FCC Test Report

(Co-Located)

Report No.:	RF170801C10B-1
FCC ID:	KA2WL7620APA1
Test Model:	DWL-7620AP
Received Date:	Aug. 01, 2017
Test Date:	Aug. 08, 2018
Issued Date:	Aug. 09, 2018
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
RF170801C10B-1	Original release.	Aug. 09, 2018

1 Certificate of Conformity

Product:	Unified AC Tri-band PoE Access Point
Brand:	D-Link Corporation
Test Model:	DWL-7620AP
Sample Status:	Identical Prototype
Applicant:	D-Link Corporation
Test Date:	Aug. 08, 2018
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:** Aug. 09, 2018

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Aug. 09, 2018

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
15.207 15.407(b)(6)	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -7.71dB at 17.32149MHz.
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 -1.0dB at 2390.00MHz.

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	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.59 dB
	200MHz ~1000MHz	3.60 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	Unified AC Tri-band PoE Access Point
Brand	D-Link Corporation
Test Model	DWL-7620AP
Status of EUT	Identical Prototype
Power Supply Rating	12Vdc (From adapter) 53Vdc (From POE)
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: up to 300Mbps 802.11ac: up to 867Mbps
Operating Frequency	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5180 ~ 5240MHz, 5260 ~ 5320MHz, 5500 ~ 5720MHz, 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), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5500 ~ 5720MHz: 12 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 6 for 802.11n (HT40), 802.11ac (VHT40) 3 for 802.11ac (VHT80) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)

Output Power	CDD Mode: 2412 ~ 2462MHz: 524.393mW 5180 ~ 5240MHz: 769.284mW 5260 ~ 5320MHz: 250.671mW 5500 ~ 5720MHz: 244.840mW 5745 ~ 5825MHz: 956.517mW Beamforming Mode: 2412 ~ 2462MHz: 244.277mW 5180 ~ 5240MHz: 287.160mW 5260 ~ 5320MHz: 125.344mW 5500 ~ 5720MHz: 122.429mW 5745 ~ 5825MHz: 431.817mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter
Data Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. The difference compared with the original report (BV CPS report no.: RF170801C10-2) is adding 5.26GHz to 5.32GHz and 5.50GHz to 5.70GHz by software.
2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Band	Modulation Mode	Beamforming Mode	TX Function	Remark
2.4GHz	802.11b	Not Support	2TX	Radio 0
	802.11g	Not Support	2TX	
	802.11n (HT20)	Support	2TX	
	802.11n (HT40)	Support	2TX	
5GHz	802.11a	Not Support	2TX	Radio 1 (Band 1, 2), Radio 2 (Band 3, 4)
	802.11n (HT20)	Support	2TX	
	802.11n (HT40)	Support	2TX	
	802.11ac (VHT20)	Support	2TX	
	802.11ac (VHT40)	Support	2TX	
	802.11ac (VHT80)	Support	2TX	

* 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)

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

3. The EUT uses following antennas.

Type	Connector	Gain (dBi)	
		2.4GHz	5GHz
PCB+PIFA	I-PEX	3.25	4.3

4. The EUT consumes power from the following Adapter and PoE.

Adapter 1	
Brand	Channel Well Technology
Model	2ABL030F US
Input Power	100-240Vac~1.0A
Output Power	12Vdc / 2.5A
Power Cord	1.2m non-shielded power cord without core

Adapter 2	
Brand	Asian Power Devices Inc.
Model	WA-30J12R
Input Power	100-240Vac~0.9A, 50-60Hz
Output Power	12Vdc / 2.5A
Power Cord	0.5m non-shielded power cord without core

PoE (Support unit only)	
Brand	D-Link
Model	DGS-1210-10P
Input Power	100-240Vac
Output Power	53Vdc

5. 2.4GHz & 5GHz technology can transmit at same time.
6. 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 2.4GHz

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

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):

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

For 5260~5320MHz:

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

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290MHz

For 5500~5720MHz:

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

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz	144	5720 MHz

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

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz	142	5710 MHz

3 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz
138	5690 MHz		

For 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≥1G	RE<1G	PLC	
A	√	√	√	Power from adapter 1
B	-	√	√	Power from adapter 2
C	-	√	√	Power from POE

Where **RE≥1G:** Radiated Emission above 1GHz & Bandedge Measurement **RE<1G:** Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

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. "-" means no effect.

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
A	802.11b + 802.11a	2412~2462	1 to 11	1 + 52	DSSS
		5260~5320	52 to 64		OFDM
A	802.11b + 802.11a	2412~2462	1 to 11	1 + 144	DSSS
		5500~5720	100 to 144		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
A, B, C	802.11b + 802.11a	2412~2462	1 to 11	1 + 52	DSSS
		5260~5320	52 to 64		OFDM
A, B, C	802.11b + 802.11a	2412~2462	1 to 11	1 + 144	DSSS
		5500~5720	100 to 144		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. Range (MHz)	Available Channel	Tested Channel	Modulation Technology
A, B, C	802.11b + 802.11a	2412~2462	1 to 11	1 + 52	DSSS
		5260~5320	52 to 64		OFDM
A, B, C	802.11b + 802.11a	2412~2462	1 to 11	1 + 144	DSSS
		5500~5720	100 to 144		OFDM

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 66% RH	120Vac, 60Hz	Han Wu
RE<1G	25 deg. C, 66% RH	120Vac, 60Hz 53Vdc	Han Wu
PLC	25 deg. C, 75% RH	120Vac, 60Hz 53Vdc	Han Wu

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	Lenovo	X201i	NA	FCC DoC Approved	Provided by manufacturer
B.	Load	NA	NA	NA	NA	-
C.	PoE	D-Link	DGS-1210-10P	NA	NA	Provided by manufacturer

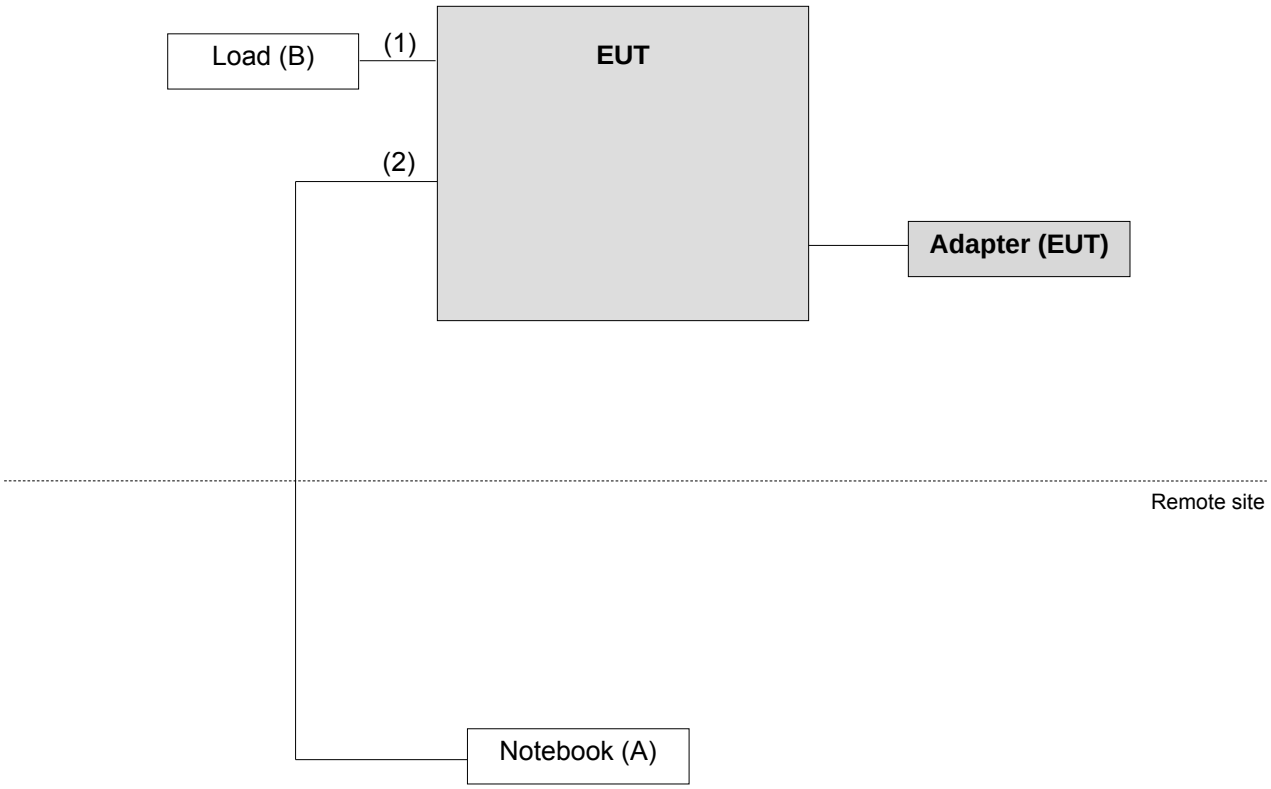
Note:

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.

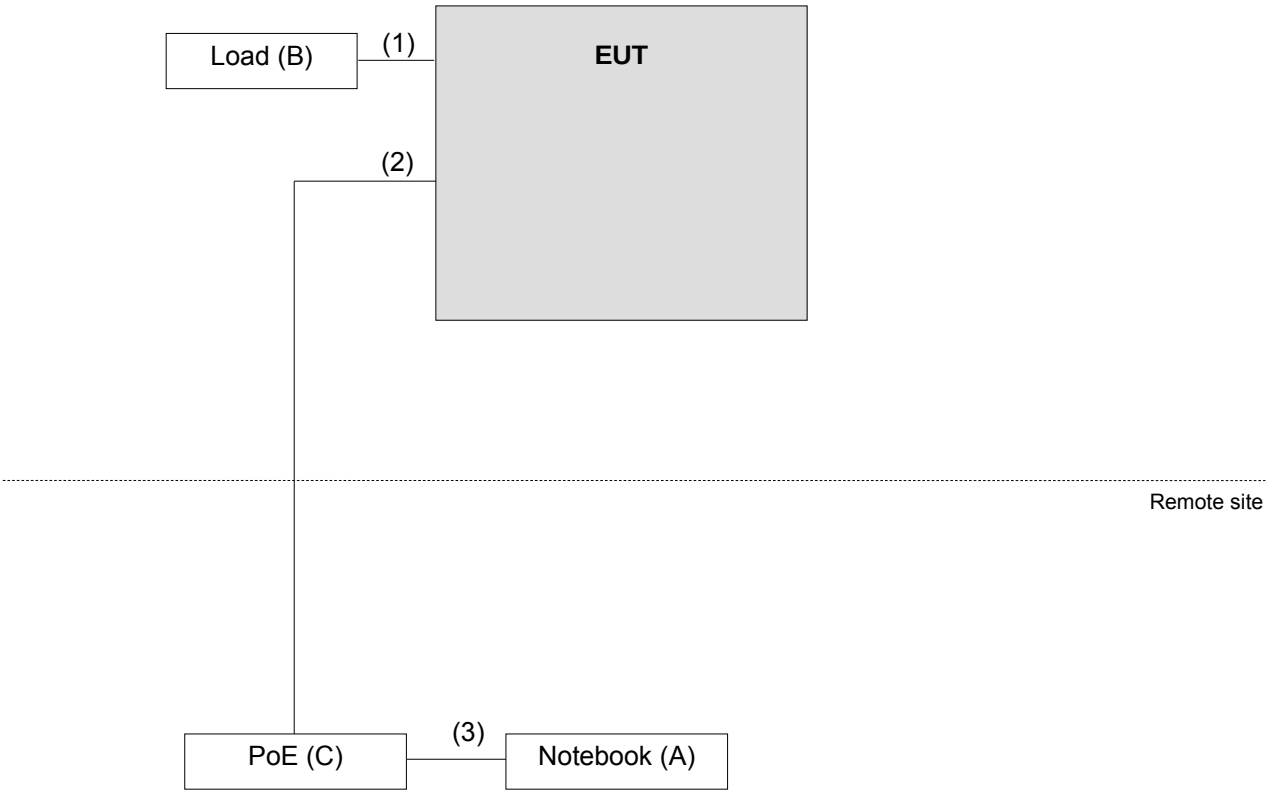
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45, Cat5e	2	1.6	N	0	-
2.	RJ45, Cat5e	1	10	N	0	-
3.	RJ45, Cat5e	1	1.8	N	0	-

3.3.1 Configuration of System under Test

Test Mode A, B



Test Mode C



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. 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.

Limits of unwanted emission out of the restricted bands

<table>
<tr><td colspan="3">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="3" rowspan="2">789033 D02 General UNII Test Procedure New Rules v02r01</td><td colspan="2">Field Strength at 3m</td></tr>
<tr><td>PK: 74 (dBμV/m)</td><td>AV: 54 (dBμV/m)</td></tr>
<tr><td>Frequency Band</td><td colspan="2">Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3m</td></tr>
<tr><td>5150~5250 MHz</td><td colspan="2">15.407(b)(1)</td><td rowspan="3">PK: -27 (dBm/MHz)</td><td rowspan="3">PK: 68.2(dBμV/m)</td></tr>
<tr><td>5250~5350 MHz</td><td colspan="2">15.407(b)(2)</td></tr>
<tr><td>5470~5725 MHz</td><td colspan="2">15.407(b)(3)</td></tr>
<tr><td rowspan="2">5725~5850 MHz</td><td>☒</td><td>15.407(b)(4)(i)</td><td>PK: -27 (dBm/MHz) *1
PK: 10 (dBm/MHz) *2
PK: 15.6 (dBm/MHz) *3
PK: 27 (dBm/MHz) *4</td><td>PK: 68.2(dBμV/m) *1
PK: 105.2 (dBμV/m) *2
PK: 110.8(dBμV/m) *3
PK: 122.2 (dBμV/m) *4</td></tr>
<tr><td>☐</td><td>15.407(b)(4)(ii)</td><td colspan="2">Emission limits in section 15.247(d)</td></tr>
<tr><td colspan="5">*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.</td></tr>
</table>

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.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 11, 2018	Apr. 10, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	May 29, 2018	May 28, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-148	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Dec. 12, 2017	Dec. 11, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Aug. 08, 2018	Aug. 07, 2019
Preamplifier Agilent (Above 1GHz)	8449B	3008A01638	Feb. 22, 2018	Feb. 21, 2019
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 15, 2018	Jan. 14, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Aug. 08, 2018	Aug. 07, 2019
RF signal cable Woken	8D-FB	Cable-CH9-01	Jul. 31, 2018	Jul. 30, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	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 BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
26GHz ~ 40GHz Amplifier Agilent	8449B	3008A01961	Oct. 16, 2017	Oct. 15, 2018

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 FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is IC 7450F-9.

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:

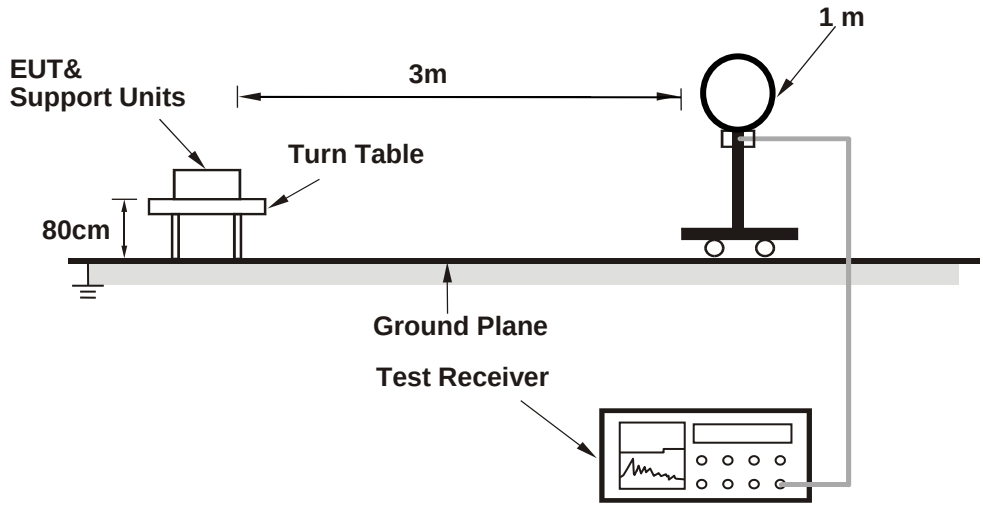
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

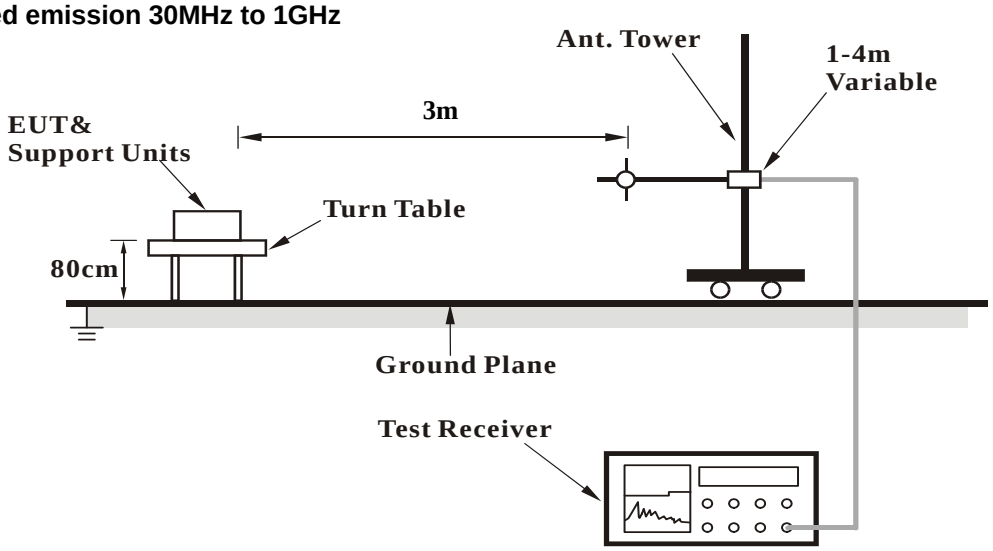
No deviation.

4.1.5 Test Setup

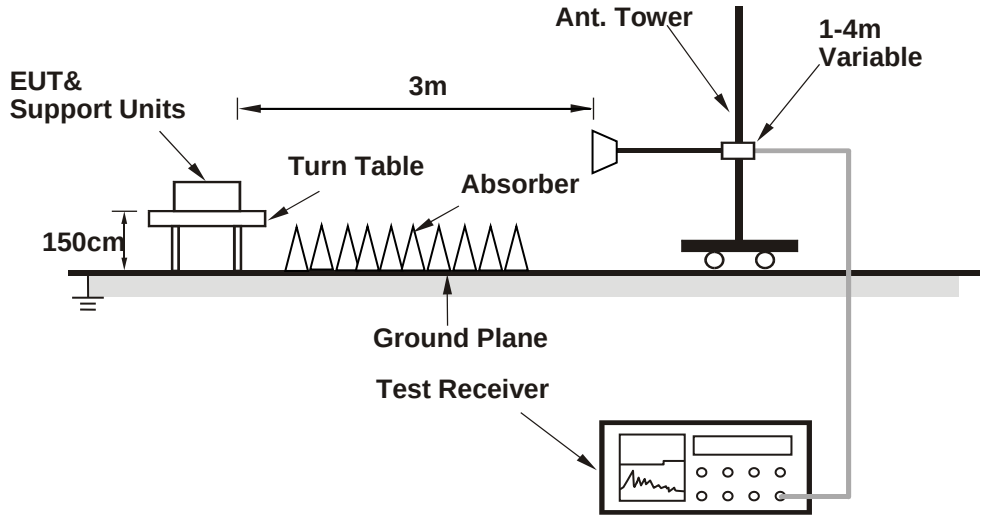
For Radiated emission below 30MHz



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 (QRCT) 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:

802.11b + 802.11a

CHANNEL	CH 1 + CH 52	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	60.5 PK	74.0	-13.5	1.55 H	38	27.1	33.4
2	2390.00	52.9 AV	54.0	-1.1	1.55 H	38	19.5	33.4
3	*2412.00	121.5 PK			2.41 H	22	88.0	33.5
4	*2412.00	118.8 AV			2.41 H	22	85.3	33.5
5	4824.00	57.2 PK	74.0	-16.8	1.87 H	8	53.5	3.7
6	4824.00	51.6 AV	54.0	-2.4	1.87 H	8	47.9	3.7
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	60.7 PK	74.0	-13.3	3.26 V	45	27.3	33.4
2	2390.00	52.4 AV	54.0	-1.6	3.26 V	45	19.0	33.4
3	*2412.00	114.7 PK			3.22 V	9	81.2	33.5
4	*2412.00	112.7 AV			3.22 V	9	79.2	33.5
5	4824.00	52.4 PK	74.0	-21.6	3.76 V	348	48.7	3.7
6	4824.00	47.6 AV	54.0	-6.4	3.76 V	348	43.9	3.7

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 1 + CH 52	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	5150.00	57.8 PK	74.0	-16.2	3.02 H	88	53.9	3.9
2	5150.00	43.7 AV	54.0	-10.3	3.02 H	88	39.8	3.9
3	*5260.00	118.7 PK			3.67 H	52	77.8	40.9
4	*5260.00	108.6 AV			3.67 H	52	67.7	40.9
5	#10520.00	56.1 PK	74.0	-17.9	1.28 H	221	41.9	14.2
6	#10520.00	43.0 AV	54.0	-11.0	1.28 H	221	28.8	14.2
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	5150.00	56.7 PK	74.0	-17.3	1.25 V	333	52.8	3.9
2	5150.00	43.4 AV	54.0	-10.6	1.25 V	333	39.5	3.9
3	*5260.00	112.6 PK			1.21 V	321	71.7	40.9
4	*5260.00	103.1 AV			1.21 V	321	62.2	40.9
5	#10520.00	55.8 PK	74.0	-18.2	2.73 V	258	41.6	14.2
6	#10520.00	42.2 AV	54.0	-11.8	2.73 V	258	28.0	14.2

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.

802.11b + 802.11a

CHANNEL	CH 1 + CH 144	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	60.7 PK	74.0	-13.3	1.42 H	31	27.3	33.4
2	**2390.00**	**53.0 AV**	**54.0**	**-1.0**	**1.42 H**	**31**	**19.6**	**33.4**
3	*2412.00	120.9 PK			2.55 H	18	87.4	33.5
4	*2412.00	118.2 AV			2.55 H	18	84.7	33.5
5	4824.00	57.6 PK	74.0	-16.4	2.02 H	3	53.9	3.7
6	4824.00	51.9 AV	54.0	-2.1	2.02 H	3	48.2	3.7
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	60.9 PK	74.0	-13.1	3.11 V	39	27.5	33.4
2	2390.00	52.3 AV	54.0	-1.7	3.11 V	39	18.9	33.4
3	*2412.00	114.9 PK			3.18 V	7	81.4	33.5
4	*2412.00	112.8 AV			3.18 V	7	79.3	33.5
5	4824.00	52.9 PK	74.0	-21.1	3.88 V	356	49.2	3.7
6	4824.00	47.8 AV	54.0	-6.2	3.88 V	356	44.1	3.7

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 1 + CH 144	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	#5470.00	57.5 PK	74.0	-16.5	2.68 H	293	53.0	4.5
2	#5470.00	44.2 AV	54.0	-9.8	2.68 H	293	39.7	4.5
3	*5720.00	111.9 PK			2.66 H	322	70.3	41.6
4	*5720.00	101.6 AV			2.66 H	322	60.0	41.6
5	#5825.00	57.6 PK	74.0	-16.4	2.78 H	319	52.9	4.7
6	#5825.00	44.2 AV	54.0	-9.8	2.78 H	319	39.5	4.7
7	11440.00	59.4 PK	74.0	-14.6	1.38 H	19	44.3	15.1
8	11440.00	45.9 AV	54.0	-8.1	1.38 H	19	30.8	15.1
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	#5470.00	59.3 PK	74.0	-14.7	2.48 V	137	54.8	4.5
2	#5470.00	46.0 AV	54.0	-8.0	2.48 V	137	41.5	4.5
3	*5720.00	118.6 PK			2.66 V	151	77.0	41.6
4	*5720.00	107.7 AV			2.66 V	151	66.1	41.6
5	#5825.00	57.8 PK	74.0	-16.2	2.79 V	153	53.1	4.7
6	#5825.00	44.9 AV	54.0	-9.1	2.79 V	153	40.2	4.7
7	11440.00	60.4 PK	74.0	-13.6	1.48 V	99	45.3	15.1
8	11440.00	47.3 AV	54.0	-6.7	1.48 V	99	32.2	15.1

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

802.11b + 802.11a

CHANNEL	CH 1 + CH 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	A		

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	90.14	32.7 QP	43.5	-10.8	1.99 H	110	51.7	-19.0
2	154.16	35.5 QP	43.5	-8.0	1.49 H	106	48.8	-13.3
3	216.24	37.0 QP	46.0	-9.0	1.49 H	103	53.1	-16.1
4	330.70	37.8 QP	46.0	-8.2	1.00 H	271	49.6	-11.8
5	400.54	35.4 QP	46.0	-10.6	1.00 H	128	46.5	-11.1
6	507.24	37.8 QP	46.0	-8.2	1.49 H	10	47.0	-9.2
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	55.22	34.5 QP	40.0	-5.5	1.00 V	14	48.2	-13.7
2	94.02	30.7 QP	43.5	-12.8	1.49 V	238	49.5	-18.8
3	167.74	34.6 QP	43.5	-8.9	1.00 V	237	48.3	-13.7
4	264.74	34.7 QP	46.0	-11.3	1.99 V	329	48.2	-13.5
5	352.04	39.3 QP	46.0	-6.7	1.49 V	54	51.0	-11.7
6	547.98	32.1 QP	46.0	-13.9	1.00 V	51	41.0	-8.9

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

CHANNEL	CH 1 + CH 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	B		

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	76.56	29.9 QP	40.0	-10.1	1.49 H	62	46.9	-17.0
2	165.80	40.0 QP	43.5	-3.5	1.49 H	96	53.7	-13.7
3	218.18	42.5 QP	46.0	-3.5	1.00 H	112	58.6	-16.1
4	317.12	41.6 QP	46.0	-4.4	1.00 H	290	53.6	-12.0
5	379.20	41.3 QP	46.0	-4.7	1.00 H	137	52.5	-11.2
6	505.30	37.9 QP	46.0	-8.1	1.49 H	339	47.2	-9.3
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	51.34	38.5 QP	40.0	-1.5	1.00 V	11	52.1	-13.6
2	64.92	33.7 QP	40.0	-6.3	1.00 V	163	48.4	-14.7
3	163.86	31.7 QP	43.5	-11.8	1.49 V	229	45.2	-13.5
4	348.16	39.0 QP	46.0	-7.0	1.49 V	151	50.8	-11.8
5	385.02	44.4 QP	46.0	-1.6	1.00 V	118	55.5	-11.1
6	509.18	35.3 QP	46.0	-10.7	1.00 V	285	44.5	-9.2

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

CHANNEL	CH 1 + CH 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	C		

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	57.16	28.3 QP	40.0	-11.7	1.01 H	172	42.1	-13.8
2	90.14	31.1 QP	43.5	-12.4	1.49 H	276	50.1	-19.0
3	130.88	29.1 QP	43.5	-14.4	1.49 H	113	44.2	-15.1
4	280.26	37.0 QP	46.0	-9.0	1.01 H	162	49.7	-12.7
5	371.44	43.6 QP	46.0	-2.4	1.01 H	124	55.0	-11.4
6	513.06	35.6 QP	46.0	-10.4	1.49 H	212	44.7	-9.1
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	49.40	36.7 QP	40.0	-3.3	1.00 V	121	50.3	-13.6
2	123.12	28.6 QP	43.5	-14.9	1.00 V	359	44.1	-15.5
3	171.62	31.2 QP	43.5	-12.3	1.00 V	329	45.3	-14.1
4	284.14	38.6 QP	46.0	-7.4	1.49 V	191	51.2	-12.6
5	373.38	43.8 QP	46.0	-2.2	1.49 V	146	55.1	-11.3
6	499.48	37.5 QP	46.0	-8.5	1.00 V	153	46.9	-9.4

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

802.11b + 802.11a

CHANNEL	CH 1 + CH 144	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	A		

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	72.68	29.5 QP	40.0	-10.5	1.49 H	110	45.4	-15.9
2	152.22	36.2 QP	43.5	-7.3	1.49 H	108	49.6	-13.4
3	249.22	34.7 QP	46.0	-11.3	1.00 H	94	49.0	-14.3
4	394.72	41.6 QP	46.0	-4.4	1.00 H	241	52.7	-11.1
5	546.04	37.1 QP	46.0	-8.9	1.49 H	174	46.0	-8.9
6	646.92	30.9 QP	46.0	-15.1	1.49 H	1	37.7	-6.8
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	43.58	35.7 QP	40.0	-4.3	1.00 V	39	49.7	-14.0
2	138.64	31.8 QP	43.5	-11.7	1.49 V	14	45.9	-14.1
3	202.66	32.8 QP	43.5	-10.7	1.00 V	12	49.0	-16.2
4	301.60	32.4 QP	46.0	-13.6	1.49 V	229	44.7	-12.3
5	394.72	41.4 QP	46.0	-4.6	1.00 V	102	52.5	-11.1
6	507.24	32.6 QP	46.0	-13.4	1.49 V	313	41.8	-9.2

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

CHANNEL	CH 1 + CH 144	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	B		

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	161.92	40.8 QP	43.5	-2.7	1.49 H	122	54.2	-13.4
2	220.12	40.6 QP	46.0	-5.4	1.49 H	95	56.6	-16.0
3	295.78	35.8 QP	46.0	-10.2	1.00 H	241	48.3	-12.5
4	301.60	38.0 QP	46.0	-8.0	1.00 H	241	50.3	-12.3
5	355.92	40.1 QP	46.0	-5.9	1.00 H	274	51.9	-11.8
6	375.32	39.4 QP	46.0	-6.6	1.00 H	306	50.7	-11.3
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	57.16	36.5 QP	40.0	-3.5	1.00 V	9	50.3	-13.8
2	76.56	36.4 QP	40.0	-3.6	1.00 V	165	53.4	-17.0
3	132.82	29.3 QP	43.5	-14.2	1.00 V	206	44.1	-14.8
4	212.36	29.9 QP	43.5	-13.6	1.49 V	188	46.1	-16.2
5	357.86	42.5 QP	46.0	-3.5	1.49 V	114	54.2	-11.7
6	388.90	40.3 QP	46.0	-5.7	1.00 V	309	51.5	-11.2

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

CHANNEL	CH 1 + CH 144	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	C		

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	88.20	33.4 QP	43.5	-10.1	1.49 H	154	52.6	-19.2
2	192.96	35.2 QP	43.5	-8.3	1.00 H	194	51.2	-16.0
3	280.26	36.1 QP	46.0	-9.9	1.00 H	183	48.8	-12.7
4	371.44	43.9 QP	46.0	-2.1	1.00 H	196	55.3	-11.4
5	390.84	42.9 QP	46.0	-3.1	1.00 H	48	54.0	-11.1
6	536.34	36.7 QP	46.0	-9.3	1.49 H	161	45.7	-9.0
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	37.76	34.5 QP	40.0	-5.5	1.00 V	209	49.2	-14.7
2	94.02	34.8 QP	43.5	-8.7	1.00 V	224	53.6	-18.8
3	288.02	37.3 QP	46.0	-8.7	1.49 V	194	49.8	-12.5
4	375.32	43.6 QP	46.0	-2.4	1.00 V	262	54.9	-11.3
5	505.30	33.3 QP	46.0	-12.7	1.00 V	299	42.6	-9.3
6	536.34	36.5 QP	46.0	-9.5	1.00 V	283	45.5	-9.0

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
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 26, 2018	Feb. 25, 2019
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ V7.3.7.4	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 1.
3. The VCCI Site Registration No. is C-2040.

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.

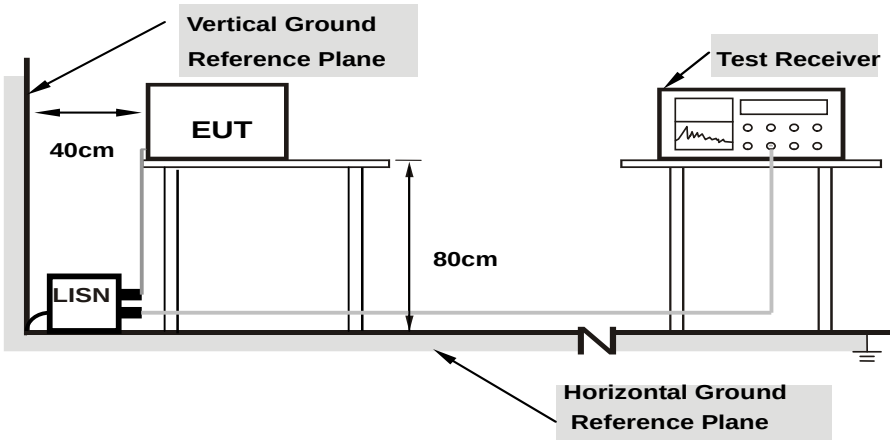
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

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

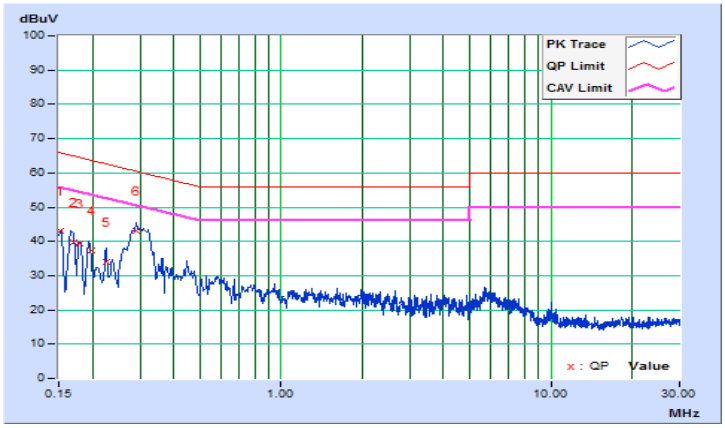
802.11b + 802.11a

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 1 + CH 52	Test Mode	A

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15128	10.13	32.80	20.11	42.93	30.24	65.93	55.93	-23.00	-25.69
2	0.17135	10.15	29.60	16.18	39.75	26.33	64.89	54.89	-25.14	-28.56
3	0.17961	10.15	29.11	15.83	39.26	25.98	64.50	54.50	-25.24	-28.52
4	0.19773	10.16	27.23	14.22	37.39	24.38	63.71	53.71	-26.32	-29.33
5	0.22564	10.17	23.84	11.18	34.01	21.35	62.61	52.61	-28.60	-31.26
6	0.28866	10.17	33.06	25.32	43.23	35.49	60.56	50.56	-17.33	-15.07

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

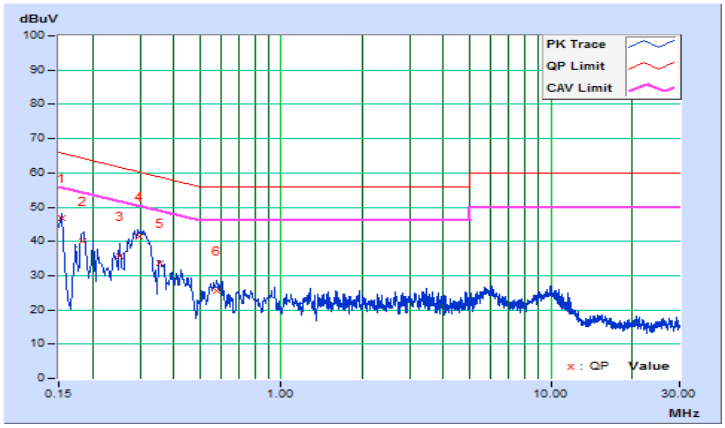


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 1 + CH 52	Test Mode	A

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15413	10.18	36.46	22.18	46.64	32.36	65.77	55.77	-19.13	-23.41
2	0.18498	10.15	29.84	15.93	39.99	26.08	64.26	54.26	-24.27	-28.18
3	0.25227	10.13	25.49	14.11	35.62	24.24	61.68	51.68	-26.06	-27.44
4	0.29913	10.13	31.25	21.73	41.38	31.86	60.27	50.27	-18.89	-18.41
5	0.35412	10.14	23.38	15.12	33.52	25.26	58.87	48.87	-25.35	-23.61
6	0.57448	10.16	15.28	10.33	25.44	20.49	56.00	46.00	-30.56	-25.51

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

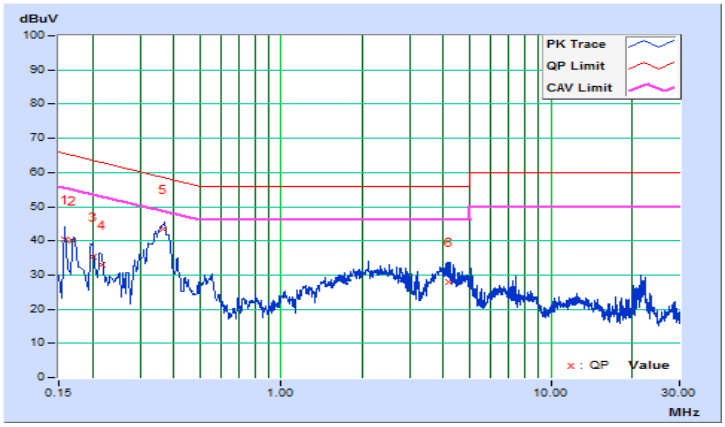


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 1 + CH 52	Test Mode	B

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15683	10.14	30.12	15.27	40.26	25.41	65.63	55.63	-25.37	-30.22
2	0.16893	10.15	30.08	17.63	40.23	27.78	65.01	55.01	-24.78	-27.23
3	0.20119	10.16	25.11	14.05	35.27	24.21	63.56	53.56	-28.29	-29.35
4	0.21764	10.17	22.93	11.11	33.10	21.28	62.91	52.91	-29.81	-31.63
5	0.36529	10.17	33.19	26.19	43.36	36.36	58.61	48.61	-15.25	-12.25
6	4.18305	10.38	17.58	11.33	27.96	21.71	56.00	46.00	-28.04	-24.29

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

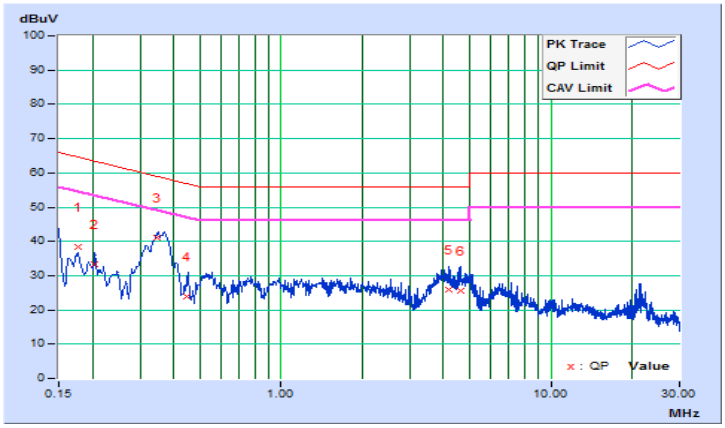


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 1 + CH 52	Test Mode	B

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17599	10.16	28.36	16.84	38.52	27.00	64.67	54.67	-26.15	-27.67
2	0.20327	10.13	23.17	13.33	33.30	23.46	63.48	53.48	-30.18	-30.02
3	0.34884	10.14	31.03	24.68	41.17	34.82	58.99	48.99	-17.82	-14.17
4	0.44976	10.14	13.84	4.88	23.98	15.02	56.88	46.88	-32.90	-31.86
5	4.16256	10.37	15.43	9.84	25.80	20.21	56.00	46.00	-30.20	-25.79
6	4.62255	10.39	15.11	8.66	25.50	19.05	56.00	46.00	-30.50	-26.95

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

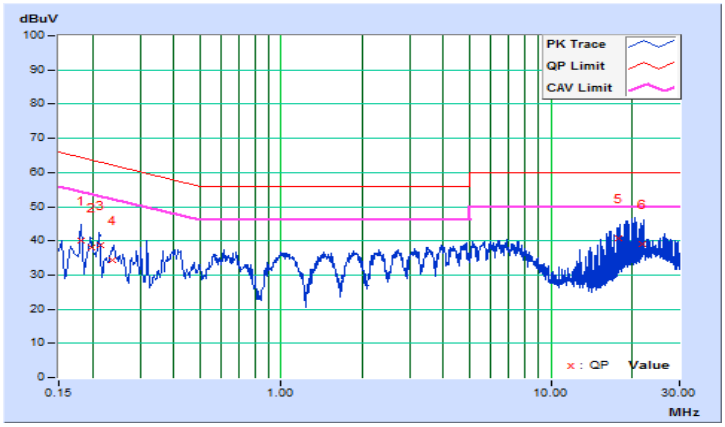


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 1 + CH 52	Test Mode	C

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18135	10.15	29.88	16.50	40.03	26.65	64.42	54.42	-24.39	-27.77
2	0.19862	10.16	27.88	20.33	38.04	30.49	63.67	53.67	-25.63	-23.18
3	0.21351	10.16	28.67	15.78	38.83	25.94	63.07	53.07	-24.24	-27.13
4	0.23768	10.17	24.22	19.97	34.39	30.14	62.18	52.18	-27.79	-22.04
5	17.77138	11.18	29.58	25.44	40.76	36.62	60.00	50.00	-19.24	-13.38
6	21.87932	11.40	27.53	23.94	38.93	35.34	60.00	50.00	-21.07	-14.66

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

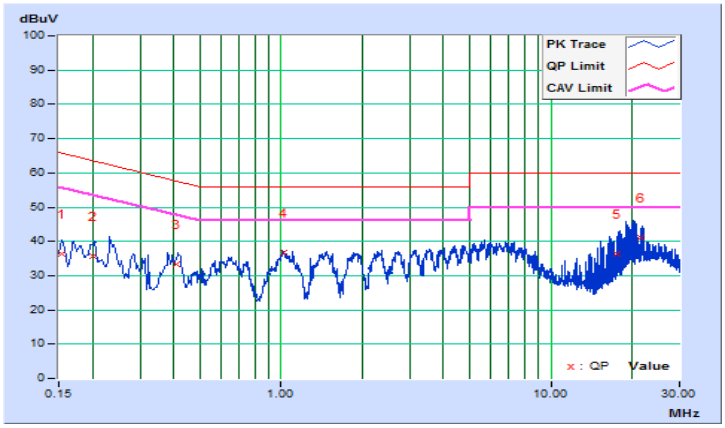


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 1 + CH 52	Test Mode	C

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15447	10.18	26.32	16.48	36.50	26.66	65.76	55.76	-29.26	-29.10
2	0.19973	10.13	25.58	17.19	35.71	27.32	63.62	53.62	-27.91	-26.30
3	0.40742	10.14	23.12	19.89	33.26	30.03	57.70	47.70	-24.44	-17.67
4	1.02394	10.21	26.45	20.52	36.66	30.73	56.00	46.00	-19.34	-15.27
5	17.57421	10.94	25.49	21.74	36.43	32.68	60.00	50.00	-23.57	-17.32
6	21.63247	11.09	29.93	24.93	41.02	36.02	60.00	50.00	-18.98	-13.98

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



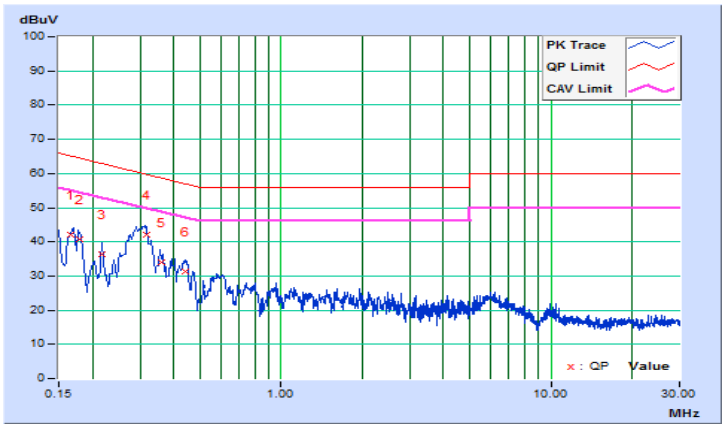
802.11b + 802.11a

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 1 + CH 144	Test Mode	A

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16583	10.14	31.98	17.93	42.12	28.07	65.17	55.17	-23.05	-27.10
2	0.18011	10.15	30.56	17.22	40.71	27.37	64.48	54.48	-23.77	-27.11
3	0.21694	10.17	26.17	13.61	36.34	23.78	62.94	52.94	-26.60	-29.16
4	0.31874	10.17	32.02	25.98	42.19	36.15	59.74	49.74	-17.55	-13.59
5	0.36008	10.17	23.83	17.82	34.00	27.99	58.73	48.73	-24.73	-20.74
6	0.43996	10.18	21.09	15.59	31.27	25.77	57.06	47.06	-25.79	-21.29

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

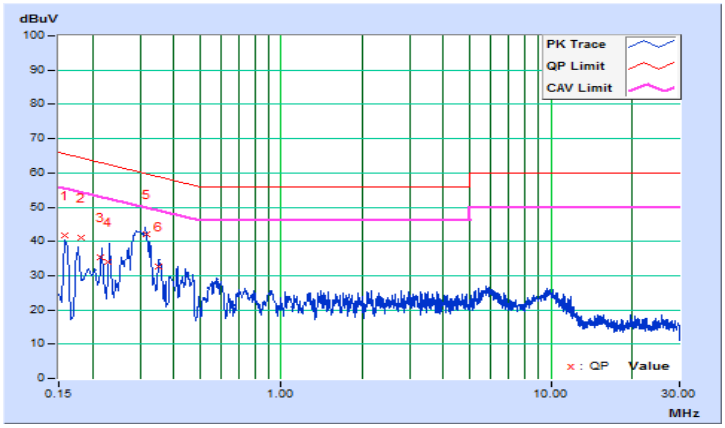


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 1 + CH 144	Test Mode	A

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15821	10.18	31.44	15.73	41.62	25.91	65.56	55.56	-23.94	-29.65
2	0.18193	10.15	30.98	16.27	41.13	26.42	64.40	54.40	-23.27	-27.98
3	0.21539	10.13	25.19	13.18	35.32	23.31	62.99	52.99	-27.67	-29.68
4	0.22911	10.13	23.92	12.62	34.05	22.75	62.48	52.48	-28.43	-29.73
5	0.31839	10.14	31.84	26.31	41.98	36.45	59.75	49.75	-17.77	-13.30
6	0.35312	10.14	22.52	16.33	32.66	26.47	58.89	48.89	-26.23	-22.42

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

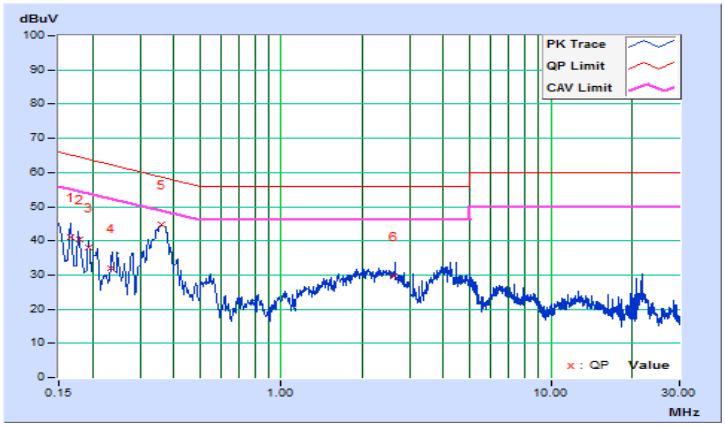


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 1 + CH 144	Test Mode	B

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16583	10.14	30.98	17.43	41.12	27.57	65.17	55.17	-24.05	-27.60
2	0.17908	10.15	30.27	17.29	40.42	27.44	64.53	54.53	-24.11	-27.09
3	0.19279	10.16	27.84	14.49	38.00	24.65	63.92	53.92	-25.92	-29.27
4	0.23513	10.17	21.69	11.88	31.86	22.05	62.27	52.27	-30.41	-30.22
5	0.36132	10.17	34.51	27.83	44.68	38.00	58.70	48.70	-14.02	-10.70
6	2.60742	10.27	19.37	15.96	29.64	26.23	56.00	46.00	-26.36	-19.77

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

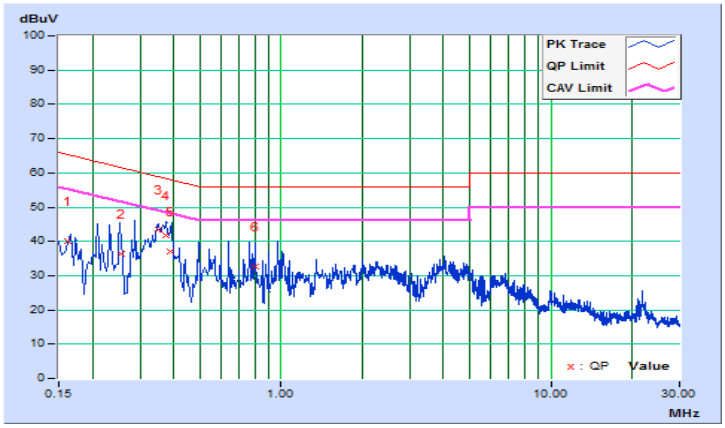


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 1 + CH 144	Test Mode	B

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16116	10.17	29.97	18.12	40.14	28.29	65.40	55.40	-25.26	-27.11
2	0.25532	10.13	26.19	15.09	36.32	25.22	61.58	51.58	-25.26	-26.36
3	0.34993	10.14	33.25	27.61	43.39	37.75	58.96	48.96	-15.57	-11.21
4	0.37673	10.14	31.73	26.19	41.87	36.33	58.35	48.35	-16.48	-12.02
5	0.39093	10.14	26.91	19.54	37.05	29.68	58.04	48.04	-20.99	-18.36
6	0.79844	10.19	22.35	16.83	32.54	27.02	56.00	46.00	-23.46	-18.98

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

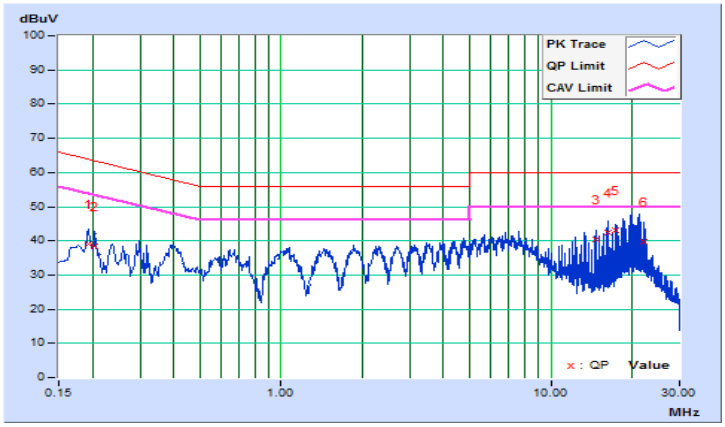


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 1 + CH 144	Test Mode	C

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19337	10.16	28.86	19.58	39.02	29.74	63.89	53.89	-24.87	-24.15
2	0.20476	10.16	28.14	19.22	38.30	29.38	63.42	53.42	-25.12	-24.04
3	14.64713	10.97	29.47	28.76	40.44	39.73	60.00	50.00	-19.56	-10.27
4	16.30641	11.08	31.44	30.62	42.52	41.70	60.00	50.00	-17.48	-8.30
5	**17.32149**	**11.15**	**31.92**	**31.14**	**43.07**	**42.29**	**60.00**	**50.00**	**-16.93**	**-7.71**
6	22.16541	11.41	28.16	18.73	39.57	30.14	60.00	50.00	-20.43	-19.86

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

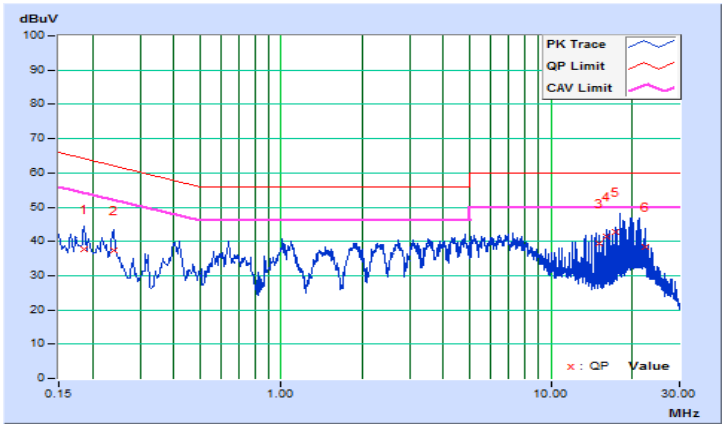


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 1 + CH 144	Test Mode	C

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18508	10.15	27.69	18.59	37.84	28.74	64.25	54.25	-26.41	-25.51
2	0.23898	10.13	27.14	23.96	37.27	34.09	62.13	52.13	-24.86	-18.04
3	15.01191	10.83	28.69	26.28	39.52	37.11	60.00	50.00	-20.48	-12.89
4	16.01287	10.88	30.57	29.84	41.45	40.72	60.00	50.00	-18.55	-9.28
5	17.26407	10.93	31.69	30.62	42.62	41.55	60.00	50.00	-17.38	-8.45
6	22.26496	11.11	27.44	23.88	38.55	34.99	60.00	50.00	-21.45	-15.01

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 FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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

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Tel: 886-3-6668565
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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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