

## RF Exposure Test Report

**Report No.:** SA190107D07

**FCC ID:** K7SF7U083

**Test Model:** F7U083

**Received Date:** Jan. 7, 2019

**Test Date:** Jan. 28, 2019

**Issued Date:** Feb. 11, 2019

**Applicant:** Belkin International., Inc

**Address:** 12045 East Waterfront Drive, Playa Vista, 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, R.O.C.

**FCC Registration /  
Designation Number:** 198487 / TW2021



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### Report Issue History Record

Issue No.	Description	Date Issued
SA190107D07	Original release	Feb. 11, 2019

### Release Control Record

Issue No.	Description	Date Issued
SA190107D07	Original release	Feb. 11, 2019

## 1 Certificate of Conformity

**Product:** BOOST↑UP™ Wireless Charging Stand 10W

**Brand:** belkin

**Test Model:** F7U083

**Sample Status:** Engineering sample

**Applicant:** Belkin International., Inc

**Test Date:** Jan. 28, 2019

**Standards:** FCC Part 1 (Section 1.1307(b), 1.1310)

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 / Senior Specialist

**Date:**

Feb. 11, 2019

**Approved by :**



Rex Lai / Associate Technical Manager

**Date:**

Feb. 11, 2019

## 2 General Information

### 2.1 General Description of EUT

Product	BOOST↑UP™ Wireless Charging Stand 10W
Brand	belkin
Test Model	F7U083
Sample Status	Engineering sample
Rating	Input: 5Vdc, 2A, Output: 5W Input: 9Vdc, 2A / 12Vdc, 1.5A Output: 10W
Modulation Type	FSK
Operating Frequency	111-148kHz
Antenna Type	Coil antenna
Field Strength	85.06dBuV/m
Dimensions	18.76 cm <sup>2</sup> , 39.5mm x 47.5mm (rectangle)
Accessory Device	Adapter
Data Cable Supplied	1.2m shielded USB cable
Maximum Power Output from the Charging Coil	10W

Note:

1. The EUT is a wireless inductive charging coil.
2. The EUT has two configuration could be chosen as the following.

Model	Configuration	Difference
F7U083	Wireless charging pad + USB cable + AC power supply	Marketing purpose
	Wireless charging pad + USB cable	

3. The EUT consumes power from a switching power adapter, as the following:

Brand	Model	Specification
belkin	DSA-18QFB FUS A	Input: 100-240Vac, 50/60Hz, 0.8A (AC 2 Pin) Output: +3.6-6Vdc, 2A +6-9Vdc, 2A +9-12Vdc, 1.5A

### 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 (10W max load)

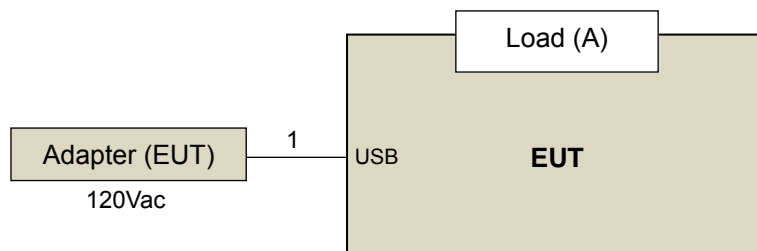
Note: All power cords of the above support units are non-shielded (1.8m).

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

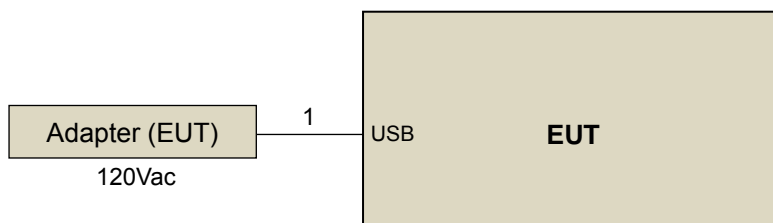
Note: The core(s) is(are) originally attached to the cable(s).

#### 3.1.1 Configuration of System Under Test

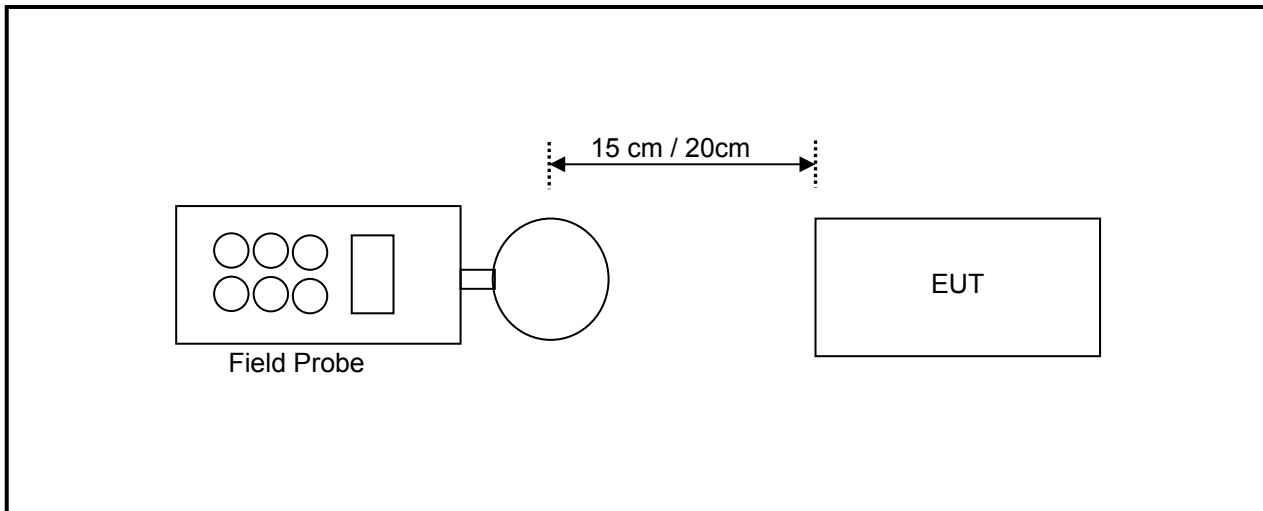
For Charging Mode with Load & Charging Mode with 3mm gap:



For 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	1 – 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, 2017	Dec. 5, 2019
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

### 3.4 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 <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	6
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300 .....	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3–1.34 .....	614	1.63	*(100)	30
1.34–30 .....	824/f	2.19/f	*(180/f <sup>2</sup> )	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

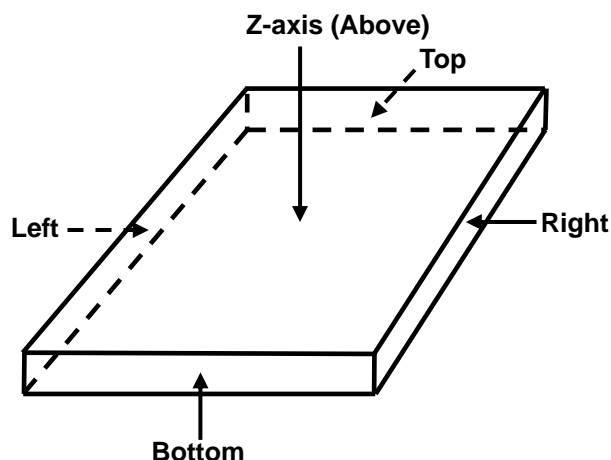
NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply 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 Calculation Result Of Maximum Conducted Power

Charging Mode with 10% Load

E-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-field (V/m)	0.8200	0.6600	0.7500	0.5400	0.4100
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-613.1800	-613.3400	-613.2500	-613.4600	-613.5900
50 % Limit (V/m)	307	307	307	307	307
50 % Margin (V/m)	-306.1800	-306.3400	-306.2500	-306.4600	-306.5900

H-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-field (uT)	0.1490	0.1280	0.1360	0.2030	0.1180
Max H-field (A/m)	0.1192	0.1024	0.1088	0.1624	0.0944
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.5108	-1.5276	-1.5212	-1.4676	-1.5356
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.6958	-0.7126	-0.7062	-0.6526	-0.7206

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
Max E-field (V/m)	1.8400	1.2000	1.3200	0.9100	0.5500
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-612.1600	-612.8000	-612.6800	-613.0900	-613.4500
50 % Limit (V/m)	307	307	307	307	307
50 % Margin (V/m)	-305.1600	-305.8000	-305.6800	-306.0900	-306.4500

H-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-field (uT)	0.1560	0.1380	0.1520	0.2610	0.1250
Max H-field (A/m)	0.1248	0.1104	0.1216	0.2088	0.1000
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.5052	-1.5196	-1.5084	-1.4212	-1.5300
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.6902	-0.7046	-0.6934	-0.6062	-0.7150

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 Full Load

E-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-field (V/m)	1.9700	1.3600	1.4500	1.0900	0.6900
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-612.0300	-612.6400	-612.5500	-612.9100	-613.3100
50 % Limit (V/m)	307	307	307	307	307
50 % Margin (V/m)	-305.0300	-305.6400	-305.5500	-305.9100	-306.3100

H-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-field (uT)	0.1670	0.2020	0.2820	0.3430	0.1330
Max H-field (A/m)	0.1336	0.1616	0.2256	0.2744	0.1064
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.4964	-1.4684	-1.4044	-1.3556	-1.5236
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.6814	-0.6534	-0.5894	-0.5406	-0.7086

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 3mm gap 10% Load

E-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-field (V/m)	0.8900	0.7100	0.7900	0.6100	0.4800
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-613.1100	-613.2900	-613.2100	-613.3900	-613.5200
50 % Limit (V/m)	307	307	307	307	307
50 % Margin (V/m)	-306.1100	-306.2900	-306.2100	-306.3900	-306.5200

H-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-field (uT)	0.1520	0.1360	0.1420	0.2150	0.1480
Max H-field (A/m)	0.1216	0.1088	0.1136	0.1720	0.1184
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.5084	-1.5212	-1.5164	-1.4580	-1.5116
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.6934	-0.7062	-0.7014	-0.6430	-0.6966

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 3mm gap 50% Load

E-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-field (V/m)	1.9600	1.3200	1.4400	1.0500	0.6300
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-612.0400	-612.6800	-612.5600	-612.9500	-613.3700
50 % Limit (V/m)	307	307	307	307	307
50 % Margin (V/m)	-305.0400	-305.6800	-305.5600	-305.9500	-306.3700

H-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-field (uT)	0.1630	0.1410	0.1590	0.2710	0.1340
Max H-field (A/m)	0.1304	0.1128	0.1272	0.2168	0.1072
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.4996	-1.5172	-1.5028	-1.4132	-1.5228
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.6846	-0.7022	-0.6878	-0.5982	-0.7078

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 3mm gap Full Load

E-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-field (V/m)	2.0100	1.4700	1.5200	1.1100	0.7800
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-611.9900	-612.5300	-612.4800	-612.8900	-613.2200
50 % Limit (V/m)	307	307	307	307	307
50 % Margin (V/m)	-304.9900	-305.5300	-305.4800	-305.8900	-306.2200

H-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-field (uT)	0.1740	0.2260	0.2940	0.3580	0.1480
Max H-field (A/m)	0.1392	0.1808	0.2352	0.2864	0.1184
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.4908	-1.4492	-1.3948	-1.3436	-1.5116
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.6758	-0.6342	-0.5798	-0.5286	-0.6966

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.

Standby Mode

E-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-field (V/m)	0.2100	0.1900	0.2100	0.2300	0.1400
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-613.7900	-613.8100	-613.7900	-613.7700	-613.8600
50 % Limit (V/m)	307	307	307	307	307
50 % Margin (V/m)	-306.7900	-306.8100	-306.7900	-306.7700	-306.8600

H-Field Measurement					
Distance	15cm				20cm
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-field (uT)	0.1010	0.1000	0.1340	0.1120	0.1070
Max H-field (A/m)	0.0808	0.0800	0.1072	0.0896	0.0856
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.5492	-1.5500	-1.5228	-1.5404	-1.5444
50 % Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50 % Margin (A/m)	-0.7342	-0.7350	-0.7078	-0.7254	-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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