

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.: FDBEIQ-WTW-P25060179

Product: Smart phone

Brand: SHARP

FCC ID: APYHRO00339

Received Date: 2025/6/25

Test Date: 2025/7/19 ~ 2025/7/23

Issued Date: 2025/9/2

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FCC Registration /

Designation Number: 328930 / TW1050

Leo Hsu

Approved by: _____, **Date:** 2025/9/2
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Prepared by : Gina Liu / Specialist

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Release Control Record

Issue No.	Description	Date Issued
FDBEIQ-WTW-P25060179	Original release.	2025/9/2

1 Certificate

Product: Smart phone

Brand: SHARP

FCC ID: APYHRO00339

Sample Status: DVT

Applicant: SHARP Corporation Mobile Communication BU

Test Date: 2025/7/19 ~ 2025/7/23

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 -13.52 dB at 0.57798 MHz
FCC Part 15.109	Radiated Emissions up to 1 GHz	Pass	Minimum passing Class B margin is -5.24 dB at 30.00 MHz
FCC Part 15.109	Radiated Emissions above 1 GHz	Pass	Minimum passing Class B margin is -17.98 dB at 5823.63 MHz

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

2.1 Measurement Uncertainty

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

Measurement	Specification	Expanded Uncertainty (k=2) (±)	Maximum allowable uncertainty (±)
Conducted Emissions from Power Ports	9 kHz ~ 30 MHz	2.90 dB	3.4 dB (U_{CISPR})
Radiated Emissions up to 1 GHz	30 MHz ~ 1 GHz	4.24 dB	6.3 dB (U_{CISPR})
Radiated Emissions above 1 GHz	1 GHz ~ 6 GHz	4.84 dB	5.2 dB (U_{CISPR})
	6 GHz ~ 18 GHz	4.82 dB	5.5 dB (U_{CISPR})
	18 GHz ~ 40 GHz	4.52 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	Smart phone
Brand	SHARP
FCC ID	APYHRO00339
Sample Status	DVT
Power Supply Rating	Refer to Note

Note:

1. The EUT uses following accessories.

Item	Brand	Model	Description
Battery (Contain in Smart phone)	-	-	Power Rating: 3.89V, Rated 4950mAh (19.3Wh), Typ. 5000mAh(19.5Wh)
AC Charger (Support unit)	DSA	10PF06-05 FUS	AC Input: 100-240V, 50/60Hz, 0.3A DC Output: 5.0V===2 A, 10.0W Manufacturer: DEE VAN ENTERPRISE CO. LTD
Data Cable (Type C Cable) (Support unit)	Kingpower	K201-05130-00	Signal Line: 1M
Headset (Support unit)	Ambibio	AB-HI02JS	Signal Line: 1.14M

2. All Sample are listed as below.

	Sample		UFS/DDR Memory	Main PCB	Ant PCB	Fingerprint FPC	KeyFPC	OLED FPC	Fingerprint module	50M Wide camera	Battery	CAB
1st source	(A)	128GB UFS + 6GB LPDDR4X	1st: Samsung	1st: Tripod	1st: Kinwong	1st: AKM	1st: AKM	1st: AKM	1st: MCNEX ACF: TCM5000UZ7-25	1st: MTK	1st: JSCJ	1st: HUAMAO
2nd source	(B)		2nd: Micron	2nd: CMK	2nd: Multek	2nd: Long shine	2nd: Multek	2nd: Multek	2nd: MCNEX ACF: TSB20522F-25CT	2nd: S&L	2nd: AOS	2st: LINK
3rd source	(C)		3rd:SK Hynix	(1st: Tripod)	(1st: Kinwong)	(1st: AKM)	1st: AKM	1st: AKM	1st: MCNEX ACF: TCM5000UZ7-25	1st: MTK	1st: JSCJ	1st: HUAMAO
1st source	(a)	256GB UFS + 8GB LPDDR4X	1st: Samsung	1st: Tripod	1st: Kinwong	1st: AKM	1st: AKM	1st: AKM	1st: MCNEX ACF: TCM5000UZ7-25	1st: MTK	1st: JSCJ	1st: HUAMAO
2nd source	(b)		2nd: Micron	2nd: CMK	2nd: Multek	2nd: Long shine	2nd: Multek	2nd: Multek	2nd: MCNEX ACF: TSB20522F-25CT	2nd: S&L	2nd: AOS	2st: LINK

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 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	Conducted Emissions from Power Ports
1	Sample(A) + WWAN(LTE Band 2 Link) + WLAN(2.4GHz Link) + BT(Link) + GPS Rx + USB Cable + Adapter + Sim card
2	Sample(A) + WWAN(LTE Band 5 Link) + WLAN(5GHz Link) + BT(Link) + Front Camera + USB Cable + Adapter + Sim card
3	Sample(A) + WWAN(LTE Band 38 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + Sim card
4	Sample(A) + WWAN(LTE Band 41 Link) + WLAN(2.4GHz Link) + BT(Link) + Color bar + USB Cable + Adapter + Sim card
5	Sample(A) + WWAN(GSM 850 Link) + WLAN(2.4GHz Link) + BT(Link) + NFC Link + USB Cable + NB Link + Sim card
6	Sample(A) + WWAN(WCDMA Band 2 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + Sim card
7	Sample(A) + WWAN(LTE Band 38 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + e-Sim
8	Sample(A) + WWAN(GSM 850 Rx (Low Channel)) + USB Cable + Adapter + Sim card
9	Sample(A) + WWAN(GSM 850 Rx (Middle Channel)) + USB Cable + Adapter + Sim card
10	Sample(A) + WWAN(GSM 850 Rx (High Channel)) + USB Cable + Adapter + Sim card
11	Sample(A) + WWAN(WCDMA B5 Rx (Low Channel)) + USB Cable + Adapter + Sim card
12	Sample(A) + WWAN(WCDMA B5 Rx (Middle Channel)) + USB Cable + Adapter + Sim card
13	Sample(A) + WWAN(WCDMA B5 Rx (High Channel)) + USB Cable + Adapter + Sim card
14	Sample(A) + WWAN(LTE B5 Rx (Low Channel)) + USB Cable + Adapter + Sim card
15	Sample(A) + WWAN(LTE B5 Rx (Middle Channel)) + USB Cable + Adapter + Sim card
16	Sample(A) + WWAN(LTE B5 Rx (High Channel)) + USB Cable + Adapter + Sim card
17	Sample(A) + WWAN(LTE B12 Rx (Low Channel)) + USB Cable + Adapter + Sim card
18	Sample(A) + WWAN(LTE B12 Rx (Middle Channel)) + USB Cable + Adapter + Sim card
19	Sample(A) + WWAN(LTE B12 Rx (High Channel)) + USB Cable + Adapter + Sim card
20	Sample(A) + WWAN(LTE B17 Rx (Low Channel)) + USB Cable + Adapter + Sim card
21	Sample(A) + WWAN(LTE B17 Rx (Middle Channel)) + USB Cable + Adapter + Sim card
22	Sample(A) + WWAN(LTE B17 Rx (High Channel)) + USB Cable + Adapter + Sim card
23	Sample(A) + WWAN(LTE Band 38 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + Sim card + X Axis
24	Sample(A) + WWAN(LTE Band 38 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + Sim card + Y Axis

Notes:

1. There are both AC 240V/60Hz and AC 120V/60Hz to be pre-tested then AC 120V/60Hz has the highest emission value.
2. There are both standby mode and normal mode to be pre-tested then normal mode has the highest emission value.
3. The worst case is mode 3 shown in bold.

Mode	Radiated Emissions up to 1 GHz
1	Sample(A) + WWAN(LTE Band 2 Link) + WLAN(2.4GHz Link) + BT(Link) + GPS Rx + USB Cable + Adapter + Sim card
2	Sample(B) + WWAN(LTE Band 2 Link) + WLAN(2.4GHz Link) + BT(Link) + GPS Rx + USB Cable + Adapter + Sim card
3	Sample(C) + WWAN(LTE Band 2 Link) + WLAN(2.4GHz Link) + BT(Link) + GPS Rx + USB Cable + Adapter + Sim card
4	Sample(a) + WWAN(LTE Band 2 Link) + WLAN(2.4GHz Link) + BT(Link) + GPS Rx + USB Cable + Adapter + Sim card
5	Sample(b) + WWAN(LTE Band 2 Link) + WLAN(2.4GHz Link) + BT(Link) + GPS Rx + USB Cable + Adapter + Sim card
6	Sample(a) + WWAN(LTE Band 5 Link) + WLAN(5GHz Link) + BT(Link) + Front Camera + USB Cable + Adapter + Sim card
7	Sample(a) + WWAN(LTE Band 38 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + Sim card
8	Sample(a) + WWAN(LTE Band 41 Link) + WLAN(2.4GHz Link) + BT(Link) + Color bar + Earphone + Sim card
9	Sample(a) + WWAN(GSM 850 Link) + WLAN(2.4GHz Link) + BT(Link) + NFC Link + USB Cable + NB Link + Sim card
10	Sample(a) + WWAN(WCDMA Band 2 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + Sim card
11	Sample(a) + WWAN(LTE Band 38 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + e-Sim
12	Sample(a) + WWAN(GSM 850 Rx (Low Channel)) + USB Cable + Adapter + Sim card
13	Sample(a) + WWAN(GSM 850 Rx Middle Channel)) + USB Cable + Adapter + Sim card
14	Sample(a) + WWAN(GSM 850 Rx (High Channel)) + USB Cable + Adapter + Sim card
15	Sample(a) + WWAN(WCDMA B5 Rx (Low Channel)) + USB Cable + Adapter + Sim card
16	Sample(a) + WWAN(WCDMA B5 Rx (Middle Channel)) + USB Cable + Adapter + Sim card
17	Sample(a) + WWAN(WCDMA B5 Rx (High Channel)) + USB Cable + Adapter + Sim card
18	Sample(a) + WWAN(LTE B5 Rx (Low Channel)) + USB Cable + Adapter + Sim card
19	Sample(a) + WWAN(LTE B5 Rx Middle Channel)) + USB Cable + Adapter + Sim card
20	Sample(a) + WWAN(LTE B5 Rx (High Channel)) + USB Cable + Adapter + Sim card
21	Sample(a) + WWAN(LTE B12 Rx (Low Channel)) + USB Cable + Adapter + Sim card
22	Sample(a) + WWAN(LTE B12 Rx Middle Channel)) + USB Cable + Adapter + Sim card
23	Sample(a) + WWAN(LTE B12 Rx (High Channel)) + USB Cable + Adapter + Sim card
24	Sample(a) + WWAN(LTE B17 Rx (Low Channel)) + USB Cable + Adapter + Sim card
25	Sample(a) + WWAN(LTE B17 Rx Middle Channel)) + USB Cable + Adapter + Sim card
26	Sample(a) + WWAN(LTE B17 Rx (High Channel)) + USB Cable + Adapter + Sim card
27	Sample(a) + WWAN(LTE Band 38 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + Sim card + X Axis
28	Sample(a) + WWAN(LTE Band 38 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + Sim card + Y Axis

Notes:

1. There are both standby mode and normal mode to be pre-tested then normal mode has the highest emission value.
2. The worst case is mode 7 shown in bold.

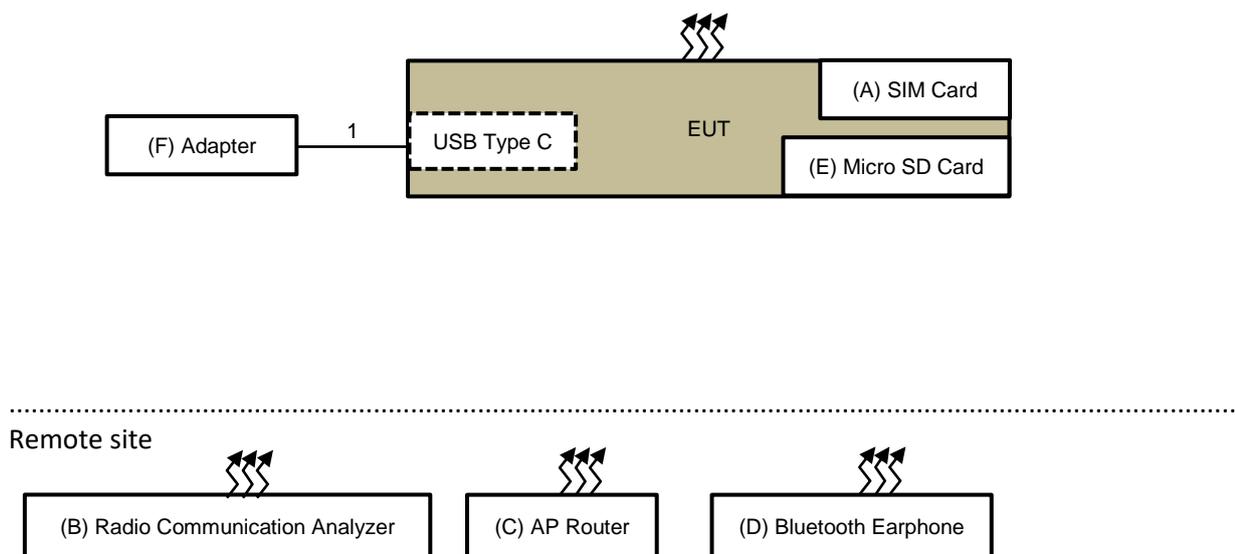
Test modes are presented in the report as below.

Test Condition	
Mode	Conducted Emissions from Power Ports
A	Sample(A) + WWAN(LTE Band 38 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + Sim card
Mode	Radiated Emissions up to 1 GHz
A	Sample(a) + WWAN(LTE Band 38 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + Sim card
Mode	Radiated Emissions above 1 GHz
A	Sample(a) + WWAN(LTE Band 38 Link) + WLAN(2.4GHz Link) + BT(Link) + Back Camera + USB Cable + Adapter + Sim card

3.5 Test Program Used and Operation Descriptions

- The EUT was charged from adapter.
- The EUT linked with Bluetooth Earphone.
- The EUT communicated data with the Radio Communication Analyzer / AP router which acted as a communication partner.
- The EUT Camera was activated.

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	SIM Card	R&S	CMW-Z05	N/A	N/A	Provided by Lab
B	Radio Communication Analyzer	Anritsu	MT8820C	6201010284	N/A	Provided by Lab
C	AP Router	ASUS	GT-AXE 11000	N/A	N/A	Provided by Lab
D	Bluetooth Earphone	ELECOM	LBT-MPHS400	N/A	N/A	Provided by Lab
E	Micro SD Card	Sandisk	8GB	N/A	N/A	Provided by Lab
F	Adapter	DSA	10PF06-05 FUS	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB Type C	1	1	Yes	0	Supplied by applicant

4 Test Instruments

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

4.1 Conducted Emissions from Power Ports

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal resistance	E1-011279	04	2024/11/28	2025/11/27
	E1-011280	05	2024/11/28	2025/11/27
	E1-011311	09	2024/11/28	2025/11/27
DC-LISN Schwarzbeck	NNBM 8126G	8126G-069	2024/11/5	2025/11/4
Diode Pulse Limiter Schwarzbeck	VTSD 9561 F-N	01617	2025/4/27	2026/4/26
EMI Test Receiver R&S	ESR3	102783	2024/12/17	2025/12/16
LISN R&S	ESH2-Z5	100100	2025/3/5	2026/3/4
	ESH3-Z5	100312	2024/9/9	2025/9/8
RF Coaxial Cable Woken	5D-FB	Cable-cond2-01	2024/8/25	2025/8/24
Software BVADT	BVADT_Cond_ V7.4.1.0	N/A	N/A	N/A
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2024/8/28	2025/8/27

Notes:

1. The test was performed in HY - Conduction 2.
2. The VCCI Site Registration No. is C-12047.
3. Tested Date: 2025/7/23

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	VULB 9168	9168-148	2024/12/4	2025/12/3
		9168-156	2024/12/4	2025/12/3
Controller (H)	MF7802	08093	N/A	N/A
Controller (V)	MF7802	074	N/A	N/A
EMI Test Receiver R&S	ESR7	101240	2024/11/11	2025/11/10
		101264	2025/4/16	2026/4/15
Fixed Attenuator Mini-Circuits	UNAT-5+	PAD-CH(H)-01	2024/8/25	2025/8/24
		PAD-CH(V)-01	2024/8/25	2025/8/24
Preamplifier Sonoma	310N	352923	2025/4/27	2026/4/26
		352924	2025/4/27	2026/4/26
RF Coaxial Cable TIMES	LMR-600(11.8M)+LMR-400 (7M)	CABLE-CH1(HOR)-01	2024/8/25	2025/8/24
	LMR-600(18M)+LMR-400 (7M)	CABLE-CH1(VER)-01	2024/8/25	2025/8/24
Software	ADT_Radiated_V8.8.09	N/A	N/A	N/A
Turn Table	DS430	50303	N/A	N/A

Notes:

1. The test was performed in HY - 10M Chamber. The test site validated date: 2024/7/27 (NSA)
2. The VCCI Site Registration No. is R-11893.
3. Tested Date: 2025/7/23

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
Controller BVADT	SC100	SC93021702	N/A	N/A
Fix tool for Boresight antenna tower BV	BAF-01	2	N/A	N/A
Fixed Attenuator Mini-Circuits	BW-K3-2W44+	PAD-CH1-03	2024/8/25	2025/8/24
	BW-N4W5+	PAD-CH2-02	2025/1/5	2026/1/4
Horn Antenna ETS-Lindgren	3117	00034126	2024/10/18	2025/10/17
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-405	2024/11/10	2025/11/9
	BBHA 9170	148	2024/11/10	2025/11/9
Notch Filter Micro-Tronics	BRM17690-01	003	2024/8/25	2025/8/24
	BRM50716-01	G011	2024/8/25	2025/8/24
Preamplifier Agilent	8449B	3008A01961	2024/8/25	2025/8/24
Preamplifier EMCI	EMC012645SE	980338	2025/4/27	2026/4/26
	EMC184045B	980175	2024/8/25	2025/8/24
	EMC184045SE	980610	2025/4/27	2026/4/26
PSA Spectrum Analyzer Agilent	E4446A	MY51100039	2024/12/18	2025/12/17
RF Coaxial Cable ATK+EMC	EM104-SMSM- 600&EM104-SMSM-500	Cable-CH2-02	2025/1/5	2026/1/4
RF Coaxial Cable EMCI	EM102-KMKM-1M	#01	2024/8/25	2025/8/24
	EM102-KMKM-3M	#01	2024/8/25	2025/8/24
	EMC102-KM-KM-1000	170820	2025/1/5	2026/1/4
RF Coaxial Cable Rosnol	K1K50-UP0279-K1K50- 3000	181129-2	2025/1/5	2026/1/4
Software BVADT	ADT_Radiated_V8.8.09	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 1. The test site validated date: 2024/11/23 (VSWR)
2. The VCCI Site Registration No. is G-10018.
3. Tested Date: 2025/7/19

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

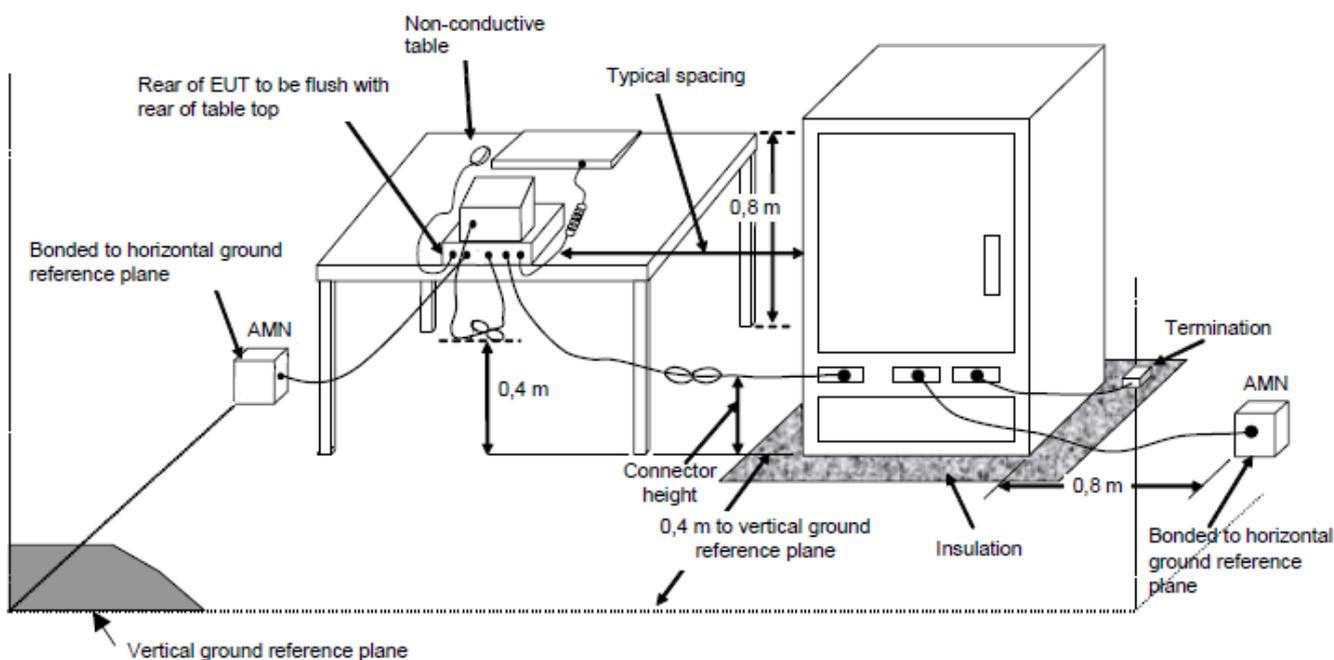
Notes: 1. These limit levels apply for a measurement distance of 3 m. If using a different measurement distance, the measured levels shall be extrapolated to the 3 m limit distance using a factor of 20 dB per decade of distance. The measurement distance shall place the measurement antenna in the far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

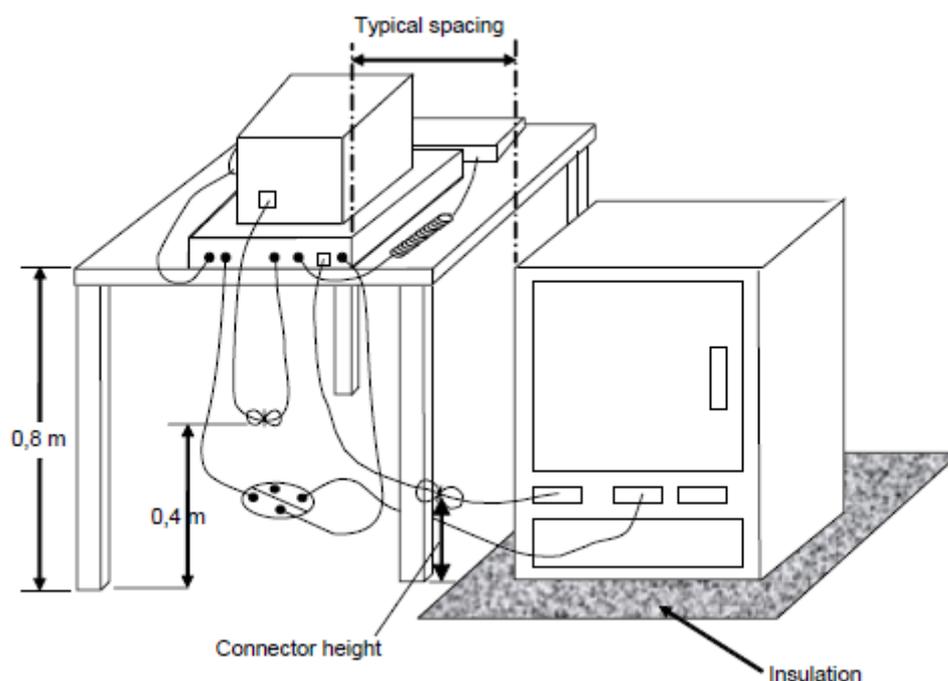


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

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.

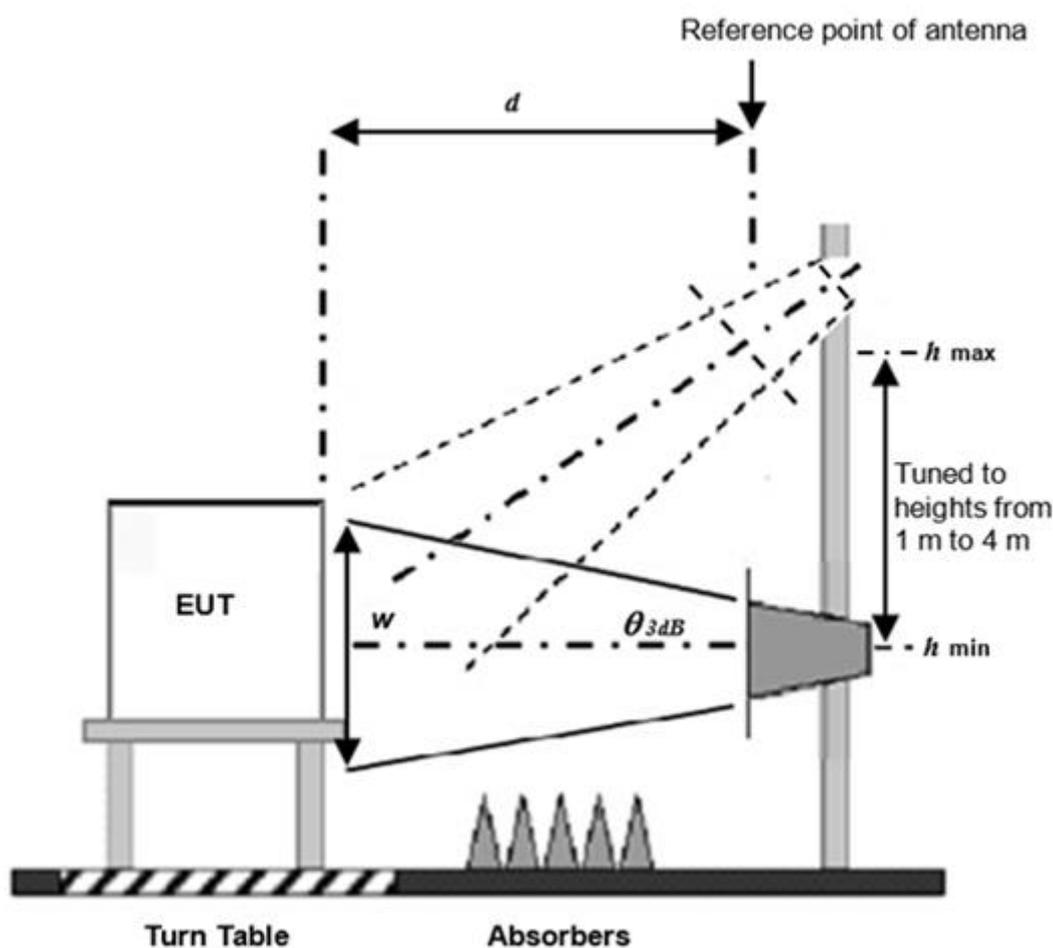


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

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

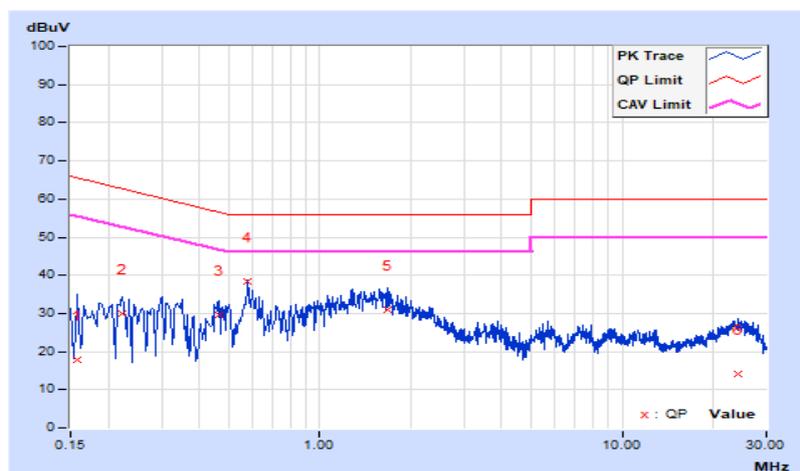
Mode A

Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75% RH, 973.7 mbar
Tested by	Bryant Hsu		

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	0.15800	10.29	7.44	2.01	17.73	12.30	65.57	55.57	-47.84	-43.27
2	0.22200	10.33	19.57	4.78	29.90	15.11	62.74	52.74	-32.84	-37.63
3	0.46200	10.37	19.16	6.07	29.53	16.44	56.66	46.66	-27.13	-30.22
4	0.57798	10.38	28.04	22.10	38.42	32.48	56.00	46.00	-17.58	-13.52
5	1.67400	10.48	20.54	7.77	31.02	18.25	56.00	46.00	-24.98	-27.75
6	24.05400	10.80	3.41	1.90	14.21	12.70	60.00	50.00	-45.79	-37.30

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

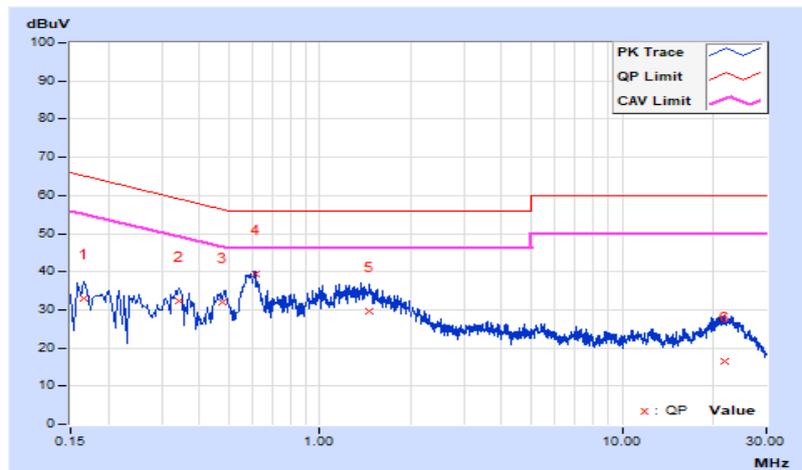


Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75% RH, 973.7 mbar
Tested by	Bryant Hsu		

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	0.16579	10.34	22.63	9.91	32.97	20.25	65.17	55.17	-32.20	-34.92
2	0.34200	10.38	22.03	11.50	32.41	21.88	59.15	49.15	-26.74	-27.27
3	0.47400	10.40	21.43	10.78	31.83	21.18	56.44	46.44	-24.61	-25.26
4	0.61400	10.42	28.93	21.31	39.35	31.73	56.00	46.00	-16.65	-14.27
5	1.46600	10.49	19.16	9.45	29.65	19.94	56.00	46.00	-26.35	-26.06
6	21.70200	11.05	5.40	1.62	16.45	12.67	60.00	50.00	-43.55	-37.33

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



7.2 Radiated Emissions up to 1 GHz

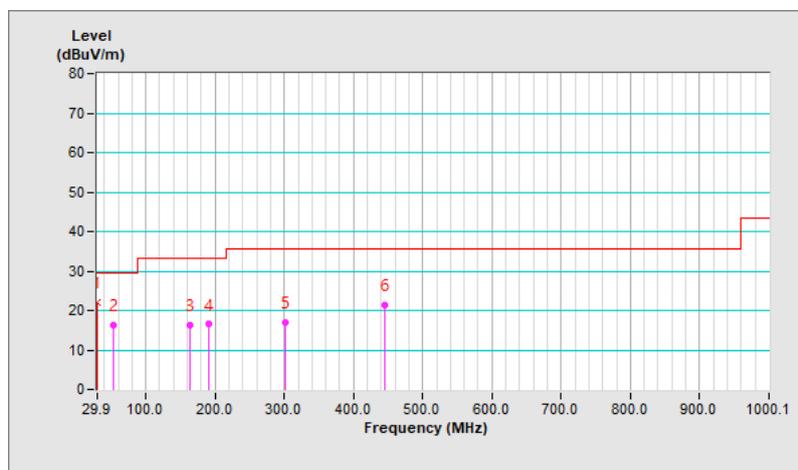
Mode A

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	27 °C, 68% RH, 974.2 mbar
Tested By	Scott Yang		

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	30.06	22.07 QP	29.50	-7.43	2.00 H	76	35.76	-13.69
2	52.93	16.42 QP	29.50	-13.08	3.50 H	188	28.92	-12.50
3	163.69	16.28 QP	33.10	-16.82	1.00 H	242	29.29	-13.01
4	190.11	16.46 QP	33.10	-16.64	3.00 H	124	31.16	-14.70
5	302.40	16.92 QP	35.60	-18.68	3.50 H	34	28.96	-12.04
6	444.85	21.36 QP	35.60	-14.24	3.00 H	250	29.37	-8.01

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.

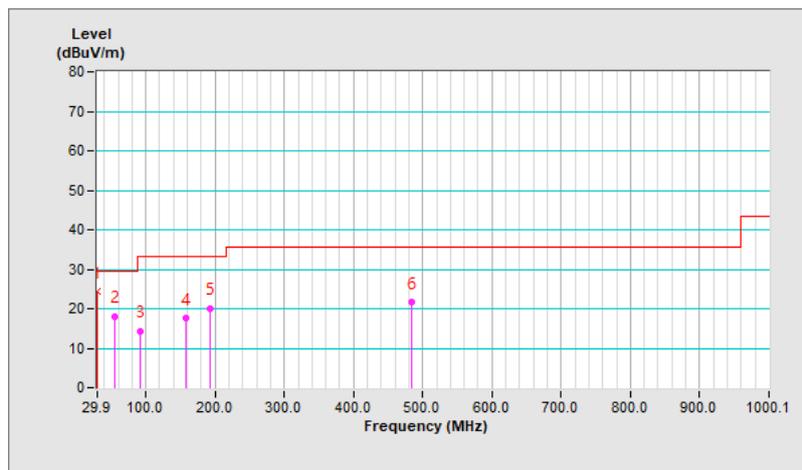


Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	27 °C, 68% RH, 974.2 mbar
Tested By	Scott Yang		

Antenna Polarity & Test Distance : Vertical at 10 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	24.26 QP	29.50	-5.24	1.00 V	206	39.63	-15.37
2	54.38	18.02 QP	29.50	-11.48	2.00 V	184	30.82	-12.80
3	91.12	14.16 QP	33.10	-18.94	1.00 V	8	32.98	-18.82
4	158.42	17.48 QP	33.10	-15.62	1.00 V	10	30.50	-13.02
5	192.70	20.08 QP	33.10	-13.02	1.00 V	91	35.96	-15.88
6	484.73	21.59 QP	35.60	-14.01	2.50 V	1	29.31	-7.72

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

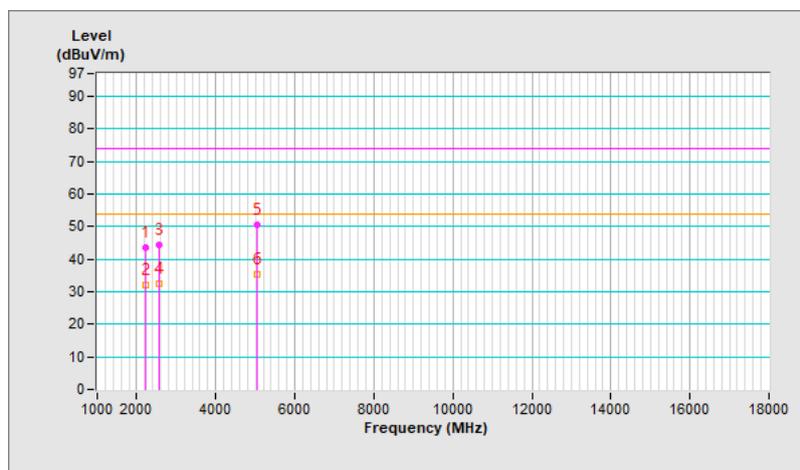
Mode A

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1 MHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	29 °C, 70% RH, 969.2 mbar
Tested By	Scott Yang		

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	2225.19	43.41 PK	74.00	-30.59	1.00 H	112	40.10	3.31
2	2225.19	31.90 AV	54.00	-22.10	1.00 H	112	28.59	3.31
3	2574.36	44.49 PK	74.00	-29.51	3.50 H	141	41.07	3.42
4	2574.36	32.36 AV	54.00	-21.64	3.50 H	141	28.94	3.42
5	5051.33	50.58 PK	74.00	-23.42	3.00 H	151	40.23	10.35
6	5051.33	35.45 AV	54.00	-18.55	3.00 H	151	25.10	10.35

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.

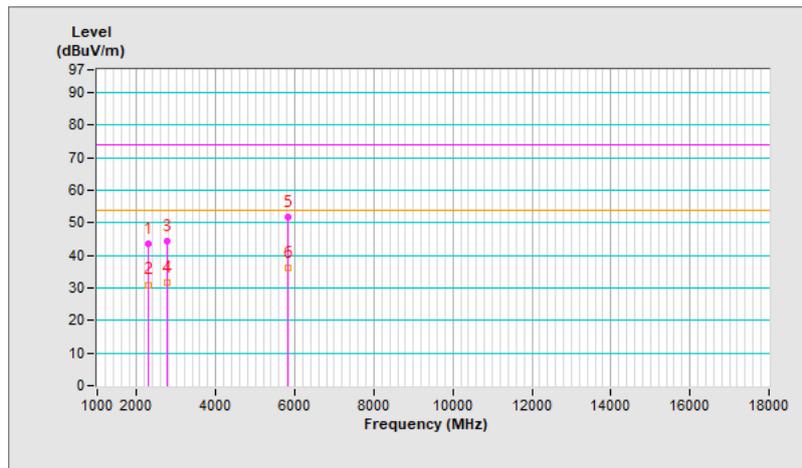


Frequency Range	1 GHz ~ 18 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1 MHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	29 °C, 70% RH, 969.1 mbar
Tested By	Scott Yang		

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	2279.41	43.52 PK	74.00	-30.48	1.50 V	353	40.16	3.36
2	2279.41	31.02 AV	54.00	-22.98	1.50 V	353	27.66	3.36
3	2781.81	44.41 PK	74.00	-29.59	3.00 V	33	39.97	4.44
4	2781.81	31.70 AV	54.00	-22.30	3.00 V	33	27.26	4.44
5	5823.63	51.80 PK	74.00	-22.20	1.00 V	158	40.85	10.95
6	5823.63	36.02 AV	54.00	-17.98	1.00 V	158	25.07	10.95

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.

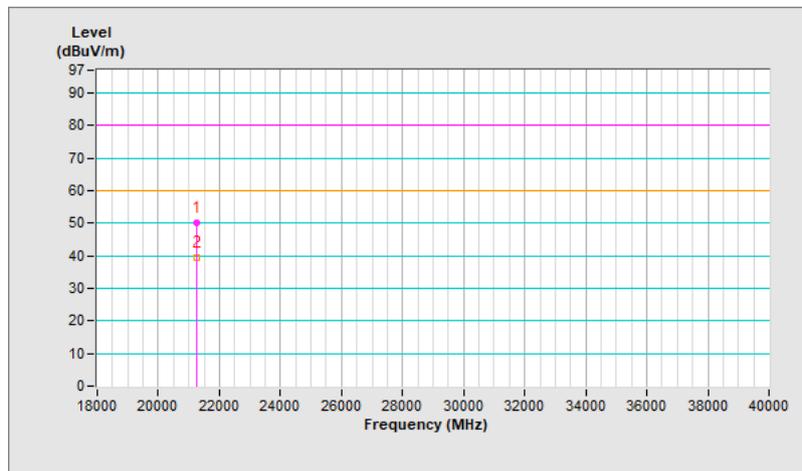


Frequency Range	18 GHz ~ 40 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1 MHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	29 °C, 70% RH, 969.1 mbar
Tested By	Scott Yang		

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	21249.98	50.10 PK	80.00	-29.90	1.00 H	241	44.94	5.16
2	21249.98	39.52 AV	60.00	-20.48	1.00 H	241	34.36	5.16

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.

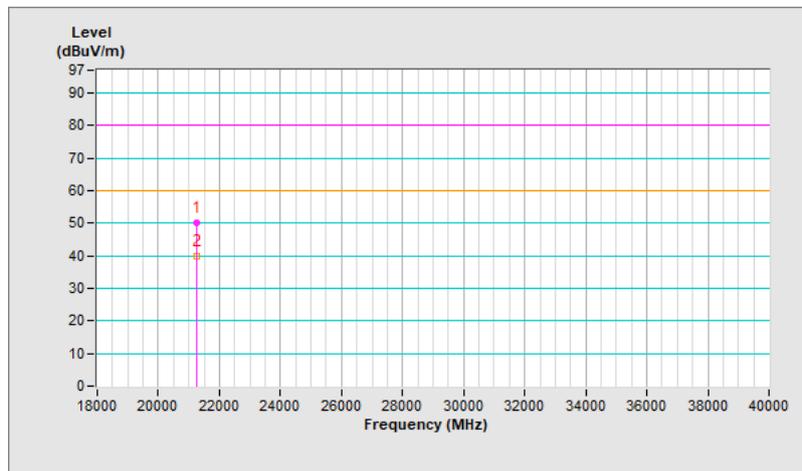


Frequency Range	18 GHz ~ 40 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1 MHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	29 °C, 70% RH, 969.2 mbar
Tested By	Scott Yang		

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	21250.12	49.96 PK	80.00	-30.04	1.00 V	102	44.81	5.15
2	21250.12	39.89 AV	60.00	-20.11	1.00 V	102	34.74	5.15

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.

If you have any comments, please feel free to contact us at the following:

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Web Site: <http://ee.bureauveritas.com.tw>

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

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