

TEST REPORT

CERTIFICATE OF CONFORMITY

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

ANSI C63.4–2014

ANSI C63.4a–2017

Report No.: FDBEMI-WTW-P23110406

Product: Electronic Display Device

FCC ID.: NOIKBN367

Brand: Rakuten kobo

Model No.: N367

Received Date: 2023/5/4

Test Date: 2023/12/4 ~ 2024/2/15

Issued Date: 2024/2/20

Applicant: NETRONIX, INC.

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

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FCC Registration /

Designation Number: 960022 / TW1058

Approved by:



Ken Lu / Manager

, Date:

2024/2/20

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Prepared by : Vito Lung / Specialist



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Table of Contents

Release Control Record	3
1 Certificate.....	4
2 Summary of Test Results	5
2.1 Measurement Uncertainty	5
2.2 Supplementary Information	5
3 General Information	6
3.1 Description of EUT	6
3.2 Primary Clock Frequencies of Internal Source.....	6
3.3 Features of EUT	6
3.4 Operating Modes of EUT and Determination of Worst Case Operating Mode	7
3.5 Test Program Used and Operation Descriptions	8
3.6 Connection Diagram of EUT and Peripheral Devices	8
3.7 Configuration of Peripheral Devices and Cable Connections	9
4 Test Instruments	10
4.1 Conducted Emissions from Power Ports	10
4.2 Radiated Emissions up to 1 GHz	10
4.3 Radiated Emissions above 1 GHz.....	11
5 Limits of Test Items.....	12
5.1 Conducted Emissions from Power Ports	12
5.2 Radiated Emissions up to 1 GHz	12
5.3 Radiated Emissions above 1 GHz.....	12
6 Test Arrangements.....	13
6.1 Conducted Emissions from Power Ports	13
6.2 Radiated Emissions up to 1 GHz	14
6.3 Radiated Emissions above 1 GHz.....	15
7 Test Results of Test Item	16
7.1 Conducted Emissions from Power Ports	16
7.2 Radiated Emissions up to 1 GHz	20
7.3 Radiated Emissions above 1 GHz.....	22
8 Pictures of Test Arrangements	26
9 Information of the Testing Laboratories	27

Release Control Record

Issue No.	Description	Date Issued
FDBEMI-WTW-P23110406	Original release.	2024/2/20

1 Certificate

Product: Electronic Display Device

Brand: Rakuten kobo

Test Model: N367

Sample Status: Engineering sample

Applicant: NETRONIX, INC.

Test Date: 2023/12/4 ~ 2024/2/15

Standard: 47 CFR FCC Part 15, Subpart B, Class B
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 B margin is -14.49 dB at 0.15800 MHz
FCC Part 15.109	Radiated Emissions up to 1 GHz	Pass	Minimum passing Class B margin is -9.57 dB at 479.98 MHz
FCC Part 15.109	Radiated Emissions above 1 GHz	Pass	Minimum passing Class B margin is -7.03 dB at 28965.53 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	150 kHz ~ 30 MHz	1.8 dB	3.4 dB (U_{cispr})
Radiated Emissions up to 1 GHz	30 MHz ~ 1 GHz	5.8 dB	6.3 dB (U_{cispr})
Radiated Emissions above 1 GHz	1 GHz ~ 6 GHz	4.85 dB	5.2 dB (U_{cispr})
	6 GHz ~ 18 GHz	4.66 dB	5.5 dB (U_{cispr})
	18 GHz ~ 40 GHz	5.07 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	N367
Sample Status	Engineering sample
Operating Software	NA
Power Supply Rating	3.7 Vdc from battery 5 Vdc form adapter or host equipment
Accessory Device	Refer to Note
Data Cable Supplied	USB Cable x2 (Shielded, 1.0m)

Note:

1. The EUT uses following accessories.

1st source USB Cable			
Brand	Model	Material	Specification
LUXSHARE-ICT	LB93US005-1H	TPE	Signal Line: Shielded: Y, 1.0M, Core: N/A
2nd source USB Cable			
Brand	Model	Material	Specification
HIGH-TEK	0UPNET23004N	TPE	Signal Line: Shielded: Y, 1.0M, Core: N/A

2. The EUT could be supplied with three eMMC as below table:

No.	Brand	Model	Remark
1	Phison	PTE7A0YJ-16GE	1st source eMMC
2	Kinston	EMMC16G-PJ30-GA02	2nd source eMMC
3	FORESEE	FEMDNN016G-A3A55	3rd source eMMC

3. The EUT could be supplied with two DRAM LP-DDR4 as below table:

No.	Brand	Model	Remark
1	Nanya	NT6AN256M16AV-J2	1st source DRAM LP-DDR4
2	Leahkinn	LTHS0005GS4-ZPI1	2nd source DRAM LP-DDR4

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 5.85 GHz, 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

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

Test Condition	
Mode	Radiated Emissions up to 1 GHz
1	Phison(eMMC)+USB Mode(LUXSHARE-ICT)(TPE)+Nanya(DRAM) + Input Power(5 Vdc from host)
2	FORESEE(eMMC)+USB Mode(HIGH-TEK)(TPE)+Leahkinn(DRAM) + Input Power(5 Vdc from host)
3	Kinston(eMMC)+USB Mode(HIGH-TEK)(TPE)+Leahkinn(DRAM) + Input Power(5 Vdc from host)
4	FORESEE(eMMC)+WiFi 2.4G+BT+Leahkinn(DRAM) + Input Power(5 Vdc from host)
5	FORESEE(eMMC)+WiFi 5G+BT+Leahkinn(DRAM) + Input Power(5 Vdc from host)
6	FORESEE(eMMC)+WiFi 2.4G+BT+Leahkinn(DRAM) + Input Power(5 Vdc from adapter)
7	FORESEE(eMMC)+WiFi 5G+BT+Leahkinn(DRAM) + Input Power(3.7 Vdc from battery)

Note: The worst case is that mode 2 is shown in bold.

Test modes are presented in the report as below.

Test Condition	
Mode	Conducted Emissions from Power Ports
A	FORESEE(eMMC)+USB Mode(HIGH-TEK)(TPE)+Leahkinn(DRAM) + Input Power(5 Vdc from host)
B	FORESEE(eMMC)+WiFi 2.4G+BT+Leahkinn(DRAM) + Input Power(5 Vdc from adapter)
Mode	Radiated Emissions up to 1 GHz
A	FORESEE(eMMC)+USB Mode(HIGH-TEK)(TPE)+Leahkinn(DRAM) + Input Power(5 Vdc from host)
Mode	Radiated Emissions above 1 GHz
A	FORESEE(eMMC)+USB Mode(HIGH-TEK)(TPE)+Leahkinn(DRAM) + Input Power(5 Vdc from host)

3.5 Test Program Used and Operation Descriptions

For 5 Vdc from host

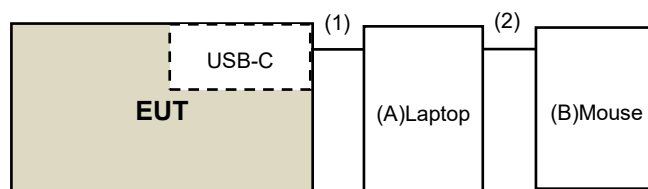
1. Turn on the power of all equipment.
2. EUT is charging from support unit A (Laptop) via USB-A to C cable.
3. Support unit A (Laptop) reads and writes messages from EUT via USB-A to C cable.
4. Support unit A (Laptop) plays "H" pattern messages to itself.

For 5 Vdc from adapter

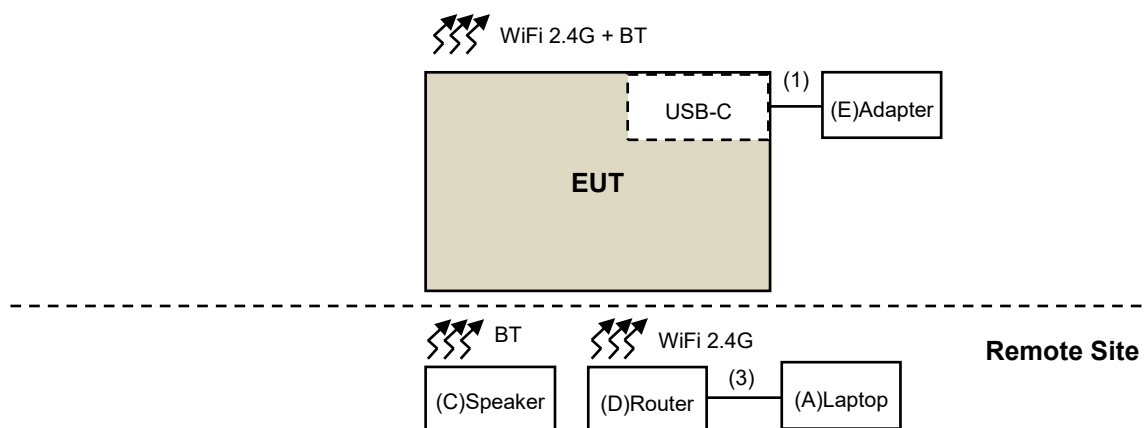
1. Turn on the power of all equipment.
2. EUT is charging from support unit E (Adapter) via USB-A to C cable.
3. Support unit C (Speaker) links with EUT via BT.
4. Support unit A (Laptop) runs "Ping.exe" program to communicate with EUT via WiFi 2.4G.
5. Support unit A (Laptop) plays "H" pattern messages to itself.

3.6 Connection Diagram of EUT and Peripheral Devices

For 5 Vdc from host



For 5 Vdc from adapter



3.7 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	DELL	Latitude 5420	7YX61F3	FCC DOC	Provided by Lab
B	Mouse	Logitech	M-U0026	810-002182_002	N/A	Provided by Lab
C	Speaker	ULTIMATE EARS	N/A	N/A	N/A	Provided by Lab
D	Router	ASUS	RT-AC66U B1	H2IT0Z001147	N/A	Provided by Lab
E	Adapter	oppo	AK779GB	N/A	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB cable	1	1	Yes	0	Provided by Applicant
2	USB-A cable	1	1.8	Yes	0	Provided by Lab
3	Cat.5e cable	1	2	No	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	EMC-02	2023/9/25	2024/9/24
		EMC-03	2023/9/25	2024/9/24
EMI Test Receiver R&S	ESR3	102982	2023/5/25	2024/5/24
Fixed attenuator MVE	MVE2530-10	MVE2530-10_003	2023/9/7	2024/9/6
LISN R&S	ENV216	100072	2023/7/7	2024/7/6
LISN Schwarzbeck	NNLK 8121	0809	2023/3/14	2024/3/13
	NSLK 8127	8127-522	2023/9/12	2024/9/11
RF Coaxial Cable JYEBAO	5D-FB	COACAB-002	2023/7/1	2024/6/30
Software BV	BVADT_Conc_ V7.3.7.4	N/A	N/A	N/A

Notes:

1. The test was performed in HC - Conduction 3.
2. The VCCI Shielded room C Registration No. is C-13611.
3. Tested Date: 2023/12/15 ~ 2024/2/15

4.2 Radiated Emissions up to 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table CT	N/A	N/A	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-360	2023/10/13	2024/10/12
Fixed Attenuator MVE	MVE2252-05	MVE2252-05-001	2023/9/7	2024/9/6
MXE EMI Receiver Agilent	N9038A	MY51210105	2023/6/7	2024/6/6
Preamplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-03	2023/9/7	2024/9/6
RF Coaxial Cable	RF-141	CHGCAB-004	2023/9/7	2024/9/6
RF Coaxial Cable PEWC	8D	CHGCAB-005	2023/9/7	2024/9/6
	8D-FB	CHGCAB-001-2	2023/9/7	2024/9/6
Software BV	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

1. The test was performed in HC - 966 chamber 1. The test site validated date: 2023/5/13 (NSA)
2. The VCCI Site Registration No. is R-20009.
3. Tested Date: 2023/12/4

4.3 Radiated Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table CT	N/A	N/A	N/A	N/A
Fix tool for Boresight BV	BAF-01	5	N/A	N/A
Horn Antenna FT-RF	HA-07M18G-NF	0000320091110	2023/11/12	2024/11/11
Horn Antenna Schwarzbeck	BBHA 9170	9170-424	2023/11/12	2024/11/11
MXA Signal Analyzer Keysight	N9020B	MY60112816	2023/5/17	2024/5/16
MXE EMI Receiver Agilent	N9038A	MY51210105	2023/6/7	2024/6/6
Preamplifier Agilent	8449B	3008A02578	2023/6/1	2024/5/31
Preamplifier EMCI	EMC118A45SE	980817	2023/8/12	2024/8/11
	EMC184045SE	980770	2023/6/1	2024/5/31
RF Coaxial Cable EMCI	EMC101G-KM-KM-4000	210707	2023/11/2	2024/11/1
	EMC104-SM-SM-2000	181208	2023/8/12	2024/8/11
	EMC104-SM-SM-6000	181209	2023/8/12	2024/8/11
	EMC104-SM-SM-8500	181211	2023/8/12	2024/8/11
RF Coaxial Cable SUHNER	SUCOFLEX 102	36432/2	2022/12/10	2023/12/9
Software BV	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

1. The test was performed in HC - 966 chamber 1. The test site validated date: 2023/8/12 (VSWR)
2. The VCCI Site Registration No. is G-10137.
3. Tested Date: 2023/12/6

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 (dBµV/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				
960-1000	49.5	43.5	47	37

Radiated Emissions Limits at 3 meters (dBμV/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

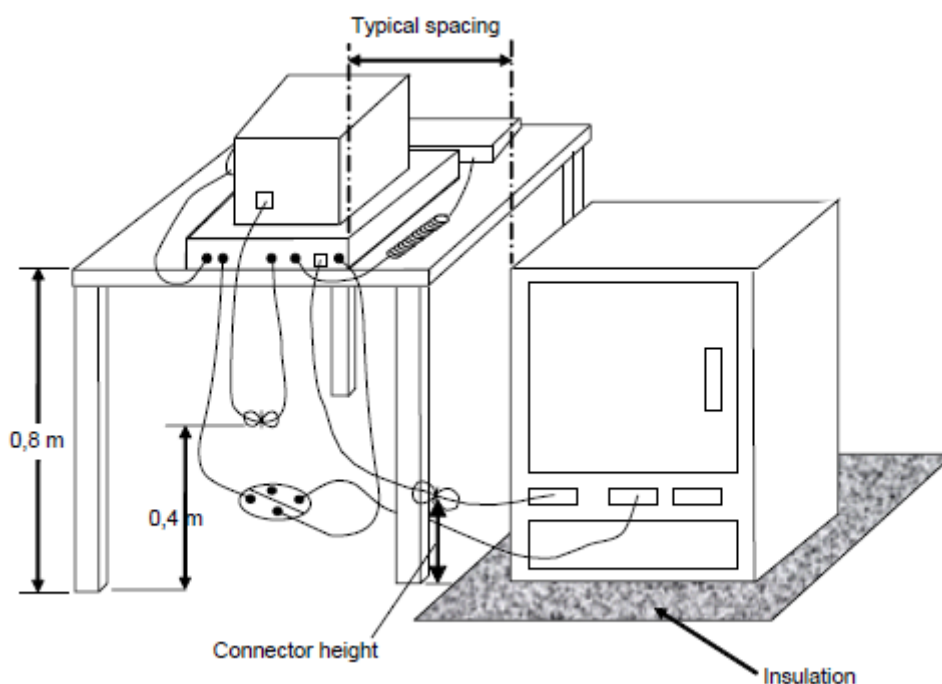
Radiated Emissions Limits at 3 meters (dBuV/m)		
Frequency range	Class A	Class B
Above 1GHz	Avg: 60 Peak: 80	Avg: 54 Peak: 74

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.

6.2 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 3 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.

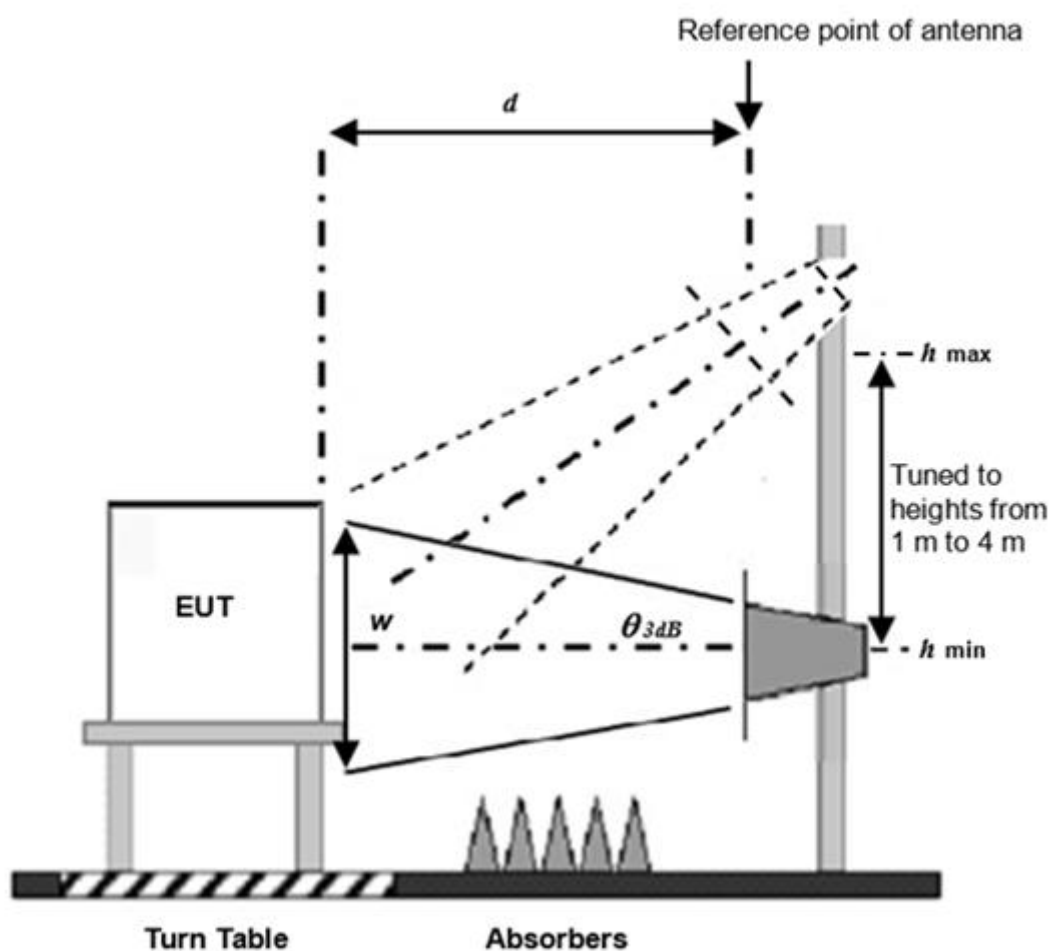


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

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

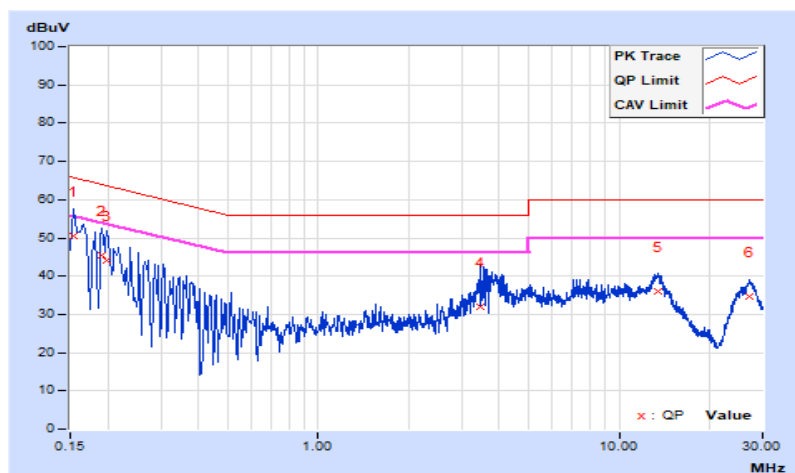
Mode A

Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	5 Vdc from host	Environmental Conditions	23°C, 62% RH
Tested by	Richard Huang		

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	0.15400	10.00	40.56	22.04	50.56	32.04	65.78	55.78	-15.22	-23.74
2	0.19000	10.00	35.41	10.23	45.41	20.23	64.04	54.04	-18.63	-33.81
3	0.19800	10.00	34.25	7.90	44.25	17.90	63.69	53.69	-19.44	-35.79
4	3.46200	10.09	21.99	9.35	32.08	19.44	56.00	46.00	-23.92	-26.56
5	13.42600	10.47	25.59	19.25	36.06	29.72	60.00	50.00	-23.94	-20.28
6	27.00200	10.91	23.62	17.97	34.53	28.88	60.00	50.00	-25.47	-21.12

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

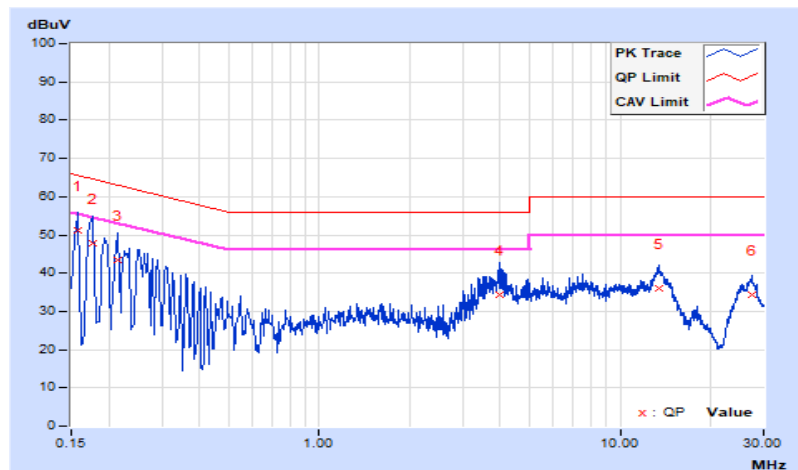


Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	5 Vdc from host	Environmental Conditions	23°C, 62% RH
Tested by	Richard Huang		

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	10.02	41.06	24.21	51.08	34.23	65.57	55.57	-14.49	-21.34
2	0.17708	10.01	37.94	17.63	47.95	27.64	64.62	54.62	-16.67	-26.98
3	0.21400	10.01	33.39	19.03	43.40	29.04	63.05	53.05	-19.65	-24.01
4	3.98600	10.14	24.18	13.20	34.32	23.34	56.00	46.00	-21.68	-22.66
5	13.47000	10.46	25.71	19.46	36.17	29.92	60.00	50.00	-23.83	-20.08
6	27.34600	10.92	23.31	17.76	34.23	28.68	60.00	50.00	-25.77	-21.32

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



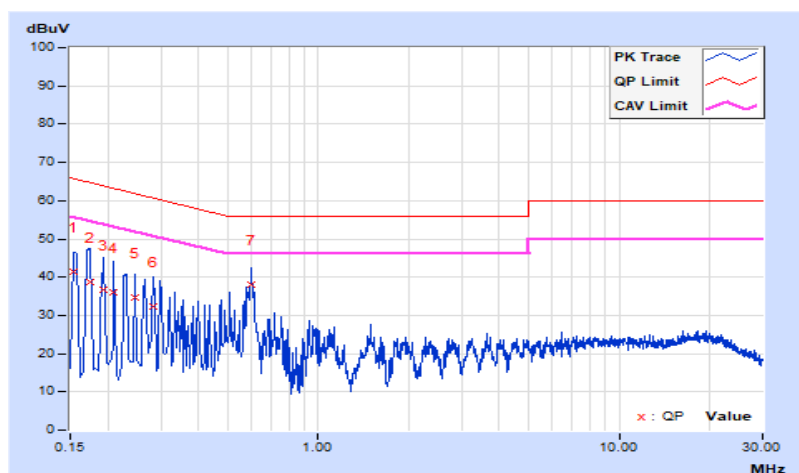
Mode B

Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	5 Vdc from adapter	Environmental Conditions	23°C, 70% RH
Tested by	Eagle Chen		

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	0.15400	10.05	31.45	11.31	41.50	21.36	65.78	55.78	-24.28	-34.42
2	0.17384	10.05	28.83	8.92	38.88	18.97	64.77	54.77	-25.89	-35.80
3	0.19400	10.05	26.80	6.66	36.85	16.71	63.86	53.86	-27.01	-37.15
4	0.21000	10.05	25.97	5.97	36.02	16.02	63.21	53.21	-27.19	-37.19
5	0.24600	10.05	24.68	6.02	34.73	16.07	61.89	51.89	-27.16	-35.82
6	0.28200	10.05	22.19	4.77	32.24	14.82	60.76	50.76	-28.52	-35.94
7	0.60200	10.07	27.87	13.60	37.94	23.67	56.00	46.00	-18.06	-22.33

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

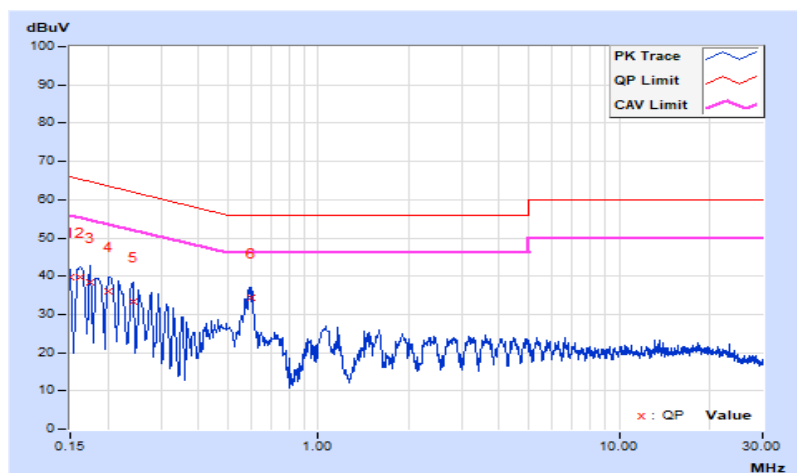


Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	5 Vdc from adapter	Environmental Conditions	23°C, 70% RH
Tested by	Eagle Chen		

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	0.15002	10.07	29.72	10.80	39.79	20.87	66.00	56.00	-26.21	-35.13
2	0.16105	10.07	29.58	10.78	39.65	20.85	65.41	55.41	-25.76	-34.56
3	0.17400	10.07	28.44	9.71	38.51	19.78	64.77	54.77	-26.26	-34.99
4	0.20200	10.06	25.80	7.50	35.86	17.56	63.53	53.53	-27.67	-35.97
5	0.24164	10.06	23.30	7.33	33.36	17.39	62.04	52.04	-28.68	-34.65
6	0.60200	10.07	24.35	17.86	34.42	27.93	56.00	46.00	-21.58	-18.07

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



7.2 Radiated Emissions up to 1 GHz

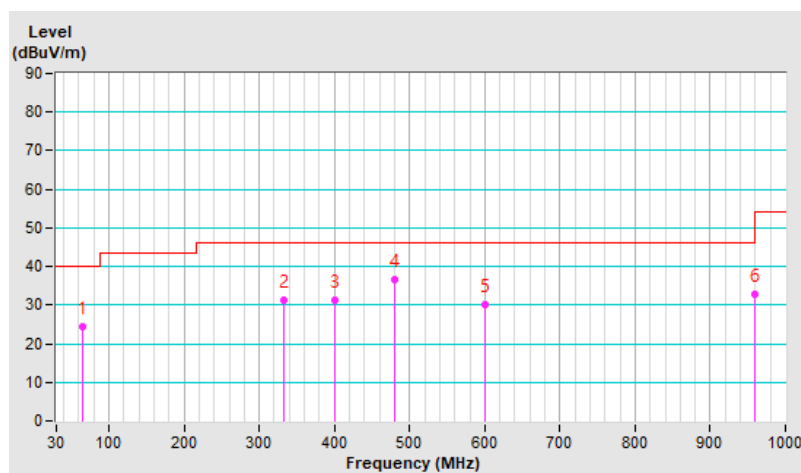
Mode A

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	5 Vdc from host	Environmental Conditions	21°C, 63% RH
Tested By	Eagle 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	65.15	24.41 QP	40.00	-15.59	3.00 H	359	32.58	-8.17
2	332.15	31.40 QP	46.00	-14.60	1.00 H	28	36.62	-5.22
3	400.57	31.23 QP	46.00	-14.77	1.00 H	7	34.60	-3.37
4	479.98	36.43 QP	46.00	-9.57	1.00 H	250	37.66	-1.23
5	600.91	29.98 QP	46.00	-16.02	4.00 H	250	28.57	1.41
6	959.97	32.68 QP	46.00	-13.32	3.00 H	340	25.72	6.96

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.

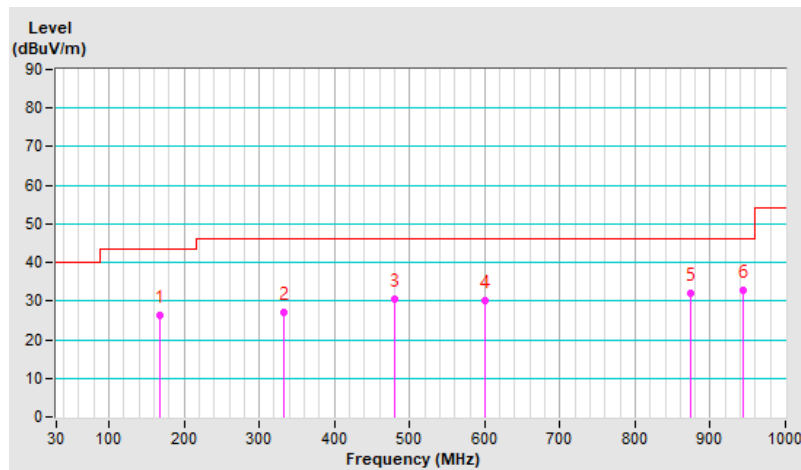


Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	5 Vdc from host	Environmental Conditions	21°C, 63% RH
Tested By	Eagle Chen		

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	167.29	26.16 QP	43.50	-17.34	2.00 V	1	32.93	-6.77
2	332.35	26.98 QP	46.00	-19.02	2.00 V	1	32.20	-5.22
3	479.95	30.43 QP	46.00	-15.57	2.00 V	271	31.66	-1.23
4	599.97	30.06 QP	46.00	-15.94	1.00 V	31	28.69	1.37
5	874.71	31.99 QP	46.00	-14.01	2.00 V	228	26.36	5.63
6	944.61	32.64 QP	46.00	-13.36	4.00 V	138	25.89	6.75

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

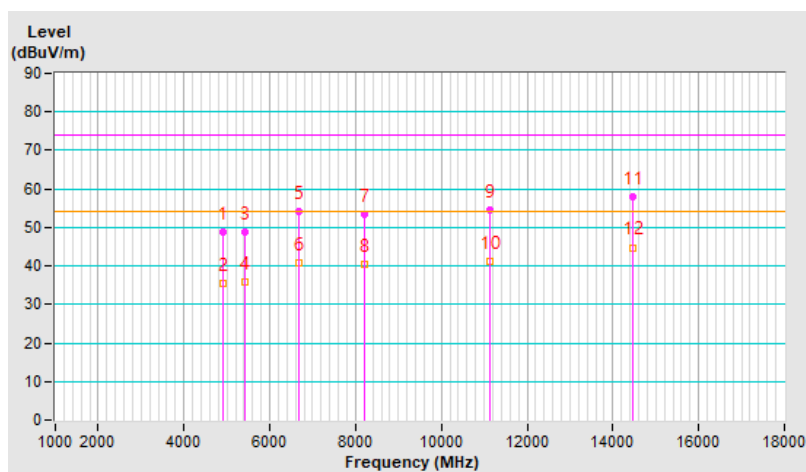
Mode A

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	5 Vdc from host	Environmental Conditions	23°C, 82% RH
Tested By	Eagle 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	4910.57	48.87 PK	74.00	-25.13	1.50 H	336	41.86	7.01
2	4910.57	35.37 AV	54.00	-18.63	1.50 H	345	28.36	7.01
3	5427.93	48.94 PK	74.00	-25.06	2.00 H	95	40.40	8.54
4	5427.93	35.84 AV	54.00	-18.16	2.00 H	16	27.30	8.54
5	6685.37	54.15 PK	74.00	-19.85	1.50 H	10	41.00	13.15
6	6685.37	40.89 AV	54.00	-13.11	1.50 H	360	27.74	13.15
7	8196.67	53.41 PK	74.00	-20.59	1.00 H	305	40.99	12.42
8	8196.67	40.54 AV	54.00	-13.46	1.00 H	27	28.12	12.42
9	11117.27	54.64 PK	74.00	-19.36	1.00 H	139	41.40	13.24
10	11117.27	41.24 AV	54.00	-12.76	1.00 H	360	28.00	13.24
11	14475.33	57.98 PK	74.00	-16.02	1.50 H	360	41.00	16.98
12	14475.33	44.80 AV	54.00	-9.20	1.50 H	360	27.82	16.98

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.

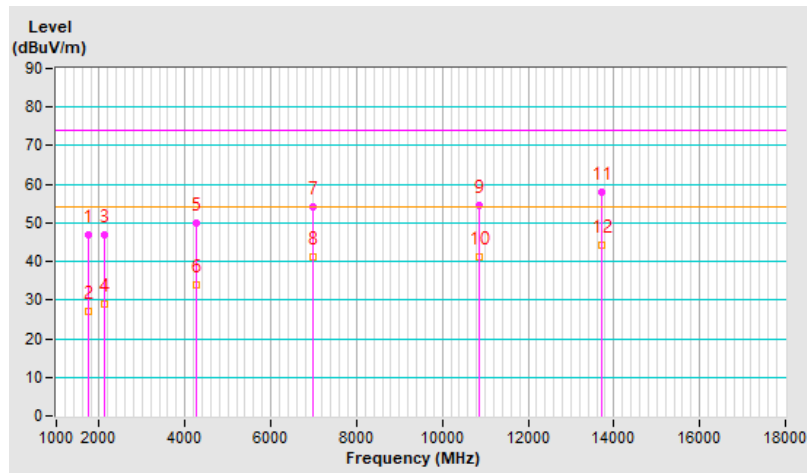


Frequency Range	1 GHz ~ 18 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	5 Vdc from host	Environmental Conditions	23°C, 82% RH
Tested By	Eagle Chen		

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	1756.50	46.96 PK	74.00	-27.04	1.00 V	34	51.65	-4.69
2	1756.50	27.09 AV	54.00	-26.91	1.00 V	264	31.78	-4.69
3	2133.33	46.92 PK	74.00	-27.08	1.50 V	70	48.23	-1.31
4	2133.33	28.89 AV	54.00	-25.11	1.50 V	289	30.20	-1.31
5	4253.23	49.81 PK	74.00	-24.19	2.00 V	222	44.60	5.21
6	4253.23	34.03 AV	54.00	-19.97	2.00 V	198	28.82	5.21
7	6968.13	54.16 PK	74.00	-19.84	2.00 V	313	40.31	13.85
8	6968.13	41.25 AV	54.00	-12.75	2.00 V	0	27.40	13.85
9	10862.27	54.60 PK	74.00	-19.40	1.50 V	152	41.46	13.14
10	10862.27	41.25 AV	54.00	-12.75	1.50 V	360	28.11	13.14
11	13702.97	57.83 PK	74.00	-16.17	1.50 V	360	40.75	17.08
12	13702.97	44.32 AV	54.00	-9.68	1.50 V	257	27.24	17.08

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.

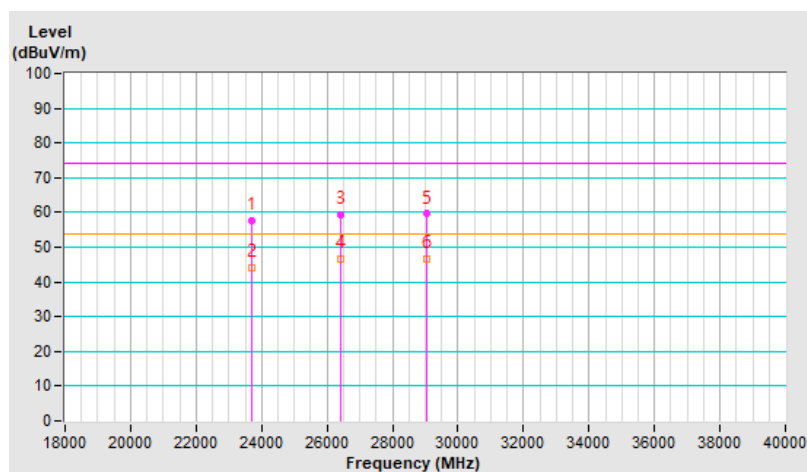


Frequency Range	18 GHz ~ 40 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	5 Vdc from host	Environmental Conditions	24°C, 77% RH
Tested By	Eagle Chen		

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	23698.00	57.64 PK	74.00	-16.36	1.00 H	279	57.36	0.28
2	23698.00	44.14 AV	54.00	-9.86	1.00 H	159	43.86	0.28
3	26428.93	59.51 PK	74.00	-14.49	2.00 H	71	57.35	2.16
4	26428.93	46.61 AV	54.00	-7.39	2.00 H	205	44.45	2.16
5	29053.53	59.60 PK	74.00	-14.40	2.00 H	203	58.03	1.57
6	29053.53	46.74 AV	54.00	-7.26	2.00 H	286	45.17	1.57

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.

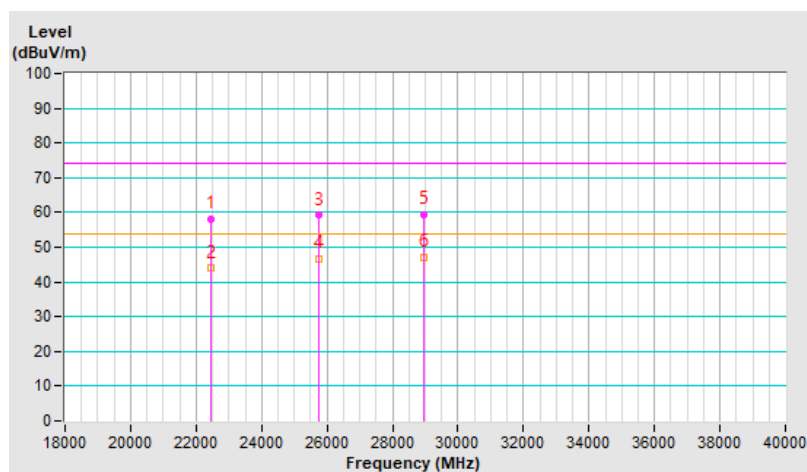


Frequency Range	18 GHz ~ 40 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	5 Vdc from host	Environmental Conditions	24°C, 77% RH
Tested By	Eagle Chen		

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	22440.33	57.94 PK	74.00	-16.06	1.00 V	10	57.82	0.12
2	22440.33	43.91 AV	54.00	-10.09	1.00 V	324	43.79	0.12
3	25754.27	59.16 PK	74.00	-14.84	2.00 V	309	56.76	2.40
4	25754.27	46.52 AV	54.00	-7.48	2.00 V	46	44.12	2.40
5	28965.53	59.42 PK	74.00	-14.58	1.00 V	224	57.61	1.81
6	28965.53	46.97 AV	54.00	-7.03	1.00 V	355	45.16	1.81

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

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 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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