FCC Test Report

(Co-Located)

Report No.:	RF150422C24-2
FCC ID:	TE7C2600
Test Model:	Archer C2600
Received Date:	Apr. 22, 2015
Test Date:	May 20 ~ May 21, 2015
Issued Date:	May 22, 2015
Applicant:	TP-LINK TECHNOLOGIES CO., LTD.
Address:	Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China
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.)

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF150422C24-2	Original release	May 22, 2015

1 Certificate of Conformity

Product:	AC2600 Wireless Dual Band Gigabit Router
Brand:	TP-LINK
Test Model:	Archer C2600
Sample Status:	Prototype
Applicant:	TP-LINK TECHNOLOGIES CO., LTD.
Test Date:	May 20 ~ May 21, 2015
Standards:	FCC Part 15, Subpart C (Section 15.247) FCC Part 15, Subpart E (Section 15.407)

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 : _____ , **Date:** May 22, 2015

Pettie Chen / Senior Specialist

Approved by : _____ , **Date:** May 22, 2015

Ken Liu / Senior Manager

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 -15.58dB at 0.15253MHz.
15.247(d) 15.407(b/1/2/3)(b)(6)	Radiated Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00, 11650.00MHz.

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	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.44 dB
Radiated Emissions up to 1 GHz	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	AC2600 Wireless Dual Band Gigabit Router
Brand	TP-LINK
Test Model	Archer C2600
Status of EUT	Prototype
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:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 800.0Mbps with 256QAM 802.11ac: up to 1733.3Mbps
Operating Frequency	2412 ~ 2462MHz, 5180 ~ 5240MHz, 5745 ~ 5825MHz
Number of Channel	2412 ~ 2462MHz: 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) 5180 ~ 5240MHz: 4 for 802.11a, 802.11n (20MHz), 802.11ac (20MHz) 2 for 802.11n (40MHz), 802.11ac (40MHz) 1 for 802.11ac (80MHz) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (20MHz), 802.11ac (20MHz) 2 for 802.11n (40MHz), 802.11ac (40MHz) 1 for 802.11ac (80MHz)
Output Power	2412 ~ 2462MHz: 971.670mW 5180 ~ 5240MHz: 729.075mW 5745 ~ 5825MHz: 993.523mW
Antenna Type	2412 ~ 2462MHz: Omni-Directional antenna with 3.04dBi gain 5180 ~ 5240MHz: Omni-Directional antenna with 4.95dBi gain 5745 ~ 5825MHz: Omni-Directional antenna with 4.15dBi gain
Antenna Connector	RF-SMA-F
Accessory Device	1.45m shielded AC power cable without core, adapter
Data Cable Supplied	N/A

Note:

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

Modulation Mode	TX Function
802.11b	4TX
802.11g	4TX
802.11a	4TX
802.11n (20MHz)	4TX
802.11n (40MHz)	4TX
802.11ac (20MHz)	4TX
802.11ac (40MHz)	4TX
802.11ac (80MHz)	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 EUT uses following adapter.

Adapter	
Brand	Huntkey
Model	HKA04812040-7D
Input Power	100-240Vac~1.2A 50/60Hz
Output Power	12.0Vdc / 4.0A
Power Line	1.8m cable without core attached on adapter

3.2 Description of Test Modes

For 2412 ~ 2462MHz

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

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

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

Channel	Frequency	Channel	Frequency
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 (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 & Bandedge Measurement **RE<1G:** Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

Note: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.

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
-	802.11g + 802.11a	2412 ~ 2462	1 to 11	6 + 48	BPSK
		5180 ~ 5240	36 to 48		BPSK
	802.11g + 802.11n (HT20)	2412 ~ 2462	1 to 11	6 + 165	BPSK
		5745 ~ 5825	149 to 165		BPSK

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
-	802.11g + 802.11a	2412 ~ 2462	1 to 11	6 + 48	BPSK
		5180 ~ 5240	36 to 48		BPSK
	802.11g + 802.11n (HT20)	2412 ~ 2462	1 to 11	6 + 165	BPSK
		5745 ~ 5825	149 to 165		BPSK

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
-	802.11g + 802.11a	2412 ~ 2462	1 to 11	6 + 48	BPSK
		5180 ~ 5240	36 to 48		BPSK
	802.11g + 802.11n (HT20)	2412 ~ 2462	1 to 11	6 + 165	BPSK
		5745 ~ 5825	149 to 165		BPSK

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	18deg. C, 70%RH	120Vac, 60Hz	Nick Hsu
RE<1G	18deg. C, 70%RH	120Vac, 60Hz	Nick Hsu
PLC	20deg. C, 70%RH	120Vac, 60Hz	Jones 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.

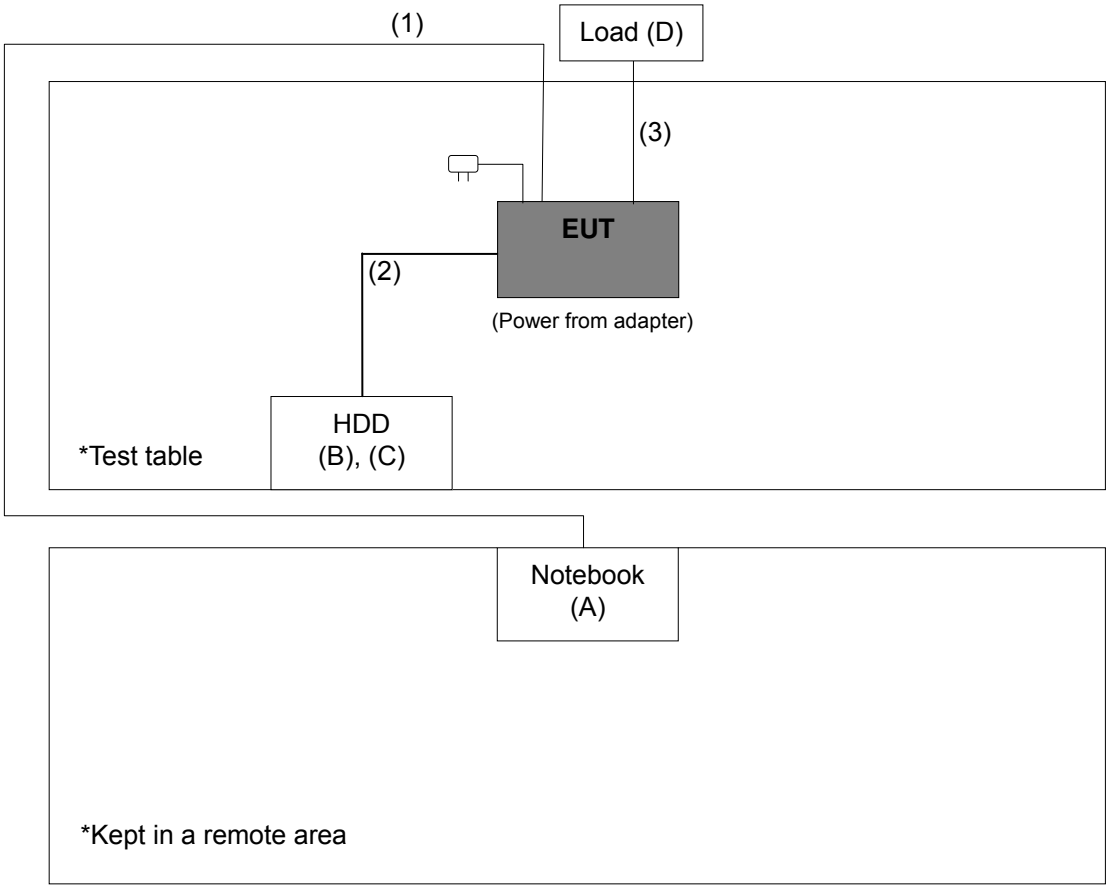
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	D531	CN-0XM006-48643-81 U-2610	QDS-BRCM1020	-
B.	External Hard Disk	WD	WDBACY5000ABL-01	WXS1CC1D3606	NA	-
C.	External Hard Disk	WD	WDBACY5000ABL-01	WX51C1245403	NA	-
D.	Load	NA	NA	NA	NA	-

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.	RJ 45	1	10	N	0	-
2.	USB	1	1.8	Y	0	-
3.	RJ 45	4	1.8	N	0	-

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards

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

FCC Part 15, Subpart C (Section 15.247)

FCC Part 15, Subpart E (Section 15.407)

ANSI C63.10-2009

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

Note: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

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

APPLICABLE TO	LIMIT	
789033 D02 General UNII Test Procedures New Rules v01	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)	PK:-27 (dBm/MHz) [*1] PK:-17 (dBm/MHz) [*2]	PK: 68.2(dBμV/m) [*1] PK:78.2 (dBμV/m) [*2]

NOTE: [*1] beyond 10MHz of the band edge [*2] within 10 MHz of band edge

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.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	Apr. 10, 2015	Apr. 09, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Aug. 29, 2014	Aug. 28, 2015
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Feb. 05, 2015	Feb. 04, 2016
HORN Antenna SCHWARZBECK	9120D	209	Feb. 09, 2015	Feb. 08, 2016
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Feb. 09, 2015	Feb. 08, 2016
Preamplifier Agilent	8447D	2944A10738	Oct.18, 2014	Oct. 17, 2015
Preamplifier Agilent	8449B	3008A01964	Aug. 22, 2014	Aug. 21, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	214378/4	Aug. 22, 2014	Aug. 21, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 106	12738/6 +309224/4	Aug. 22, 2014	Aug. 21, 2015
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	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
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 18, 2014	Oct. 17, 2015
High Speed Peak Power Meter	ML2495A	0824011	Jul. 26, 2014	Jul. 25, 2015
Power Sensor	MA2411B	0738171	Jul. 26, 2014	Jul. 25, 2015

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 HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 988962.
5. The IC Site Registration No. is IC 7450F-3.

4.1.3 Test Procedures

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

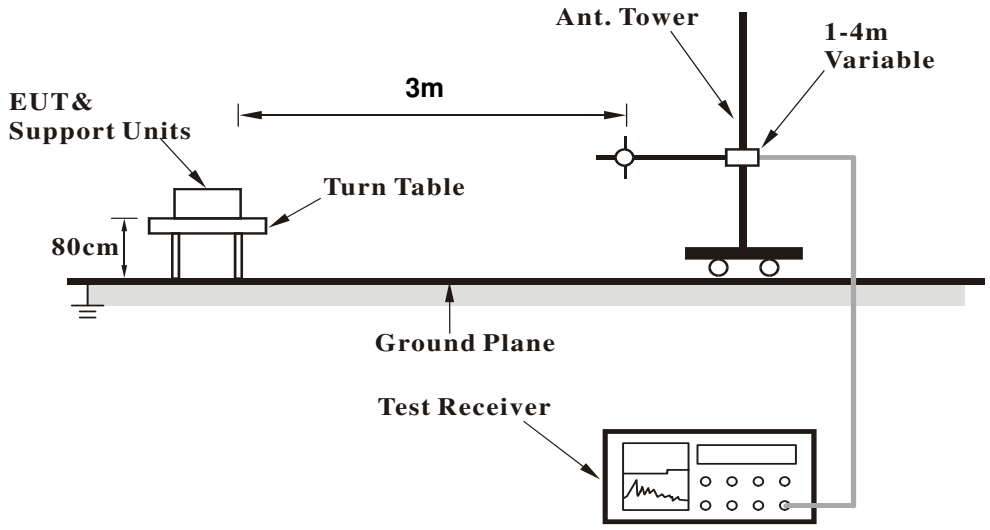
1. For emission measurements above 1 GHz, the EUT shall be placed at a height of 1.5 m above the ground at 3 meter chamber room for test. (Tracking Number 307455)
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
3. 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.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
6. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

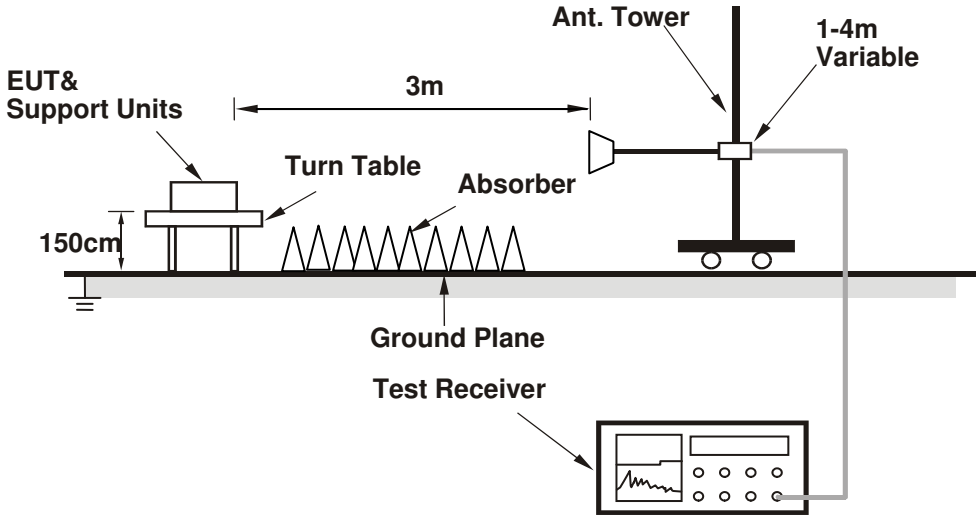
No deviation.

4.1.5 Test Set Up

<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 Conditions

a. Placed the EUT on the testing table.
b. Prepared a 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:

802.11g + 802.11a

CHANNEL	TX Channel 6 + 48	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	56.6 PK	74.0	-17.4	1.21 H	243	24.10	32.50
2	#2390.00	46.4 AV	54.0	-7.6	1.21 H	243	13.90	32.50
3	*2437.00	116.6 PK			1.09 H	252	83.90	32.70
4	*2437.00	105.5 AV			1.09 H	252	72.80	32.70
5	#4874.00	47.0 PK	74.0	-27.0	1.50 H	69	41.10	5.90
6	#4874.00	34.5 AV	54.0	-19.5	1.50 H	69	28.60	5.90
7	#5150.00	57.9 PK	74.0	-16.1	1.08 H	153	51.90	6.00
8	#5150.00	44.6 AV	54.0	-9.4	1.08 H	153	38.60	6.00
9	*5240.00	110.5 PK			1.08 H	203	70.90	39.60
10	*5240.00	99.7 AV			1.08 H	203	60.10	39.60
11	#6986.00	58.5 PK	68.2	-9.7	1.04 H	304	46.20	12.30
12	#10480.00	62.1 PK	74.0	-11.9	1.27 H	164	43.10	19.00
13	#10480.00	50.1 AV	54.0	-3.9	1.27 H	164	31.10	19.00
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	63.9 PK	74.0	-10.1	2.10 V	163	31.40	32.50
2	#2390.00	53.8 AV	54.0	-0.2	2.10 V	163	21.30	32.50
3	*2437.00	126.9 PK			1.52 V	153	94.20	32.70
4	*2437.00	116.0 AV			1.52 V	153	83.30	32.70
5	#4874.00	47.5 PK	74.0	-26.5	1.10 V	218	41.60	5.90
6	#4874.00	36.0 AV	54.0	-18.0	1.10 V	218	30.10	5.90
7	#5150.00	66.6 PK	74.0	-7.4	1.58 V	320	60.60	6.00
8	#5150.00	50.7 AV	54.0	-3.3	1.58 V	320	44.70	6.00
9	*5240.00	130.3 PK			1.98 V	138	90.70	39.60
10	*5240.00	119.5 AV			1.98 V	138	79.90	39.60
11	#6986.00	64.6 PK	68.2	-3.6	1.10 V	319	52.30	12.30
12	#10480.00	68.7 PK	74.0	-5.3	1.31 V	152	49.70	19.00
13	#10480.00	53.7 AV	54.0	-0.3	1.31 V	152	34.70	19.00

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11g + 802.11n (HT20)

CHANNEL	TX Channel 6 + 165	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	56.7 PK	74.0	-17.3	1.64 H	238	24.20	32.50
2	#2390.00	46.6 AV	54.0	-7.4	1.64 H	238	14.10	32.50
3	*2437.00	116.8 PK			1.03 H	269	84.10	32.70
4	*2437.00	105.6 AV			1.03 H	269	72.90	32.70
5	#4874.00	46.9 PK	74.0	-27.1	1.62 H	94	41.00	5.90
6	#4874.00	34.5 AV	54.0	-19.5	1.62 H	94	28.60	5.90
7	*5825.00	114.4 PK			2.25 H	19	73.90	40.50
8	*5825.00	103.5 AV			2.25 H	19	63.00	40.50
9	#5850.00	80.2 PK	84.4	-4.2	2.18 H	9	73.30	6.90
10	#5850.00	69.3 AV	73.5	-4.2	2.18 H	9	62.40	6.90
11	#11650.00	62.8 PK	74.0	-11.2	1.22 H	165	43.90	18.90
12	#11650.00	50.7 AV	54.0	-3.3	1.22 H	165	31.80	18.90
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	64.1 PK	74.0	-9.9	1.62 V	186	31.60	32.50
2	**#2390.00**	**53.9 AV**	**54.0**	**-0.1**	**1.62 V**	**186**	**21.40**	**32.50**
3	*2437.00	127.0 PK			1.50 V	167	94.30	32.70
4	*2437.00	116.0 AV			1.50 V	167	83.30	32.70
5	#4874.00	47.7 PK	74.0	-26.3	1.02 V	221	41.80	5.90
6	#4874.00	35.9 AV	54.0	-18.1	1.02 V	221	30.00	5.90
7	*5825.00	128.6 PK			2.10 V	168	88.10	40.50
8	*5825.00	117.3 AV			2.10 V	168	76.80	40.50
9	#5850.00	94.4 PK	98.6	-4.2	1.82 V	108	87.50	6.90
10	#5850.00	83.1 AV	87.3	-4.2	1.82 V	108	76.20	6.90
11	#11650.00	67.1 PK	74.0	-6.9	1.83 V	121	48.20	18.90
12	**#11650.00**	**53.9 AV**	**54.0**	**-0.1**	**1.83 V**	**121**	**35.00**	**18.90**

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Below 1GHz data:

802.11g + 802.11a

CHANNEL	TX Channel 6 + 48	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	57.12	32.6 QP	40.0	-7.4	2.00 H	270	47.20	-14.60
2	101.84	28.9 QP	43.5	-14.6	2.00 H	44	47.70	-18.80
3	173.78	32.1 QP	43.5	-11.4	2.00 H	174	46.70	-14.60
4	288.49	29.6 QP	46.0	-16.4	1.01 H	99	42.40	-12.80
5	700.68	37.2 QP	46.0	-8.8	1.01 H	40	41.60	-4.40
6	776.51	34.6 QP	46.0	-11.4	1.01 H	42	37.00	-2.40
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	31.84	29.5 QP	40.0	-10.5	1.99 V	16	45.60	-16.10
2	49.34	26.5 QP	40.0	-13.5	1.00 V	284	40.90	-14.40
3	300.16	32.5 QP	46.0	-13.5	1.99 V	16	44.90	-12.40
4	725.96	44.0 QP	46.0	-2.0	1.99 V	16	47.80	-3.80
5	751.23	36.8 QP	46.0	-9.2	1.99 V	16	40.00	-3.20
6	875.67	36.9 QP	46.0	-9.1	1.00 V	319	38.00	-1.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

802.11g + 802.11n (HT20)

CHANNEL	TX Channel 6 + 165	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	57.12	32.4 QP	40.0	-7.6	1.99 H	183	47.00	-14.60
2	101.84	29.6 QP	43.5	-13.9	1.99 H	51	48.40	-18.80
3	173.78	31.6 QP	43.5	-11.9	1.99 H	183	46.20	-14.60
4	288.49	29.8 QP	46.0	-16.2	1.00 H	99	42.60	-12.80
5	624.85	31.0 QP	46.0	-15.0	1.00 H	138	36.60	-5.60
6	725.96	35.0 QP	46.0	-11.0	1.00 H	36	38.80	-3.80
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	33.79	38.9 QP	40.0	-1.1	1.01 V	160	54.70	-15.80
2	49.34	37.6 QP	40.0	-2.4	1.01 V	329	52.00	-14.40
3	307.93	32.3 QP	46.0	-13.7	1.01 V	16	44.60	-12.30
4	700.68	37.5 QP	46.0	-8.5	1.01 V	338	41.90	-4.40
5	725.96	43.3 QP	46.0	-2.7	1.01 V	16	47.10	-3.80
6	776.51	36.5 QP	46.0	-9.5	1.01 V	16	38.90	-2.40

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

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.	Date Of Calibration	Due Date Of Calibration
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Apr. 27, 2015	Apr. 26, 2016
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 26, 2014	Dec. 25, 2015
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 30, 2014	Dec. 29, 2015
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 10, 2014	Jul. 09, 2015
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 2.
3. The VCCI Site Registration No. is C-2047.

4.2.3 Test Procedures

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

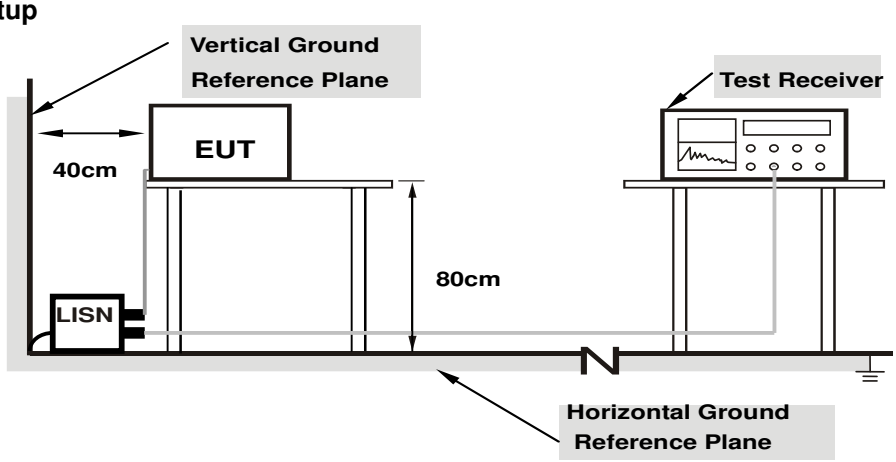
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

Note: 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

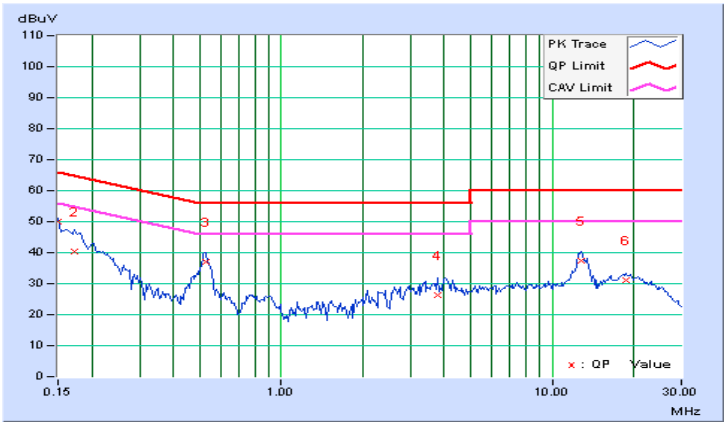
802.11g + 802.11a

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 6 + CH 48		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.16	49.84	36.80	50.00	36.96	66.00	56.00	-16.00	-19.04
2	0.17344	0.17	40.25	22.38	40.42	22.55	64.79	54.79	-24.38	-32.25
3	0.52500	0.19	36.87	27.65	37.06	27.84	56.00	46.00	-18.94	-18.16
4	3.75781	0.34	26.11	17.13	26.45	17.47	56.00	46.00	-29.55	-28.53
5	12.78906	0.49	36.83	29.90	37.32	30.39	60.00	50.00	-22.68	-19.61
6	18.77734	0.61	30.55	25.38	31.16	25.99	60.00	50.00	-28.84	-24.01

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.

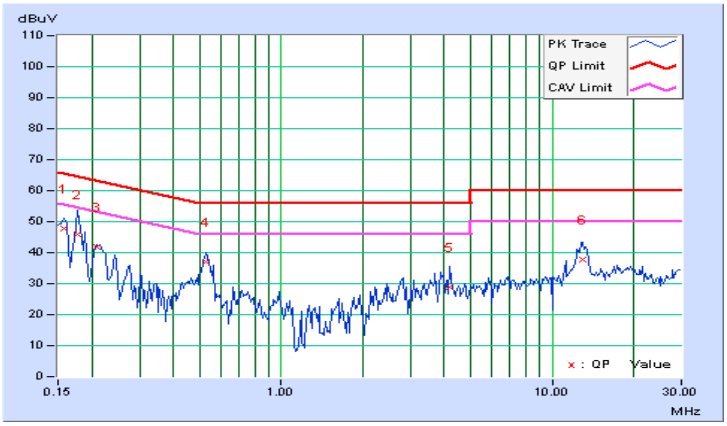


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 6 + CH 48		

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	0.15781	0.18	47.68	30.40	47.86	30.58	65.58	55.58	-17.72	-25.00
2	0.17734	0.18	45.84	32.60	46.02	32.78	64.61	54.61	-18.59	-21.83
3	0.20859	0.18	41.57	30.29	41.75	30.47	63.26	53.26	-21.51	-22.79
4	0.53016	0.21	36.75	28.84	36.96	29.05	56.00	46.00	-19.04	-16.95
5	4.18359	0.38	28.69	18.73	29.07	19.11	56.00	46.00	-26.93	-26.89
6	12.92578	0.60	37.25	30.24	37.85	30.84	60.00	50.00	-22.15	-19.16

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.



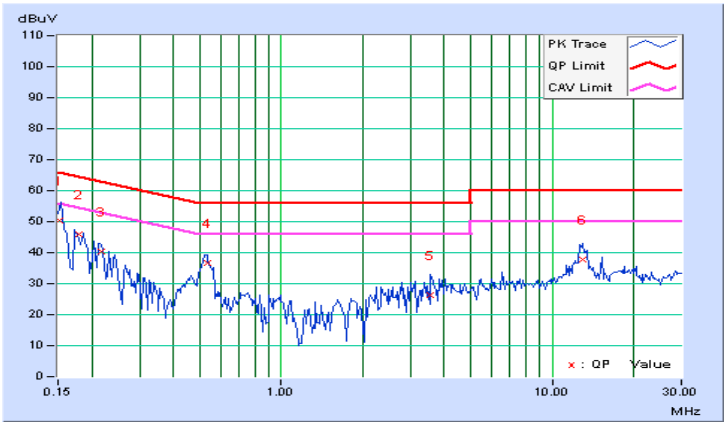
802.11g + 802.11n (HT20)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 6 + CH 165		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.15253**	**0.17**	**50.12**	**38.10**	**50.29**	**38.27**	**65.86**	**55.86**	**-15.58**	**-17.60**
2	0.17853	0.17	45.60	33.75	45.77	33.92	64.55	54.55	-18.79	-20.64
3	0.21641	0.17	40.08	25.47	40.25	25.64	62.96	52.96	-22.70	-27.31
4	0.53281	0.19	36.61	29.08	36.80	29.27	56.00	46.00	-19.20	-16.73
5	3.57031	0.33	25.92	17.37	26.25	17.70	56.00	46.00	-29.75	-28.30
6	12.99219	0.50	37.18	30.10	37.68	30.60	60.00	50.00	-22.32	-19.40

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.

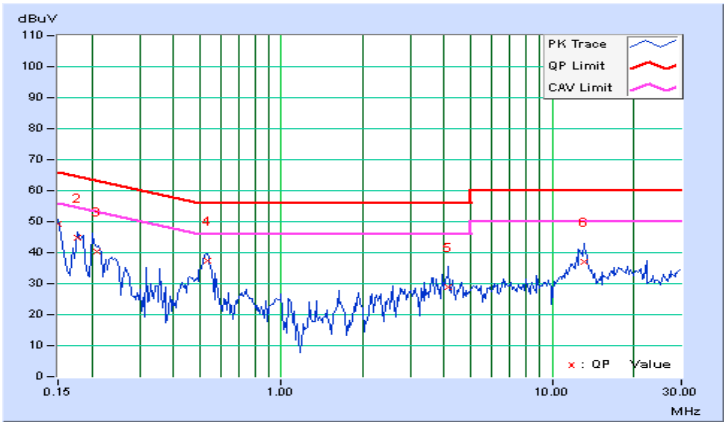


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	CH 6 + CH 165		

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	0.15000	0.17	49.07	38.12	49.24	38.29	66.00	56.00	-16.76	-17.71
2	0.17734	0.18	44.47	33.15	44.65	33.33	64.61	54.61	-19.96	-21.28
3	0.20893	0.18	40.02	30.09	40.20	30.27	63.25	53.25	-23.05	-22.98
4	0.53281	0.21	37.28	29.55	37.49	29.76	56.00	46.00	-18.51	-16.24
5	4.11719	0.38	28.40	18.27	28.78	18.65	56.00	46.00	-27.22	-27.35
6	13.17578	0.61	36.35	29.08	36.96	29.69	60.00	50.00	-23.04	-20.31

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/Telecom Lab
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Lab
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.

--- END ---