

TEST REPORT

CERTIFICATE OF CONFORMITY

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

Report No.: FDBGTL-WTW-P22050889A

FCC ID: APYHRO00320

Received Date: 2022/8/26

Test Date: 2022/9/3 ~ 2022/9/4

Issued Date: 2022/10/6

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FCC Registration /

Designation Number: 328930 / TW1050

Approved by: _____



Mart Su / Manager

Date: _____

2022/10/6

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Prepared by : Jessie Kuo / Specialist



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Release Control Record

Issue No.	Description	Date Issued
FDBGTL-WTW-P22050889A	Original release.	2022/10/6

1 Certificate

Product: Cellular Phone

Brand: SHARP

FCC ID: APYHRO00320

Sample Status: Engineering sample

Applicant: SHARP Corporation Mobile Communication BU

Test Date: 2022/9/3 ~ 2022/9/4

Standard: 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 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 -17.99 dB at 0.18519 MHz
FCC Part 15.109	Radiated Emissions up to 1 GHz	Pass	Minimum passing Class B margin is -2.33 dB at 69.34 MHz
FCC Part 15.109	Radiated Emissions above 1 GHz	Pass	Minimum passing Class B margin is -14.51 dB at 7295.75 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	2.79 dB	3.4 dB (U_{CISPR})
Radiated Emissions up to 1 GHz	30 MHz ~ 1 GHz	4.14 dB	6.3 dB (U_{CISPR})
Radiated Emissions above 1 GHz	1 GHz ~ 6 GHz	5.09 dB	5.2 dB (U_{CISPR})
	6 GHz ~ 18 GHz	5.10 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	Cellular Phone
Brand	SHARP
FCC ID	APYHRO00320
Sample Status	Engineering sample
Operating Software	N/A
Power Supply Rating	3.8 Vdc (Battery) 5 V dc (Adapter)
Accessory Device	Refer to Note
Data Cable Supplied	N/A

Note:

- The purpose of this test report is to apply for Class II Permissive Change with new SKU based on the BV CPS report #: FDBGTL-WTW-P22050889. The new SKU compared with original report are minor HW components differences and added one more new accessory. Please refer to the operational description for detailed differences information.
- All sample are listed as below.

Sample	Memory	Main PCB	Acceleration sensor	CC detection IC	Main LCD	Battery
A	Supplier A	Supplier A	Supplier A Model-1	Supplier A	Supplier A Model-1	Supplier A
B	Supplier B	Supplier B	Supplier A Model-2	Supplier B	Supplier A Model-2	Supplier A
C	Supplier C	Supplier A	Supplier A Model-1	Supplier A	Supplier A Model-1	Supplier A

*The EUT is on the Sample A, B, C has been Radiated Emission pre-tested, and Sample A was the worst case for final test.

- The EUT uses following accessories.

AC Adapter (Support unit)		
Brand	Model	Specification
Salom	XN-2QC25	AC Input : 100-240V , 50/60Hz , 0.2A DC Output : 5.0V / 800mA Plug : US Type
USB Cable (Support unit)		
Brand	Model	Specification
Luxshare-ICT	L6KU2007-CS-H	Signal Line : 0.95m Shielding cable without core
Cradle		
Brand	Model	Specification
Supplier A	Supplier A	-

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 2.4 GHz, provided by SHARP Corporation Mobile Communication BU, 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 SHARP Corporation Mobile Communication BU, 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	Sample	Conducted Emissions from Power Ports
1	A	GSM 1900 Link + WLAN 2.4G Link + GPS Rx + BT Link + Adapter
2	A	GSM 1900 Link + WLAN 2.4G Link + Camera REC + BT Link + Adapter
3	A	GSM 1900 Link + WLAN 2.4G Link + Play Video + BT Link + Adapter
4	A	GSM 1900 Idle + WLAN 2.4G Link + BT Link + NB Link
5	A	GSM 1900 Link + WLAN 2.4G Link + BT Link + Cradle

Notes:

1. There are both AC 120V/60Hz and AC 240V/60Hz to be pre-tested then AC 120V/60Hz has the highest emission value.

2. The worst case is that mode 3 is shown in bold.

Mode	Sample	Radiated Emissions up to 1 GHz
1	A	GSM 1900 Link + WLAN 2.4G Link + GPS Rx + BT Link + Adapter
2	A	GSM 1900 Link + WLAN 2.4G Link + Camera REC + BT Link + Adapter
3	A	GSM 1900 Link + WLAN 2.4G Link + Play Video + BT Link + Adapter
4	A	GSM 1900 Idle + WLAN 2.4G Link + BT Link + NB Link
5	A	GSM 1900 Idle + WLAN 2.4G Link + BT Link + Cradle
6	A	GSM 1900 Idle + WLAN 2.4G Link + BT Link + NB Link + X Axis
7	A	GSM 1900 Idle + WLAN 2.4G Link + BT Link + NB Link + Y Axis

Note: The worst case is that mode 4 is shown in bold.

Test modes are presented in the report as below.

Test Condition		
Mode	Sample	Conducted Emissions from Power Ports
-	A	GSM 1900 Link + WLAN 2.4G Link + Play Video + BT Link + Adapter
Mode	Sample	Radiated Emissions up to 1 GHz
-	A	GSM 1900 Idle + WLAN 2.4G Link + BT Link + NB Link
Mode	Sample	Radiated Emissions above 1 GHz
-	A	GSM 1900 Idle + WLAN 2.4G Link + BT Link + NB Link

3.5 Test Program Used and Operation Descriptions

For Radiated Emission test

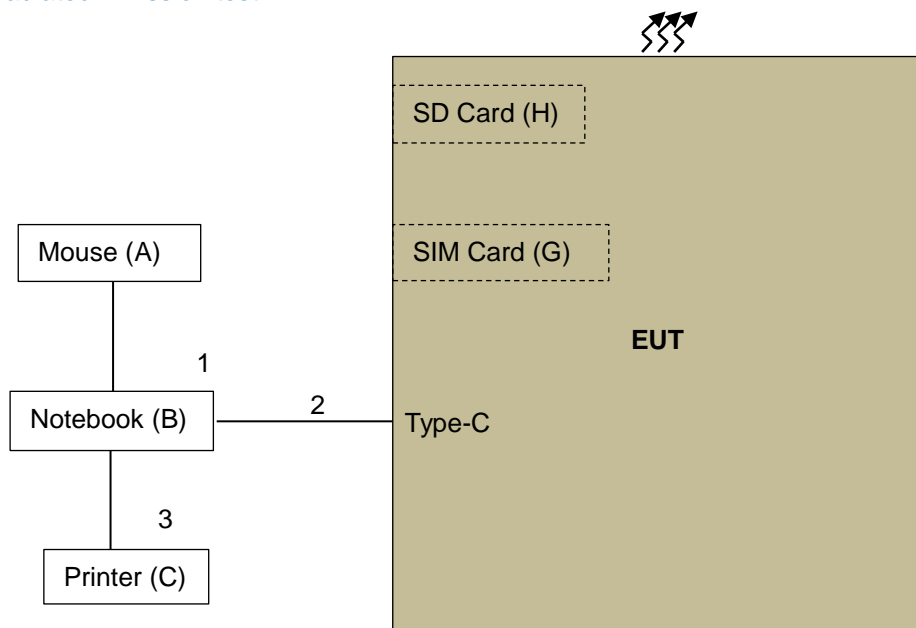
- The EUT is connected to the Notebook via USB cable.
- The EUT powered by the Notebook.
- The EUT communicated data with the Radio Communication Analyzer / Wireless AP / Bluetooth Earphone, which acted as communication partners
- Notebook performed read and wrote function with EUT via USB.

For Conduction Emission test

- The EUT powered by the Adapter
- The EUT communicated data with the Radio Communication Analyzer / Wireless AP / Bluetooth Earphone, which acted as communication partners
- The EUT play mp4.

3.6 Connection Diagram of EUT and Peripheral Devices

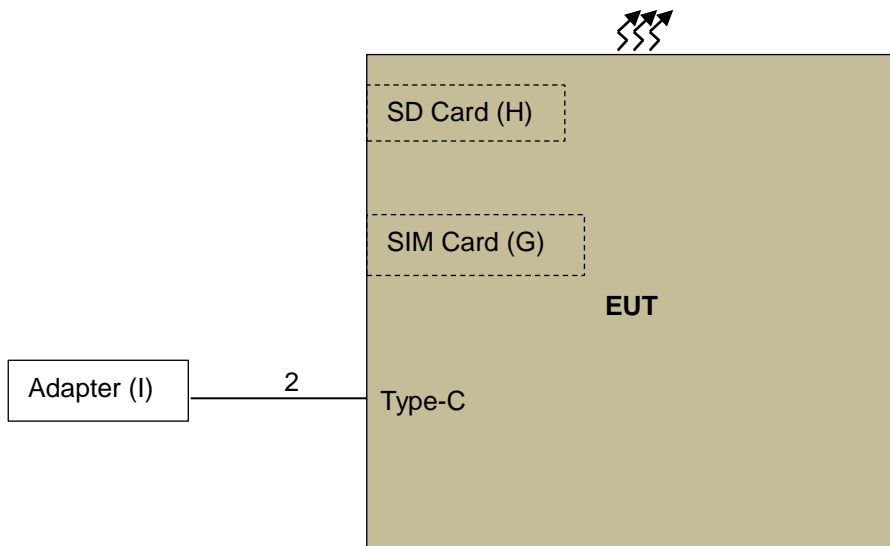
For Radiated Emission test



Remote Site



For Conduction Emission test



Remote Site



3.7 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Mouse	DELL	MOCZUL	CN-049TWY- PRC00-79E-02FW	FCC DoC Approved	--
B	Notebook	DELL	Latitude 5501	F42VP13	FCC DoC Approved	--
C	Printer	EPSON	T22	MEEZ070220	FCC DoC Approved	--
D	Radio Communication Analyzer	Anritsu	MT8820C	6201240432	N/A	--
E	D-LINK DIR-826L 11a/n USB 1000M Router	D-LINK	DIR826L	QBQ91C9000416	N/A	--
F	BT Earphone	Buffalo	BSHSBE22BK	A40303	N/A	--
G	SIM Card	R&S	N/A	N/A	N/A	--
H	SD Card	Sandisk	64GB	N/A	N/A	--
I	Adapter	Salom	XN-2QC25	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB Cable	1	1.8	Yes	0	--
2	USB Cable	1	0.95	Yes	0	Supplied by applicant
3	USB Cable	1	1.8	Yes	0	--

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
DC-LISN SCHWARZBECK MESS- ELETRONIK	NNBM 8126G	8126G-069	2021/11/10	2022/11/9
LISN R&S	ESH3-Z5	100311	2021/9/7	2022/9/6
LISN ROHDE & SCHWARZ	ENV216	101826	2022/3/14	2023/3/13
LISN Schwarzbeck	NNLK 8121	8121-731	2022/5/26	2023/5/25
RF Coaxial Cable WOKEN	5D-FB	Cable-cond1-01	2022/1/15	2023/1/14
Software BVADT	BVADT_Cond_ V7.3.7.4	N/A	N/A	N/A
Test Receiver Rohde&Schwarz	ESCI	100613	2021/12/3	2022/12/2

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2022/9/4

4.2 Radiated Emissions up to 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower (H)	MFA-440	970705	N/A	N/A
Antenna Tower (V)	MFA-440	9707	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB9168	9168-148	2021/10/19	2022/10/18
		9168-156	2021/10/19	2022/10/18
Controller (H)	MF7802	08093	N/A	N/A
Controller (V)	MF7802	074	N/A	N/A
Pre_Amplifier Sonoma	310N	352923	2022/5/14	2023/5/13
		352924	2022/5/14	2023/5/13
RF Coaxial Cable TIMES	LMR-600(11.8M)+LMR- 400 (7M)	CABLE-CH1(HOR)-01	2021/9/4	2022/9/3
	LMR-600(18M)+LMR-400 (7M)	CABLE-CH1(VER)-01	2021/9/4	2022/9/3
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Test Receiver ESR7 R&S	ESR	101240	2021/11/3	2022/11/2
	ESR	101264	2022/4/11	2023/4/10
Turn Table	DS430	50303	N/A	N/A

Notes:

1. The test was performed in HY - 10M Chamber.
2. The test site validated date: 2022/8/7 (NSA)
3. Tested Date: 2022/9/3

4.3 Radiated Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower BVADT	AT100	AT93021702	N/A	N/A
Attenuator Mini-Circuits	BW-K3-2W44+	PAD-CH3-04	2022/7/9	2023/7/8
	BW-N4W5+	PAD-CH3-03	2022/7/9	2023/7/8
BandPass Filter MICRO-TRONICS	BRM17690-01	002	2021/9/4	2022/9/3
	BRM50716-01	G010	2021/9/4	2022/9/3
Boresight antenna tower fixture BV	BAF-02	3	N/A	N/A
Controller BVADT	SC100	SC93021702	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120 D	209	2021/11/14	2022/11/13
	BBHA 9170	BBHA9170241	2021/10/26	2022/10/25
N9030B - PXA Signal Analyzer KEYSIGHT	N9030B	MY60070562	2022/1/6	2023/1/5
Pre_Amplifier Agilent	8449B	3008A02465	2022/3/19	2023/3/18
Pre_Amplifier EMCI	EMC184045SE	980856	2021/11/22	2022/11/21
RF Coaxial Cable EMCI	EMC102-KM-KM-1000	200311	2022/7/9	2023/7/8
	EMC102-KM-KM-3000	200313	2022/7/9	2023/7/8
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104&EMC104-SM-SM- 8000	Cable-CH3- 03(309224+170907)	2022/7/9	2023/7/8
Software BVADT	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Turn Table BVADT	TT100	TT93021702	N/A	N/A

Notes:

1. The test was performed in HY - 966 Chamber 2.
2. The test site validated date: 2022/5/21 (VSWR)
3. Tested Date: 2022/9/3

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, 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 (dB μ 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				
960-1000	60.0	54.0	57.5	47.5

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 μ V/m)		
Frequency range	Class A	Class B
Above 1GHz	Avg: 60 Peak: 80	Avg: 54 Peak: 74

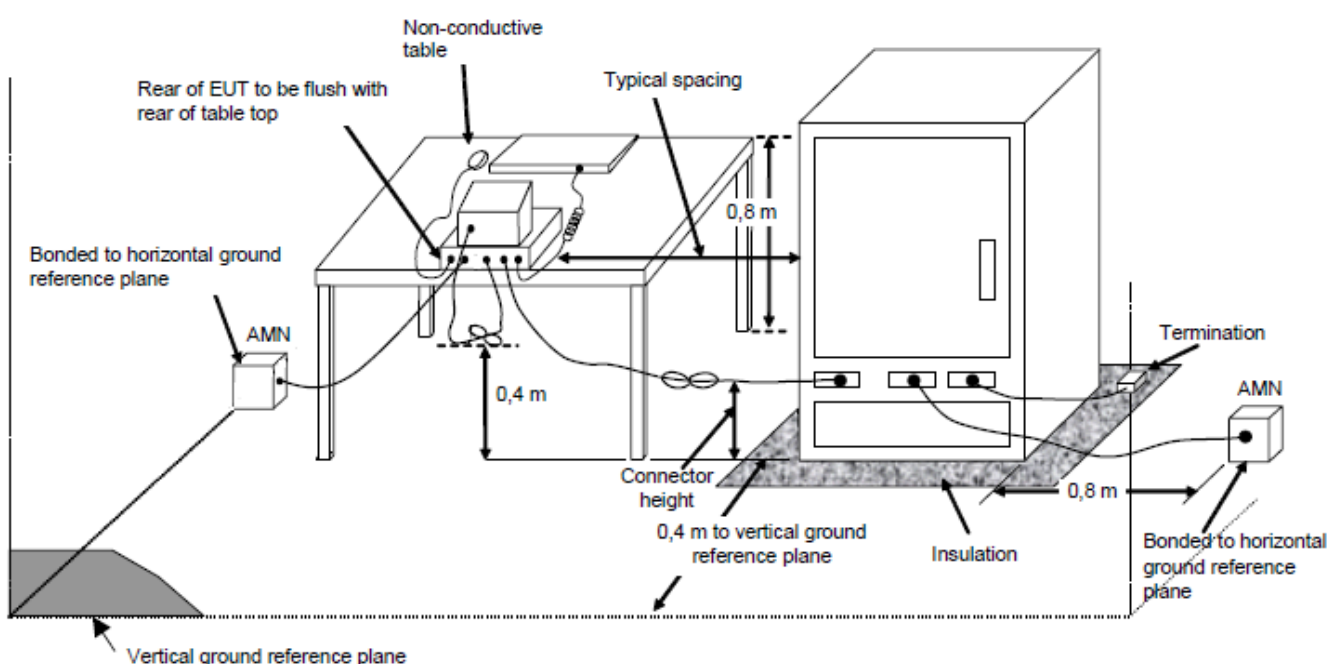
Notes: 1. These limit levels apply for a measurement distance of 3 m. If using a different measurement distance, the measured levels shall be extrapolated to the 3 m limit distance using a factor of 20 dB per decade of distance. The measurement distance shall place the measurement antenna in the far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

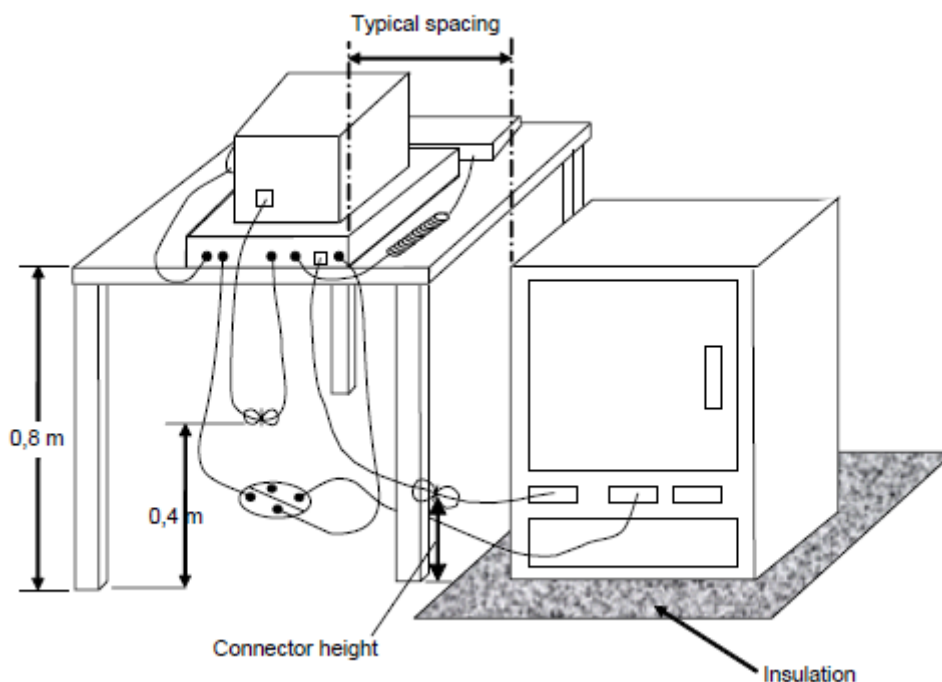


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

6.2 Radiated Emissions up to 1 GHz

- a. 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.
- 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.

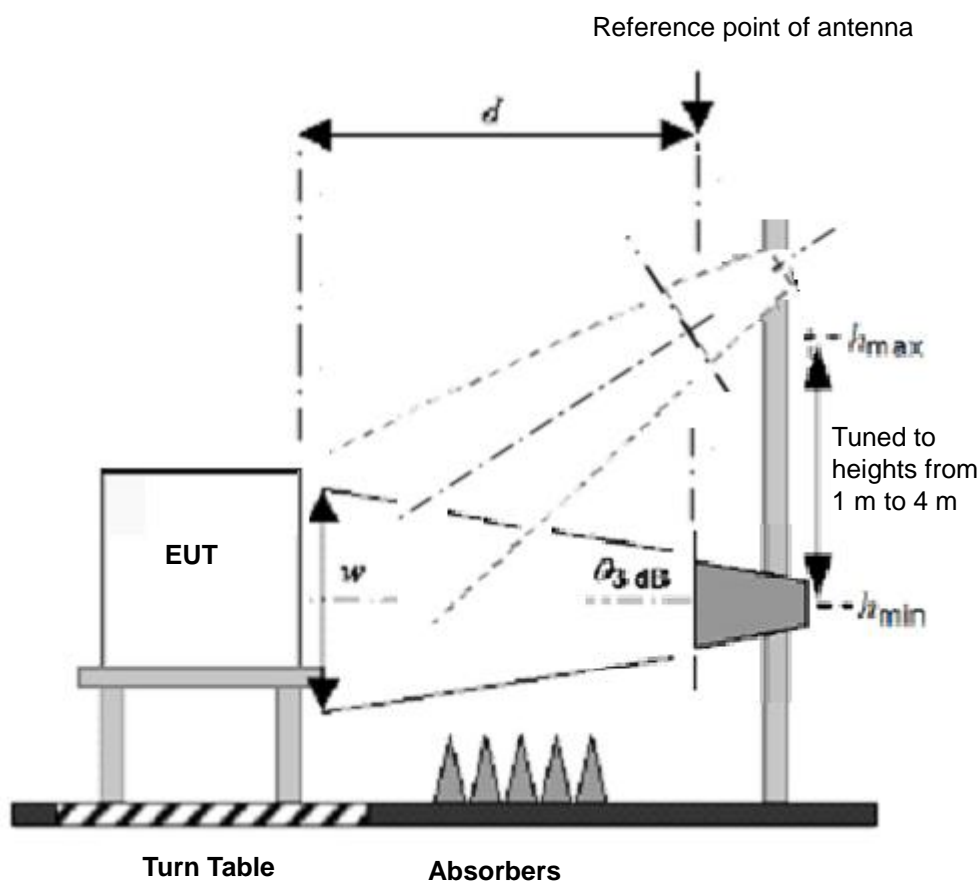


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

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 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 for 1 GHz to 18 GHz and $d = 1.5$ meters for 18 GHz to 40 GHz 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

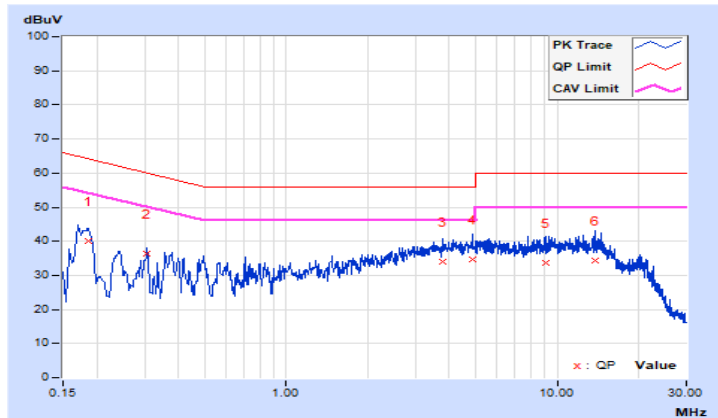
7.1 Conducted Emissions from Power Ports

Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 66% RH
Tested by	Scott 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	0.18519	9.71	30.26	26.55	39.97	36.26	64.25	54.25	-24.28	-17.99
2	0.30600	9.76	26.69	14.92	36.45	24.68	60.08	50.08	-23.63	-25.40
3	3.77400	9.94	23.94	14.92	33.88	24.86	56.00	46.00	-22.12	-21.14
4	4.89400	9.97	24.81	15.26	34.78	25.23	56.00	46.00	-21.22	-20.77
5	9.07800	10.04	23.61	14.14	33.65	24.18	60.00	50.00	-26.35	-25.82
6	13.77800	10.10	24.32	13.49	34.42	23.59	60.00	50.00	-25.58	-26.41

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

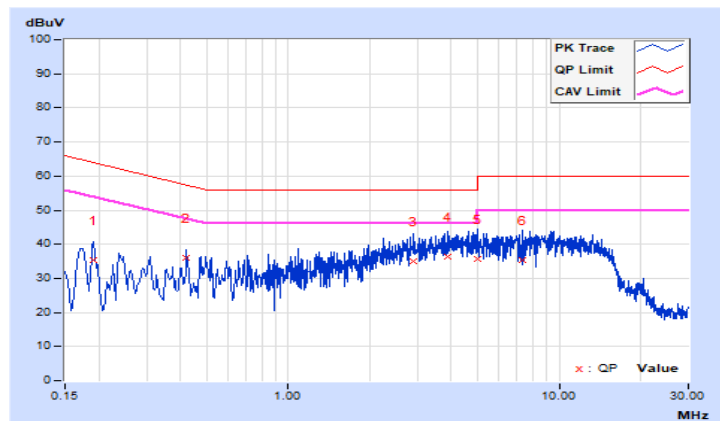


Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 66% RH
Tested by	Scott Yang		

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	0.19000	9.71	25.77	11.02	35.48	20.73	64.04	54.04	-28.56	-33.31
2	0.42200	9.81	26.07	15.93	35.88	25.74	57.41	47.41	-21.53	-21.67
3	2.89800	9.94	25.09	15.31	35.03	25.25	56.00	46.00	-20.97	-20.75
4	3.87800	9.97	26.28	16.72	36.25	26.69	56.00	46.00	-19.75	-19.31
5	5.02600	9.99	25.74	16.49	35.73	26.48	60.00	50.00	-24.27	-23.52
6	7.35000	10.02	25.44	15.09	35.46	25.11	60.00	50.00	-24.54	-24.89

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



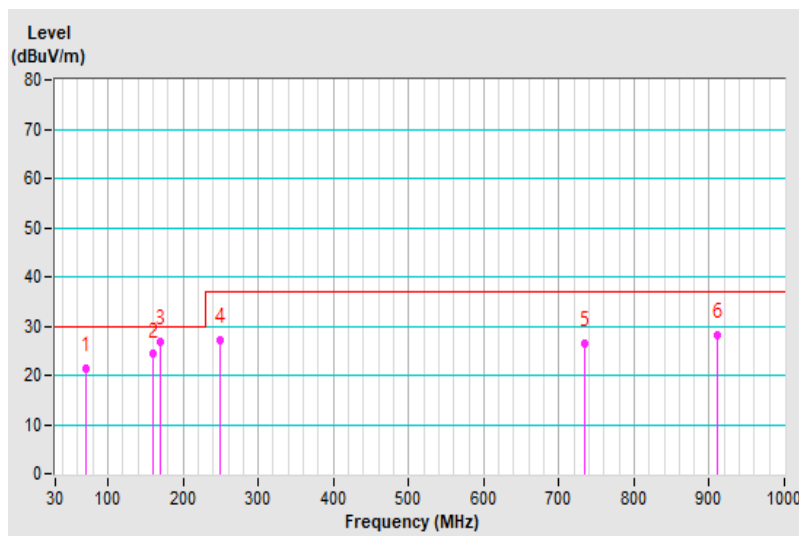
7.2 Radiated Emissions up to 1 GHz

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 73% RH
Tested By	Slash Huang		

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	71.08	21.39 QP	30.00	-8.61	3.00 H	225	36.75	-15.36
2	159.06	24.26 QP	30.00	-5.74	4.00 H	252	37.49	-13.23
3	169.10	26.95 QP	30.00	-3.05	4.00 H	251	40.64	-13.69
4	249.86	27.07 QP	37.00	-9.93	3.50 H	34	41.24	-14.17
5	735.18	26.53 QP	37.00	-10.47	2.00 H	35	29.13	-2.60
6	911.05	28.12 QP	37.00	-8.88	3.00 H	268	27.70	0.42

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

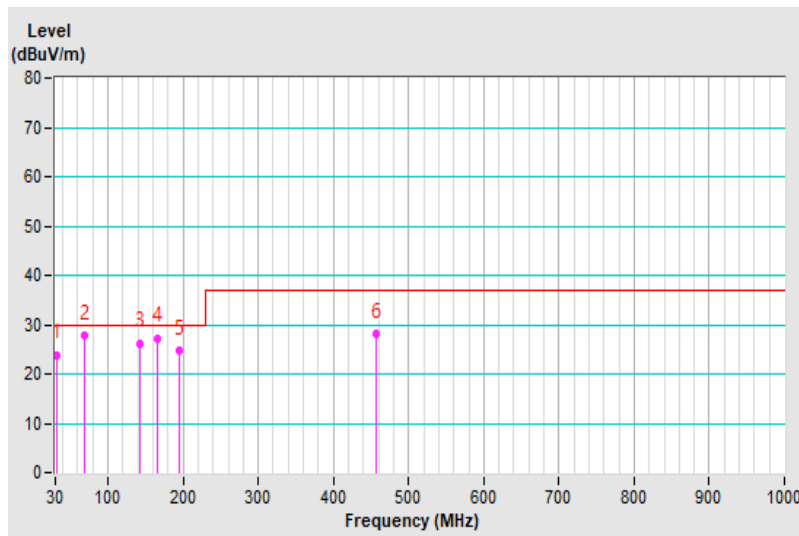


Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 73% RH
Tested By	Slash Huang		

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	31.31	23.79 QP	30.00	-6.21	1.50 V	284	38.88	-15.09
2	69.34	27.67 QP	30.00	-2.33	1.00 V	193	43.14	-15.47
3	142.62	26.22 QP	30.00	-3.78	1.50 V	255	39.81	-13.59
4	166.44	27.05 QP	30.00	-2.95	1.00 V	24	40.50	-13.45
5	194.08	24.64 QP	30.00	-5.36	1.00 V	152	40.52	-15.88
6	456.24	28.05 QP	37.00	-8.95	4.00 V	315	35.92	-7.87

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



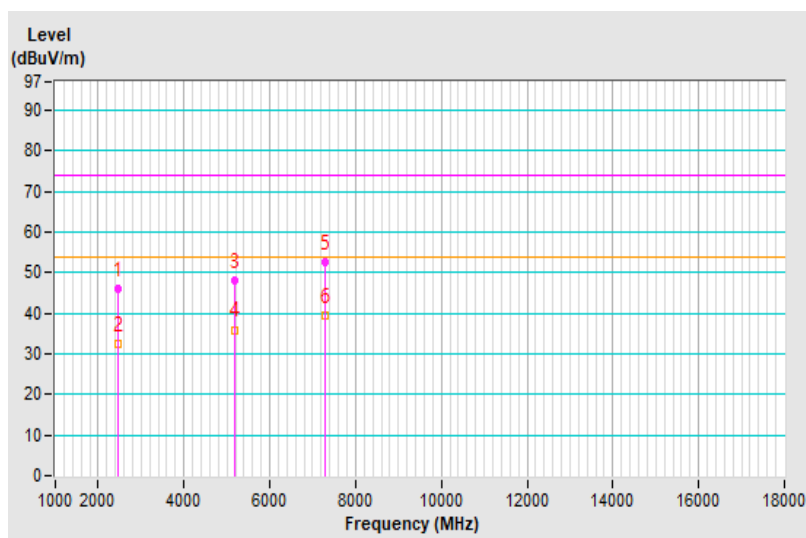
7.3 Radiated Emissions above 1 GHz

Frequency Range	1GHz ~ 18GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 74% RH
Tested By	Kai Chu		

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	2469.95	46.07 PK	74.00	-27.93	1.90 H	12	46.46	-0.39
2	2469.95	32.47 AV	54.00	-21.53	1.90 H	12	32.86	-0.39
3	5192.20	47.88 PK	74.00	-26.12	1.00 H	103	42.30	5.58
4	5192.20	35.96 AV	54.00	-18.04	1.00 H	103	30.38	5.58
5	7295.75	52.64 PK	74.00	-21.36	1.94 H	147	41.02	11.62
6	7295.75	39.49 AV	54.00	-14.51	1.94 H	147	27.87	11.62

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

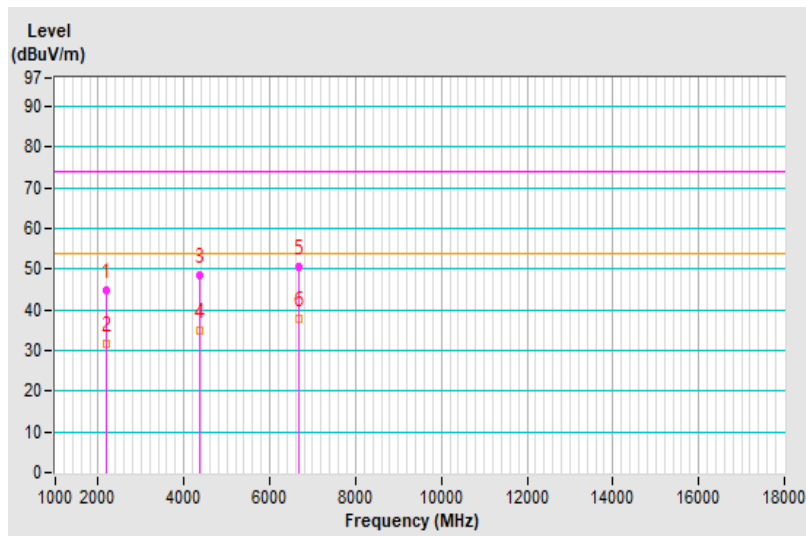


Frequency Range	1GHz ~ 18GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 74% RH
Tested By	Kai Chu		

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	2180.90	44.85 PK	74.00	-29.15	2.07 V	331	43.45	1.40
2	2180.90	31.66 AV	54.00	-22.34	2.07 V	331	30.26	1.40
3	4368.30	48.61 PK	74.00	-25.39	1.44 V	357	44.37	4.24
4	4368.30	34.74 AV	54.00	-19.26	1.44 V	357	30.50	4.24
5	6686.35	50.45 PK	74.00	-23.55	1.92 V	294	40.77	9.68
6	6686.35	37.86 AV	54.00	-16.14	1.92 V	294	28.18	9.68

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

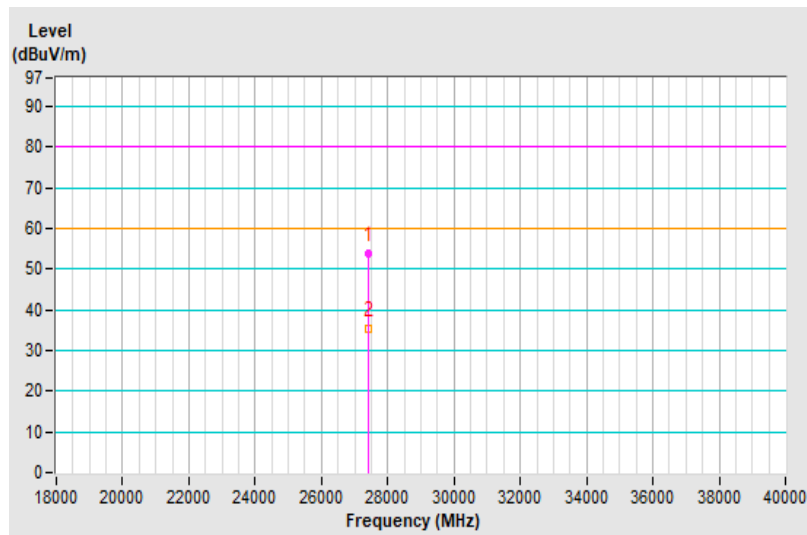


Frequency Range	18GHz ~ 40GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 74% RH
Tested By	Kai Chu		

Antenna Polarity & Test Distance : Horizontal at 1.5 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	27433.96	53.64 PK	80.00	-26.36	1.24 H	354	54.44	-0.80
2	27433.96	35.18 AV	60.00	-24.82	1.24 H	354	35.98	-0.80

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

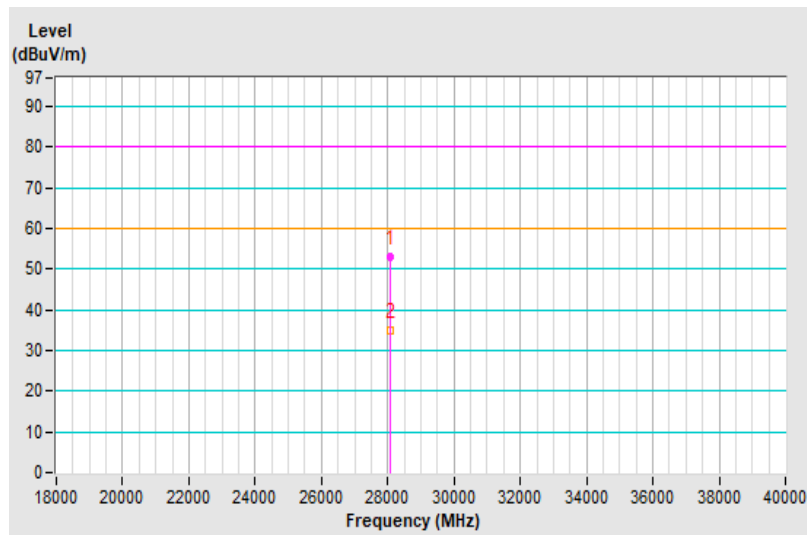


Frequency Range	18GHz ~ 40GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 74% RH
Tested By	Kai Chu		

Antenna Polarity & Test Distance : Vertical at 1.5 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	28081.32	52.83 PK	80.00	-27.17	1.00 V	81	53.38	-0.55
2	28081.32	35.06 AV	60.00	-24.94	1.00 V	81	35.61	-0.55

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 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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