

# TEST REPORT

## CERTIFICATE OF CONFORMITY

**Standard:** 47 CFR FCC Part 15, Subpart B, Class A

**ANSI C63.4-2014**

**ANSI C63.4a-2017**

**Report No.:** FDBDBO-WTW-P24040023

**Product:** PCI Express PoE+ Expansion Card

**Brand:** Vecow

**Model No.:** PE-2001H

**Series Model:** PE-2XXXXXXXXXXXXXXXXX ("X" can be 0-9, A-Z or blank for marketing purpose)

**Received Date:** 2024/4/1

**Test Date:** 2024/4/25 ~ 2024/4/26

**Issued Date:** 2024/5/21

**Applicant:** Vecow Co., Ltd.

**Address:** 3F., No. 10, Jiankang Rd., Zhonghe Dist., New Taipei City 23586, Taiwan

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

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

**Test Location:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

**FCC Registration /**

**Designation Number:** 418586 / TW1078

**Approved by:**



Jim Hsiang / Associate Technical Manager

**Date:**

2024/5/21

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Prepared by : Jessica Cheng/ Senior Specialist



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## Release Control Record

Issue No.	Description	Date Issued
FDBDBO-WTW-P24040023	Original release.	2024/5/21

## 1 Certificate

**Product:** PCI Express PoE+ Expansion Card

**Brand:** Vecow

**Test Model:** PE-2001H

**Series Model:** PE-2XXXXXXXXXXXXXXXXX ("X" can be 0-9, A-Z or blank for marketing purpose)

**Sample Status:** Mass Production

**Applicant:** Vecow Co., Ltd.

**Test Date:** 2024/4/25 ~ 2024/4/26

**Standard:** 47 CFR FCC Part 15, Subpart B, Class A  
ANSI C63.4–2014  
ANSI C63.4a–2017

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.

## 2 Summary of Test Results

The test items that the EUT need to perform in accordance with its interfaces, evaluated functions, are as follows:

Standard / Clause	Test Item	Result	Remark
FCC Part 15.107	Conducted Emissions from Power Ports	Pass	Minimum passing Class A margin is -18.17 dB at 3.35035 MHz
FCC Part 15.109	Radiated Emissions up to 1 GHz	Pass	Minimum passing Class A margin is -7.53 dB at 327.56 MHz
FCC Part 15.109	Radiated Emissions above 1 GHz	Pass	Minimum passing Class A margin is -14.94 dB at 2698.33 MHz

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

### 2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Specification	Expanded Uncertainty (k=2) (±)	Maximum allowable uncertainty (±)
Conducted Emissions from Power Ports	9 kHz ~ 30 MHz	2.9 dB	3.4 dB ( $U_{\text{CISPR}}$ )
Radiated Emissions up to 1 GHz	30 MHz ~ 1 GHz	3m : 5.62 dB 10m : 4.26 dB	6.3 dB ( $U_{\text{CISPR}}$ )
	1 GHz ~ 6 GHz	4.38 dB	5.2 dB ( $U_{\text{CISPR}}$ )
Radiated Emissions above 1 GHz	6 GHz ~ 18 GHz	4.54 dB	5.5 dB ( $U_{\text{CISPR}}$ )

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

### 2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

### 3 General Information

#### 3.1 Description of EUT

Product	PCI Express PoE+ Expansion Card
Brand	Vecow
Test Model	PE-2001H
Series Model	PE-2XXXXXXXXXXXXXXXXX ("X" can be 0-9, A-Z or blank for marketing purpose)
Model Difference	Marketing Differentiation
Sample Status	Mass Production
Power Supply Rating	DC power from AI Computing System

#### 3.2 Primary Clock Frequencies of Internal Source

The highest frequency generated or used within the EUT or on which the EUT operates or tunes is 1 GHz, provided by Vecow Co., Ltd., for detailed internal source, please refer to the manufacturer's specifications.

#### 3.3 Features of EUT

The tests reported herein were performed according to the method specified by Vecow Co., Ltd., for detailed feature description, please refer to the manufacturer's specifications or user's manual.

Please refer to appendix of the report if the applicant has provided additional descriptions of the EUT.

### 3.4 Operating Modes of EUT and Determination of Worst Case Operating Mode

The EUT has been pre-tested under following test modes.

Test Condition	
Mode	Conducted Emissions from Power Ports
<b>1</b>	<b>Full system + Input Power(120 Vac, 60 Hz)</b>
2	Full system + Input Power(240 Vac, 60 Hz)
Note: The worst case is that mode 1 is shown in bold.	

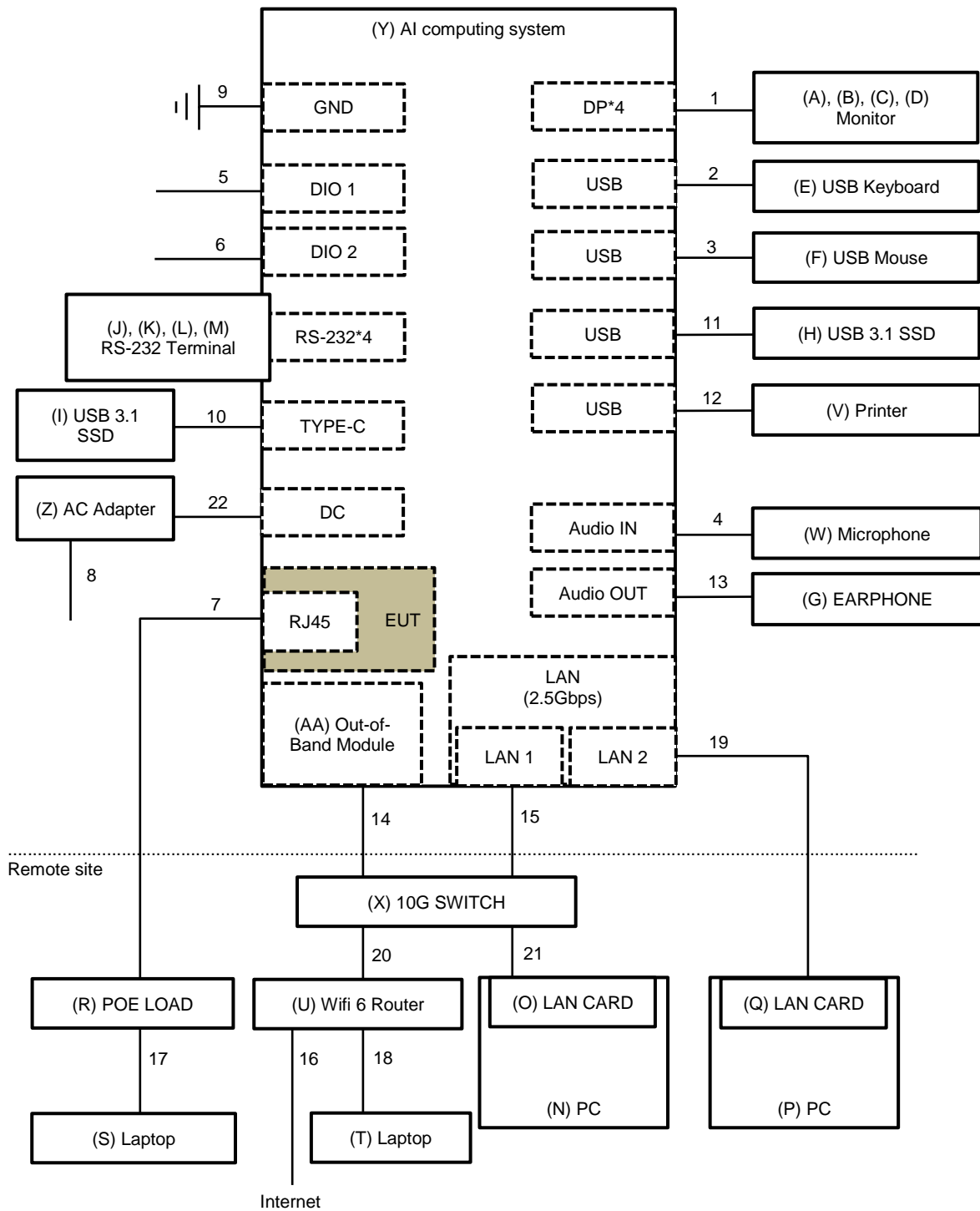
Test modes are presented in the report as below.

Test Condition	
Mode	Conducted Emissions from Power Ports
A	Full system + Input Power(120 Vac, 60 Hz)
Mode	Radiated Emissions up to 1 GHz
A	Full system + Input Power(120 Vac, 60 Hz)
Mode	Radiated Emissions above 1 GHz
A	Full system + Input Power(120 Vac, 60 Hz)

### 3.5 Test Program Used and Operation Descriptions

- a. Turned on the power of all equipment.
- b. Server ran a test program (Burnintest) to enable all EUT functions.
- c. Server read and wrote messages to/ from internal/ external storage devices.
- d. Laptop (kept at remote site) sent and received messages to/ from Server via EUT.
- e. PC (kept at remote site) sent and received messages to/ from Server via Lan cable.
- f. Server sent (H) message to monitor. Then the displayed messages on screens simultaneously.
- g. Server sent (1kHz audio) signal to earphone.
- h. Server sent messages to printer and the printer printed them out.
- i. Steps c-h were repeated.

### 3.6 Connection Diagram of EUT and Peripheral Devices





### 3.7 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Monitor	ASUS	PA279CV	M7LMTF235958	DoC	Provided by Lab
B	Monitor	ASUS	PA279CV	M7LMTF235971	DoC	Provided by Lab
C	Monitor	ASUS	PA279CV	M7LMTF235960	DoC	Provided by Lab
D	Monitor	ASUS	PA279CV	M7LMTF236033	DoC	Provided by Lab
E	USB Keyboard	Dell	KB216t	CN-0W33XP-LO300-7CL-191E	N/A	Provided by Lab
F	USB Mouse	DELL	MOCZUL	CN-049TWY-PRC00-77B-008E	N/A	Provided by Lab
G	EARPHONE	PHILIPS	SBC HL150	H2010155	N/A	Provided by Lab
H	USB 3.1 SSD	Crucial	CT500X8SSD9	1940E3200AD3	N/A	Provided by Lab
I	USB 3.1 SSD	Crucial	CT500X8SSD9	1941E323D095	N/A	Provided by Lab
J	RS-232 Terminal	N/A	N/A	N/A	N/A	Supplied by applicant
K	RS-232 Terminal	N/A	N/A	N/A	N/A	Supplied by applicant
L	RS-232 Terminal	N/A	N/A	N/A	N/A	Supplied by applicant
M	RS-232 Terminal	N/A	N/A	N/A	N/A	Supplied by applicant
N	PC	Lenovo	M700	N/A	N/A	Provided by Lab
O	LAN CARD	ZYXEL	XGN100C	N/A	N/A	Provided by Lab
P	PC	DELL	D04S	N/A	N/A	Provided by Lab
Q	LAN CARD	ASUS	XG-C100C	N/A	N/A	Provided by Lab
R	POE LOAD	N/A	N/A	N/A	N/A	Supplied by applicant
S	Laptop	DELL	P41G	FT4W952	N/A	Provided by Lab
T	Laptop	Lenovo	L440	R90FCKH8	N/A	Provided by Lab
U	Wifi 6 Router	ASUS	RT-AX3000	N3IG2Y300356MDV	N/A	Provided by Lab
V	Printer	HP	HP Officejet Pro 251dW	N/A	B94SDGOB1191	Provided by Lab
W	Microphone	E-books	E-EPB099	N/A	N/A	Provided by Lab
X	10G SWITCH	NETGEAR	XS508M	52J22974D07E1	DoC	Provided by Lab
Y	AI computing system	Vecow	RCX-3750-PEG	N/A	N/A	Supplied by applicant
Z	AC Adapter	FSP	FSP120-AAAN2	N/A	N/A	Supplied by applicant
AA	Out-of-Band Module	Vecow	OOB-100	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DP	4	1.8	Y	0	Provided by Lab
2	USB	1	1.8	Y	0	Provided by Lab
3	USB	1	1.8	Y	0	Provided by Lab
4	Audio	1	2	N	0	Provided by Lab
5	DIO	1	0.5	N	0	Supplied by applicant
6	DIO	1	0.5	N	0	Supplied by applicant
7	Cat. 5e	1	10	Y	0	Provided by Lab
8	Power	1	1.8	N	0	Provided by Lab
9	GND	1	1.5	N	0	Provided by Lab
10	TYPE-C	1	1.5	Y	0	Provided by Lab
11	USB	1	1	Y	0	Provided by Lab
12	USB	1	1.8	Y	0	Provided by Lab
13	Audio	1	1.2	N	0	Provided by Lab
14	Cat. 5e	1	10	Y	0	Provided by Lab



ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
15	Cat. 5e	1	10	Y	0	Provided by Lab
16	Cat. 5e	1	10	Y	0	Provided by Lab
17	Cat. 5e	1	3	Y	0	Provided by Lab
18	Cat. 5e	1	3	Y	0	Provided by Lab
19	Cat. 5e	1	10	Y	0	Provided by Lab
20	Cat. 5e	1	3	Y	0	Provided by Lab
21	Cat. 5e	1	3	Y	0	Provided by Lab
22	Power	1	1.3	N	0	Supplied by applicant

## 4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

### 4.1 Conducted Emissions from Power Ports

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal resistance LYNICS	0900510	E1-01-305	2024/2/6	2025/2/5
		E1-011285	2023/9/21	2024/9/20
		E1-011286	2023/9/21	2024/9/20
Coupling / Decoupling Network TESEQ	CDN A201A	44601	2023/12/14	2024/12/13
EMI Test Receiver R&S	ESCS 30	100276	2024/4/24	2025/4/23
	ESR3	102413	2024/1/29	2025/1/28
Fixed Attenuator EMEC	EM-ATT30002602NN	N/A	2024/3/22	2025/3/21
Fixed Attenuator STI	STI02-2200-10	NO.3	2023/10/20	2024/10/19
High Voltage Probe Schwarzbeck	TK9420	00982	2023/12/11	2024/12/10
LISN R&S	ENV216	101196	2023/5/22	2024/5/21
		101197	2023/7/12	2024/7/11
	ESH3-Z5	100220	2023/11/22	2024/11/21
LISN Schwarzbeck	NNLK 8121	8121-731	2023/6/9	2024/6/8
		8121-00759	2023/8/21	2024/8/20
		8121-808	2023/5/2	2024/5/1
	NNLK 8129	8129229	2023/6/27	2024/6/26
RF Coaxial Cable PEWC	5D-FB	Cable-CO3-01	2023/9/13	2024/9/12
Software BVADT	Cond_V7.4.1.0	N/A	N/A	N/A

Notes:

1. The test was performed in Linkou Conduction 3.
2. The VCCI Site Registration No. C-10274.
3. Tested Date: 2024/4/25

## 4.2 Radiated Emissions up to 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
ADT. Tower	AT100	0205	N/A	N/A
ADT. Turn Table	TT100	0205	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-303	2023/10/17	2024/10/16
Coupling / Decoupling Network Schwarzbeck	CDNE-M2	00097	2023/5/25	2024/5/24
	CDNE-M3	00091	2023/5/25	2024/5/24
EMI Test Receiver R&S	ESCS 30	100292	2023/9/7	2024/9/6
Fixed Attenuator Mini-Circuits	UNAT-5+	PAD-ST2-01	2023/10/20	2024/10/19
MXE EMI Receiver Agilent	N9038A	MY50010158	2023/10/11	2024/10/10
Preamplifier Agilent	8447D	2944A11062	2024/2/7	2025/2/6
Preamplifier HP	8447D	2944A08313	2024/2/7	2025/2/6
RF Coaxial Cable Pacific	8D-FB	Cable-ST2-01	2023/11/7	2024/11/6
Software BVADT	Radiated_V8.8.09	N/A	N/A	N/A

Notes:

1. The test was performed in Linkou Open Site2 , The test site validated date: 2023/7/15 (NSA)
2. The VCCI Site Registration No. R-10237.
3. Tested Date: 2024/4/26

### 4.3 Radiated Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fix tool for Boresight antenna tower BV	BAF-01	9	N/A	N/A
Fixed Attenuator Mini-Circuits	BW-K3-2W44+	PAD-CH7-03	2023/7/6	2024/7/5
	BW-N4W5+	PAD-CH10-02	2023/7/6	2024/7/5
Horn Antenna EMCO	3115	6714	2023/11/12	2024/11/11
Horn Antenna ETS-Lindgren	3117-PA	00215857	2023/11/12	2024/11/11
Horn Antenna Schwarzbeck	BBHA-9170	BBHA9170190	2023/11/12	2024/11/11
MXA Signal Analyzer Keysight	N9020B	MY60110438	2023/11/28	2024/11/27
		MY60112260	2023/5/24	2024/5/23
Notch Filter Micro-Tronics	BRC50703-01	010	2023/5/25	2024/5/24
	BRM17690	005	2023/5/25	2024/5/24
Preamplifier EMCI	EMC0126545	980076	2024/2/15	2025/2/14
	EMC184045B	980235	2024/2/15	2025/2/14
Preamplifier HP	8449B	3008A01292	2024/2/15	2025/2/14
PSA Spectrum Analyzer Agilent	E4446A	MY51100009	2023/6/21	2024/6/20
RF Coaxial Cable EMCI	EMC102-KM-KM-1000	200310	2024/3/11	2025/3/10
	EMC102-KM-KM-3000	200312	2024/3/11	2025/3/10
Software BVADT	Radiated_V8.8.09	N/A	N/A	N/A
Turn Table & Tower Max Full	MF7802	MF780208216	N/A	N/A

Notes:

1. The test was performed in Linkou 966 Chamber 3 (CH 10).
2. The VCCI Site Registration No. G-10427.
3. Tested Date: 2024/4/25

## 5 Limits of Test Items

### 5.1 Conducted Emissions from Power Ports

Frequency (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Notes: 1. The lower limit shall apply at the transition frequencies.  
 2. The limit decreases linearly with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

### 5.2 Radiated Emissions up to 1 GHz

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 10 meters (dB $\mu$ V/m)				
Frequencies (MHz)	FCC 15B, Class A	FCC 15B, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	39.1	29.5	40	30
88-216	43.5	33.1		
216-230	46.4	35.6		
230-960			47	37
960-1000	49.5	43.5		

Radiated Emissions Limits at 3 meters (dB $\mu$ V/m)				
Frequencies (MHz)	FCC 15B, Class A	FCC 15B, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	49.5	40.0	50.5	40.5
88-216	54.0	43.5		
216-230	56.9	46.0		
230-960			57.5	47.5
960-1000	60.0	54.0		

Notes: 1. The lower limit shall apply at the transition frequencies.

### 5.3 Radiated Emissions above 1 GHz

Frequency Range (For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40GHz, whichever is lower

Radiated Emissions Limits at 3 meters (dB $\mu$ V/m)		
Frequency range	Class A	Class B
Above 1GHz	Avg: 60 Peak: 80	Avg: 54 Peak: 74

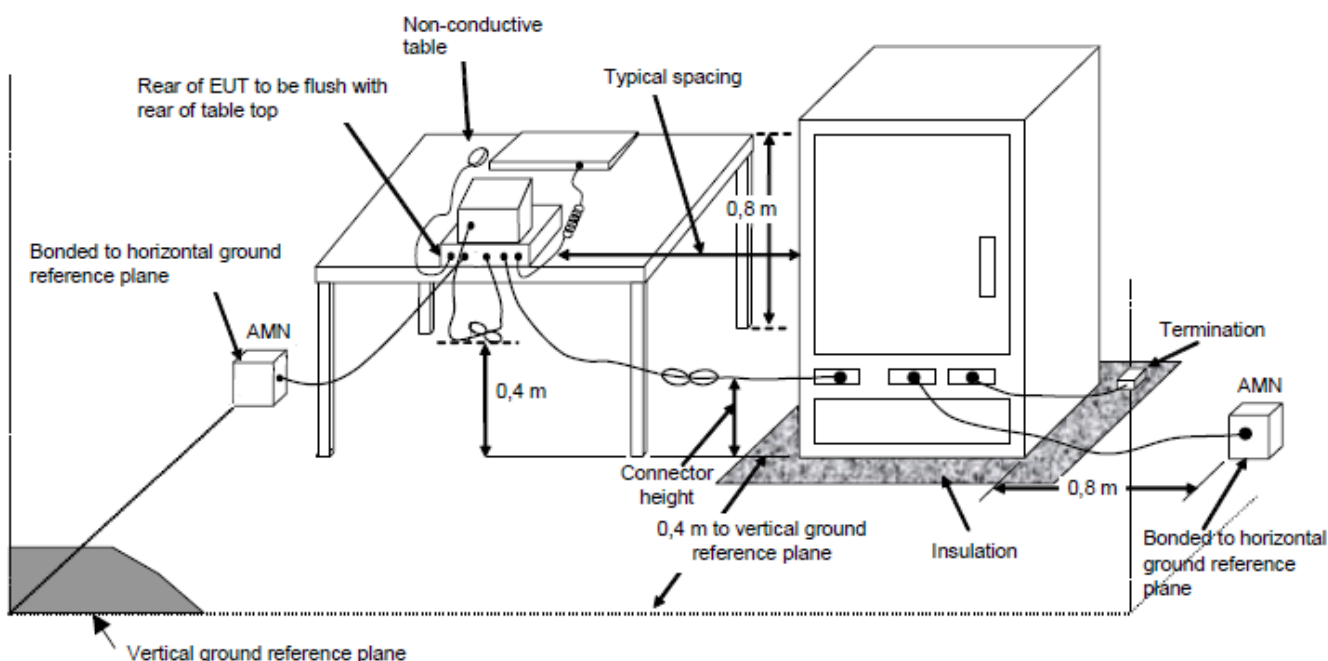
Notes: 1. These limit levels apply for a measurement distance of 3 m. If using a different measurement distance, the measured levels shall be extrapolated to the 3 m limit distance using a factor of 20 dB per decade of distance. The measurement distance shall place the measurement antenna in the far field of the ITE or digital apparatus under test.

## 6 Test Arrangements

### 6.1 Conducted Emissions from Power Ports

- For the table-top EUT is placed on a 0.8 meter insulation table; for the floor standing EUT shall be insulated (by insulation of 12 mm) from the horizontal reference ground plane. The EUT is 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 are connected to the power mains through another LISN. They provide coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The test results of conducted emissions at mains ports are recorded of six worst margins for quasi-peak (mandatory) [and average (if necessary)] values against the limits at frequencies of interest unless the margin is 20 dB or greater.

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.

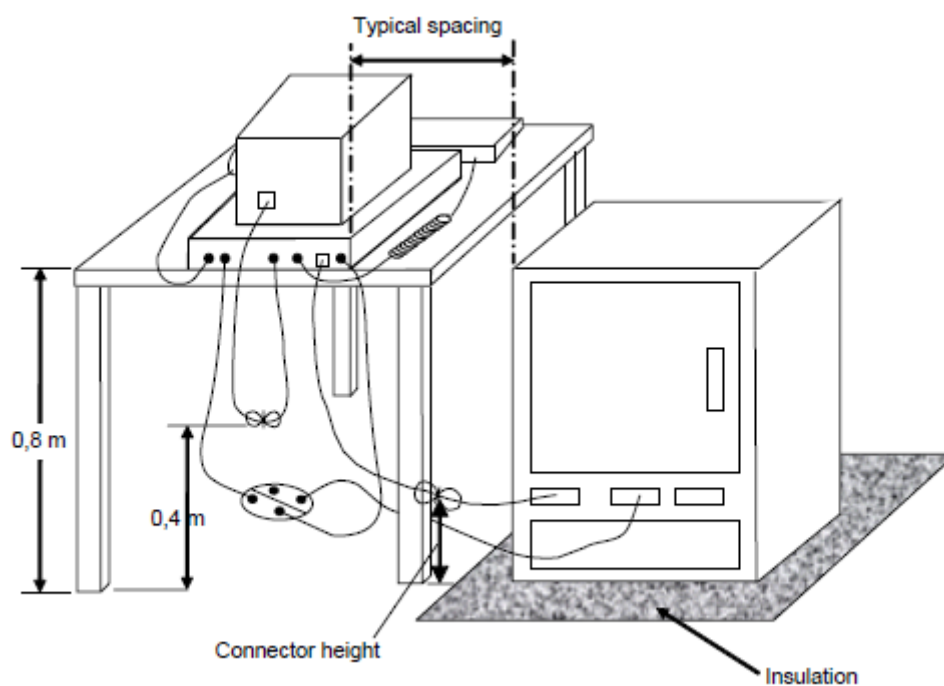


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

## 6.2 Radiated Emissions up to 1 GHz

- For the table-top EUT is placed on a 0.8 meter to the top of rotating table; for the floor standing EUT shall be insulated (by insulation of 12 mm) from the horizontal reference ground plane. The rotating table is rotated 360 degrees to determine the position of the highest radiation. If the equipment requires a dedicated ground connection, this shall be provided and bonded to the RGP.
- The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 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.
- The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is up to 1 GHz.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for quasi-peak detection (QP) at frequency up to 1GHz.



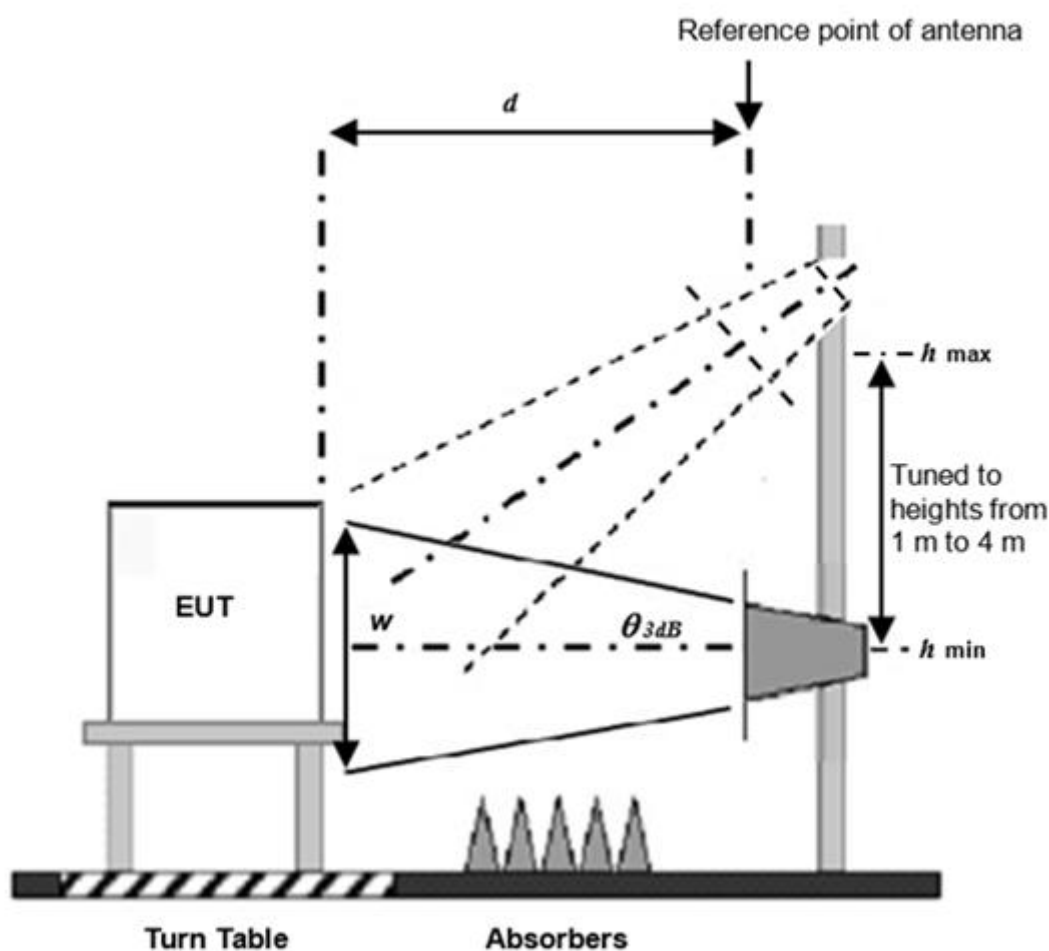
For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.



### 6.3 Radiated Emissions above 1 GHz

- For the table-top EUT is placed on a 0.8 meter to the top of rotating table; for the floor standing EUT shall be insulated (by insulation of 12 mm) from the horizontal reference ground plane. The rotating table is rotated 360 degrees to determine the position of the highest radiation. If the equipment requires a dedicated ground connection, this shall be provided and bonded to the RGP.
- The EUT was set  $d = 3$  meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna can be varied from one meter to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The spectrum analyzer system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.

Note: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection (PK) at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

## 7 Test Results of Test Item

### 7.1 Conducted Emissions from Power Ports

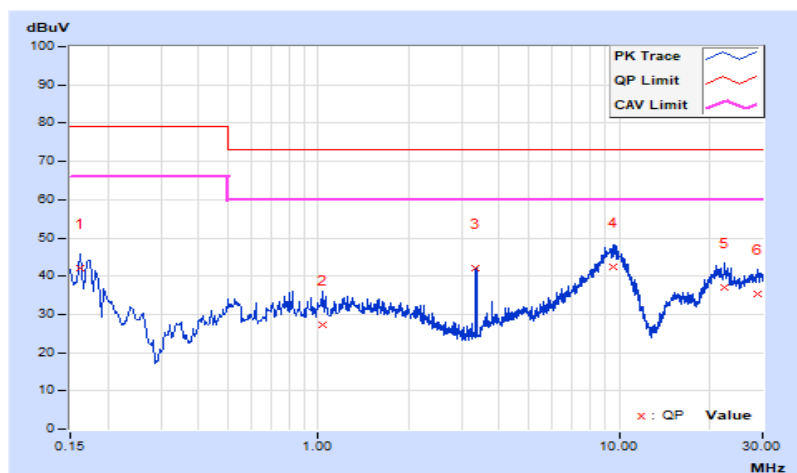
#### Mode A

Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 79% RH, 999.4 mbar
Tested by	Perry Yang		

Phase Of Power : Line (L)										
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	0.16190	9.56	32.54	20.28	42.10	29.84	79.00	66.00	-36.90	-36.16
2	1.04000	9.62	17.67	9.89	27.29	19.51	73.00	60.00	-45.71	-40.49
<b>3</b>	<b>3.35035</b>	<b>9.73</b>	<b>32.20</b>	<b>32.10</b>	<b>41.93</b>	<b>41.83</b>	<b>73.00</b>	<b>60.00</b>	<b>-31.07</b>	<b>-18.17</b>
4	9.60400	10.01	32.49	26.80	42.50	36.81	73.00	60.00	-30.50	-23.19
5	22.39200	10.34	26.79	20.98	37.13	31.32	73.00	60.00	-35.87	-28.68
6	28.94800	10.36	25.15	18.31	35.51	28.67	73.00	60.00	-37.49	-31.33

#### 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

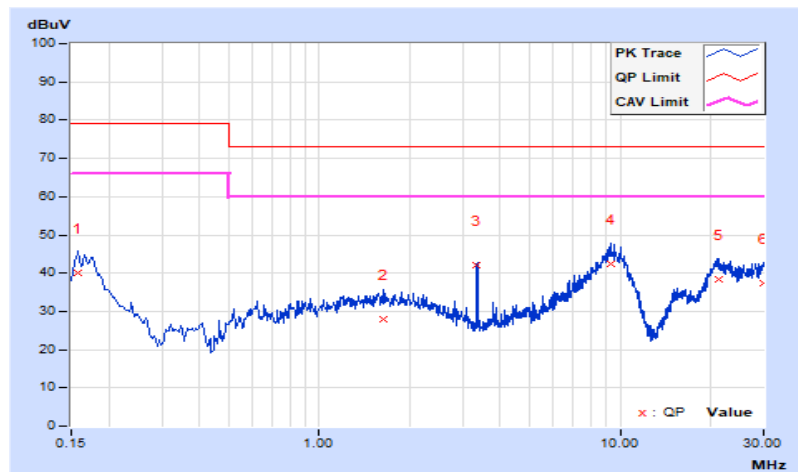


<b>Frequency Range</b>	150 kHz ~ 30 MHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Quasi-Peak (QP) / Average (AV), 9 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 79% RH, 999.3 mbar
<b>Tested by</b>	Perry Yang		

Phase Of Power : Neutral (N)										
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	0.15800	9.60	30.59	18.82	40.19	28.42	79.00	66.00	-38.81	-37.58
2	1.64400	9.65	18.34	11.85	27.99	21.50	73.00	60.00	-45.01	-38.50
3	3.35157	9.77	32.20	32.02	41.97	41.79	73.00	60.00	-31.03	-18.21
4	9.35600	10.02	32.50	26.75	42.52	36.77	73.00	60.00	-30.48	-23.23
5	21.18000	10.41	28.02	22.41	38.43	32.82	73.00	60.00	-34.57	-27.18
6	29.84800	10.43	26.87	20.09	37.30	30.52	73.00	60.00	-35.70	-29.48

**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



## 7.2 Radiated Emissions up to 1 GHz

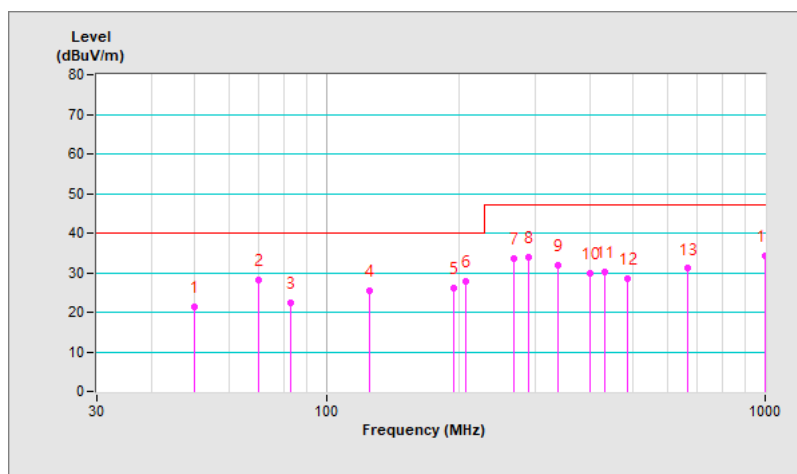
### Mode A

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 75% RH, 1000 mbar
Tested By	Vincent Lin		

Antenna Polarity & Test Distance : Horizontal at 10 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	49.95	21.32 QP	40.00	-18.68	4.00 H	311	29.59	-8.27
2	69.99	28.12 QP	40.00	-11.88	1.65 H	47	38.62	-10.50
3	83.01	22.31 QP	40.00	-17.69	4.00 H	159	35.95	-13.64
4	125.01	25.55 QP	40.00	-14.45	4.00 H	277	35.00	-9.45
5	195.45	26.06 QP	40.00	-13.94	4.00 H	360	36.70	-10.64
6	208.37	27.74 QP	40.00	-12.26	4.00 H	360	38.45	-10.71
7	266.72	33.55 QP	47.00	-13.45	4.00 H	100	40.75	-7.20
8	288.65	33.83 QP	47.00	-13.17	4.00 H	76	40.21	-6.38
9	337.10	31.88 QP	47.00	-15.12	3.75 H	215	37.30	-5.42
10	400.00	29.87 QP	47.00	-17.13	3.65 H	285	34.15	-4.28
11	432.43	30.33 QP	47.00	-16.67	3.53 H	96	33.82	-3.49
12	487.07	28.39 QP	47.00	-18.61	2.69 H	171	31.06	-2.67
13	667.82	31.04 QP	47.00	-15.96	1.00 H	208	30.11	0.93
14	999.91	34.20 QP	47.00	-12.80	1.00 H	18	28.02	6.18

#### 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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

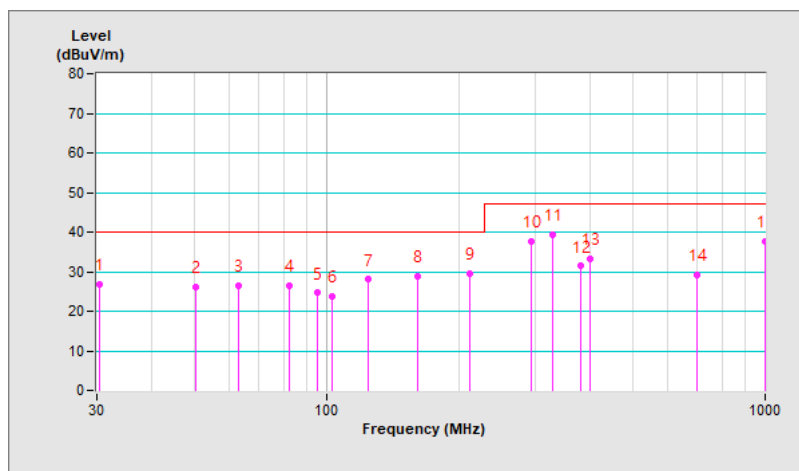


<b>Frequency Range</b>	30 MHz ~ 1 GHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Quasi-Peak (QP), 120 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	25°C, 75% RH, 1000 mbar
<b>Tested By</b>	Vincent Lin		

Antenna Polarity & Test Distance : Vertical at 10 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.41	26.75 QP	40.00	-13.25	1.00 V	203	42.80	-16.05
2	50.42	26.11 QP	40.00	-13.89	1.07 V	89	34.41	-8.30
3	62.94	26.36 QP	40.00	-13.64	1.00 V	104	35.47	-9.11
4	82.61	26.60 QP	40.00	-13.40	1.00 V	216	40.17	-13.57
5	95.14	24.58 QP	40.00	-15.42	1.00 V	254	37.90	-13.32
6	102.80	23.87 QP	40.00	-16.13	1.00 V	144	35.77	-11.90
7	125.00	28.01 QP	40.00	-11.99	1.00 V	165	37.48	-9.47
8	161.38	28.98 QP	40.00	-11.02	1.00 V	215	36.44	-7.46
9	211.94	29.44 QP	40.00	-10.56	1.00 V	343	40.01	-10.57
10	293.16	37.76 QP	47.00	-9.24	1.52 V	149	44.07	-6.31
<b>11</b>	<b>327.56</b>	<b>39.47 QP</b>	<b>47.00</b>	<b>-7.53</b>	<b>2.73 V</b>	<b>229</b>	<b>44.89</b>	<b>-5.42</b>
12	379.16	31.40 QP	47.00	-15.60	1.00 V	331	35.94	-4.54
13	400.00	33.23 QP	47.00	-13.77	2.57 V	197	37.51	-4.28
14	700.00	29.23 QP	47.00	-17.77	2.84 V	113	27.76	1.47
15	999.98	37.60 QP	47.00	-9.40	2.59 V	139	31.42	6.18

**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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.



### 7.3 Radiated Emissions above 1 GHz

#### Mode A

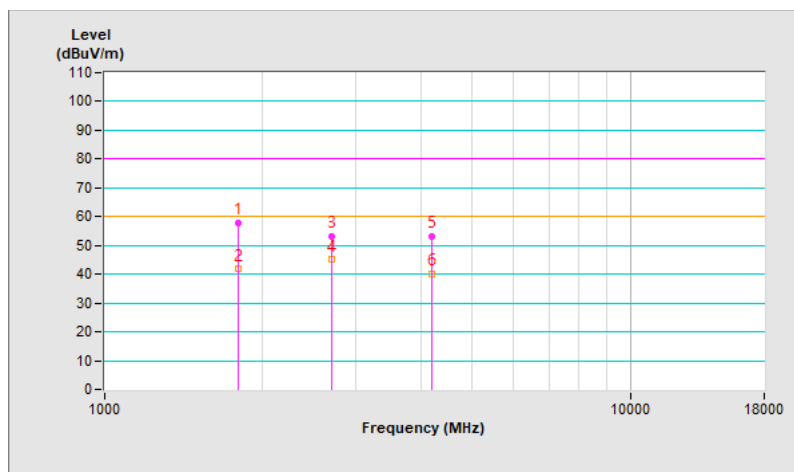
Frequency Range	1 GHz ~ 5 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1 MHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 77% RH, 1000.7 mbar
Tested By	Desmond Chen		

#### Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1799.85	57.95 PK	80.00	-22.05	1.13 H	181	57.53	0.42
2	1799.85	41.73 AV	60.00	-18.27	1.13 H	181	41.31	0.42
3	2698.33	53.28 PK	80.00	-26.72	1.54 H	171	49.42	3.86
<b>4</b>	<b>2698.33</b>	<b>45.06 AV</b>	<b>60.00</b>	<b>-14.94</b>	<b>1.54 H</b>	<b>171</b>	<b>41.20</b>	<b>3.86</b>
5	4195.14	53.27 PK	80.00	-26.73	2.10 H	355	44.58	8.69
6	4195.14	40.06 AV	60.00	-19.94	2.10 H	355	31.37	8.69

#### Remarks:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
- Margin value = Emission level – Limit value
- The other emission levels were very low against the limit.

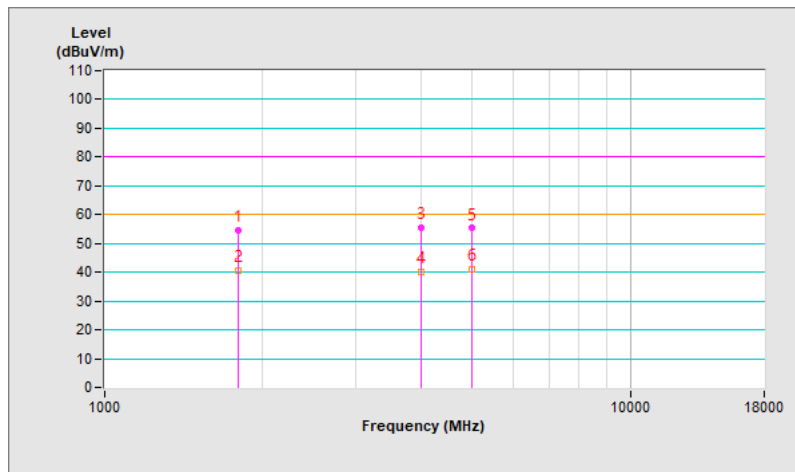


<b>Frequency Range</b>	1 GHz ~ 5 GHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Peak (PK) / Average (AV), 1 MHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 77% RH, 1000.6 mbar
<b>Tested By</b>	Desmond Chen		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1797.30	54.49 PK	80.00	-25.51	1.77 V	15	54.08	0.41
2	1797.30	40.64 AV	60.00	-19.36	1.77 V	15	40.23	0.41
3	3999.65	55.42 PK	80.00	-24.58	1.97 V	321	46.44	8.98
4	3999.65	40.22 AV	60.00	-19.78	1.97 V	321	31.24	8.98
5	4989.90	55.24 PK	80.00	-24.76	1.54 V	9	44.95	10.29
6	4989.90	41.14 AV	60.00	-18.86	1.54 V	9	30.85	10.29

**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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.



## 8 Pictures of Test Arrangements

### 8.1 Conducted Emissions from Power Ports

#### Mode A





## 8.2 Radiated Emissions up to 1 GHz

### Mode A



### 8.3 Radiated Emissions above 1 GHz

#### Mode A



## 9 Information of the Testing Laboratories

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

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

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