FCC DoC / VERIFICATION TEST REPORT

REPORT NO.: FD931104L08

MODEL NO.: WHRTC-100GW
(refer to the note 1 of page 5 for other models)

RECEIVED: Nov. 08, 2004

TESTED: Nov. 11 ~ Dec. 14, 2004

ISSUED: Dec. 15, 2004

APPLICANT: Gemtek Technology Co., Ltd.

ADDRESS: No. 1, Jen Ai Road, Hsinchu Industrial Park, Hukou Hsinchu, Taiwan, R.O.C. 303

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang 244, Taipei Hsien, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd., Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

0528
ILAC MRA

No. 2177-01

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1 CERTIFICATION

PRODUCT:	Home Plug Wireless 802.11g Router
BRAND NAME:	Gemtek
MODEL NO. :	WHRTC-100GW
	(refer to the note 1 of page 5 for other product names, brand names and models)
APPLICANT :	Gemtek Technology Co., Ltd.
TESTED:	Nov. 11 ~ Dec. 14, 2004
TEST ITEM:	Engineering Sample
STANDARDS:	FCC 47 CFR Part 15, Subpart B, Class B
	(Carrier Current Systems & Digital Systems)
	ANSI C63.4-2003

The above equipment (which model no.: WHRTC-100GW) has been tested by **Advance Data Technology Corporation**, 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: Windy Chou (Windy Chou) , **DATE:** Dec. 15, 2004

TECHNICAL ACCEPTANCE : Responsible for EMI (Clark Lin) , **DATE:** Dec. 15, 2004

APPROVED BY: Ken Lu (Ken Lu, Manager) , **DATE:** Dec. 15, 2004

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

FCC 47 CFR PART 15, Subpart B, Class B			
STANDARD SECTION	**TEST TYPE**	**RESULT**	**REMARKS**
15.107(a)	Conducted Emissions (Current Carrier Off)	PASS	Meets Class B Limit Minimum passing margin is -17.68dB at 0.513 MHz.
15.107(c)(2)	Conducted Emission (Current Carrier On)	PASS	Meets Class B Limit Minimum passing margin is -10.11dB at 0.560 MHz.
15.109(a)	Radiated Emission (Current Carrier Off)	PASS	Meets Class B Limit Minimum passing margin is –1.22dB at 400.00MHz
15.209	Radiated Emission (Current Carrier On) (Device Operating Frequency: 9 kHz to 30 MHz) – ***see Note below***	PASS	Meets Class B Limit Minimum passing margin is -12.50dB at 400.00 MHz.

NOTE: 1. In-situ testing is required for testing of the carrier current system functions of the EUT.
2. The report shows compliance with “Digital” emissions and also shows compliance with “Carrier Current” emissions from the EUT

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Home Plug Wireless 802.11g Router (refer to the note 1 as below for other product names)
MODEL NO.	WHRTC-100GW (refer to the note 1 as below for other models)
POWER SUPPLY	120Vac, 60Hz from AC line
DATA CABLE	NA
I/O PORTS	RJ45
ASSOCIATED DEVICES	NA

NOTE: 1. This EUT has other different product names, brand names and models that listed below due to marketing requirement.

Product Name	Brand Name	Model No.
Home Plug Wireless 802.11g Router	Gemtek	WHRTC-100GW
Corinex Wireless to Powerline Router G	Corinex	CXP-RTG

2. 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 DESCRIPTION OF TEST MODES

The EUT run a test program - during Radiated and Conducted testing - which was designed to exercise the various system components in a manner similar to typical use.

For Radiated Emission Test, the EUT was pre-tested with operating and standby mode. The worst emission level was found when the EUT was tested under 2 both conditions. Therefore two modes will be used during the test.

3.3 DESCRIPTION OF APPLIED STANDARD

The EUT is a Carrier Current System and Digital System **operating 9kHz ~ 30 MHz**, which uses house wiring to transmit ethernet data between computers, according to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 15, Subpart B, Part B

Section 15.107(a), 15.107(c)(2), 15.109(a) and 15.209

with measurement guidelines based on:

ANSI C63.4: 2003 (Section 7 Annex E)

FCC 04-29 Appendix C item 1 & 3

All tests have been performed and recorded as per the above standards.

3.4 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.

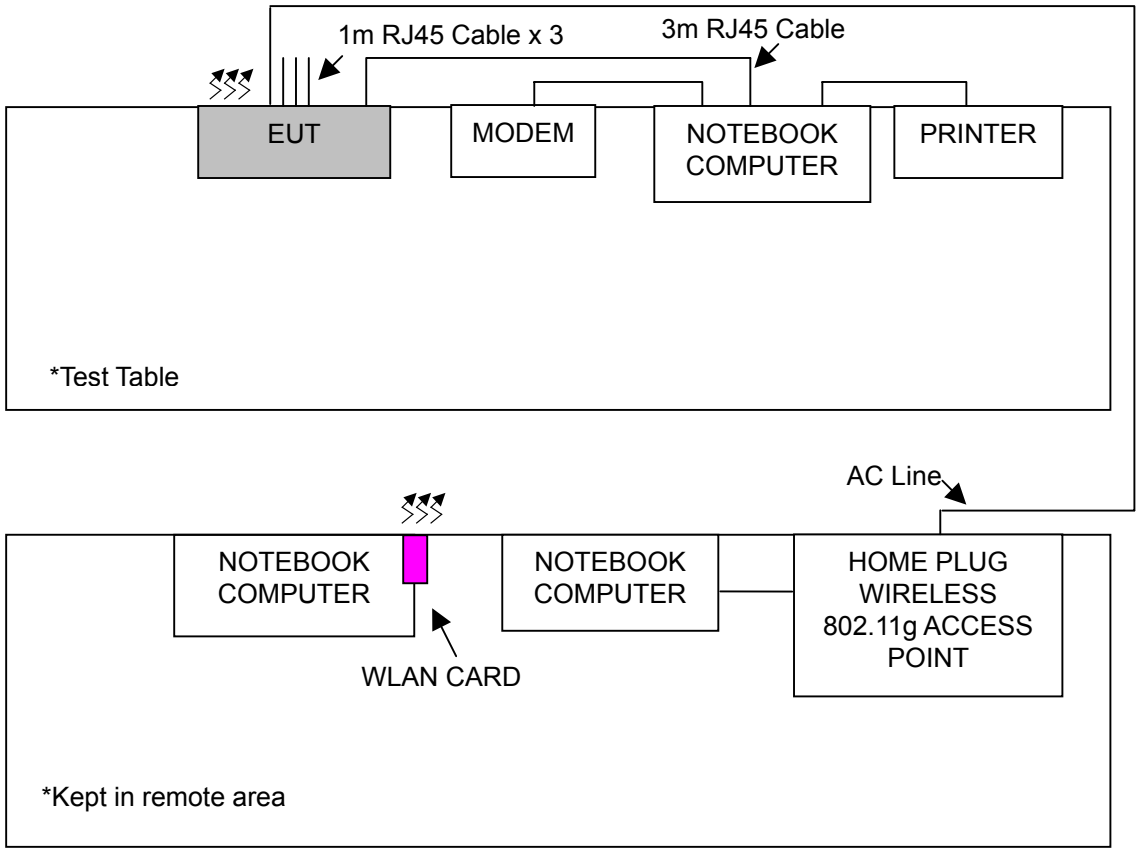
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP05L	12130898320	E2K24CLNS
2	MODEM	ACEEX	1414V/3	0401008269	IFAXDM1414
3	PRINTER	EPSON	LQ-300+	DCGY054147	FCC DoC Approved
4	NOTEBOOK COMPUTER	DELL	PP05L	16484462992	E2K24CLNS
5	NOTEBOOK COMPUTER	DELL	PP05L	33898721680	E2K24CLNS
6	WLAN CARD (Insert into NB)	NA	WN825G	NA	ACQWN825Gv2
7	HOME PLUG WIRELESS 802.11g ACCESS POINT	Gemtek	HACC-100	NA	MXF-HAP930819G

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.8 m shielded cable
3	1.8 m shielded cable
4	NA
5	NA
6	NA
7	NA

NOTE: 1. All power cords of the above support units are non shielded (1.8m).

2. Item 4 ~ 7 act as a communication partner to transfer data.

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4 EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT (CURRENT CARRIER OFF)

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT (CURRENT CARRIER OFF)

Section 15.107(a) for Class B device operating above 30 MHz of unintentional radiators.

FREQUENCY (MHz)	CONDUCTED EMISSIONS LIMIT	
	QUASI-PEAK (dBμV)	AVERAGE (dBμV)
0.15 ~ 0.5	66 ~ 56	56 ~ 46
0.50 ~ 5.0	56	46
5.0 ~ 30.0	60	50

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

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

(3) All emanations 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 UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 16, 2005
RF signal cable Woken	5D-FB	Cable-HYC01-01	Mar. 02, 2005
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Mar. 03, 2005
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Mar. 02, 2005
Software ADT	ADT_Cond_V3	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 HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

4.1.3 TEST PROCEDURE

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.

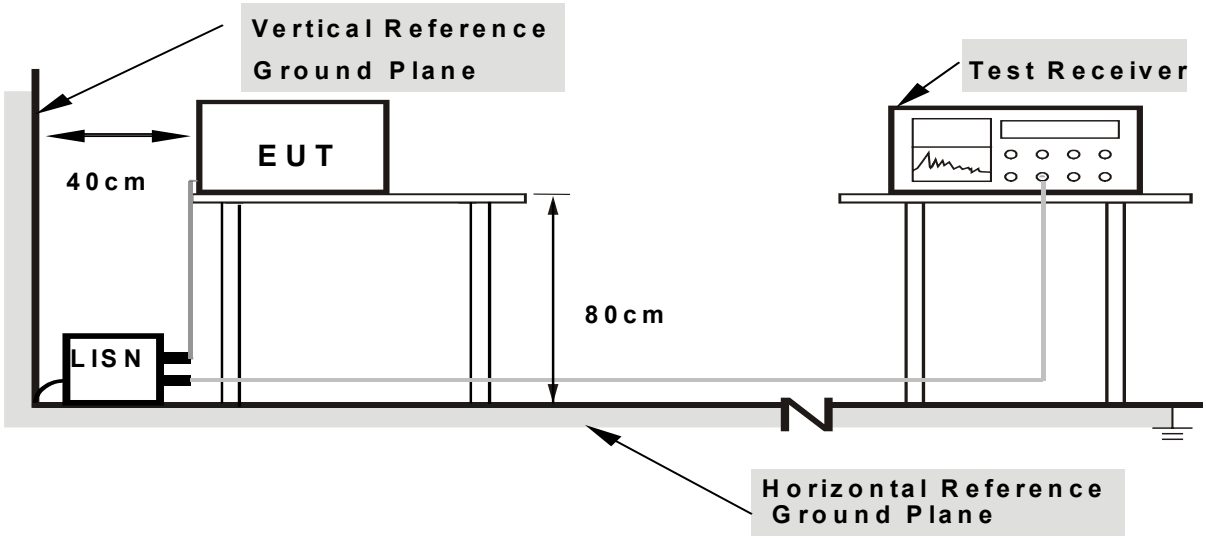
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels under Limit - 20dB was not recorded.

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 cm 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

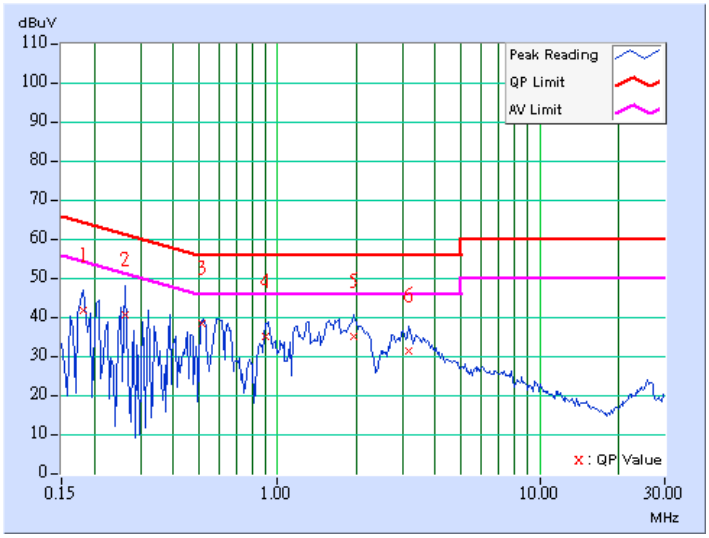
Conducted emission test with carrier current turned “Off”.

4.1.7 TEST RESULTS

EUT	Home Plug Wireless 802.11g Router	MODEL	WHRTC-100GW
CHANNEL	Current carrier off	6dB BANDWIDTH	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 65 % RH, 991 hPa	TESTED BY	Kent Chen

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.181	0.11	41.82	-	41.93	-	64.43	54.43	-22.49	-
2	0.263	0.12	40.66	-	40.78	-	61.33	51.33	-20.55	-
3	**0.513**	**0.13**	**38.19**	**-**	**38.32**	**-**	**56.00**	**46.00**	**-17.68**	**-**
4	0.896	0.14	34.86	-	35.00	-	56.00	46.00	-21.00	-
5	1.957	0.16	35.00	-	35.16	-	56.00	46.00	-20.84	-
6	3.164	0.19	31.20	-	31.39	-	56.00	46.00	-24.61	-

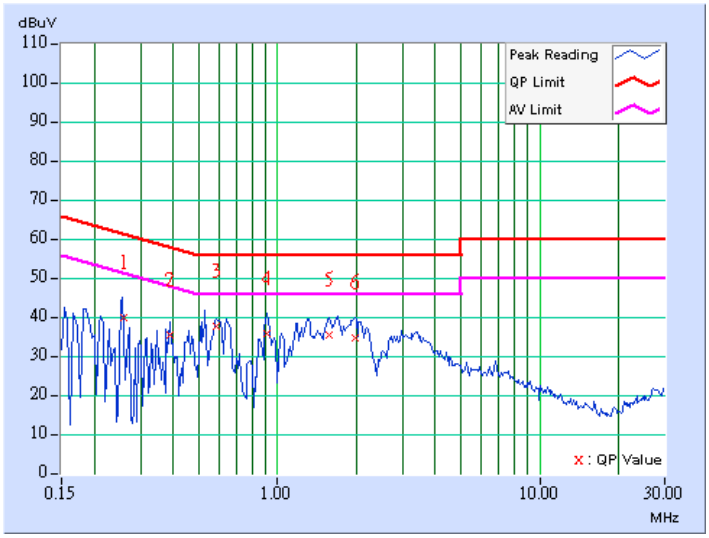
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	Home Plug Wireless 802.11g Router	**MODEL**	WHRTC-100GW
CHANNEL	Current carrier off	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 65 % RH, 991 hPa	**TESTED BY**	Kent Chen

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.259	0.11	39.85	-	39.96	-	61.45	51.45	-21.49	-
2	0.388	0.12	35.53	-	35.65	-	58.10	48.10	-22.45	-
3	0.588	0.12	37.67	-	37.79	-	56.00	46.00	-18.21	-
4	0.912	0.14	35.83	-	35.97	-	56.00	46.00	-20.03	-
5	1.582	0.16	35.27	-	35.43	-	56.00	46.00	-20.57	-
6	1.977	0.16	34.83	-	34.99	-	56.00	46.00	-21.01	-

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 CONDUCTED EMISSION MEASUREMENT (CURRENT CARRIER ON)

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT (CURRENT CARRIER ON)

Section 15.107(c)(2) for Class B device operating 9kHz ~ 30 MHz of unintentional Carrier current radiators.

FREQUENCY (MHz)	CONDUCTED EMISSIONS LIMIT	
	QUASI-PEAK (μV)	QUASI-PEAK (dBμV)
0.535 ~ 1.705	1000	60

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	100291	Nov. 16, 2005
RF signal cable Woken	5D-FB	Cable-HYC01-01	Mar. 02, 2005
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Mar. 03, 2005
LISN ROHDE & SCHWARZ	ESH2-Z5	100104	Mar. 02, 2005
Software ADT	ADT_Cond_V3	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 HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 TEST PROCEDURE

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.

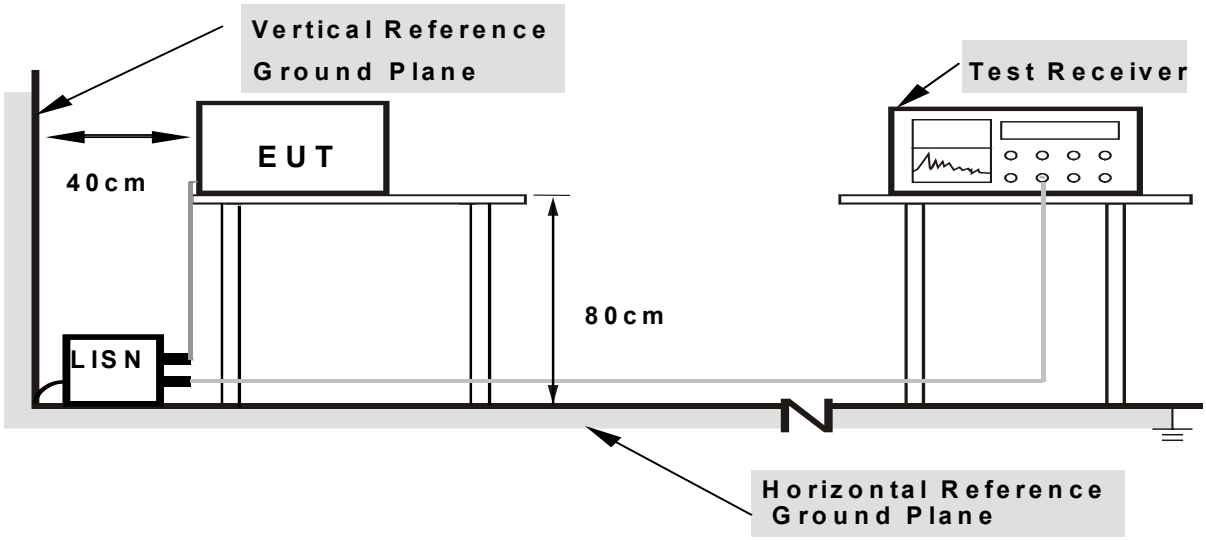
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 535 kHz to 1705 kHz was searched. Emission levels under (Limit - 20dB) were not recorded.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 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 cm from other units and other metal planes

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

4.2.6 EUT OPERATING CONDITIONS

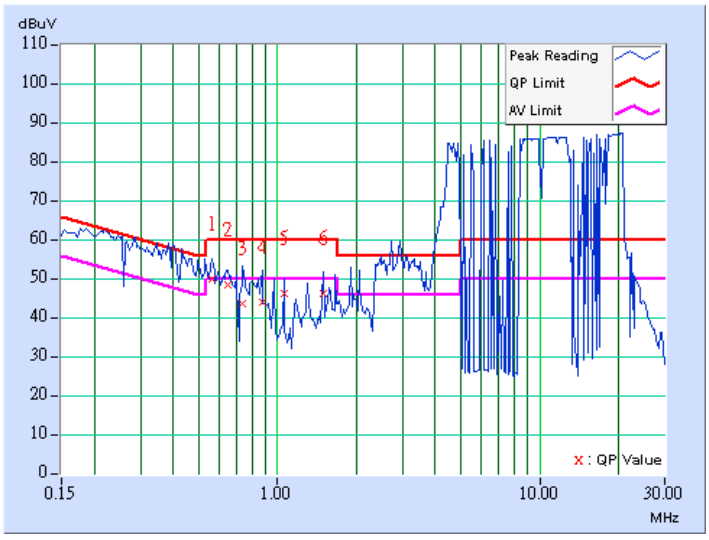
Conducted emission test with carrier current turned “On”.

4.2.7 TEST RESULTS

EUT	Home Plug Wireless 802.11g Router	**MODEL**	WHRTC-100GW
CHANNEL	Current carrier on	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	20 deg. C, 65 % RH, 991 hPa	**TESTED BY**	Kent Chen

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.560**	**0.13**	**49.76**	**-**	**49.89**	**-**	**60.00**	**50.00**	**-10.11**	**-**
2	0.646	0.13	48.20	-	48.33	-	60.00	50.00	-11.67	-
3	0.736	0.14	43.40	-	43.54	-	60.00	50.00	-16.46	-
4	0.873	0.14	43.80	-	43.94	-	60.00	50.00	-16.06	-
5	1.063	0.15	46.30	-	46.45	-	60.00	50.00	-13.55	-
6	1.488	0.15	46.30	-	46.45	-	60.00	50.00	-13.55	-

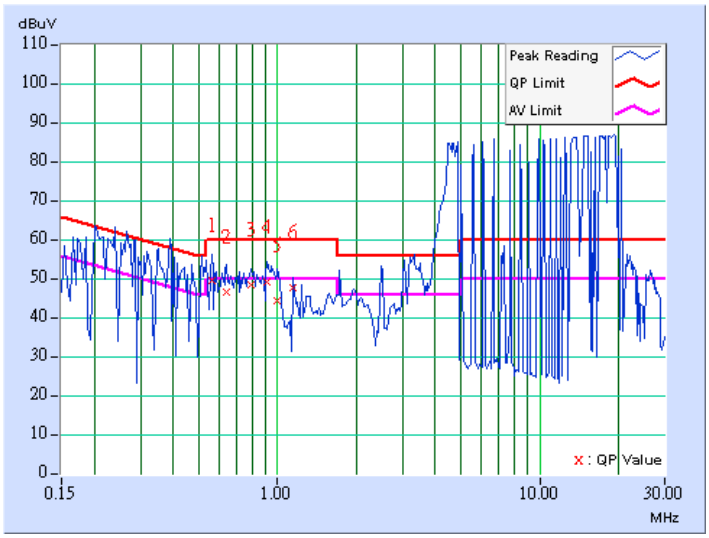
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



EUT	Home Plug Wireless 802.11g Router	**MODEL**	WHRTC-100GW
CHANNEL	Current carrier on	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (N)
ENVIRONMENTAL CONDITIONS	20 deg. C, 65 % RH, 991 hPa	**TESTED BY**	Kent Chen

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.560	0.12	49.60	-	49.72	-	60.00	50.00	-10.28	-
2	0.642	0.12	46.60	-	46.72	-	60.00	50.00	-13.28	-
3	0.795	0.13	48.40	-	48.53	-	60.00	50.00	-11.47	-
4	0.916	0.14	49.20	-	49.34	-	60.00	50.00	-10.66	-
5	0.998	0.15	44.40	-	44.55	-	60.00	50.00	-15.45	-
6	1.145	0.15	47.80	-	47.95	-	60.00	50.00	-12.05	-

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.



4.3 RADIATED EMISSION MEASUREMENT (CURRENT CARRIER OFF)

4.3.1 LIMITS OF RADIATED EMISSION MEASURMENT

According to FCC Part 15 Subpart B (Section 10.109(a)) for Class B device operating 9kHz ~ 30MHz of unintentional Carrier current radiators.

FREQUENCIES (MHz)	RADIATED EMISSION LIMIT	
	dBuV/m	MEASUREMENT DISTANCE (meters)
30 ~ 88	40	3
88 ~ 216	43.5	3
216 ~ 960	46	3
Above 960	54	3

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

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

(3) All emanations 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.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESI7	838496/016	Feb. 09, 2005
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Nov. 29, 2005
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Feb. 03, 2005
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Feb. 03, 2005
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA 9170242	Feb. 23, 2005
Preamplifier Agilent	8447D	2944A10631	Nov. 17, 2005
Preamplifier Agilent	8449B	3008A01960	Nov. 14, 2005
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	219272/4	Mar. 04, 2005
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	219275/4	Mar. 04, 2005
Software ADT.	ADT_Radiated_V5.14	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA
Antenna Tower Controller inn-co GmbH	CO2000	019303	NA
Turn Table ADT.	TT100.	TT93021704	NA
Turn Table Controller ADT.	SC100.	SC93021704	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 HwaYa Chamber 3.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The IC Site Registration No. is IC4924-4.

4.3.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.

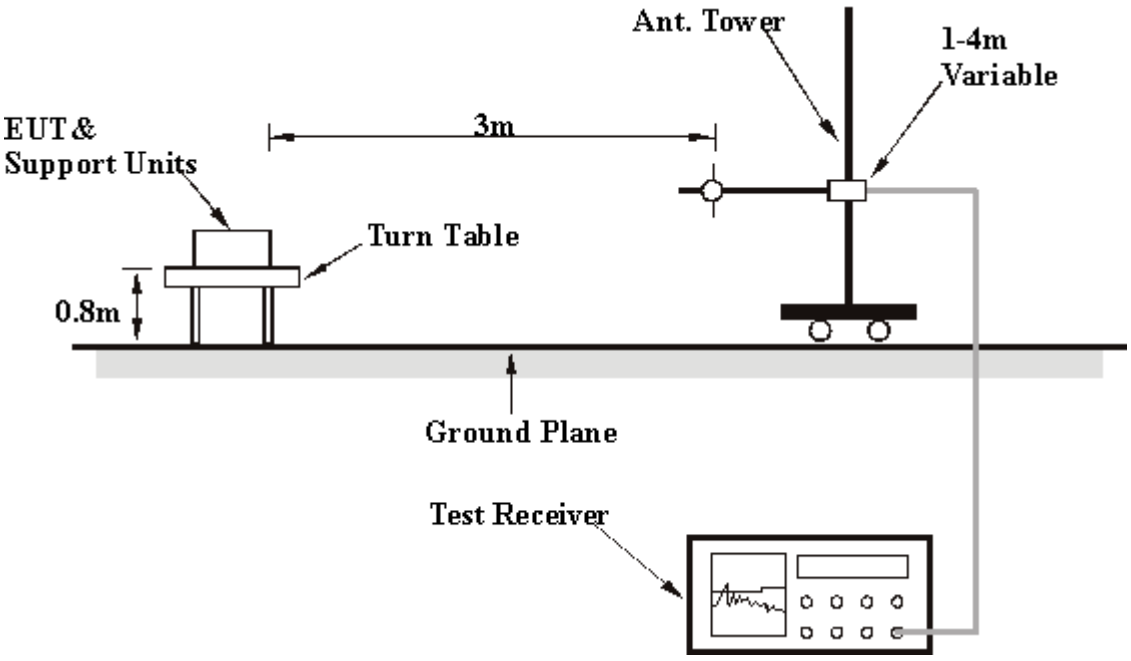
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.

3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



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

4.3.6 EUT OPERATING CONDITIONS

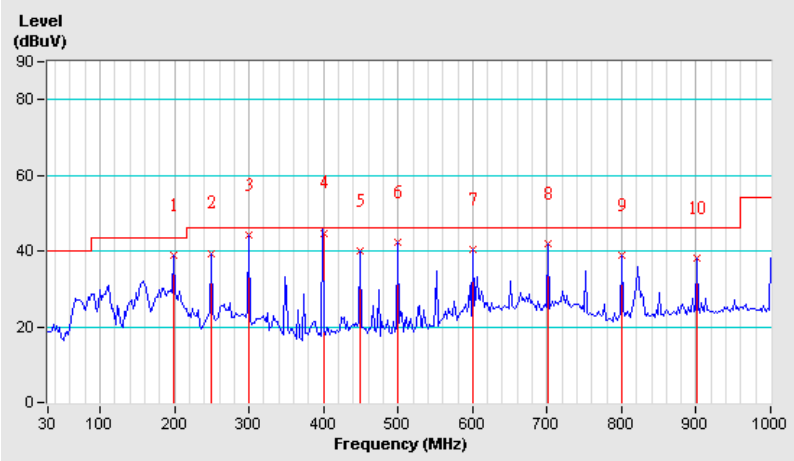
Radiated Emission test with carrier current turned “Off”.

4.3.7 TEST RESULTS

EUT	Home Plug Wireless 802.11g Router	MODEL	WHRTC-100GW
INPUT POWER	120Vac, 60 Hz	FREQUENCY RANGE	30 ~ 1000MHz
PHASE	Quasi-Peak, 10kHz	TEST MODE	Standby
ENVIRONMENTAL CONDITIONS	24 deg. C, 58 % RH, 991 hPa	TESTED BY	Rush Kao
CHANNEL	Current carrier off		

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	199.12	38.73 QP	43.50	-4.77	1.00 H	7	27.39	11.34
2	249.66	39.45 QP	46.00	-6.55	1.00 H	223	26.35	13.11
3	300.20	44.34 QP	46.00	-1.66	1.00 H	259	29.93	14.41
4	**400.00**	**44.78 QP**	**46.00**	**-1.22**	**2.00 H**	**28**	**28.05**	**16.73**
5	449.88	40.02 QP	46.00	-5.98	1.00 H	226	22.03	18.00
6	500.42	42.45 QP	46.00	-3.55	1.50 H	319	23.88	18.58
7	599.56	40.33 QP	46.00	-5.67	1.50 H	154	19.52	20.82
8	700.64	41.93 QP	46.00	-4.07	1.25 H	286	19.90	22.03
9	799.78	38.95 QP	46.00	-7.05	1.00 H	19	15.49	23.46
10	900.86	38.18 QP	46.00	-7.82	1.50 H	280	13.36	24.82

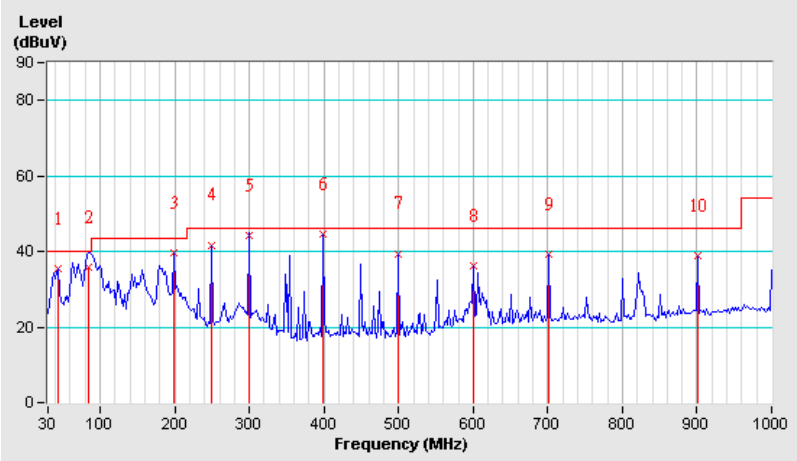
REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



EUT	Home Plug Wireless 802.11g Router	**MODEL**	WHRTC-100GW
INPUT POWER	120Vac, 60 Hz	**FREQUENCY RANGE**	30 ~ 1000MHz
PHASE	Quasi-Peak, 10kHz	**TEST MODE**	Standby
ENVIRONMENTAL CONDITIONS	25 deg. C, 67 % RH, 991 hPa	**TESTED BY**	Rush Kao
CHANNEL	Current carrier off		

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	43.61	35.39 QP	40.00	-4.61	1.00 V	334	20.01	15.39
2	84.43	35.99 QP	40.00	-4.01	1.25 V	25	26.02	9.97
3	199.12	39.61 QP	43.50	-3.89	1.00 V	127	28.27	11.34
4	249.66	41.72 QP	46.00	-4.28	1.00 V	244	28.62	13.11
5	300.00	44.36 QP	46.00	-1.64	1.04 V	24	29.95	14.41
6	399.34	44.48 QP	46.00	-1.52	1.00 V	352	27.77	16.71
7	500.42	39.45 QP	46.00	-6.55	1.00 V	124	20.87	18.58
8	599.56	36.19 QP	46.00	-9.81	1.00 V	76	15.38	20.82
9	700.64	39.28 QP	46.00	-6.72	1.00 V	163	17.26	22.03
10	900.86	38.75 QP	46.00	-7.25	1.00 V	7	13.93	24.82

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.



4.4 RADIATED EMISSION MEASUREMENT (CURRENT CARRIER ON)

4.4.1 LIMITS OF RADIATED EMISSION MEASUREMENT

According to FCC Part 15 Subpart B (Section 15.209) for Class B device operating 9kHz ~ 30 MHz of unintentional Carrier current radiators.

FREQUENCIES (MHz)	RADIATED EMISSION LIMIT	
	FIELD STRENGTH (microvolts / meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400 / F(kHz)	300
0.490 ~ 1.705	24000 / F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

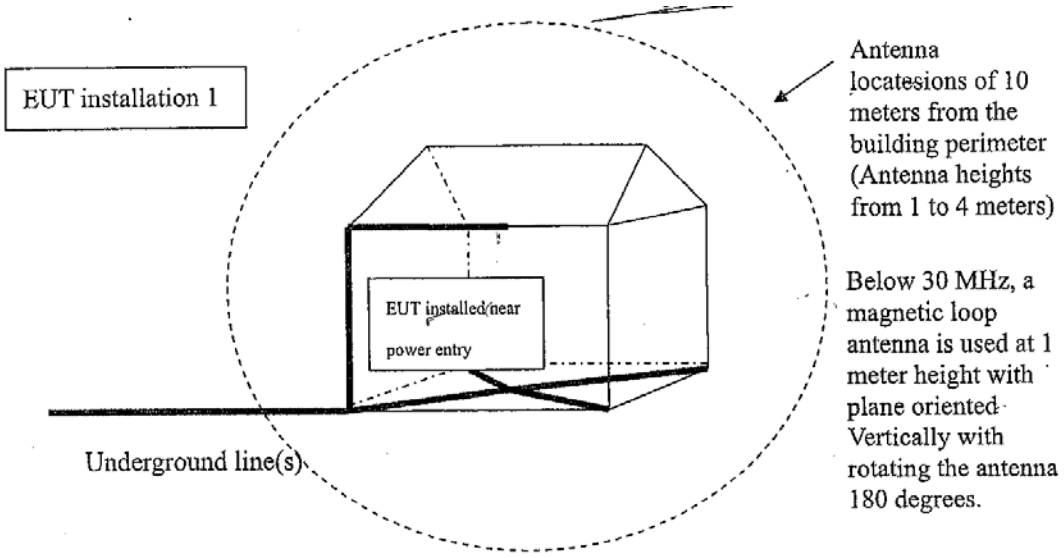
4.4.2 TEST INSTRUMENTS

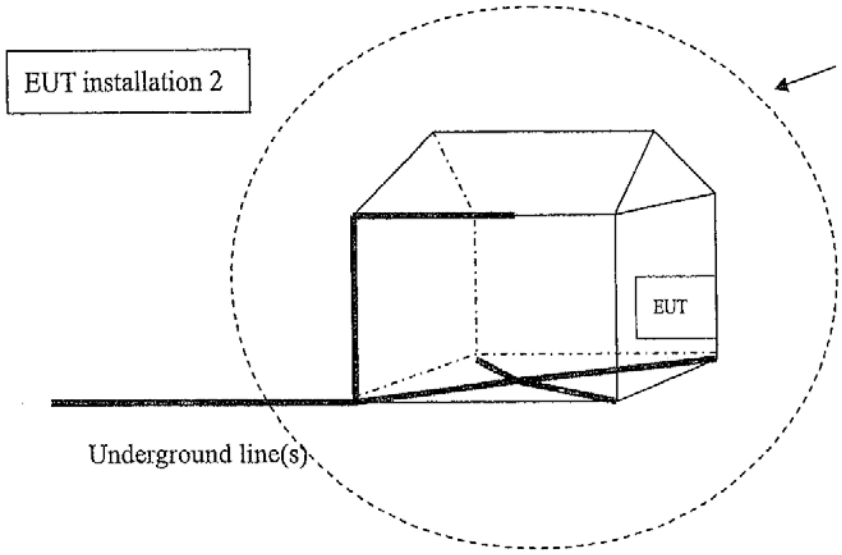
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTILL
Spectrum	E4403B	MY41440697	Jan. 30, 2005
Receiver	ESCS 30	100289	Nov. 28, 2005
A.M.P	8447D	2944A10634	Jan. 14, 2005
Bilog Ant.	VULB 9168	9168-155	Feb. 02, 2005
Loop Ant.	HFH2-Z2	100070	NA

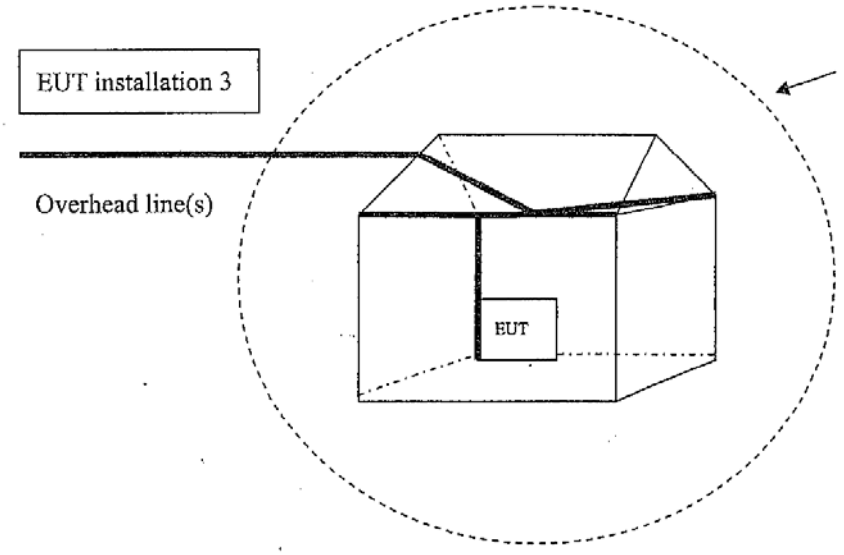
4.4.3 TEST PROCEDURE

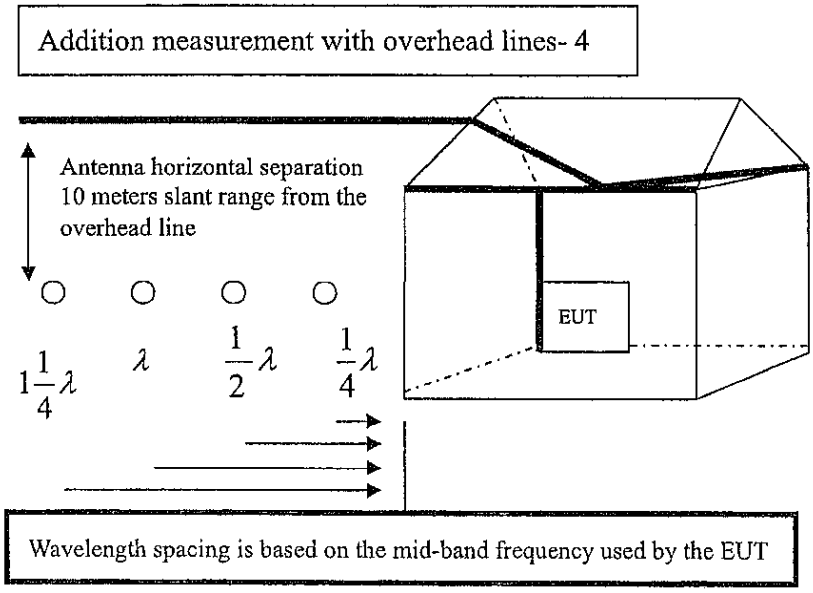
In-situ Radiated Emission Measurement environment

- Three typical installations shall a combination of the building with overhead-line(s) and underground line(s), and a additional test for In-Site testing with Overhead lines.
- The buildings shall not have aluminum or other metal siding, or shielding wiring (e.g.: wiring installed through conduit or BX electric cable).
- Measurement shall be made at a minimum of 16 radial angles surrounding the EUT (building perimeter).
- Measurement distance is 10 meters. If necessary, due to ambient emissions, measurement may be performed a distance of 3 meters using distance corrections in accordance with 15.31(f).




EUT installation 2
Antenna locates of 10 meters from the building perimeter (Antenna heights from 1 to 4 meters)
EUT
Underground line(s)
Below 30 MHz, a magnetic loop antenna is used at 1 meter height with plane oriented Vertically with rotating the antenna 180 degrees.


EUT installation 3
Antenna locates of 10 meters from the building perimeter (Antenna heights from 1 to 4 meters)
Overhead line(s)
EUT
Below 30 MHz, a magnetic loop antenna is used at 1 meter height with rotating the antenna 180 degrees.



(Antenna heights from 1 to 4 meters)

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP LOCATION

The measurements were performed at three installations that were representative of typical installations. For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

INSTALLATION 1	
Address	Room 852, Holland Village, Pu-Xin Pasture, Gaorong Village, Yangmei Township, Taoyuan County 326, Taiwan
General description	It is a three floors concerted building and room 852 is located at first floor.
Source of power lines	Underground lines

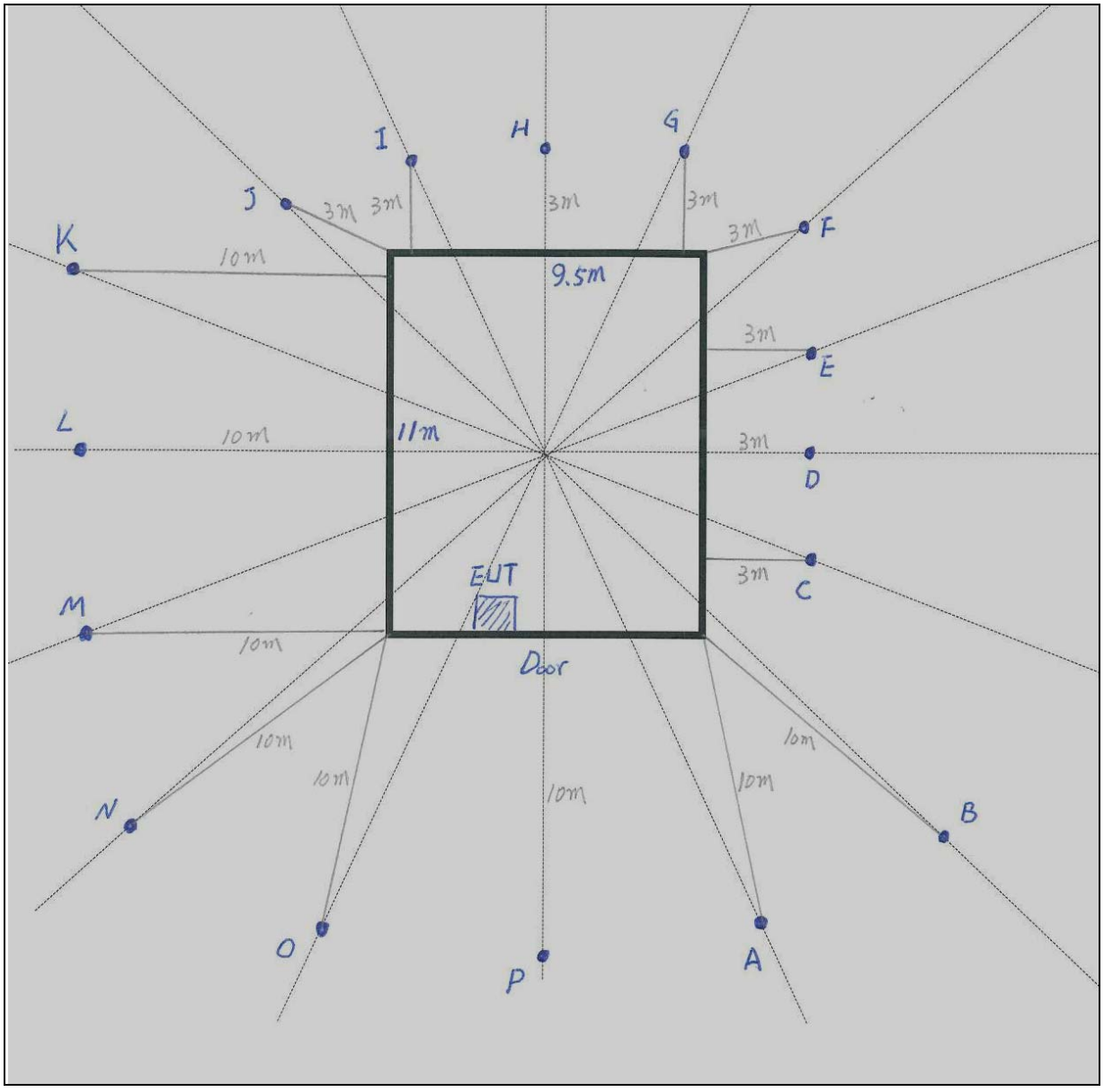
INSTALLATION 2	
Address	Room 802, Holland Village, Pu-Xin Pasture, Gaorong Village, Yangmei Township, Taoyuan County 326, Taiwan
General description	It is a two floors concerted building and room 802 is located at first floor.
Source of power lines	Underground lines

INSTALLATION 3	
Address	Playground in the seafront by the sea, Houlong, Dashan Village, Houlong Township, Miaoli County 356, Taiwan
General description	It is a two floors wood building.
Source of power lines	Overhead lines

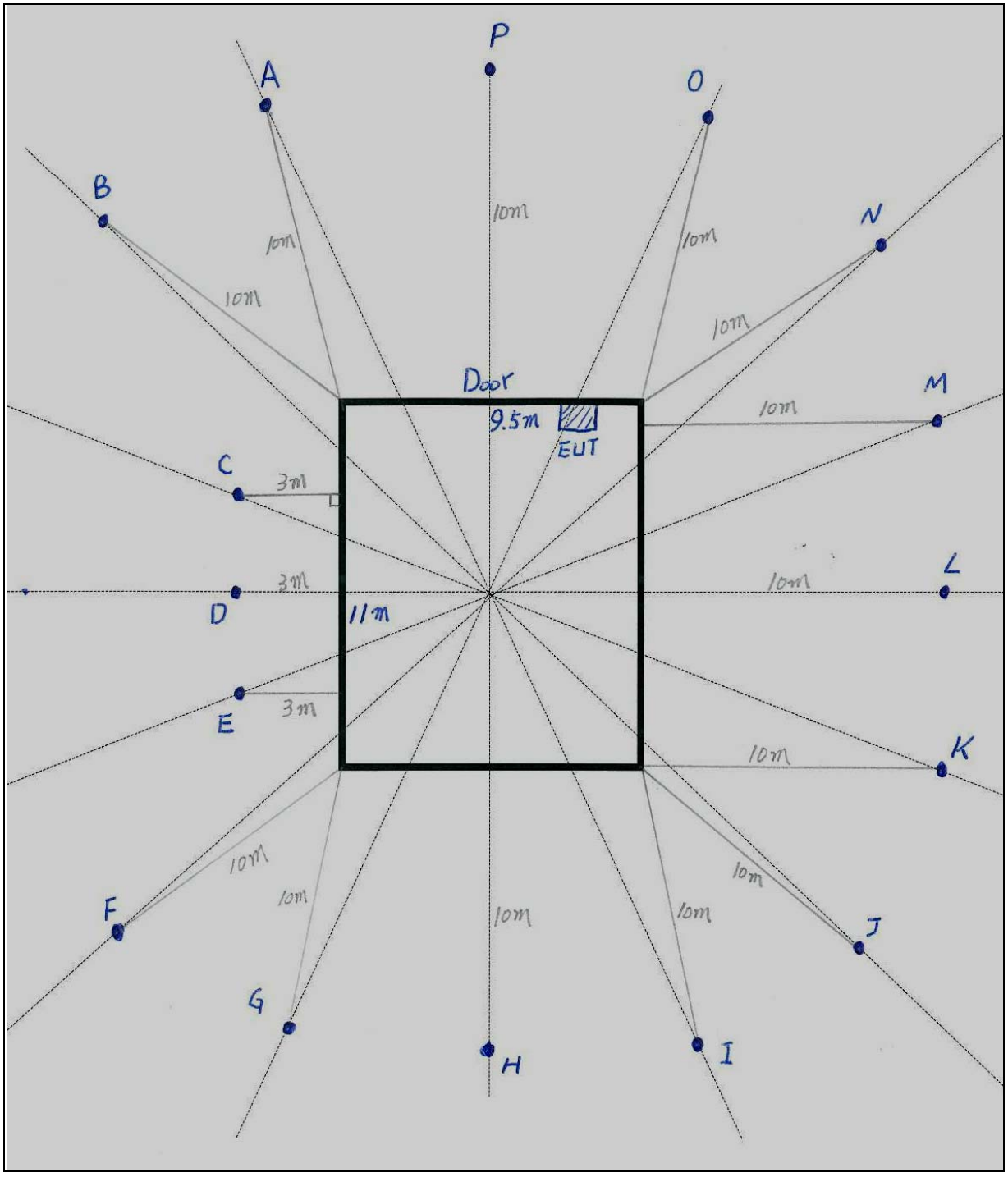
ADDITION MEASUREMENT WITH ORVERHEAD LINES-4	
Address	Playground by the sea, Houlong, Dashan Village, Houlong Township, Miaoli County 356, Taiwan
General description	It is a two floors wood building.
Source of power lines	Overhead lines

4.4.6 TEST SETUP DIAGRAM

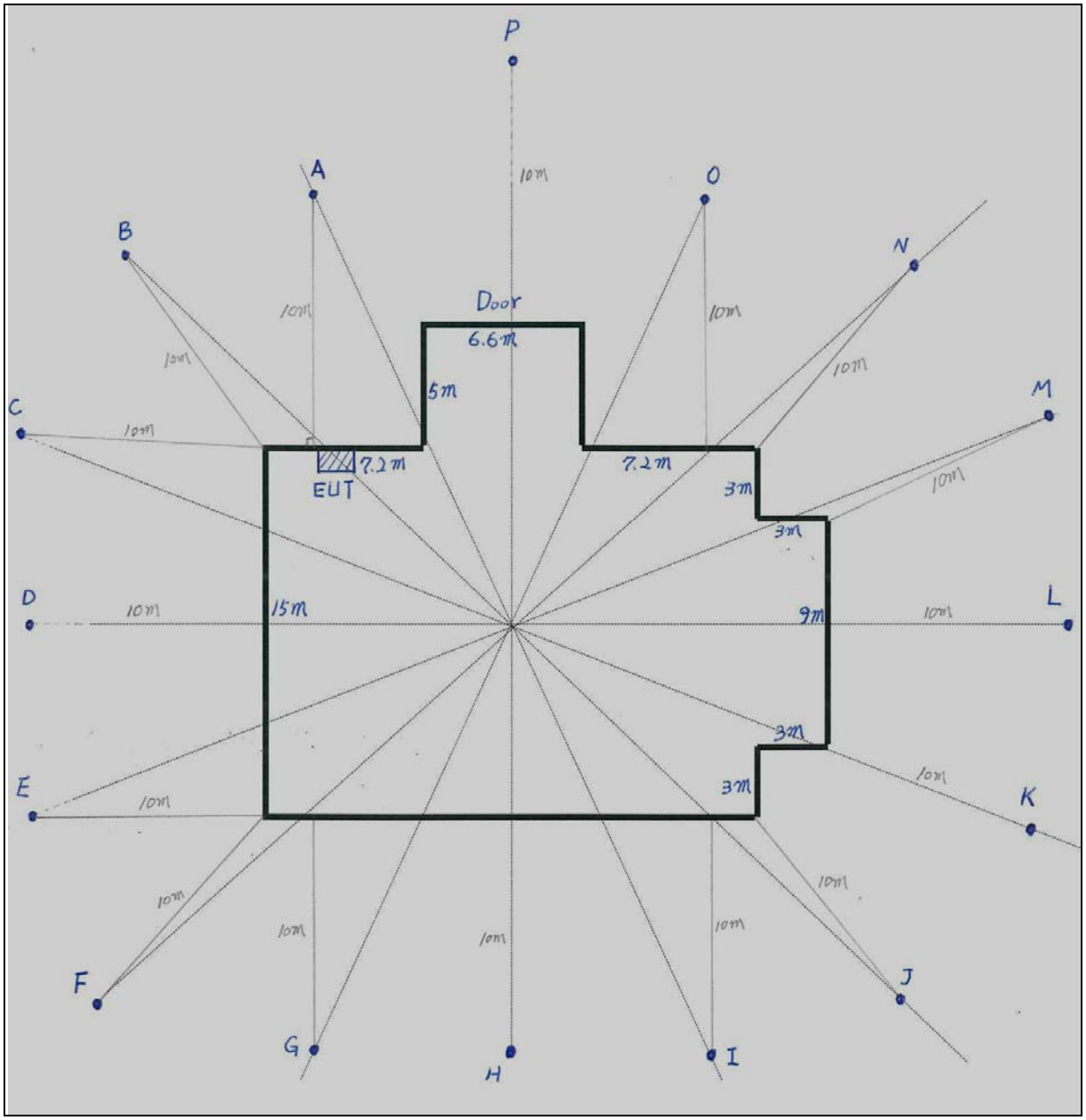
Installation 1



Installation 2



Installation 3



4.4.7 EUT OPERATING CONDITIONS

Same as item 4.2.6

4.4.8 TEST RESULTS

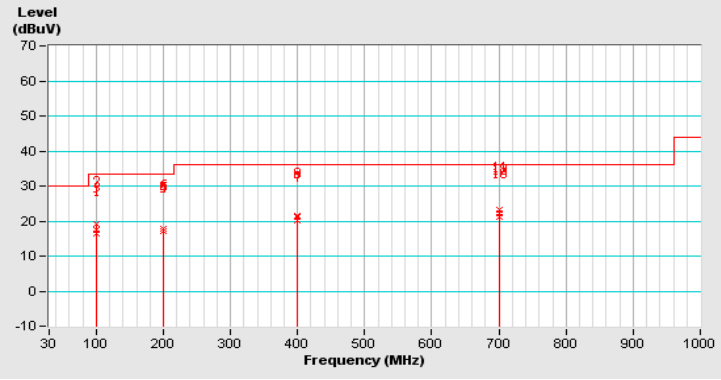
EUT	Home Plug Wireless 802.11g Router	MODEL	WHRTC-100GW
INPUT POWER	120Vac, 60 Hz		
FREQUENCY RANGE	30 ~ 1000MHz	PHASE	Quasi-Peak, 10kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 67 % RH, 991 hPa	TESTED BY	Kent Chen
TEST MODE	Operating	CHANNEL	Current carrier on

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 M

No.	Freq. (MHz)	Location	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.90	Note 1	16.31 QP	33.50	-17.19	1.00 H	0	6.07	10.24
2	99.90	Note 2	19.03 QP	33.50	-14.47	1.00 H	0	8.79	10.24
3	100.00	Note 3	17.30 QP	33.50	-16.20	1.00 H	0	7.05	10.25
4	200.00	Note 4	17.22 QP	33.50	-16.28	1.00 H	0	6.20	11.02
5	200.00	Note 5	17.11 QP	33.50	-16.39	2.00 H	0	6.09	11.02
6	200.00	Note 6	17.92 QP	33.50	-15.58	1.00 H	0	6.90	11.02
7	400.00	Note 7	20.17 QP	36.00	-15.83	2.00 H	0	2.40	17.77
8	400.00	Note 8	21.37 QP	36.00	-14.63	1.00 H	0	3.60	17.77
9	400.00	Note 9	21.28 QP	36.00	-14.72	1.00 H	0	3.51	17.77
10	700.00	Note 10	21.33 QP	36.00	-14.67	1.00 H	0	-2.71	24.04
11	700.00	Note 11	23.12 QP	36.00	-12.88	2.00 H	0	-0.92	24.04
12	700.00	Note 12	22.31 QP	36.00	-13.69	2.00 H	0	-1.73	24.04

NOTE:
1. Installation 3, C point (the C point please refer to page 32)
2. Installation 1, C point (the C point please refer to page 30)
3. Installation 2, D point (the D point please refer to page 31)
4. Installation 3, C point (the C point please refer to page 32)
5. Installation 2, C point (the C point please refer to page 31)
6. Installation 1, B point (the B point please refer to page 30)
7. Installation 3, C point (the C point please refer to page 32)
8. Installation 2, C point (the C point please refer to page 31)
9. Installation 1, A point (the A point please refer to page 30)
10. Installation 3, A point (the A point please refer to page 32)
11. Installation 2, C point (the C point please refer to page 31)
12. Installation 1, C point (the C point please refer to page 30)

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.



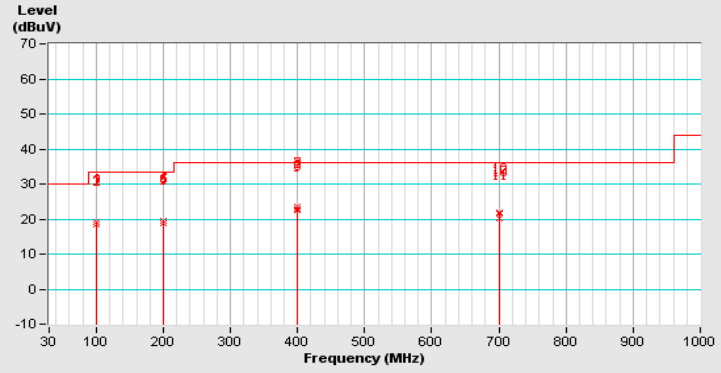
EUT	Home Plug Wireless 802.11g Router	**MODEL**	WHRTC-100GW
INPUT POWER	120Vac, 60 Hz		
FREQUENCY RANGE	30 ~ 1000MHz	**PHASE**	Quasi-Peak, 10kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 67 % RH, 991 hPa	**TESTED BY**	Kent Chen
TEST MODE	Operating	**CHANNEL**	Current carrier on

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 M

No.	Freq. (MHz)	Location	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	99.90	Note 1	18.60 QP	33.50	-14.90	1.00 V	0	8.36	10.24
2	100.00	Note 2	18.40 QP	33.50	-15.10	1.00 V	0	8.15	10.25
3	100.00	Note 3	19.00 QP	33.50	-14.50	1.00 V	0	8.75	10.25
4	200.00	Note 4	18.90 QP	33.50	-14.60	1.00 V	0	7.88	11.02
5	200.01	Note 5	18.80 QP	33.50	-14.70	1.00 V	0	7.78	11.02
6	200.02	Note 6	19.40 QP	33.50	-14.10	1.00 V	0	8.38	11.02
7	**400.00**	**Note 7**	**23.50 QP**	**36.00**	**-12.50**	**1.00 V**	**0**	**5.73**	**17.77**
8	400.00	Note 8	22.80 QP	36.00	-13.20	1.00 V	0	5.03	17.77
9	400.01	Note 9	22.50 QP	36.00	-13.50	1.00 V	0	4.73	17.77
10	699.99	Note 10	21.40 QP	36.00	-14.60	1.00 V	0	-2.64	24.04
11	700.00	Note 11	20.10 QP	36.00	-15.90	2.00 V	0	-3.94	24.04
12	700.00	Note 12	21.90 QP	36.00	-14.10	1.00 V	0	-2.14	24.04

NOTE:
1. Installation 3, C point (the C point please refer to page 32)
2. Installation 2, A point (the A point please refer to page 31)
3. Installation 1, B point (the B point please refer to page 30)
4. Installation 2, C point (the C point please refer to page 31)
5. Installation 1, C point (the C point please refer to page 30)
6. Installation 3, B point (the B point please refer to page 32)
7. Installation 2, C point (the C point please refer to page 31)
8. Installation 1, D point (the D point please refer to page 30)
9. Installation 3, B point (the B point please refer to page 32)
10. Installation 2, B point (the B point please refer to page 31)
11. Installation 3, D point (the D point please refer to page 32)
12. Installation 1, D point (the D point please refer to page 30)

REMARKS:
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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.

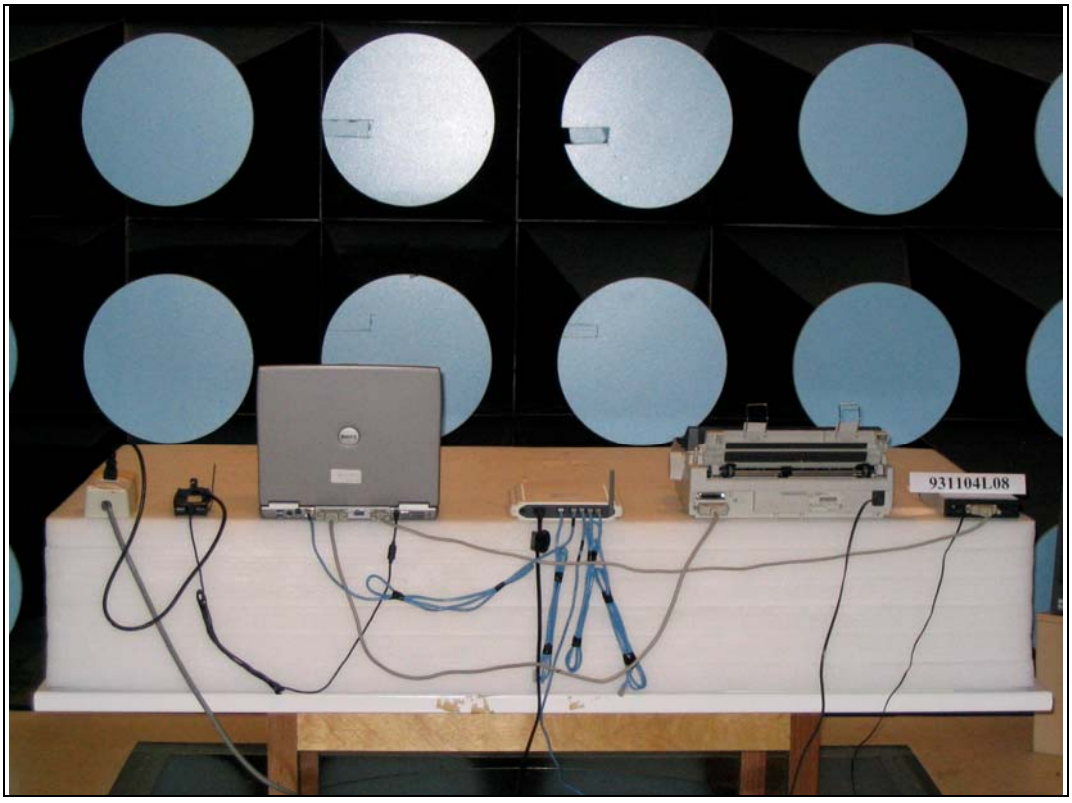


5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST
(Current carrier off)

(Current carrier on)

RADIATED EMISSION TEST –(Current carrier off)



RADIATED EMISSION TEST (IN-SITU TEST) –(Current carrier on)
(Installation 1)

(Installation 2)

(Installation 3)

(Addition Measurement with Overhead Line-4)

6 APPENDIX - INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:

USA	FCC, NVLAP, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA , CSA
R.O.C.	CNLA, BSMI, DGT
Netherlands	Telefication
Singapore	PSB , GOST-ASIA(MOU)
Russia	CERTIS(MOU)

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.
If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Linko RF Lab.
Tel: 886-3-3270910
Fax: 886-3-3270892

Web Site: www.adt.com.tw

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