



Supplemental “Transmit Simultaneously” Test Report

REPORT NO.: RF110421E04-2

MODEL NO.: NBG5715, HGW-501HN-M

FCC ID: I88NBG5715

RECEIVED: Apr. 21, 2011

TESTED: Sep. 09 to 15, 2011

ISSUED: Sep. 16, 2011

APPLICANT: ZyXEL Communications Corporation

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ISSUED BY: Bureau Veritas Consumer Products Services
(H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

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Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF110421E04-2	Original release	Sep. 16, 2011



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1. CERTIFICATION

PRODUCT : Simultaneous Dual-Band Wireless N Media Router
BRAND NAME : ZyXEL, MitraStar
MODEL NO. : NBG5715, HGW-501HN-M
TEST ITEM: MASS-PRODUCTION
APPLICANT : ZyXEL Communications Corporation
TESTED: Sep. 09 to 15, 2011
STANDARDS : FCC Part 15, Subpart C (Section 15.247)
ANSI C63.4-2003
ANSI C63.10-2009

The above equipment (Model: NBG5715) 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 : Phoenix Huang, **DATE:** Sep. 16, 2011
(Phoenix Huang, Specialist)

APPROVED BY : May Chen, **DATE:** Sep. 16, 2011
(May Chen, Deputy Manager)



2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	Test Type and Limit	Result	Remark
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -21.71dB at 0.184MHz
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is -0.60 dB at 1624.00MHz

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)	4.00 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Simultaneous Dual-Band Wireless N Media Router
MODEL NO.	NBG5715, HGW-501HN-M
FCC ID	I88NBG5715
POWER SUPPLY	DC 12V from power adapter (Class II, AC 2 Pin)
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	<ul style="list-style-type: none"> ■802.11b: 11 / 5.5 / 2 / 1Mbps ■802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps ■802.11a: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps ■HT20 MCS0~7 (800ns GI): 6.5Mbps, 13Mbps, 19.5Mbps, 26Mbps, 39Mbps, 52Mbps, 58.5Mbps, 65Mbps, ■HT20 MCS8~15 (800ns GI): 13Mbps, 26Mbps, 39Mbps, 52Mbps, 78Mbps, 104Mbps, 117Mbps, 130Mbps. ■HT20 MCS16~23 (800ns GI): 19.5Mbps,39Mbps, 58.5Mbps, 78Mbps, 117Mbps, 156Mbps, 175.5Mbps, 195Mbps. ■HT40 MCS0~7 (800ns GI): 13.5Mbps, 27Mbps, 40.5Mbps, 54Mbps, 81Mbps, 108Mbps, 121.5Mbps, 135Mbps. ■HT40 MCS8~15 (800ns GI): 27Mbps, 54Mbps, 81Mbps, 108Mbps, 162Mbps, 216Mbps, 243Mbps, 270Mbps. ■HT40 MCS16~23 (800ns GI): 40.5Mbps, 81Mbps, 121.5Mbps, 162Mbps, 243Mbps, 324Mbps, 364.5Mbps, 405Mbps. ■HT20 MCS0~7 (400ns GI): 7.2Mbps, 14.4Mbps, 21.7Mbps, 28.9Mbps, 43.3Mbps, 57.8Mbps, 65.0Mbps, 72.2Mbps, ■HT20 MCS8~15 (400ns GI): 14.444Mbps, 28.889Mbps, 43.333Mbps, 57.778Mbps, 86.667Mbps, 115.556Mbps, 130.000Mbps, 144.444Mbps. ■HT20 MCS16~23 (400ns GI): 21.7Mbps, 43.3Mbps, 65Mbps, 86.7Mbps,130Mbps, 173.3Mbps, 195Mbps, 216.7Mbps. ■HT40 MCS0~7 (400ns GI): 15.0Mbps, 30.0Mbps, 45.0Mbps, 60.0Mbps, 90.0Mbps, 120.0Mbps, 135.0Mbps, 150.0Mbps, ■HT40 MCS8~15 (400ns GI): 30.0Mbps, 60.0Mbps, 90.0Mbps, 120.0Mbps, 180.0Mbps, 240.0Mbps, 270.0Mbps, 300.0Mbps. ■HT40 MCS16~23 (400ns GI): 45Mbps,90.0Mbps, 135Mbps, 180.0Mbps, 270.0Mbps, 360.0Mbps, 405Mbps, 450.0Mbps.



OPERATING FREQUENCY	For 15.407 802.11a: 5.18 ~ 5.24GHz
	For 15.247 802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	For 15.407 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
	For 15.247(2.4GHz) 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
	For 15.247(5GHz) 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
MAXIMUM OUTPUT POWER	For 15.407 802.11a: 22.9mW 802.11n (20MHz): 29.6mW 802.11n (40MHz): 46.8 mW
	For 15.247(2.4GHz) 802.11b: 53.7mW 802.11g: 501.9mW 802.11n (20MHz): 483.6mW 802.11n (40MHz): 501.9mW
	For 15.247(5GHz) 802.11a: 275.7mW 802.11n (20MHz): 276.2mW 802.11n (40MHz): 280.2mW
ANTENNA TYPE	Please see NOTE
DATA CABLE	NA
I/O PORTS	LAN port (Ethernet: 10, 100, 1000Mbps) x 4 WAN port x 1 USB port x 2
ASSOCIATED DEVICES	Adapter x 1



NOTE:

1. The EUT has two brand names and model names, which are identical to each other in all aspects except for the following table:

Brand	Model No.	Description
ZyXEL	NBG5715	For marketing requirement to separate difference models.
MitraStar	HGW-501HN-M	

From the above models, model: **NBG5715** was selected as representative model for the test and its data was recorded in this report.

2. There are three antennas provided to this EUT, please refer to the following table:

Transmitter Circuit	Manufacturer	Model name	Peak Gain (Included Cable loss)	Antenna Type	Connector Type
Chain (0)	ARISTOTLE	RFA-25-C2M2-M10-1	2.4G & 5G: 2dBi	Dipole	R-SMA
Chain (1)			2.4G & 5G: 2dBi	Dipole	R-SMA
Chain (2)			2.4G & 5G: 2dBi	Dipole	R-SMA

3. The EUT must be supplied with a power adapter:

Brand:	DVE
Model No.:	DSA-24CA-12 120200
Input power :	100-240V 50/60Hz, 0.8A
Output power :	DC 12V, 2A DC output cable (Unshielded, 1.55m, With one core)

4. The EUT is 3 * 3 spatial MIMO (3Tx & 3Rx) without beam forming function. The 11b legacy mode is limited to single transmitter only.
5. The EUT incorporates CDD function with 802.11a, 802.11g and MIMO function with 802.11n.
6. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 23.
7. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.



3.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	PLC	RE < 1G	RE [≥] 1G	
-	√	√	√	-

Where **PLC**: Power Line Conducted Emission **RE < 1G**: Radiated Emission below 1GHz
RE [≥] 1G: Radiated Emission above 1GHz

Note1: Pre-Scan has been conducted to determine the worst case mode from antenna power.

POWER LINE CONDUCTED EMISSION TEST:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
2.4 GHz 802.11g +	1 to 11	6	OFDM	BPSK	6
5 GHz 802.11n (20MHz)	149 to 165	149	OFDM	BPSK	6.5

Radiated Emission Test:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
2.4 GHz 802.11g +	1 to 11	6	OFDM	BPSK	6
5 GHz 802.11n (20MHz)	149 to 165	149	OFDM	BPSK	6.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	24deg. C, 67%RH	120Vac, 60Hz	Andy Ho
RE<1G	26deg. C, 64%RH	120Vac, 60Hz	Frank Liu
RE [≥] 1G	26deg. C, 64%RH	120Vac, 60Hz	Wen Yu



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.

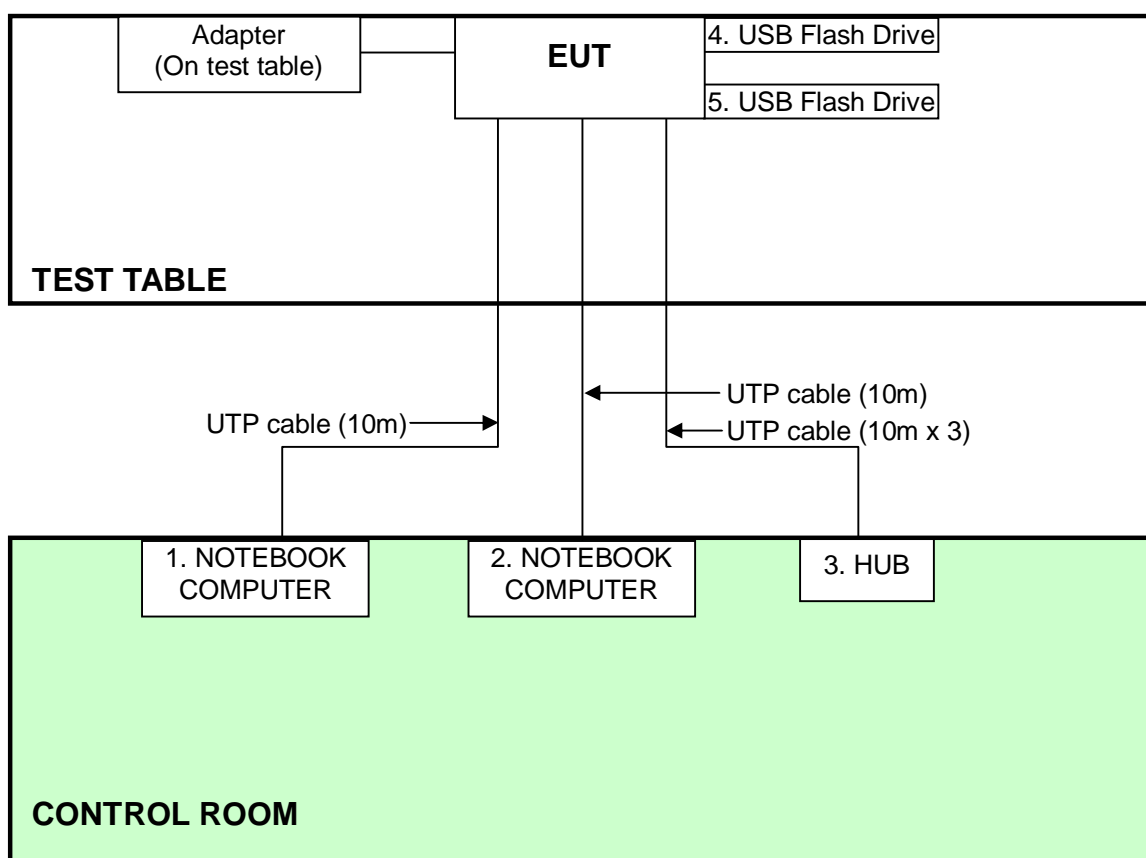
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP19L	CN-OHC416-70 166-5CA-0448	PIW632500516610
2	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
3	HUB	ZyXEL	ES-116P	S060H0200021 5	FCC DoC
4	USB Flash Disk (For Conducted test)	Transcend	JF168	NA	NA
	iPod shuffle	Apple	MC749TA/A	CC4DN29UDFD M	NA
5	USB Flash Disk (For Conducted test)	Transcend	NA	NA	NA
	iPod shuffle	Apple	MC749TA/A	CC4DN25WDF DM	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP Cable, 10m
2	UTP Cable, 10m
3	UTP Cable, 10m
4	NA
	USB Cable W/O Core, 0.1m
5	NA
	USB Cable W/O Core, 0.1m

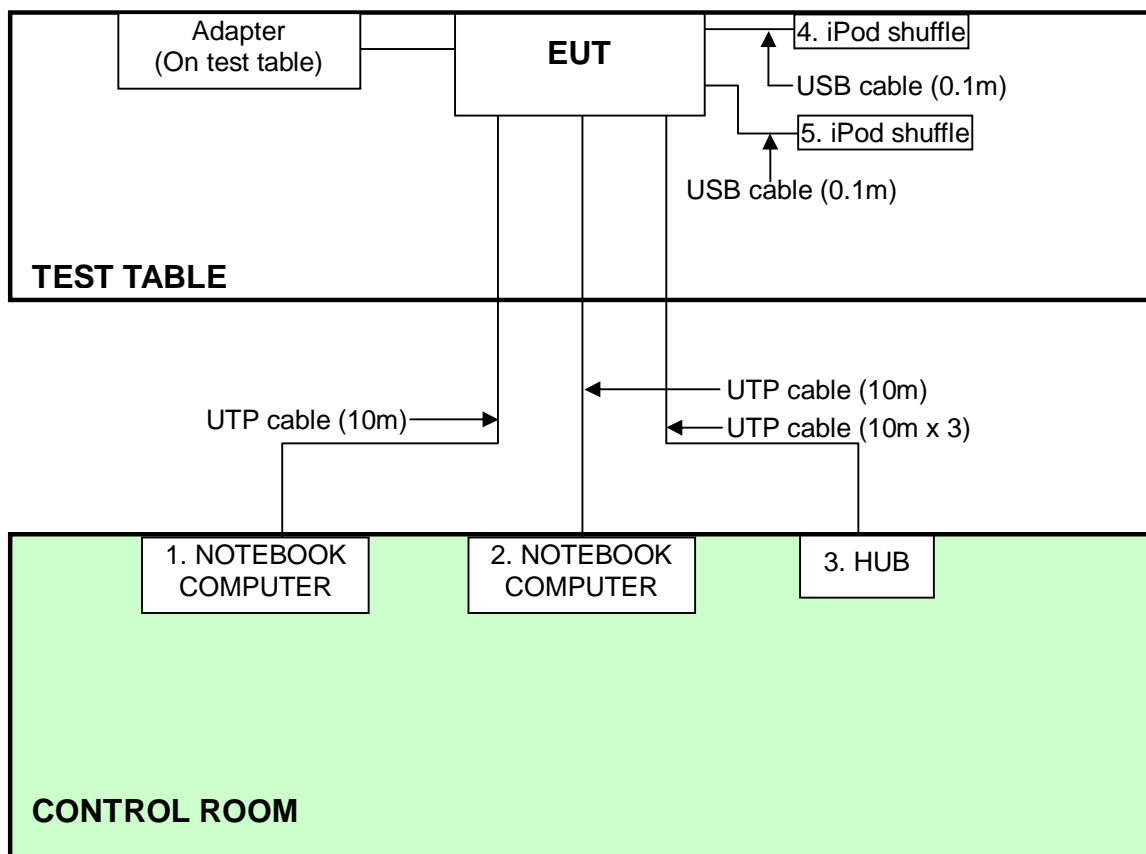
NOTE: All power cords of the above support units are non shielded (1.8m).

3.4 CONFIGURATION OF SYSTEM UNDER TEST

For Conducted test:



For Other test:





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4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
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

Test date: Sep. 15, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 09, 2011	Mar. 08, 2012
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-522	Sep. 07, 2011	Sep. 06, 2012
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 03, 2010	Nov. 02, 2011
RF Cable (JYEBAO)	5DFB	COCCAB-002	Aug. 29, 2011	Aug. 28, 2012
50 ohms Terminator	50	3	Oct. 07, 2010	OCT. 06, 2011
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. C.
3. The VCCI Con C Registration No. is C-3611.



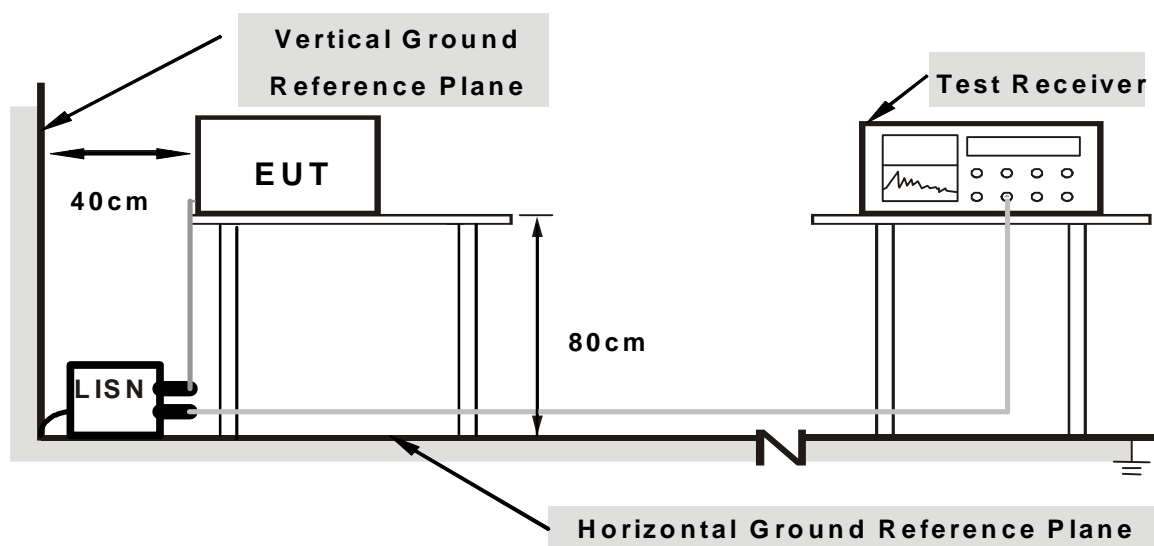
4.1.3 TEST PROCEDURES

- 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) were 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 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

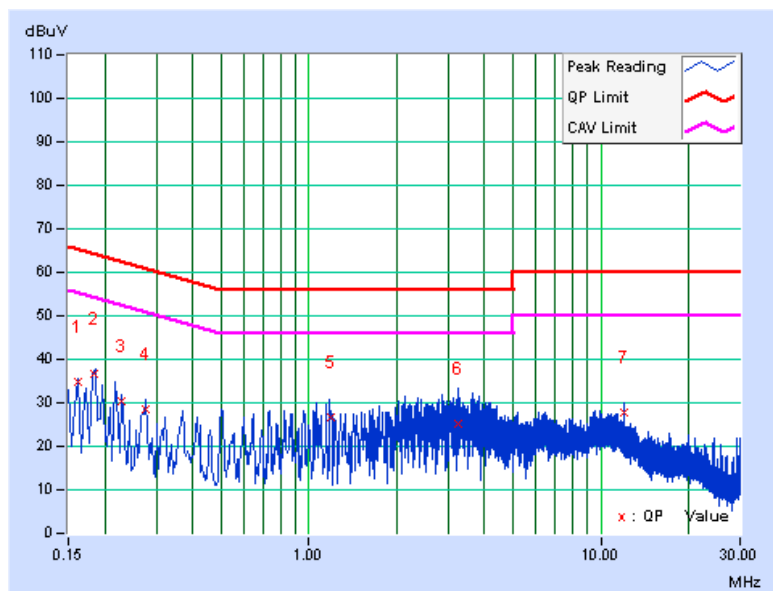
1. Placed the EUT on testing table.
2. Prepared computer system (support unit 2) to act as communication partner and placed it outside of testing area.
3. The communication partners ran test program “RT3593QA.exe” to enable EUT under transmission/receiving condition continuously via one UTP cable transmission.

4.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.162	0.11	34.89	14.91	35.00	15.02	65.37	55.37	-30.37	-40.35
2	0.184	0.12	36.73	31.97	36.85	32.09	64.31	54.31	-27.46	-22.22
3	0.229	0.13	30.25	24.36	30.38	24.49	62.50	52.50	-32.12	-28.01
4	0.275	0.13	28.39	24.31	28.52	24.44	60.96	50.96	-32.44	-26.52
5	1.191	0.14	26.67	23.34	26.81	23.48	56.00	46.00	-29.19	-22.52
6	3.235	0.18	25.19	12.15	25.37	12.33	56.00	46.00	-30.63	-33.67
7	11.998	0.51	27.36	24.58	27.87	25.09	60.00	50.00	-32.13	-24.91

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

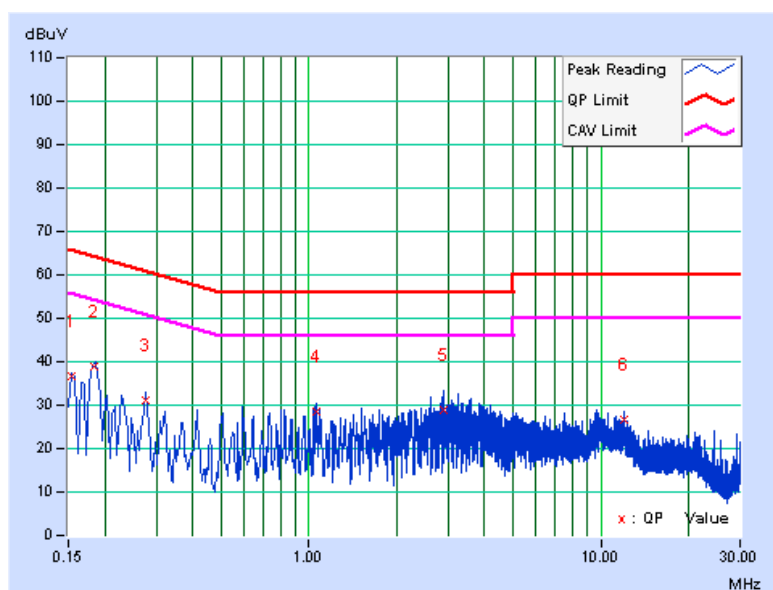




PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.154	0.12	36.37	15.56	36.49	15.68	65.78	55.78	-29.30	-40.11
2	0.184	0.13	38.69	32.45	38.82	32.58	64.29	54.29	-25.47	-21.71
3	0.275	0.14	30.79	26.68	30.93	26.82	60.97	50.97	-30.03	-24.14
4	1.057	0.16	28.34	22.84	28.50	23.00	56.00	46.00	-27.50	-23.00
5	2.893	0.23	28.56	21.73	28.79	21.96	56.00	46.00	-27.21	-24.04
6	11.997	0.95	25.73	23.29	26.68	24.24	60.00	50.00	-33.32	-25.76

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





4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
4. Section 15.205 restricted bands of operation shall compliance with the limits in Section 15.209.



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4.2.2 TEST INSTRUMENTS

Test date: Sep. 09 to 15, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011
Agilent PSA Spectrum Analyzer	E4446A	MY48250113	Nov. 30, 2010	Nov. 29, 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 02, 2011	Sep. 01, 2012
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 14, 2011	Apr. 13, 2012
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2010	Dec. 16, 2011
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 17, 2011	Jan. 16, 2012
R&S Loop Antenna	HFH2-Z2	100070	Feb. 3, 2010	Feb. 2, 2012
RF Switches	EMH-011	1001	Sep. 25, 2010	Sep. 24, 2011
RF CABLE (Chaintek)	Sucoflex 106	RF106-102	Jan. 27, 2011	Jan. 26, 2012
RF Cable	8DFB	STCCAB-30M-1GHz	Sep. 25, 2010	Sep. 24, 2011
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 PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meters open field site. 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 height of antenna 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 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.

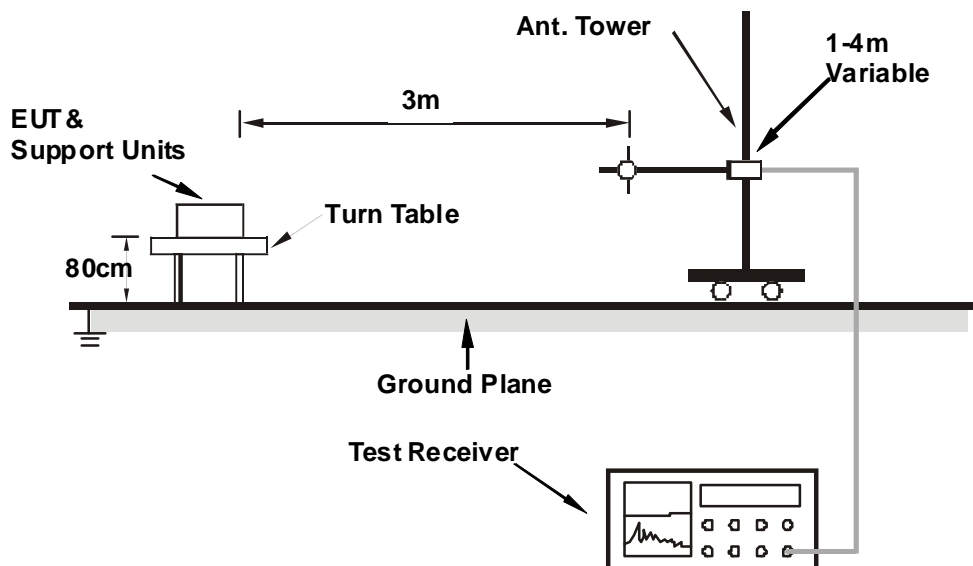
NOTE:

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 of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) 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.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



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



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4.2.7 TEST RESULTS

BELOW 1GHz DATA :

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6 / 149	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac / 60Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	26deg. C, 64%RH	TESTED BY	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	125.02	40.5 QP	43.5	-3.0	2.00 H	123	13.52	26.98
2	250.10	41.2 QP	46.0	-4.8	2.00 H	184	14.22	26.98
3	414.90	38.4 QP	46.0	-7.6	2.00 H	301	11.42	26.98
4	447.02	30.7 QP	46.0	-15.3	1.98 H	231	3.72	26.98
5	625.00	43.2 QP	46.0	-2.8	1.48 H	84	16.22	26.98
6	875.03	42.5 QP	46.0	-3.5	1.00 H	2	15.52	26.98

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	125.00	40.3 QP	43.5	-3.2	1.00 V	20	13.32	26.98
2	400.00	33.1 QP	46.0	-12.9	1.00 V	313	6.12	26.98
3	500.10	41.8 QP	46.0	-4.2	1.00 V	251	14.82	26.98
4	515.00	26.9 QP	46.0	-19.1	1.00 V	0	-0.05	26.98
5	625.20	20.6 QP	46.0	-25.4	1.50 V	312	-6.38	26.98
6	958.00	42.2 QP	46.0	-3.8	1.50 V	311	15.22	26.98

- 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.



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ABOVE 1GHz DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6 / 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac / 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	26deg. C, 64%RH	TESTED BY	Wen Yu

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	1624.00	56.7 PK	74.0	-17.3	1.93 H	192	27.64	29.06
2	1624.00	53.4 AV	54.0	-0.6	1.93 H	192	24.34	29.06
3	4874.00	41.9 PK	74.0	-32.1	1.78 H	0	5.59	36.31
4	4874.00	29.5 AV	54.0	-24.5	1.78 H	0	-6.81	36.31
5	7311.00	47.4 PK	74.0	-26.6	1.78 H	329	5.17	42.23
6	7311.00	36.1 AV	54.0	-17.9	1.78 H	329	-6.13	42.23
7	11490.00	45.6 PK	74.0	-28.4	1.20 H	332	-1.99	47.59
8	11490.00	28.3 AV	54.0	-25.7	1.20 H	332	-19.29	47.59

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	1624.00	58.2 PK	74.0	-15.8	1.49 V	168	29.14	29.06
2	1624.00	53.4 AV	54.0	-0.6	1.49 V	168	24.34	29.06
3	4874.00	58.1 PK	74.0	-15.9	1.41 V	10	21.79	36.31
4	4874.00	44.0 AV	54.0	-10.0	1.41 V	10	7.69	36.31
5	7311.00	65.5 PK	74.0	-8.5	1.08 V	10	23.27	42.23
6	7311.00	49.5 AV	54.0	-4.5	1.08 V	10	7.27	42.23
7	11490.00	45.4 PK	74.0	-28.6	1.08 V	124	-2.19	47.59
8	11490.00	28.6 AV	54.0	-25.4	1.08 V	124	-18.99	47.59

- 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.



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5. 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.

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

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Web Site: www.adt.com.tw

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

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