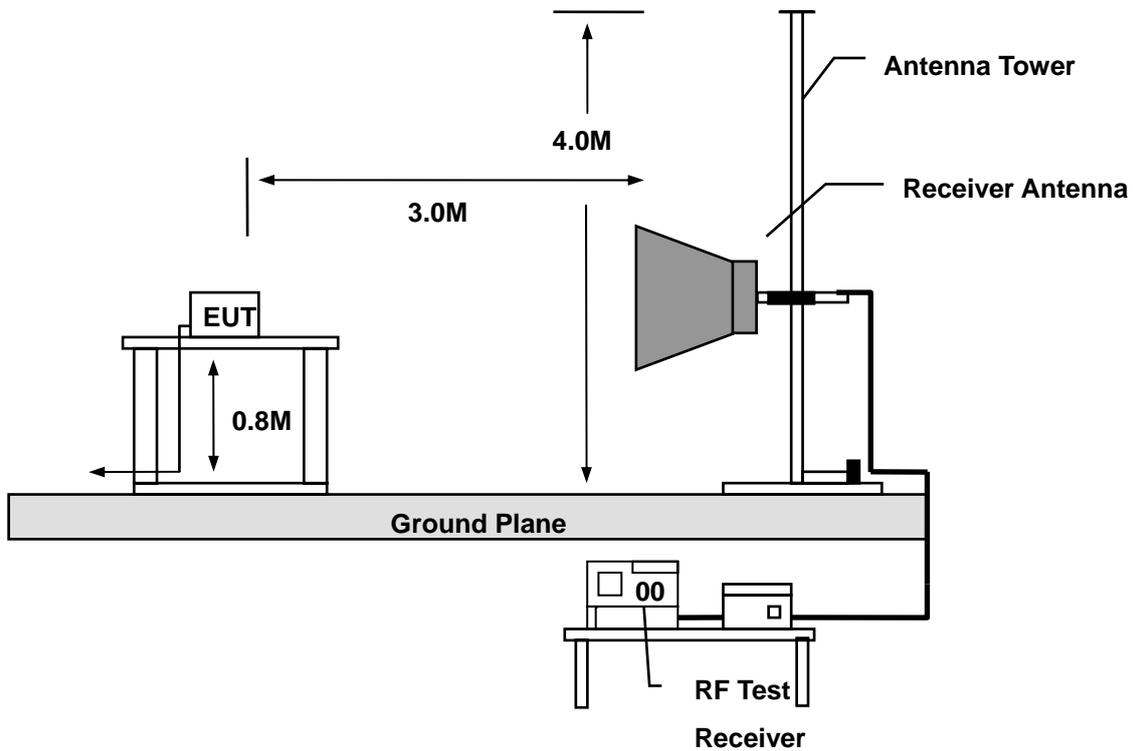
4.2. Test Instruments

3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/07/2009	(2)
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Pre Amplifier	Agilent	8447D	2944A10961	02/24/2010	(1)
Bi-log Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	08/02/2010	(1)
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/29/2010	(1)
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/29/2010	(1)
Test Site	ATL	TE01	888001	07/30/2010	(1)

Remark: ⁽¹⁾ Calibration period 1 year. ⁽²⁾ Calibration period 2 years.

NOTE: N.C.R. = No Calibration Request.

4.3. Setup



4.4. Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 30 MHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on three orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (model VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 – 26.5 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts per meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro volts per meter (dBuV/m).

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

$$(1) \text{ Amplitude (dBuV/m) = FI (dBuV) +AF (dBuV) +CL (dBuV)-Gain (dB)}$$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

$$(2) \text{ Actual Amplitude (dBuV/m) = Amplitude (dBuV)-Dis(dB)}$$

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency : Transmitter Output < +30dBm

(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

4.5. Uncertainty

The measurement uncertainty is defined as for Field Strength of Spurious Radiation measurement is ± 3.072 dB.

4.6. Test Result

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model:	EM770W	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 1	Date:	2010/09/24
Frequency:	1852.4 MHz	Test By:	Gary Wu

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	49.4000	-62.79	39.31	-23.48	-13.00	-10.48	peak	H
2	96.9300	-61.65	14.25	-47.40	-13.00	-34.40	peak	H
3	332.6400	-60.35	6.63	-53.72	-13.00	-40.72	peak	H
4	477.1700	-61.20	21.80	-39.40	-13.00	-26.40	peak	H
5	767.2000	-61.13	18.83	-42.30	-13.00	-29.30	peak	H
6	905.9100	-61.29	31.73	-29.56	-13.00	-16.56	peak	H
7	1522.000	-63.49	10.36	-53.13	-13.00	-40.13	peak	H
8	2712.000	-66.06	12.73	-53.33	-13.00	-40.33	peak	H
9	6970.000	-70.80	27.58	-43.22	-13.00	-30.22	peak	H
1	50.3700	-62.43	23.59	-38.84	-13.00	-25.84	peak	V
2	100.8100	-62.63	11.18	-51.45	-13.00	-38.45	peak	V
3	274.4400	-61.17	13.10	-48.07	-13.00	-35.07	peak	V
4	603.2700	-60.81	18.12	-42.69	-13.00	-29.69	peak	V
5	753.6200	-60.81	22.83	-37.98	-13.00	-24.98	peak	V
6	969.9300	-61.96	25.57	-36.39	-13.00	-23.39	peak	V
7	1574.000	-63.44	6.12	-57.32	-13.00	-44.32	peak	V
8	2726.000	-66.54	13.98	-52.56	-13.00	-39.56	peak	V
9	4990.000	-68.51	23.23	-45.28	-13.00	-32.28	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model:	EM770W	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 1	Date:	2010/09/24
Frequency:	1880.0 MHz	Test By:	Gary Wu

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	49.4000	-63.24	39.31	-23.93	-13.00	-10.93	peak	H
2	98.8700	-61.88	14.61	-47.27	-13.00	-34.27	peak	H
3	342.3400	-61.27	7.56	-53.71	-13.00	-40.71	peak	H
4	488.8100	-61.63	22.06	-39.57	-13.00	-26.57	peak	H
5	771.0800	-61.68	19.01	-42.67	-13.00	-29.67	peak	H
6	907.8500	-61.70	31.68	-30.02	-13.00	-17.02	peak	H
7	1518.000	-63.59	10.36	-53.23	-13.00	-40.23	peak	H
8	2706.000	-66.02	12.70	-53.32	-13.00	-40.32	peak	H
9	4980.000	-68.75	19.78	-48.97	-13.00	-35.97	peak	H
1	50.3700	-62.61	23.59	-39.02	-13.00	-26.02	peak	V
2	103.7200	-61.21	10.57	-50.64	-13.00	-37.64	peak	V
3	275.4100	-61.47	13.17	-48.30	-13.00	-35.30	peak	V
4	459.7100	-59.45	10.74	-48.71	-13.00	-35.71	peak	V
5	648.8600	-59.79	20.47	-39.32	-13.00	-26.32	peak	V
6	971.8700	-61.27	25.65	-35.62	-13.00	-22.62	peak	V
7	1508.000	-63.58	5.61	-57.97	-13.00	-44.97	peak	V
8	2780.000	-67.59	14.42	-53.17	-13.00	-40.17	peak	V
9	4980.000	-68.12	23.20	-44.92	-13.00	-31.92	peak	V

Standard:	FCC Part 24	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model:	EM770W	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 1	Date:	2010/09/24
Frequency:	1907.6 MHz	Test By:	Gary Wu

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	50.37	-61.62	39.23	-22.39	-13.00	-9.39	peak	H
2	99.84	-61.99	14.80	-47.19	-13.00	-34.19	peak	H
3	349.13	-60.63	7.38	-53.25	-13.00	-40.25	peak	H
4	489.78	-61.11	22.04	-39.07	-13.00	-26.07	peak	H
5	752.65	-60.00	18.26	-41.74	-13.00	-28.74	peak	H
6	910.76	-61.07	31.61	-29.46	-13.00	-16.46	peak	H
7	1500.00	-63.89	10.36	-53.53	-13.00	-40.53	peak	H
8	2726.00	-65.77	12.77	-53.00	-13.00	-40.00	peak	H
9	4990.00	-66.92	19.84	-47.08	-13.00	-34.08	peak	H
1	50.37	-61.04	23.59	-37.45	-13.00	-24.45	peak	V
2	99.84	-62.12	11.26	-50.86	-13.00	-37.86	peak	V
3	288.02	-60.23	13.03	-47.20	-13.00	-34.20	peak	V
4	628.49	-60.31	19.65	-40.66	-13.00	-27.66	peak	V
5	767.20	-59.76	22.57	-37.19	-13.00	-24.19	peak	V
6	978.66	-61.40	25.90	-35.50	-13.00	-22.50	peak	V
7	1528.00	-63.68	5.76	-57.92	-13.00	-44.92	peak	V
8	2856.00	-67.72	15.04	-52.68	-13.00	-39.68	peak	V
9	4980.00	-68.62	23.20	-45.42	-13.00	-32.42	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model:	EM770W	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	2010/09/24
Frequency:	826.4 MHz	Test By:	Gary Wu

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	48.43	-61.20	38.55	-22.65	-13.00	-9.65	peak	H
2	99.84	-61.67	14.80	-46.87	-13.00	-33.87	peak	H
3	376.29	-59.97	8.83	-51.14	-13.00	-38.14	peak	H
4	477.17	-60.57	21.80	-38.77	-13.00	-25.77	peak	H
5	750.71	-58.82	18.17	-40.65	-13.00	-27.65	peak	H
6	902.03	-61.44	31.83	-29.61	-13.00	-16.61	peak	H
7	1576.00	-63.87	10.38	-53.49	-13.00	-40.49	peak	H
8	2734.00	-66.52	12.81	-53.71	-13.00	-40.71	peak	H
9	8110.00	-70.40	29.56	-40.84	-13.00	-27.84	peak	H
1	50.37	-60.82	23.59	-37.23	-13.00	-24.23	peak	V
2	98.87	-61.01	10.70	-50.31	-13.00	-37.31	peak	V
3	278.32	-60.10	13.38	-46.72	-13.00	-33.72	peak	V
4	487.84	-59.83	11.37	-48.46	-13.00	-35.46	peak	V
5	727.43	-60.32	22.36	-37.96	-13.00	-24.96	peak	V
6	982.54	-61.07	26.05	-35.02	-13.00	-22.02	peak	V
7	1568.00	-64.29	6.07	-58.22	-13.00	-45.22	peak	V
8	2712.00	-66.38	13.87	-52.51	-13.00	-39.51	peak	V
9	7210.00	-70.03	25.93	-44.10	-13.00	-31.10	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model:	EM770W	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	2010/09/24
Frequency:	836.4 MHz	Test By:	Gary Wu

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	50.37	-62.89	39.23	-23.66	-13.00	-10.66	peak	H
2	100.81	-61.41	14.34	-47.07	-13.00	-34.07	peak	H
3	415.09	-60.76	13.88	-46.88	-13.00	-33.88	peak	H
4	497.54	-59.58	21.83	-37.75	-13.00	-24.75	peak	H
5	730.34	-59.09	16.85	-42.24	-13.00	-29.24	peak	H
6	923.37	-61.12	31.23	-29.89	-13.00	-16.89	peak	H
7	1518.00	-64.32	10.36	-53.96	-13.00	-40.96	peak	H
8	2436.00	-65.04	11.79	-53.25	-13.00	-40.25	peak	H
9	5150.00	-69.42	20.43	-48.99	-13.00	-35.99	peak	H
1	51.34	-60.11	22.43	-37.68	-13.00	-24.68	peak	V
2	99.84	-61.71	11.26	-50.45	-13.00	-37.45	peak	V
3	288.02	-60.01	13.03	-46.98	-13.00	-33.98	peak	V
4	552.83	-60.36	14.12	-46.24	-13.00	-33.24	peak	V
5	677.96	-60.22	21.80	-38.42	-13.00	-25.42	peak	V
6	967.99	-60.47	25.51	-34.96	-13.00	-21.96	peak	V
7	1610.00	-64.46	6.40	-58.06	-13.00	-45.06	peak	V
8	2460.00	-65.30	11.91	-53.39	-13.00	-40.39	peak	V
9	5050.00	-67.89	23.27	-44.62	-13.00	-31.62	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model:	EM770W	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 2	Date:	2010/09/24
Frequency:	846.4 MHz	Test By:	Gary Wu

No.	Frequency (MHz)	Reading (dBm)	Correct Factor(dB)	Result (dBm)	Limit (dBm)	Margin (dB)	Remark	Ant.Polar. H / V
1	47.46	-60.53	37.78	-22.75	-13.00	-9.75	peak	H
2	99.84	-61.68	14.80	-46.88	-13.00	-33.88	peak	H
3	338.46	-60.58	7.41	-53.17	-13.00	-40.17	peak	H
4	482.99	-61.07	22.22	-38.85	-13.00	-25.85	peak	H
5	750.71	-60.72	18.17	-42.55	-13.00	-29.55	peak	H
6	935.98	-60.68	30.66	-30.02	-13.00	-17.02	peak	H
7	1534.00	-63.41	10.37	-53.04	-13.00	-40.04	peak	H
8	2716.00	-66.21	12.74	-53.47	-13.00	-40.47	peak	H
9	5120.00	-70.13	20.33	-49.80	-13.00	-36.80	peak	H
1	49.40	-60.79	23.28	-37.51	-13.00	-24.51	peak	V
2	100.81	-60.50	11.18	-49.32	-13.00	-36.32	peak	V
3	275.41	-60.82	13.17	-47.65	-13.00	-34.65	peak	V
4	459.71	-57.77	10.74	-47.03	-13.00	-34.03	peak	V
5	735.19	-59.54	22.70	-36.84	-13.00	-23.84	peak	V
6	963.14	-60.36	25.33	-35.03	-13.00	-22.03	peak	V
7	1482.00	-63.83	5.44	-58.39	-13.00	-45.39	peak	V
8	2886.00	-68.15	15.29	-52.86	-13.00	-39.86	peak	V
9	4980.00	-68.44	23.20	-45.24	-13.00	-32.24	peak	V

Standard:	FCC Part 22	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model:	EM770W	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Mode:	Mode 3	Date:	2010/10/02
		Test By:	Gary Wu

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Peak Limit (dBuV/m)	Avg. Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
1	1896.000	40.40	-2.15	38.25	74.00	54.00	-35.75	peak	H
2	3331.000	40.48	3.03	43.51	74.00	54.00	-30.49	peak	H
3	6467.000	36.73	12.75	49.48	74.00	54.00	-24.52	peak	H
1	1147.000	48.05	-5.54	42.51	74.00	54.00	-31.49	peak	V
2	1658.000	44.67	-3.00	41.67	74.00	54.00	-32.33	peak	V
3	3324.000	41.00	3.02	44.02	74.00	54.00	-29.98	peak	V