FCC Test Report
(Co-Located)

Report No.: RF160311D14-2

FCC ID: KA2DAP1860A1

Test Model: DAP-1860

Received Date: Mar. 14, 2016

Test Date: Apr. 19 ~ May 19, 2016

Issued Date: May 19, 2016

Applicant: D-Link Corporation

Address: 17595 Mt. Hermann, Fountain Valley, CA 92708, U.S.A.

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.)

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Release Control Record

Issue No.	Description	Date Issued
RF160311D14-2	Original release.	May 19, 2016

1 Certificate of Conformity

Product:	AC2600 Wi-Fi Range Extender
Brand:	D-Link
Test Model:	DAP-1860
Sample Status:	Engineering sample
Applicant:	D-Link Corporation
Test Date:	Apr. 19 ~ May 19, 2016
Standard:	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 EMC characteristics under the conditions specified in this report.

Prepared by : Annie Chang , **Date:** May 19, 2016

Annie Chang / Senior Specialist

Approved by : Rex. Lai , **Date:** May 19, 2016

Rex Lai / Assistant Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (SECTION 15.407)			
FCC Clause	Test Item	Result	Remarks
15.207 15.407(b)(6)	AC Power Conducted Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -13.20dB at 10.86328MHz.
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -2.9dB at 2483.50MHz.

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	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.78 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1000MHz	4.00 dB
Radiated Emissions above 1 GHz	1GHz ~ 40GHz	3.36 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	AC2600 Wi-Fi Range Extender
Brand	D-Link
Test Model	DAP-1860
Status of EUT	Engineering sample
Power Supply Rating	100-240Vac, 50-60Hz, 0.5A
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only.
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: up to 600Mbps 802.11ac: up to 1732Mbps
Operating Frequency	2412 ~ 2462MHz, 5180 ~ 5240MHz, 5745 ~ 5825MHz
Number of Channel	**2412 ~ 2462MHz** 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40) **5180 ~ 5240MHz** 4 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80) **5745 ~ 5825MHz** 5 for 802.11a, 802.11n (HT20) 2 for 802.11n (HT40) 1 for 802.11ac (VHT80)
Output Power	**2412 ~ 2462MHz:** 658.312mW **5180 ~ 5240MHz:** 457.745mW **5745 ~ 5825MHz:** 438.058mW
Antenna Type	**2.4GHz Band:** **CDD Mode:** PCB antenna with 2dBi gain **Beamforming Mode:** PCB antenna with 6.96dBi gain **5.0GHz Band:** **CDD Mode:** PCB antenna with 3dBi gain **Beamforming Mode:** PCB antenna with 7.55dBi gain
Antenna Connector	I-PEX
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

1. The EUT provides 4 completed transmitters and 4 receivers.

Modulation Mode	TX Function			
	Non-Beamforming		Beamforming	
	2.4GHz	5.0GHz	2.4GHz	5.0GHz
802.11b	4TX	-	-	-
802.11g	4TX	-	-	-
802.11a	-	4TX	-	-
802.11n (20MHz)	4TX	4TX	4TX	-
802.11n (40MHz)	4TX	4TX	4TX	-
802.11ac (20MHz)	-	4TX	-	4TX
802.11ac (40MHz)	-	4TX	-	4TX
802.11ac (80MHz)	-	4TX	-	4TX

* The modulation and bandwidth are similar for 802.11n mode for 20MHz / 40MHz and 802.11ac mode for 20MHz / 40MHz, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

2. 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.

3.2 Description of Test Modes

FOR 2412 ~ 2462MHz

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437		

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

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

FOR 5180 ~ 5240MHz

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

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

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (80MHz):

Channel	Frequency
42	5210MHz

FOR 5745 ~ 5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (80MHz):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

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

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

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. BAND (MHz)	TESTED CHANNEL	MODULATION TECHNOLOGY
-	802.11b + 802.11ac (40MHz)	2412 ~ 2462	6	OFDM
		5180 ~ 5240, 5745 ~ 5825	46	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. BAND (MHz)	TESTED CHANNEL	MODULATION TECHNOLOGY
-	802.11b + 802.11ac (40MHz)	2412 ~ 2462	6	OFDM
		5180 ~ 5240, 5745 ~ 5825	46	OFDM

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.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	TESTED CHANNEL	MODULATION TECHNOLOGY
-	802.11b + 802.11ac (40MHz)	2412 ~ 2462	6	OFDM
		5180 ~ 5240, 5745 ~ 5825	46	OFDM

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 74%RH	120Vac, 60Hz	Ian Chang
RE<1G	15deg. C, 73%RH	120Vac, 60Hz	Ian Chang
PLC	23deg. C, 69%RH	120Vac, 60Hz	Ian Chang

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	PP27L	8SNZ12S	FCC DoC Approved	Provided by Lab

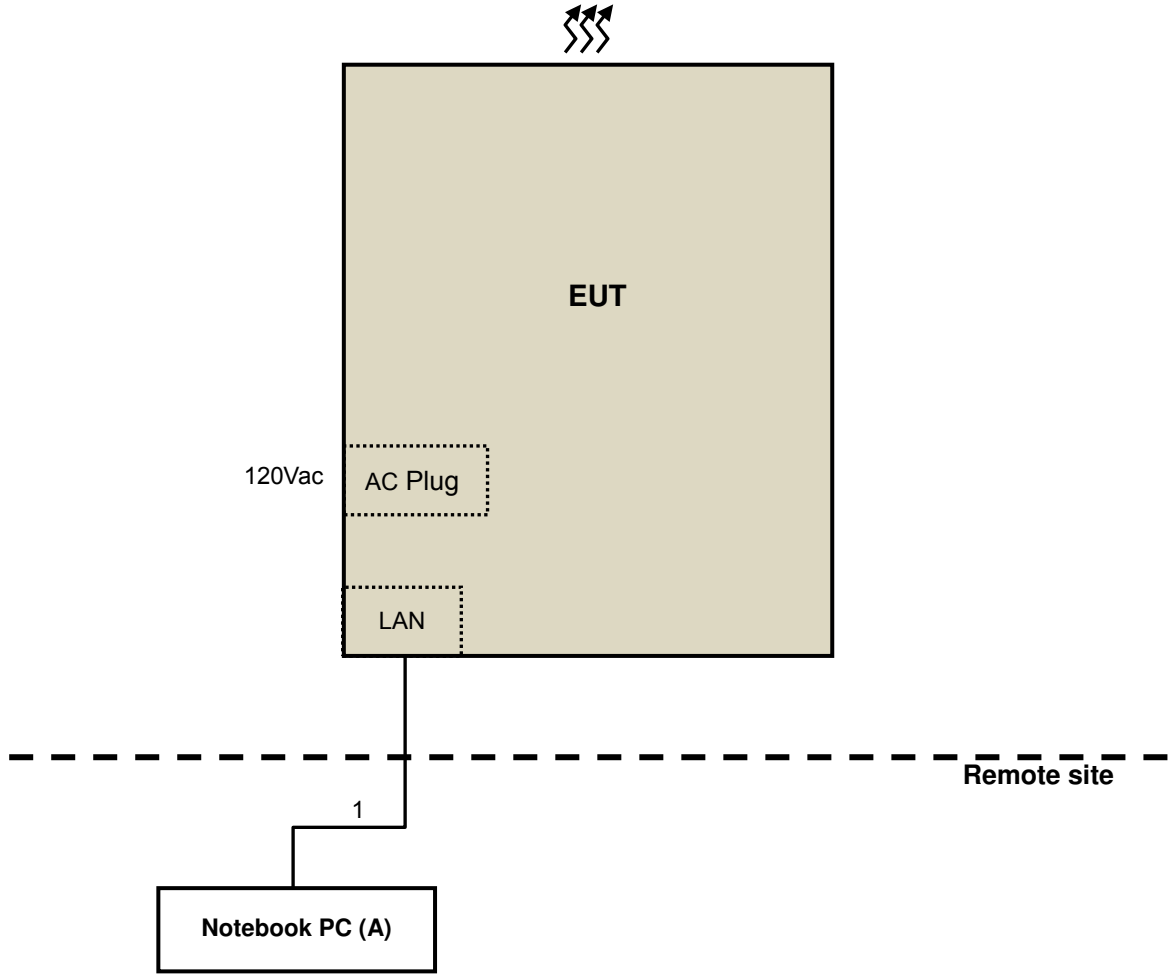
Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 cable	1	10	N	0	Provided by Lab

Note: The core(s) is(are) originally attached to the cable(s).

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standard

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 E (15.407)
KDB 789033 D02 General UNII Test Procedure New Rules v01r02
KDB 662911 D01 Multiple Transmitter Output v02r01
FCC Part 15, Subpart C (15.247)
KDB 558074 D01 DTS Meas Guidance v03r05
KDB 662911 D01 Multiple Transmitter Output v02r01
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 v01r02	FIELD STRENGTH at 3m	
	PK:74 (dBμV/m)	AV:54 (dBμV/m)
Applicable To	EIRP Limit	Equivalent Field Strength at 3m
15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)(i)	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK:105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK:122.2 (dBμV/m) *4
15.407(b)(4)(ii)	FIELD STRENGTH at 3m / § 15.247(d),	
	PK:74 (dBμV/m)	AV:54 (dBμV/m)

*1 beyond 75 MHz or more above of the band edge.

*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

*4 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:

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 26, 2016	Feb. 25, 2017
HP Preamplifier	8449B	3008A01201	Feb. 26, 2016	Feb. 25, 2017
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Mar. 01, 2016	Feb. 28, 2017
Agilent TEST RECEIVER	N9038A	MY51210129	Feb. 02, 2016	Feb. 01, 2017
Schwarzbeck Antenna	VULB 9168	139	Jan. 04, 2016	Jan. 03, 2017
Schwarzbeck Antenna	VHBA 9123	480	May 29, 2015	May 28, 2017
Schwarzbeck Horn Antenna	BBHA-9170	212	Jan. 08, 2016	Jan. 07, 2017
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	Jan. 21, 2016	Jan. 20, 2017
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	Radiated_V7.6.15.9.4	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF104	CABLE-CH6	Aug. 15, 2015	Aug. 14, 2016
SUHNER RF cable With 3dB PAD	SF102	Cable-CH8-3.6m	Aug. 15, 2015	Aug. 14, 2016
KEYSIGHT Spectrum Analyzer	N9030A	MY54490260	Jul. 14, 2015	Jul. 13, 2016
EMCO Horn Antenna	3115	00028257	Jan. 19, 2016	Jan. 18, 2017
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA
ROHDE & SCHWARZ Spectrum Analyzer	FSV40	101042	Sep. 23, 2015	Sep. 22, 2016
Anritsu Power Sensor	MA2411B	0738404	Apr. 28, 2016	Apr. 27, 2017
Anritsu Power Meter	ML2495A	0842014	Apr. 28, 2016	Apr. 27, 2017

NOTE: 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.
6. Tested Date: May 16 ~ 19, 2016

4.1.3 Test Procedure

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 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:

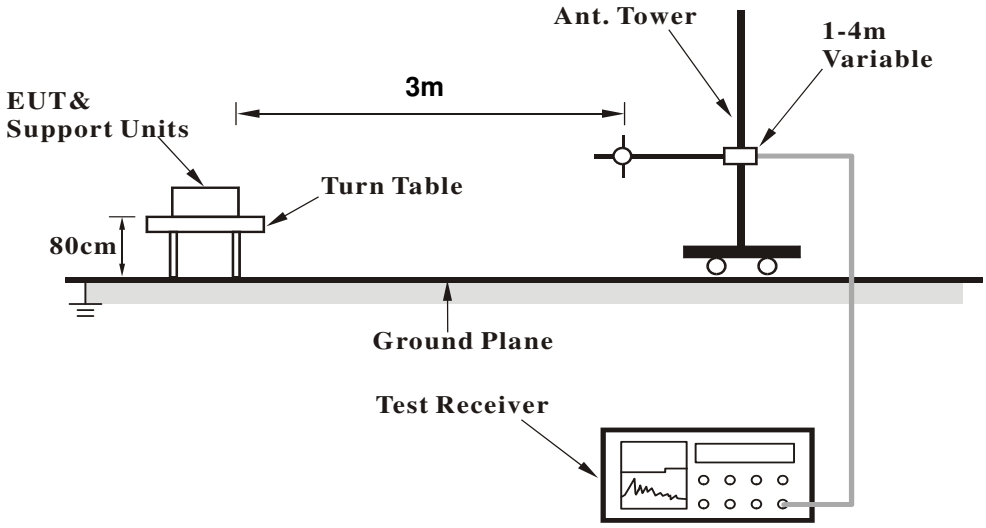
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

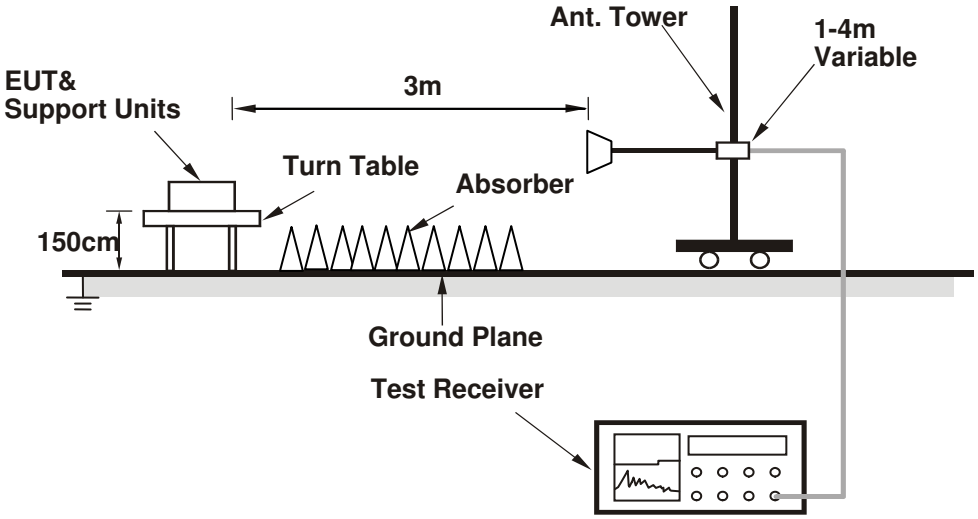
No deviation.

4.1.5 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Condition

a. Placed the EUT on the testing table.
b. Prepared notebook to act as 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 communication partner sent data to EUT by command "PING".
e. The necessary accessories enable the system in full functions.

4.1.7 Test Results

ABOVE 1GHz DATA

CHANNEL	TX Channel 6 + 46	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	*2437.00	118.3 PK			2.15 H	42	118.28	-0.01
2	*2437.00	116.5 AV			2.15 H	42	116.52	-0.01
3	2483.50	58.9 PK	74.0	-15.1	2.15 H	42	58.59	0.29
4	**2483.50**	**51.1 AV**	**54.0**	**-2.9**	**2.15 H**	**42**	**50.77**	**0.29**
5	4874.00	46.2 PK	74.0	-27.8	1.66 H	89	40.02	6.14
6	4874.00	31.4 AV	54.0	-22.6	1.66 H	89	25.25	6.14
7	*5230.00	108.4 PK			1.93 H	114	101.28	7.13
8	*5230.00	97.5 AV			1.93 H	114	90.41	7.13
9	5350.00	60.0 PK	74.0	-14.0	1.93 H	114	52.36	7.64
10	5350.00	45.5 AV	54.0	-8.5	1.93 H	114	37.88	7.64
11	#10460.00	59.0 PK	74.0	-15.0	2.13 H	274	41.25	17.77
12	#10460.00	46.3 AV	54.0	-7.7	2.13 H	274	28.55	17.77
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	*2437.00	116.5 PK			3.97 V	116	116.54	-0.01
2	*2437.00	113.7 AV			3.97 V	116	113.73	-0.01
3	2483.50	53.7 PK	74.0	-20.3	3.97 V	116	53.42	0.29
4	2483.50	46.9 AV	54.0	-7.1	3.97 V	116	46.63	0.29
5	4874.00	46.0 PK	74.0	-28.0	2.16 V	97	39.85	6.14
6	4874.00	31.5 AV	54.0	-22.5	2.16 V	97	25.39	6.14
7	*5230.00	105.3 PK			2.74 V	192	98.17	7.13
8	*5230.00	96.4 AV			2.74 V	192	89.22	7.13
9	5350.00	59.1 PK	74.0	-14.9	2.74 V	192	51.46	7.64
10	5350.00	44.3 AV	54.0	-9.7	2.74 V	192	36.68	7.64
11	#10460.00	58.1 PK	74.0	-15.9	3.02 V	199	40.29	17.77
12	#10460.00	45.3 AV	54.0	-8.7	3.02 V	199	27.53	17.77

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

CHANNEL	TX Channel 6 + 46	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 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	34.19	25.5 QP	40.0	-14.5	3.68 H	214	36.36	-10.90
2	162.45	25.4 QP	43.5	-18.1	3.88 H	304	34.70	-9.32
3	401.64	34.2 QP	46.0	-11.8	2.41 H	253	39.65	-5.47
4	508.88	36.0 QP	46.0	-10.0	1.34 H	208	39.27	-3.27
5	800.00	36.4 QP	46.0	-9.6	1.23 H	124	34.87	1.54
6	895.11	35.1 QP	46.0	-10.9	1.04 H	141	32.06	3.01
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	36.05	31.2 QP	40.0	-8.9	1.62 V	41	42.25	-11.10
2	81.03	27.4 QP	40.0	-12.6	1.28 V	287	41.58	-14.15
3	140.22	27.5 QP	43.5	-16.0	1.11 V	200	37.57	-10.11
4	368.11	36.4 QP	46.0	-9.6	1.72 V	278	42.78	-6.40
5	606.51	30.9 QP	46.0	-15.2	2.61 V	150	32.28	-1.43
6	799.88	35.6 QP	46.0	-10.4	2.79 V	231	34.08	1.54

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	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 0.50MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
ROHDE & SCHWARZ TEST RECEIVER	ESCS 30	100276	Apr. 01, 2015	Mar. 31, 2016
			Apr. 12, 2016	Apr. 11, 2017
ROHDE & SCHWARZ Artificial Mains Network (for EUT)	ENV216	101197	Apr. 27, 2015	Apr. 26, 2016
LISN With Adapter (for EUT)	AD10	C10Ada-002	Apr. 27, 2015	Apr. 26, 2016
ROHDE & SCHWARZ Artificial Mains Network (for peripherals)	ESH3-Z5	100218	Nov. 25, 2015	Nov. 24, 2016
SCHWARZBECK Artificial Mains Network (For EUT)	NNLK8129	8129229	May 06, 2015	May 05, 2016
Software	Cond_V7.3.7	NA	NA	NA
RF cable (JYEBAO) With 10dB PAD	5D-FB	Cable-C10.01	Feb. 15, 2016	Feb. 14, 2017
SUHNER Terminator (For ROHDE & SCHWARZ LISN)	65BNC-5001	E1-011484	May 19, 2015	May 18, 2016
ROHDE & SCHWARZ Artificial Mains Network (For TV EUT)	ESH3-Z5	100220	Nov. 13, 2015	Nov. 12, 2016
LISN With Adapter (for TV EUT)	100220	N/A	Nov. 13, 2015	Nov. 12, 2016

Notes: 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. 10.
3. The VCCI Site Registration No. C-1852.
4. Tested Date: Apr. 19, 2016

4.2.3 Test Procedure

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.

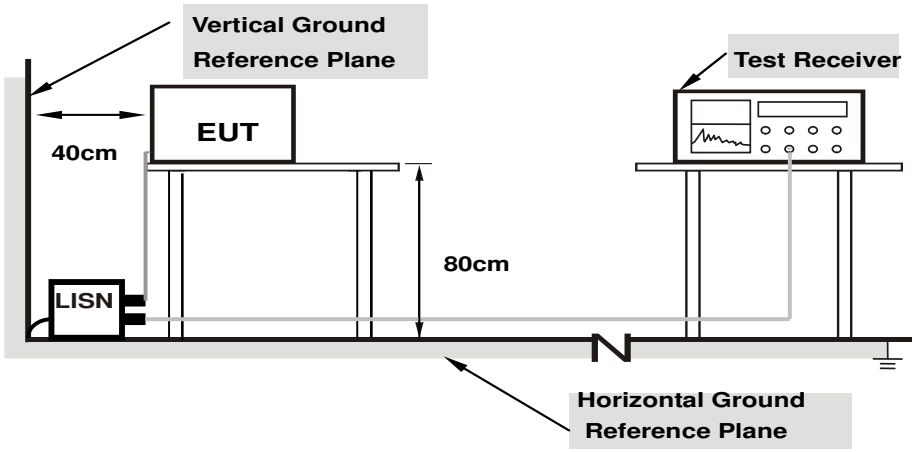
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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 Condition

Same as 4.1.6.

4.2.7 Test Results

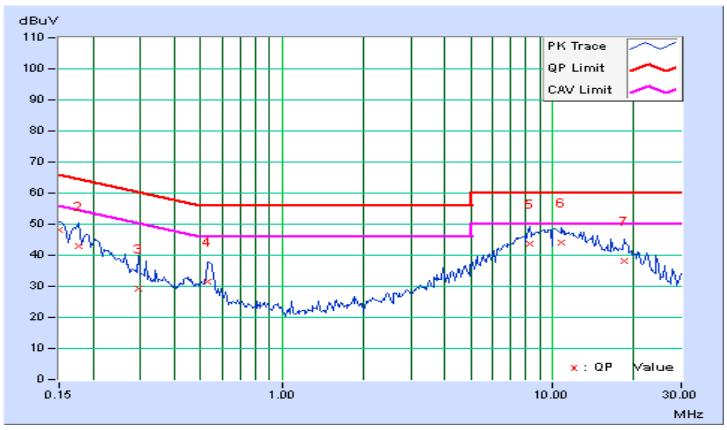
802.11b + 802.11ac (40MHz)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.66	38.54	24.84	48.20	34.50	66.00	56.00	-17.80	-21.50
2	0.17734	9.65	33.40	16.46	43.05	26.11	64.61	54.61	-21.55	-28.49
3	0.29453	9.66	19.47	2.41	29.13	12.07	60.40	50.40	-31.26	-38.32
4	0.52891	9.70	21.92	15.07	31.62	24.77	56.00	46.00	-24.38	-21.23
5	8.30078	10.07	33.68	25.69	43.75	35.76	60.00	50.00	-16.25	-14.24
6	**10.86328**	**10.12**	**33.94**	**26.68**	**44.06**	**36.80**	**60.00**	**50.00**	**-15.94**	**-13.20**
7	18.49219	10.29	28.04	20.51	38.33	30.80	60.00	50.00	-21.67	-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

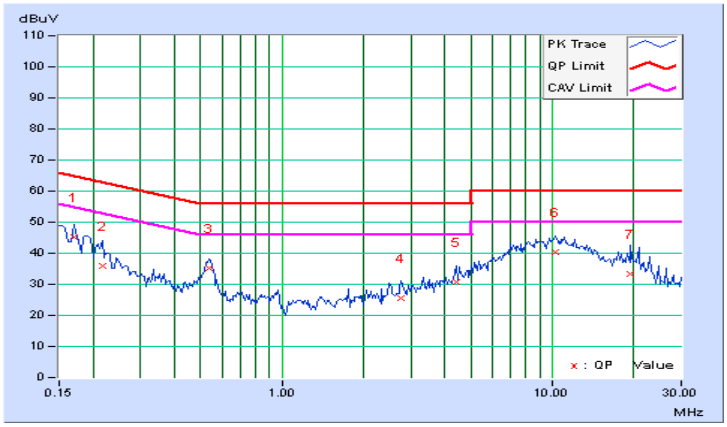


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	9.69	35.62	19.35	45.31	29.04	64.98	54.98	-19.67	-25.94
2	0.21641	9.69	26.25	8.73	35.94	18.42	62.96	52.96	-27.01	-34.53
3	0.54063	9.74	25.62	21.03	35.36	30.77	56.00	46.00	-20.64	-15.23
4	2.77344	9.98	15.42	9.67	25.40	19.65	56.00	46.00	-30.60	-26.35
5	4.40625	10.12	20.64	12.27	30.76	22.39	56.00	46.00	-25.24	-23.61
6	10.27344	10.21	30.09	23.18	40.30	33.39	60.00	50.00	-19.70	-16.61
7	19.44531	10.36	22.84	15.44	33.20	25.80	60.00	50.00	-26.80	-24.20

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



5 Pictures of Test Arrangements

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

Appendix – 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.

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

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

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