RF Exposure Test Report

Report No.:	SA200204D01
FCC ID:	K7SWIA002
Test Model:	WIA002
Series Model:	PW0004
Received Date:	Feb. 4, 2020
Test Date:	Feb. 12, 2020
Issued Date:	Mar. 2, 2020
Applicant:	Belkin International., Inc
Address:	12045 East Waterfront Drive, Playa Vista, CA. 90094, 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
FCC Registration / Designation Number:	198487 / TW2021

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Report Issue History Record

Issue No.	Description	Date Issued
SA200204D01	Original release.	Mar. 2, 2020

Release Control Record

Issue No.	Description	Date Issued
SA200204D01	Original release	Mar. 2, 2020

1 Certificate of Conformity

Product:	BOOST↑CHARGE™ Wireless Charging Pad 15W, Wireless Charging Pad 15W
Test Model:	WIA002 **Brand:** belkin
Series Model:	PW0004 **Brand:** playa
Sample Status:	Engineering sample
Applicant:	Belkin International., Inc
Test Date:	Feb. 12, 2020
Standards:	FCC Part 2 (Section 2.1091) FCC Part 1 (Section 1.1307(c) and (d), Section 1.1310)
References Test Guidance:	KDB 680106 D01 RF Exposure Wireless Charging v03

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 : Jessica Cheng , **Date:** Mar. 2, 2020

Jessica Cheng / Senior Specialist

Approved by : Rex. Lai , **Date:** Mar. 2, 2020

Rex Lai / Associate Technical Manager

2 General Information

2.1 General Description of EUT

Product	BOOST↑CHARGE™ Wireless Charging Pad 15W, Wireless Charging Pad 15W
Test Model	WIA002 Brand: belkin
Series Model	PW0004 Brand: playa
Model Difference	Marketing Purpose
Sample Status	Engineering sample
Power Supply Rating	1) input: 5Vdc, 2A output: 5W 2) input: 9Vdc, 2A output: 7.5W 3) input: 12Vdc, 1.5A output: 10W 4) input:12Vdc, 2A output: 15W
Modulation Type	FSK
Operating Frequency	127.8 kHz
Antenna Type	Coil antenna
Field Strength	79.66dBuV/m
Dimensions	15.1976cm^2 (diameter = 44mm)
Accessory Device	Wall charger
Data Cable Supplied	N/A
Maximum Power Output from the Charging Coil	15W

Note:

1. The EUT with Qi charging function and all models are listed as below.

Brand	Product	Model	Difference
belkin	BOOST↑CHARGE™ Wireless Charging Pad 15W	WIA002	For marketing purpose.
playa	Wireless Charging Pad 15W	PW0004	

During the test, **model: WIA002** was selected as representative model for test.

2. During the test, the **maximum output power: 15W** was applied to the final test.

3. The EUT consumes power from a Wall charger, as the following:

Brand	Model	Specification
belkin	DSA-18QFB FUS A	AC I/P: 100-240V, 50/60Hz, 0.8A DC O/P: +3.6-6V, 2A +6-9V, 2A +9-12V, 1.5A Shielded USB cable (1.2m)

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

3 RF Exposure

3.1 Description of Support Units

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

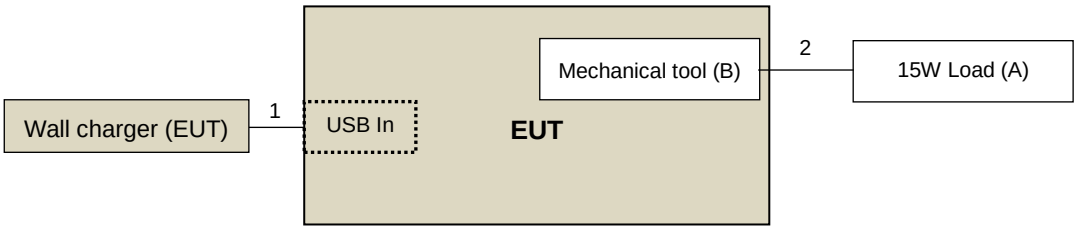
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Load	N/A	N/A	N/A	N/A	Supplied by client (15W max load)
B.	Mechanical tool	N/A	N/A	N/A	N/A	Supplied by client

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/ No)	Cores (Qty.)	Remarks
1.	USB cable	1	1.2	Y	0	Supplied by client
2.	DC cable	1	0.1	N	0	Supplied by client

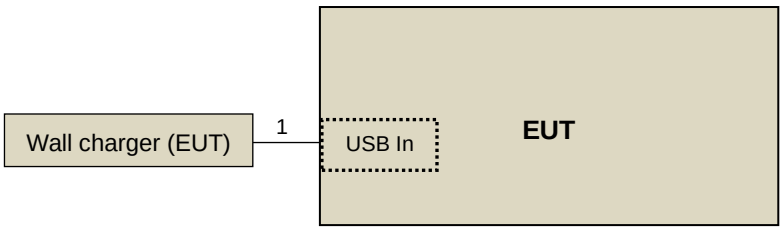
Note: The core(s) is(are) originally attached to the cable(s).

3.1.1 Configuration of System Under Test

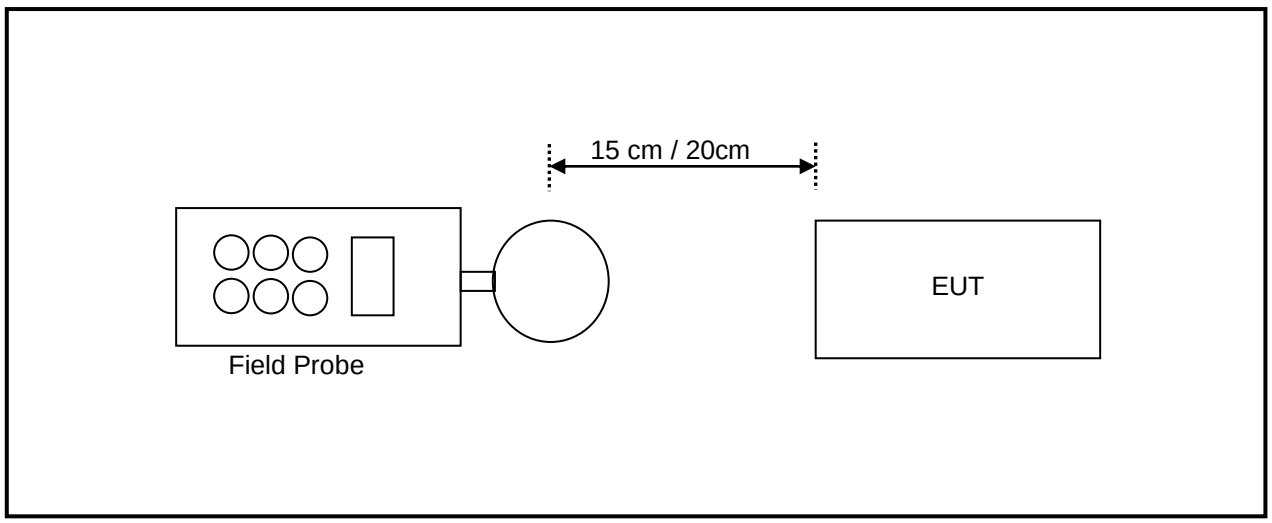
Charging Mode with Load:



Standby Mode:



3.2 Test Setup



Note: Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device.

3.3 Test Instruments

Description	Brand	Model No.	Frequency Range	Calibrated Date	Calibrated Until
Broadband Field Meter	NARDA	NBM-550	-	Mar. 28, 2018	Mar. 27, 2020
Magnetic Field Meter	NARDA	ELT-400	1Hz – 400kHz	Apr. 12, 2018	Apr. 11, 2020
Magnetic Probe	NARDA	HF-3061	300kHz – 30MHz	Apr. 16, 2018	Apr. 15, 2020
Magnetic Probe	NARDA	HF-0191	27 – 1000MHz	Apr. 17, 2018	Apr. 16, 2020
Broadband Field Meter	NARDA	NBM-550	-	Mar. 28, 2018	Mar. 27, 2020
Electric Field Meter	COMBINOVA	EFM 200	5Hz – 400kHz	Dec. 6, 2019	Dec. 5, 2021
E-Field Probe	NARDA	EF-0391	100kHz – 3GHz	Mar. 28, 2018	Mar. 27, 2020
E-Field Probe	NARDA	EF-6091	100MHz – 60GHz	Mar. 29, 2018	Mar. 28, 2020

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 Chia Pau RF Chamber
3. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

3.4 Limits for Maximum Permissible Exposure (MPE)

§ 1.1310 The criteria listed in table 1 shall be used to evaluate the environmental impact of human exposure to radiofrequency(RF) radiation as specified in § 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of § 2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f^2)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

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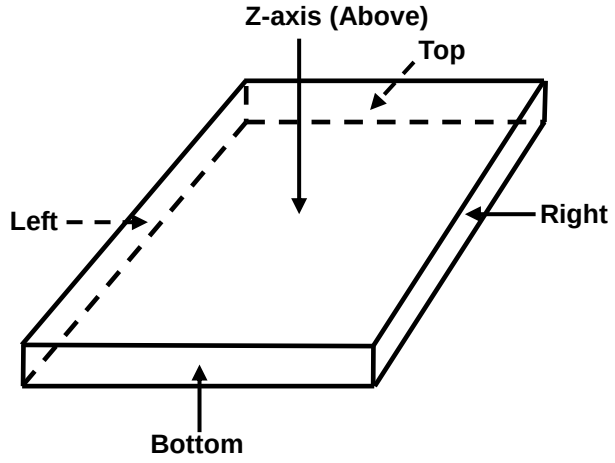
The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

3.5 Test Point Description



4 Measurement Result

Charging Mode

Charging Mode with 10 % Load

E-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max E-field (V/m)	0.1700	0.3300	0.1200	0.2900	0.5300	0.3700
Limit (V/m)	614	614	614	614	614	614
Margin (V/m)	-613.8300	-613.6700	-613.8800	-613.7100	-613.4700	-613.6300
50 % Limit (V/m)	307	307	307	307	307	307
50 % Margin (V/m)	-306.8300	-306.6700	-306.8800	-306.7100	-306.4700	-306.6300

H-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max H-field (uT)	0.1090	0.1030	0.1080	0.1160	0.8130	0.3870
Max H-field (A/m)	0.0872	0.0824	0.0864	0.0928	0.6504	0.3096
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.5428	-1.5476	-1.5436	-1.5372	-0.9796	-1.3204
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.7278	-0.7326	-0.7286	-0.7222	-0.1646	-0.5054

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

Charging Mode with 50 % Load

E-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max E-field (V/m)	0.2000	0.3600	0.1900	0.3100	0.5800	0.4100
Limit (V/m)	614	614	614	614	614	614
Margin (V/m)	-613.8000	-613.6400	-613.8100	-613.6900	-613.4200	-613.5900
50 % Limit (V/m)	307	307	307	307	307	307.0000
50 % Margin (V/m)	-306.8000	-306.6400	-306.8100	-306.6900	-306.4200	-306.5900

H-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max H-field (uT)	0.1150	0.1120	0.1140	0.1230	0.8690	0.4010
Max H-field (A/m)	0.0920	0.0896	0.0912	0.0984	0.6952	0.3208
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.5380	-1.5404	-1.5388	-1.5316	-0.9348	-1.3092
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.7230	-0.7254	-0.7238	-0.7166	-0.1198	-0.4942

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

Charging Mode with Max Load

E-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max E-field (V/m)	0.2900	0.4100	0.2500	0.3900	0.6500	0.5400
Limit (V/m)	614	614	614	614	614	614
Margin (V/m)	-613.7100	-613.5900	-613.7500	-613.6100	-613.3500	-613.4600
50 % Limit (V/m)	307	307	307	307	307	307
50 % Margin (V/m)	-306.7100	-306.5900	-306.7500	-306.6100	-306.3500	-306.4600

H-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max H-field (uT)	0.1290	0.1240	0.1260	0.1300	0.9120	0.5040
Max H-field (A/m)	0.1032	0.0992	0.1008	0.1040	0.7296	0.4032
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.5268	-1.5308	-1.5292	-1.5260	-0.9004	-1.2268
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.7118	-0.7158	-0.7142	-0.7110	-0.0854	-0.4118

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

Charging Mode with 10 % Load (Load between EUT with 3 mm airgap)

E-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max E-field (V/m)	0.1100	0.2300	0.0900	0.1800	0.4600	0.2400
Limit (V/m)	614	614	614	614	614	614
Margin (V/m)	-613.8900	-613.7700	-613.9100	-613.8200	-613.5400	-613.7600
50 % Limit (V/m)	307	307	307	307	307	307
50 % Margin (V/m)	-306.8900	-306.7700	-306.9100	-306.8200	-306.5400	-306.7600

H-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max H-field (uT)	0.1120	0.1070	0.1110	0.1200	0.9120	0.4020
Max H-field (A/m)	0.0896	0.0856	0.0888	0.0960	0.7296	0.3216
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.5404	-1.5444	-1.5412	-1.5340	-0.9004	-1.3084
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.7254	-0.7294	-0.7262	-0.7190	-0.0854	-0.4934

Note:

1. Measurements were made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.
2. The 3 mm airgap with maximum separation between the source and client devices to get effective charging.

Charging Mode with 50 % Load (Load between EUT with 3 mm airgap)

E-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max E-field (V/m)	0.1900	0.2900	0.1500	0.2100	0.5200	0.2800
Limit (V/m)	614	614	614	614	614	614
Margin (V/m)	-613.8100	-613.7100	-613.8500	-613.7900	-613.4800	-613.7200
50 % Limit (V/m)	307	307	307	307	307	307.0000
50 % Margin (V/m)	-306.8100	-306.7100	-306.8500	-306.7900	-306.4800	-306.7200

H-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max H-field (uT)	0.1220	0.1180	0.1200	0.1310	0.9580	0.4480
Max H-field (A/m)	0.0976	0.0944	0.0960	0.1048	0.7664	0.3584
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.5324	-1.5356	-1.5340	-1.5252	-0.8636	-1.2716
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.7174	-0.7206	-0.7190	-0.7102	-0.0486	-0.4566

Note:

1. Measurements were made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.
2. The 3 mm airgap with maximum separation between the source and client devices to get effective charging.

Charging Mode with Max Load (Load between EUT with 3 mm airgap)

E-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max E-field (V/m)	0.2600	0.3400	0.2300	0.2900	0.6100	0.3400
Limit (V/m)	614	614	614	614	614	614
Margin (V/m)	-613.7400	-613.6600	-613.7700	-613.7100	-613.3900	-613.6600
50 % Limit (V/m)	307	307	307	307	307	307
50 % Margin (V/m)	-306.7400	-306.6600	-306.7700	-306.7100	-306.3900	-306.6600

H-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max H-field (uT)	0.1350	0.1250	0.1330	0.1470	1.0030	0.5210
Max H-field (A/m)	0.1080	0.1000	0.1064	0.1176	0.8024	0.4168
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.5220	-1.5300	-1.5236	-1.5124	-0.8276	-1.2132
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.7070	-0.7150	-0.7086	-0.6974	-0.0126	-0.3982

Note:

1. Measurements were made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.
2. The 3 mm airgap with maximum separation between the source and client devices to get effective charging.

Standby Mode

E-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max E-field (V/m)	0.1000	0.2100	0.0700	0.2000	0.2100	0.2200
Limit (V/m)	614	614	614	614	614	614
Margin (V/m)	-613.9000	-613.7900	-613.9300	-613.8000	-613.7900	-613.7800
50 % Limit (V/m)	307	307	307	307	307	307
50 % Margin (V/m)	-306.9000	-306.7900	-306.9300	-306.8000	-306.7900	-306.7800

H-Field Measurement						
Distance	15cm					20cm
EUT Side	Left	Right	Top	Bottom	Z-axis	Z-axis
Max H-field (uT)	0.0980	0.0970	0.1010	0.1090	0.1110	0.1070
Max H-field (A/m)	0.0784	0.0776	0.0808	0.0872	0.0888	0.0856
Limit (A/m)	1.63	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.5516	-1.5524	-1.5492	-1.5428	-1.5412	-1.5444
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.7366	-0.7374	-0.7342	-0.7278	-0.7262	-0.7294

Measurements were made from all sides and the top of the primary/client pair, with the 15 cm or 20 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

5 Photographs of the Test Configuration

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

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