

# TEST REPORT

## CERTIFICATE OF CONFORMITY

**Standards:** 47 CFR FCC Part 15, Subpart B, Class B  
ANSI C63.4:2014

**Report No.:** FDBEMI-WTW-P21050741

**Model No.:** N418

**Received Date:** 2021/5/19

**Test Date:** 2021/7/14 ~ 2021/7/29

**Issued Date:** 2021/9/27

**Applicant :** NETRONIX, INC.

**Address:** No 945, Boai St, Jubei City, Hsinchu, 30265 Taiwan


**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

**Test Location (1):** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

**Test Location (2):** No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan.

**FCC Registration /  
Designation Number:** 810758 / TW1085 for Test Location (1)  
960022 / TW1058 for Test Location (2)

**Approved by :**  , **Date:** 2021/9/27  
Ken Lu / Manager

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**Prepared by :** Vivian Huang / Specialist

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### Release Control Record

Issue No.	Description	Date Issued
FDBEMI-WTW-P21050741	Original release.	2021/9/27

## 1 Certification

**Product:** Electronic Display Device

**Brand:** Rakuten kobo

**Test Model:** N418

**Sample Status:** Engineering sample

**Applicant:** NETRONIX, INC.

**Test Date:** 2021/7/14 ~ 2021/7/29

**Standards:** 47 CFR FCC Part 15, Subpart B, Class B

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 needs to perform according to its interfaces and functions evaluation are as follows:

FCC Part 15 Clause	Test Item	Result/Remarks	Verdict
15.107	Conducted Emissions from Power Ports	Minimum passing Class B margin is -9.08 dB at 0.49375 MHz	Pass
15.109	Radiated Emissions up to 1 GHz	Minimum passing Class B margin is -4.50 dB at 792.01 MHz	Pass
	Radiated Emissions above 1 GHz	Minimum passing Class B margin is -10.99 dB at 6199.02 MHz	Pass

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:

Measurement	Frequency	Expanded Uncertainty (k=2) ( $\pm$ )
Conducted Emissions from Power Ports	150kHz ~ 30MHz	1.8 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	4.1 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	4.5 dB
	6 GHz ~ 18 GHz	4.1 dB

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	Electronic Display Device
Brand	Rakuten kobo
Test Model	N418
Sample Status	Engineering sample
Operating Software	NA
Power Supply Rating	3.7 Vdc from battery or 5 Vdc from USB interface
Accessory Device	NA
Cable Supplied	USB Cable x1 (Shielded, 1.0m)

Note:

1. The EUT could be supplied with MicroSD card and following different models could be chosen:

Brand	Model	Capacity
SanDisk	SDSDQAB-032G-1	32G Byte
MK founder	MKUS032G-CGZ1	32G Byte

2. The EUT could be supplied with USB cable and following different models could be chosen:

Brand	Model	Material	Color	Signal Line
Yih Fone	SH-0422	PVC	Black	Shielded : Y , 1.0M , Core: N/A
	SH-0418	TPE		
	SH-0424	PVC	White	
	SH-0420	TPE		

Note: From the above models, model: SH-0422 was selected as representative model for the test and its data was recorded in this report.

#### 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 2400 MHz, provided by NETRONIX, INC., 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 NETRONIX, INC., for detailed feature description, please refer to the manufacturer's specifications or user's manual.

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

For Radiated emission test, EUT has been pre-tested under following test modes, test mode A was the worst case for final test.

Test Condition				
Mode	Radiated emission test			
	Input	Type	SD Card	Arrangement
<b>1</b>	<b>DC 5V From Host</b>	<b>USB</b>	<b>MK founder</b>	<b>Horizontal Placement</b>
2	DC 5V From AC to DC Adapter	WiFi 2.4G+BT	MK founder	Horizontal Placement
3	Battery	WiFi 2.4G+BT	MK founder	Horizontal Placement
4	Battery	WiFi 2.4G+BT	MK founder	Vertical Placement
5	Battery	WiFi 2.4G+BT	MK founder	Side Placement
6	DC 5V From Host	USB	Sandisk	Horizontal Placement

NOTE: The test configurations are defined by the applicant requirement.

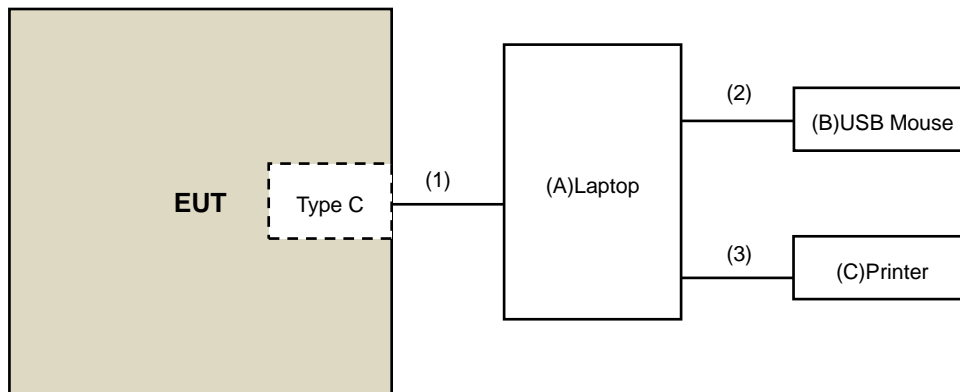
Test mode is presented in the report as below.

Test Condition				
Mode	Conducted / Radiated emission test			
	Input	Type	SD Card	Arrangement
A	DC 5V From Host	USB	MK founder	Horizontal Placement

### 3.5 Test Program Used and Operation Descriptions

1. Turn on the power of all equipment.
2. Support unit A (Laptop) runs a test program "EMC.bat" to enable EUT under "R/W mode" continually via one USB cable.
3. Support unit A (Laptop) runs "EMC test.exe" then sends "H" messages to itself.

### 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	Laptop	ASUS	X413F	L3N0CX14V85713A	NA	Provided by Lab
B	USB Mouse	Logitech	M-U0026	810-002182_005	NA	Provided by Lab
C	Printer	EPSON	LQ-300+II	G88Y074085	FCC DoC	Provided by Lab

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB Cable	1	1	Yes	0	Supplied by applicant
2	USB Cable	1	1.8	Yes	0	Provided by Lab
3	USB Cable	1	1.8	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 resistance N/A	N/A	EMC-01	2020/9/30	2021/9/29
50 ohm terminal resistance N/A	N/A	EMC-04	2020/10/26	2021/10/25
R&S ESCS 30 Receiver R&S	ESCS30	100287	2021/4/28	2022/4/27
LISN SCHWARZBECK	NSLK 8127	8127-523	2020/10/11	2021/10/10
Lisn R&S	ENV216	100071	2020/10/28	2021/10/27
RF Coaxial Cable JYEBO	5D-FB	COACAB-002	2020/9/7	2021/9/6
Fixed attenuator STI	STI02-2200-10	007	2020/8/28	2021/8/27
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA
DC LISN TESEQ	HV-AN 150	45176	2021/4/23	2022/4/22
DC LISN TESEQ	HV-AN 150	45177	2021/4/23	2022/4/22
LISN SCHWARZBECK	NNLK 8121	0809	2021/2/24	2022/2/23

**Note:**

1. The test was performed in HC - Conduction 2
2. The VCCI Shielded Room C Registration No. is C-13611.
3. Tested Date: 2021/7/14

#### 4.2 Radiated Emissions up to 1 GHz

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010125	2021/4/9	2022/4/8
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA
Test Receiver Agilent	N9038A	MY50010132	2021/6/23	2022/6/22
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-359	2020/11/5	2021/11/4
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-358	2020/11/4	2021/11/3
Pre_Amplifier Sonoma	310N	352926	2020/8/25	2021/8/24
Pre_Amplifier Sonoma	310N	352925	2020/8/25	2021/8/24
Fixed attenuator Mini-Circuits	UNAT-5+	CHF-001	2020/9/2	2021/9/1
Fixed attenuator Mini-Circuits	UNAT-5+	CHF-002	2020/9/2	2021/9/1
RF Coaxial Cable COMMATE/PEWC	8D-FB	CHFCAB-001-1	2020/9/14	2021/9/13
RF Coaxial Cable COMMATE/PEWC	8D-FB	CHFCAB-001-3	2020/9/14	2021/9/13
RF Coaxial Cable COMMATE/PEWC	8D-FB	CHFCAB-001-4	2020/9/14	2021/9/13
RF Coaxial Cable COMMATE/PEWC	8D-FB	CHFCAB-002-1	2020/9/14	2021/9/13
RF Coaxial Cable COMMATE/PEWC	8D-FB	CHFCAB-002-3	2020/9/14	2021/9/13
RF Coaxial Cable COMMATE/PEWC	8D-FB	CHFCAB-002-4	2020/9/14	2021/9/13
RF Coaxial Cable COMMATE/PEWC	8D-FB	CHFCAB-003-1	2020/9/14	2021/9/13
RF Coaxial Cable COMMATE/PEWC	8D-FB	CHFCAB-003-3	2020/9/14	2021/9/13
RF Coaxial Cable COMMATE/PEWC	8D	8DCAB-001	2020/9/14	2021/9/13

**Note:**

1. The test was performed in HC - 10m Chamber 1. The test site validated date: 2021/7/10(NSA)
2. The VCCI Site Registration No. is R-13252.
3. Tested Date: 2021/7/29

### 4.3 Radiated Emissions above 1 GHz

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010125	2021/4/9	2022/4/8
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA
Agilent 8449B preamplifier Agilent	8449B	3008A01975	2021/2/18	2022/2/17
Spectrum Analyzer Agilent	E4446A	MY48250254	2020/11/20	2021/11/19
Broadband Horn Antenna RFSPIN	DRH18-E	210306A18-ES	2021/3/30	2022/3/29
RF Coaxial Cable EMCI	EMC104-SM-SM-2500	170209	2021/3/3	2022/3/2
RF Coaxial Cable EMCI	EMC104-SM-SM-6000	170208	2021/3/3	2022/3/2
RF Coaxial Cable EMCI	EMC104-SM-SM- 11000	170206	2021/3/3	2022/3/2
Fix tool for Boresight	BAF-01	5	NA	NA

**Note:**

1. The test was performed in HC - 10m Chamber 1. The test site validated date: 2020/12/27 (VSWR)
2. Tested Date: 2021/7/29

## 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
0.5 - 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

Radiated Emissions Limits at 10 meters (dB $\mu$ V/m)				
Frequencies (MHz)	FCC Part 15B, Class A	FCC Part 15B, 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	47	37
230-960				
960-1000	49.5	43.5		

Radiated Emissions Limits at 3 meters (dB $\mu$ V/m)				
Frequencies (MHz)	FCC Part 15B, Class A	FCC Part 15B, 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	57.5	47.5
230-960				
960-1000	60	54		

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

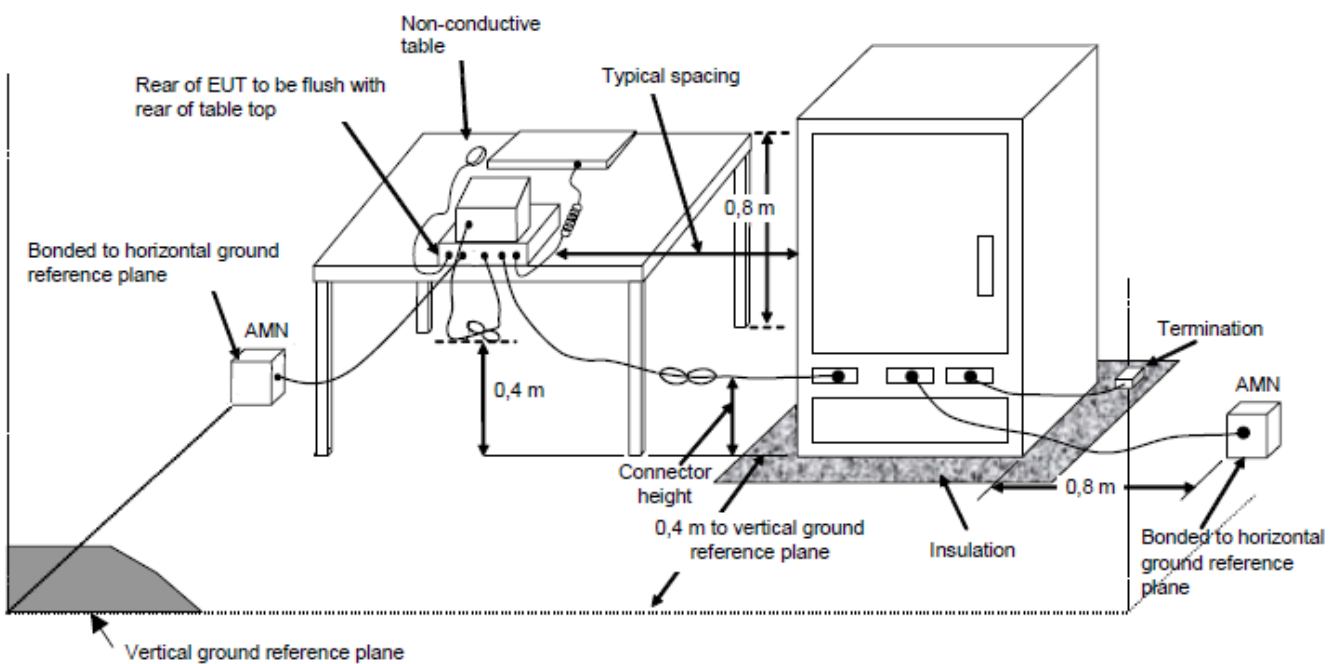
Notes: 1. These limit levels apply for a measurement distance of 3 m. If using a different measurement distance, the measured levels shall be extrapolated to the 3 m limit distance using a factor of 20 dB per decade of distance. The measurement distance shall place the measurement antenna in the far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

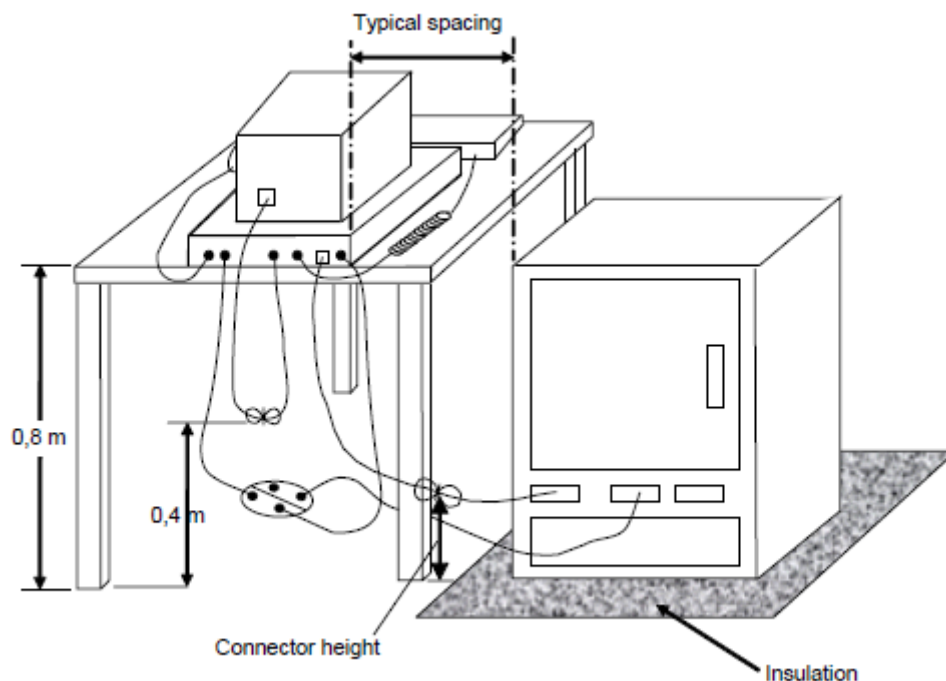


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

## 6.2 Radiated Emissions up to 1 GHz

- a. 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.
- b. The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.
- 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 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.

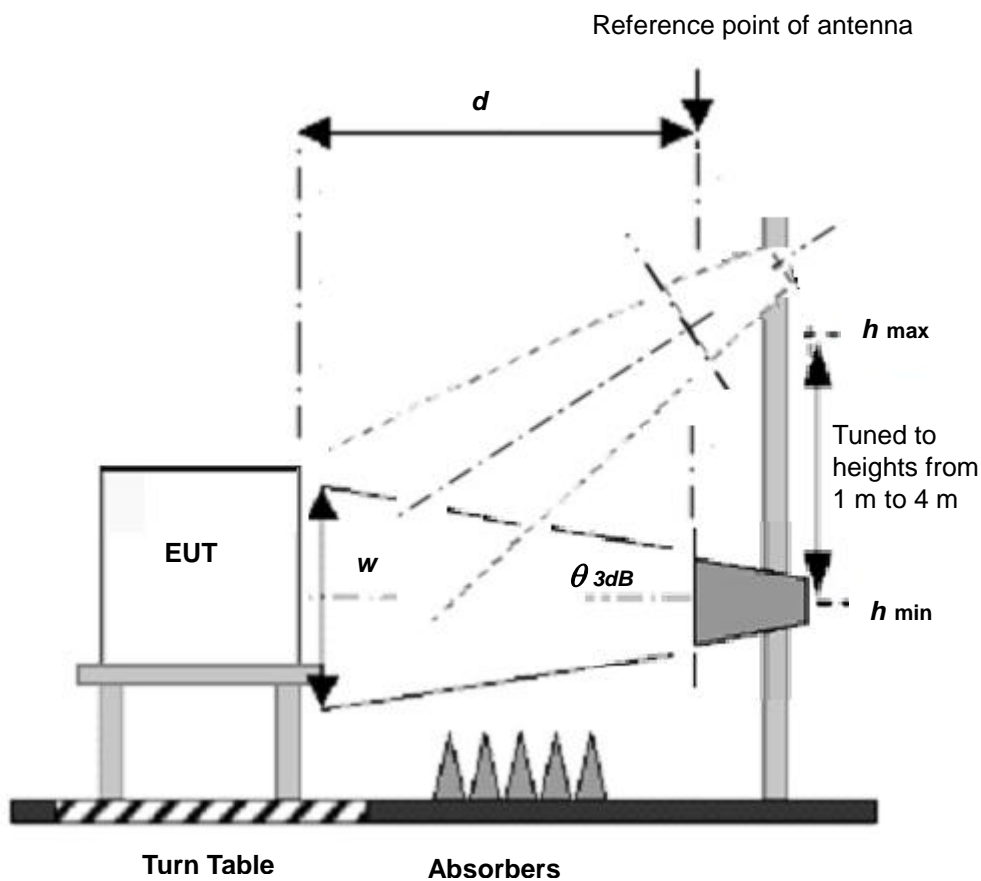


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

### 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

### 7.1 Conducted Emissions from Power Ports

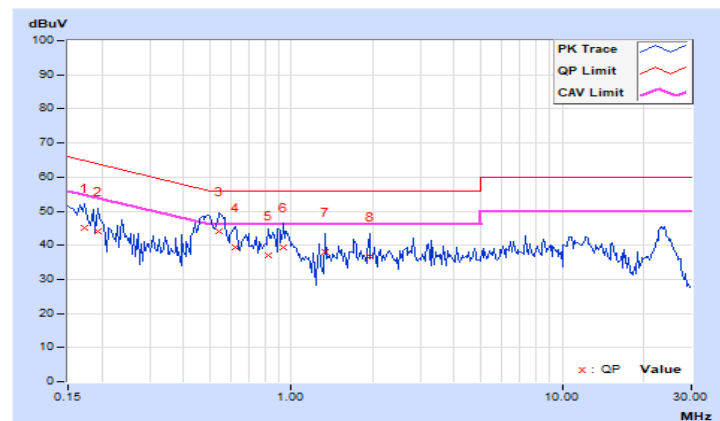
#### Mode A

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power (system)	120Vac, 60Hz	Environmental Conditions	22 °C, 68% RH
Tested by	Abner Chang		

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	0.17344	9.94	35.10	18.73	45.04	28.67	64.79	54.79	-19.75	-26.12
2	0.19297	9.95	34.22	17.64	44.17	27.59	63.91	53.91	-19.74	-26.32
3	0.54453	10.00	34.23	23.26	44.23	33.26	56.00	46.00	-11.77	-12.74
4	0.61875	10.00	29.50	21.66	39.50	31.66	56.00	46.00	-16.50	-14.34
5	0.82578	10.02	27.09	13.90	37.11	23.92	56.00	46.00	-18.89	-22.08
6	0.93906	10.03	29.51	18.37	39.54	28.40	56.00	46.00	-16.46	-17.60
7	1.33594	10.06	27.89	19.24	37.95	29.30	56.00	46.00	-18.05	-16.70
8	1.94531	10.12	26.63	20.08	36.75	30.20	56.00	46.00	-19.25	-15.80

#### 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

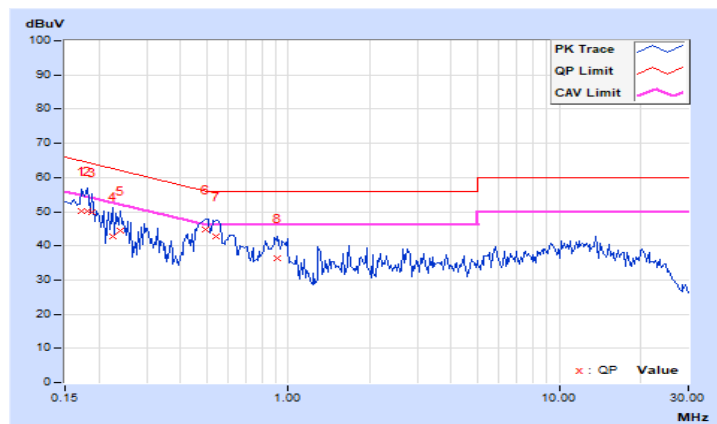


<b>Frequency Range</b>	150kHz ~ 30MHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Quasi-Peak (QP) / Average (AV), 9kHz
<b>Input Power (system)</b>	120Vac, 60Hz	<b>Environmental Conditions</b>	22 °C, 68% RH
<b>Tested by</b>	Abner Chang		

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	0.17344	9.97	40.12	21.01	50.09	30.98	64.79	54.79	-14.70	-23.81
2	0.18125	9.97	40.20	22.30	50.17	32.27	64.43	54.43	-14.26	-22.16
3	0.18906	9.98	39.94	20.71	49.92	30.69	64.08	54.08	-14.16	-23.39
4	0.22422	9.98	32.73	17.54	42.71	27.52	62.66	52.66	-19.95	-25.14
5	0.23984	9.99	34.35	20.42	44.34	30.41	62.10	52.10	-17.76	-21.69
<b>6</b>	<b>0.49375</b>	<b>10.03</b>	<b>34.75</b>	<b>26.99</b>	<b>44.78</b>	<b>37.02</b>	<b>56.10</b>	<b>46.10</b>	<b>-11.32</b>	<b>-9.08</b>
7	0.54453	10.04	32.77	22.20	42.81	32.24	56.00	46.00	-13.19	-13.76
8	0.91563	10.08	26.22	14.55	36.30	24.63	56.00	46.00	-19.70	-21.37

**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



## 7.2 Radiated Emissions up to 1 GHz

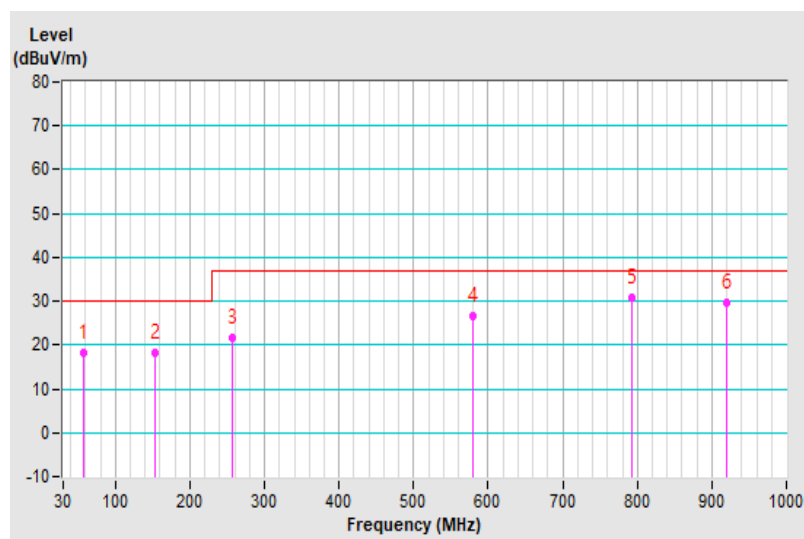
### Mode A

<b>Frequency Range</b>	30MHz ~ 1GHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Quasi-Peak (QP), 120kHz
<b>Input Power</b>	DC 5V	<b>Environmental Conditions</b>	20 °C, 60% RH
<b>Tested By</b>	Darren 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	57.31	18.14 QP	30.00	-11.86	4.00 H	143	31.13	-12.99
2	153.34	18.14 QP	30.00	-11.86	4.00 H	33	30.05	-11.91
3	256.45	21.65 QP	37.00	-15.35	4.00 H	78	34.13	-12.48
4	579.46	26.69 QP	37.00	-10.31	3.00 H	190	30.36	-3.67
5	791.96	30.90 QP	37.00	-6.10	1.13 H	14	30.20	0.70
6	920.53	29.60 QP	37.00	-7.40	1.00 H	299	26.08	3.52

#### 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

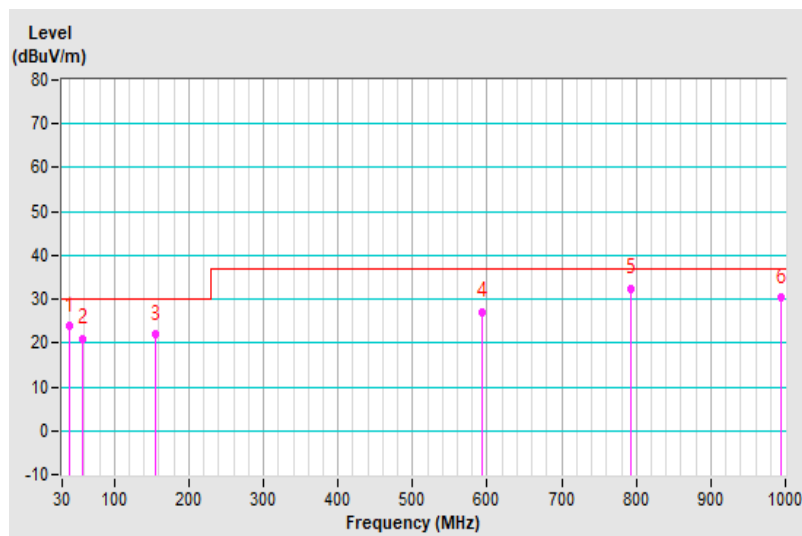


<b>Frequency Range</b>	30MHz ~ 1GHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Quasi-Peak (QP), 120kHz
<b>Input Power</b>	DC 5V	<b>Environmental Conditions</b>	20 °C, 60% RH
<b>Tested By</b>	Darren Lin		

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	38.88	23.93 QP	30.00	-6.07	1.00 V	44	37.28	-13.35
2	57.77	21.06 QP	30.00	-8.94	2.00 V	339	34.21	-13.15
3	154.84	21.99 QP	30.00	-8.01	2.00 V	342	34.04	-12.05
4	594.01	27.17 QP	37.00	-9.83	4.00 V	348	30.20	-3.03
<b>5</b>	<b>792.01</b>	<b>32.50 QP</b>	<b>37.00</b>	<b>-4.50</b>	<b>1.99 V</b>	<b>139</b>	<b>31.68</b>	<b>0.82</b>
6	995.08	30.34 QP	37.00	-6.66	1.00 V	86	25.12	5.22

**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

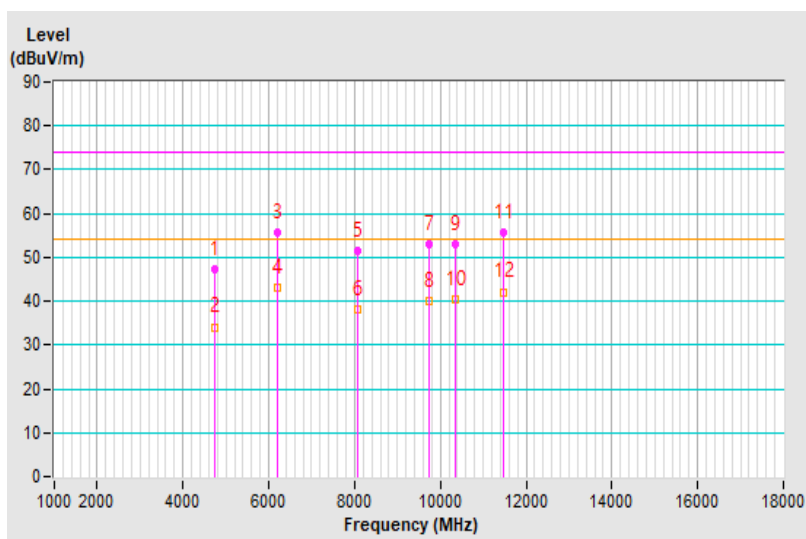
#### Mode A

Frequency Range	1GHz ~ 12.5GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	DC 5V	Environmental Conditions	20 °C, 61% RH
Tested By	Darren Lin		

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	4744.25	47.14 PK	74.00	-26.86	1.00 H	283	35.95	11.19
2	4744.25	34.09 AV	54.00	-19.91	1.14 H	49	22.90	11.19
3	6199.02	55.75 PK	74.00	-18.25	1.50 H	360	35.59	20.16
<b>4</b>	<b>6199.02</b>	<b>43.01 AV</b>	<b>54.00</b>	<b>-10.99</b>	<b>1.43 H</b>	<b>360</b>	<b>22.85</b>	<b>20.16</b>
5	8070.30	51.36 PK	74.00	-22.64	1.00 H	295	34.40	16.96
6	8070.30	38.10 AV	54.00	-15.90	1.12 H	344	21.14	16.96
7	9728.65	53.14 PK	74.00	-20.86	1.50 H	109	34.61	18.53
8	9728.65	40.08 AV	54.00	-13.92	1.63 H	126	21.55	18.53
9	10355.95	53.04 PK	74.00	-20.96	2.00 H	66	33.45	19.59
10	10355.95	40.29 AV	54.00	-13.71	1.87 H	360	20.70	19.59
11	11478.37	55.55 PK	74.00	-18.45	1.00 H	360	33.71	21.84
12	11478.37	42.10 AV	54.00	-11.90	1.05 H	360	20.26	21.84

#### 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

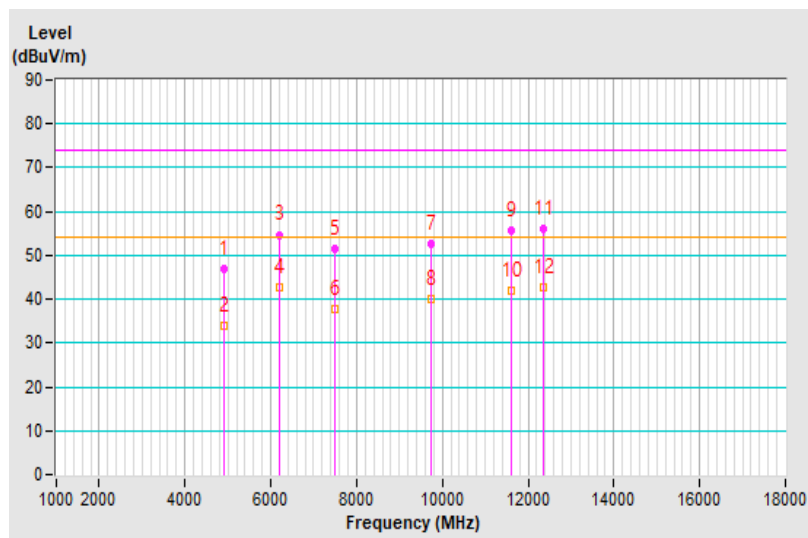


<b>Frequency Range</b>	1GHz ~ 12.5GHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Peak (PK) / Average (AV), 1MHz
<b>Input Power</b>	DC 5V	<b>Environmental Conditions</b>	20 °C, 61% RH
<b>Tested By</b>	Darren Lin		

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	4905.32	47.03 PK	74.00	-26.97	1.00 V	85	38.12	8.91
2	4905.32	33.94 AV	54.00	-20.06	1.14 V	109	25.03	8.91
3	6203.27	54.72 PK	74.00	-19.28	1.00 V	88	33.86	20.86
4	6203.27	42.68 AV	54.00	-11.32	1.25 V	89	21.82	20.86
5	7493.57	51.35 PK	74.00	-22.65	1.00 V	46	35.00	16.35
6	7493.57	37.57 AV	54.00	-16.43	1.07 V	59	21.22	16.35
7	9729.92	52.54 PK	74.00	-21.46	2.00 V	38	34.01	18.53
8	9729.92	39.97 AV	54.00	-14.03	1.82 V	57	21.44	18.53
9	11601.20	55.49 PK	74.00	-18.51	1.50 V	56	33.73	21.76
10	11601.20	41.84 AV	54.00	-12.16	1.22 V	85	20.08	21.76
11	12359.83	55.95 PK	74.00	-18.05	1.00 V	163	33.05	22.90
12	12359.83	42.59 AV	54.00	-11.41	1.17 V	166	19.69	22.90

**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

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

## 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 accredited and approved according to ISO/IEC 17025.

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**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

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

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