

# FCC DoC TEST REPORT

**REPORT NO. :** FD990726E11

**MODEL NO. :** RV110W

**RECEIVED :** July 23, 2010

**TESTED :** July 23 to 30, 2010

**ISSUED DATE:** Aug. 06, 2010

**APPLICANT :** CyberTAN Technology, Inc.

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**ISSUED BY :** Bureau Veritas Consumer Products Services  
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## Table of Contents

1	CERTIFICATION .....	3
2	SUMMARY OF TEST RESULTS .....	4
2.1	MEASUREMENT UNCERTAINTY .....	4
3	GENERAL INFORMATION .....	5
3.1	GENERAL DESCRIPTION OF EUT .....	5
3.2	GENERAL DESCRIPTION OF TEST MODE .....	6
3.3	DESCRIPTION OF SUPPORT UNITS .....	7
3.4	CONFIGURATION OF SYSTEM UNDER TEST .....	8
4	EMISSION TEST .....	9
4.1	CONDUCTED EMISSION MEASUREMENT .....	9
4.1.1	LIMITS OF CONDUCTED EMISSION MEASUREMENT .....	9
4.1.2	TEST INSTRUMENTS .....	9
4.1.3	TEST PROCEDURE .....	10
4.1.4	DEVIATION FROM TEST STANDARD .....	10
4.1.5	TEST SETUP .....	10
4.1.6	EUT OPERATING CONDITIONS .....	11
4.1.7	TEST RESULTS .....	12
4.2	RADIATED EMISSION MEASUREMENT .....	14
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT .....	14
4.2.2	TEST INSTRUMENTS .....	15
4.2.3	TEST PROCEDURE .....	17
4.2.4	DEVIATION FROM TEST STANDARD .....	17
4.2.5	TEST SETUP .....	18
4.2.6	EUT OPERATING CONDITIONS .....	18
4.2.7	TEST RESULTS .....	19
5	PHOTOGRAPHS OF THE TEST CONFIGURATION .....	23
6	INFORMATION ON THE TESTING LABORATORIES .....	26
7	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB .....	27





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## 1 CERTIFICATION

**PRODUCT :** Wireless-N VPN Firewall  
**BRAND NAME :** Cisco  
**MODEL NO. :** RV110W  
**TESTED :** July 23 to 30, 2010  
**TEST SAMPLE :** ENGINEERING SAMPLE  
**APPLICANT :** CyberTAN Technology, Inc.  
**STANDARDS :** FCC Part 15, Subpart B, Class B  
ANSI C63.4-2003  
CISPR 22: 1997, Class B  
ICES-003: 2004, Class B

The above equipment (Model: RV110W) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY :** , **DATE:** Aug 06, 2010  
( Claire Kuan, Specialist )

**TECHNICAL ACCEPTANCE :** , **DATE:** Aug 06, 2010  
( Hank Chung, Deputy Manager )

**APPROVED BY :** , **DATE:** Aug 06, 2010  
( May Chen, Deputy Manager )

## 2 SUMMARY OF TEST RESULTS

Standard	Test Type	Result	Remarks
FCC Part 15 Subpart B, Class B	Conducted Test	<b>PASS</b>	Meets Class B Limit Minimum passing margin is -7.35dB at 0.173MHz
CISPR 22: 1997, Class B	Radiated Test	<b>PASS</b>	Meets Class B Limit Minimum passing margin is -5.59 dB at 50.49 MHz
ICES-003: Class B			

### NOTE:

The limit for radiated test was performed according to CISPR 22, which was specified in FCC PART 15 Subpart B 15.109(g). Also the limits of ICES-003: 2004 and CISPR 22 are same.

## 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions	2.45 dB
Radiated emissions (30MHz-1GHz)	3.94 dB
Radiated emissions (1GHz -18GHz)	2.19 dB

### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Wireless-N VPN Firewall
<b>MODEL NO.</b>	RV110W
<b>POWER SUPPLY</b>	DC 12V from power adapter
<b>POWER CORD</b>	DC output cable(Unshielded, 1.5m)
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	RJ-45 port x 4(Ethernet: 10, 100Mbps) RJ-45 port x 1(Internet: 10, 100Mbps)
<b>ASSOCIATED DEVICES</b>	Adapter x 1

**Note:**

1. There are two antennas provided to this EUT, please refer to the following table:

Chain	Antenna Type	Antenna Connector	Antenna Gain (dBi)
Chain (0)	Dipole	NA	2
Chain (1)	Dipole	NA	2

2. The EUT must be supplied with a power adapter as following table:

Brand	Model No.	Spec.
Bestec	EAA121WAG	Input: AC 100-240V 50/60Hz 0.5A Output: DC +12V 1A DC cable: Unshielded, 1.5m

3. The EUT was pre-tested under the following modes:

Test Mode	Description
<b>Mode A</b>	<b>Level-set (Put on tabletop)</b>
Mode B	Tower-set (Wall-mounted)

From the above modes, the worst cases were found in **Mode A**. Therefore only the test data of the modes were recorded in this report.

4. The EUT incorporates a MIMO function with 802.11n. Physically, the EUT provides two completed transmits and two completed receivers.
5. The EUT is 2 \* 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The antenna configurations are two transmit antennas and two receiver antennas, as there are 2 Dipole antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 2 antennas. The 11bg legacy mode is limited to single transmitter only.
6. The EUT complies with 802.11n standards and backwards compatible with 802.11b, 802.11g products.
7. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.
8. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

### 3.2 GENERAL DESCRIPTION OF TEST MODE

The EUT was tested under following test mode:

Test Mode	Description
Mode 1	Normal mode

### 3.3 DESCRIPTION OF SUPPORT UNITS

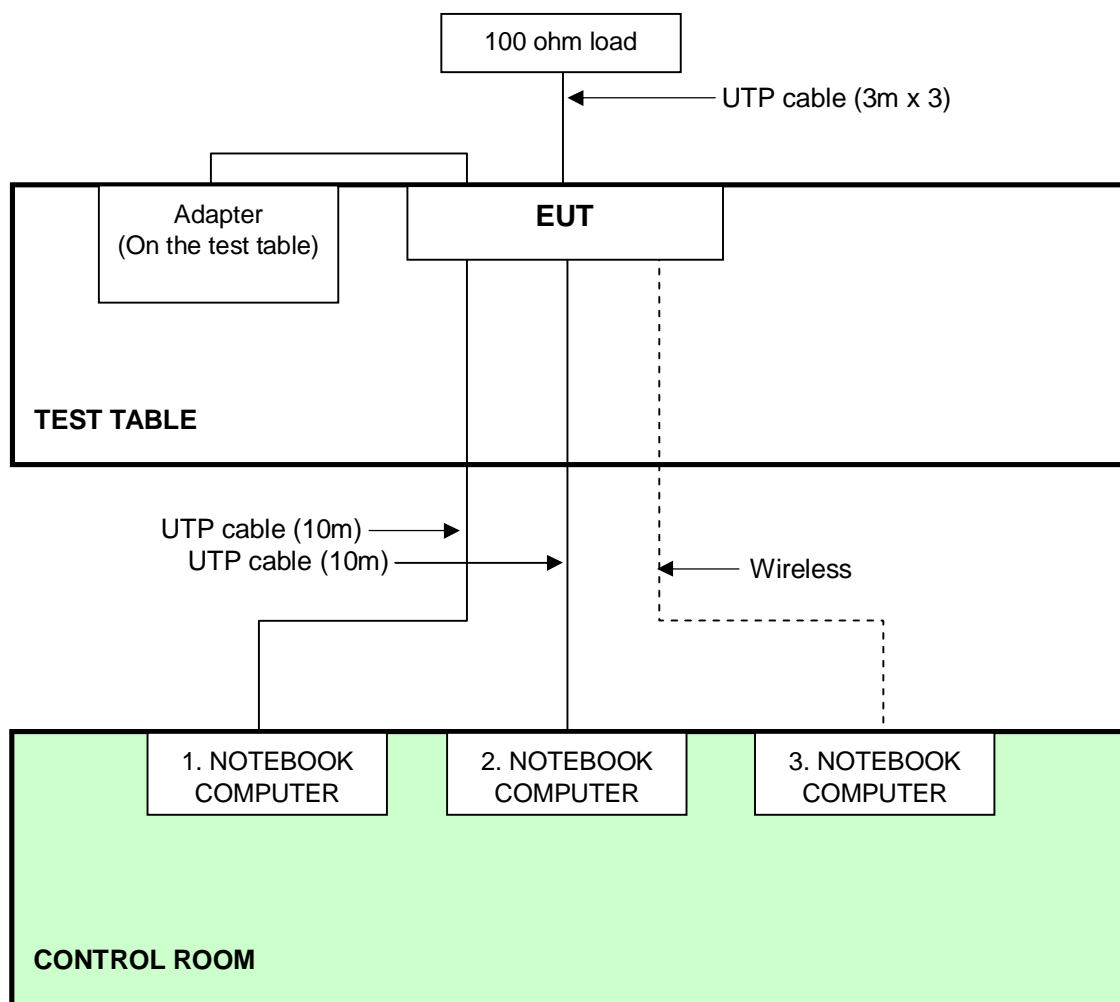
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	HSLB32S	FCC DoC
2	NOTEBOOK COMPUTER	DELL	PP27L	6YLB32S	FCC DoC
3	NOTEBOOK COMPUTER	DELL	PP27L	7YLB32S	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m UTP cable
2	10m UTP cable
3	NA

Note: The power cords of the above support units were unshielded (1.8m).

### 3.4 CONFIGURATION OF SYSTEM UNDER TEST





## 4 EMISSION TEST

### 4.1 CONDUCTED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

##### TEST STANDARD:

FCC Part 15, Subpart B (Section: 15.107)

CISPR 22: 1997 (section 5)

ICES-003: 2004 (Class A: section 5.2/Class B: section 5.3)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

**NOTE:** (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

#### 4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 01, 2010	Feb. 28, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 23, 2009	Sep. 22, 2010
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 11, 2010	June 10, 2011
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec. 14, 2009	Dec. 13, 2010
50 ohms Terminator	50	3	Oct. 28, 2009	Oct. 27, 2010
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

##### Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.

### 4.1.3 TEST PROCEDURE

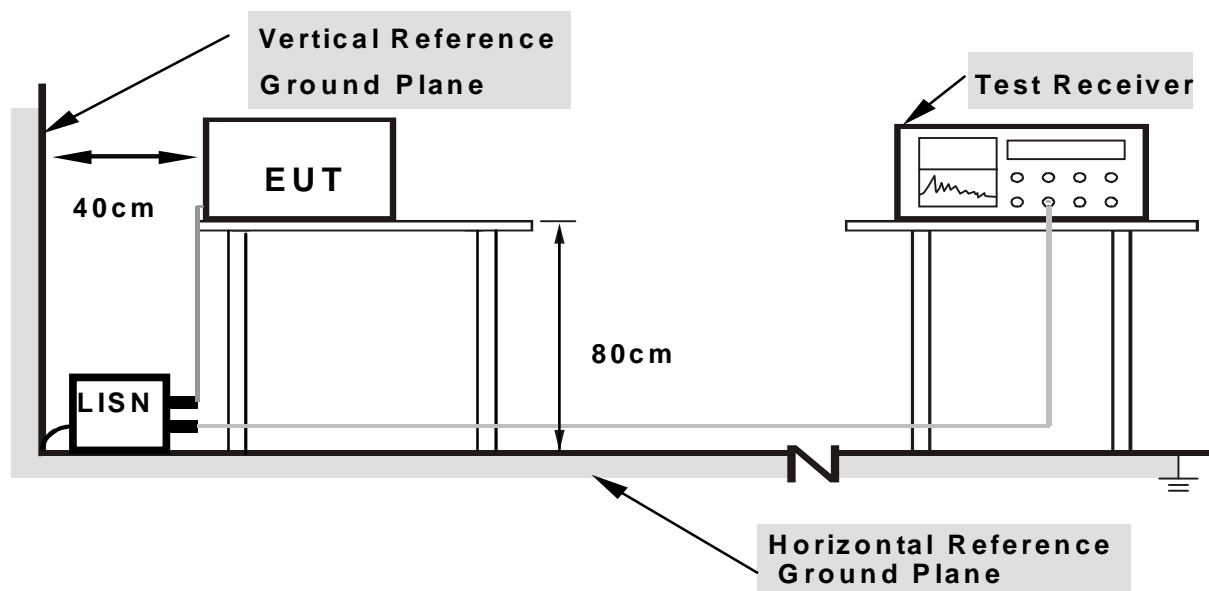
The basic test procedure was in accordance with ANSI C63.4-2003 (section 7), CISPR 22 (section 9) and ICES-003: 2004 (section 4).

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported.

### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.1.5 TEST SETUP



**Note: 1.Support units were connected to second LISN.**

**2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes**

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

#### **4.1.6 EUT OPERATING CONDITIONS**

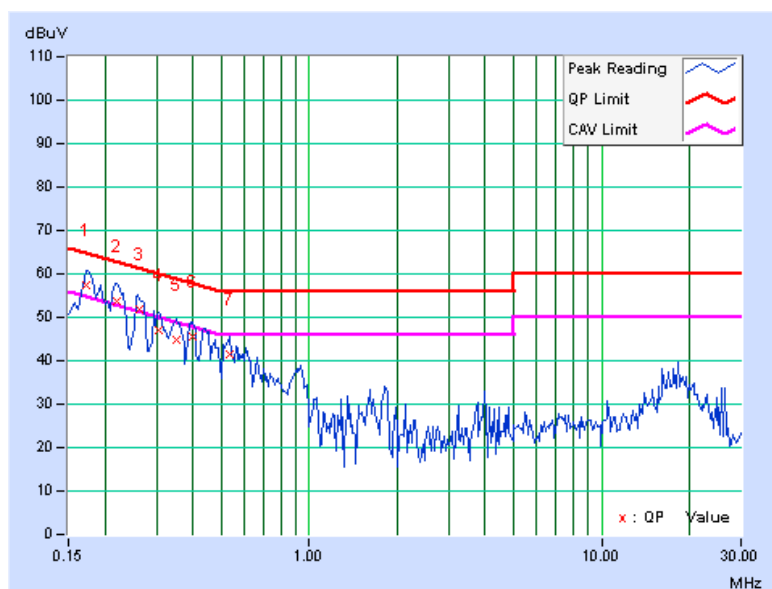
1. Turn on the power of all equipment.
2. Support units 1 ~ 3 (Notebook Computer) run a test program "Ping.exe" to enable of EUT via UTP cables and wireless continuously.

## 4.1.7 TEST RESULTS

TEST MODE	Mode 1	PHASE	Line (L)
INPUT POWER	120Vac, 60 Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 1014 hPa	TESTED BY	Max Tseng

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.173	0.04	57.41	45.47	57.45	45.51	64.79	54.79	-7.35	-9.29
2	0.220	0.04	53.58	41.16	53.62	41.20	62.81	52.81	-9.19	-11.61
3	0.263	0.04	51.92	39.09	51.96	39.13	61.33	51.33	-9.37	-12.20
4	0.306	0.05	46.93	33.76	46.98	33.81	60.07	50.07	-13.10	-16.27
5	0.353	0.05	44.95	33.26	45.00	33.31	58.89	48.89	-13.89	-15.58
6	0.400	0.05	45.49	34.88	45.54	34.93	57.85	47.85	-12.31	-12.92
7	0.537	0.09	41.41	32.27	41.50	32.36	56.00	46.00	-14.50	-13.64

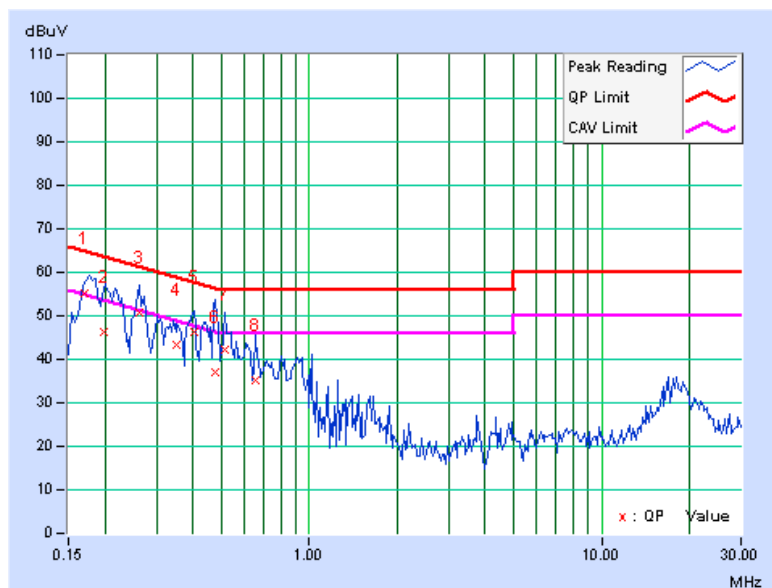
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
  3. The emission levels of other frequencies were very low against the limit.
  4. Margin value = Emission level - Limit value
  5. Correction factor = Insertion loss + Cable loss
  6. Emission Level = Correction Factor + Reading Value.



TEST MODE	Mode 1	PHASE	Neutral (N)
INPUT POWER	120Vac, 60 Hz	6dB BANDWIDTH	9 kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60 % RH, 1014 hPa	TESTED BY	Max Tseng

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.05	55.05	41.06	55.10	41.11	64.95	54.95	-9.85	-13.84
2	0.199	0.05	46.26	40.14	46.31	40.19	63.64	53.64	-17.33	-13.45
3	0.263	0.05	50.68	37.62	50.73	37.67	61.33	51.33	-10.59	-13.65
4	0.350	0.06	43.10	28.73	43.16	28.79	58.96	48.96	-15.80	-20.17
5	0.404	0.06	46.07	30.06	46.13	30.12	57.77	47.77	-11.64	-17.65
6	0.478	0.08	36.79	26.71	36.87	26.79	56.37	46.37	-19.50	-19.58
7	0.517	0.09	42.28	29.73	42.37	29.82	56.00	46.00	-13.63	-16.18
8	0.654	0.13	35.17	19.23	35.30	19.36	56.00	46.00	-20.70	-26.64

- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.  
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.  
3. The emission levels of other frequencies were very low against the limit.  
4. Margin value = Emission level - Limit value  
5. Correction factor = Insertion loss + Cable loss  
6. Emission Level = Correction Factor + Reading Value.



## 4.2 RADIATED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

#### TEST STANDARD:

FCC Part 15, Subpart B (Section: 15.109)

CISPR 22: 1997 (section 6)

ICES-003: 2004 (Class A: Section 5.4/Class B: Section 5.5)

FOR FREQUENCY BELOW 1000 MHz (47 CFR Part 15 Subpart B)

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
30 – 88	90	39.1	100	40.0
88 – 216	150	43.5	150	43.5
216 - 960	210	46.4	200	46.0
Above 960	300	49.5	500	54.0

#### FOR FREQUENCY BELOW 1000 MHz (CISPR 22)

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30 – 230	40	30
230 - 1000	47	37

**Note:** The limit for radiated test was performed according to CISPR 22, which was specified in FCC PART 15 Subpart B 15.109(g) and ICES-003 clause 7.

#### LIMIT OF RADIATED EMISSION OF FCC PART 15, SUBPART B FOR FREQUENCY ABOVE 1000 MHz

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80.0	60.0	74.0	54.0

**Note:** (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.



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## FREQUENCY RANGE OF RADIATED MEASUREMENT

(For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5 <sup>th</sup> harmonic of the highest frequency or 40 GHz, whichever is lower

### 4.2.2 TEST INSTRUMENTS

For below 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4443A	MY48250349	Aug. 03, 2009	Aug. 02, 2010
	E4443A	MY49420002	Oct. 31, 2009	Oct. 30, 2010
Agilent Pre-Selector	N9039A	MY46520331	Nov. 20, 2009	Nov. 19, 2010
	N9039A	MY46520309	July 24, 2010	July 23, 2011
Agilent Signal Generator	N5181A	MY49060520	July 19, 2010	July 18, 2011
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-01	Nov. 18, 2009	Nov. 17, 2010
	ZFL-1000VH2B	AMP-ZFL-02	Nov. 18, 2009	Nov. 17, 2010
Mini-Circuits Pre_Amplifier (1~18GHz)	ZVA-183-S+	AMP-ZVA-01	Nov. 18, 2009	Nov. 17, 2010
SPACEK LABS (15~40GHz)	SLKKa-48-6	9K16	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-359	Sep. 30, 2009	Sep. 29, 2010
	VULB 9168	9168-358	Sep. 30, 2009	Sep. 29, 2010
SCHWARZBECK Horn Antenna	BBHA 9170	9170-424	Sep. 30, 2009	Sep. 29, 2010
	BBHA 9120	9120D-783	Sep. 30, 2009	Sep. 29, 2010
RF CABLE	NA	RF104-202 RF104-206 RF104-209	Dec. 24, 2009	Dec. 23, 2010
Software	ADT_Radiated_V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in 10m Chamber No. F.

3. The FCC Site Registration No. is 928149.

4. The VCCI Site Registration No. is R-3252 & G-136.

5. The CANADA Site Registration No. is IC 7450H-1.

**A D T****For above 1GHz test:**

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 02, 2009	Nov. 01, 2010
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 27, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 18, 2009	Dec. 17, 2010
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in Open Site No. C.

4. The FCC Site Registration No. is 656396.

5. The VCCI Site Registration No. is R-1626.

6. The CANADA Site Registration No. is IC 7450G-3.



### 4.2.3 TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.4-2003 (section 8), CISPR 22 (section 10) and ICES-003: 2004 (section 4).

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meters Semi-anechoic chamber room for below 1GHz test and 10 meters open field site for above 1GHz test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 10 meters (3 meters -above 1GHz) away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

**NOTE:**

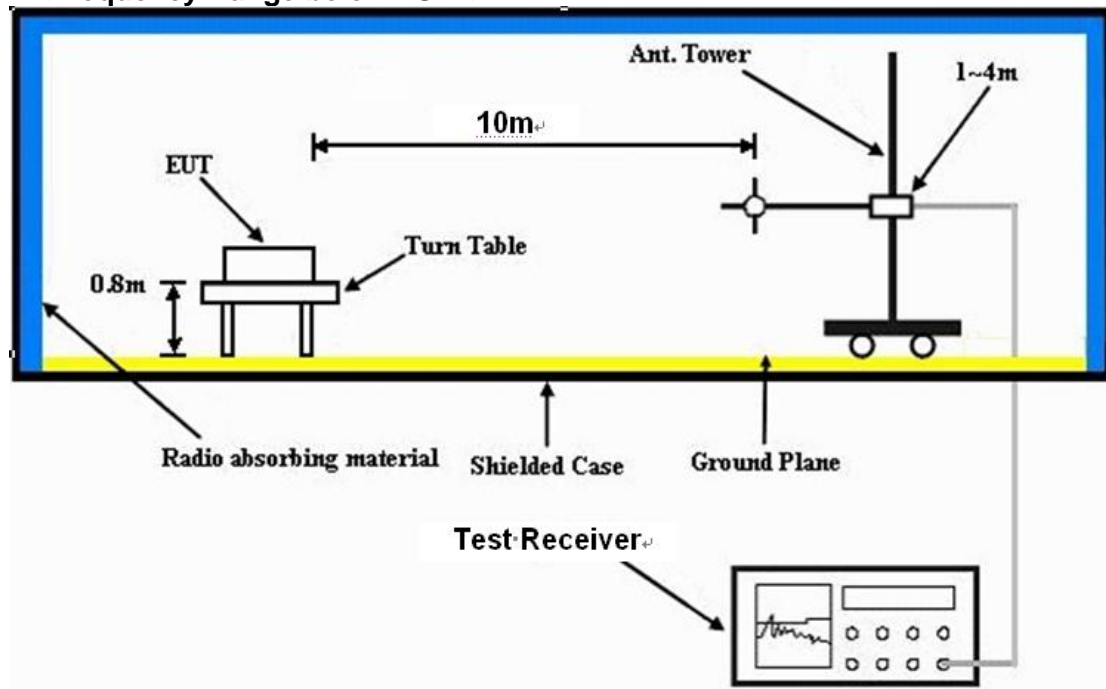
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
3. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the interference antenna.

### 4.2.4 DEVIATION FROM TEST STANDARD

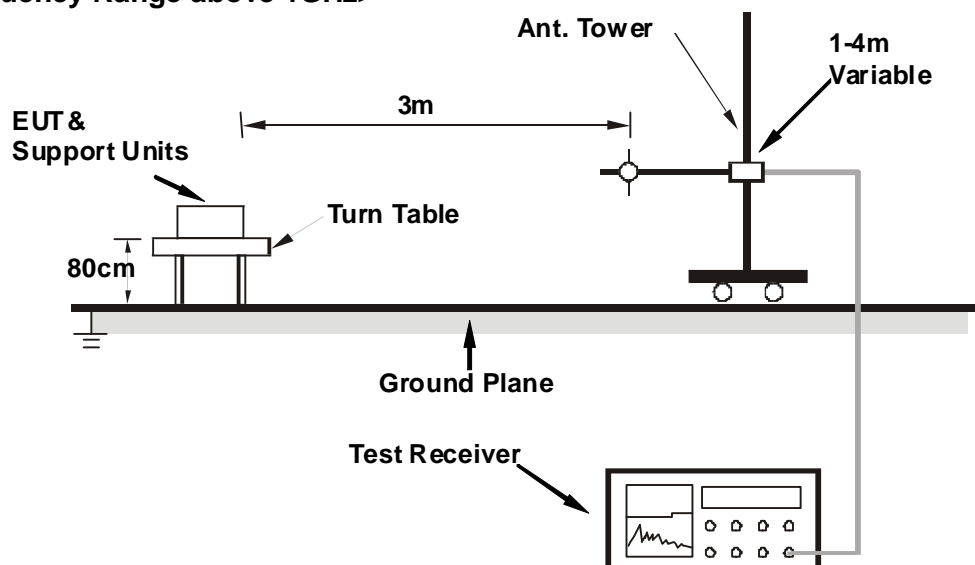
No deviation

## 4.2.5 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

## 4.2.6 EUT OPERATING CONDITIONS

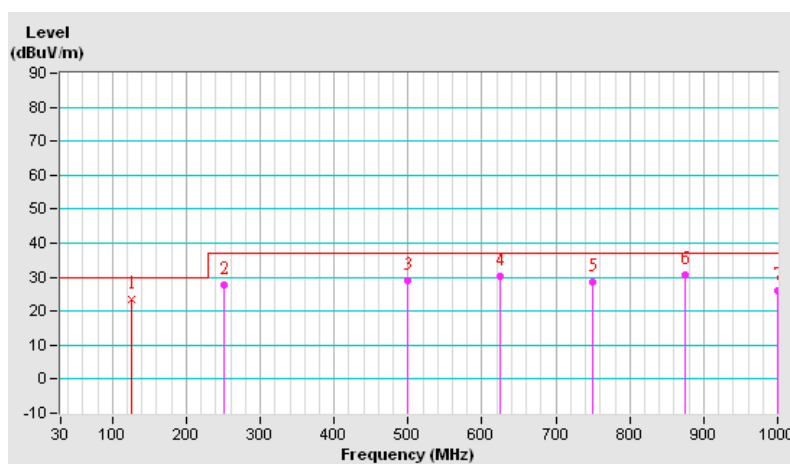
Same as 4.1.6

## 4.2.7 TEST RESULTS

TEST MODE	Mode 1	INPUT POWER	120Vac, 60 Hz
FREQUENCY RANGE	30-1000 MHz	DETECTOR FUNCTION & BANDWIDTH	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 67 % RH, 1014 hPa	TESTED BY	Kyle Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.00	23.56 QP	30.00	-6.44	4.00 H	189	11.33	12.23
2	250.03	27.86 QP	37.00	-9.14	4.00 H	103	14.33	13.53
3	500.02	29.05 QP	37.00	-7.95	2.00 H	90	8.53	20.52
4	624.96	30.15 QP	37.00	-6.85	1.50 H	90	7.20	22.95
5	750.01	28.57 QP	37.00	-8.43	1.50 H	180	4.03	24.54
6	874.95	30.71 QP	37.00	-6.29	1.00 H	143	4.46	26.25
7	1000.00	26.03 QP	37.00	-10.97	1.50 H	216	-1.96	27.99

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
  2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.

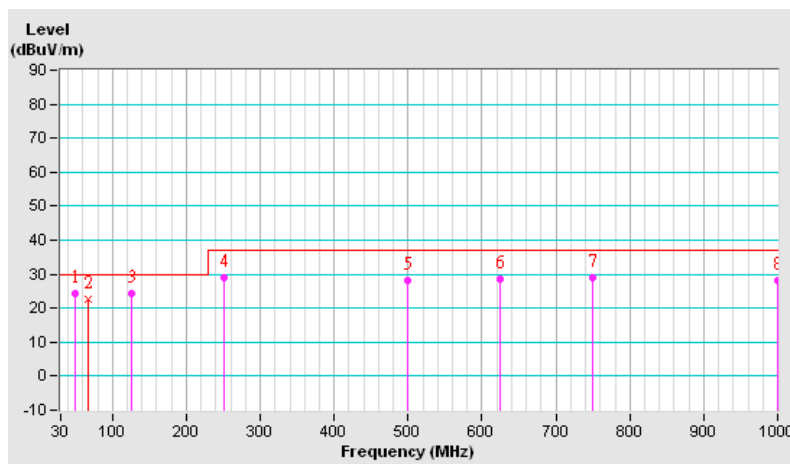


<b>TEST MODE</b>	Mode 1	<b>INPUT POWER</b>	120Vac, 60 Hz
<b>FREQUENCY RANGE</b>	30-1000 MHz	<b>DETECTOR FUNCTION &amp; BANDWIDTH</b>	Quasi-Peak, 120kHz
<b>ENVIRONMENTAL CONDITIONS</b>	25 deg. C, 67 % RH, 1014 hPa	<b>TESTED BY</b>	Kyle Huang

#### ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	50.49	24.41 QP	30.00	-5.59	2.50 V	60	10.16	14.25
2	66.25	22.82 QP	30.00	-7.18	1.00 V	120	10.09	12.73
3	124.97	24.35 QP	30.00	-5.65	1.00 V	293	11.86	12.49
4	250.03	28.95 QP	37.00	-8.05	1.00 V	84	15.24	13.71
5	500.02	28.23 QP	37.00	-8.77	1.00 V	86	7.35	20.88
6	624.96	28.50 QP	37.00	-8.50	2.50 V	56	5.27	23.23
7	750.01	29.19 QP	37.00	-7.81	1.50 V	122	4.29	24.90
8	1000.00	28.13 QP	37.00	-8.87	3.50 V	125	-0.28	28.41

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
  2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.

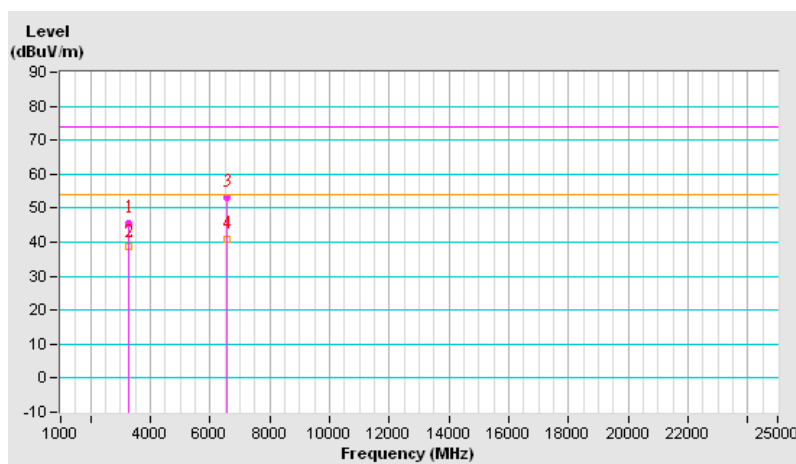


<b>TEST MODE</b>	Mode 1	<b>INPUT POWER</b>	120Vac, 60 Hz
<b>FREQUENCY RANGE</b>	1-12.5 GHz	<b>DETECTOR FUNCTION &amp; BANDWIDTH</b>	Peak(PK)/ Average(AV), 1 MHz
<b>ENVIRONMENTAL CONDITIONS</b>	25 deg. C, 72 % RH, 1014 hPa	<b>TESTED BY</b>	Frank Liu

#### ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3282.60	45.70 PK	74.00	-28.30	1.03 H	84	13.70	32.00
2	3282.60	38.60 AV	54.00	-15.40	1.03 H	84	6.60	32.00
3	6565.30	53.10 PK	74.00	-20.90	1.04 H	63	12.60	40.50
4	6565.30	40.90 AV	54.00	-13.10	1.04 H	63	0.40	40.50

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
  2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.

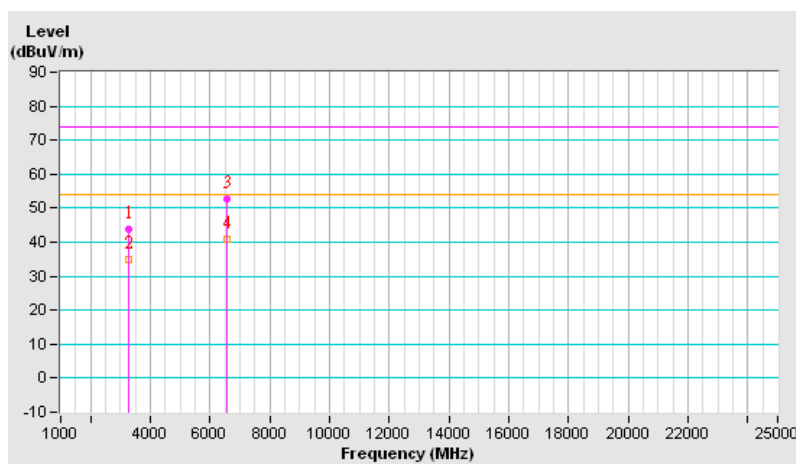


TEST MODE	Mode 1	INPUT POWER	120Vac, 60 Hz
FREQUENCY RANGE	1-12.5 GHz	DETECTOR FUNCTION & BANDWIDTH	Peak(PK)/ Average(AV), 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 72 % RH, 1014 hPa	TESTED BY	Frank Liu

#### ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

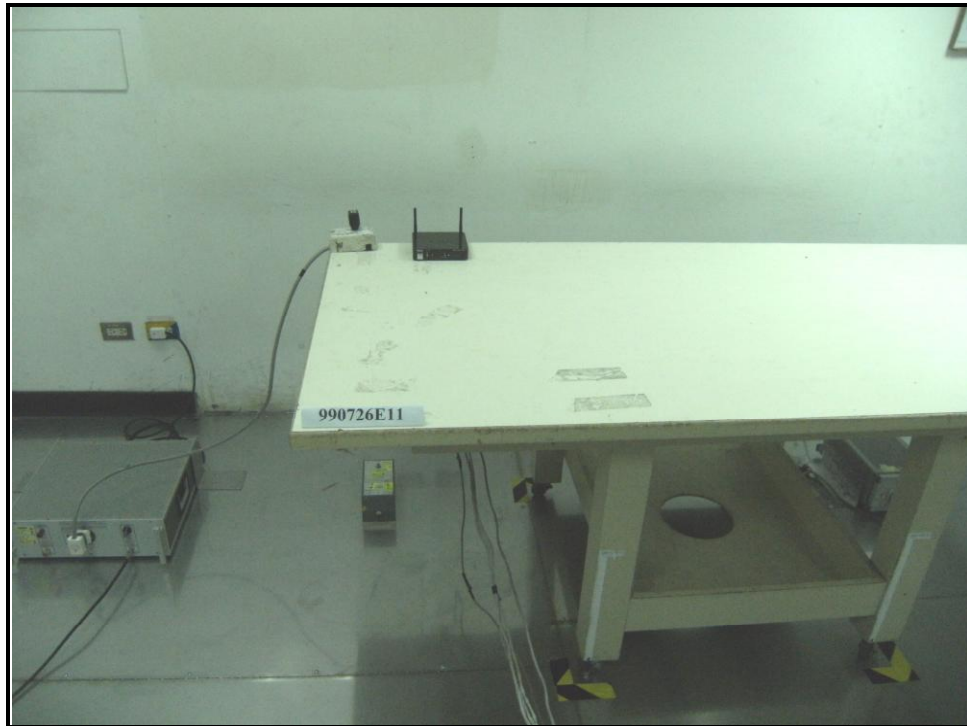
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3282.60	43.70 PK	74.00	-30.30	1.03 V	49	11.70	32.00
2	3282.60	34.90 AV	54.00	-19.10	1.03 V	49	2.90	32.00
3	6565.30	52.90 PK	74.00	-21.10	1.02 V	59	12.40	40.50
4	6565.30	40.90 AV	54.00	-13.10	1.02 V	59	0.40	40.50

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
  2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
  3. The other emission levels were very low against the limit.
  4. Margin value = Emission level – Limit value.



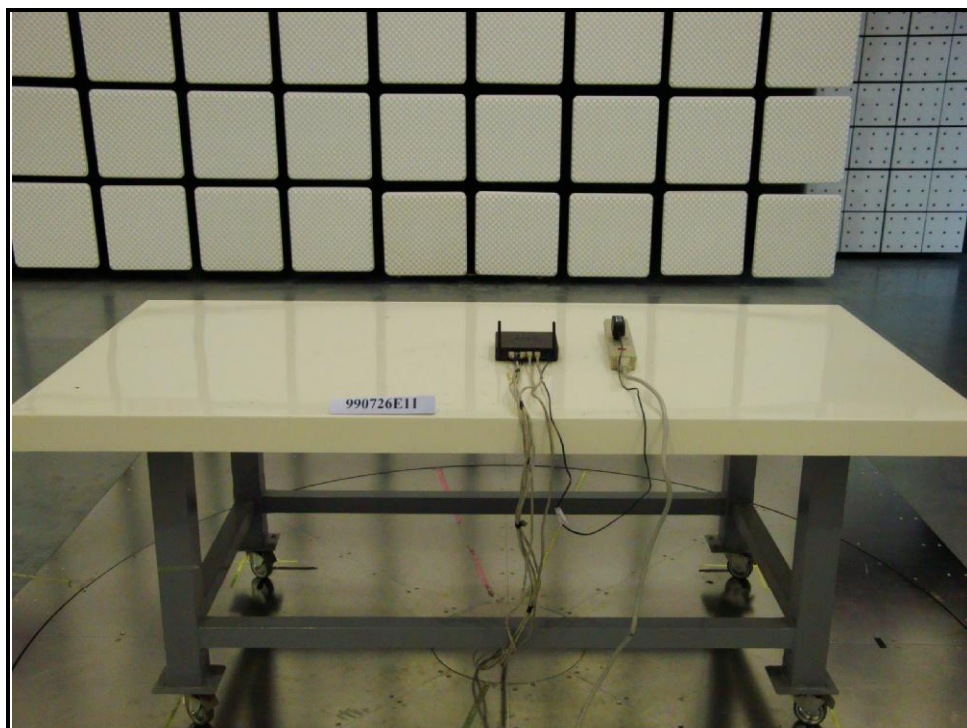
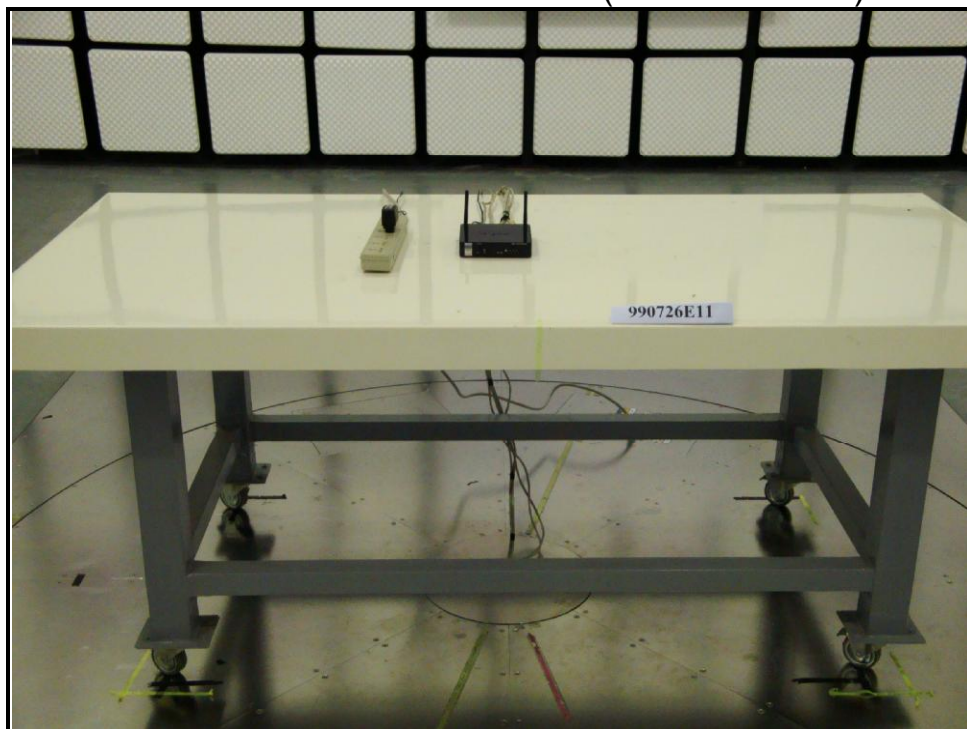
## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

### CONDUCTED EMISSION TEST





## RADIATED EMISSION TEST(BELOW 1GHz)





## RADIATED EMISSION TEST(ABOVE 1GHz)



## 6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025:

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: [www.adt.com.tw/index.5/phtml](http://www.adt.com.tw/index.5/phtml).  
If you have any comments, please feel free to contact us at the following:

**Linko EMC/RF Lab:**

Tel: 886-2-26052180

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**Hsin Chu EMC/RF Lab:**

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**Email:** [service@adt.com.tw](mailto:service@adt.com.tw)

**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also.



A D T

## **7 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No any modifications are made to the EUT by the lab during the test.

**--- END ---**