

Supplemental “Dual Xmit” Test Report

REPORT NO.: RF980606H02-2

MODEL NO.: Simultaneous Dual-Band Wireless-N Gigabit Router

RECEIVED: June 06, 2009

TESTED: June 23 to July 03, 2009

ISSUED: July 07, 2009

APPLICANT: Cisco-Linksys LLC

ADDRESS: 121 Theory Drive Irvine, CA 92617(USA)

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

TEST LOCATION: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung
Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien
307, Taiwan

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1. CERTIFICATION

PRODUCT : Simultaneous Dual-Band Wireless-N Gigabit Router
BRAND NAME : Cisco Linksys
MODEL NO. : WRT610N ver.2
TESTED: June 23 to July 03, 2009
APPLICANT : Cisco-Linksys LLC
TEST ITEM: ENGINEERING SAMPLE
STANDARDS : 47 CFR FCC Part 15, Subpart C & E
ANSI C63.4-2003

PREPARED BY : Carol Liao , **DATE:** July 07, 2009
(Carol Liao, Specialist)

TECHNICAL
ACCEPTANCE : Hank Chung , **DATE:** July 07, 2009
Responsible for RF (Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** July 07, 2009
(May Chen, Deputy Manager)

Note:

Per a request of the FCC, the access point radio was tested for radiated emissions in restricted bands while transmitting on both 2.4 GHz and 5 GHz at simultaneously.

2. DUAL XMIT, CONDUCTED EMISSION MEASUREMENT

2.1 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.

2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 05, 2009	Mar. 04, 2010
Line-Impedance Stabilization Network (for Peripheral)	KNW-407	8-1395-12	May 04, 2009	May 03, 2010
Line-Impedance Stabilization Network (for EUT)	ENV-216	100072	June 08, 2009	June 07, 2010
RF Cable (JYEBAO)	5DFB	COACAB-001	Dec 15, 2008	Dec 14, 2009
50 ohms Terminator	50	3	Nov. 05, 2008	Nov. 04, 2009
Software	BV ADT_Conc_ 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.

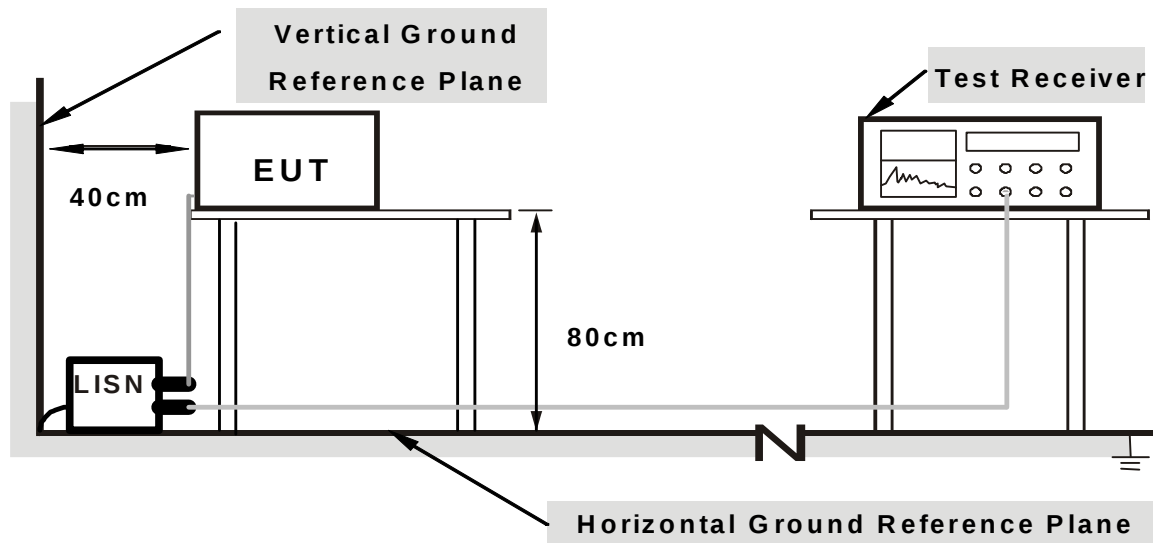
2.3 TEST PROCEDURES

- 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.

2.4 DEVIATION FROM TEST STANDARD

No deviation

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 from other units and other metal planes

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

2.5 EUT OPERATING CONDITIONS

- Placed the EUT on testing table.
- Prepared other computer systems (support units 1 ~ 3, 5) to act as communication partners and placed them outside of testing area.
- The communication partners run test program “Ping.exe” to enable EUT under transmission/receiving condition continuously via UTP cables and wireless transmission.

Note:

- ☒ 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.

FCC 15.247

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

FCC 15.407

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
2.4 GHz Draft 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5
+ 5 GHz Draft 802.11n (40MHz)	38 to 46	38	OFDM	BPSK	13.5

The EUT was Pre-tested as the following test modes:

Test Mode	Description
Mode 1	With Adapter 1
Mode 2	With Adapter 2

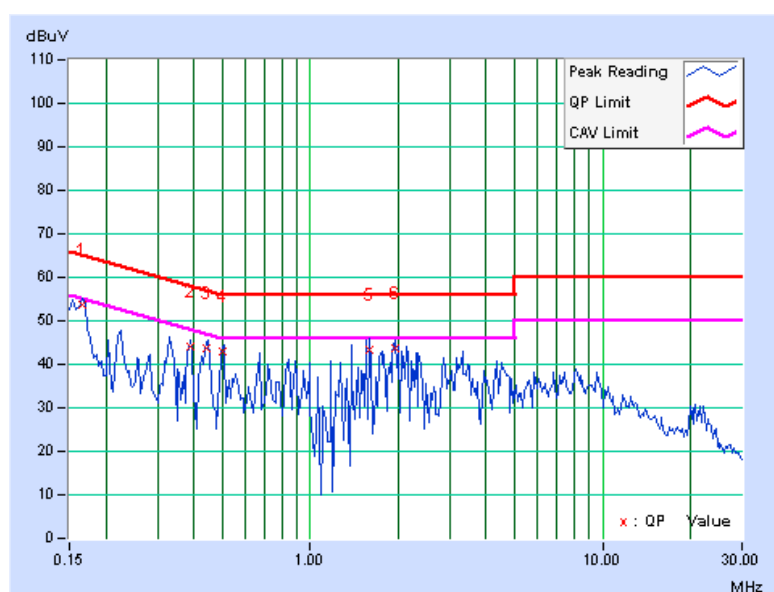
Mode 1, the worse case one, was chosen for final test.

2.6 TEST RESULTS (For 15.247)

TEST MODE	Dual transmission Draft 802.11n (20MHz), 2437MHz Draft 802.11n (20MHz), 5745MHz	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	26deg. C, 60%RH, 965hPa	TESTED BY	Timmy Hu

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	0.166	0.24	53.44	-	53.68	-	65.14	55.14	-11.46	-
2	0.388	0.09	43.84	-	43.93	-	58.10	48.10	-14.18	-
3	0.443	0.08	43.62	-	43.70	-	57.01	47.01	-13.31	-
4	0.500	0.08	42.71	-	42.79	-	56.00	46.00	-13.21	-
5	1.603	0.07	43.24	-	43.31	-	56.00	46.00	-12.69	-
6	1.949	0.07	43.66	-	43.73	-	56.00	46.00	-12.27	-

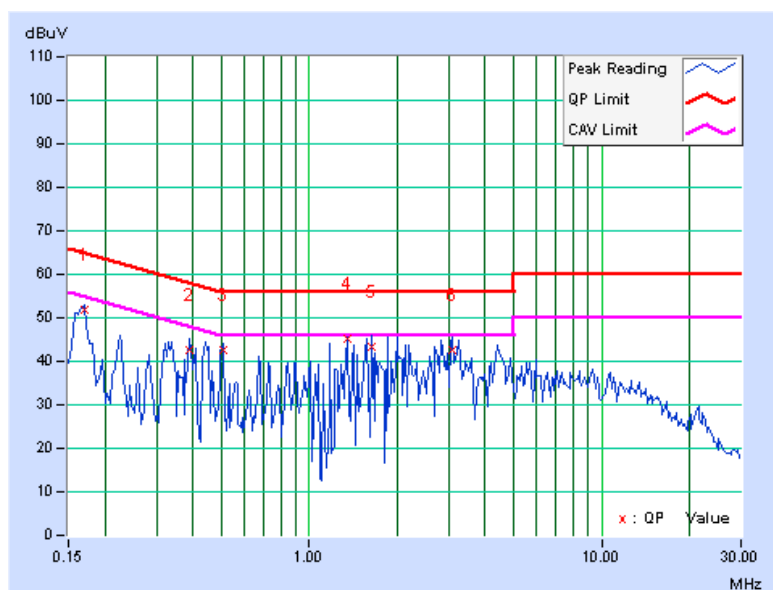
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



TEST MODE	Dual transmission Draft 802.11n (20MHz), 2437MHz Draft 802.11n (20MHz), 5745MHz	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	26deg. C, 60%RH, 965hPa	TESTED BY	Timmy Hu

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.24	51.44	-	51.68	-	64.98	54.98	-13.31	-
2	0.388	0.10	42.31	-	42.41	-	58.10	48.10	-15.70	-
3	0.509	0.09	42.59	-	42.68	-	56.00	46.00	-13.32	-
4	1.354	0.09	45.24	-	45.33	-	56.00	46.00	-10.67	-
5	1.637	0.09	43.16	-	43.25	-	56.00	46.00	-12.75	-
6	3.090	0.13	42.62	-	42.75	-	56.00	46.00	-13.25	-

- 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.

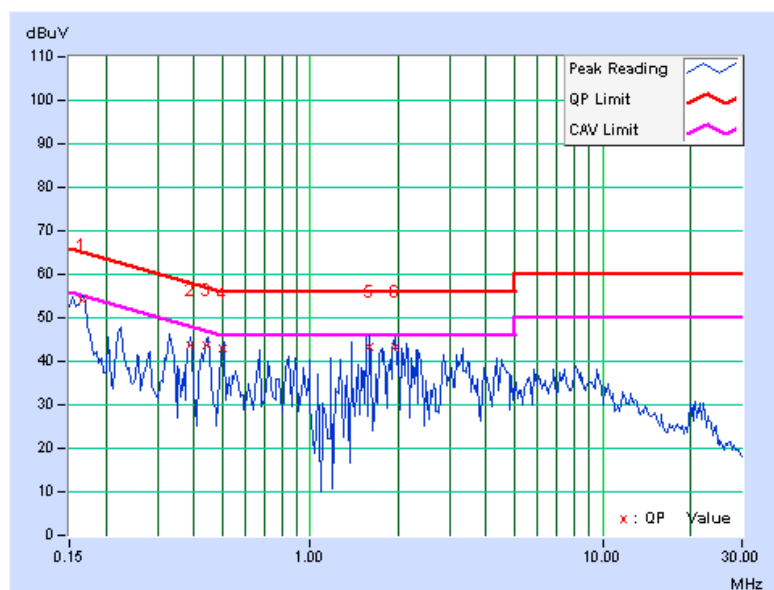


2.7 TEST RESULTS (For 15.407)

TEST MODE	Dual transmission Draft 802.11n (20MHz), 2437MHz Draft 802.11n (40MHz), 5190MHz	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	PHASE	Line (L)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa	TESTED BY	Timmy Hu

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.166	0.24	53.67	-	53.91	-	65.14	55.14	-11.23	-
2	0.388	0.09	43.63	-	43.72	-	58.10	48.10	-14.39	-
3	0.443	0.08	43.57	-	43.65	-	57.01	47.01	-13.36	-
4	0.500	0.08	42.77	-	42.85	-	56.00	46.00	-13.15	-
5	1.603	0.07	43.14	-	43.21	-	56.00	46.00	-12.79	-
6	1.949	0.07	43.41	-	43.48	-	56.00	46.00	-12.52	-

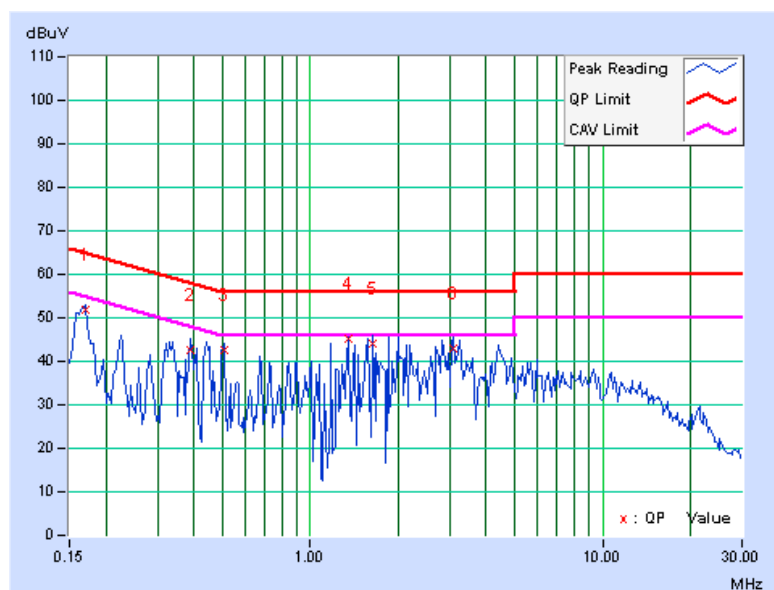
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value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



TEST MODE	Dual transmission Draft 802.11n (20MHz), 2437MHz Draft 802.11n (40MHz), 5190MHz	6dB BANDWIDTH	9 kHz
INPUT POWER	120Vac, 60 Hz	PHASE	Neutral (N)
ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa	TESTED BY	Timmy Hu

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.170	0.24	51.59	-	51.83	-	64.98	54.98	-13.16	-
2	0.388	0.10	42.58	-	42.68	-	58.10	48.10	-15.43	-
3	0.509	0.09	42.43	-	42.52	-	56.00	46.00	-13.48	-
4	1.354	0.09	45.15	-	45.24	-	56.00	46.00	-10.76	-
5	1.637	0.09	43.82	-	43.91	-	56.00	46.00	-12.09	-
6	3.090	0.13	42.87	-	43.00	-	56.00	46.00	-13.00	-

- 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.



3. DUAL XMIT, RADIATED EMISSION MEASUREMENT

3.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Field strength limits are at the distance of 3 meters, 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.



3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 9, 2008	Dec. 8, 2009
HP Pre_Amplifier	8449B	3008A01923	Nov. 10, 2008	Nov. 9, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 9, 2008	Sep. 8, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 29, 2009	April 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2009	Jan. 21, 2010
R&S Loop Antenna	HFH2-Z2	100070	Jan. 14, 2008	Jan. 13, 2010
RF Switches	EMH-011	08009	Oct. 07, 2008	Oct. 06, 2009
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 15, 2008	Aug. 14, 2009
RF Cable	8DFB	STCCAB-30M-1GHz	Oct. 07, 2008	Oct. 06, 2009
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, HP 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.

3.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test 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 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 the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.
- g. The emissions up to 40 GHz were examined. Those emission falling within a restricted band were evaluated against the "restricted band emission limit" (54 dB μ V / 74 dB μ V).

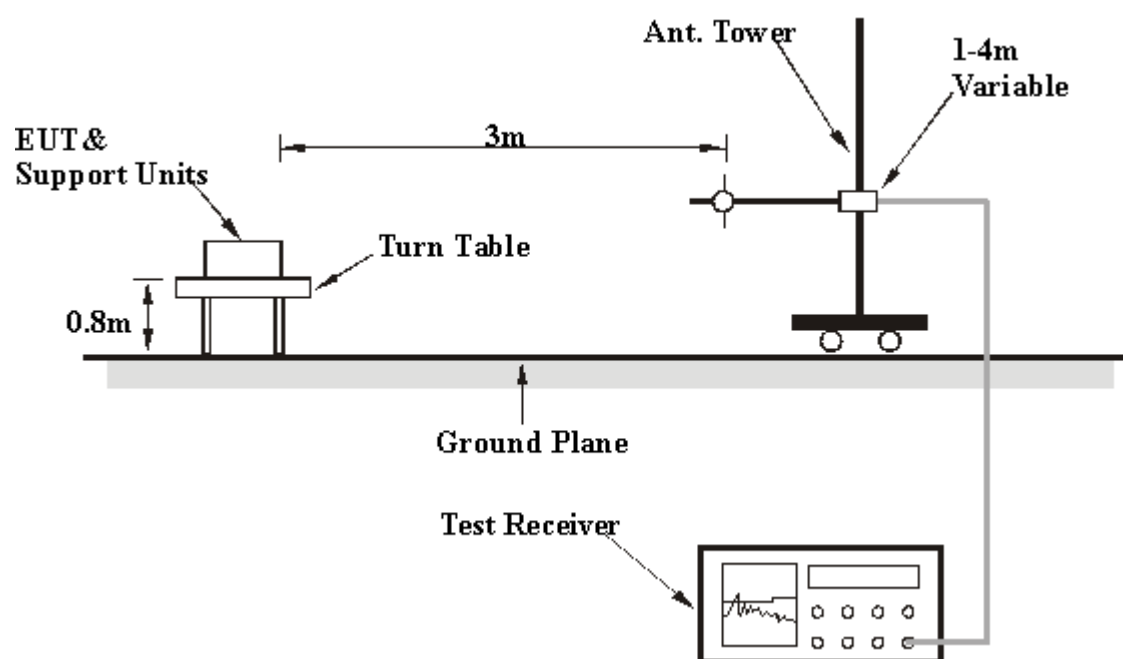
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 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 300 Hz for Average detection (AV) at frequency above 1GHz.

3.4 DEVIATION FROM TEST STANDARD

No deviation

3.5 TEST SETUP



3.6 EUT OPERATING CONDITIONS

- Placed the EUT on testing table.
- Prepared other computer systems (support units 1 ~ 3) to act as communication partners and placed them outside of testing area.
- The communication partner runs test program" MFGTEST" to enable EUT under transmission condition continuously at specific channel frequency via UTP cables.

Note:

For 15.247:

The EUT was tested for out of band radiated emissions with the unit transmitting on 802.11g, 2437 MHz and Draft 802.11n (20MHz), 5745 MHz. These frequencies and power levels were chosen because these frequencies produced the worst case radiated emissions during the radiated emissions in restricted bands test performed previously. The unit was set to transmit at the same power level as was used in the initial radiated emissions tests and was transmitting at the same data rate. (Please refer to RF980606H02 test report)

The harmonic of the fundamental signals were recorded in this report.

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

Transmitter / Circuit	Antenna Gain		Antenna Type	Connector
	For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Chain(0)	4	3.5	PIFA	NA
Chain(1)	4	3.5	PIFA	NA
Chain(2)	4	3.5	PIFA	NA

The EUT was Pre-tested as the following test modes:

Test Mode	Description
Mode 1	With Adapter 1
Mode 2	With Adapter 2

Mode 1, the worse case one, was chosen for final test.

For 15.407:

The EUT was tested for out of band radiated emissions with the unit transmitting on 802.11g, 2437 MHz and Draft 802.11n (40MHz), 5190 MHz. These frequencies and power levels were chosen because these frequencies produced the worst case radiated emissions during the radiated emissions in restricted bands test performed previously. The unit was set to transmit at the same power level as was used in the initial radiated emissions tests and was transmitting at the same data rate. (Please refer to RF980606H02-1 test report)

The harmonic of the fundamental signals were recorded in this report.

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

Transmitter / Circuit	Antenna Gain		Antenna Type	Connector
	For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Chain(0)	4	3.5	PIFA	NA
Chain(1)	4	3.5	PIFA	NA
Chain(2)	4	3.5	PIFA	NA

The EUT was Pre-tested as the following test modes:

Test Mode	Description
Mode 1	With Adapter 1
Mode 2	With Adapter 2

Mode 1, the worse case one, was chosen for final test.



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3.7 TEST RESULTS (For 15.247)

TEST MODE	Dual transmission 11g, 2437MHz Draft 802.11n (20MHz), 5825MHz	FREQUENCY RANGE	30MHz~1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	30deg. C, 61%RH, 965 hPa	TESTED BY	Eric Lee

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	125.01	27.36 QP	43.50	-16.14	1.24 H	56	14.29	13.07
2	200.00	25.48 QP	43.50	-18.02	1.15 H	247	13.09	12.39
3	250.00	40.35 QP	46.00	-5.65	1.35 H	62	26.10	14.25
4	375.00	35.24 QP	46.00	-10.76	1.65 H	96	16.43	18.81
5	500.00	35.69 QP	46.00	-10.31	1.37 H	360	13.20	22.49
6	625.00	38.20 QP	46.00	-7.80	1.58 H	78	12.92	25.29

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	31.20 QP	43.50	-12.30	1.40 V	231	18.13	13.07
2	200.00	26.86 QP	43.50	-16.64	1.34 V	96	14.47	12.39
3	240.00	27.14 QP	46.00	-18.86	1.54 V	84	13.26	13.88
4	250.00	32.46 QP	46.00	-13.54	1.69 V	96	18.21	14.25
5	375.01	36.54 QP	46.00	-9.46	1.98 V	63	17.73	18.81
6	500.00	34.23 QP	46.00	-11.77	1.65 V	95	11.74	22.49
7	625.01	41.20 QP	46.00	-4.80	1.69 V	95	15.91	25.29
8	875.00	42.14 QP	46.00	-3.86	1.47 V	52	12.85	29.29

NOTE:

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



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TEST MODE	Dual transmission 11g, 2437MHz Draft 802.11n (20MHz), 5825MHz	FREQUENCY RANGE	1000MHz~40000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27deg. C, 57%RH, 965 hPa	TESTED BY	Eric Lee

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	4874.00	54.21 PK	74.00	-19.79	1.11 H	258	17.29	36.92
2	4874.00	43.65 AV	54.00	-10.35	1.11 H	258	6.73	36.92
3	7311.00	65.90 PK	74.00	-8.10	1.80 H	323	22.76	43.14
4	7311.00	47.54 AV	54.00	-6.46	1.80 H	323	4.40	43.14
5	11490.00	65.24 PK	74.00	-8.76	1.54 H	7	18.01	47.23
6	11490.00	50.36 AV	54.00	-3.64	1.54 H	7	3.13	47.23
7	17235.00	65.24 PK	74.00	-8.76	1.69 H	299	12.91	52.33
8	17235.00	51.24 AV	54.00	-2.76	1.69 H	299	-1.09	52.33

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	4874.00	54.21 PK	74.00	-19.79	1.47 V	74	17.29	36.92
2	4874.00	41.25 AV	54.00	-12.75	1.47 V	74	4.33	36.92
3	7311.00	63.23 PK	74.00	-10.77	1.62 V	23	20.09	43.14
4	7311.00	46.23 AV	54.00	-7.77	1.62 V	23	3.09	43.14
5	11490.00	65.23 PK	74.00	-8.77	1.87 V	9	18.00	47.23
6	11490.00	51.99 AV	54.00	-2.01	1.87 V	9	4.76	47.23
7	17235.00	72.80 PK	74.00	-1.20	1.20 V	320	20.47	52.33
8	17235.00	51.20 AV	54.00	-2.80	1.20 V	320	-1.13	52.33

NOTE:

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



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3.8 TEST RESULTS (For 15.407)

TEST MODE	Dual transmission 11g, 2437MHz Draft 802.11n (40MHz), 5190MHz	FREQUENCY RANGE	30MHz~1000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	30deg. C, 61%RH, 965 hPa	TESTED BY	Eric Lee

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	125.00	28.69 QP	43.50	-14.81	1.30 H	62	15.62	13.07
2	199.99	26.57 QP	43.50	-16.93	1.24 H	300	14.18	12.39
3	250.00	41.23 QP	46.00	-4.77	1.43 H	62	26.98	14.25
4	375.00	34.69 QP	46.00	-11.31	1.76 H	95	15.88	18.81
5	500.00	36.23 QP	46.00	-9.77	1.64 H	184	13.74	22.49
6	625.00	37.96 QP	46.00	-8.04	1.68 H	96	12.68	25.29

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	32.69 QP	43.50	-10.81	1.68 V	95	19.62	13.07
2	200.00	27.14 QP	43.50	-16.36	1.65 V	324	14.75	12.39
3	240.00	28.22 QP	46.00	-17.78	1.11 V	326	14.34	13.88
4	250.00	33.10 QP	46.00	-12.90	1.36 V	53	18.85	14.25
5	375.00	36.57 QP	46.00	-9.43	1.23 V	165	17.76	18.81
6	500.00	34.23 QP	46.00	-11.77	1.65 V	95	11.74	22.49
7	625.00	42.60 QP	46.00	-3.40	1.11 V	113	17.32	25.29
8	875.00	42.69 QP	46.00	-3.31	1.69 V	146	13.40	29.29

NOTE:

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



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TEST MODE	Dual transmission 11g, 2437MHz Draft 802.11n (40MHz), 5190MHz	FREQUENCY RANGE	1000MHz~40000MHz
INPUT POWER	120Vac, 60Hz	DETECTOR FUNCTION & BANDWIDTH	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	27deg. C, 57%RH, 965 hPa	TESTED BY	Eric Lee

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	4874.00	55.69 PK	74.00	-18.31	1.24 H	156	18.77	36.92
2	4874.00	40.61 AV	54.00	-13.39	1.24 H	156	3.69	36.92
3	7311.00	63.10 PK	74.00	-10.90	1.15 H	360	19.96	43.14
4	7311.00	47.01 AV	54.00	-6.99	1.15 H	360	3.87	43.14
5	10380.00	59.62 PK	68.30	-8.68	1.24 H	51	12.97	46.65
6	15570.00	63.24 PK	74.00	-10.76	1.54 H	247	15.74	47.50
7	15570.00	48.24 AV	54.00	-5.76	1.54 H	247	0.74	47.50

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	4874.00	52.24 PK	74.00	-21.76	1.65 V	24	15.32	36.92
2	4874.00	42.32 AV	54.00	-11.68	1.65 V	24	5.40	36.92
3	7311.00	64.54 PK	74.00	-9.46	1.02 V	2	21.40	43.14
4	7311.00	48.90 AV	54.00	-5.10	1.02 V	2	5.76	43.14
5	10380.00	61.24 PK	68.30	-7.06	1.50 V	327	14.59	46.65
6	15570.00	61.24 PK	74.00	-12.76	1.69 V	98	13.74	47.50
7	15570.00	48.90 AV	54.00	-5.10	1.69 V	98	1.40	47.50

NOTE:

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

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4. 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 by the following approval agencies according to ISO/IEC 17025.

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	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.

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

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