

# **FCC Test Report**

Report No.: RFBCBS-WTW-P23110287A

FCC ID: K7SWIA008

Test Model: WIA008

Received Date: Jan. 17, 2024

Test Date: Jan. 22, 2024

**Issued Date:** Jan. 29, 2024

Applicant: Belkin International, Inc.

Address: 555 S. Aviation Blvd., Suite 180, El Segundo, CA 90245, USA

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

Lin Kou Laboratories

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 Vil., Kwei Shan Dist., Taoyuan City

33383, TAIWAN

FCC Registration / 788550 / TW0003

**Designation Number:** 





This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <a href="http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/">http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/</a> and is intended 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. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; 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.

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# **Release Control Record**

Issue No.	Description	Date Issued
RFBCBS-WTW-P23110287	Original release	Jan. 29, 2024

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# 1 Certificate of Conformity

Product: BoostCharge Pro Convertible Magnetic Charging Stand

Brand: belkin

Test Model: WIA008

Sample Status: Engineering sample

Applicant: Belkin International, Inc.

Test Date: Jan. 22, 2024

**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.

Prenared by . Date: Jan 29 2024

Polly Chien / Specialist

Approved by: , Date: Jan. 29, 2024

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	AC Power Conducted Emission	ucted Emission Pass Minimum pass -10.90dB at 21					
15.209	Radiated Emission Test	Pass	Meet the requirement of limit. Minimum passing margin is -6.7dB at 745.86MHz				

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	150kHz ~ 30MHz	2.79 dB
	9kHz ~ 30MHz	2.44 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	2.93 dB
	200MHz ~ 1000MHz	2.95 dB

### 2.2 Modification Record

There were no modifications required for compliance.

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#### 3 General Information

# 3.1 General Description of EUT

Product	BoostCharge Pro Convertible Magnetic Charging Stand	
Brand	belkin	
Test Model	WIA008	
Sample Status	Engineering sample	
Power Supply Rating	5 or 3.3-5.9 or 3.3-11.0 or 9 or 12 Vdc (adapter)	
Modulation Type	FSK	
Operating Fraguency	127.7kHz for iPhone (8-11 series)	
Operating Frequency	360.0kHz for iPhone (12 series up)	
Antenna Type	Coil antenna	
Field Strongth	360.0kHz: -27.1dBuV/m (PK) (300m)	
Field Strength	-36.4dBuV/m (AV) (300m)	
Accessory Device	Refer to Note as below	
Data Cable Supplied	Refer to Note as below	
Maximum Power Output for	4534	
Qi2 charging coil	15W	
Dimension for iPhone	1195mm² (Diameter=39mm)	
charging coil		

#### Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report to BV CPS report no. RFBCBS-WTW-P23110287. The difference compared with original report is adding ferrite core on the Type C to Type C USB cable. Therefore, the conducted emission and radiated emission below 1GHz are performed for the addendum according to original worst case mode. Refer to original report for the other test data.

2. The EUT contains following accessory devices.

Item	Brand	Model Description	
Adapter (Option)	belkin	A829-120167C-US1	I/P: 100-240Vac, 50/60Hz, 0.5A O/P: 5Vdc, 3.0A; 9Vdc, 2.23A; 12Vdc, 1.67A; 3.3-5.9Vdc, 3.0A,17.7W MAX; 3.3-11.0Vdc, 2.2A, 20.0W MAX
Type C to Type C USB Cable	CE-Link	UTC-C-5FT-BK-01/ UTC-C-5FT-WH-01	1.5m shielding cable
Ferrite core	Jinghong	UF-35B/ UF-35B-A1	-

- 3. The EUT has two exterior colors: black and white.
- 4. 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.
- 5. Only radiated measurements are used to show compliance with FCC limits for fundamental and spurious emissions.



# 3.2 Description of Test Modes

2 Frequency tested to this EUT.

2 Frequency tested to this EUT.	Test Frequency	
	127.7kHz	
	360.0kHz	



# 3.2.1 Test Mode Applicability and Tested Channel Detail

EUT configure	Арр	licable to	Description	
mode	RE<1G	PLC	Description	
Α	√	√	Charging Mode (EUT with RX Load) - 360.0kHz	
В	$\checkmark$	-	Charging Mode (EUT with iPhone 15) – 360.0kHz	

Where **RE<1G:** Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

360.0kHz

BW: 20dB Bandwidth

Note:

- 1. The charging mode has been pre-tested in three modes: 10%, 50% and 90%. After verification, 10% was chosen for final test and presented in the test report.
- 2. EUT can be used in the following ways: Standing w/ Charging Pad\_Vertical & Horizontal. Pre-scan these ways and find the worst case as a representative test condition. The horizontal was the worst case for final test and presented in the test report.
- 3. "-" means no effect.

### Radiated Emission Test (Below 1GHz):

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 Tested Frequency

A 360.0kHz

### **Power Line Conducted Emission Test:**

В

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	Tested Frequency
A	360.0kHz

### **Test Condition:**

Applicable To	Environmental Conditions	Input Power	Tested by
RE<1G	24 deg. C, 78% RH	120Vac, 60Hz	Vincent Chen
PLC	23 deg. C, 67% RH	120Vac, 60Hz	Vincent Chen

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# 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.

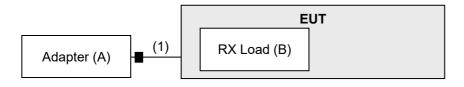
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
Α.	Adapter	belkin	A829-120167C-US1	NA	NA	Provided by manufacturer
В.	RX Load	Nuvolta	NA	NA	NA	360kHz Provided by manufacturer
C.	iPhone 15	APPLE	A3102	NA	BCG-E4031A	360kHz Provided by manufacturer

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Type C to Type C USB Cable	1	1.5	Υ	1	Accessory of EUT

# 3.3.1 Configuration of System under Test

**Charging Mode:** 

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.

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# 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	Field Streng	yth (dBuV/m)	Measurement Distance
(MHz)	uV/m	dBuV/m	(meters)
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	Field Strength			
(MHz)	uV/m	dBuV/m		
30-88	100	40.0		
88-216	150	43.5		
216-960	200	46.0		
Above 960	500	54.0		

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# 4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	May 03, 2023	May 02, 2024
Signal Analyzer Agilent	N9010A	MY52220207	Dec. 28, 2023	Dec. 27, 2024
Loop Antenna TESEQ	HLA 6121	45745	Aug. 08, 2023	Aug. 07, 2024
Pre-amplifier EMCI	EMC001340	980201	Sep. 27, 2023	Sep. 26, 2024
RF Coaxial Cable EMCI	5D-NM-BM	140901	Sep. 27, 2023	Sep. 26, 2024
Pre-Ammlifier EMCI	EMC 330H	980112	Sep. 27, 2023	Sep. 26, 2024
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-472	Oct. 16, 2023	Oct. 15, 2024
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Sep. 14, 2023	Sep. 13, 2024
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFA-440H	AT93021705	NA	NA
Turn Table Max-Full	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller Max-Full	MF-7802	NA	NA	NA
Boresight antenna tower fixture BV	BAF-02	7	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 HY - 966 chamber 5.



#### 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 below 150 kHz.
- 2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency 150 kHz to 30MHz.
- 3. All modes of operation were investigated and the worst-case emissions are reported.

#### For Radiated emission above 30MHz

- 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.

### 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.

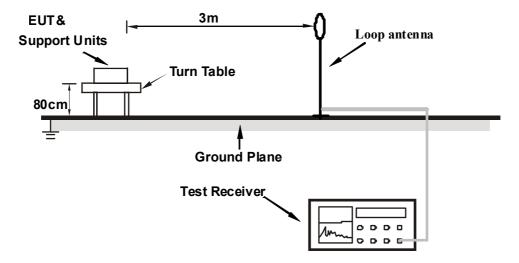
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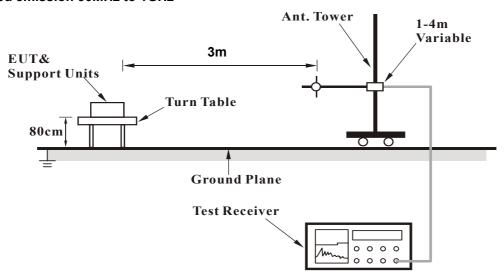


# 4.1.5 Test Set Up

# 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

**Charging Mode** 

- a. The EUT powered by adapter.
- b. Put the iPhone or RX Load on the EUT (wireless charging) during the test.

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#### 4.1.7 Test Results

### Below 30MHz Data:

### **Charging Mode**

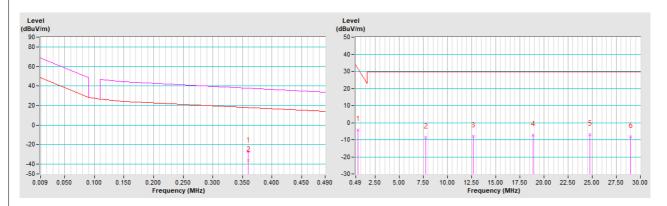
Test Frequency	360.0kHz	Peak (PK)
Frequency Range	9 kHz ~ 30 MHz	Average (AV) Quasi-Peak (QP)
Test Mode	В	

	Antenna Polarity : Parallel								
	Freq.	Emission	Limit	Margin	Antenna	Table	Raw	Correction	
No.	(MHz)	Level	(dBuV/m)	(dB)	Height	Angle	Value	Factor	
	(	(dBuV/m)	(42417111)	(42)	(m)	(Degree)	(dBuV)	(dB/m)	
1	*0.3600	-27.1 PK	36.5	-63.6	1.00	37	33.1	-60.2	
2	*0.3600	-36.4 AV	16.5	-52.9	1.00	37	23.8	-60.2	
3	0.7200	-4.1 QP	30.5	-34.6	1.00	203	16.1	-20.2	
4	7.7500	-8.8 QP	29.5	-38.3	1.00	275	10.1	-18.9	
5	12.7000	-8.0 QP	29.5	-37.5	1.00	306	10.4	-18.4	
6	18.9000	-7.2 QP	29.5	-36.7	1.00	155	10.6	-17.8	
7	24.7800	-7.1 QP	29.5	-36.6	1.00	33	10.5	-17.6	
8	29.0100	-8.4 QP	29.5	-37.9	1.00	258	9.5	-17.9	

### Remarks:

- 1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
- 2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Distance Factor(dB) + 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. " \* ": Fundamental frequency.
- 6. Loop antenna was used for all radiated emission below 30MHz.
- 7. The test distance for below 0.49MHz is 3m, extrapolate the measured field strength to a distance of 300meters. (Distance factor@3m = 40\*log(3/300) = -80dB)

The test distance for  $0.49 \sim 30 \text{MHz}$  is 3m, extrapolate the measured field strength to a distance of 30 meters. (Distance factor@3m =  $40*\log(3/30) = -40 \text{dB}$ )





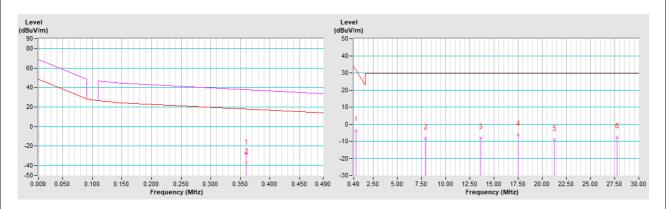
Test Frequency	360.0kHz		Peak (PK)
Frequency Range	9 kHz ~ 30 MHz	Detector Function	Average (AV)
			Quasi-Peak (QP)
Test Mode	В		

	Antenna Polarity : Perpendicular								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)	
1	*0.3600	-27.4 PK	36.5	-63.9	1.00	98	32.8	-60.2	
2	*0.3600	-36.7 AV	16.5	-53.2	1.00	98	23.5	-60.2	
3	0.7200	-3.4 QP	30.5	-33.9	1.00	95	16.8	-20.2	
4	7.9000	-8.4 QP	29.5	-37.9	1.00	244	10.5	-18.9	
5	13.6500	-8.1 QP	29.5	-37.6	1.00	241	10.5	-18.6	
6	17.5200	-6.4 QP	29.5	-35.9	1.00	61	11.5	-17.9	
7	21.2400	-8.9 QP	29.5	-38.4	1.00	87	9.3	-18.2	
8	27.7300	-7.6 QP	29.5	-37.1	1.00	167	10.3	-17.9	

### Remarks:

- 1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
- 2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Distance Factor(dB) + 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. " \* ": Fundamental frequency.
- 6. Loop antenna was used for all radiated emission below 30MHz.
- 7. The test distance for below 0.49MHz is 3m, extrapolate the measured field strength to a distance of 300meters. (Distance factor@3m = 40\*log(3/300) = -80dB)

The test distance for  $0.49 \sim 30 \text{MHz}$  is 3m, extrapolate the measured field strength to a distance of 30 meters. (Distance factor@3m =  $40*\log(3/30) = -40 \text{dB}$ )





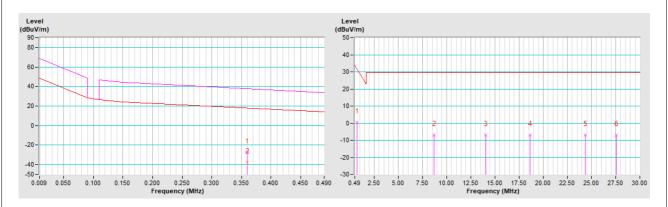
Test Frequency	360.0kHz		Peak (PK)
Frequency Range	9 kHz ~ 30 MHz	Detector Function	Average (AV)
			Quasi-Peak (QP)
Test Mode	В		

	Antenna Polarity : Ground-parallel								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)	
1	*0.3600	-27.7 PK	36.5	-64.2	1.00	214	32.5	-60.2	
2	*0.3600	-37.4 AV	16.5	-53.9	1.00	214	22.8	-60.2	
3	0.7200	0.5 QP	30.5	-30.0	1.00	261	20.7	-20.2	
4	8.7200	-7.1 QP	29.5	-36.6	1.00	30	11.8	-18.9	
5	14.0400	-7.1 QP	29.5	-36.6	1.00	128	11.6	-18.7	
6	18.6100	-6.8 QP	29.5	-36.3	1.00	2	11.0	-17.8	
7	24.3300	-6.8 QP	29.5	-36.3	1.00	283	11.3	-18.1	
8	27.5800	-6.8 QP	29.5	-36.3	1.00	298	11.1	-17.9	

### Remarks:

- 1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
- 2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Distance Factor(dB) + 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. " \* ": Fundamental frequency.
- 6. Loop antenna was used for all radiated emission below 30MHz.
- 7. The test distance for below 0.49MHz is 3m, extrapolate the measured field strength to a distance of 300meters. (Distance factor@3m = 40\*log(3/300) = -80dB)

The test distance for  $0.49 \sim 30 \text{MHz}$  is 3m, extrapolate the measured field strength to a distance of 30 meters. (Distance factor@3m =  $40*\log(3/30) = -40 \text{dB}$ )





### Below 1GHz Data:

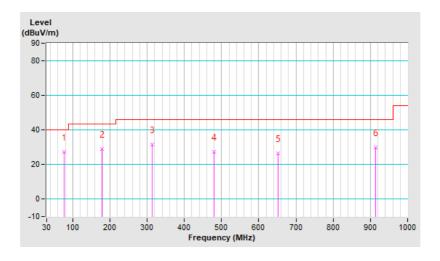
# **Charging Mode**

Test Frequency	360.0kHz	Datastas Function	Quasi-Peak (QP)	
Frequency Range	30MHz ~ 1GHz	Detector Function		
Test Mode	A			

	Antenna Polarity & Test Distance: Horizontal At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)	
1	77.53	27.4 QP	40.0	-12.6	2.00 H	14	44.2	-16.8	
2	178.41	29.0 QP	43.5	-14.5	1.00 H	88	42.9	-13.9	
3	314.21	31.6 QP	46.0	-14.4	1.50 H	106	43.1	-11.5	
4	479.11	27.2 QP	46.0	-18.8	1.00 H	201	34.7	-7.5	
5	651.77	26.5 QP	46.0	-19.5	2.00 H	18	30.4	-3.9	
6	914.64	30.0 QP	46.0	-16.0	2.00 H	12	30.6	-0.6	

### 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).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission Level Limit value



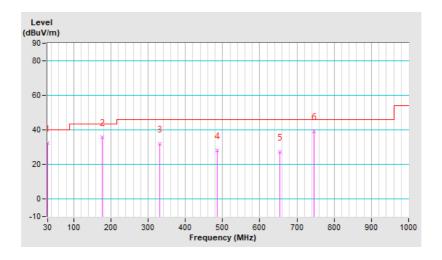


Test Frequency	360.0kHz	Detector Function Outsi Deals (OD)		
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)	
Test Mode	A			

	Antenna Polarity & Test Distance: Vertical At 3m								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)	
1	30.97	32.5 QP	40.0	-7.5	1.00 V	62	46.1	-13.6	
2	177.44	35.8 QP	43.5	-7.7	2.00 V	187	49.6	-13.8	
3	330.70	31.8 QP	46.0	-14.2	1.00 V	155	43.0	-11.2	
4	484.93	28.2 QP	46.0	-17.8	1.50 V	98	35.6	-7.4	
5	653.71	27.4 QP	46.0	-18.6	1.00 V	223	31.3	-3.9	
6	745.86	39.3 QP	46.0	-6.7	1.50 V	334	40.7	-1.4	

# 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





# 4.2 Conducted Emission Measurement

# 4.2.1 Limits of Conducted Emission Measurement

Fraguenov (MHz)	Conducted Limit (dBuV)					
Frequency (MHz)	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.

### 4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver R&S	ESR3	102783	Dec. 13, 2023	Dec. 12, 2024
RF Coaxial Cable WORKEN	5D-FB	Cable-cond2-01	Sep. 02, 2023	Sep. 01, 2024
LISN R&S	ESH2-Z5	100100	Mar. 07, 2023	Mar. 06, 2024
LISN R&S	ESH3-Z5	100116	Feb. 15, 2023	Feb. 14, 2024
Software BV ADT	BVADT_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 HY Conduction 2.
- 3. The VCCI Site Registration No. is C-12047.

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<sup>2.</sup> The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.



#### 4.2.3 Test Procedures

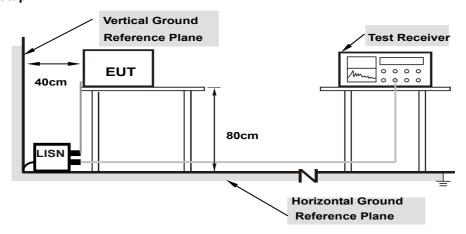
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

**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.

#### 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.

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# 4.2.7 Test Results

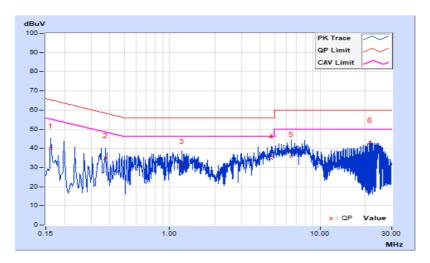
# **Charging Mode**

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

	F===	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
No	Freq.									
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16200	10.38	29.56	12.11	39.94	22.49	65.36	55.36	-25.42	-32.87
2	0.37400	10.48	24.67	8.27	35.15	18.75	58.41	48.41	-23.26	-29.66
3	1.20200	10.54	21.53	8.45	32.07	18.99	56.00	46.00	-23.93	-27.01
4	4.73400	10.67	23.99	13.22	34.66	23.89	56.00	46.00	-21.34	-22.11
5	6.44600	10.69	24.95	12.91	35.64	23.60	60.00	50.00	-24.36	-26.40
6	21.47800	10.90	32.03	28.20	42.93	39.10	60.00	50.00	-17.07	-10.90

### 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.



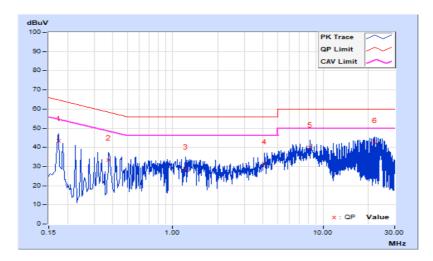


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

	Freq.	. Corr.	Reading Value E		Emissio	Emission Level		Limit		Margin	
No		Factor [dB (uV)]		(uV)]	[dB (uV)]		[dB (uV)]		(dB)		
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.17400	10.42	33.10	19.16	43.52	29.58	64.77	54.77	-21.25	-25.19	
2	0.37400	10.52	22.88	2.86	33.40	13.38	58.41	48.41	-25.01	-35.03	
3	1.21800	10.56	18.21	5.59	28.77	16.15	56.00	46.00	-27.23	-29.85	
4	4.09400	10.73	20.73	13.03	31.46	23.76	56.00	46.00	-24.54	-22.24	
5	8.18200	10.81	29.20	22.24	40.01	33.05	60.00	50.00	-19.99	-16.95	
6	22.11800	11.07	31.40	27.46	42.47	38.53	60.00	50.00	-17.53	-11.47	

#### 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).	

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# 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 and approved according to ISO/IEC 17025.

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

Lin Kou EMC/RF Lab

Hsin Chu EMC/RF/Telecom Lab

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Email: <a href="mailto:service.adt@tw.bureauveritas.com">service.adt@tw.bureauveritas.com</a>. <a href="mailto:web.bureauveritas.com.tw">web Site: <a href="mailto:http://ee.bureauveritas.com.tw">http://ee.bureauveritas.com.tw</a>.

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

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