

## FCC Test Report (Co-Located)

**Report No.:** RF181121C07-2

**FCC ID:** KA2IR3060A1

**Test Model:** DIR-3060

**Series Model:** DIR-3040 (Refer to item 3.1 for the more details)

**Received Date:** Feb. 14, 2019

**Test Date:** Mar. 06 ~ Mar. 07, 2019

**Issued Date:** Apr. 02, 2019

**Applicant:** D-Link Corporation

**Address:** 17595 Mt. Herrmann, Fountain Valley, California, United States, 92708

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

**FCC Registration /  
Designation Number:** 788550 / TW0003



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### Release Control Record

Issue No.	Description	Date Issued
RF181121C07-2	Original release.	Apr. 02, 2019

## 1 Certificate of Conformity

**Product:** AC3000 Smart Mesh Wi-Fi Router

**Brand:** D-Link Corporation

**Test Model:** DIR-3060

**Series Model:** DIR-3040 (Refer to item 3.1 for the more details)

**Sample Status:** Engineering sample

**Applicant:** D-Link Corporation

**Test Date:** Mar. 06 ~ Mar. 07, 2019

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
47 CFR FCC Part 15, Subpart E (Section 15.407)  
ANSI C63.10-2013

The above equipment 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 RF characteristics under the conditions specified in this report.

**Prepared by :** Pettie Chen , **Date:** Apr. 02, 2019  
Pettie Chen / Senior Specialist

**Approved by :** Bruce Chen , **Date:** Apr. 02, 2019  
Bruce Chen / Project Engineer

## 2 Summary of Test Results

Applied Standard:	47 CFR FCC Part 15, Subpart C (Section 15.247) 47 CFR FCC Part 15, Subpart E (Section 15.407)		
FCC Clause	Test Item	Result	Remarks
15.205 / 15.209 / 15.247(d) / 15.407(b) / (1/2/3/4(i/ii)/6)	Radiated Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -0.2dB at 2390.00MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

### 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	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.86 dB
	200MHz ~ 1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

Product	AC3000 Smart Mesh Wi-Fi Router
Brand	D-Link Corporation
Test Model	DIR-3060
Series Model	DIR-3040
Model Difference	Refer to note for more details
Sample Status	Engineering sample
Power Supply Rating	12Vdc from adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11a/g: 54/48/36/24/18/12/9/6Mbps 802.11n (2.4GHz Band): up to 400Mbps 802.11n (5.0GHz Band): up to 600Mbps 802.11ac: up to 1733.3Mbps
Operating Frequency	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5180 ~ 5240MHz, 5745 ~ 5825MHz
Number of Channel	2412 ~ 2462MHz: 802.11b, 802.11g, 802.11n (HT20), 802.11n (VHT20): 11 802.11n (HT40), 802.11n (VHT40): 7 5180~5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5745~5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1
Output Power	CDD Mode: 2412~2462MHz: 234.529mW 5180~5240MHz: 660.032mW 5745~5825MHz: 995.213mW Beamforming Mode: 5180~5240MHz: 619.529mW 5745~5825MHz: 248.838mW
Antenna Type	2.4GHz Band: Radio 1: Dipole antenna with 4.85dBi gain 5.0GHz Band: Radio 1: Dipole antenna with 4.84dBi gain Radio 2: Dipole antenna with 5.69dBi gain
Antenna Connector	NA
Accessory Device	Adapter
Data Cable Supplied	NA

**Note:**

1. All models are listed as below. Model DIR-3060 is the representative for final test.

Brand	Model	Difference
D-Link Corporation	DIR-3060	With McAfee
	DIR-3040	Without McAfee

2. The EUT incorporates a MIMO function. Physically, the EUT provides 4 completed transmitters and 4 receivers.

2.4GHz Band		
Modulation Mode	Beamforming Mode	TX Function
802.11b	Not Support	2TX
802.11g	Not Support	2TX
802.11n (HT20)	Not Support	2TX
802.11n (HT40)	Not Support	2TX
802.11n (VHT20)	Not Support	2TX
802.11n (VHT40)	Not Support	2TX

5.0GHz Band			
Modulation Mode	Beamforming Mode	TX Function	
		Radio 1 (For 5180~5240MHz)	Radio 2 (For 5745~5825MHz)
802.11a	Not Support	2TX	4TX
802.11n (HT20)	Support	2TX	4TX
802.11n (HT40)	Support	2TX	4TX
802.11ac (VHT20)	Support	2TX	4TX
802.11ac (VHT40)	Support	2TX	4TX
802.11ac (VHT80)	Support	2TX	4TX

\* For 802.11n/ac, CDD mode is the worst case for final radiated emission tests after pretesting CDD mode and beamforming mode.

3. The EUT consumes power from the following Adapter.

Adapter	
Brand	Shenzhen Gongjin Electronics Co., Ltd
Model	S36B52-120A300-04
Input	100-240Vac, 50/60Hz, Max 1.0A
Output	5Vdc, 2.5A; 9Vdc, 1.7A; 12Vdc, 3A
Power Line	1.20m DC cable without core attached on adapter

### 3.2 Description of Test Modes

#### For 2.4GHz

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20), 802.11n (VHT20):

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 (HT40), 802.11n (VHT40):

Channel	Frequency	Channel	Frequency
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

#### For 5180~5240MHz:

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

#### 5745~5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz



### 3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to		Description
	RE $\geq$ 1G	RE $<$ 1G	
-	√	√	-

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz & Bandedge Measurement      **RE $<$ 1G**: Radiated Emission below 1GHz

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. Radiated emission test items chosen the worst maximum power 2.4G and 5G U-NII-1 Radio channel

#### **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.

EUT Configure Mode	Mode	Freq. Range (MHz)	Available Channel	Tested Channel	Modulation Technology
-	802.11n (HT20) + 802.11a	2412 ~ 2462	1 to 11	6 + 40	OFDM
		5180 ~ 5240	36 to 48		OFDM

#### **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.

EUT Configure Mode	Mode	Freq. Range (MHz)	Available Channel	Tested Channel	Modulation Technology
-	802.11n (HT20) + 802.11a	2412 ~ 2462	1 to 11	6 + 40	OFDM
		5180 ~ 5240	36 to 48		OFDM

#### **Test Condition:**

Applicable to	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	24 deg. C, 69% RH	120Vac, 60Hz	Adair Peng
RE $<$ 1G	24 deg. C, 69% RH	120Vac, 60Hz	Adair Peng

### 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.

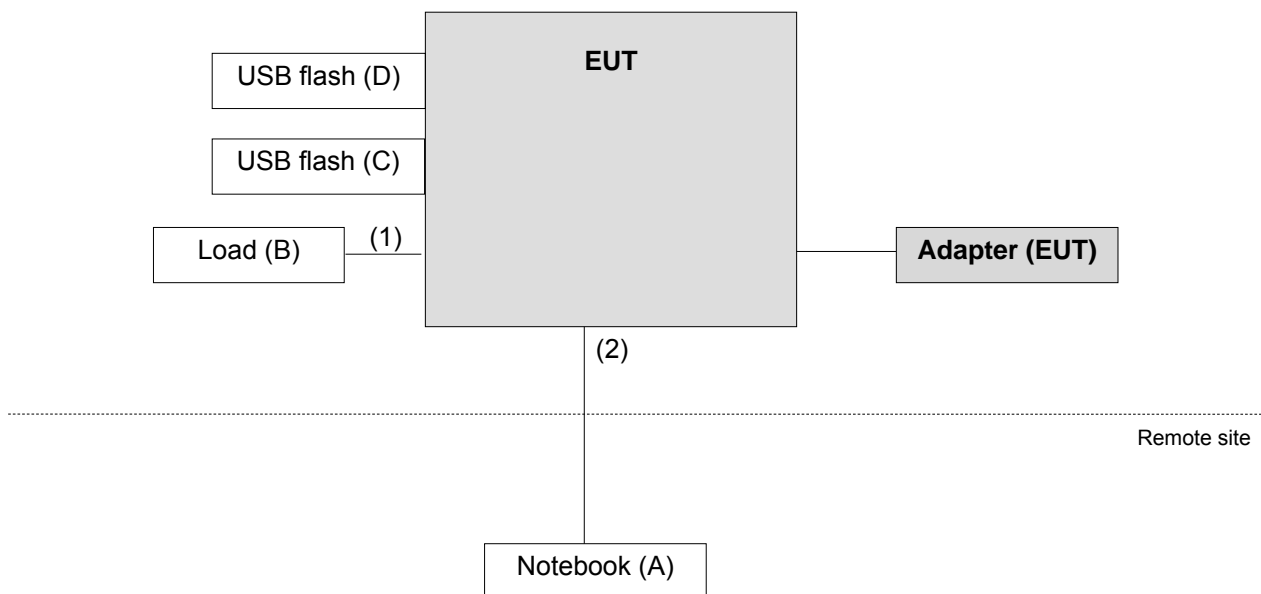
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-
C.	USB Flash	HP	v250W	01	NA	-
D.	USB Flash	Transcend	TS4GJF300	A59064 0215	NA	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 cable	4	1.5	N	0	Cat5e
2.	RJ45 cable	1	6	N	0	Cat5e

#### 3.3.1 Configuration of System under Test



### 3.4 General Description of Applied Standards

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

**FCC Part 15, Subpart C (15.247)**

**FCC Part 15, Subpart E (15.407)**

ANSI C63.10-2013

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

## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

#### 4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

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.

Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3m	
		PK: 74 (dBuV/m)	AV: 54 (dBuV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2(dBuV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	<input checked="" type="checkbox"/> 15.407(b)(4)(i)	PK: -27 (dBm/MHz) <sup>*1</sup> PK: 10 (dBm/MHz) <sup>*2</sup> PK: 15.6 (dBm/MHz) <sup>*3</sup> PK: 27 (dBm/MHz) <sup>*4</sup>	PK: 68.2(dBuV/m) <sup>*1</sup> PK: 105.2 (dBuV/m) <sup>*2</sup> PK: 110.8(dBuV/m) <sup>*3</sup> PK: 122.2 (dBuV/m) <sup>*4</sup>
	<input type="checkbox"/> 15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
<sup>*1</sup> beyond 75 MHz or more above of the band edge.		<sup>*2</sup> below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.	
<sup>*3</sup> below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.		<sup>*4</sup> from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000 \sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts).}$$

#### 4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	May 29, 2018	May 28, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	100115	Jan. 21, 2019	Jan. 20, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 22, 2018	Nov. 21, 2019
HORN Antenna SCHWARZBECK	9120D	209	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 21, 2018	Aug. 20, 2019
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Apr. 03, 2018	Apr. 02, 2019
RF signal cable WOKEN	8D-FB	Cable-CH3-01	Aug. 21, 2018	Aug. 20, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 21, 2018	Aug. 20, 2019
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-S M-8000	Cable-CH3-03 (309224+170907)	Aug. 21, 2018	Aug. 20, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Nov. 14, 2018	Nov. 13, 2019

- Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
  2. The test was performed in HwaYa Chamber 3.
  3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
  4. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
  5. The IC Site Registration No. is 7450F-3.

#### 4.1.3 Test Procedures

##### For Radiated emission below 30MHz

- 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. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case 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.

**Note:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

##### For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. 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:**

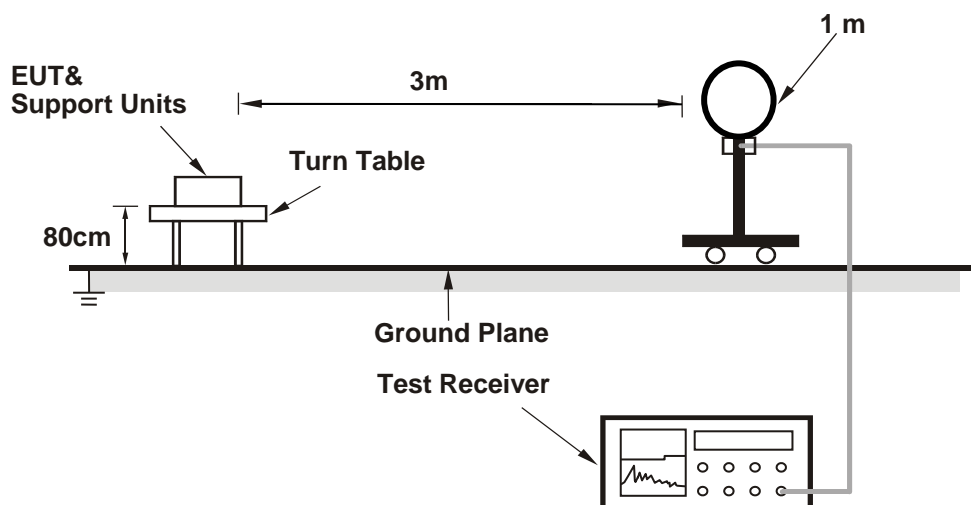
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98%) or 10Hz (Duty cycle  $\geq 98\%$ ) for Average detection (AV) at frequency above 1GHz.  
(802.11n (HT20): RBW = 1 MHz, VBW = 3 kHz; 11a: RBW = 1 MHz, VBW = 1 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 Deviation from Test Standard

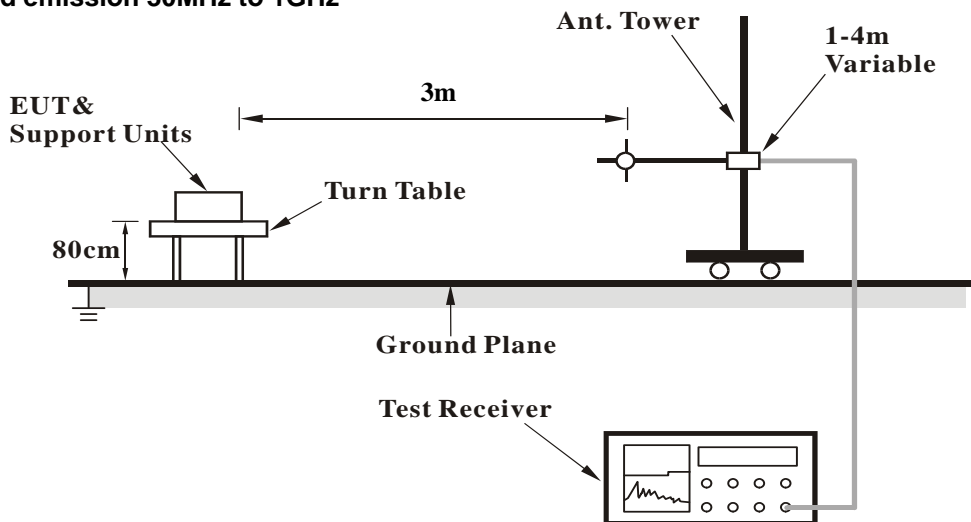
No deviation.

#### 4.1.5 Test Setup

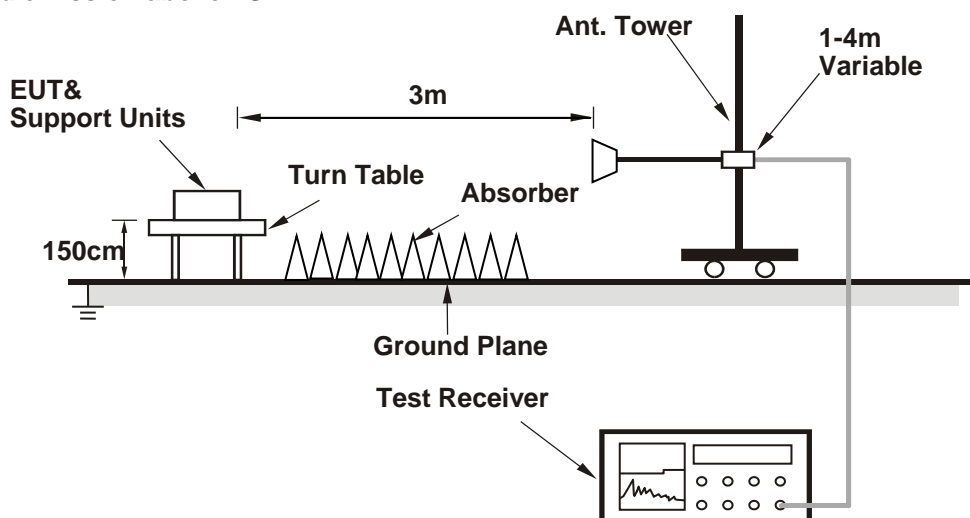
##### For Radiated emission below 30MHz



##### For Radiated emission 30MHz to 1GHz



### For Radiated emission above 1GHz



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

#### 4.1.6 EUT Operating Conditions

- a. Placed the EUT on the testing table.
- b. Prepared a notebook to act as a communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- d. The necessary accessories enable the system in full functions.

#### 4.1.7 Test Results

Above 1GHz Data:

802.11n (HT20) + 802.11a

CHANNEL	CH 6 + CH 40	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	2390.00	66.2 PK	74.0	-7.8	1.97 H	169	33.3	32.9
2	<b>2390.00</b>	<b>53.8 AV</b>	<b>54.0</b>	<b>-0.2</b>	<b>1.97 H</b>	<b>169</b>	<b>20.9</b>	<b>32.9</b>
3	*2437.00	119.4 PK			1.70 H	166	86.5	32.9
4	*2437.00	109.8 AV			1.70 H	166	76.9	32.9
5	2483.50	66.1 PK	74.0	-7.9	1.85 H	170	33.1	33.0
6	2483.50	53.3 AV	54.0	-0.7	1.85 H	170	20.3	33.0
7	4874.00	48.5 PK	74.0	-25.5	2.13 H	251	44.9	3.6
8	4874.00	34.1 AV	54.0	-19.9	2.13 H	251	30.5	3.6
9	5150.00	71.9 PK	74.0	-2.1	1.82 H	347	68.0	3.9
10	5150.00	53.7 AV	54.0	-0.3	1.82 H	347	49.8	3.9
11	*5200.00	124.3 PK			1.97 H	338	84.8	39.5
12	*5200.00	114.2 AV			1.97 H	338	74.7	39.5
13	#10400.00	58.9 PK	68.2	-9.3	2.01 H	229	43.0	15.9

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) – Pre-Amplifier 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 of the restricted band.



CHANNEL	CH 6 + CH 40	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	2390.00	60.0 PK	74.0	-14.0	2.99 V	289	27.1	32.9
2	2390.00	48.1 AV	54.0	-5.9	2.99 V	289	15.2	32.9
3	*2437.00	108.4 PK			3.75 V	323	75.5	32.9
4	*2437.00	98.2 AV			3.75 V	323	65.3	32.9
5	2483.50	60.0 PK	74.0	-14.0	3.23 V	333	27.0	33.0
6	2483.50	48.2 AV	54.0	-5.8	3.23 V	333	15.2	33.0
7	4874.00	47.6 PK	74.0	-26.4	2.99 V	135	44.0	3.6
8	4874.00	34.1 AV	54.0	-19.9	2.99 V	135	30.5	3.6
9	5150.00	64.6 PK	74.0	-9.4	1.47 V	357	60.7	3.9
10	5150.00	47.9 AV	54.0	-6.1	1.47 V	357	44.0	3.9
11	*5200.00	114.6 PK			1.55 V	13	75.1	39.5
12	*5200.00	104.5 AV			1.55 V	13	65.0	39.5
13	#10400.00	58.0 PK	68.2	-10.2	1.69 V	213	42.1	15.9

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) – Pre-Amplifier 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 of the restricted band.

Below 1GHz data

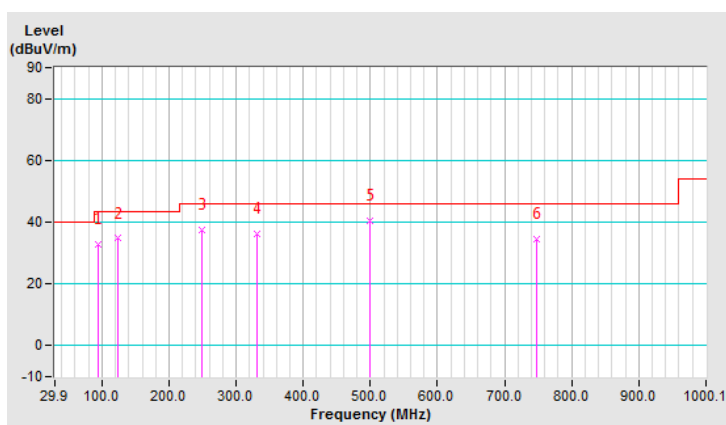
802.11n (HT20) + 802.11a

CHANNEL	CH 6 + CH 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	95.20	33.0 QP	43.5	-10.5	1.99 H	103	47.2	-14.2
2	124.74	34.7 QP	43.5	-8.8	1.50 H	275	45.7	-11.0
3	249.13	37.6 QP	46.0	-8.4	1.01 H	171	46.7	-9.1
4	331.53	36.1 QP	46.0	-9.9	1.01 H	298	42.8	-6.7
5	499.45	40.5 QP	46.0	-5.5	1.50 H	208	44.1	-3.6
6	748.22	34.5 QP	46.0	-11.5	1.50 H	249	32.7	1.8

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.



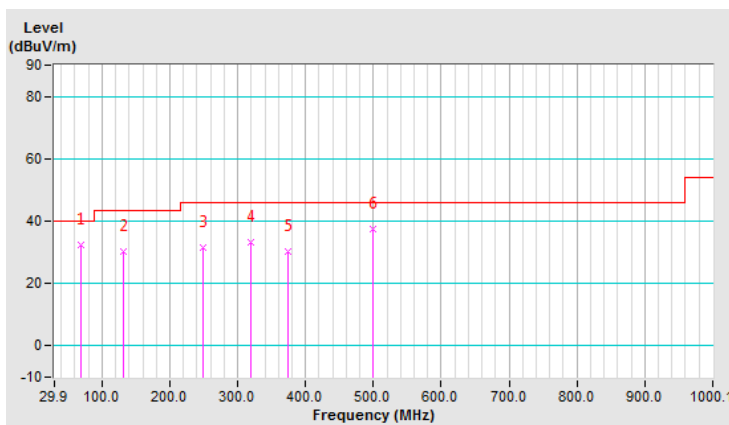
CHANNEL	CH 6 + CH 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

**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	68.77	32.5 QP	40.0	-7.5	1.00 V	8	44.3	-11.8
2	132.52	30.2 QP	43.5	-13.3	1.50 V	190	40.5	-10.3
3	249.13	31.4 QP	46.0	-14.6	1.50 V	230	40.5	-9.1
4	319.09	33.1 QP	46.0	-12.9	1.50 V	266	40.0	-6.9
5	375.07	30.1 QP	46.0	-15.9	1.00 V	156	36.0	-5.9
6	499.45	37.6 QP	46.0	-8.4	1.00 V	154	41.2	-3.6

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.



## 5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

## Appendix – Information of 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 FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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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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