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# Supplemental “Transmit Simultaneously” Test Report

**REPORT NO.:** RF120330C20-2

**MODEL NO.:** TL-WDR4300

**FCC ID:** TE7WDR4300

**IC:** 8853A-WDR4300

**RECEIVED:** Mar. 30, 2012

**TESTED:** Apr. 06 to May 31, 2012

**ISSUED:** June 01, 2012

**APPLICANT:** TP-LINK TECHNOLOGIES CO., LTD.

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**ISSUED BY:** Bureau Veritas Consumer Products Services  
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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120330C20-2	Original release	June 01, 2012



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## 1. CERTIFICATION

**PRODUCT:** N750 Wireless Dual Band Gigabit Router  
**BRAND NAME:** TP-LINK  
**MODEL NO.:** TL-WDR4300  
**TEST SAMPLE:** PROTOTYPE  
**APPLICANT:** TP-LINK TECHNOLOGIES CO., LTD.  
**TESTED:** Apr. 06 to May 31, 2012  
**STANDARDS:** FCC Part 15, Subpart C (Section 15.247)  
ANSI C63.10-2009  
Canada RSS-210 Issue 8 (2010-12)  
Canada RSS-Gen Issue 3 (2010-12)

The above equipment (Model: TL-WDR4300) 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:** June 01, 2012  
( Lori Chung, Specialist )

**APPROVED BY** :  , **DATE:** June 01, 2012  
( May Chen, Deputy Manager )



## 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247); RSS-210; RSS-Gen				
STANDARD SECTION		TEST TYPE	RESULT	REMARK
FCC PART 15	CANADA STANDARD			
15.207	RSS-Gen 7.2.4	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -2.16dB at 0.18907MHz
15.247(d) 15.209	RSS-210 A8.5	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -0.8dB at 7311.00MHz & 11490.00MHz

### 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)	5.59 dB
Radiated emissions (1GHz -6GHz)	4.93 dB
Radiated emissions (6GHz -18GHz)	5.32 dB
Radiated emissions (18GHz -40GHz)	5.36 dB



### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	N750 Wireless Dual Band Gigabit Router
<b>MODEL NO.</b>	TL-WDR4300
<b>POWER SUPPLY</b>	DC 12V from power adapter
<b>MODULATION TYPE</b>	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
<b>MODULATION TECHNOLOGY</b>	DSSS, OFDM
<b>TRANSFER RATE</b>	802.11b: up to 11Mbps 802.11a / g: up to 54Mbps 802.11n: up to 450Mbps
<b>OPERATING FREQUENCY</b>	<b>For 15.407 / Annex 9</b> 802.11a: 5.18 ~ 5.24GHz
	<b>For 15.247 / Annex 8</b> 802.11b/g: 2.412 ~ 2.462GHz 802.11a: 5.745 ~ 5.825GHz
<b>NUMBER OF CHANNEL</b>	<b>For 15.407 / Annex 9</b> 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
	<b>For 15.247 (2.4GHz) / Annex 8</b> 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz)
	<b>For 15.247 (5GHz) / Annex 8</b> 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
<b>MAXIMUM OUTPUT POWER</b>	<b>For 15.407 / Annex 9</b> 802.11a: 19.254mW 802.11n (20MHz): 32.489mW 802.11n (40MHz): 29.849mW <b>For 15.247 (2.4GHz) / Annex 8</b> 802.11b: 135.252mW 802.11g: 744.844mW 802.11n (20MHz): 735.782mW 802.11n (40MHz): 387.576mW <b>For 15.247 (5GHz) / Annex 8</b> 802.11a: 433.106mW 802.11n (20MHz): 423.984mW 802.11n (40MHz): 660.777mW



<b>ANTENNA TYPE</b>	Please see NOTE
<b>DATA CABLE</b>	NA
<b>I/O PORTS</b>	Refer to user's manual
<b>ASSOCIATED DEVICES</b>	Adapter × 1

**NOTE:**

1. The antennas provided to the EUT, please refer to the following table:

Transmitter Circuit	Model	Antenna Type	Peak Gain (dBi)		Connector Type
			2.4GHz	5GHz	
Chain (0)	AN2450-1726RS	Omni	2	3	SMA Male Reverse
Chain (1)	AN2450-1726RS	Omni	2	3	SMA Male Reverse
Chain (2)	AN2450-1726RS	Omni	2	3	SMA Male Reverse

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

No	Brand	Model No.	Spec.
1	LEADER ELECTRONICS INC.	MU18-2120150-A1	Input: 100-240V, 0.6A, 50/60Hz Output: 12.0V, 1.5A

3. The EUT incorporates a MIMO function. Physically, the EUT provides three completed transmitters and three receivers.

MODULATION MODE	TX/RX FUNCTION
<b>802.11b</b>	2Tx/2Rx
<b>802.11g</b>	2Tx/2Rx
<b>802.11a</b>	3Tx/3Rx
<b>802.11n (20MHz)</b>	3Tx/3Rx
<b>802.11n (40MHz)</b>	3Tx/3Rx

4. The EUT is 3 \* 3 spatial MIMO (3Tx & 3Rx) without beam forming function.

5. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 23. For MCS 0~7 support the correlated signal function.

6. 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	
-	√	√	√	Co-located mode

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

Note: 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)
For 2.4 GHz 802.11g + For 5 GHz 802.11a	1 to 11	6	OFDM	BPSK	6
	149 to 165	149	OFDM	BPSK	6

#### **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)
For 2.4 GHz 802.11g + For 5 GHz 802.11a	1 to 11	6	OFDM	BPSK	6
	149 to 165	149	OFDM	BPSK	6

#### **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	27deg. C, 63%RH	120Vac, 60Hz	Jyunchun Lin
RE<1G	23deg. C, 67%RH	120Vac, 60Hz	Evan Huang
RE≥1G	23deg. C, 67%RH	120Vac, 60Hz	Rex Huang





### 3.3 DESCRIPTION OF SUPPORT UNITS

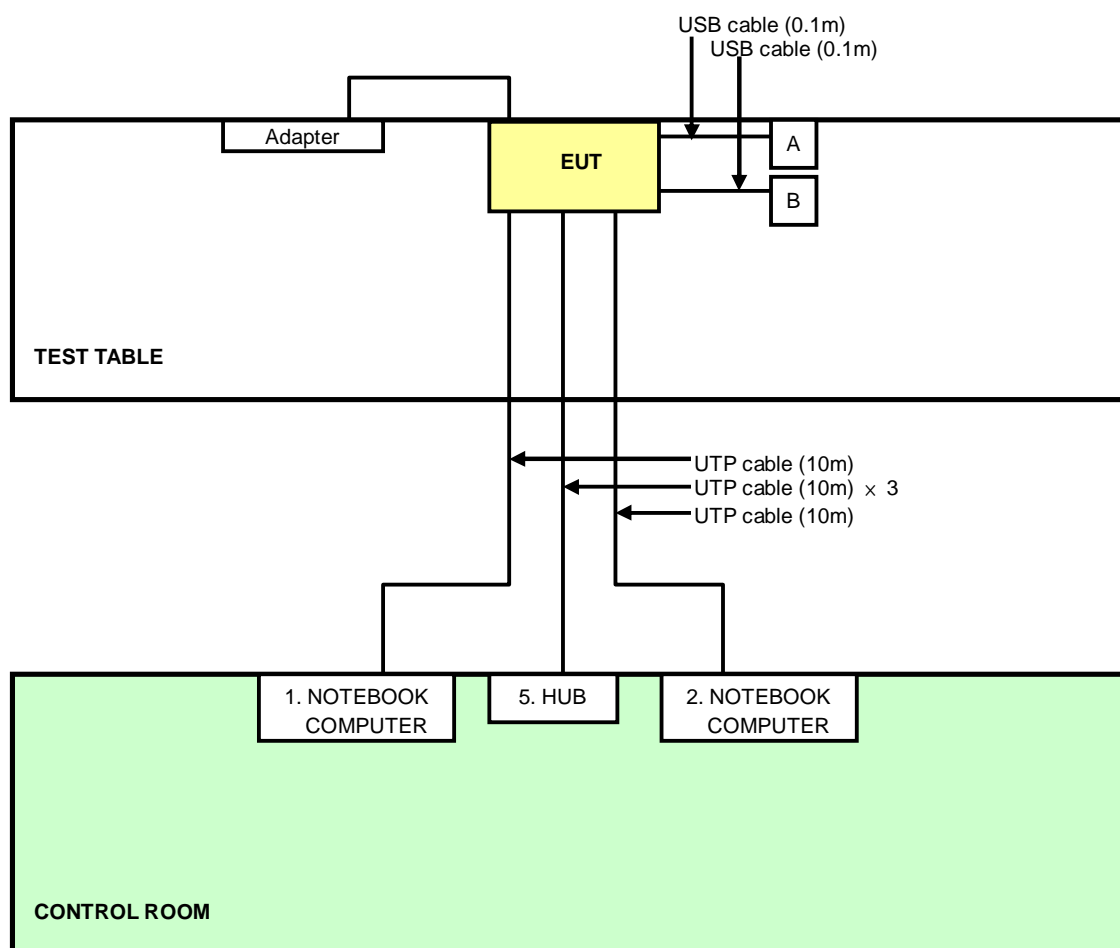
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
3	NOTEBOOK COMPUTER	DELL	PP32LA	GSLB32S	FCC DoC
3	iPod	Apple	MC749TA/A	CC4DMFJUDFDM	NA
4	iPod	Apple	MC749TA/A	CC4DN25WDFD M	NA
5	HUB (For conducted emission test)	D-Link	DWL-P200	F378299000042	NA
	HUB (For other test)	ZyXEL	ES-116P	S060H02000215	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP cable (10m)
2	UTP cable (10m)
3	USB cable (0.1m)
4	USB cable (0.1m)
5	UTP cable (10m)

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

### 3.4 CONFIGURATION OF SYSTEM UNDER TEST



NOTE: The item A & B are support unit 3 & 4 (iPod).



## 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 $\mu$ V)	
0.15-0.5 0.5-5 5-30	Quasi-peak	Average
	66 to 56	56 to 46
	56	46
	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.

#### 4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 08, 2012	Mar. 07, 2013
Line-Impedance Stabilization Network (for EUT)	NSLK8127	8127-522	Sep. 07, 2011	Sep. 06, 2012
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 02, 2011	Nov. 01, 2012
RF Cable (JYEBAO)	5DFB	COCCAB-001	Aug. 29, 2011	Aug. 28, 2012
50 ohms Terminator	50	3	Nov. 02, 2011	Nov. 01, 2012
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. Tested Date: Apr. 06, 2012



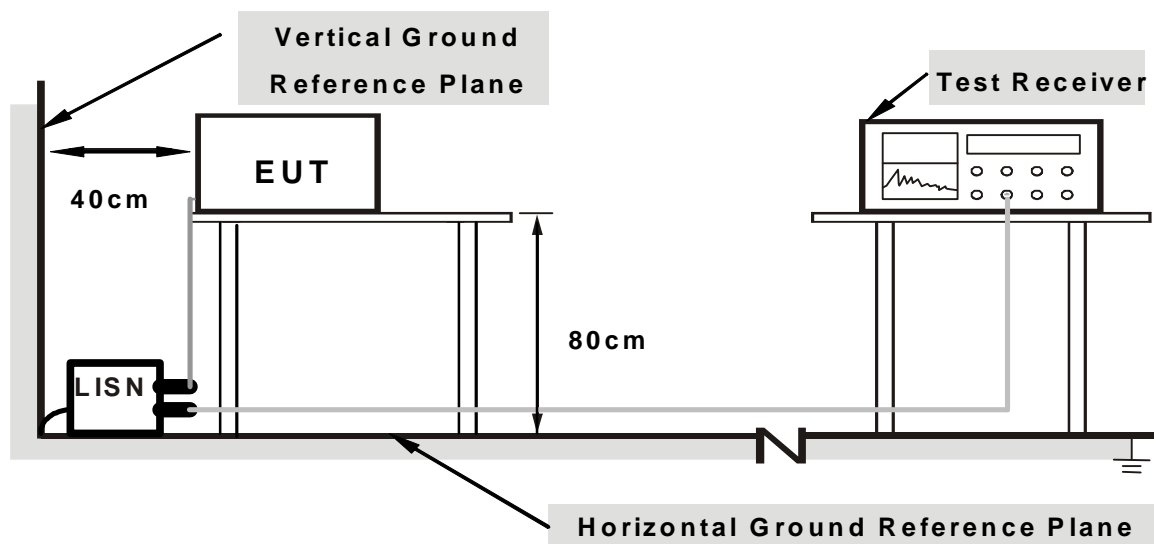
#### 4.1.3 TEST PROCEDURES

- 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

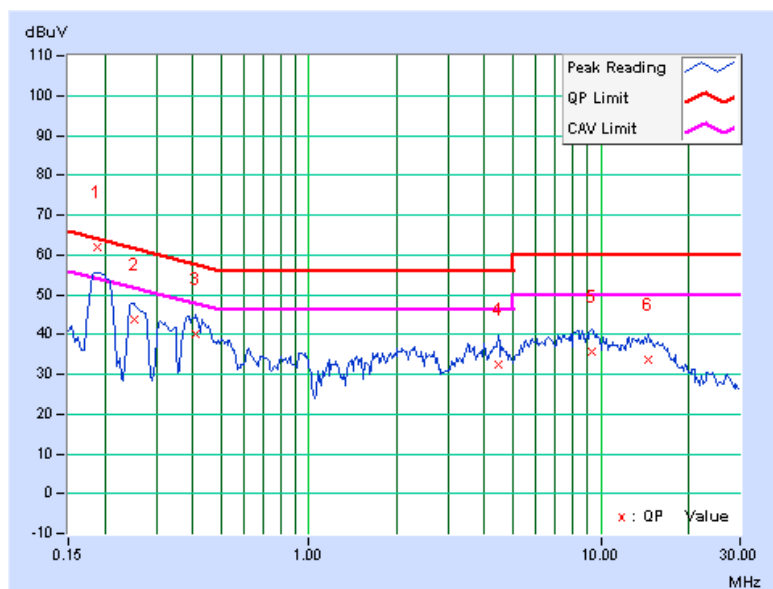
1. Placed the EUT on testing table.
2. Prepared other computer system (support unit 1) to act as communication partners.
3. The communication partners ran test program “artgui.exe” to enable EUT under transmission/receiving condition continuously.

### 4.1.7 TEST RESULTS

<b>PHASE</b>	Line (L)	<b>6dB BANDWIDTH</b>	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor (dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	(dB)	(dB)
1	0.18907	0.10	61.82	38.77	61.92	38.87	64.08	54.08	-2.16	-15.21
2	0.25158	0.11	43.79	30.24	43.90	30.35	61.70	51.70	-17.81	-21.36
3	0.40833	0.13	39.79	28.86	39.92	28.99	57.68	47.68	-17.76	-18.69
4	4.43753	0.46	32.16	25.14	32.62	25.60	56.00	46.00	-23.38	-20.40
5	9.34374	0.73	34.76	27.25	35.49	27.98	60.00	50.00	-24.51	-22.02
6	14.53515	0.96	32.64	29.84	33.60	30.80	60.00	50.00	-26.40	-19.20

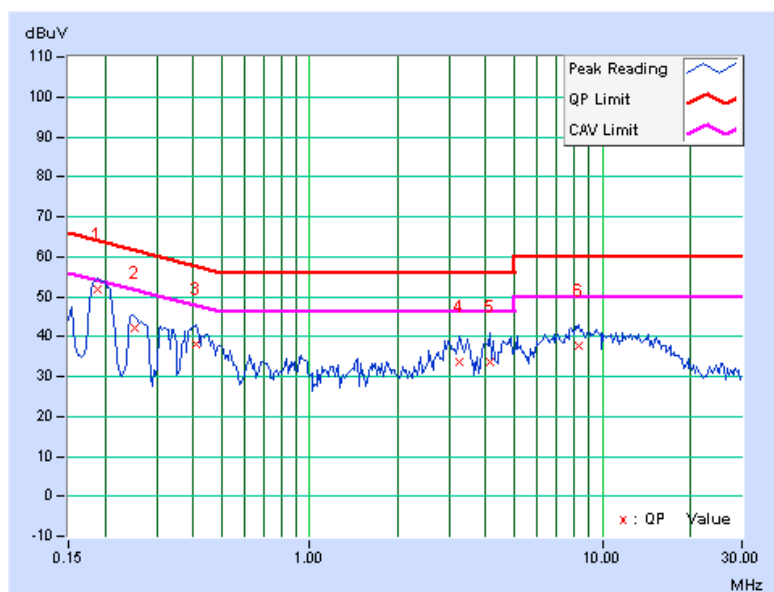
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. The emission levels of other frequencies were very low against the limit.
  3. Margin value = Emission level - Limit value
  4. Correction factor = Insertion loss + Cable loss
  5. Emission Level = Correction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



<b>PHASE</b>	Neutral (N)	<b>6dB BANDWIDTH</b>	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor (dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]
1	0.18907	0.09	51.64	37.69	51.73	37.78	64.08	54.08	-12.35	-16.30
2	0.25154	0.10	42.11	28.46	42.21	28.56	61.71	51.71	-19.50	-23.15
3	0.40784	0.12	37.87	27.65	37.99	27.77	57.69	47.69	-19.70	-19.92
4	3.24606	0.30	33.16	27.44	33.46	27.74	56.00	46.00	-22.54	-18.26
5	4.12107	0.36	33.36	26.59	33.72	26.95	56.00	46.00	-22.28	-19.05
6	8.31643	0.56	37.06	29.53	37.62	30.09	60.00	50.00	-22.38	-19.91

- 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.





## 4.2 RADIATED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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. 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.





#### 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012
Agilent Pre-Selector	N9039A	MY46520311	July 12, 2011	July 11, 2012
Agilent Signal Generator	N5181A	MY49060517	July 12, 2011	July 11, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 15, 2011	Nov. 14, 2012
Agilent Pre-Amplifier	8449B	3008A02578	July 04, 2011	July 03, 2012
SPACEK LABS	SLKKa-48-6	9K16	Nov. 15, 2011	Nov. 14, 2012
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 09, 2012	Apr. 08, 2013
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 14, 2011	Nov. 13, 2012
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 26, 2011	Dec. 25, 2012
RF Cable	NA	CHGCAB_001	Oct. 07, 2011	Oct. 06, 2012
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 horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 3 The test was performed in 966 Chamber No. G.
4. The FCC Site Registration No. is 966073.
- 5 The VCCI Site Registration No. is G-137.
- 6 The CANADA Site Registration No. is IC 7450H-2.
- 7 Tested Date: May 31, 2012



### 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 3 meter chamber room. 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.

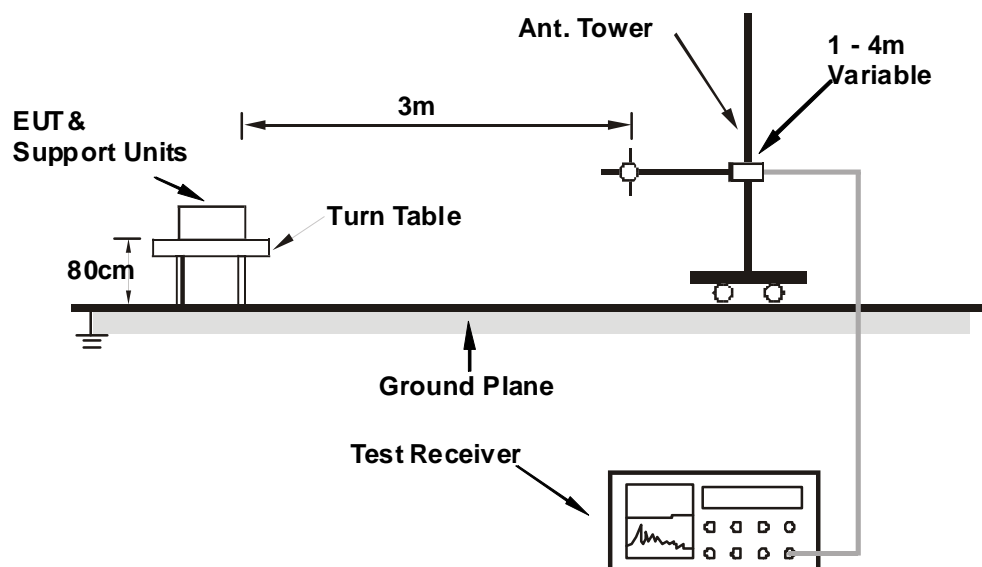
**NOTE:**

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

### 4.2.7 TEST RESULTS

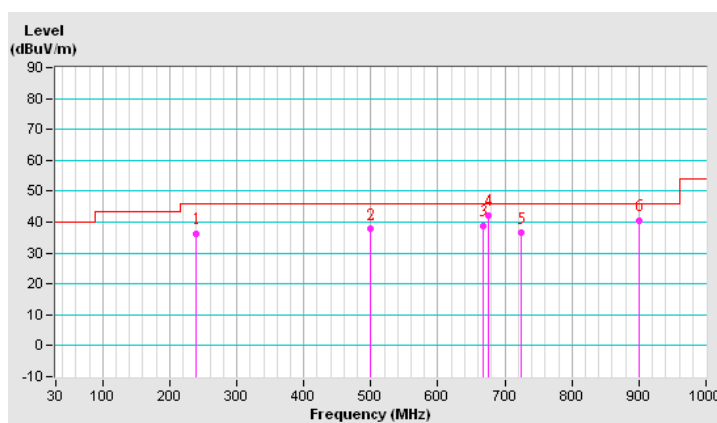
#### BELOW 1GHz DATA :

<b>CHANNEL</b>	802.11g:CH6 + 802.11a:CH149 +	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	Below 1GHz		

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	239.97	36.1 QP	46.0	-9.9	1.25 H	289	22.68	13.44
2	500.01	37.7 QP	46.0	-8.3	1.50 H	354	17.06	20.63
3	667.24	38.8 QP	46.0	-7.2	1.25 H	202	15.40	23.36
4	675.05	42.3 QP	46.0	-3.7	1.25 H	188	18.86	23.45
5	725.02	36.5 QP	46.0	-9.5	1.00 H	16	12.22	24.25
6	900.05	40.5 QP	46.0	-5.5	1.50 H	172	13.03	27.46

#### 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.





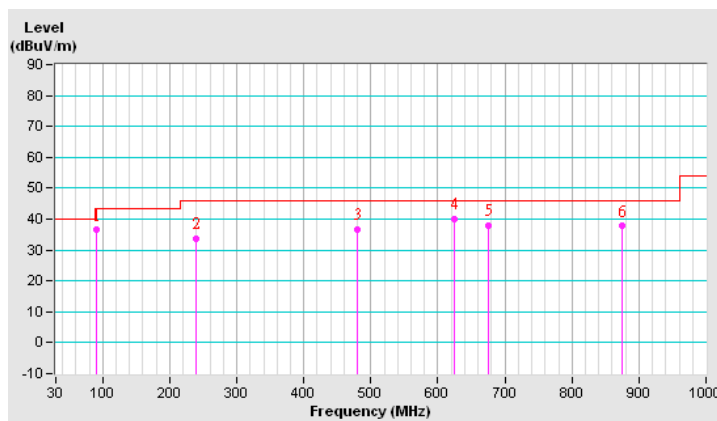
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<b>CHANNEL</b>	802.11g:CH6 + 802.11a:CH149 +	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	Below 1GHz		

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	91.24	36.4 QP	43.5	-7.1	1.50 V	276	25.02	11.41
2	240.08	33.7 QP	46.0	-12.3	1.50 V	24	20.22	13.45
3	480.01	36.6 QP	46.0	-9.4	1.00 V	299	16.48	20.16
4	624.96	40.0 QP	46.0	-6.0	1.50 V	179	17.15	22.89
5	675.05	37.8 QP	46.0	-8.2	1.75 V	132	14.38	23.45
6	875.06	37.7 QP	46.0	-8.3	1.25 V	215	10.66	27.08

**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**

<b>CHANNEL</b>	802.11g:CH6 + 802.11a:CH149 +	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	1GHz ~ 40GHz		Average (AV)

**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	48.2 PK	74.0	-25.8	1.15 H	149	19.42	28.78
2	4874.00	37.0 AV	54.0	-17.0	1.15 H	149	8.22	28.78
3	7311.00	65.7 PK	74.0	-8.3	1.53 H	20	36.92	28.78
4	<b>7311.00</b>	<b>53.2 AV</b>	<b>54.0</b>	<b>-0.8</b>	<b>1.53 H</b>	<b>20</b>	<b>24.42</b>	<b>28.78</b>
5	11490.00	65.9 PK	74.0	-8.1	1.19 H	193	37.12	28.78
6	<b>11490.00</b>	<b>53.2 AV</b>	<b>54.0</b>	<b>-0.8</b>	<b>1.19 H</b>	<b>193</b>	<b>24.42</b>	<b>28.78</b>

**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	50.6 PK	74.0	-23.4	1.14 V	203	21.82	28.78
2	4874.00	39.3 AV	54.0	-14.7	1.14 V	203	10.52	28.78
3	7311.00	54.8 PK	74.0	-19.2	1.12 V	137	26.02	28.78
4	7311.00	43.5 AV	54.0	-10.5	1.12 V	137	14.72	28.78
5	11490.00	60.7 PK	74.0	-13.3	1.21 V	226	31.92	28.78
6	11490.00	50.4 AV	54.0	-3.6	1.21 V	226	21.62	28.78

**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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#### 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 according to ISO/IEC 17025.

Copies of accreditation and authorization 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).

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

No modifications were made to the EUT by the lab during the test.

**---END---**