FCC Test Report

Report No.:	FC171108E01C
Test Model:	E31U2V1
FCC ID:	XCNE31U2V1
Received Date:	Aug. 10, 2018
Test Date:	Aug. 14 to 15, 2018
Issued Date:	Nov. 04, 2018
Applicant:	Ubee Interactive Corp.
Address:	10F-1, No. 5, Taiyuan 1st St. Jhubei Ci, Hsinchu County 302, Taiwan , R.O.C.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location (1):	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.
FCC Registration / Designation Number:	810758 / TW1085 for Test Location (1) / 960022 / TW1058 for Test Location (2)

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The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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Release Control Record

Issue No.	Description	Date Issued
FC171108E01C	Original release.	Nov. 04, 2018

1 Certificate of Conformity

Product: Cable Modem Docsis 3.1 eMTA

Brand: Ubee

Test Model: E31U2V1

Applicant: Ubee Interactive Corp.

Test Date: Aug. 14 to 15, 2018

Standards: 47 CFR FCC Part 15, Subpart B, Class B
ICES-003:2016 Issue 6, updated Apr. 2019, Class B
ANSI C63.4:2014

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** Nov. 04, 2018
Claire Kuan / Specialist

Approved by : _____ , **Date:** Nov. 04, 2018
Ken Lu / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart B / ICES-003:2016 Issue 6, updated Apr. 2019, Class B ANSI C63.4:2014				
FCC Clause	ICES-003 Clause	Test Item	Result/Remarks	Verdict
15.107	6.1	AC Power Line Conducted Emissions	Minimum passing Class B margin is -11.88 dB at 0.20147 MHz	Pass
15.109	6.2.1	Radiated Emissions up to 1 GHz	Minimum passing Class B margin is -3.08 dB at 651.12 MHz and 896.70 MHz	Pass
	6.2.2	Radiated Emissions above 1 GHz	Minimum passing Class B margin is -12.82 dB at 5400.02 MHz	Pass

Note: There is no deviation to the applied test methods and requirements covered by the scope of this report.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.84 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	3.95 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	4.84 dB
	6GHz ~ 18GHz	5.24 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 Features of EUT

The tests reported herein were performed according to the method specified by Ubee Interactive Corp., for detailed feature description, please refer to the manufacturer's specifications or user's manual.

3.2 General Description of EUT

Product	Cable Modem Docsis 3.1 eMTA
Brand	Ubee
Test Model	E31U2V1
Operating Software	NA
Power Supply Rating	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	RJ45 cable x 1 (Unshielded, 1.8m)

Note:

1. There is a supplementary report of Report No: FD171108E01B. The differences between them are as below information:
   - ◆ Add a data cable for sale (RJ45 cable x 1 (Unshielded, 1.8m)).
2. According to above condition, there is no addition test has to be performed. All test data are copied from the original test report (Report No.: FD171108E01B). And all data are verified to meet the requirements.
3. The test data are copied which have obtained authorization from applicant and brand company both of the original test report (Report No.: FD171108E01B).
4. The EUT must be supplied from power adapter and following different models could be chosen as following table:

No	Brand	Model No.	Spec.
1	MOSO	MSA-C1500IS12.0-18D-US	Input: 100-240Vac, 0.7A, 50/60Hz Output: 12Vdc, 1.5A DC output cable (Unshielded, 1.8m)
2	DVE	DSA-18PFR-12 FUS 120150	Input: 100-240Vac, 0.6A, 50/60Hz Output: 12Vdc, 1.5A DC output cable (Unshielded, 1.8m)
3	Ktec	KSA-24W-120150VU	Input: 100-240Vac, 0.6A, 50/60Hz Output: 12Vdc, 1.5A DC output cable (Unshielded, 1.8m)
Note: From the above adapters, Adapter 2 was selected as representative adapter for the test and its data was recorded in this report.			

3.3 Operating Modes of EUT and Determination of Worst Case Operating Mode

Test mode is presented in the report as below.

Mode	Test Condition	
	Adapter Model	Ethernet Speed
1	DSA-18PFR-12 FUS 120150	1000Mbps

Note: The test configurations are defined by the applicant requirement.

3.4 Test Program Used and Operation Descriptions

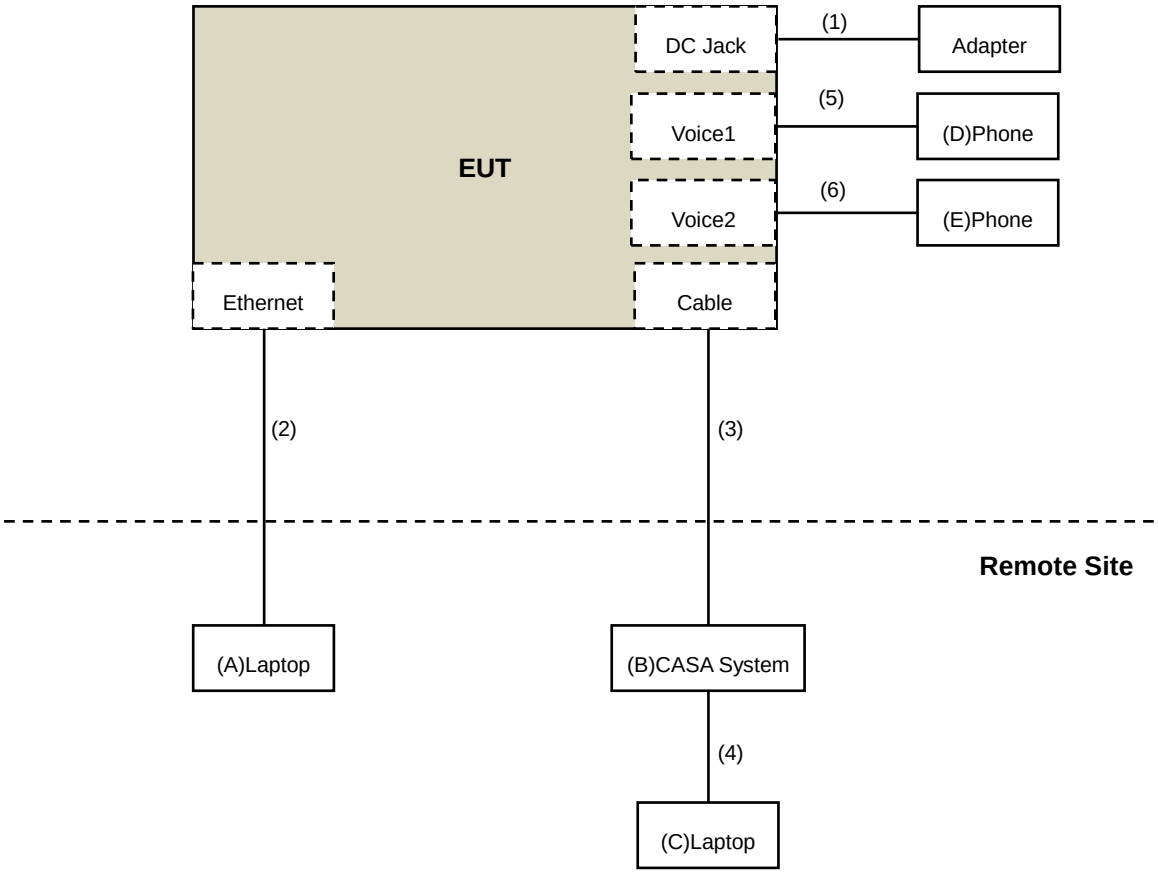
1. Turn on the power of all equipment.
2. Support units A (Laptop) run “Ping.exe” program to communicate with EUT and support unit C (Laptop).
3. Support units D and E (Phone) are calling to each other via EUT.

3.5 Primary Clock Frequencies of Internal Source

The highest frequency generated or used within the EUT or on which the EUT operates or tunes is 1218 MHz, provided by Ubee Interactive Corp., for detailed internal source, please refer to the manufacturer's specifications.

4 Configuration and Connections with EUT

4.1 Connection Diagram of EUT and Peripheral Devices



4.2 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	PP27L	7YLB32S	FCC DoC	Provided by Lab
B.	CASA System	Topvision	CCMTS-CC8800	NA	NA	Supplied by Client
C.	Laptop	HP	8470P	NA	NA	Supplied by Client
D.	Phone	WONDER	WD-303	8C17DA02763	NA	Provided by Lab
E.	Phone	WONDER	WD-303	7C17KA 06072	NA	Provided by Lab

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Power Cable	1	1.8	No	0	Supplied by client
2.	Cat 5e Cable	1	10	No	0	Provided by Lab
3.	Coaxial Cable	1	10	Yes	0	Provided by Lab
4.	Cat 5e Cable	1	3	No	0	Provided by Lab
5.	RJ-11 Cable	1	1.8	No	0	Provided by Lab
6.	RJ-11 Cable	1	1.8	No	0	Provided by Lab

5 Conducted Emissions at Mains Ports

5.1 Limits

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 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	100375	May 15, 2018	May 14, 2019
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Aug. 31, 2017	Aug. 30, 2018
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV 216	10072	June 04, 2018	June 03, 2019
RF Cable	5D-FB	COACAB-002	Feb. 23, 2018	Feb. 22, 2019
10 dB PAD EMEC	STI02-2200-10	001	Mar. 16, 2018	Mar. 15, 2019
50 ohms Terminator	N/A	EMC-03	Sep. 22, 2017	Sep. 21, 2018
50 ohms Terminator	N/A	EMC-02	Sep. 22, 2017	Sep. 21, 2018
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Conducted Room C
3 The VCCI Con C Registration No. is C-3611.
4 Tested Date: Aug. 15, 2018

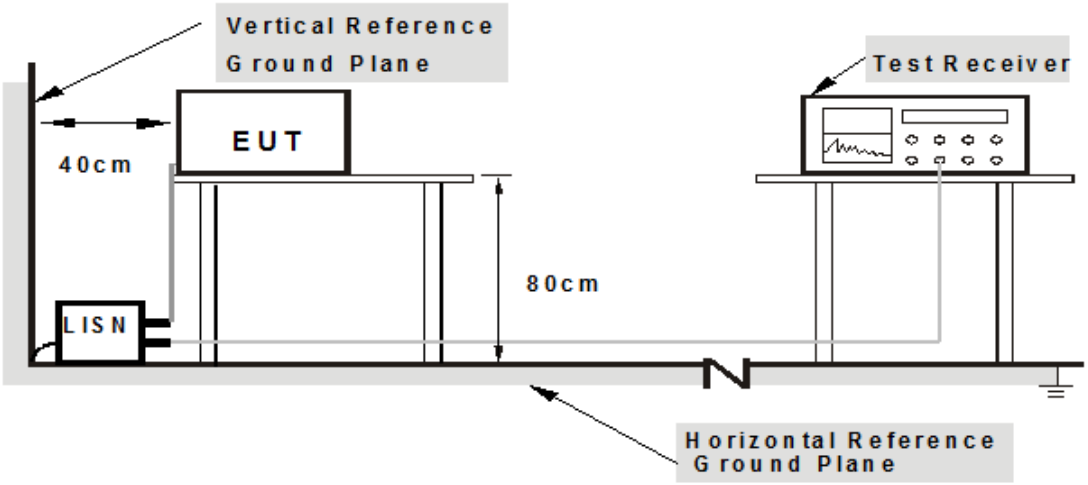
5.3 Test Arrangement

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/ 50uH 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 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.



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

5.4 Supplementary Information

There is not any deviation from the test standards for the test method.

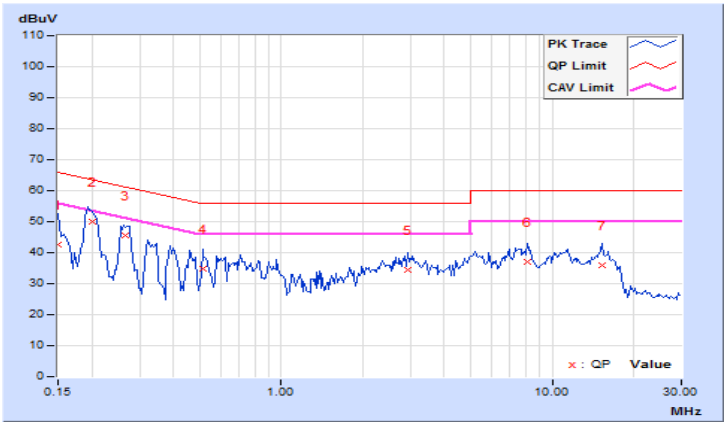
5.5 Test Results

Frequency Range	150kHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	21℃, 60%RH
Tested by	Jay Chan		

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	9.97	32.46	15.52	42.43	25.49	66.00	56.00	-23.57	-30.51
2	0.20072	9.98	40.02	29.94	50.00	39.92	63.58	53.58	-13.58	-13.66
3	0.26675	9.98	35.47	26.19	45.45	36.17	61.22	51.22	-15.77	-15.05
4	0.51328	10.00	24.81	15.22	34.81	25.22	56.00	46.00	-21.19	-20.78
5	2.94531	10.13	24.18	19.52	34.31	29.65	56.00	46.00	-21.69	-16.35
6	8.11719	10.28	26.89	21.56	37.17	31.84	60.00	50.00	-22.83	-18.16
7	15.30469	10.46	25.32	20.92	35.78	31.38	60.00	50.00	-24.22	-18.62

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

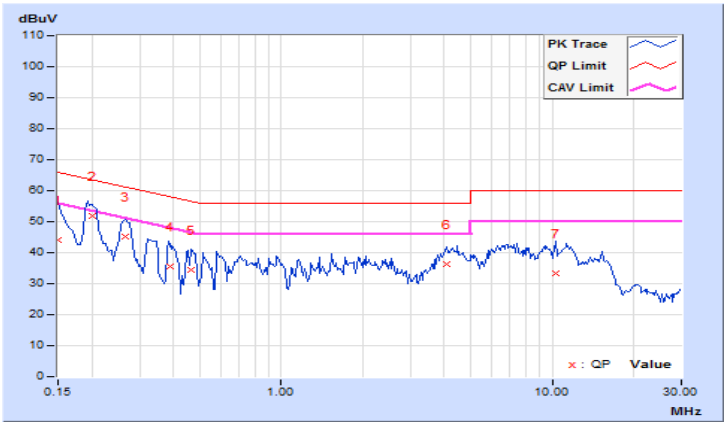


Frequency Range	150kHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	**Environmental Conditions**	21℃, 60%RH
Tested by	Jay Chan		

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	0.15000	9.98	33.93	16.35	43.91	26.33	66.00	56.00	-22.09	-29.67
2	**0.20147**	**9.99**	**41.68**	**29.50**	**51.67**	**39.49**	**63.55**	**53.55**	**-11.88**	**-14.06**
3	0.26719	10.00	35.30	25.52	45.30	35.52	61.20	51.20	-15.90	-15.68
4	0.39113	10.01	25.50	16.87	35.51	26.88	58.04	48.04	-22.53	-21.16
5	0.46641	10.02	24.27	15.40	34.29	25.42	56.58	46.58	-22.29	-21.16
6	4.08984	10.22	25.98	20.44	36.20	30.66	56.00	46.00	-19.80	-15.34
7	10.28516	10.37	22.94	16.72	33.31	27.09	60.00	50.00	-26.69	-22.91

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



6 Radiated Emissions up to 1 GHz

6.1 Limits

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 10 meters (dBμV/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	39	29.5	40	30
88-216	43.5	33.1		
216-230	46.4	35.6		
230-960			47	37
960-1000	49.5	43.5		

Radiated Emissions Limits at 3 meters (dBμV/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	49.5	40	50.5	40.5
88-216	54	43.5		
216-230	56.9	46		
230-960			57.5	47.5
960-1000	60	54		

Notes:
1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. QP detector shall be applied if not specified.

6.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010125	Apr. 12, 2018	Apr. 11, 2019
	N9038A	MY50010132	June 06, 2018	June 05, 2019
Pre-Amplifier Sonoma	310N	352925	Aug. 28, 2017	Aug. 27, 2018
	310N	352926	Aug. 28, 2017	Aug. 27, 2018
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-359	Dec. 11, 2017	Dec. 10, 2018
	VULB 9168	9168-358	Dec. 06, 2017	Dec. 05, 2018
Fixed attenuator Mini-Circuits	UNAT-5+	CHF-001	Sep. 07, 2017	Sep. 06, 2018
	UNAT-5+	CHF-002	Sep. 07, 2017	Sep. 06, 2018
RF Cable	8D-FB	CHFCAB-001-1 CHFCAB-001-3 CHFCAB-001-4	Sep. 20, 2017	Sep. 19, 2018
		CHFCAB-002-1 CHFCAB-002-3 CHFCAB-002-4	Sep. 20, 2017	Sep. 19, 2018
Software BVADT	ADT_Radiated_V 8.7.08	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

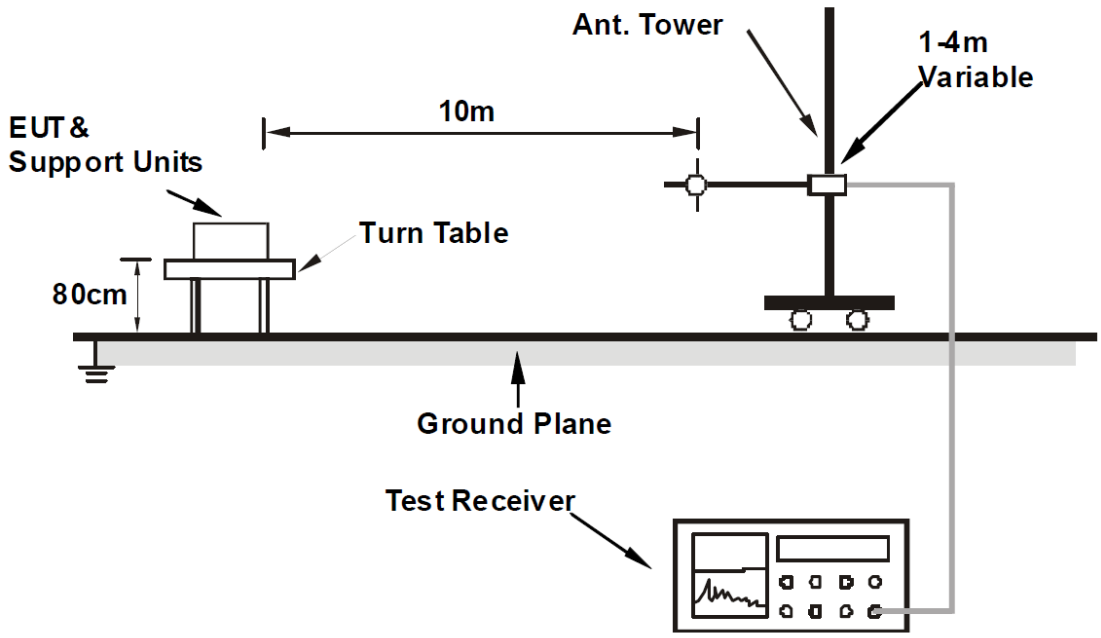
Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Chamber F room
3. The VCCI Site Registration No. is R-3252.
4. The CANADA Site Registration No. is IC 7450H-1.
5. Tested Date: Aug. 14, 2018

6.3 Test Arrangement

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited test facility. The table was rotated 360 degrees to determine the position of the highest radiation.
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.

6.4 Supplementary Information

There is not any deviation from the test standards for the test method.

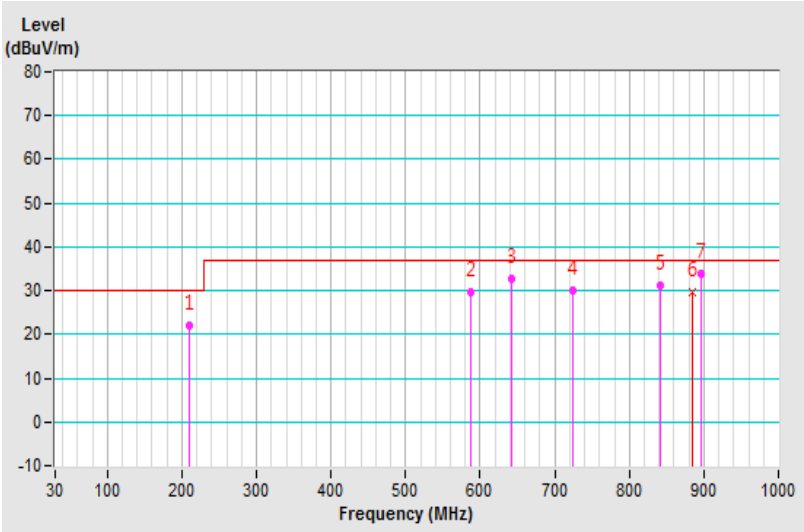
6.5 Test Results

Frequency Range	30MHz ~ 1GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Input Power	120Vac, 60Hz	Environmental Conditions	20℃, 64%RH
Tested by	Jay Chan		

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	209.16	22.00 QP	30.00	-8.00	3.00 H	324	37.58	-15.58
2	587.00	29.80 QP	37.00	-7.20	1.00 H	260	34.23	-4.43
3	642.72	32.54 QP	37.00	-4.46	4.00 H	249	36.02	-3.48
4	724.64	30.11 QP	37.00	-6.89	1.00 H	294	32.46	-2.35
5	840.97	31.03 QP	37.00	-5.97	1.00 H	310	31.03	0.00
6	884.72	29.78 QP	37.00	-7.22	1.00 H	311	29.01	0.77
7	**896.70**	**33.92 QP**	**37.00**	**-3.08**	**1.01 H**	**289**	**32.81**	**1.11**

Remarks:

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

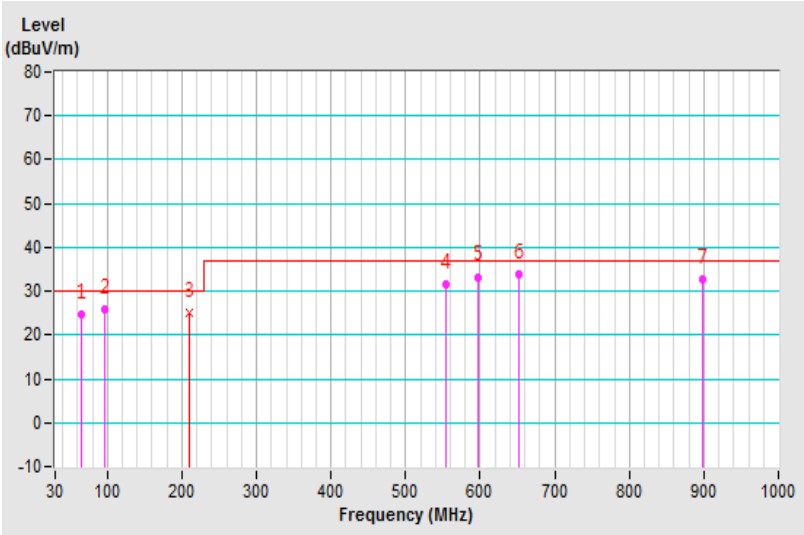


Frequency Range	30MHz ~ 1GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Input Power	120Vac, 60Hz	Environmental Conditions	20℃, 64%RH
Tested by	Jay Chan		

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	64.70	24.53 QP	30.00	-5.47	2.00 V	30	38.49	-13.96
2	95.69	25.90 QP	30.00	-4.10	1.00 V	93	43.73	-17.83
3	209.67	24.91 QP	30.00	-5.09	1.00 V	166	40.56	-15.65
4	553.44	31.54 QP	37.00	-5.46	3.00 V	190	36.41	-4.87
5	597.23	33.27 QP	37.00	-3.73	3.00 V	256	36.66	-3.39
6	**651.12**	**33.92 QP**	**37.00**	**-3.08**	**3.01 V**	**321**	**36.46**	**-2.54**
7	898.39	32.70 QP	37.00	-4.30	2.00 V	201	30.39	2.31

Remarks:

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



7 Radiated Emissions above 1 GHz

7.1 Limits

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 10 meters (dBµV/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
1000-3000	Avg: 49.5 Peak: 69.5	Avg: 43.5 Peak: 63.5	Not defined	Not defined
Above 3000			Not defined	Not defined

Radiated Emissions Limits at 3 meters (dBµV/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
1000-3000	Avg: 60 Peak: 80	Avg: 54 Peak: 74	Avg: 56 Peak: 76	Avg: 50 Peak: 70
Above 3000			Avg: 60 Peak: 80	Avg: 54 Peak: 74

Notes:
1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, 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 20dB under any condition of modulation.

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

7.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010125	Apr. 12, 2018	Apr. 11, 2019
Pre-Amplifier Agilent	8449B	3008A01975	Feb. 22, 2018	Feb. 21, 2019
Horn Antenna SCHWARZBECK	BBHA 9120D	D123	Dec. 01, 2017	Nov. 30, 2018
RF Coaxial Cable	EMC104-SM-SM -11000	170209	Mar. 06, 2018	Mar. 05, 2019
RF Coaxial Cable	EMC104-SM-SM -6000	170207	Mar. 06, 2018	Mar. 05, 2019
RF Coaxial Cable	EMC104-SM-SM -2500	170206	Mar. 06, 2018	Mar. 05, 2019
Software BVADT	ADT_Radiated_ V8.7.08	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA
Fix tool for Boresight antenna tower	BAF-01	5	NA	NA

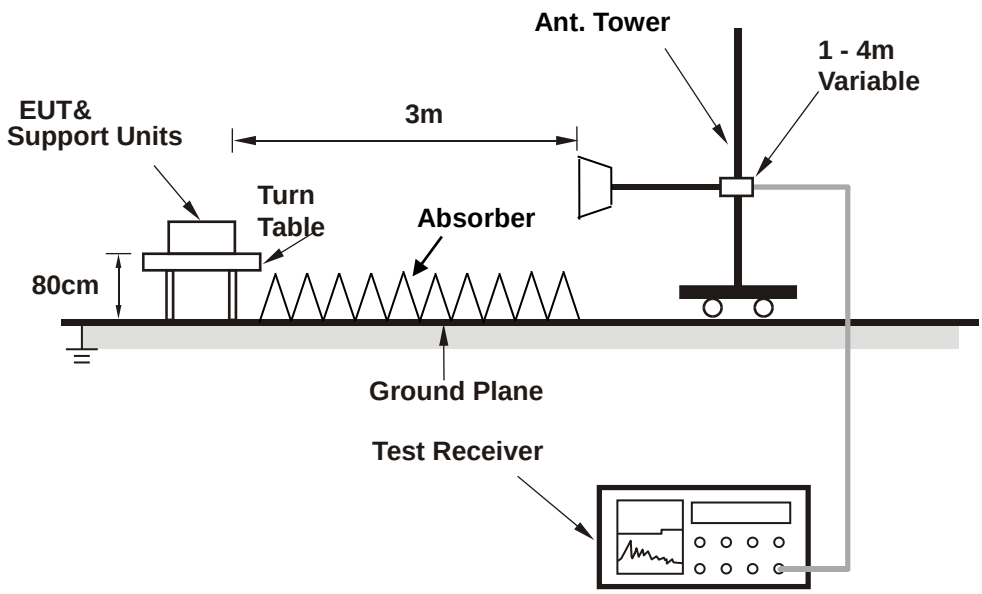
Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Chamber F room
3. Tested Date: Aug. 14, 2018

7.3 Test Arrangement

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited 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. 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.
d. 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.
e. 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.



The test arrangement is in accordance with ANSI 63.4:2014. For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7.4 Supplementary Information

There is not any deviation from the test standards for the test method.

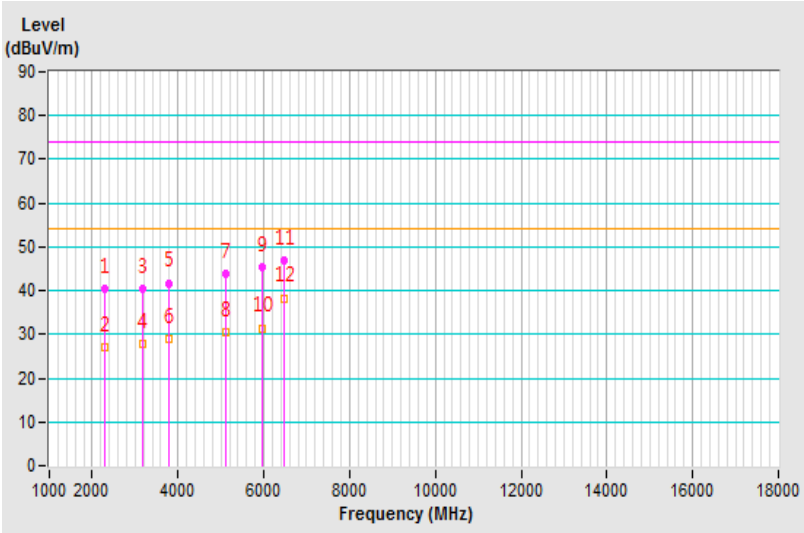
7.5 Test Results

Frequency Range	1GHz ~ 18GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	120Vac, 60Hz	Environmental Conditions	20℃, 64%RH
Tested by	Jay Chan		

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	2278.82	40.24 PK	74.00	-33.76	1.00 H	161	39.51	0.73
2	2278.82	26.89 AV	54.00	-27.11	1.00 H	360	26.16	0.73
3	3192.57	40.57 PK	74.00	-33.43	1.00 H	307	37.97	2.60
4	3192.57	27.67 AV	54.00	-26.33	1.00 H	1	25.07	2.60
5	3777.37	41.75 PK	74.00	-32.25	1.00 H	307	37.06	4.69
6	3777.37	28.80 AV	54.00	-25.20	1.00 H	1	24.11	4.69
7	5114.43	43.86 PK	74.00	-30.14	1.00 H	212	35.25	8.61
8	5114.43	30.49 AV	54.00	-23.51	1.00 H	360	21.88	8.61
9	5966.98	45.34 PK	74.00	-28.66	1.00 H	123	35.71	9.63
10	5966.98	31.42 AV	54.00	-22.58	1.00 H	1	21.79	9.63
11	6479.84	46.99 PK	74.00	-27.01	1.00 H	55	35.23	11.76
12	6479.84	38.29 AV	54.00	-15.71	1.00 H	306	26.53	11.76

Remarks:

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

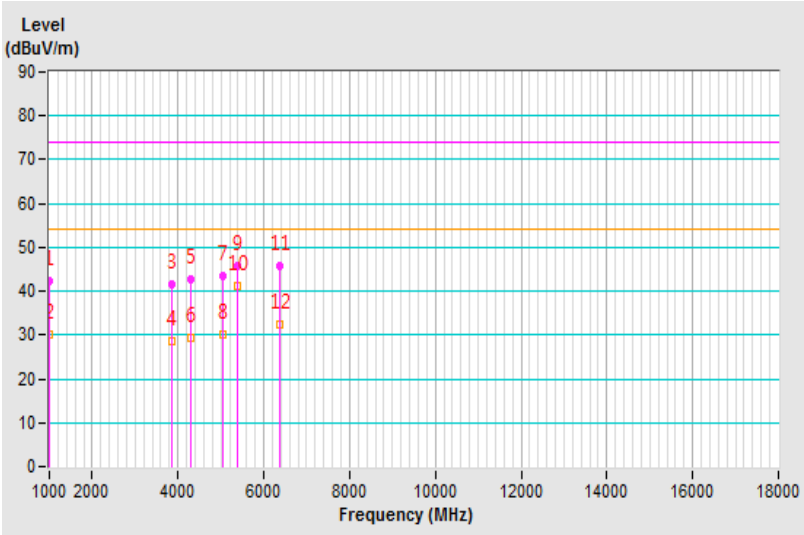


Frequency Range	1GHz ~ 18GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	120Vac, 60Hz	Environmental Conditions	20℃, 64%RH
Tested by	Jay Chan		

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	1011.05	42.23 PK	74.00	-31.77	1.00 V	222	48.79	-6.56
2	1011.05	29.96 AV	54.00	-24.04	1.00 V	360	36.52	-6.56
3	3867.47	41.55 PK	74.00	-32.45	1.00 V	70	36.82	4.73
4	3867.47	28.49 AV	54.00	-25.51	1.00 V	1	23.76	4.73
5	4293.75	42.55 PK	74.00	-31.45	1.00 V	88	36.67	5.88
6	4293.75	29.28 AV	54.00	-24.72	1.00 V	0	23.40	5.88
7	5042.18	43.29 PK	74.00	-30.71	1.00 V	142	35.05	8.24
8	5042.18	30.00 AV	54.00	-24.00	1.00 V	0	21.76	8.24
9	5400.02	45.70 PK	74.00	-28.30	1.00 V	268	37.21	8.49
10	**5400.02**	**41.18 AV**	**54.00**	**-12.82**	**1.00 V**	**0**	**32.69**	**8.49**
11	6371.57	45.65 PK	74.00	-28.35	1.00 V	272	34.58	11.07
12	6371.57	32.50 AV	54.00	-21.50	1.00 V	360	21.43	11.07

Remarks:

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



8 Pictures of Test Arrangements

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

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:

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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.

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