

## FCC Test Report (Wireless Charger)

**Report No.:** RF191202C10

**FCC ID:** K7SG1S0001

**Test Model:** G1S0001

**Received Date:** Dec. 02, 2019

**Test Date:** Dec. 28, 2019 ~ Jan. 20, 2020

**Issued Date:** Jan. 22, 2020

**Applicant:** Belkin International, Inc

**Address:** 12045 East Waterfront Drive, Playa Vista, USA, CA 90094

**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

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

**FCC Registration /  
Designation Number:** 788550 / TW0003



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### Release Control Record

Issue No.	Description	Date Issued
RF191202C10	Original Release	Jan. 22, 2020

## 1 Certificate of Conformity

**Product:** Smart Speaker

**Brand:** belkin

**Test Model:** G1S0001

**Sample Status:** Engineering Sample

**Applicant:** Belkin International, Inc

**Test Date:** Dec. 28, 2019 ~ Jan. 20, 2020

**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 :** Gina Liu, **Date:** Jan. 22, 2020  
Gina Liu / Specialist

**Approved by :** Dylan Chiou, **Date:** Jan. 22, 2020  
Dylan Chiou / Senior 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 -21.61 dB at 0.15391 MHz.
15.209	Radiated emission test	Pass	Meet the requirement of limit. Minimum passing margin is -6.09 dB at 151.25 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	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.94 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	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

<b>Product</b>	Smart Speaker
<b>Brand</b>	belkin
<b>Test Model</b>	G1S0001
<b>Status of EUT</b>	Engineering Sample
<b>Power Supply Rating</b>	19.0 Vdc (Adapter)
<b>Modulation Type</b>	FSK
<b>Operating Frequency</b>	127.7 kHz
<b>Dimension for Charging Coil</b>	39.5 * 47.5 mm
<b>Antenna Type</b>	Coil Antenna
<b>Field Strength</b>	90.19 dBuV/m
<b>Accessory Device</b>	Adapter
<b>Data Cable Supplied</b>	N/A
<b>Maximum Power Output for Charging Coil</b>	10 W

Note:

1. The EUT contains following accessory devices.

Product	Brand	Model	Description
Switching Adapter	belkin	DSA-65PFB-19 FUS 190342	I/P: 100-240 Vac, 50/60 Hz, 1.5 A O/P: 19 Vdc, 3.42 A 1.45 meter, non-shielded cable, with one ferrite core

2. The EUT have the three charging rate (10%, 50%, 90%). After pre-tested all the charging rate and found charging 10% was the worst. Therefore only charging 10% was for the final test and presented in the test.
3. 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 Test Modes

1 channel is provided to this EUT:

Channel	Frequency (kHz)
1	127.7

#### 3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To		Description
	RE<1G	PLC	
A	√	√	Charging Mode
B	√	√	Standby Mode

Where **RE<1G**: Radiated Emission below 1 GHz **PLC**: Power Line Conducted Emission

#### **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
A, B	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
A, B	1	1

#### **Test Condition:**

Applicable To	Environmental Conditions	Input Power	Tested By
RE	25 deg. C, 65 % RH	120 Vac, 60 Hz	Tim Chen
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Tim Chen

### 3.3 Description of Support Units

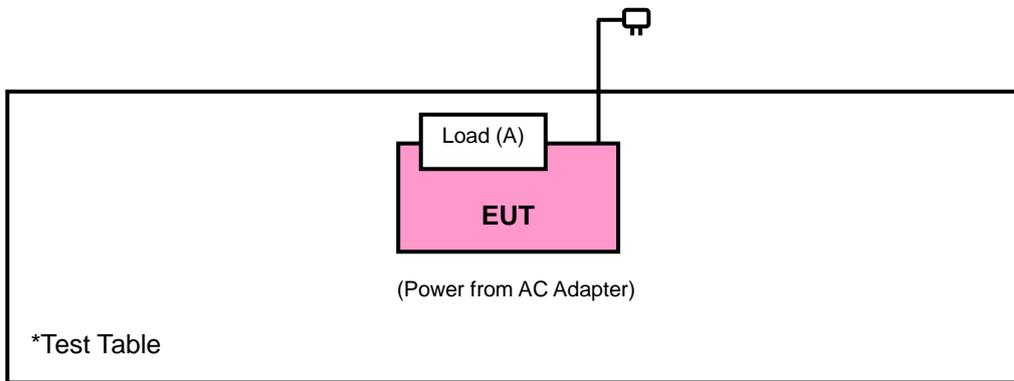
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Load	N/A	N/A	N/A	N/A	Provided by manufacturer (10W max load)

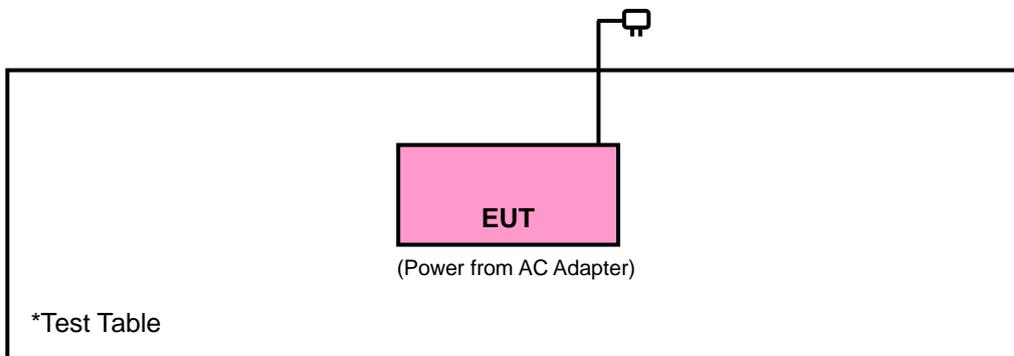
Note: Item A was provided by client

#### 3.3.1 Configuration of System under Test

##### Test Mode A



##### Test Mode B



### 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 C63.10-2013

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

##### 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)	Class A (at 10m)		Class B (at 3m)	
	uV/m	dBuV/m	uV/m	dBuV/m
30-88	90	39.1	100	40.0
88-216	150	43.5	150	43.5
216-960	210	46.4	200	46.0
Above 960	300	49.5	500	54.0

## 4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Mar. 18, 2019	Mar. 17, 2020
Spectrum Analyzer Agilent	N9010A	MY52220314	Dec. 12, 2019	Dec. 11, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Apr. 15, 2019	Apr. 14, 2020
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Nov. 08, 2019	Nov. 07, 2020
Fixed Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020
Loop Antenna TESEQ	HLA 6121	45745	Jul. 01, 2019	Jun. 30, 2020
Preamplifier EMCI	EMC001340	980201	Oct. 14, 2019	Oct. 13, 2020
Preamplifier EMCI	EMC 330H	980112	Oct. 08, 2019	Oct. 07, 2020
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 08, 2019	Oct. 07, 2020
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
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 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 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, set the frequency band (9-90kHz, 110-490kHz) for Average Detect Function, and Specified Bandwidth with Maximum Hold Mode.

##### **Note:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is for 9kHz to 150kHz, set RBW=200Hz & 150kHz to 30MHz, set RBW=9kHz at frequency below 30 MHz.
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 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:**

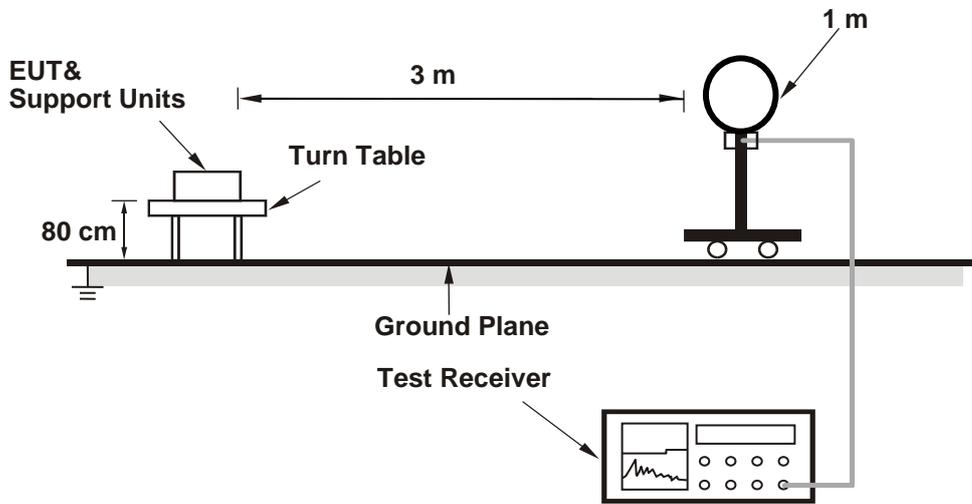
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98 %) or 10 Hz (Duty cycle  $\geq 98$  %) for Average detection (AV) at frequency above 1 GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 Deviation from Test Standard

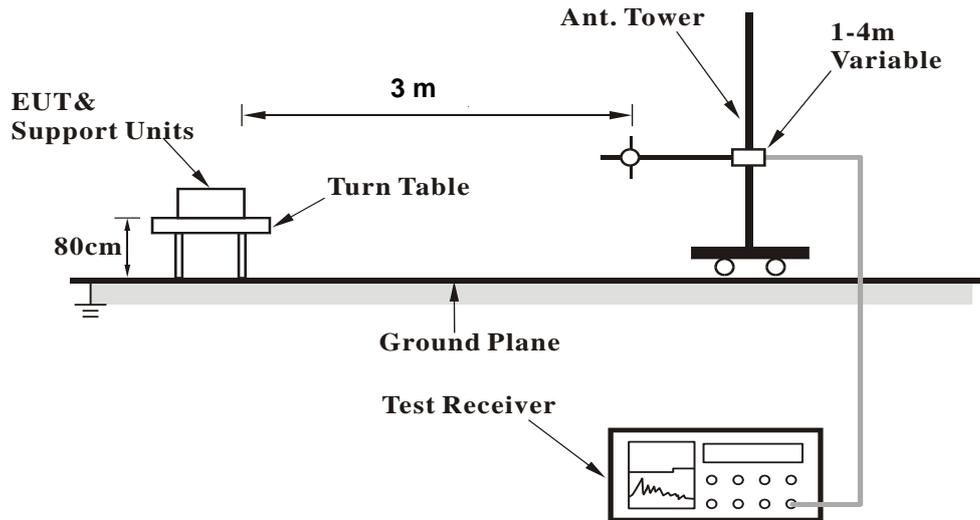
No deviation.

#### 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

##### Test Mode A

- a. The EUT powered by adapter.
- b. Put the load on the EUT (wireless charging) during the test.

##### Test Mode B

- a. The EUT powered by adapter.

4.1.7 Test Results

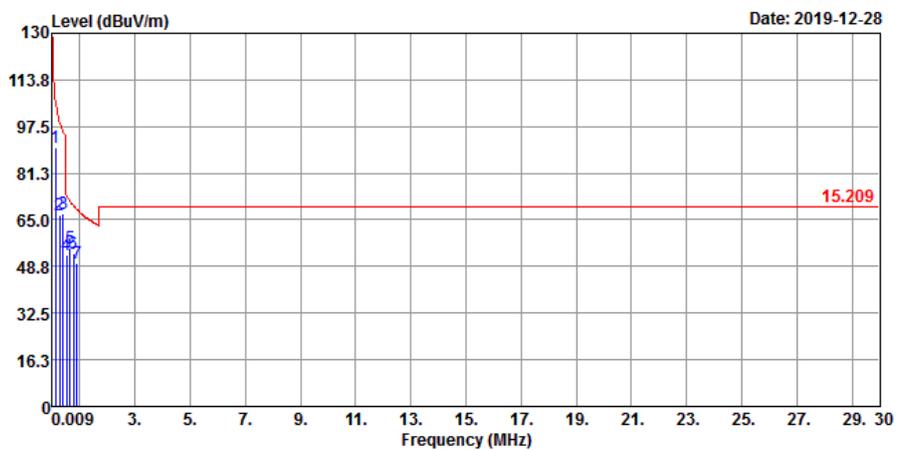
Below 30 MHz Data:

Charging Mode

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	Tim Chen		

Parallel



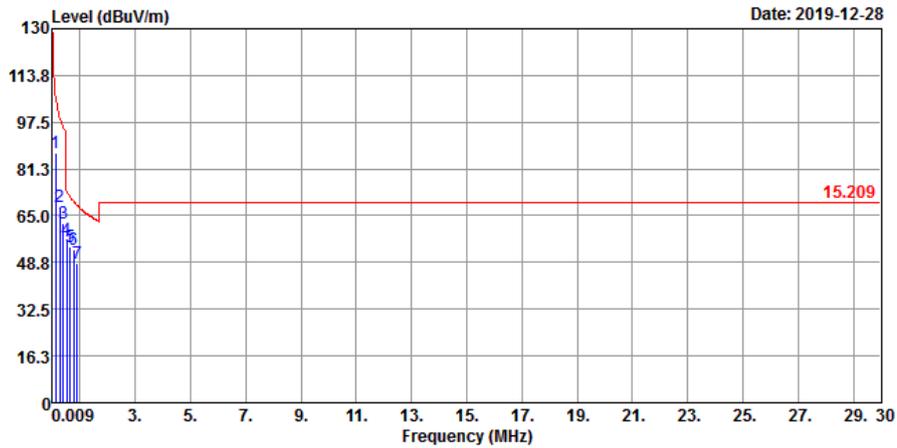
Antenna Polarity & Test Distance: Parallel at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
0.12785	90.19	71.07	19.12	105.47	-15.28	100	360	Average
0.2557	66.71	47.07	19.64	99.45	-32.74	100	360	Average
0.38355	66.99	47.26	19.73	95.93	-28.94	100	360	Average
0.5114	52.97	33.27	19.7	73.43	-20.46	100	360	QP
0.63925	55.37	35.63	19.74	71.49	-16.12	100	360	QP
0.7671	53.02	33.25	19.77	69.91	-16.89	100	360	QP
0.89495	50.06	30.26	19.8	68.57	-18.51	100	360	QP

Remarks:

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

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	Tim Chen		

**Perpendicular**



**Antenna Polarity & Test Distance: Perpendicular at 3 m**

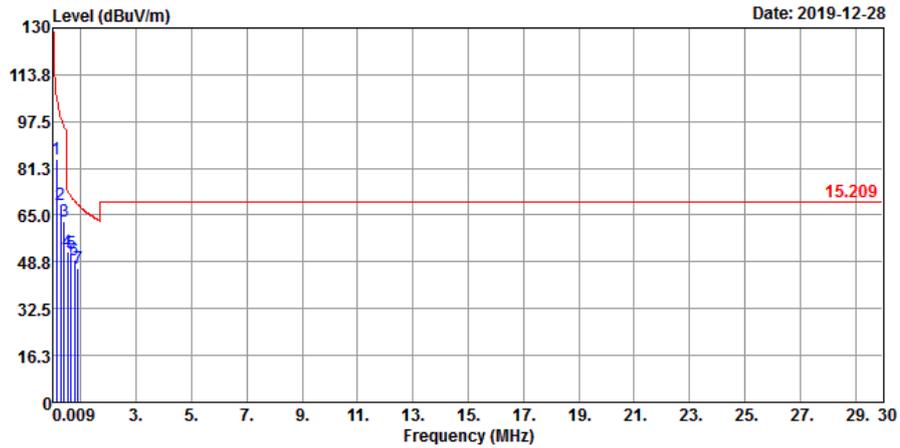
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
0.12785	86.66	67.54	19.12	105.47	-18.81	100	0	Average
0.2557	67.88	48.24	19.64	99.45	-31.57	100	0	Average
0.38355	62.37	42.64	19.73	95.93	-33.56	100	0	Average
0.5114	56.4	36.7	19.7	73.43	-17.03	100	0	QP
0.63925	54.31	34.57	19.74	71.49	-17.18	100	0	QP
0.7671	53.34	33.57	19.77	69.91	-16.57	100	0	QP
0.89495	48.47	28.67	19.8	68.57	-20.1	100	0	QP

Remarks:

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

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	Tim Chen		

**Ground-parallel**



Antenna Polarity & Test Distance: Ground-parallel at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
0.12785	84.36	65.24	19.12	105.47	-21.11	100	360	Average
0.2557	68.57	48.93	19.64	99.45	-30.88	100	360	Average
0.38355	62.97	43.24	19.73	95.93	-32.96	100	360	Average
0.5114	52.07	32.37	19.7	73.43	-21.36	100	360	QP
0.63925	51.97	32.23	19.74	71.49	-19.52	100	360	QP
0.7671	49.41	29.64	19.77	69.91	-20.5	100	360	QP
0.89495	46.38	26.58	19.8	68.57	-22.19	100	360	QP

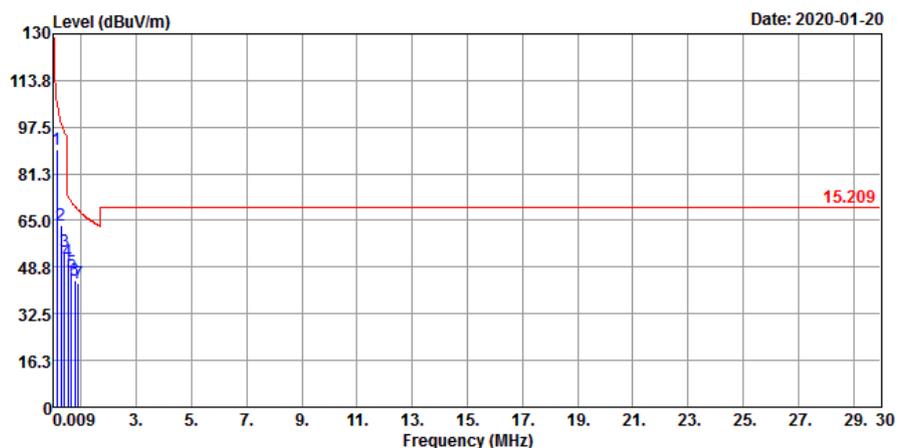
**Remarks:**

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

Standby Mode  
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	Tim Chen		

Parallel



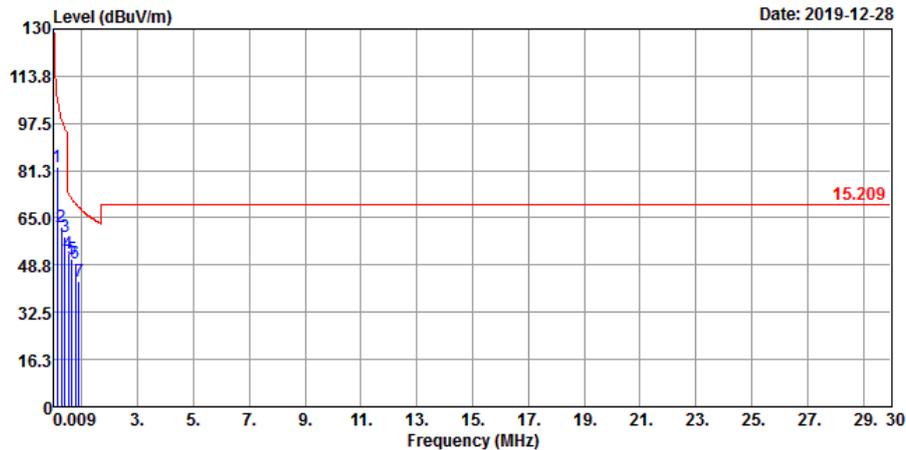
Antenna Polarity & Test Distance: Parallel at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
0.12785	89.65	70.53	19.12	105.47	-15.82	100	0	Average
0.2557	63.22	43.6	19.62	99.68	-36.46	100	0	Average
0.38355	54.3	34.57	19.73	95.93	-41.63	100	0	Average
0.5114	50.94	31.23	19.71	73.3	-22.36	100	0	QP
0.63925	46.91	27.17	19.74	71.5	-24.59	100	0	QP
0.7671	44.01	24.24	19.77	70	-25.99	100	0	QP
0.89495	43.04	23.24	19.8	68.44	-25.4	100	0	QP

Remarks:

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

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	Tim Chen		

### Perpendicular



### Antenna Polarity & Test Distance: Perpendicular at 3 m

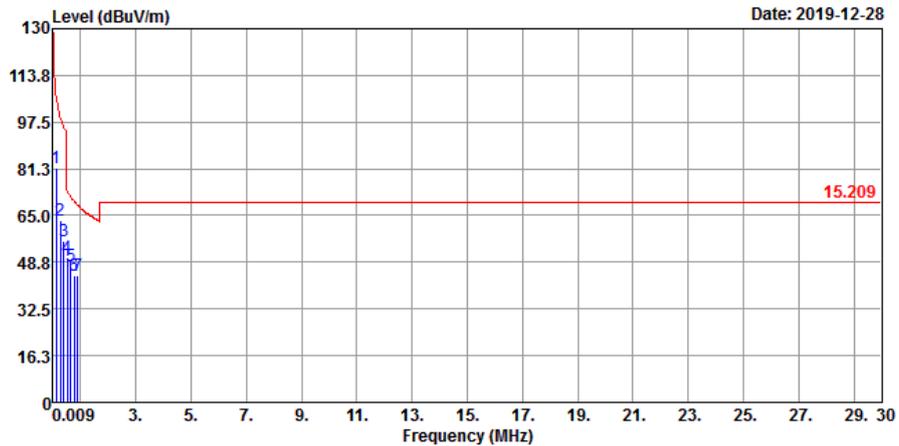
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
0.12785	82.65	63.53	19.12	105.47	-22.82	100	0	Average
0.2557	61.99	42.36	19.63	99.59	-37.6	100	0	Average
0.38355	58.43	38.7	19.73	96.16	-37.73	100	0	Average
0.5114	52.98	33.27	19.71	73.22	-20.24	100	0	QP
0.63925	50.92	31.17	19.75	71.35	-20.43	100	0	QP
0.7671	49.44	29.67	19.77	69.91	-20.47	100	0	QP
0.89495	43.37	23.57	19.8	68.57	-25.2	100	0	QP

#### Remarks:

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

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	Tim Chen		

### Ground-parallel



### Antenna Polarity & Test Distance: Ground-parallel at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
0.12785	81.5	62.35	19.15	105.16	-23.66	100	0	Average
0.2557	63.23	43.53	19.7	98.77	-35.54	100	0	Average
0.38355	56.3	36.57	19.73	95.96	-39.66	100	0	Average
0.5114	50.25	30.54	19.71	72.9	-22.65	100	0	QP
0.63925	47.33	27.58	19.75	71.19	-23.86	100	0	QP
0.7671	44.31	24.53	19.78	69.74	-25.43	100	0	QP
0.89495	44.04	24.24	19.8	68.57	-24.53	100	0	QP

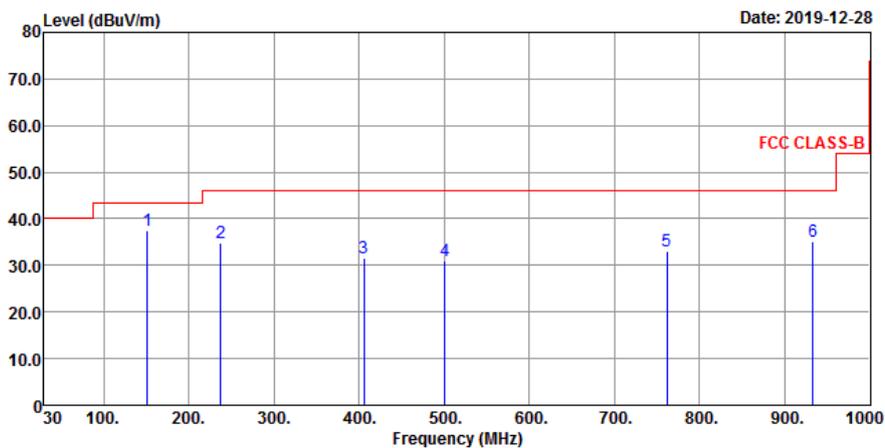
#### Remarks:

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

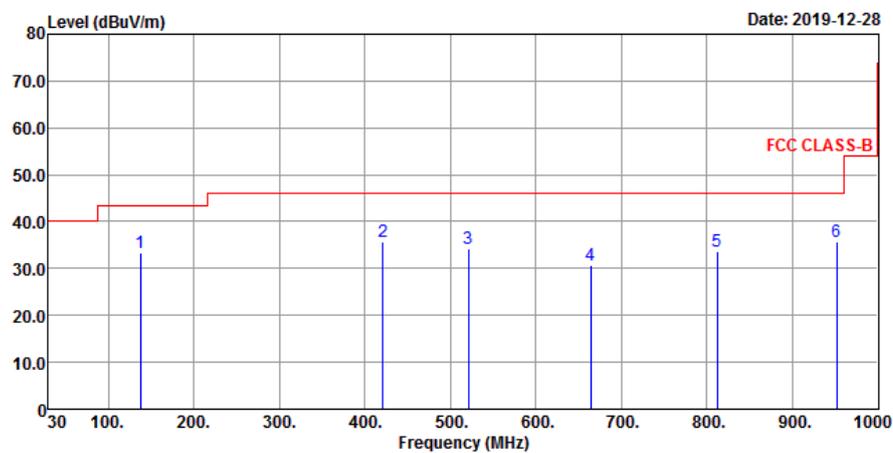
Below 1GHz Data:  
 Charging Mode  
 Mode A

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	Quasi-peak (QP) Peak (PK)
Tested By	Tim Chen		

### Horizontal



### Vertical



**Antenna Polarity & Test Distance: Horizontal at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
151.25	37.41	49.12	-11.71	43.5	-6.09	167	85	Peak
237.58	34.84	48.38	-13.54	46	-11.16	147	192	Peak
405.39	31.44	39.66	-8.22	46	-14.56	174	139	Peak
500.45	31.08	36.52	-5.44	46	-14.92	143	23	Peak
761.38	32.96	31.88	1.08	46	-13.04	169	288	Peak
933.07	35.02	31.59	3.43	46	-10.98	208	174	Peak

**Antenna Polarity & Test Distance: Vertical at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
137.67	33.26	45.53	-12.27	43.5	-10.24	154	241	Peak
420.91	35.76	43.23	-7.47	46	-10.24	129	178	Peak
520.82	34.24	39.37	-5.13	46	-11.76	183	177	Peak
664.38	30.67	32.06	-1.39	46	-15.33	196	148	Peak
811.82	33.69	31.74	1.95	46	-12.31	100	92	Peak
951.5	35.76	32.07	3.69	46	-10.24	153	164	Peak

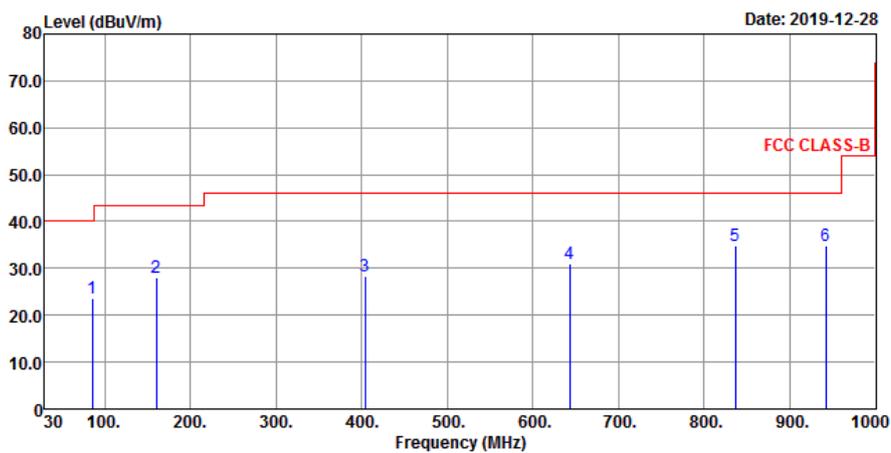
## Remarks:

1. Emission Level = Read Level + Factor
2. Margin value = Emission level – Limit value.
3. The other emission levels were very low against the limit.

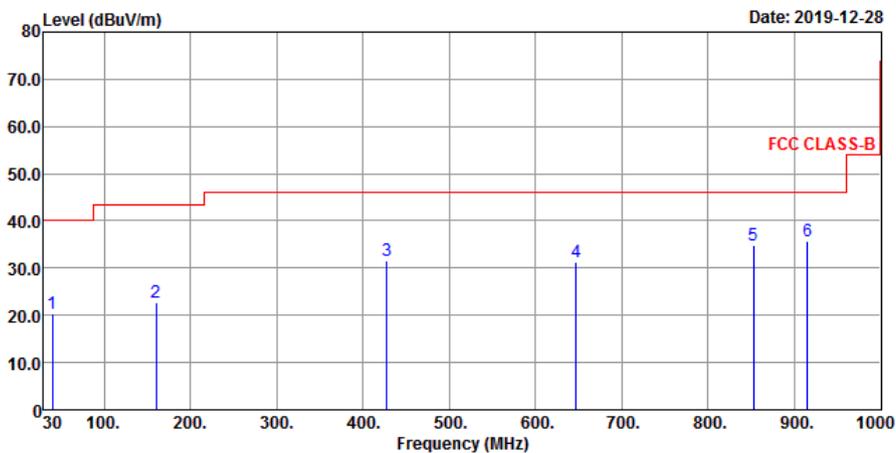
Standby Mode  
Mode B

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	Quasi-peak (QP) Peak (PK)
Tested By	Tim Chen		

Horizontal



Vertical



**Antenna Polarity & Test Distance: Horizontal at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
85.29	23.48	40.85	-17.37	40	-16.52	135	205	Peak
159.98	28.18	39.8	-11.62	43.5	-15.32	115	101	Peak
404.42	28.42	36.67	-8.25	46	-17.58	142	294	Peak
643.04	30.89	32.54	-1.65	46	-15.11	110	49	Peak
836.07	34.77	32.46	2.31	46	-11.23	265	218	Peak
941.8	34.95	31.41	3.54	46	-11.05	214	99	Peak

**Antenna Polarity & Test Distance: Vertical at 3 m**

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
39.7	20.32	32.57	-12.25	40	-19.68	168	132	Peak
159.98	22.87	34.49	-11.62	43.5	-20.63	196	318	Peak
427.7	31.73	38.91	-7.18	46	-14.27	186	174	Peak
646.92	31.31	32.94	-1.63	46	-14.69	257	79	Peak
852.56	34.88	32.41	2.47	46	-11.12	100	79	Peak
915.61	35.76	32.52	3.24	46	-10.24	138	296	Peak

Remarks:

1. Emission Level = Read Level + Factor
2. Margin value = Emission level – Limit value.
3. The other emission levels were very low against the limit.

## 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	Dec. 11, 2019	Dec. 10, 2020
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2019	Sep. 04, 2020
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 21, 2019	Feb. 20, 2020
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100100	Jan. 30, 2019	Jan. 29, 2020
Software ADT	BV ADT_Cond_ V7.3.7.4	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-12040.

#### 4.2.3 Test Procedures

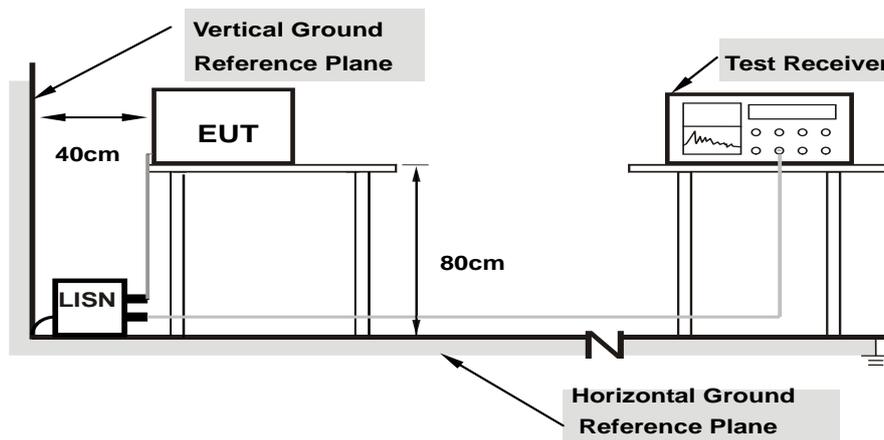
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling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

Charging Mode

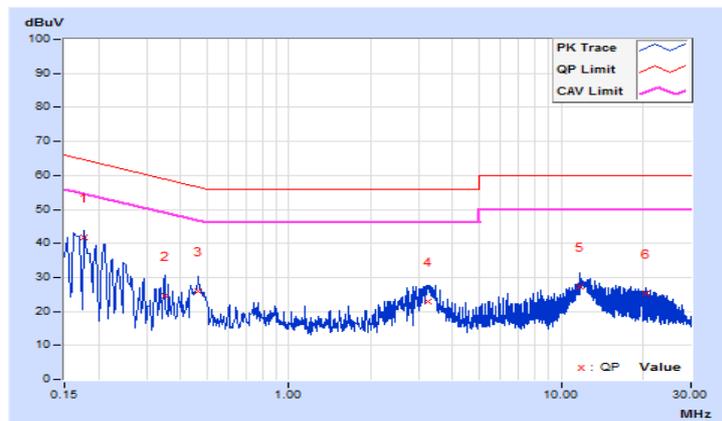
Mode A

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	21°C, 67%RH
Tested by	Tim Chen	Test Date	2019/12/28

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	0.17737	9.74	32.04	13.61	41.78	23.35	64.61	54.61	-22.83	-31.26
2	0.34941	9.87	14.69	2.95	24.56	12.82	58.98	48.98	-34.42	-36.16
3	0.46280	9.91	15.94	6.85	25.85	16.76	56.64	46.64	-30.79	-29.88
4	3.22717	10.15	12.69	3.30	22.84	13.45	56.00	46.00	-33.16	-32.55
5	11.75488	10.34	16.98	12.96	27.32	23.30	60.00	50.00	-32.68	-26.70
6	20.44681	10.40	14.71	13.66	25.11	24.06	60.00	50.00	-34.89	-25.94

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

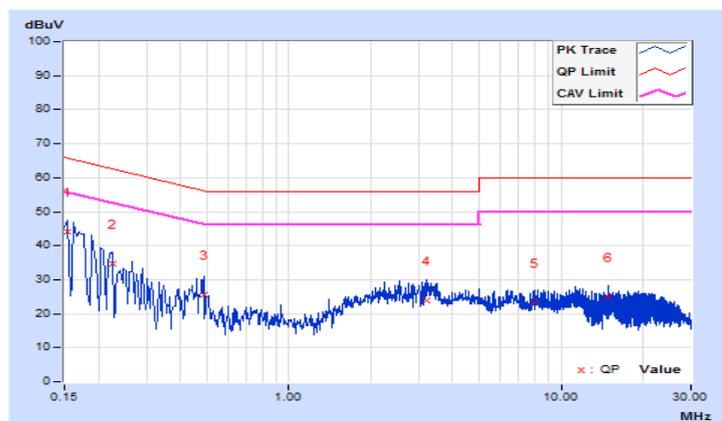


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	21°C, 67%RH
Tested by	Tim Chen	Test Date	2019/12/28

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	9.69	34.49	14.69	44.18	24.38	65.79	55.79	-21.61	-31.41
2	0.22429	9.81	24.83	8.94	34.64	18.75	62.66	52.66	-28.02	-33.91
3	0.48626	9.87	15.62	7.44	25.49	17.31	56.23	46.23	-30.74	-28.92
4	3.20371	10.09	13.83	5.38	23.92	15.47	56.00	46.00	-32.08	-30.53
5	8.05211	10.21	12.94	9.33	23.15	19.54	60.00	50.00	-36.85	-30.46
6	14.82423	10.37	14.38	12.81	24.75	23.18	60.00	50.00	-35.25	-26.82

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



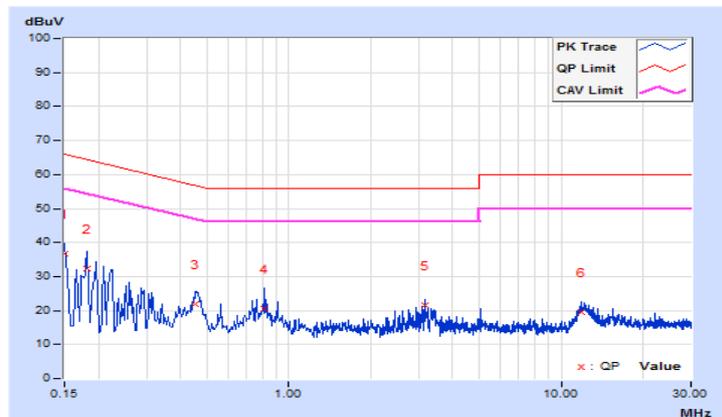
Standby Mode  
Mode B

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	21°C, 67%RH
Tested by	Tim Chen	Test Date	2019/12/28

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	0.15002	9.70	27.00	5.10	36.70	14.80	66.00	56.00	-29.30	-41.20
2	0.18122	9.75	22.46	2.54	32.21	12.29	64.43	54.43	-32.22	-42.14
3	0.45498	9.91	12.12	2.15	22.03	12.06	56.78	46.78	-34.75	-34.72
4	0.81470	9.98	10.61	3.54	20.59	13.52	56.00	46.00	-35.41	-32.48
5	3.16070	10.15	11.37	4.41	21.52	14.56	56.00	46.00	-34.48	-31.44
6	11.85263	10.34	9.12	2.86	19.46	13.20	60.00	50.00	-40.54	-36.80

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

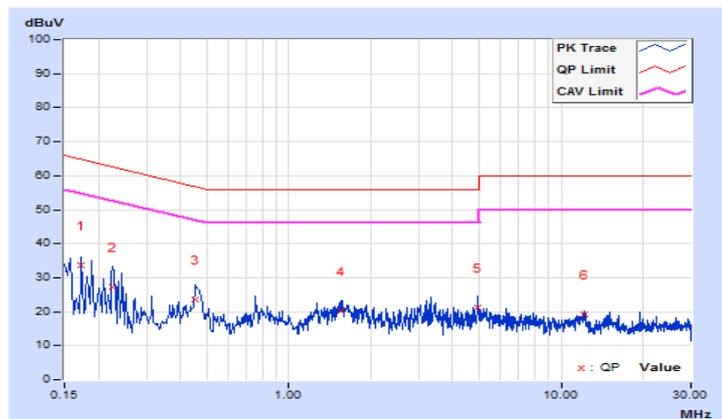


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	21°C, 67%RH
Tested by	Tim Chen	Test Date	2019/12/28

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	0.17346	9.74	23.80	4.32	33.54	14.06	64.79	54.79	-31.25	-40.73
2	0.22429	9.81	17.37	0.48	27.18	10.29	62.66	52.66	-35.48	-42.37
3	0.45498	9.87	13.76	4.06	23.63	13.93	56.78	46.78	-33.15	-32.85
4	1.54587	10.00	10.10	0.02	20.10	10.02	56.00	46.00	-35.90	-35.98
5	4.95930	10.15	11.18	2.44	21.33	12.59	56.00	46.00	-34.67	-33.41
6	12.14197	10.30	8.73	2.48	19.03	12.78	60.00	50.00	-40.97	-37.22

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).

## 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.

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**Web Site:** [www.bureauveritas-adt.com](http://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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