

# FCC TEST REPORT (CO-LOCATED)

**REPORT NO.:** RF110822C22-2

MODEL NO.: DIR-835

FCC ID: KA2IR835A1

**RECEIVED:** Aug. 22, 2011

**TESTED:** Sep. 04 ~ Sep. 27, 2011

**ISSUED:** Oct. 05, 2011

**APPLICANT:** D-Link Corporation

ADDRESS: 17595 Mt. Herrmann, Fountain Valley, CA

92708, U.S.A.

**ISSUED BY:** Bureau Veritas Consumer Products Services

(H.K.) Ltd., Taoyuan Branch

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou

Hsiang, Taipei Hsien 244, 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.

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# **RELEASE CONTROL RECORD**

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Oct. 05, 2011

Report No.: RF110822C22-2 3 Report Format Version 4.0.0



#### 1. CERTIFICATION

**PRODUCT:** Wireless N750 Dual-Band Router

MODEL: DIR-835

**BRAND**: D-Link

**APPLICANT:** D-Link Corporation

**TESTED:** Sep. 04 ~ Sep. 27, 2011

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 15, Subpart C (Section 15.247)

FCC Part 15, Subpart E (Section 15.407)

ANSI C63.4-2003

ANSI C63.10-2009

The above equipment (Model: DIR-835) 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

DAT

Oct. 05, 2011

APPROVED BY

ary Chang / Technical Manager

DATE: Oct 05 2011



# 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STAND		FCC PART 15, SUBPART C (SECTION 15.247) FCC PART 15, SUBPART E (SECTION 15.407)		
STANDARD TEST TYPE AND LIMIT		RESULT	REMARK	
15.207 15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -6.8dB at 27.633MHz.	
15.247(d) 15.407(b/1/2/3) (b)(5)	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -1.3dB at 7311.00MHz.	

#### **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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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



# 3. GENERAL INFORMATION

# 3.1 GENERAL DESCRIPTION OF EUT

EUT	Wireless N750 Dual-Band Router	
MODEL NO.	DIR-835	
FCC ID	KA2IR835A1	
POWER SUPPLY	12Vdc (adapter)	
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS	
MODULATION TIPE	64QAM, 16QAM, QPSK, BPSK for OFDM	
MODULATION TECHNOLOGY	DSSS, OFDM	
	802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps	
TRANSFER RATE	802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps	
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps	
	802.11n: up to 450.0Mbps	
OPERATING FREQUENCY	<b>2.4GHz</b> : 2412 ~ 2462MHz	
OPERATING PREQUENCY	<b>5.0GHz:</b> 5180 ~ 5240MHz & 5745 ~ 5825MHz	
	2.4GHz:	
	11 for 802.11b, 802.11g, 802.11n (20MHz)	
NUMBER OF CHANNEL	7 for 802.11n (40MHz)	
NOWIBER OF CHANNEL	5.0GHz:	
	9 for 802.11a, 802.11n (20MHz)	
	4 for 802.11n (40MHz)	
	647.2mW for 2412 ~ 2462MHz	
OUTPUT POWER	41.1mW for 5180 ~ 5240MHz	
	812.9mW for 5745 ~ 5825MHz	
ANTENNA TYPE	2.4GHz: Dipole antenna with 2dBi gain	
ANTENNA TIPE	5.0GHz: Dipole antenna with 2dBi gain	
ANTENNA CONNECTOR	R-SMA	
DATA CABLE	NA	
I/O PORTS Refer to user's manual		
ACCESSORY DEVICES	Adapter	



#### NOTE:

1. The frequency bands used in this EUT are listed as follows:

Frequency Band (MHz)	2412~2462	5180~5240	5745~5825
802.11b	$\checkmark$		
802.11g	$\checkmark$		
802.11a		$\checkmark$	$\checkmark$
802.11n (20MHz)	$\checkmark$	$\checkmark$	$\checkmark$
802.11n (40MHz)	V	$\sqrt{}$	V

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

MODULATION MODE	TX FUNCTION		
WODULATION WODE	2.4GHz band	5GHz band	
802.11b	1TX	-	
802.11g	2TX	-	
802.11a	-	3TX	
802.11n (20MHz)	2TX	3TX	
802.11n (40MHz)	2TX	3TX	

3. The EUT consumes power from the following adapters:

ADAPTER 1		
BRAND: D-Link		
MODEL: CG2412-B		
INPUT: 100-120Vac, 0.5A, 50-60Hz		
OUTPUT: +12Vdc, 2A		
POWER LINE: 1.8m non-shielded cable without core		

ADAPTER 2		
BRAND:	D-Link	
MODEL:	CG2412-B IW	
INPUT:	100-120Vac, 0.6A, 50-60Hz	
OUTPUT:	+12Vdc, 2A	
POWER LINE:	1.8m non-shielded cable without core	

ADAPTER 3		
BRAND:	D-Link	
MODEL:	CG2412-B	
INPUT:	100-240Vac, 0.5A, 50-60Hz	
OUTPUT: +12Vdc, 2A		
POWER LINE:	1.8m non-shielded cable without core	



ADAPTER 4		
BRAND:	D-Link	
MODEL: CG2412-B IW		
INPUT: 100-240Vac, 0.6A, 50-60Hz		
OUTPUT: +12Vdc, 2A		
POWER LINE: 1.8m non-shielded cable without core		

<sup>\*</sup>After radiated emission pre-testing, adapter 2 is the worst case for final test.

4. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

<sup>\*</sup>After conducted emission pre-testing, adapter 4 is the worst case for final test.



#### 3.2 DESCRIPTION OF TEST MODES

#### FOR 2.4GHz:

11 channels are provided for 802.11b, 802.11g and 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

7 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2422MHz	5	2442MHz
2	2427MHz	6	2447MHz
3	2432MHz	7	2452MHz
4	2437MHz		

#### **Operated in 5180 ~ 5240MHz**

4 channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180MHz	44	5220MHz
40	5200MHz	48	5240MHz

# 2 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190MHz	46	5230MHz



# **Operated in 5745 ~ 5825MHz**

5 channels are provided for 802.11a, 802.11n (20MHz):

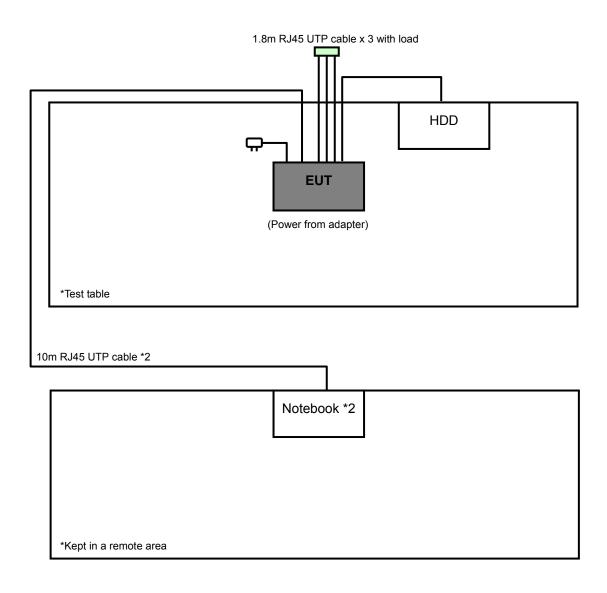
CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

# 2 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY	
151	5755MHz	159	5795MHz	



# 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST





#### 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE	APPLICABLE TO			DESCRIPTION
MODE	RE≥1G	RE<1G	CE	5200mm 110m
-	V	V	√	-

Where **RE≥1G**: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

**CE:** Conducted Emission Measurement

NOTE: Test modes as below are composed of the max output power channel of each band.

#### **RADIATED EMISSION TEST (ABOVE 1GHz):**

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	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (20MHz)	2412~2462	1 to 11	6 + 40	OFDM	BPSK	7.2
002.1111 (20W112)	5180-5240	36 to 48	0 1 40	OI BIVI	Bi oit	1.2
802.11n (20MHz)	2412~2462	1 to 11	6 + 149	OFDM	BPSK	7.2
002.1111 (20IVII IZ)	5745~5825	149 to 165	0 1 149	OI DIVI	אט ום	1.2

#### **RADIATED EMISSION TEST (BELOW 1GHz):**

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	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (20MHz)	2412~2462	1 to 11	6 + 40	OFDM	BPSK	7.2
602.1111 (20IVITIZ)	5180-5240	36 to 48	0 1 40	OI DIVI	DI OK	1.2
802.11n (20MHz)	2412~2462	1 to 11	6 + 149	OFDM	BPSK	7.2
002.1111 (20IVII IZ)	5745~5825	149 to 165	0 1 149	OI DIVI	DI SK	1.2



#### **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	FREQ. RANGE (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (20MHz)	2412~2462	1 to 11	6 + 40	OFDM	BPSK	7.2
002.1111 (20IVII IZ)	5180-5240	36 to 48	0 1 40	OI DIVI	DI OIX	1.2
802.11n (20MHz)	2412~2462	1 to 11	6 + 149	OFDM	BPSK	7.2
002.1111 (20IVII 12)	5745~5825	149 to 165	5 · 149	OI DIVI	Di OIC	1.2

#### **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Sun Lin
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Sun Lin
PLC	26deg. C, 67%RH	120Vac, 60Hz	Cody Chang



#### 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (Section 15.247) FCC Part 15, Subpart E (Section 15.407) ANSI C63.4-2003 ANSI C63.10-2009

All test items 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	EXTERNAL HARD DISK	TERASYS	F12-UF	A0100222-4A60004	FCC DoC Approved
2	NOTEBOOK	DELL	PP18L	33497605792	CXSMM01BRD02D 330
3	NOTEBOOK	DELL	E5410	1HC2XM1	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1.5 m shielded cable, terminated with USB connector, w/o core.
2	10m RJ45 UTP cable without core.
3	10m RJ45 UTP cable without core.

#### NOTE:

- 1. All power cords of the above support units are non-shielded (1.8m).
- 2. Item 2 ~ 3 acted communication partners to transfer data.



#### 4. TEST TYPES AND RESULTS

#### 4.1 RADIATED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a). 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. 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.

#### 4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

FREQUENCIES (MHz)	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBµV/m) *NOTE 3		
(IVII IZ)	PK	PK		
5150 ~ 5250	-27	68.3		
5250 ~ 5350	-27	68.3		
5470 ~ 5725	-27	68.3		

#### NOTE:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:  $E = \frac{1000000\sqrt{30P}}{\text{pV/m}} \text{ where P is the eirp (Watts)}.$ 

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#### 4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 19, 2011	Apr. 18, 2012
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jan. 06, 2011	Jan. 05, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Apr. 12, 2011	Apr. 11, 2012
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Sep. 06, 2011	Sep. 05, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170243	Dec. 27, 2010	Dec. 26, 2011
Preamplifier Agilent	8449B	3008A01911	Nov. 03, 2010	Nov. 02, 2011
Preamplifier Agilent	8447D	2944A10638	Nov. 03, 2010	Nov. 02, 2011
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295013/4 283403/4	Aug. 19, 2011	Aug. 18, 2012
RF signal cable Worken	8D-FB	Cable-HYCH9-01	Aug. 13, 2011	Aug. 12, 2012
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn Table Controller EMCO	2090	NA	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Nov. 03, 2010	Nov. 02, 2011

**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 9.
- 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 4. The FCC Site Registration No. is 460141.
- 5. The IC Site Registration No. is IC 7450F-4.



#### 4.1.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters 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 lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

#### NOTE:

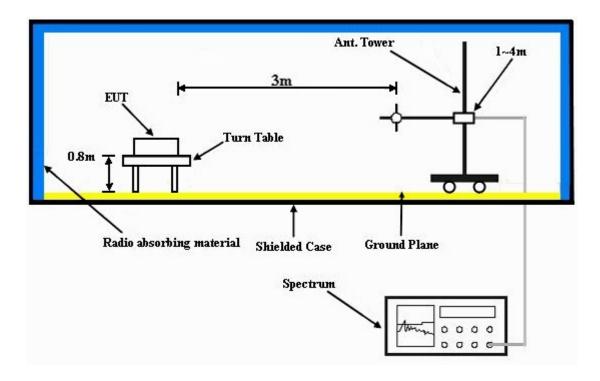
- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 3. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.5 DEVIATION FROM TEST STANDARD

No deviation



#### 4.1.6 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.1.7 EUT OPERATING CONDITIONS

- a. Placed the EUT on the testing table.
- b. Prepared notebooks to act as communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT via a RJ45 cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- d. The communication partner sent data to EUT by command "PING".
- e. The communication partner read and wrote with the HDD via EUT.



#### 4.1.8 TEST RESULTS

#### For 2.4GHz band + 5GHz Band 1

#### 802.11n (20MHz)

<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL		
CHANNEL	CH 6 + CH 40	FREQUENCY RANGE	1 ~ 40GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun Lin	

	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	2200.00	56.0 PK	74.0	-18.0	1.00 H	205	25.60	30.40	
2	2200.00	45.9 AV	54.0	-8.1	1.00 H	205	15.50	30.40	
3	2360.00	57.8 PK	74.0	-16.2	1.07 H	213	26.90	30.90	
4	2360.00	48.0 AV	54.0	-6.0	1.07 H	213	17.10	30.90	
5	2390.00	57.6 PK	74.0	-16.4	1.00 H	217	26.50	31.10	
6	2390.00	47.8 AV	54.0	-6.2	1.00 H	217	16.70	31.10	
7	*2437.00	109.1 PK			1.00 H	217	77.90	31.20	
8	*2437.00	105.2 AV			1.13 V	183	74.00	31.20	
9	2803.00	40.8 PK	74.0	-33.2	1.32 H	215	8.40	32.40	
10	2803.00	30.7 AV	54.0	-23.3	1.32 H	215	-1.70	32.40	
11	4874.00	45.9 PK	74.0	-28.1	1.22 H	248	8.60	37.30	
12	4874.00	34.8 AV	54.0	-19.2	1.22 H	248	-2.50	37.30	
13	5000.00	47.5 PK	74.0	-26.5	1.07 H	203	9.90	37.60	
14	5000.00	40.3 AV	54.0	-13.7	1.07 H	203	2.70	37.60	
15	*5200.00	96.2 PK			1.08 H	15	58.40	37.80	
16	*5200.00	83.1 AV			1.08 H	15	45.30	37.80	
17	7311.00	49.4 PK	74.0	-24.6	1.58 H	43	6.30	43.10	
18	7311.00	39.2 AV	54.0	-14.8	1.58 H	43	-3.90	43.10	
19	#10400.00	57.5 PK	68.3	-10.8	1.35 H	305	9.20	48.30	

**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.
- 5. " \* ": Fundamental frequency.
- 6. The limit value is defined as per 15.247 & 15.407.
- 7. "#":The radiated frequency is out the restricted band.



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 6 + CH 40	FREQUENCY RANGE	1 ~ 40GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun Lin	

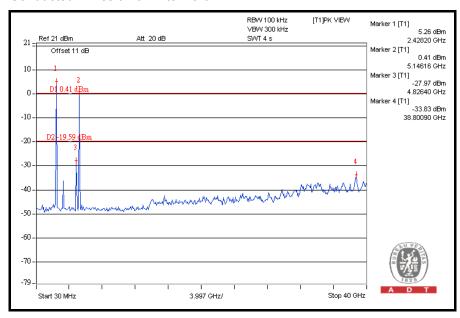
		ANTENNA	POLARITY	Y & TEST DI	STANCE: V	ERTICAL A	T 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2200.00	60.2 PK	74.0	-13.8	1.00 V	224	29.80	30.40
2	2200.00	51.2 AV	54.0	-2.8	1.00 V	224	20.80	30.40
3	2360.00	63.3 PK	74.0	-10.7	1.17 V	167	32.40	30.90
4	2360.00	52.6 AV	54.0	-1.4	1.17 V	167	21.70	30.90
5	2390.00	63.6 PK	74.0	-10.4	1.13 V	183	32.50	31.10
6	2390.00	52.4 AV	54.0	-1.6	1.13 V	183	21.30	31.10
7	*2437.00	116.2 PK			1.13 V	183	85.00	31.20
8	*2437.00	105.2 AV			1.13 V	183	74.00	31.20
9	2803.00	45.4 PK	74.0	-28.6	1.03 V	190	13.00	32.40
10	2803.00	35.5 AV	54.0	-18.5	1.03 V	190	3.10	32.40
11	4874.00	65.6 PK	74.0	-8.4	1.07 V	354	28.30	37.30
12	4874.00	50.3 AV	54.0	-3.7	1.07 V	354	13.00	37.30
13	5000.00	58.6 PK	74.0	-15.4	1.05 V	125	21.00	37.60
14	5000.00	47.9 AV	54.0	-6.1	1.05 V	125	10.30	37.60
15	*5200.00	108.8 PK			1.03 V	172	71.00	37.80
16	*5200.00	98.0 AV			1.03 V	172	60.20	37.80
17	7311.00	66.8 PK	74.0	-7.2	1.92 V	57	23.70	43.10
18	7311.00	52.7 AV	54.0	-1.3	1.92 V	57	9.60	43.10
19	#10400.00	65.8 PK	68.3	-2.5	1.61 V	312	17.50	48.30

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

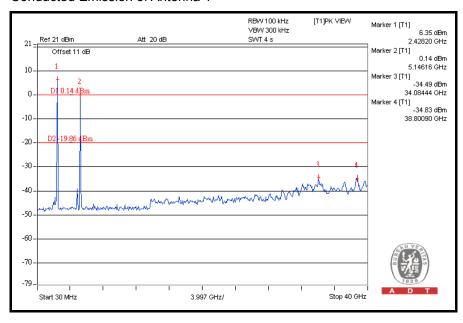
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. The limit value is defined as per 15.247& 15.407.
- 7. "#":The radiated frequency is out the restricted band.



#### Conducted Emission of Antenna 0



#### Conducted Emission of Antenna 1





#### For 2.4GHz band + 5GHz Band 4

#### 802.11n (20MHz)

<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL		
CHANNEL CH 6 + CH 149		FREQUENCY RANGE	1 ~ 40GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun Lin	

		ANTENNA	POLARITY	& TEST DIS	TANCE: HO	RIZONTAL	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	2200.00	56.0 PK	74.0	-18.0	1.00 H	205	24.70	31.30
2	2200.00	45.9 AV	54.0	-8.1	1.00 H	205	14.60	31.30
3	2360.00	57.8 PK	74.0	-16.2	1.07 H	213	26.00	31.80
4	2360.00	48.0 AV	54.0	-6.0	1.07 H	213	16.20	31.80
5	2390.00	57.6 PK	74.0	-16.4	1.00 H	217	25.60	32.00
6	2390.00	47.8 AV	54.0	-6.2	1.00 H	217	15.80	32.00
7	*2437.00	109.1 PK			1.00 H	217	77.00	32.10
8	*2437.00	97.5 AV			1.00 H	217	65.40	32.10
9	#3308.00	45.2 PK	89.1	-43.9	1.58 H	135	10.70	34.50
10	#3308.00	35.2 AV	77.5	-42.3	1.58 H	135	0.70	34.50
11	4874.00	45.6 PK	74.0	-28.4	1.28 H	245	7.00	38.60
12	4874.00	35.3 AV	54.0	-18.7	1.28 H	245	-3.30	38.60
13	5000.00	54.8 PK	74.0	-19.2	1.02 H	168	15.90	38.90
14	5000.00	43.7 AV	54.0	-10.3	1.02 H	168	4.80	38.90
15	5080.00	55.2 PK	74.0	-18.8	1.08 H	177	16.10	39.10
16	5080.00	43.8 AV	54.0	-10.2	1.08 H	177	4.70	39.10
17	#5725.00	80.2 PK	82.1	-1.9	1.22 H	108	40.00	40.20
18	#5725.00	61.2 AV	71.2	-10.0	1.22 H	108	21.00	40.20
19	*5745.00	102.1 PK			1.02 H	77	61.80	40.30
20	*5745.00	91.2 AV			1.02 H	77	50.90	40.30
21	7311.00	49.4 PK	74.0	-24.6	1.58 H	43	4.50	44.90
22	7311.00	39.2 AV	54.0	-14.8	1.58 H	43	-5.70	44.90
23	11490.00	56.7 PK	74.0	-17.3	1.25 H	157	5.40	51.30
24	11490.00	46.5 AV	54.0	-7.5	1.25 H	157	-4.80	51.30

**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.
- 5. " \* ": Fundamental frequency.
- 6. #:The radiated frequency is out the restricted band.



<b>EUT TEST CONDITION</b>		MEASUREMENT DETAIL		
CHANNEL	CH 6 + CH 149	FREQUENCY RANGE	1 ~ 40GHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun Lin	

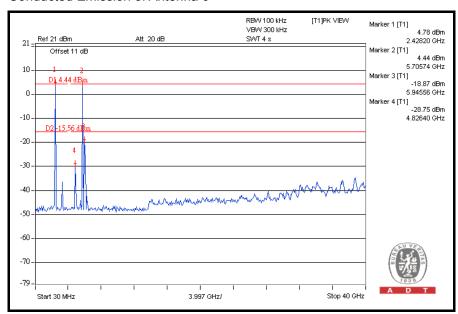
	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	2200.00	60.2 PK	74.0	-13.8	1.00 V	224	29.80	30.40	
2	2200.00	51.2 AV	54.0	-2.8	1.00 V	224	20.80	30.40	
3	2360.00	63.3 PK	74.0	-10.7	1.17 V	167	32.40	30.90	
4	2360.00	52.6 AV	54.0	-1.4	1.17 V	167	21.70	30.90	
5	2390.00	63.6 PK	74.0	-10.4	1.13 V	183	32.50	31.10	
6	2390.00	52.4 AV	54.0	-1.6	1.13 V	183	21.30	31.10	
7	*2437.00	116.2 PK			1.13 V	183	85.00	31.20	
8	*2437.00	105.2 AV			1.13 V	183	74.00	31.20	
9	#3308.00	49.3 PK	96.2	-46.9	1.29 V	40	15.90	33.40	
10	#3308.00	40.6 AV	85.2	-44.6	1.29 V	40	7.20	33.40	
11	4874.00	66.4 PK	74.0	-7.6	1.30 V	256	29.10	37.30	
12	4874.00	50.9 AV	54.0	-3.1	1.30 V	256	13.60	37.30	
13	5000.00	62.6 PK	74.0	-11.4	1.12 V	252	25.00	37.60	
14	5000.00	52.3 AV	54.0	-1.7	1.12 V	252	14.70	37.60	
15	5080.00	59.8 PK	74.0	-14.2	1.24 V	9	22.10	37.70	
16	5080.00	50.9 AV	54.0	-3.1	1.24 V	9	13.20	37.70	
17	#5725.00	89.9 PK	95.5	-5.6	1.18 V	5	51.20	38.70	
18	#5725.00	71.7 AV	83.2	-11.5	1.18 V	5	33.00	38.70	
19	*5745.00	115.5 PK			1.29 V	3	76.70	38.80	
20	*5745.00	103.2 AV			1.29 V	3	64.40	38.80	
21	7311.00	66.8 PK	74.0	-7.2	1.92 V	57	23.70	43.10	
22	7311.00	52.7 AV	54.0	-1.3	1.92 V	57	9.60	43.10	
23	11490.00	64.5 PK	74.0	-9.5	1.50 V	292	14.80	49.70	
24	11490.00	50.6 AV	54.0	-3.4	1.50 V	292	0.90	49.70	

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

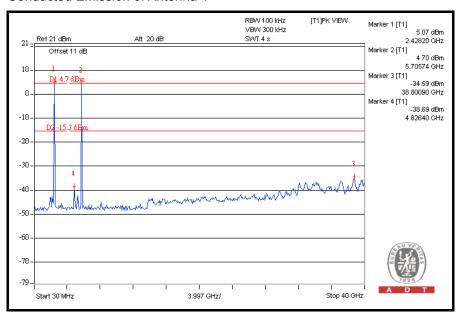
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " \* ": Fundamental frequency.
- 6. The limit value is defined as per 15.247.
- 7. "#":The radiated frequency is out the restricted band.



#### Conducted Emission of Antenna 0



#### Conducted Emission of Antenna 1





#### For 2.4GHz band + 5GHz Band 1

#### BELOW 1GHz WORST-CASE DATA: 802.11an (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 6 + CH 40	FREQUENCY RANGE	Below 1000MHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun Lin	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION	LIMIT	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)	
1	125.17	38.6 QP	43.5	-4.9	1.50 H	142	26.60	12.00	
2	500.42	38.0 QP	46.0	-8.0	1.50 H	151	18.30	19.70	
3	624.85	40.5 QP	46.0	-5.5	2.00 H	286	18.10	22.40	
4	720.12	42.9 QP	46.0	-3.1	1.25 H	16	19.50	23.40	
5	780.40	39.0 QP	46.0	-7.0	1.50 H	16	14.80	24.20	
6	959.99	40.2 QP	46.0	-5.8	1.16 H	336	13.60	26.60	
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 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	57.25	37.2 QP	40.0	-2.8	1.02 V	102	24.10	13.10	
2	76.88	38.0 QP	40.0	-2.0	1.00 V	185	28.00	10.00	
3	140.72	36.8 QP	43.5	-6.7	1.25 V	52	23.00	13.80	
4	374.04	35.9 QP	46.0	-10.1	1.25 V	187	19.50	16.40	
5	500.42	36.0 QP	46.0	-10.0	1.50 V	157	16.30	19.70	
6	624.85	39.2 QP	46.0	-6.8	1.25 V	337	16.80	22.40	

**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.



#### For 2.4GHz band + 5GHz Band 4

#### BELOW 1GHz WORST-CASE DATA: 802.11an (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL	CH 6 + CH 149	FREQUENCY RANGE	Below 1000MHz	
INPUT POWER (SYSTEM)	120Vac, 60Hz	DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Sun Lin	

	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	125.17	37.3 QP	43.5	-6.2	1.50 H	106	25.30	12.00		
2	142.67	35.1 QP	43.5	-8.4	2.00 H	124	21.60	13.50		
3	500.42	38.0 QP	46.0	-8.0	1.25 H	136	18.30	19.70		
4	624.85	40.1 QP	46.0	-5.9	1.00 H	55	17.70	22.40		
5	720.00	41.3 QP	46.0	-4.7	1.00 H	328	17.90	23.40		
6	959.97	39.5 QP	46.0	-6.5	1.14 H	335	12.90	26.60		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
		EMISSION					CORRECTION			
NO.	FREQ. (MHz)		LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	FACTOR (dB/m)		
<b>NO</b> .	FREQ. (MHz) 57.69	LEVEL		MARGIN (dB) -2.5		ANGLE		FACTOR		
	` ,	LEVEL (dBuV/m)	(dBuV/m)	- (" )	HEIGHT (m)	ANGLE (Degree)	(dBuV)	FACTOR (dB/m)		
1	57.69	LEVEL (dBuV/m) 37.5 QP	(dBuV/m) 40.0	-2.5	<b>HEIGHT (m)</b> 1.08 V	ANGLE (Degree)	(dBuV) 24.50	FACTOR (dB/m) 13.00		
1 2	57.69 76.82	LEVEL (dBuV/m) 37.5 QP 37.8 QP	(dBuV/m) 40.0 40.0	-2.5 -2.2	1.08 V 1.00 V	ANGLE (Degree)  15 218	(dBuV) 24.50 27.80	FACTOR (dB/m) 13.00 10.00		
1 2 3	57.69 76.82 107.67	LEVEL (dBuV/m) 37.5 QP 37.8 QP 36.8 QP	(dBuV/m)  40.0  40.0  43.5	-2.5 -2.2 -6.7	1.08 V 1.00 V 1.00 V	ANGLE (Degree)  15 218 328	(dBuV) 24.50 27.80 27.20	FACTOR (dB/m)  13.00  10.00  9.60		

**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.



#### 4.2 CONDUCTED EMISSION MEASUREMENT

#### 4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)			
	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.

#### 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Nov. 23, 2010	Nov. 22, 2011
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 30, 2010	Dec. 29, 2011
LISN ROHDE & SCHWARZ	ESH2-Z5	100100	Jan. 06, 2011	Jan. 05, 2012
LISN ROHDE & SCHWARZ	ESH3-Z5	100312	Jul. 07, 2011	Jul. 06, 2012
V-LISN SCHWARZBECK	NNBL 8226-2	8226-142	Jun. 30, 2011	Jun. 29, 2012
LISN ROHDE & SCHWARZ	ENV216	100072	Jun. 10, 2011	Jun. 09, 2012
Software ADT	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 HwaYa Shielded Room 2.
- 3. The VCCI Site Registration No. is C-2047.



#### 4.2.3 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) was not recorded.

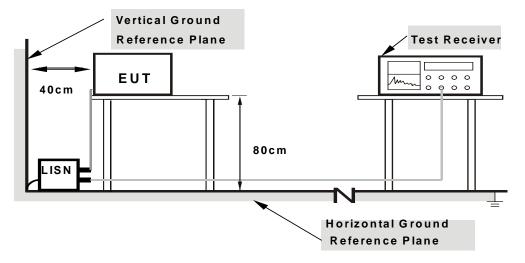
NOTE: All modes of operation were investigated and the worst-case emissions are reported.

#### 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 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.



#### 4.2.7 TEST RESULTS

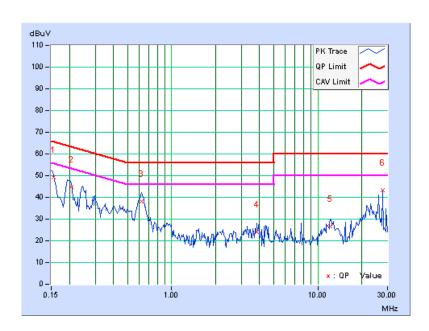
For 2.4GHz band + 5GHz Band 1

#### **CONDUCTED WORST-CASE DATA: 802.11n (20MHz)**

CHANNEL	CH 6 + CH 40	6dB BANDWIDTH	9kHz
PHASE	Line 1		

No	Freq.	Corr.	Readin	g Value		ssion vel	Lir	nit	Mar	gin
		Factor	[dB	(uV)]	[dB	(uV)]	[dB	(uV)]	(d	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.156	0.15	49.02	40.53	49.17	40.68	65.70	55.70	-16.53	-15.02
2	0.207	0.15	44.85	38.20	45.00	38.35	63.34	53.34	-18.34	-14.99
3	0.626	0.18	37.85	32.93	38.03	33.11	56.00	46.00	-17.97	-12.89
4	3.823	0.31	23.85	15.96	24.16	16.27	56.00	46.00	-31.84	-29.73
5	12.210	0.70	25.85	20.66	26.55	21.36	60.00	50.00	-33.45	-28.64
6	27.699	1.26	42.02	41.61	43.28	42.87	60.00	50.00	-16.72	-7.13

- 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.

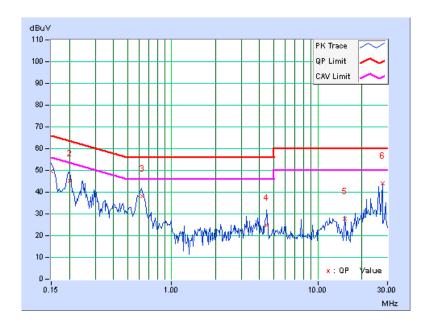




CHANNEL	CH 6 + CH 40	6dB BANDWIDTH	9kHz
PHASE	Line 2		

No	Freq.	Corr.	Readin	g Value		ssion vel	Lir	nit	Mar	gin
		Factor	[dB	(uV)]	[dB	(uV)]	[dB (	(uV)]	(dl	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.16	49.35	41.68	49.51	41.84	66.00	56.00	-16.49	-14.16
2	0.200	0.17	45.10	38.23	45.27	38.40	63.61	53.61	-18.34	-15.21
3	0.629	0.20	37.99	32.54	38.19	32.74	56.00	46.00	-17.81	-13.26
4	4.456	0.33	24.38	12.21	24.71	12.54	56.00	46.00	-31.29	-33.46
5	15.355	0.74	27.12	26.54	27.86	27.28	60.00	50.00	-32.14	-22.72
6	27.633	1.08	42.99	42.12	44.07	43.20	60.00	50.00	-15.93	-6.80

- 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.





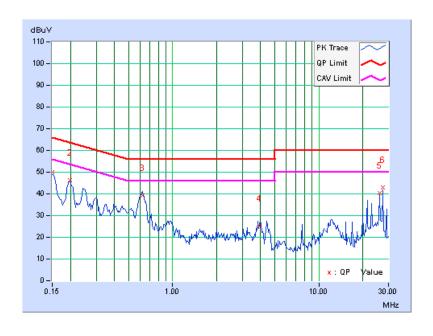
For 2.4GHz band + 5GHz Band 4

#### **CONDUCTED WORST-CASE DATA: 802.11n (20MHz)**

CHANNEL	CH 6 + CH 149	6dB BANDWIDTH	9kHz
PHASE	Line 1		

No	Freq.	Corr.	Readin	g Value		ssion vel	Lir	nit	Mar	gin
		Factor	[dB	(uV)]	[dB	(uV)]	[dB	(uV)]	(d	B)
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.15	49.86	41.54	50.01	41.69	66.00	56.00	-15.99	-14.31
2	0.199	0.15	46.12	40.52	46.27	40.67	63.66	53.66	-17.39	-12.99
3	0.624	0.18	38.99	33.75	39.17	33.93	56.00	46.00	-16.83	-12.07
4	3.930	0.32	24.97	15.92	25.29	16.24	56.00	46.00	-30.71	-29.76
5	26.082	1.24	39.03	37.81	40.27	39.05	60.00	50.00	-19.73	-10.95
6	27.596	1.26	41.84	41.66	43.10	42.92	60.00	50.00	-16.90	-7.08

- 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.

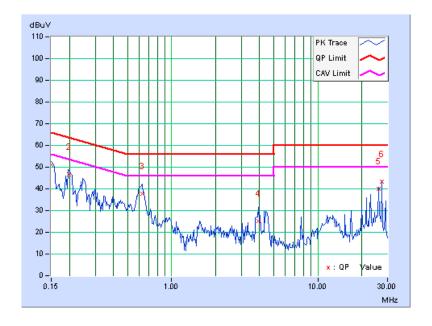




CHANNEL	CH 6 + CH 149	6dB BANDWIDTH	9kHz
PHASE	Line 2		

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.16	50.80	42.96	50.96	43.12	66.00	56.00	-15.04	-12.88
2	0.199	0.17	46.51	39.21	46.68	39.38	63.67	53.67	-16.99	-14.29
3	0.628	0.20	37.68	34.02	37.88	34.22	56.00	46.00	-18.12	-11.78
4	3.936	0.32	24.89	15.17	25.21	15.49	56.00	46.00	-30.79	-30.51
5	26.069	1.06	39.12	38.59	40.18	39.65	60.00	50.00	-19.82	-10.35
6	27.598	1.08	42.26	41.81	43.34	42.89	60.00	50.00	-16.66	-7.11

- 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.





5. PHOTOGRAPHS OF THE TEST CONFIGURATION Please refer to the attached file (Test Setup Photo).



#### 6. INFORMATION ON THE TESTING LABORATORIES

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

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: <a href="www.adt.com.tw/index.5.phtml">www.adt.com.tw/index.5.phtml</a>. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab: Hsin Chu EMC/RF Lab:

Tel: 886-2-26052180 Tel: 886-3-5935343 Fax: 886-2-26051924 Fax: 886-3-5935342

#### Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232 Fax: 886-3-3185050

Email: service.adt@tw.bureauveritas.com

Web Site: www.adt.com.tw

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



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

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

---END---