

FCC Test Report

Report No.: RF180227C27-10

FCC ID: QYLK120

Test Model: TP-125S01-H1S1-GT

Received Date: Mar. 02, 2018

Test Date: May 24, 2018 ~ May 25, 2018

Issued Date: Jun. 06, 2018

Applicant: Getac Technology Corporation.

Address: 5F., Building A, No. 209, Sec.1, Nangang Rd., Nangang Dist., Taipei City 11568, Taiwan, R.O.C.

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

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

Test Location: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

FCC Registration /

Designation Number: 788550 / TW0003



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 Summary of Test Results.....	5
2.1 Measurement Uncertainty.....	5
2.2 Modification Record	5
3 General Information	6
3.1 General Description of EUT	6
3.2 Description of Support Units	7
3.2.1 Configuration of System under Test	7
3.3 General Description of Applied Standards.....	7
4 Test Types and Results	8
4.1 Radiated Emission and Bandedge Measurement	8
4.1.1 Limits of Radiated Emission and Bandedge Measurement	8
4.1.2 Test Instruments	9
4.1.3 Test Procedures.....	10
4.1.4 Deviation from Test Standard	10
4.1.5 Test Setup.....	11
4.1.6 EUT Operating Conditions.....	11
4.1.7 Test Results	12
4.2 Conducted Emission Measurement.....	18
4.2.1 Limits of Conducted Emission Measurement	18
4.2.2 Test Instruments	18
4.2.3 Test Procedures.....	19
4.2.4 Deviation from Test Standard	20
4.2.5 Test Setup.....	20
4.2.6 EUT Operating Conditions.....	20
4.2.7 Test Results	21
5 Pictures of Test Arrangements.....	25
Appendix – Information on the Testing Laboratories	26

Release Control Record

Issue No.	Description	Date Issued
RF180227C27-10	Original Release	Jun. 06, 2018

1 Certificate of Conformity

Product: Digitizer module

Brand: HANVON

Test Model: TP-125S01-H1S1-GT

Sample Status: Identical Prototype

Applicant: Getac Technology Corporation.

Test Date: May 24, 2018 ~ May 25, 2018

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.209)

ANSI C63.10: 2013

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 : Evonne Liu, **Date:** Jun. 06, 2018

Evonne Liu / Specialist

Approved by : Dylan Chiou, **Date:** Jun. 06, 2018

Dylan Chiou / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.207, 15.209)			
FCC Clause	Test Item	Result	Remarks
15.207	Conducted emission test	Pass	Meet the requirement of limit. Minimum passing margin is -17.81 dB at 0.47915 MHz.
15.209	Radiated emission test	Pass	Meet the requirement of limit. Minimum passing margin is -13.55 dB at 160.95 MHz.

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

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Digitizer module
Brand	HANVON
Test Model	TP-125S01-H1S1-GT
Status of EUT	Identical Prototype
Power Supply Rating	5 Vdc from host device
Operating Frequency	500 kHz 400 kHz (Button on)
Antenna Type	Array Antenna
Antenna Connector	N/A
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
Tablet	Getac	K120

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter	Chicony	A12-065N2A	I/P: 100-240 Vac, 50-60 Hz, 1.7 A O/P: 19 Vdc, 3.42 A 1.75 m shielded cable with 1 core
Battery 1	Getac	BP3S1P2100S-01	11.1 Vdc, 2100 mAh
Battery 2	Getac	BP4S1P3450P-01	14.4 Vdc, 3450 mAh
WWAN Module	Sierra	EM7455	--
WiFi & BT Module	Intel	8265NGW	--

* According to the pretest result, the Battery 1 had worse value. Therefore, Battery 1 was used for the final test.

3. This device has 2 configurations as below.

Mode A: 500 kHz

Mode B: 400 kHz (Button on)

4. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 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.

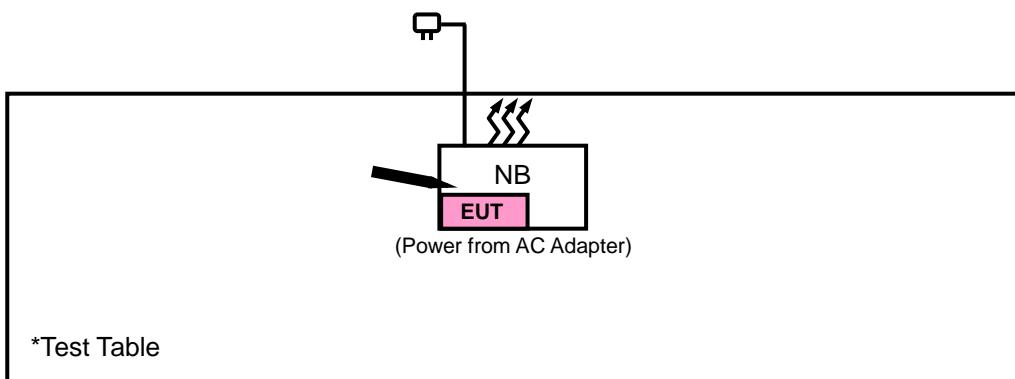
No.	Product	Brand	Model No.	Serial No.	FCC ID
A.	Digitizer pen	N/A	N/A	N/A	N/A

No.	Signal Cable Description Of The Above Support Units
1.	N/A

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. The pen is just replaced the hand to touch tablet screen, not with other RF function.

3.2.1 Configuration of System under Test



3.3 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 C63.10-2013

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

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 1.705	24000/F (kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dB_uV/m) = 20 log Emission level (uV/m).
3. For frequencies below 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 17, 2017	Oct. 16, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 12, 2017	Dec. 11, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	9120D	209	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Fixed Attenuator Worken	MDC9331N-20	0724	Jun. 21, 2016	Jun. 20, 2018
Loop Antenna	6509	00217556	Aug. 31, 2017	Aug. 30, 2018
Preamplifier EMCI	EMC001340	980201	Nov. 01, 2017	Oct. 31, 2018
Bluetooth Tester	CBT	100946	Jul. 29, 2016	Jul. 28, 2018
Preamplifier EMCI	EMC 012645	980115	Oct. 20, 2017	Oct. 19, 2018
Preamplifier EMCI	EMC 184045	980116	Oct. 20, 2017	Oct. 19, 2018
Preamplifier EMCI	EMC 330H	980112	Oct. 20, 2017	Oct. 19, 2018
High Speed Peak Power Meter	ML2495A	0824012	Aug. 18, 2017	Aug. 17, 2018
Power Sensor	MA2411B	0738171	Aug. 18, 2017	Aug. 17, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 21, 2017	Aug. 20, 2018
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-S M-8000	Cable-CH3-03 (309224+170907)	Sep.11, 2017	Sep. 10, 2018
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 20, 2017	Oct. 19, 2018
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

Note:

1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.
3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1GHz if tested.
4. The IC Site Registration No. is IC7450F-10.

4.1.3 Test Procedures

For Radiated Emission below 30 MHz

- 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. Both 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.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.
2. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9 – 90 kHz, 110 – 490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

For Radiated Emission above 30 MHz

- a. 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.
- 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.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

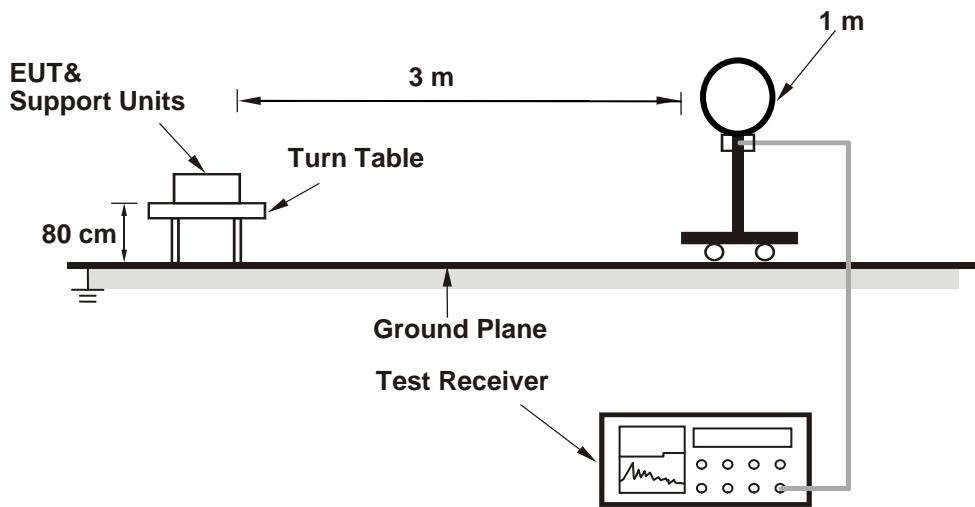
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

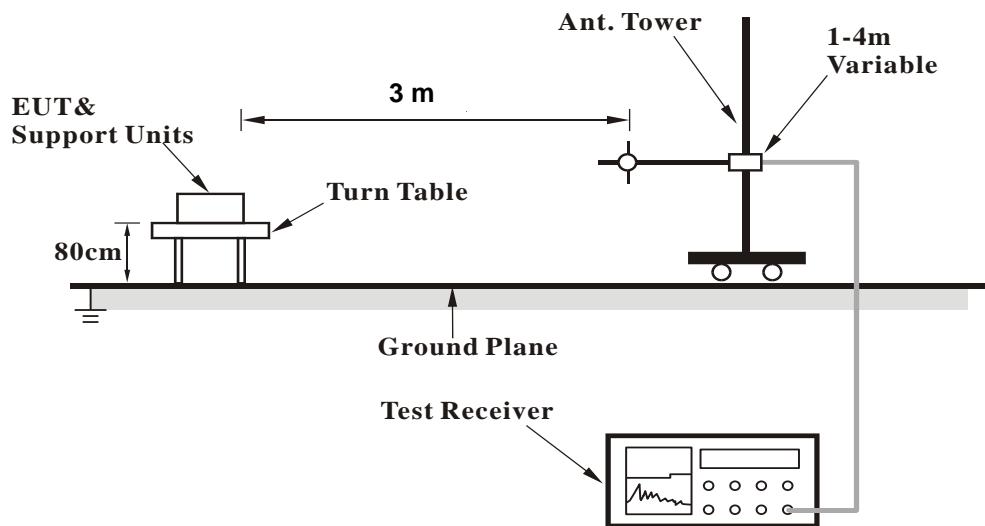
No deviation.

4.1.5 Test Setup

<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



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

Mode A

EUT Test Condition			Measurement Detail							
Input Power		120 Vac, 60 Hz			Frequency Range			0.009 ~ 30 MHz		
Environmental Conditions		25 deg. C, 65 % RH			Detector Function			Average Quasi-Peak		
Tested By		Jisyong Wang								

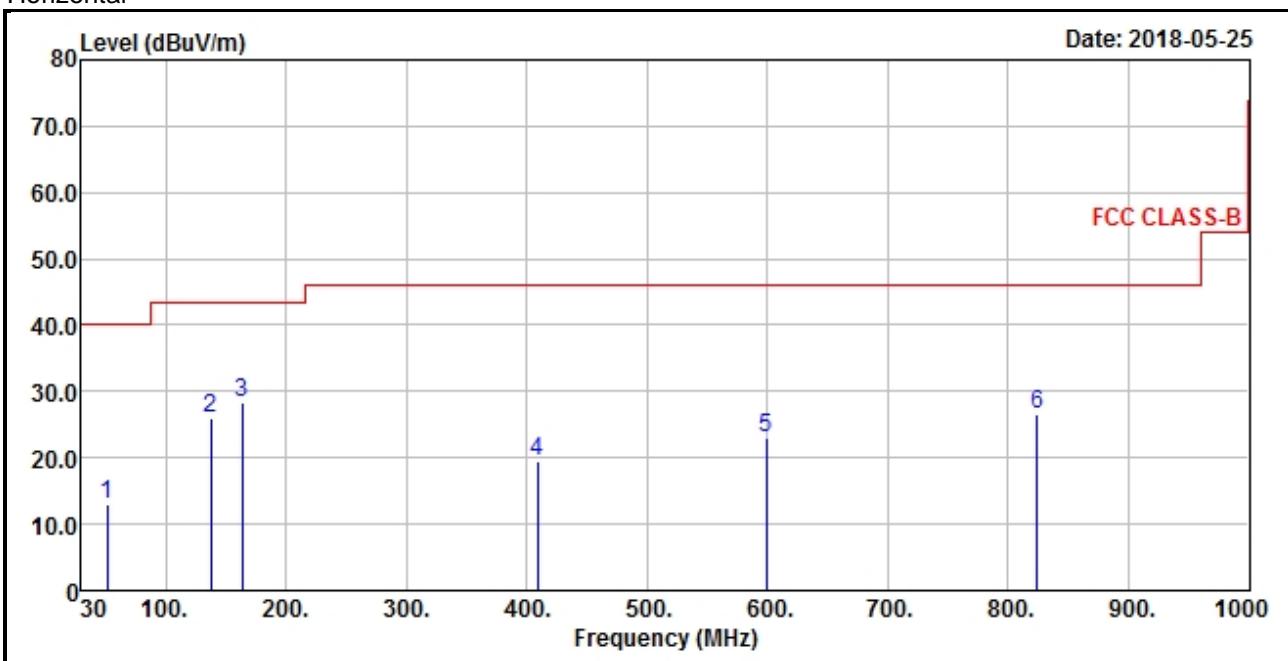
Antenna Polarity & Test Distance: Open at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
0.5	57.09	77.43	73.62	-16.53	20.25	0.06	40.65	100	360	QP
1	45.95	66.29	67.6	-21.65	20.27	0.13	40.74	100	360	QP
1.5	43.38	63.72	64.08	-20.7	20.28	0.15	40.77	100	360	QP
2	41.39	61.73	69.54	-28.15	20.29	0.17	40.8	100	360	QP
2.5	40.38	60.74	69.54	-29.16	20.32	0.18	40.86	100	360	QP
3	39.72	60.09	69.54	-29.82	20.35	0.19	40.91	100	360	QP
3.5	39.91	60.28	69.54	-29.63	20.39	0.19	40.95	100	360	QP
Antenna Polarity & Test Distance: Close at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
0.5	53.31	73.65	73.62	-20.31	20.25	0.06	40.65	100	0	QP
1	46.61	66.95	67.6	-20.99	20.27	0.13	40.74	100	0	QP
1.5	43.87	64.21	64.08	-20.21	20.28	0.15	40.77	100	0	QP
2	46.39	66.73	69.54	-23.15	20.29	0.17	40.8	100	0	QP
2.5	44.38	64.74	69.54	-25.16	20.32	0.18	40.86	100	0	QP
3	40.95	61.32	69.54	-28.59	20.35	0.19	40.91	100	0	QP
3.5	46.87	67.24	69.54	-22.67	20.39	0.19	40.95	100	0	QP
Antenna Polarity & Test Distance: Ground at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
0.5	51.59	71.93	73.62	-22.03	20.25	0.06	40.65	100	360	QP
1	44.25	64.59	67.6	-23.35	20.27	0.13	40.74	100	360	QP
1.5	41.95	62.29	64.08	-22.13	20.28	0.15	40.77	100	360	QP
2	41.08	61.42	69.54	-28.46	20.29	0.17	40.8	100	360	QP
2.5	40.82	61.18	69.54	-28.72	20.32	0.18	40.86	100	360	QP
3	38.2	58.57	69.54	-31.34	20.35	0.19	40.91	100	360	QP
3.5	38.63	59	69.54	-30.91	20.39	0.19	40.95	100	360	QP

Remarks:

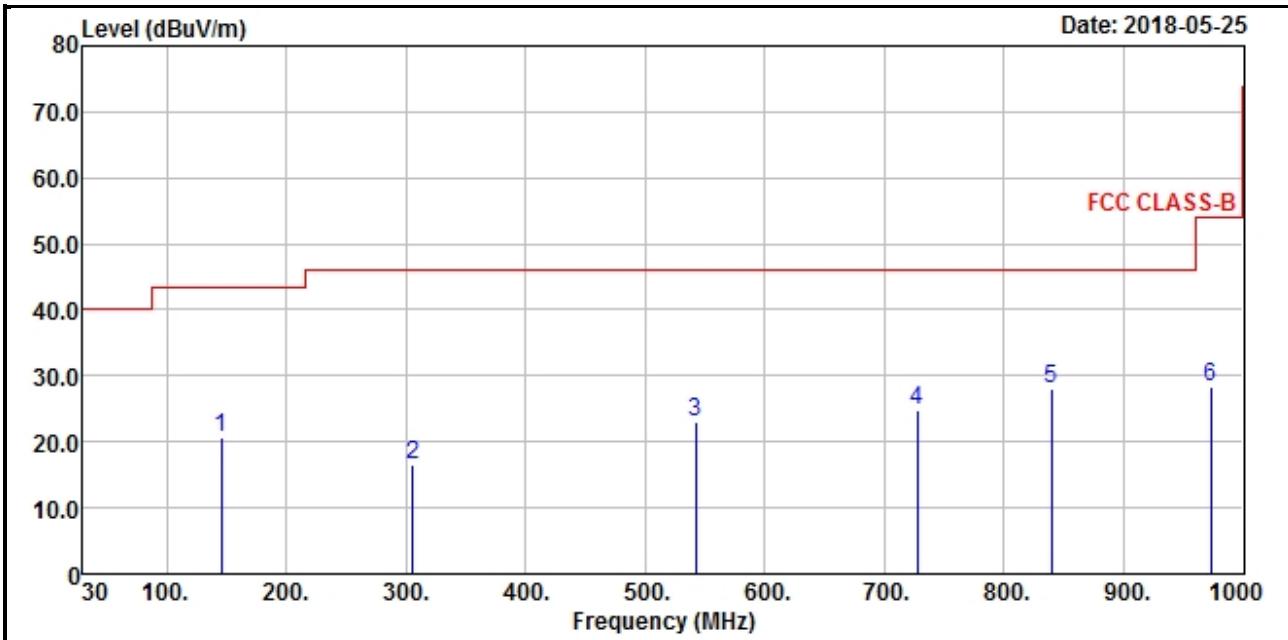
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

EUT Test Condition		Measurement Detail	
Input Power	120 Vac, 60 Hz	Frequency Range	30 MHz ~ 1000 MHz
Environmental Conditions	25 deg. C, 65 % RH	Detector Function	Peak
Tested By	Jisyong Wang		

Horizontal



Vertical



Antenna Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
51.34	13.11	31.01	40	-26.89	12.87	0.54	31.31	152	231	Peak
137.67	25.86	44.42	43.5	-17.64	12.21	0.92	31.69	165	214	Peak
163.86	28.36	46.8	43.5	-15.14	12.34	1.04	31.82	111	152	Peak
409.27	19.38	33.74	46	-26.62	15.52	2.12	32	102	231	Peak
599.39	23.17	32.92	46	-22.83	19.59	2.9	32.24	165	258	Peak
824.43	26.59	31.94	46	-19.41	22.54	3.76	31.65	111	165	Peak

Antenna Polarity & Test Distance: Vertical at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
145.43	20.74	38.86	43.5	-22.76	12.54	0.96	31.62	185	214	Peak
305.48	16.59	33.73	46	-29.41	13.08	1.68	31.9	111	165	Peak
542.16	23.09	33.91	46	-22.91	18.28	2.67	31.77	203	211	Peak
727.43	24.68	31.66	46	-21.32	21.2	3.43	31.61	211	165	Peak
839.95	27.9	33.16	46	-18.1	22.74	3.8	31.8	120	231	Peak
972.84	28.25	31.82	54	-25.75	23.92	4.34	31.83	111	195	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value.

Mode B

EUT Test Condition			Measurement Detail						
Input Power		120 Vac, 60 Hz			Frequency Range			0.009 ~ 30 MHz	
Environmental Conditions		25 deg. C, 65 % RH			Detector Function			Average Quasi-Peak	
Tested By		Toby Tian							

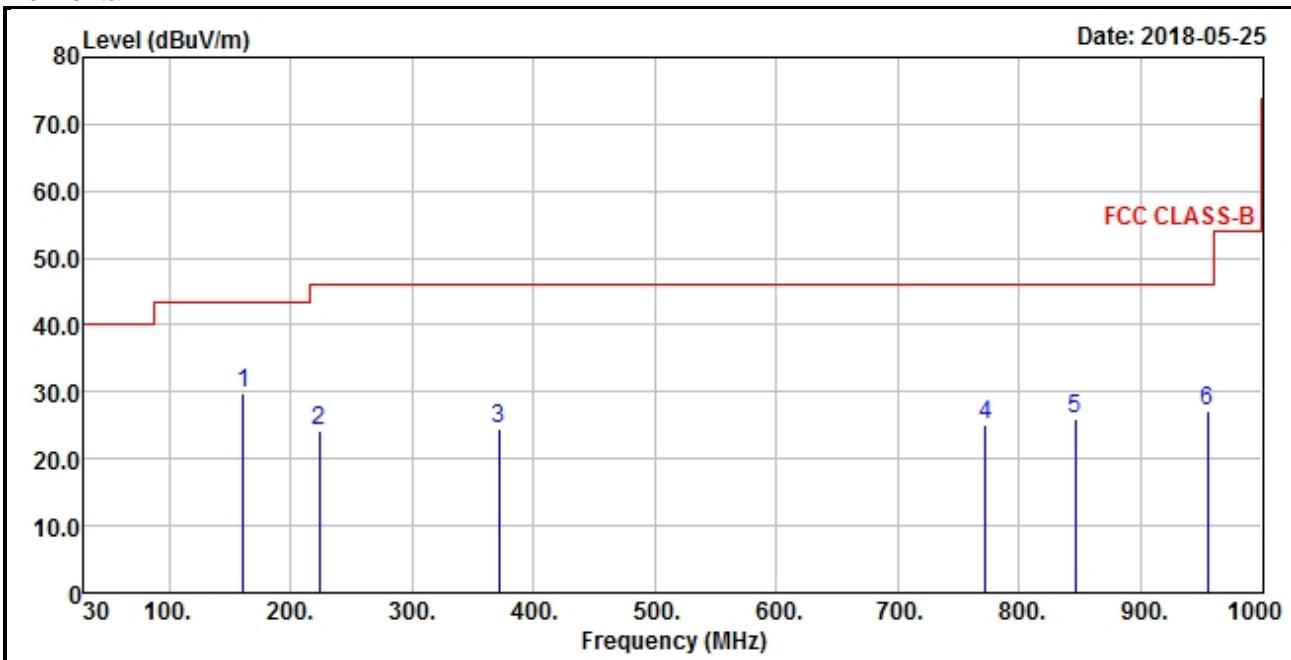
Antenna Polarity & Test Distance: Open at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
0.4	62.53	82.94	95.56	-33.03	20.26	0.04	40.71	100	360	Average
0.8	49.8	70.14	69.54	-19.74	20.26	0.11	40.71	100	360	QP
1.2	46.48	66.82	66.02	-19.54	20.28	0.14	40.76	100	360	QP
1.6	42.69	63.03	63.52	-20.83	20.28	0.16	40.78	100	360	QP
2	41.39	61.73	69.54	-28.15	20.29	0.17	40.8	100	360	QP
2.4	40.12	60.47	69.54	-29.42	20.32	0.18	40.85	100	360	QP
2.8	40.5	60.87	69.54	-29.04	20.34	0.18	40.89	100	360	QP
Antenna Polarity & Test Distance: Close at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
0.4	58.62	79.03	95.56	-36.94	20.26	0.04	40.71	100	0	Average
0.8	47.8	68.14	69.54	-21.74	20.26	0.11	40.71	100	0	QP
1.2	44.25	64.59	66.02	-21.77	20.28	0.14	40.76	100	0	QP
1.6	42.39	62.73	63.52	-21.13	20.28	0.16	40.78	100	0	QP
2	46.39	66.73	69.54	-23.15	20.29	0.17	40.8	100	0	QP
2.4	44.76	65.11	69.54	-24.78	20.32	0.18	40.85	100	0	QP
2.8	41.74	62.11	69.54	-27.8	20.34	0.18	40.89	100	0	QP
Antenna Polarity & Test Distance: Ground at 3 m										
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
0.4	58.44	78.85	95.56	-37.12	20.26	0.04	40.71	100	317	Average
0.8	47.4	67.74	69.54	-22.14	20.26	0.11	40.71	100	317	QP
1.2	43.56	63.9	66.02	-22.46	20.28	0.14	40.76	100	317	QP
1.6	42.19	62.53	63.52	-21.33	20.28	0.16	40.78	100	317	QP
2	41.08	61.42	69.54	-28.46	20.29	0.17	40.8	100	317	QP
2.4	40.23	60.58	69.54	-29.31	20.32	0.18	40.85	100	317	QP
2.8	38.35	58.72	69.54	-31.19	20.34	0.18	40.89	100	317	QP

Remarks:

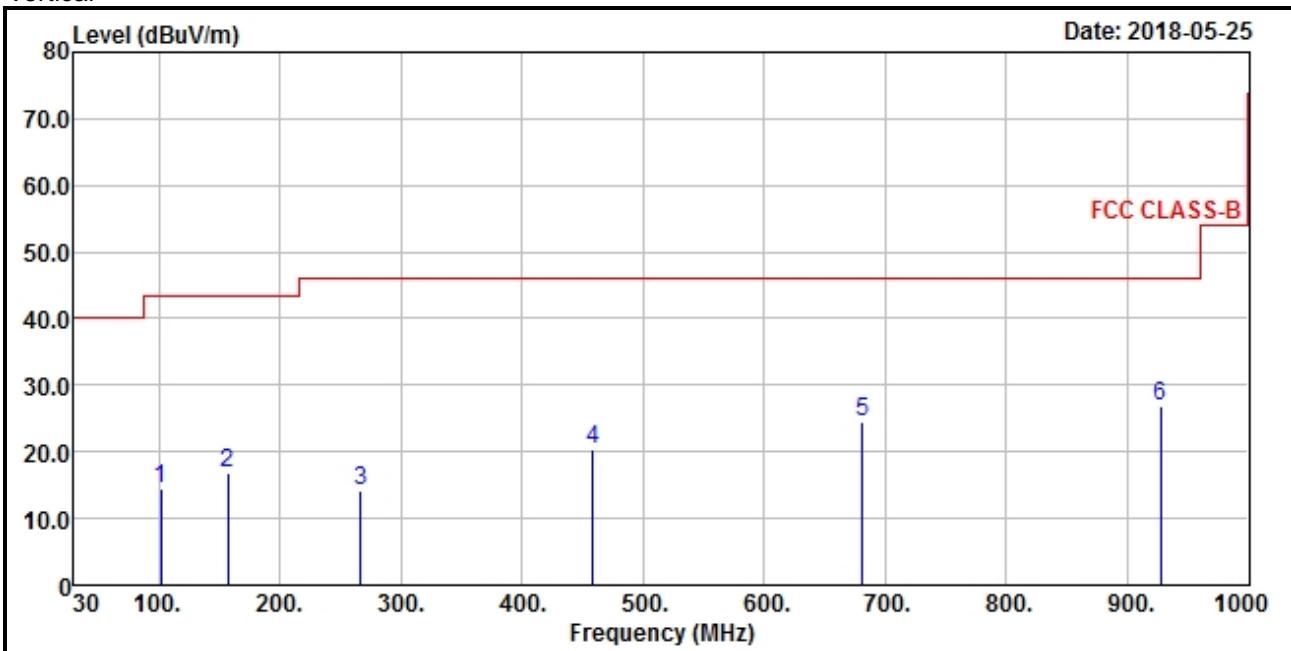
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. Above limits have been translated by the formula

EUT Test Condition		Measurement Detail	
Input Power	120 Vac, 60 Hz	Frequency Range	30 MHz ~ 1000 MHz
Environmental Conditions	25 deg. C, 65 % RH	Detector Function	Peak
Tested By		Jisyong Wang	

Horizontal



Vertical



Antenna Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
160.95	29.95	48.15	43.5	-13.55	12.63	1.03	31.86	125	231	Peak
224	24.33	44.37	46	-21.67	10.38	1.35	31.77	111	165	Peak
371.44	24.43	39.72	46	-21.57	14.66	1.97	31.92	253	121	Peak
772.05	25.1	31.02	46	-20.9	21.83	3.58	31.33	165	251	Peak
845.77	26.12	31.33	46	-19.88	22.81	3.82	31.84	111	102	Peak
955.38	27.11	30.92	46	-18.89	23.82	4.25	31.88	185	214	Peak

Antenna Polarity & Test Distance: Vertical at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
101.78	14.56	36.49	43.5	-28.94	9.25	0.76	31.94	132	256	Peak
157.07	16.94	35.01	43.5	-26.56	12.72	1.01	31.8	152	231	Peak
266.68	14.21	32.7	46	-31.79	11.97	1.52	31.98	165	251	Peak
458.74	20.34	33.52	46	-25.66	16.5	2.31	31.99	132	251	Peak
680.87	24.37	32.4	46	-21.63	20.59	3.22	31.84	165	214	Peak
927.25	26.75	30.93	46	-19.25	23.66	4.15	31.99	201	231	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value.

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
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN/AMN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 06, 2018	Mar. 05, 2019
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_V7.3.7.3	NA	NA	NA

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 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

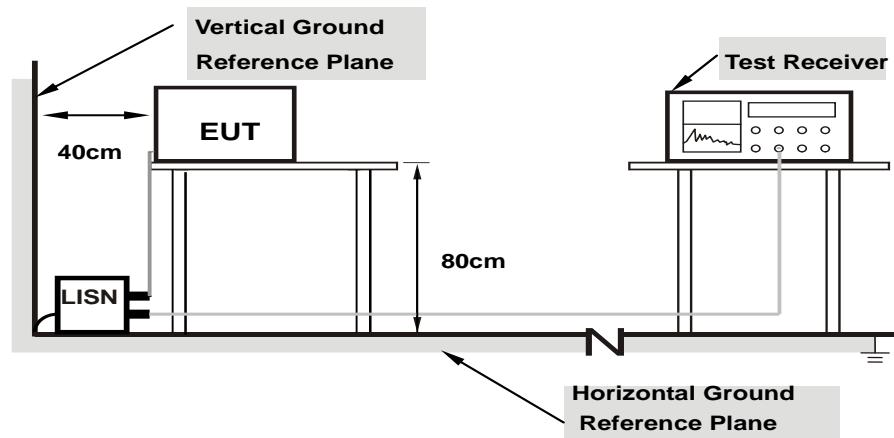
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling 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

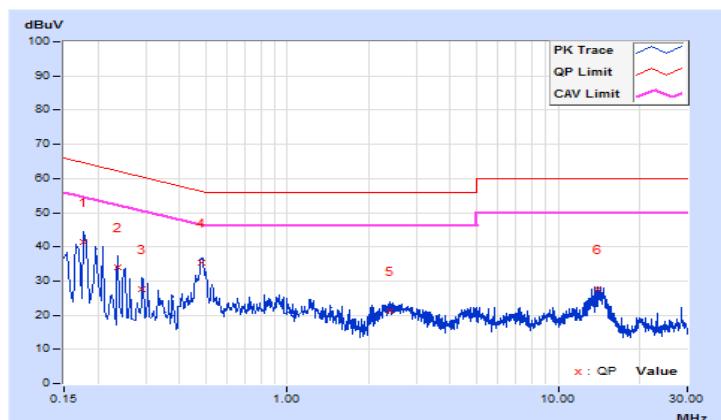
Mode A

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2018/5/25

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	0.17744	10.10	31.15	15.90	41.25	26.00	64.60	54.60	-23.35	-28.60
2	0.23602	10.11	23.93	7.65	34.04	17.76	62.24	52.24	-28.20	-34.48
3	0.29120	10.11	17.39	2.38	27.50	12.49	60.49	50.49	-32.99	-38.00
4	0.48422	10.12	25.24	10.57	35.36	20.69	56.27	46.27	-20.91	-25.58
5	2.40216	10.21	10.88	4.77	21.09	14.98	56.00	46.00	-34.91	-31.02
6	13.92884	10.85	16.64	0.81	27.49	11.66	60.00	50.00	-32.51	-38.34

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

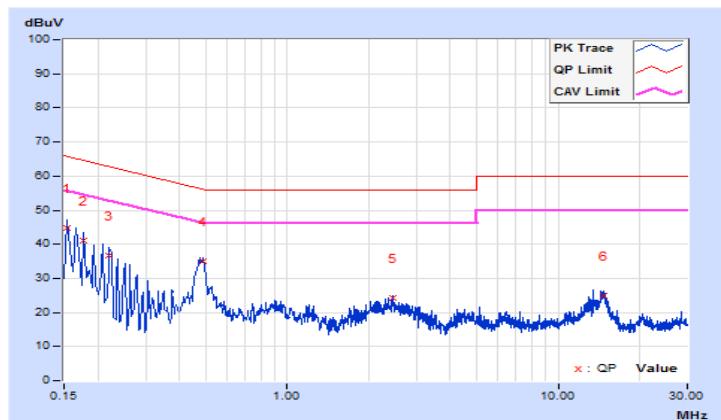


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2018/5/25

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	0.15391	10.10	34.74	20.92	44.84	31.02	65.79	55.79	-20.95	-24.77
2	0.17737	10.10	30.99	16.06	41.09	26.16	64.61	54.61	-23.52	-28.45
3	0.22038	10.11	26.65	10.60	36.76	20.71	62.80	52.80	-26.04	-32.09
4	0.48626	10.12	24.80	10.91	34.92	21.03	56.23	46.23	-21.31	-25.20
5	2.44517	10.20	13.90	0.67	24.10	10.87	56.00	46.00	-31.90	-35.13
6	14.72648	10.72	14.32	0.96	25.04	11.68	60.00	50.00	-34.96	-38.32

Remarks:

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



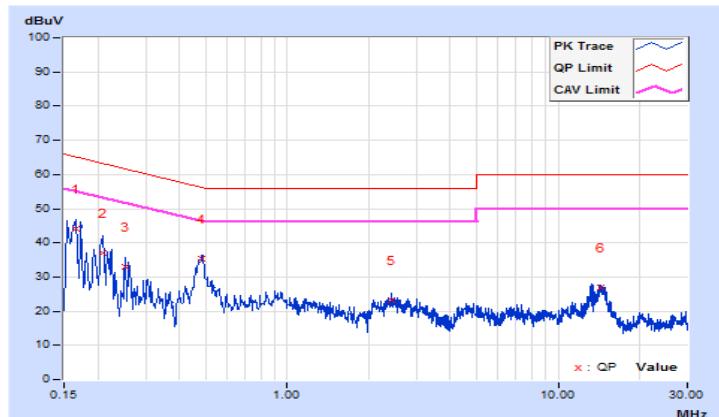
Mode B

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2018/5/25

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	10.10	34.05	20.85	44.15	30.95	65.18	55.18	-21.03	-24.23
2	0.20865	10.10	27.09	11.07	37.19	21.17	63.26	53.26	-26.07	-32.09
3	0.25166	10.11	22.80	8.26	32.91	18.37	61.70	51.70	-28.79	-33.33
4	0.48550	10.12	25.15	10.25	35.27	20.37	56.24	46.24	-20.97	-25.87
5	2.41780	10.21	13.02	0.91	23.23	11.12	56.00	46.00	-32.77	-34.88
6	14.30811	10.88	16.17	0.97	27.05	11.85	60.00	50.00	-32.95	-38.15

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

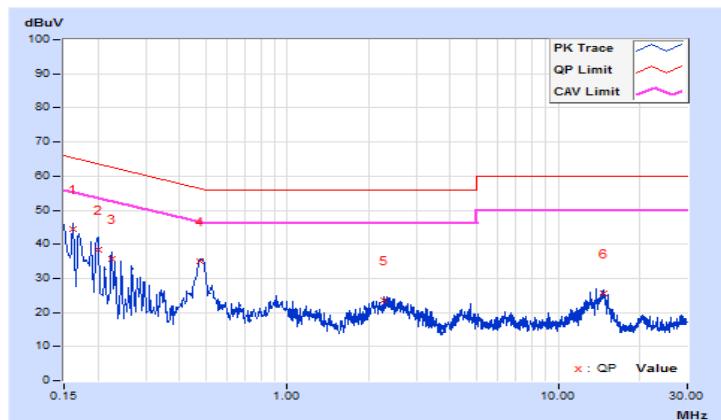


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Getaz Yang	Test Date	2018/5/25

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	0.16173	10.10	34.26	21.68	44.36	31.78	65.37	55.37	-21.01	-23.59
2	0.20031	10.10	28.45	13.09	38.55	23.19	63.60	53.60	-25.05	-30.41
3	0.22434	10.11	25.53	10.31	35.64	20.42	62.66	52.66	-27.02	-32.24
4	0.47915	10.12	24.82	18.42	34.94	28.54	56.35	46.35	-21.41	-17.81
5	2.27704	10.19	13.26	0.14	23.45	10.33	56.00	46.00	-32.55	-35.67
6	14.71475	10.72	14.99	0.60	25.71	11.32	60.00	50.00	-34.29	-38.68

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



5 Pictures of Test Arrangements

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



A D T

Appendix – Information on 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:

Linko EMC/RF Lab

Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

--- END ---