

TEST REPORT

CERTIFICATE OF CONFORMITY

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

Report No.: FDBDBO-WTW-P22030414

Model No.: EAC-2100

Series Model: EAC-2000 Series, EAC-2XXXXXXXXXXXXXXXXX ("X" can be 0-9, A-Z or blank for marketing purpose)

Received Date: 2022/3/16

Test Date: 2022/3/24 ~ 2022/3/28

Issued Date: 2022/6/13

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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

Jim Hsiang / Associate Technical Manager

Date: _____

2022/6/13

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Prepared by : Vivian Chen / Senior Specialist

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Release Control Record

Issue No.	Description	Date Issued
FDBDBO-WTW-P22030414	Original release.	2022/6/13

1 Certificate

Product: Edge AI Computing system

Brand: Vecow

Test Model: EAC-2100

Series Model: EAC-2000 Series, EAC-2XXXXXXXXXXXXXXXXX ("X" can be 0-9, A-Z or blank for marketing purpose)

Sample Status: Engineering sample

Applicant: Vecow Co., Ltd.

Test Date: 2022/3/24 ~ 2022/3/28

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

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 -13.01 dB at 0.15872 MHz
FCC Part 15.109	Radiated Emissions up to 1 GHz	Pass	Minimum passing Class A margin is -6.53 dB at 683.50 MHz
FCC Part 15.109	Radiated Emissions above 1 GHz	Pass	Minimum passing Class A margin is -10.12 dB at 4995.24 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	3.00 dB	3.4 dB (U_{CISPR})
Radiated Emissions up to 1 GHz	30 MHz ~ 1 GHz	3m : 5.64 dB 10m : 4.30 dB	6.3 dB (U_{CISPR})
	1 GHz ~ 6 GHz	4.64 dB	5.2 dB (U_{CISPR})
Radiated Emissions above 1 GHz	6 GHz ~ 18 GHz	4.60 dB	5.5 dB (U_{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	Edge AI Computing system
Brand	Vecow
Test Model	EAC-2100
Series Model	EAC-2000 Series, EAC-2XXXXXXXXXXXXXXXXX ("X" can be 0-9, A-Z or blank for marketing purpose)
Model Difference	For marketing purpose.
Sample Status	Engineering sample
Operating Software	Linux Ubuntu 18.04
Power Supply Rating	DC from Adapter
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

The EUT uses following adapter.

Brand	MW
Model	GS160A24-R7B
Input Power	110-240V, 50-60Hz, 2A
Output Power	24V, 6.67A, 160W (MAX.)
Power Line	DC cable (1.2m) with one ferrite core.

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 1.9 GHz, provided by Vecow Co., Ltd., for detailed internal source, please refer to the manufacturer's specifications.

3.3 Features of EUT

1. 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.

2. The EUT configured with the following key components:

Components	Brand	Model	Specification
SOC	NVIDIA	Jetson Xavier NX	384-core CUDA GPU and 6-core Carmel CPU at 1.4 GHz
RAM	-	-	8 GB 128-bit LPDDR4x
Storage	-	-	16 GB eMMC 5.1

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

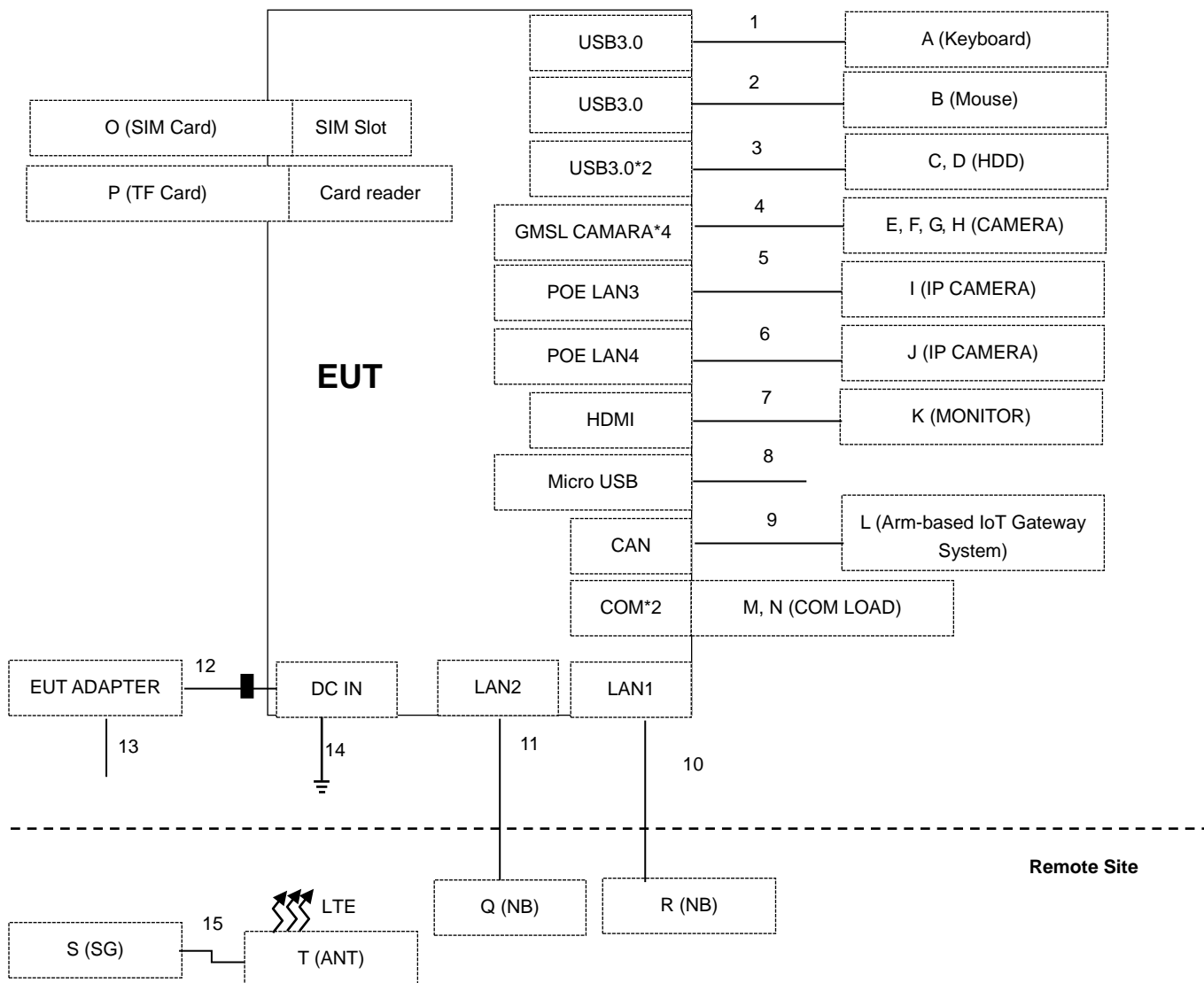
1. The EUT is designed with AC power of rating 100-240Vac, 50-60Hz.
For radiated emission evaluation, 230Vac/50Hz (for EN 50155), 120Vac/60Hz (for FCC Part 15) had been covered during the pre-test. The worst data was found at **230Vac/50Hz** and recorded in the applied test report.
2. Test modes are presented in the report as below.

Test Condition	
Mode	Conducted Emissions from Power Ports
A	Full System+Input Power (120 Vac, 60 Hz)
B	Full System+Input Power (240 Vac, 60 Hz)
Mode	Radiated Emissions up to 1 GHz
A	Full System+Input Power (230 Vac, 50 Hz)
Mode	Radiated Emissions above 1 GHz
A	Full System+Input Power (230 Vac, 50 Hz)

3.5 Test Program Used and Operation Descriptions

- a. Turned on the power of all equipments.
- b. EUT ran a test program to enable all functions.
- c. EUT read and wrote messages to/ from HDD, TF card, SIM Card and ext. HDDs.
- d. IP camera/ camera captured video / audio signal to EUT.
- e. EUT sent and received ping messages to/ from the Notebook PCs (kept in a remote area) via two STP LAN cables (10m each).
- f. The EUT communicated messages with the Radio Communication Analyzer, which acted as a communication partners.
- g. Run 3G/4G link.
- h. EUT sent "H" messages to ext. LCD monitor. Then it displayed "H" messages on its screen.
- i. Set EUT's RS-232 in loop back mode and enable it under transmission/receiving by itself.
- j. Steps c-i 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	USB Keyboard	Dell	KB216t	CN-0W33XP-LO300-7CL-190A	N/A	Provided by Lab
B	USB Mouse	DELL	MOCZUL	CN-049TWY-PRC00-77B-007F	N/A	Provided by Lab
C	USB-C Hard Disk	G-DRIVE	0G04878	620XHJHW	DoC	Provided by Lab
D	USB-C Hard Disk	G-DRIVE	0G04878	620VL3BW	DoC	Provided by Lab
E	CAMERA	oToCAM	L61M	B2010019	DOC	Supplied by applicant
F	CAMERA	oToCAM	L61M	B2010021	DOC	Supplied by applicant
G	CAMERA	oToCAM	L61M	B2010017	DOC	Supplied by applicant
H	CAMERA	oToCAM	L61M	B2010016	DOC	Supplied by applicant
I	IP CAMERA	3MP	MBL030A-ORZ0310	T52671337	DOC	Supplied by applicant
J	IP CAMERA	3MP	MBL030A-ORZ0310	T52671345	DOC	Supplied by applicant
K	Monitor	ASUS	PA279CV	M7LMTF236012	N/A	Provided by Lab
L	Arm-based IoT Gateway System	N/A	AIC-110	N/A	N/A	Supplied by applicant
M	COM LOAD	N/A	N/A	N/A	N/A	Supplied by applicant
N	COM LOAD	N/A	N/A	N/A	N/A	Supplied by applicant
O	SIM CARD	R&S	N/A	N/A	N/A	Provided by Lab
P	TF CARD	SP	SP032GBSTHBU1V20	N/A	N/A	Provided by Lab
Q	Notebook PC	LENOVO	T480	PF1EZSAW	N/A	Provided by Lab
R	Notebook PC	LENOVO	T480	PF1EZSA2	N/A	Provided by Lab
S	Radio Communication Analyzer	Anritsu	MT8820C	6201300640	N/A	Provided by Lab
T	Antenna	EMCO	3121	186	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB cable	1	1.8	YES	0	Provided by Lab
2	USB cable	1	1.8	YES	0	Provided by Lab
3	USB Type A to C cable	2	1	YES	0	Provided by Lab
4	Coaxial cable	4	5	YES	0	Supplied by applicant
5	Lan (Cat. 5e) cable	1	1.5	YES	0	Provided by Lab
6	Lan (Cat. 5e) cable	1	1.5	YES	0	Provided by Lab
7	HDMI cable	1	2	YES	0	Provided by Lab
8	Micro USB cable	1	1.2	YES	0	Provided by Lab
9	RS232 cable	1	1.2	YES	0	Supplied by applicant
10	Lan (Cat. 5e) cable	1	10	YES	0	Provided by Lab
11	Lan (Cat. 5e) cable	1	10	YES	0	Provided by Lab
12	DC power cable	1	1.2	NO	1	Supplied by applicant
13	AC power cable	1	1.8	NO	0	Provided by Lab
14	GND cable	1	1.5	NO	0	Provided by Lab
15	Coaxial cable	1	3	YES	0	Provided by Lab

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 LYNICS	0900510	E1-011286	2021/10/1	2022/9/30
		E1-011285	2021/10/1	2022/9/30
Attenuator STI	STI02-2200-10	NO.3	2021/10/22	2022/10/21
Coupling/Dcoupling Network Schwarzbeck	CDNE-M2	00097	2021/5/6	2022/5/5
	CDNE-M3	00091	2021/5/6	2022/5/5
Coupling/Dcoupling Network TESEQ	CDN A201A	44601	2021/12/22	2022/12/21
DC LISN Schwarzbeck	NNLK 8121	8121-808	2021/4/18	2022/4/17
DC LISN R&S	ESH3-Z6	844950/018	2021/7/25	2022/7/24
		100219	2021/7/25	2022/7/24
Isolation Transformer Erika Fiedler	D-65396	017	2021/9/9	2022/9/8
LISN R&S	ENV216	101197	2021/6/23	2022/6/22
		101195	2021/5/25	2022/5/24
LISN Schwarzbeck	NNLK8129	8129229	2021/5/20	2022/5/19
	NNLK 8121	8121-731	2021/4/28	2022/4/27
LISN R&S	ENV216	101196	2021/4/26	2022/4/25
LISN EMCO	3825/2	9504-2359	2021/7/27	2022/7/26
		9204-1964	2021/5/19	2022/5/18
RF Coaxial Cable Commate	5D-FB	Cable-CO3-01	2021/9/15	2022/9/14
Software BVADT	Cond_V7.3.7.4	N/A	N/A	N/A
Test Receiver R & S	ESCS 30	838251/021	2021/10/13	2022/10/12

Notes:

1. The test was performed in Linkou Conduction 3.
2. Tested Date: 2022/3/25

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
Attenuator Mini-Circuits	UNAT-5+	PAD-ST2-01	2021/10/22	2022/10/21
Bi-log Broadband Antenna Schwarzbeck	VULB9168	9168-303	2021/10/29	2022/10/28
Coupling/Dcoupling Network Schwarzbeck	CDNE-M2	00097	2021/5/6	2022/5/5
	CDNE-M3	00091	2021/5/6	2022/5/5
Pre_Amplifier HP	8447D	2944A08119	2022/2/17	2023/2/16
RF Coaxial Cable Pacific	8D-FB	Cable-ST2-01	2021/10/22	2022/10/21
Software BVADT	Radiated_V7.6.15.9.5	N/A	N/A	N/A
TEST RECEIVER R&S	ESCS 30	100292	2021/9/1	2022/8/31
	ESCS 30	100276	2021/4/15	2022/4/14

Notes:

1. The test was performed in Linkou Open Site2 , The test site validated date: 2021/07/30 (NSA)
2. Tested Date: 2022/3/24

4.3 Radiated Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Attenuator Mini-Circuits	BW-N4W5+	PAD-CH10-02	2021/7/8	2022/7/7
	BW-K3-2W44+	PAD-CH7-03	2021/7/8	2022/7/7
BandPass Filter MICRO-TRONICS	BRM17690	005	2021/5/28	2022/5/27
Fix tool for Boresight antenna tower BV	BAF-01	9	N/A	N/A
Horn Antenna ETS-Lindgren	3117-PA	00215857	2021/11/14	2022/11/13
Horn Antenna EMCO	3115	6714	2021/11/14	2022/11/13
Horn Antenna Schwarzbeck	BBHA 9170	212	2021/10/13	2022/10/12
Notch filter MICRO-TRONICS	BRC50703-01	010	2021/5/28	2022/5/27
Pre_Amplifier EMCI	EMC0126545	980076	2022/2/17	2023/2/16
	EMC184045B	980235	2022/2/17	2023/2/16
Pre-amplifier HP	8449B	3008A01292	2022/2/17	2023/2/16
RF Coaxial Cable Rosnol	K1K50-UP0279-K1K50-3000	Cable-CH10(3m)-04	2021/7/8	2022/7/7
RF Coaxial Cable WOKEN	WC01	Cable-CH10-03	2021/7/8	2022/7/7
Software BVADT	Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Keysight	N9020B	MY60110438	2021/12/8	2022/12/7
Spectrum Analyzer Agilent	E4446A	MY51100009	2021/6/29	2022/6/28
Test Receiver Agilent	N9038A	MY51210137	2021/6/16	2022/6/15
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. Tested Date: 2022/3/28

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 μ V/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	39	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 μ V/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	49.5	40	50.5	40.5
88-216	54	43.5		
216-230	56.9	46		
230-960			57.5	47.5
960-1000	60	54		

- Notes: 1. The lower limit shall apply at the transition frequencies.
 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
 3. QP detector shall be applied if not specified.

5.3 Radiated Emissions above 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 μ V/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
1000-3000	Avg: 49.5	Avg: 43.5	Not defined	Not defined
Above 3000	Peak: 69.5	Peak: 63.5	Not defined	Not defined

Radiated Emissions Limits at 3 meters (dB μ V/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
1000-3000	Avg: 60	Avg: 54	Avg: 56 Peak: 76	Avg: 50 Peak: 70
Above 3000	Peak: 80	Peak: 74	Avg: 60 Peak: 80	Avg: 54 Peak: 74

- Notes:
1. The lower limit shall apply at the transition frequencies.
 2. Emission level (dB μ V/m) = 20 log Emission level (μ V/m).
 3. As shown in 15.35(b), 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.

Frequency Range (For unintentional radiators)

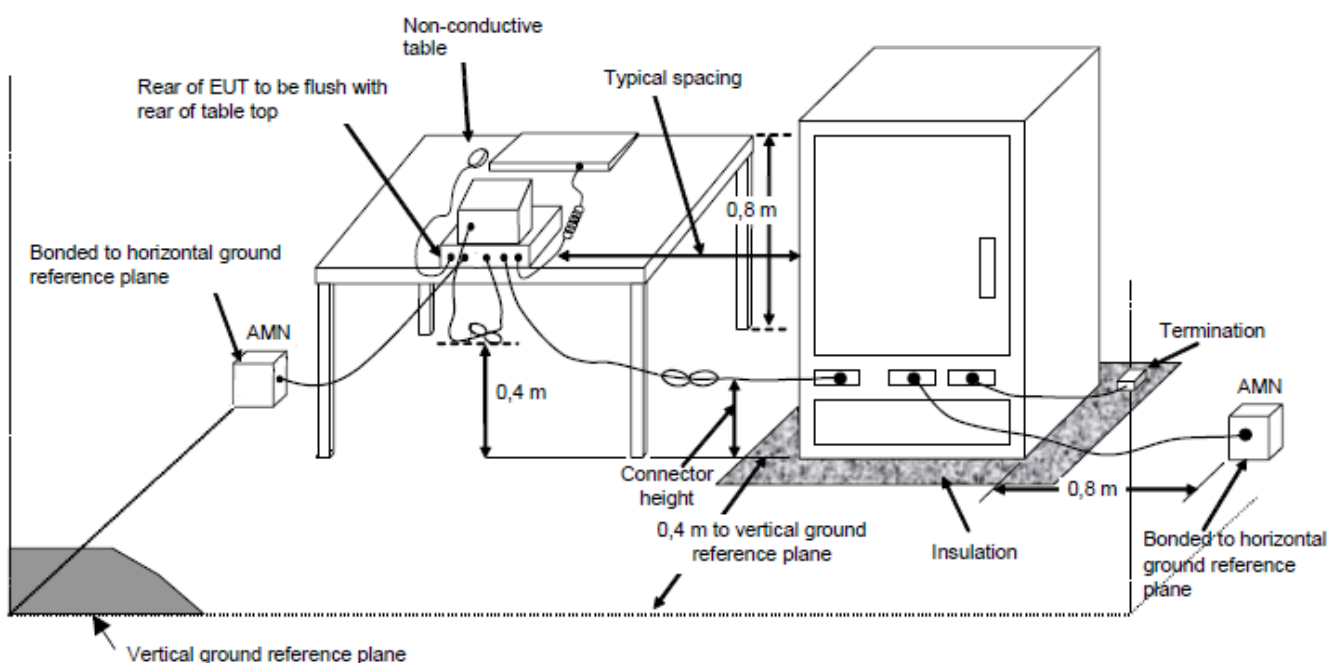
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40GHz, whichever is lower

6 Test Arrangements

6.1 Conducted Emissions from Power Ports

- For the table-top EUT is placed on a 0.8 meter to the top of rotating table; for the 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.

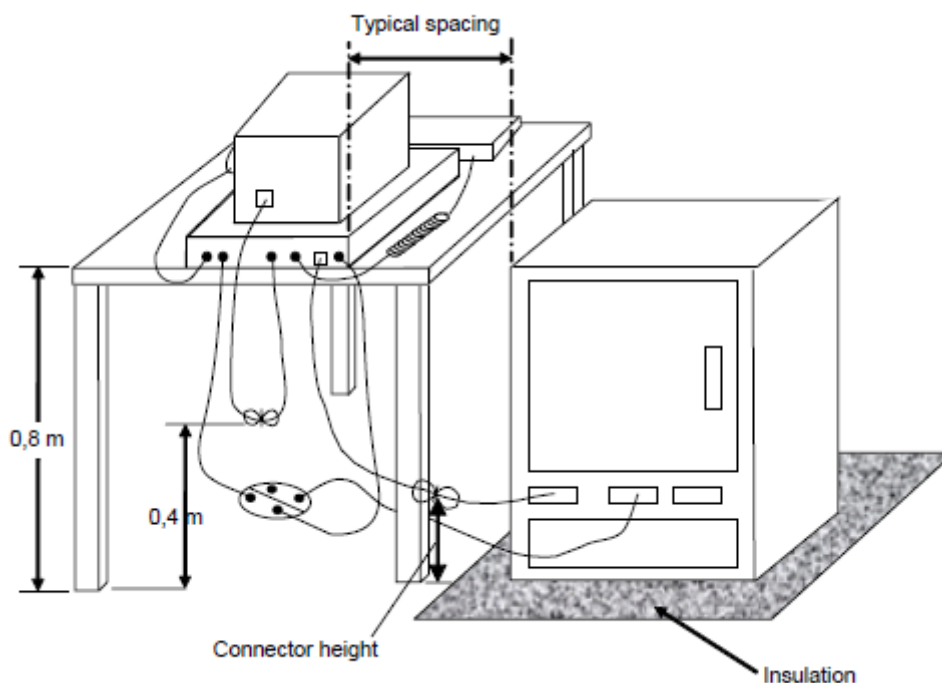


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

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 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.

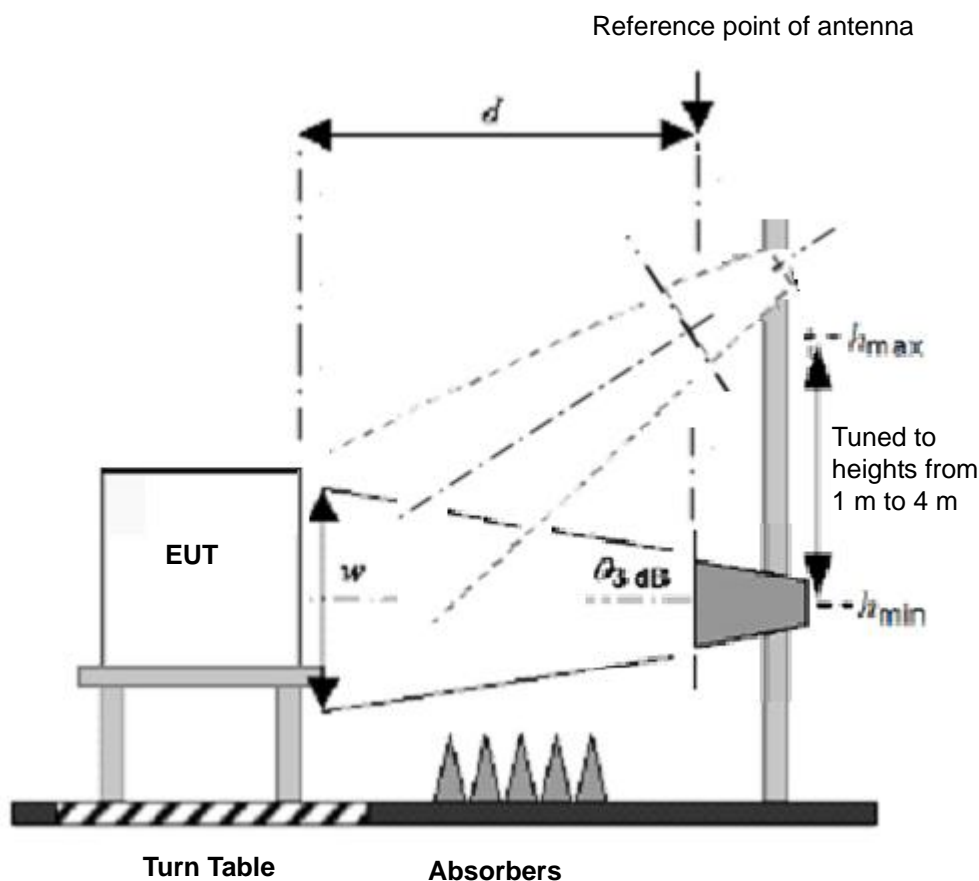


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

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 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

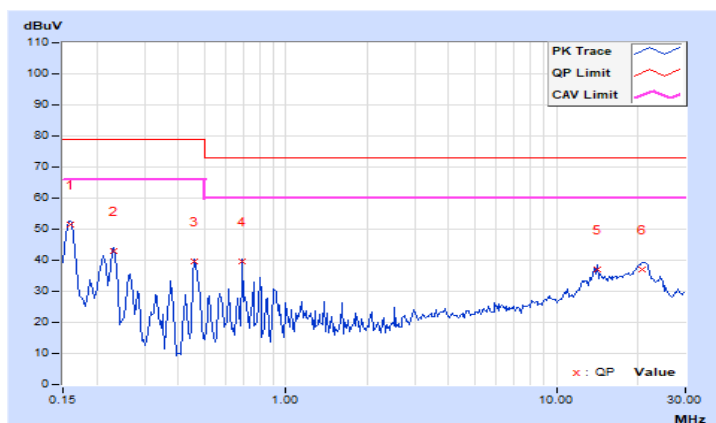
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20 °C, 78 % RH
Tested by	John Liao		

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	0.16028	9.75	41.85	40.52	51.60	50.27	79.00	66.00	-27.40	-15.73
2	0.23203	9.74	33.23	33.19	42.97	42.93	79.00	66.00	-36.03	-23.07
3	0.45859	9.76	29.98	29.97	39.74	39.73	79.00	66.00	-39.26	-26.27
4	0.68906	9.77	29.82	29.80	39.59	39.57	73.00	60.00	-33.41	-20.43
5	14.26027	9.95	26.95	25.12	36.90	35.07	73.00	60.00	-36.10	-24.93
6	20.86328	9.94	27.01	24.96	36.95	34.90	73.00	60.00	-36.05	-25.10

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

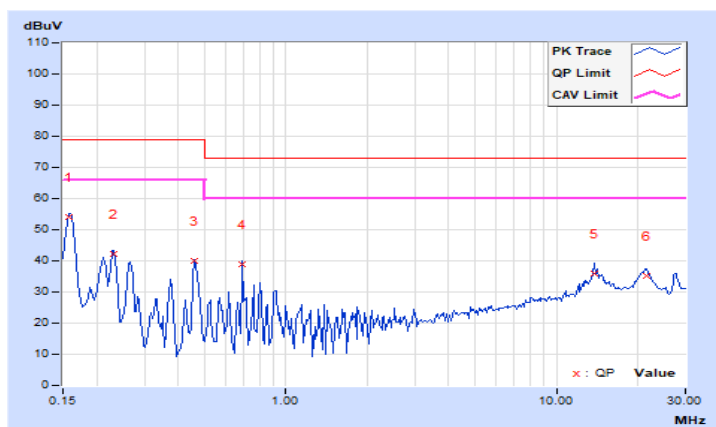


Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20 °C, 78 % RH
Tested by	John Liao		

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	0.15872	9.73	44.52	43.26	54.25	52.99	79.00	66.00	-24.75	-13.01
2	0.23203	9.72	32.61	32.60	42.33	42.32	79.00	66.00	-36.67	-23.68
3	0.45859	9.74	30.11	30.08	39.85	39.82	79.00	66.00	-39.15	-26.18
4	0.68906	9.75	29.26	29.01	39.01	38.76	73.00	60.00	-33.99	-21.24
5	13.80078	9.97	26.12	24.58	36.09	34.55	73.00	60.00	-36.91	-25.45
6	21.58203	9.98	25.36	22.65	35.34	32.63	73.00	60.00	-37.66	-27.37

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



Mode B

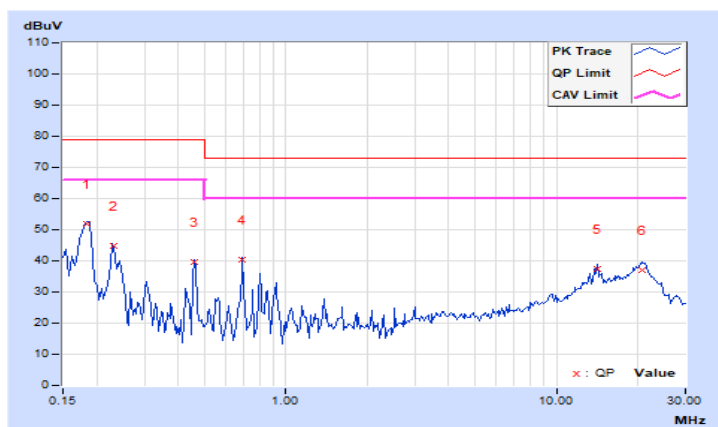
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	240 Vac, 60 Hz	Environmental Conditions	20 °C, 78 % RH
Tested by	John Liao		

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	0.18385	9.74	42.17	41.65	51.91	51.39	79.00	66.00	-27.09	-14.61
2	0.22998	9.74	35.11	35.09	44.85	44.83	79.00	66.00	-34.15	-21.17
3	0.45859	9.76	30.02	30.01	39.78	39.77	79.00	66.00	-39.22	-26.23
4	0.69034	9.77	30.51	30.50	40.28	40.27	73.00	60.00	-32.72	-19.73
5	14.25781	9.95	27.32	25.33	37.27	35.28	73.00	60.00	-35.73	-24.72
6	20.69141	9.94	27.12	22.63	37.06	32.57	73.00	60.00	-35.94	-27.43

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

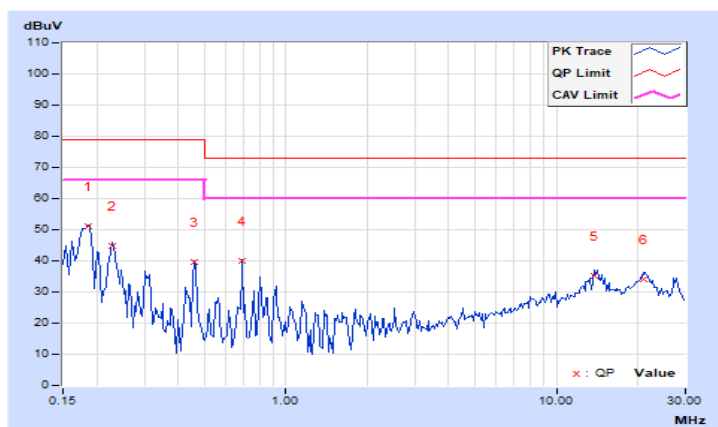


Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	240 Vac, 60 Hz	Environmental Conditions	20 °C, 78 % RH
Tested by	John Liao		

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	0.18533	9.72	41.23	39.36	50.95	49.08	79.00	66.00	-28.05	-16.92
2	0.22940	9.72	35.23	35.11	44.95	44.83	79.00	66.00	-34.05	-21.17
3	0.45987	9.74	29.74	29.71	39.48	39.45	79.00	66.00	-39.52	-26.55
4	0.68906	9.75	30.12	30.11	39.87	39.86	73.00	60.00	-33.13	-20.14
5	13.80078	9.97	25.32	24.32	35.29	34.29	73.00	60.00	-37.71	-25.71
6	20.92188	9.98	24.12	18.63	34.10	28.61	73.00	60.00	-38.90	-31.39

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

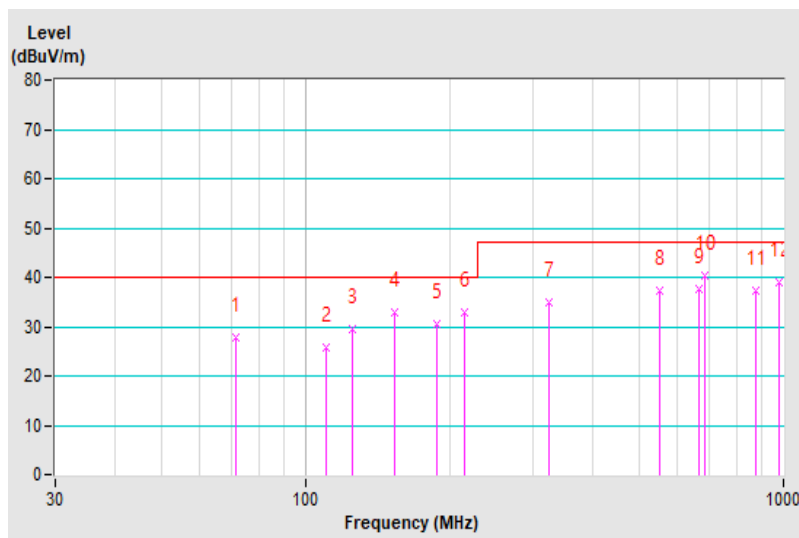
Mode A

Frequency Range	30MHz ~ 1GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Tested By	Vincent Lin	Environmental Conditions	20 °C, 75 % RH

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	71.48	27.81 QP	40.00	-12.19	4.00 H	62	40.78	-12.97
2	110.73	25.90 QP	40.00	-14.10	4.00 H	102	38.66	-12.76
3	125.03	29.37 QP	40.00	-10.63	4.00 H	290	40.72	-11.35
4	153.37	32.85 QP	40.00	-7.15	4.00 H	86	42.31	-9.46
5	189.00	30.53 QP	40.00	-9.47	4.00 H	202	42.60	-12.07
6	216.00	32.76 QP	40.00	-7.24	4.00 H	247	44.80	-12.04
7	323.93	34.80 QP	47.00	-12.20	3.82 H	303	41.77	-6.97
8	550.00	37.34 QP	47.00	-9.66	1.87 H	189	39.50	-2.16
9	664.75	37.71 QP	47.00	-9.29	2.70 H	1	36.95	0.76
10	683.50	40.47 QP	47.00	-6.53	3.64 H	267	39.41	1.06
11	874.99	37.43 QP	47.00	-9.57	1.00 H	347	31.82	5.61
12	982.00	39.05 QP	47.00	-7.95	1.00 H	213	31.66	7.39

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

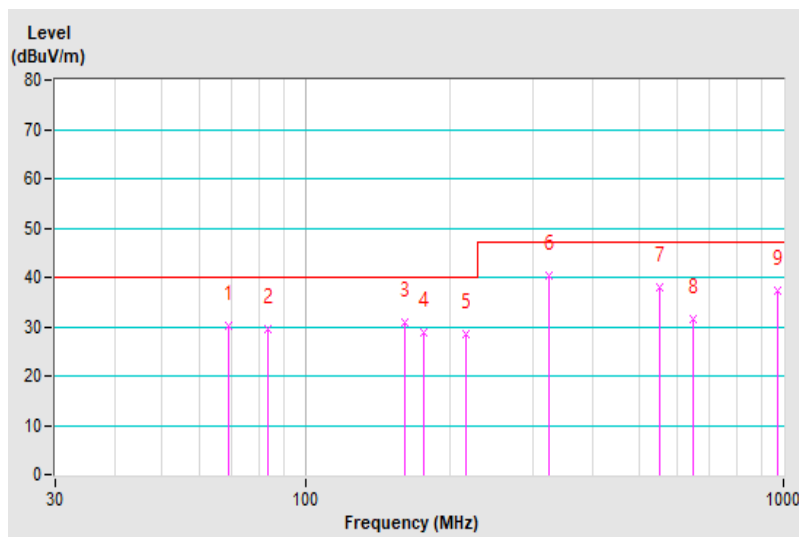


Frequency Range	30MHz ~ 1GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Tested By	Vincent Lin	Environmental Conditions	20 °C, 75 % RH

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	69.19	30.25 QP	40.00	-9.75	1.00 V	103	42.82	-12.57
2	83.43	29.39 QP	40.00	-10.61	1.00 V	154	45.18	-15.79
3	161.32	31.00 QP	40.00	-9.00	1.00 V	119	40.49	-9.49
4	177.44	28.88 QP	40.00	-11.12	1.00 V	69	39.54	-10.66
5	216.19	28.36 QP	40.00	-11.64	1.00 V	210	40.40	-12.04
6	324.00	40.41 QP	47.00	-6.59	1.00 V	13	47.38	-6.97
7	550.00	37.81 QP	47.00	-9.19	2.44 V	238	39.97	-2.16
8	648.00	31.57 QP	47.00	-15.43	2.86 V	87	31.17	0.40
9	972.00	37.23 QP	47.00	-9.77	2.48 V	207	29.63	7.60

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



7.3 Radiated Emissions above 1 GHz

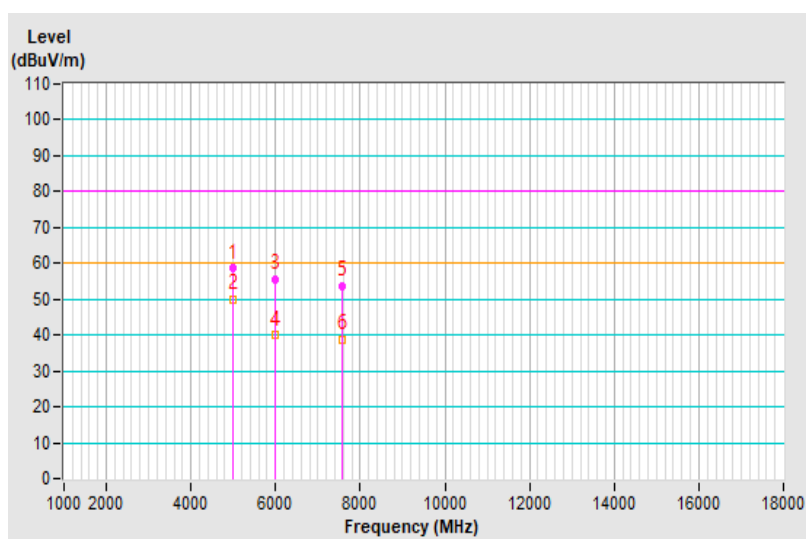
Mode A

Frequency Range	1GHz ~ 9.5GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Tested By	Abraham Sun	Environmental Conditions	24 °C, 63 % RH

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	4995.24	58.51 PK	80.00	-21.49	1.16 H	99	52.39	6.12
2	4995.24	49.88 AV	60.00	-10.12	1.16 H	99	43.76	6.12
3	5993.53	55.66 PK	80.00	-24.34	2.07 H	54	48.75	6.91
4	5993.53	39.91 AV	60.00	-20.09	2.07 H	54	33.00	6.91
5	7558.42	53.73 PK	80.00	-26.27	1.00 H	356	44.44	9.29
6	7558.42	38.75 AV	60.00	-21.25	1.00 H	356	29.46	9.29

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

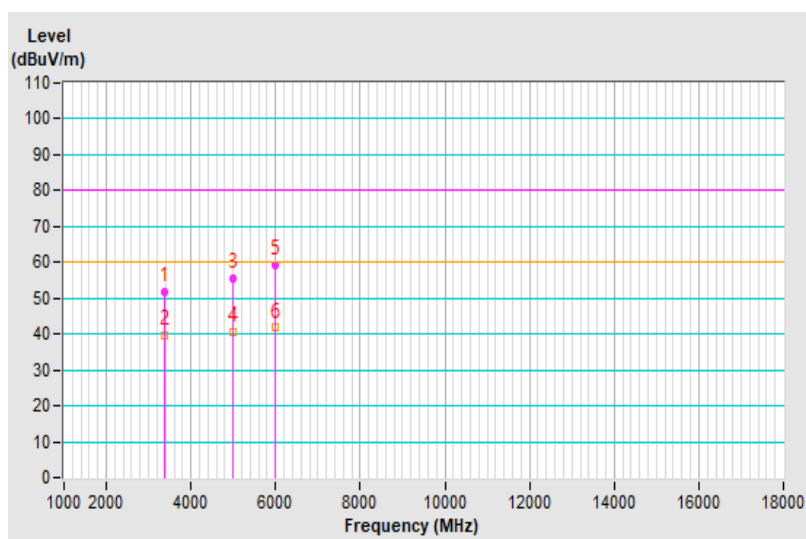


Frequency Range	1GHz ~ 9.5GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Tested By	Abraham Sun	Environmental Conditions	24 °C, 63 % RH

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	3366.01	51.74 PK	80.00	-28.26	1.42 V	214	49.07	2.67
2	3366.01	39.71 AV	60.00	-20.29	1.42 V	214	37.04	2.67
3	4997.31	55.66 PK	80.00	-24.34	1.37 V	33	49.54	6.12
4	4997.31	40.64 AV	60.00	-19.36	1.37 V	33	34.52	6.12
5	5989.38	59.36 PK	80.00	-20.64	1.69 V	303	52.46	6.90
6	5989.38	41.78 AV	60.00	-18.22	1.69 V	303	34.88	6.90

Remarks:

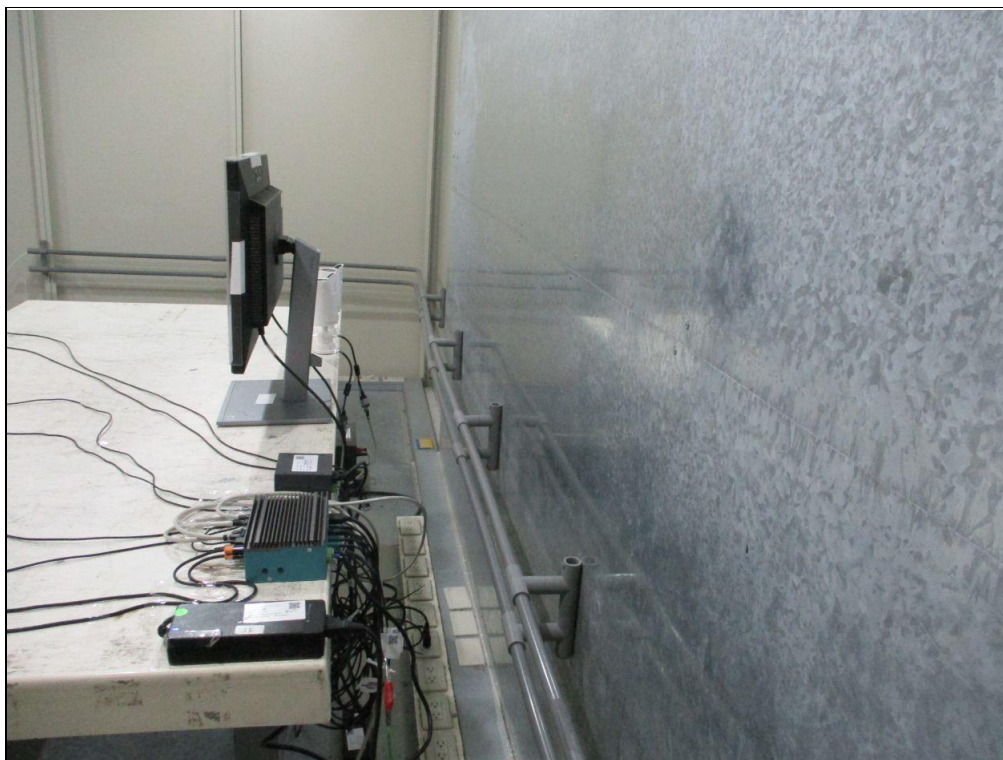
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
– Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value



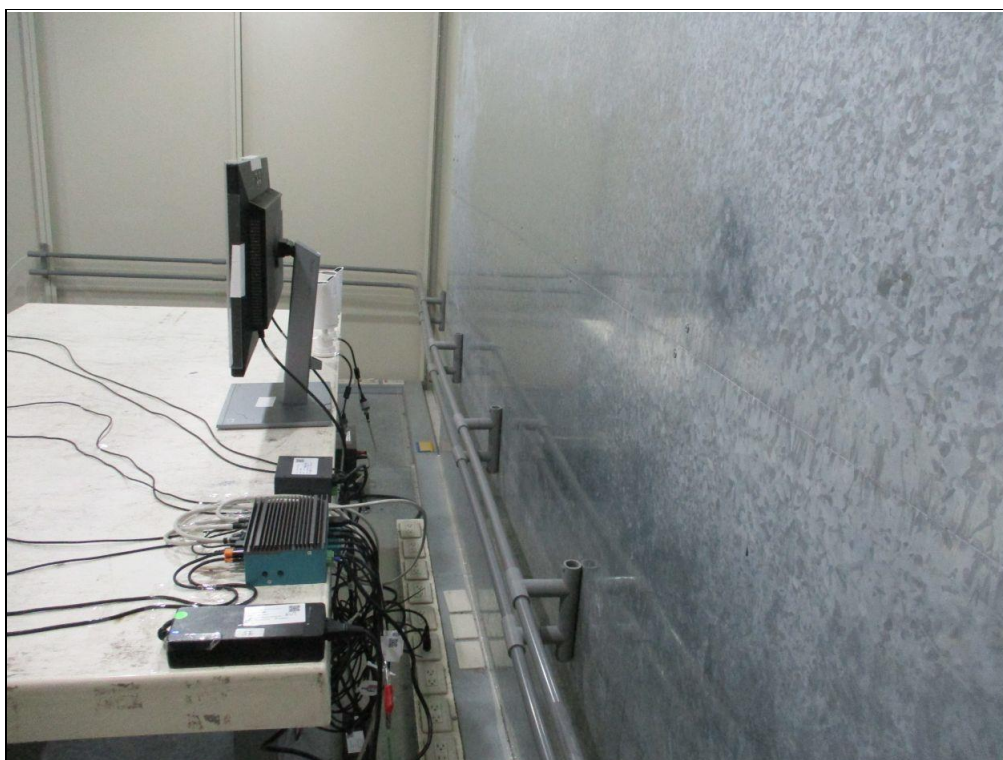
8 Pictures of Test Arrangements

8.1 Conducted Emissions from Power Ports

Mode A



Mode B



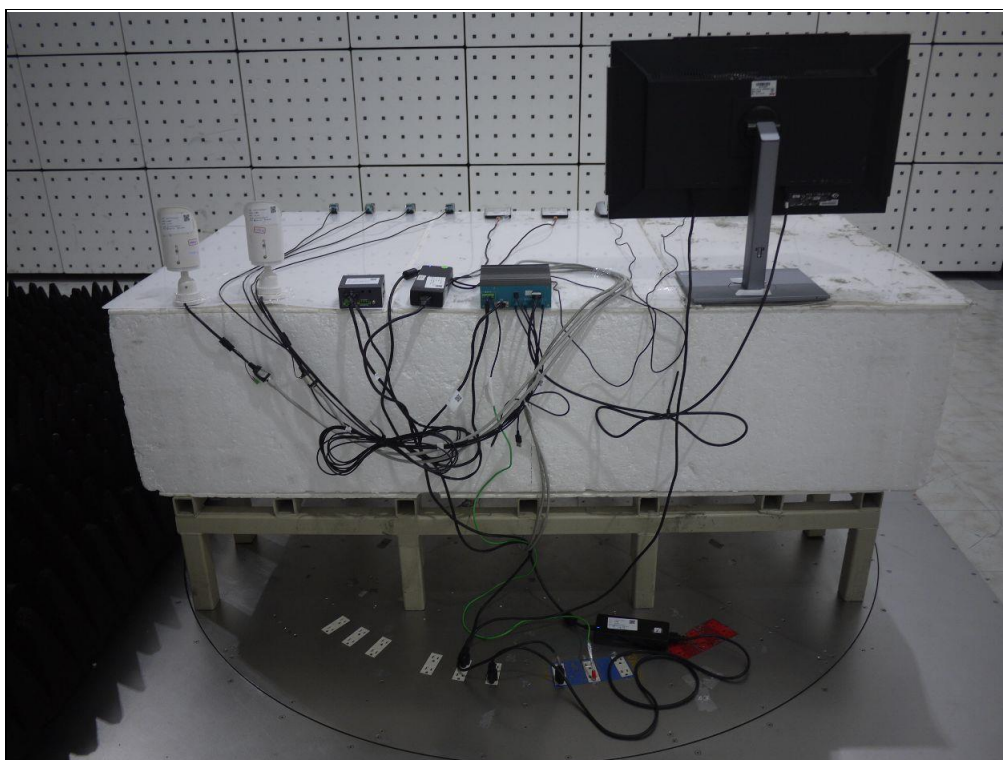
8.2 Radiated Emissions up to 1 GHz

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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