

FCC Test Report

Report No.: RFCDVB-WTW-P25110475-1

FCC ID: QYL5127MODMINV12

Test Model: OMNIKEY 5127 Modular Mini

Received Date: 2025/11/21

Test Date: 2025/12/3 ~ 2025/12/4

Issued Date: 2025/12/24

Applicant: Getac Technology Corporation.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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33383, Taiwan

FCC Registration / 788550 / TW0003

Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
RFCDVB-WTW-P25110475-1	Original Release	2025/12/24

1 Certificate of Conformity

Product: RFID Module

Brand: HID

Test Model: OMNIKEY 5127 Modular Mini

Sample Status: Engineering Sample

Applicant: Getac Technology Corporation.

Test Date: 2025/12/3 ~ 2025/12/4

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.209)
ANSI C63.10-2020

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 RF characteristics under the conditions specified in this report.

Prepared by :

Gina Liu

, Date:

2025/12/24

Gina Liu / Specialist

Approved by :

Jeremy Lin

, Date:

2025/12/24

Jeremy Lin / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.209)			
FCC Clause	Test Item	Result	Remarks
15.207	Conducted emission test	Pass	Meet the requirement of limit. Minimum passing margin is -17.35 dB at 0.40600 MHz.
15.209	Radiated emission test	Pass	Meet the requirement of limit. Minimum passing margin is -1.8 dB at 147.37 MHz.
15.215 (c)	20 dB Bandwidth	Pass	Meet the requirement of limit.

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	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.79 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	2.44 dB
	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	RFID Module
Brand	HID
Test Model	OMNIKEY 5127 Modular Mini
Status of EUT	Engineering Sample
Power Supply Rating	End-product: 19 Vdc (adapter) 7.74 / 11.61 Vdc (battery)
Operating Frequency	125 kHz
Antenna Type	PCB antenna
Antenna Connector	NA
Field Strength	4.2 dBuV/m (PK) (300m)
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT is authorized for use in specific End-product. Please refer to below for more details.

Product	Brand	Model	Difference
Notebook	Getac	V120	For marketing purpose
		V120Y(Y= 10 characters, Y can be 0 to 9, A to Z, a to z, "/", "\", "-", "_ " or blank for marketing purpose)	

2. The End-product uses following accessories.

Item	Brand	Model	Specification
Battery 1	Getac	BP2S1P4070P	Power Rating : Rating: 7.74Vdc , 3800mAh, 29.42Wh Typical Capacity: 4070mAh, 31.51Wh
Battery 2	Getac	BP3S1P4070P	Power Rating : Rating: 11.61Vdc , 3800mAh, 44.12Wh Typical Capacity: 4070mAh, 47.26Wh
AC Adapter	FSP	FSP065-RBBN3	AC Input : 100-240 Vac ; 50-60 Hz ; 1.5 A DC Output : 19.0Vdc ; 3.42A, 65.0W DC Output Cable : 1.45M / 1core AC Power Cord : 1.75M
Touch Pen	Getac	340GA8900001	-

3. Due to radiated measurements are made and the antenna gain is already accounted for this device, so provide an antenna datasheet and/or antenna measurement report is not required. The antenna dimensions and pictures (include antenna wire length if have) are stated in EUT photo exhibit.
4. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Description of Test Modes

1 channel is provided to this EUT:

Channel	Frequency (kHz)
1	125

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To			Description
	RE<1G	PLC	BW	
-	√	√	√	EUT + Battery 1

Where **RE<1G**: Radiated Emission below 1 GHz
BW: 20dB Bandwidth

PLC: Power Line Conducted Emission

Note:

1. The EUT had been pre-tested on the positioned of NB Mode and each 3 axis of Tablet Mode. The worst case was found when positioned on NB Mode.
2. EUT can be used in the following ways: Battery 1/ Battery 2. Pre-scan these ways and find the worst case as a representative test condition.
3. "-" means no effect.

Radiated Emission Test (9 kHz ~ 30 MHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel
-	1	1

Radiated Emission Test (Below 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel
-	1	1

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel
-	1	1

Bandwidth Measurement:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel
-	1	1

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE	22 deg. C, 68 % RH	120 Vac, 60 Hz	Vincent Chen
PLC	21 deg. C, 69 % RH	120 Vac, 60 Hz	Thomas Cheng
BW	17 deg. C, 63 % RH	120 Vac, 60 Hz	Vincent Chen

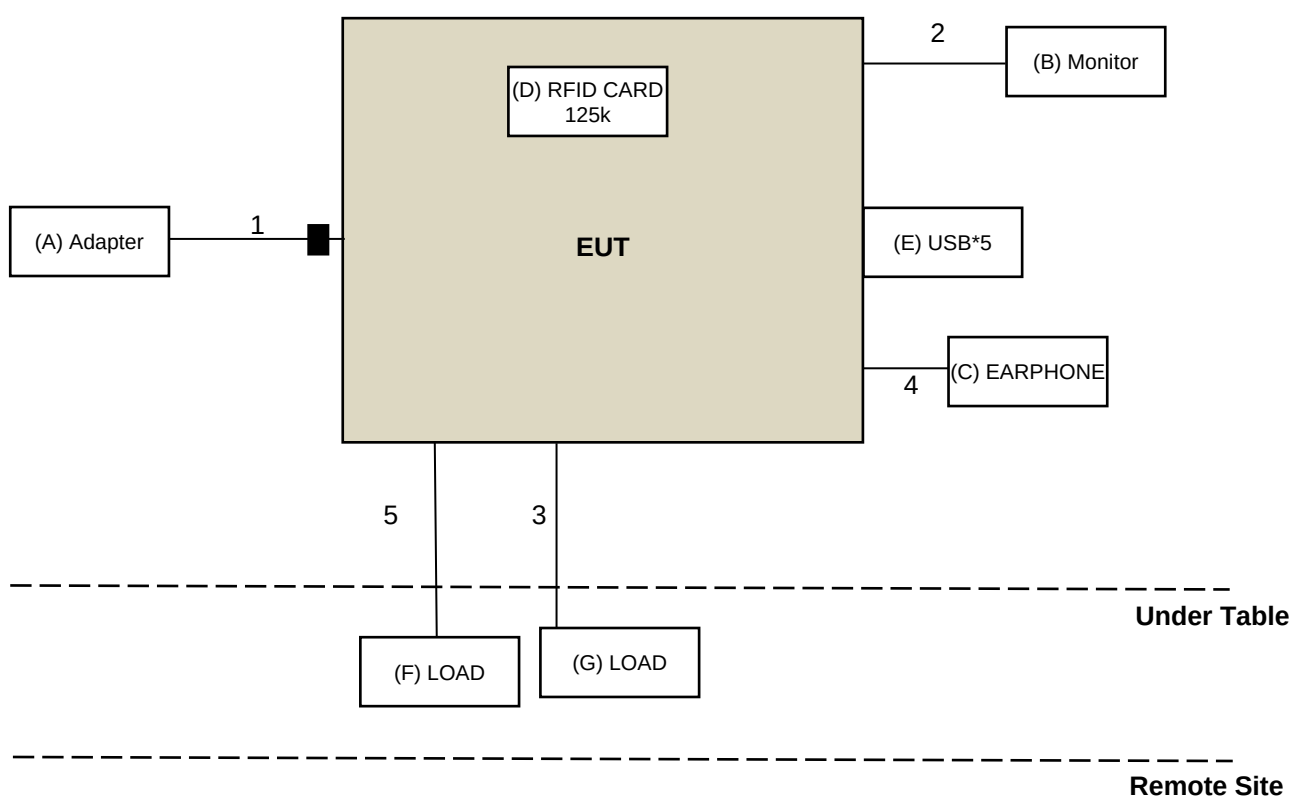
3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Adapter	FSP	FSP065-RBBN3	N/A	N/A	Supplied by applicant
B	Monitor	DELL	A14S2421HSXmTW	CN-01KFWF-WSL00-24C-711B	N/A	Provided by Lab
C	EARPHONE	APPLE	MB77PFEB	N/A	N/A	Provided by Lab
D	RFID CARD 125k	N/A	N/A	N/A	N/A	Provided by Lab
E	USB*5	SanDisk	SDDDC3-032G	N/A	N/A	Provided by Lab
F	LOAD	N/A	N/A	N/A	N/A	Provided by Lab
G	LOAD	N/A	N/A	N/A	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	ADAPTER	1	1.45	Y	1	Supplied by applicant
2	HDMI	1	1.8	Y	0	Provided by Lab
3	RS232 TO LAN	1	1.5	N	0	Provided by Lab
4	EARPHONE cable	1	1.2	N	0	Provided by Lab
5	RJ-45 Cable	1	1.5	N	0	Provided by Lab

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.209)

ANSI C63.10-2020

All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

For Frequency below 30MHz

Frequency (MHz)	Field Strength (dBuV/m)		Measurement Distance (meters)
	uV/m	dBuV/m	
0.009 – 0.490	2400 / F (kHz)	48.52-13.80	300
0.490 – 1.705	24000 / F (kHz)	33.80-22.97	30
1.705 – 30.0	30	29.54	30

For Frequency between 30-1000MHz

Frequency (MHz)	Measurement Distance (at 3m)	
	uV/m	dBuV/m
30-88	100	40.0
88-216	150	43.5
216-960	200	46.0
Above 960	500	54.0

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Agilent	N9038A	MY50010158	2025/10/29	2026/10/28
Spectrum Analyzer Agilent	N9010A	MY52220314	2024/12/24	2025/12/23
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	2025/4/16	2026/4/15
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	2025/9/16	2026/9/15
Loop Antenna TESEQ	HLA 6121	45745	2025/9/01	2026/8/31
Preamplifier EMCI	EMC001340	980201	2025/9/21	2026/9/20
Preamplifier EMCI	EMC 330H	980112	2025/9/21	2026/9/20
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	2025/9/21	2026/9/20
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Temperature & Humidity Chamber	GTH-120-40-CP-AR	MAA1306-019	2025/9/01	2026/8/31
DC Power Supply Topward	33010D	807748	NA	NA
Digital Multimeter Fluke	87-III	70360742	2025/7/04	2026/7/03

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa 966 Chamber 5.
3. Tested date: 2025/12/4

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and Ground-Parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case 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, except for the frequency band (9kHz-90kHz, 110kHz-490kHz) set to average detect function and peak detect function.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency band (9 kHz~150 kHz) and 9 kHz or 10 kHz at frequency below 30MHz (except 9 kHz~150 kHz).
2. There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna 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 below 1 GHz.

Note:

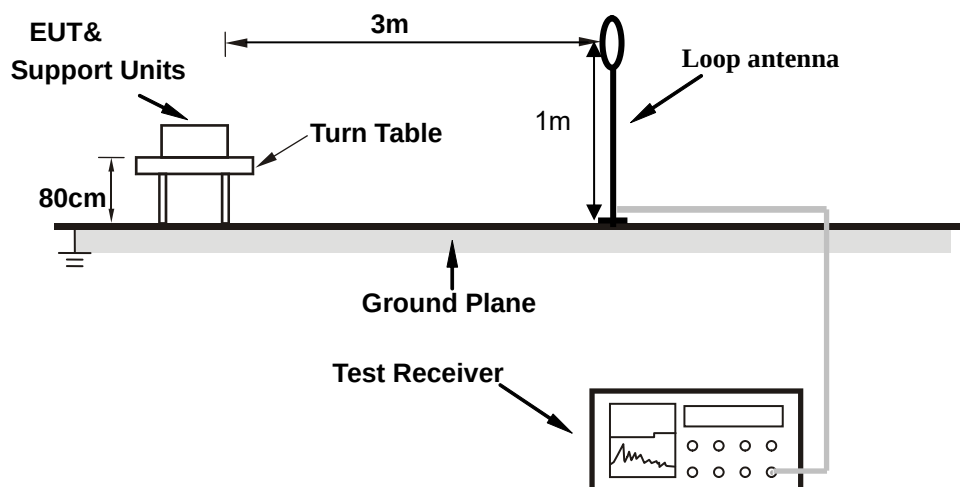
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

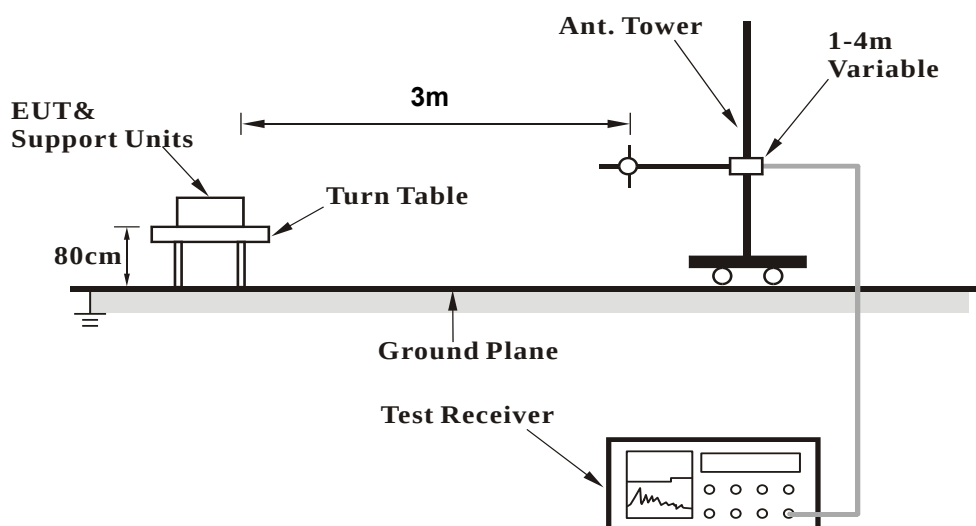
No deviation.

4.1.5 Test Setup

For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

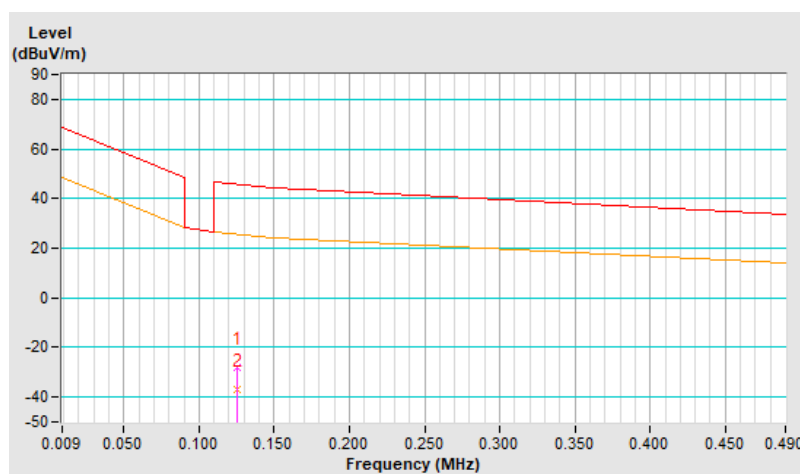
9 kHz ~ 490 kHz Data:

Frequency Range	9 kHz ~ 150 kHz; 150 kHz ~ 490 kHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 200 Hz; Peak (PK) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	22 °C, 68% RH
Tested By	Thomas Cheng		

Antenna Polarity : Parallel								
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	0.125	-28.0 PK	45.7	-73.7	1.00	316	32.6	-60.6
2	0.125	-36.7 AV	25.7	-62.4	1.00	316	23.9	-60.6

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) + Distance Factor
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. The test distance for below 0.49 MHz is 3 m, extrapolate the measured field strength to a distance of 300 meters.
Distance factor@3 m = $40 \cdot \log(3/300) = -80$ dB

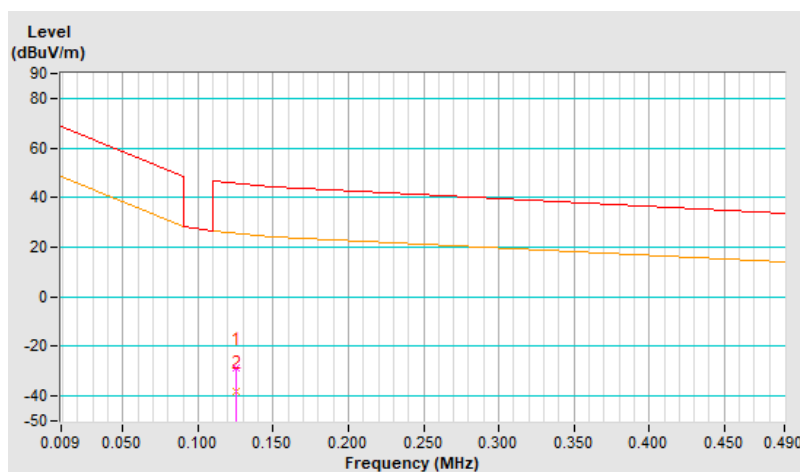


Frequency Range	9 kHz ~ 150 kHz; 150 kHz ~ 490 kHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 200 Hz; Peak (PK) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	22 °C, 68% RH
Tested By	Thomas Cheng		

Antenna Polarity : Perpendicular								
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	0.125	-28.7 PK	45.7	-74.4	1.00	169	31.9	-60.6
2	0.125	-38.0 AV	25.7	-63.7	1.00	169	22.6	-60.6

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) + Distance Factor
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. The test distance for below 0.49 MHz is 3 m, extrapolate the measured field strength to a distance of 300 meters.
Distance factor@3 m = $40 \cdot \log(3/300) = -80$ dB

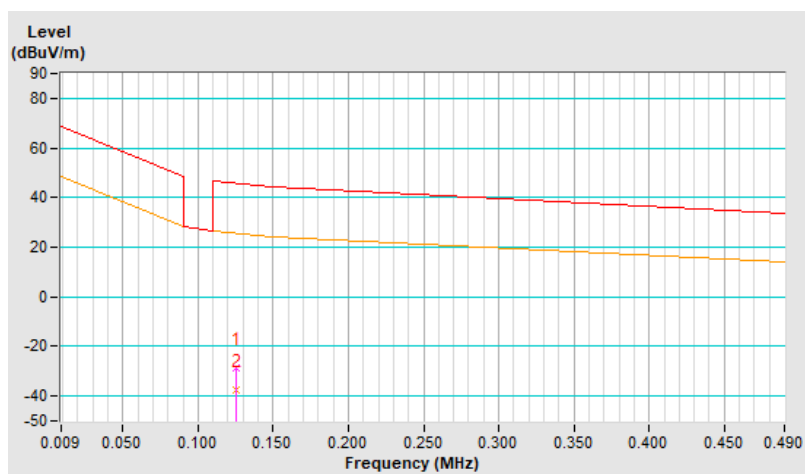


Frequency Range	9 kHz ~ 150 kHz; 150 kHz ~ 490 kHz	Detector Function & Bandwidth	Peak (PK) / Average (AV), 200 Hz; Peak (PK) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	22 °C, 68% RH
Tested By	Thomas Cheng		

Antenna Polarity : Ground-parallel								
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	0.125	-28.6 PK	45.7	-74.3	1.00	246	32.0	-60.6
2	0.125	-37.5 AV	25.7	-63.2	1.00	246	23.1	-60.6

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) + Distance Factor
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. The test distance for below 0.49 MHz is 3 m, extrapolate the measured field strength to a distance of 300 meters.
Distance factor@3 m = $40 \cdot \log(3/300) = -80$ dB



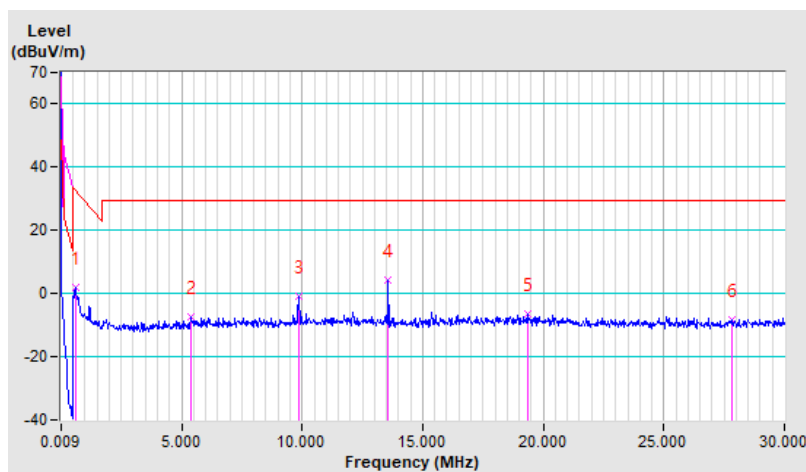
9 kHz ~ 30 MHz Data:

Frequency Range	9 kHz ~ 150 kHz; 150 kHz ~ 30 MHz	Detector Function & Bandwidth	Peak (PK), 200 Hz; Peak (PK), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	22 °C, 68% RH
Tested By	Thomas Cheng		

Antenna Polarity : Parallel								
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	0.609	1.8 PK	31.9	-30.1	1.00	277	22.0	-20.2
2	5.377	-7.6 PK	29.5	-37.1	1.00	157	12.0	-19.6
3	9.846	-0.9 PK	29.5	-30.4	1.00	283	18.0	-18.9
4	13.565	4.2 PK	29.5	-25.3	1.00	225	22.9	-18.7
5	19.353	-6.4 PK	29.5	-35.9	1.00	42	11.3	-17.7
6	27.811	-8.3 PK	29.5	-37.8	1.00	254	9.6	-17.9

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) + Distance Factor
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. The test distance for 0.49 ~ 30 MHz is 3 m, extrapolate the measured field strength to a distance of 30 meters.
Distance factor@3 m = $40 \cdot \log(3/30) = -40$ dB

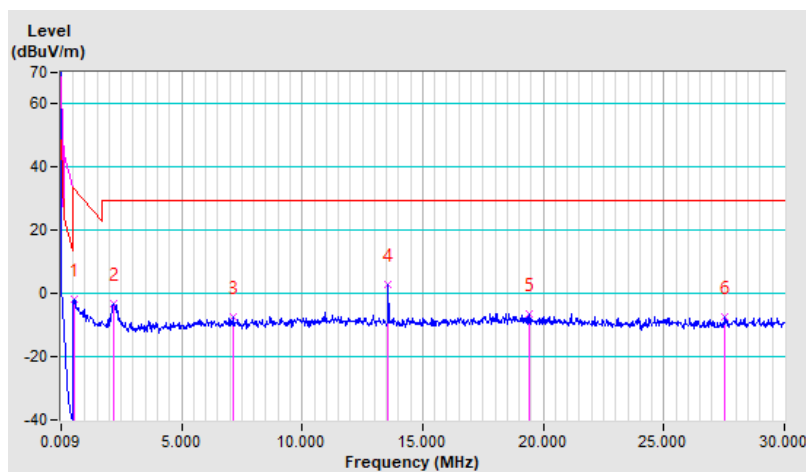


Frequency Range	9 kHz ~ 150 kHz; 150 kHz ~ 30 MHz	Detector Function & Bandwidth	Peak (PK), 200 Hz; Peak (PK), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	22 °C, 68% RH
Tested By	Thomas Cheng		

Antenna Polarity : Perpendicular								
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	0.549	-2.0 PK	32.8	-34.8	1.00	273	18.2	-20.2
2	2.168	-3.0 PK	29.5	-32.5	1.00	86	17.4	-20.4
3	7.117	-7.2 PK	29.5	-36.7	1.00	144	11.9	-19.1
4	13.565	3.0 PK	29.5	-26.5	1.00	16	21.7	-18.7
5	19.413	-6.5 PK	29.5	-36.0	1.00	94	11.2	-17.7
6	27.541	-7.5 PK	29.5	-37.0	1.00	234	10.4	-17.9

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) + Distance Factor
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. The test distance for 0.49 ~ 30 MHz is 3 m, extrapolate the measured field strength to a distance of 30 meters.
Distance factor@3 m = $40 \cdot \log(3/30) = -40$ dB

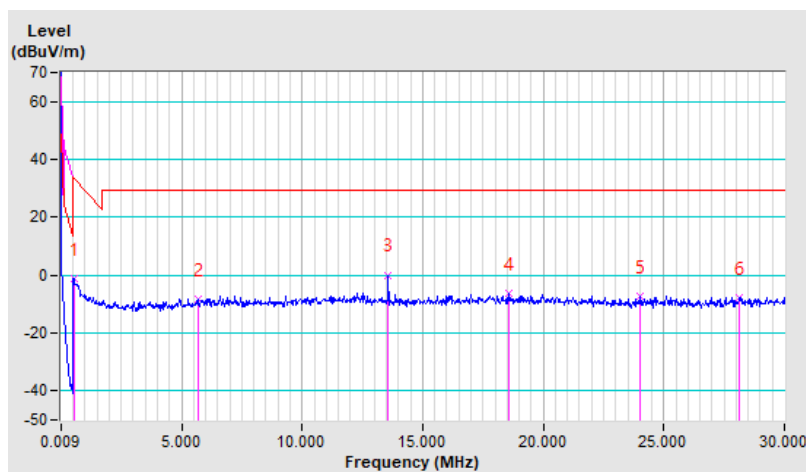


Frequency Range	9 kHz ~ 150 kHz; 150 kHz ~ 30 MHz	Detector Function & Bandwidth	Peak (PK), 200 Hz; Peak (PK), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	22 °C, 68% RH
Tested By	Thomas Cheng		

Antenna Polarity : Ground-parallel								
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	0.549	-1.0 PK	32.8	-33.8	1.00	20	19.2	-20.2
2	5.707	-8.1 PK	29.5	-37.6	1.00	148	11.1	-19.2
3	13.565	0.1 PK	29.5	-29.4	1.00	258	18.8	-18.7
4	18.573	-6.4 PK	29.5	-35.9	1.00	241	11.4	-17.8
5	24.002	-7.4 PK	29.5	-36.9	1.00	203	11.4	-18.8
6	28.141	-7.9 PK	29.5	-37.4	1.00	2	9.9	-17.8

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) + Distance Factor
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. The test distance for 0.49 ~ 30 MHz is 3 m, extrapolate the measured field strength to a distance of 30 meters.
Distance factor@3 m = $40 \cdot \log(3/30) = -40$ dB



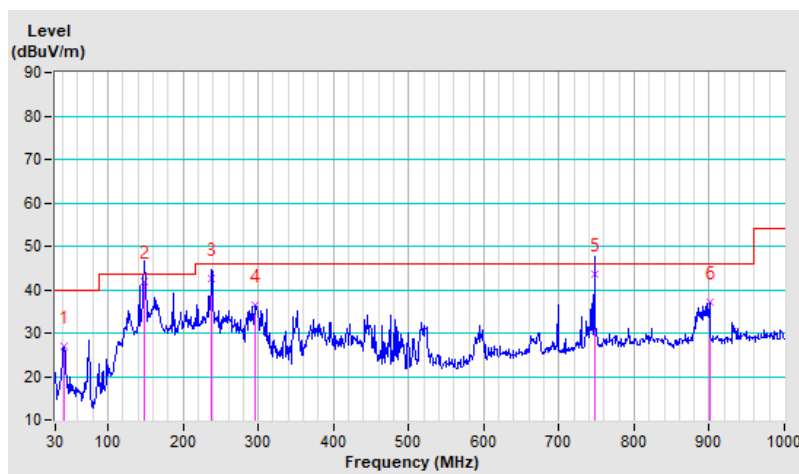
Below 1GHz Data:

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120 kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22 °C, 68% RH
Tested By	Thomas Cheng		

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	40.67	26.8 QP	40.0	-13.2	2.00 H	203	39.1	-12.3
2	147.37	41.7 QP	43.5	-1.8	1.00 H	320	53.9	-12.2
3	237.58	42.7 QP	46.0	-3.3	1.50 H	139	56.7	-14.0
4	294.81	36.5 QP	46.0	-9.5	1.00 H	191	48.3	-11.8
5	746.83	43.6 QP	46.0	-2.4	2.00 H	194	44.3	-0.7
6	900.09	37.2 QP	46.0	-8.8	1.50 H	247	37.1	0.1

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 of frequency range 30 MHz ~ 1 GHz.

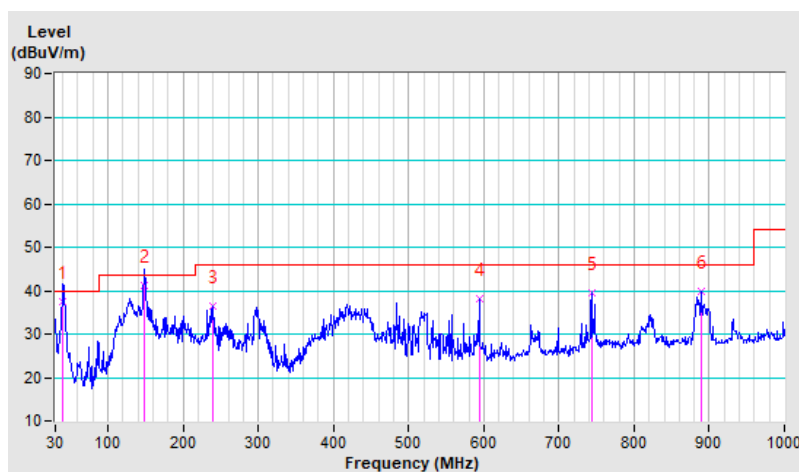


Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120 kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	22 °C, 68% RH
Tested By	Thomas Cheng		

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	39.70	37.4 QP	40.0	-2.6	1.00 V	264	49.8	-12.4
2	147.37	41.1 QP	43.5	-2.4	1.00 V	257	53.3	-12.2
3	239.52	36.6 QP	46.0	-9.4	1.50 V	44	50.4	-13.8
4	593.57	38.3 QP	46.0	-7.7	1.00 V	11	43.0	-4.7
5	742.95	39.6 QP	46.0	-6.4	2.00 V	156	40.4	-0.8
6	888.45	39.8 QP	46.0	-6.2	1.50 V	226	39.8	0.0

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 of frequency range 30 MHz ~ 1 GHz.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
50 ohm terminal resistance HUBER+SUHNER	E1-011276	01	2025/2/11	2026/2/10
	E1-011277	02	2025/10/31	2026/10/30
	E1-011313	11	2025/2/11	2026/2/10
DC LISN Schwarzbeck	NNBM 8126G	8126G-069	2025/11/3	2026/11/2
Diode Pulse Limiter Schwarzbeck	VTSD 9561 F-N	01617	2025/8/23	2026/8/22
EMI Test Receiver R&S	ESR3	102982	2025/5/29	2026/5/28
LISN R&S	ESH2-Z5	100100	2025/3/5	2026/3/4
	ESH3-Z5	100312	2025/8/29	2026/8/28
RF Coaxial Cable Woken	5D-FB	Cable-cond2-01	2025/8/23	2026/8/22
Software BVADT	BVADT_Conc_ V7.4.1.0	N/A	N/A	N/A
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2025/8/27	2026/8/26

- Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 2 (Conduction 2).
 3. Tested date: 2025/12/3

4.2.3 Test Procedures

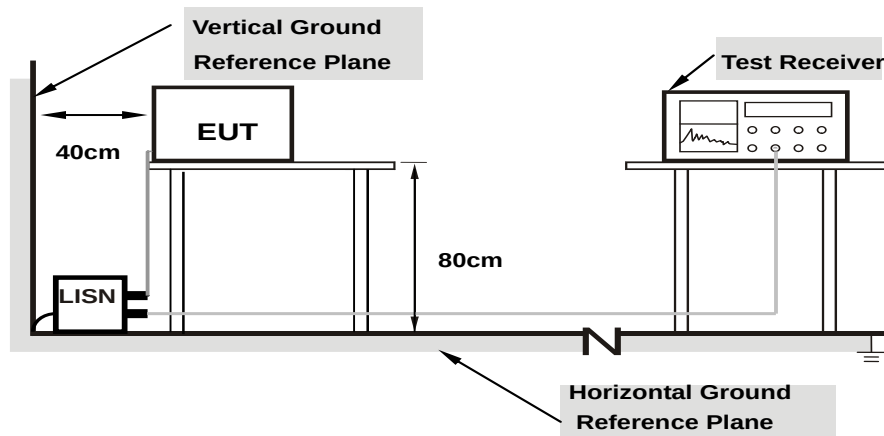
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz - 30 MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

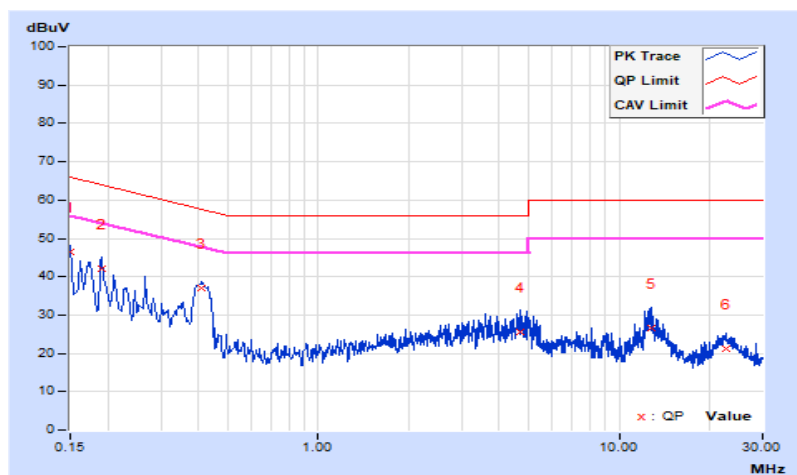
4.2.7 Test Results

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	21 °C, 69% RH
Tested By	Thomas Cheng		

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	0.15000	10.24	36.07	22.36	46.31	32.60	66.00	56.00	-19.69	-23.40
2	0.19000	10.27	31.95	19.18	42.22	29.45	64.04	54.04	-21.82	-24.59
3	0.41000	10.40	26.48	19.76	36.88	30.16	57.65	47.65	-20.77	-17.49
4	4.68600	10.78	14.95	5.02	25.73	15.80	56.00	46.00	-30.27	-30.20
5	12.75000	10.93	15.63	4.49	26.56	15.42	60.00	50.00	-33.44	-34.58
6	22.56600	11.01	10.27	1.55	21.28	12.56	60.00	50.00	-38.72	-37.44

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

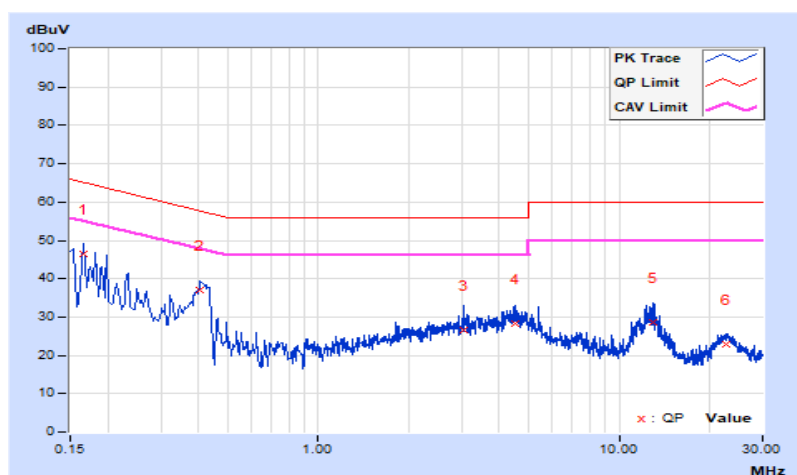


Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21 °C, 69% RH
Tested By	Thomas Cheng		

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	0.16600	10.30	36.27	21.60	46.57	31.90	65.16	55.16	-18.59	-23.26
2	0.40600	10.44	26.73	19.94	37.17	30.38	57.73	47.73	-20.56	-17.35
3	3.05800	10.72	15.80	7.15	26.52	17.87	56.00	46.00	-29.48	-28.13
4	4.49800	10.82	17.57	6.65	28.39	17.47	56.00	46.00	-27.61	-28.53
5	12.90600	11.06	17.40	5.61	28.46	16.67	60.00	50.00	-31.54	-33.33
6	22.82600	11.23	11.69	2.83	22.92	14.06	60.00	50.00	-37.08	-35.94

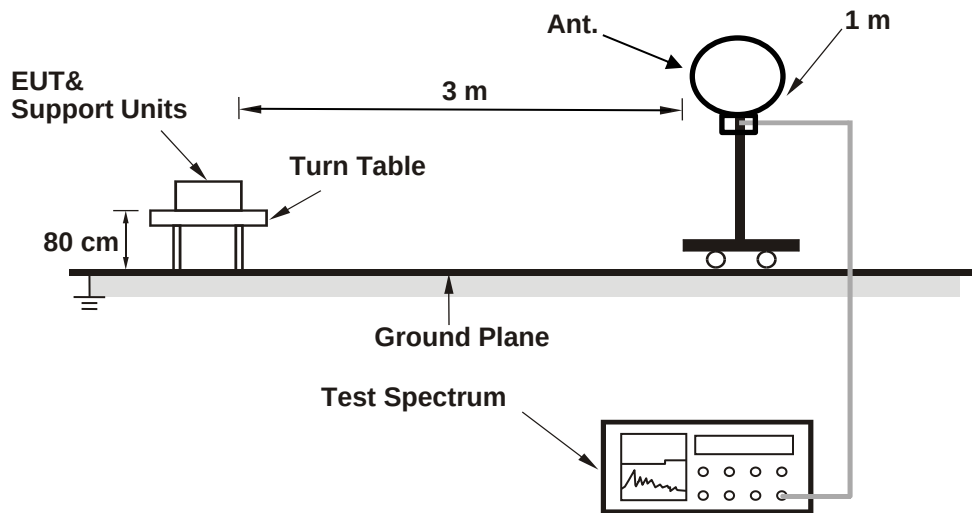
Remarks:

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



4.3 20 dB Bandwidth Measurement

4.3.1 Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo)

4.3.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.3 Test Procedure

Radiated Measurement:

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-spectrum system was set to Peak Detect Function and Maximum Hold.
- Set resolution bandwidth (RBW) = 1% to 5% of the OBW.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

4.3.4 Deviation from Test Standard

No deviation.

5 Pictures of Test Arrangements

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

Appendix – 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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Email: service.adt@bureauveritas.com

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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