



Test Report No.: FM2101WDG0239



# RF EXPOSURE TEST REPORT



Applicant	Belkin International, Inc.
Address	12045 East Waterfront Drive, Playa Vista, CA 90094 USA

Manufacturer or Supplier	Belkin International, Inc.
Address	12045 East Waterfront Drive, Playa Vista, CA 90094 USA
Product	BOOST↑CHARGE™ Magnetic Portable Wireless Charger Pad
Brand Name	belkin
Model	WIA005
Additional Model & Model Difference	N/A
Date of tests	Jan. 22, 2021 ~ Feb. 03, 2021

The submitted sample of the above equipment has been tested according to the requirements of the following standard:

- 47 CFR PART 1, Subpart I, Section 1.1310
- KDB 680106 D01

**CONCLUSION: The submitted sample was found to COMPLY with the test requirement**

Tested by Lucas Chen Project Engineer / EMC Department	Approved by Glyn He Assistant Manager/ EMC Department
	
	Data: Feb. 08, 2021

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Test Report No.: FM2101WDG0239

## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FM2101WDG0239	Original release	Feb. 08, 2021



# 1. GENERAL INFORMATION

## 1.1. GENERAL DESCRIPTION OF EUT

<b>FCC ID</b>	K7SWIA005
<b>PRODUCT</b>	BOOST↑CHARGE™ Magnetic Portable Wireless Charger Pad
<b>MODEL NO.</b>	WIA005
<b>ADDITIONAL MODEL</b>	N/A
<b>POWER SUPPLY</b>	Input: DC 5V or 9V or 12V from USB-C host unit Output: 10W max
<b>MODULATION TECHNOLOGY</b>	FSK
<b>OPERATING FREQUENCY RANGE</b>	111KHz ~ 148KHz
<b>ANTENNA TYPE</b>	Coil Antenna
<b>I/O PORTS</b>	Refer to user's manual
<b>CABLE SUPPLIED</b>	USB-C to USB-C cable: Shielded, Non-detachable 2.0m

### NOTES:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions, but only the worst case was shown in test report.
3. Please refer to the EUT photo document (Reference No.: 2101WDG0239) for detailed product photo.
4. The EUT can be powered by adapter as list as attach:

ADAPTER	
BRAND:	N/A
MODEL:	A829-120167C-US1
INPUT:	AC 100-240V, 50/60Hz, 0.5A
OUTPUT:	5.0V=3.0A 9.0V=2.23A 12.0V=1.67A 3.3-5.9V=3.0A 17.7W MAX 3.3-11.0V=2.0A 20.0W MAX
DC LINE:	N/A



## 2. RF EXPOSURE MEASUREMENT

### 2.1 LIMITS

§ 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.

### Reference KDB 680106 D01 RF Exposure Wireless Charging App v03

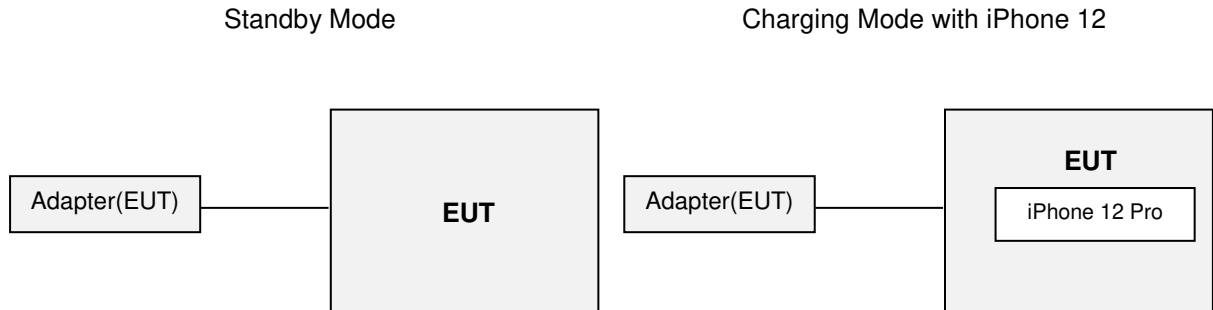
The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.

### 2.2 DESCRIPTION OF SUPPORT UNITS

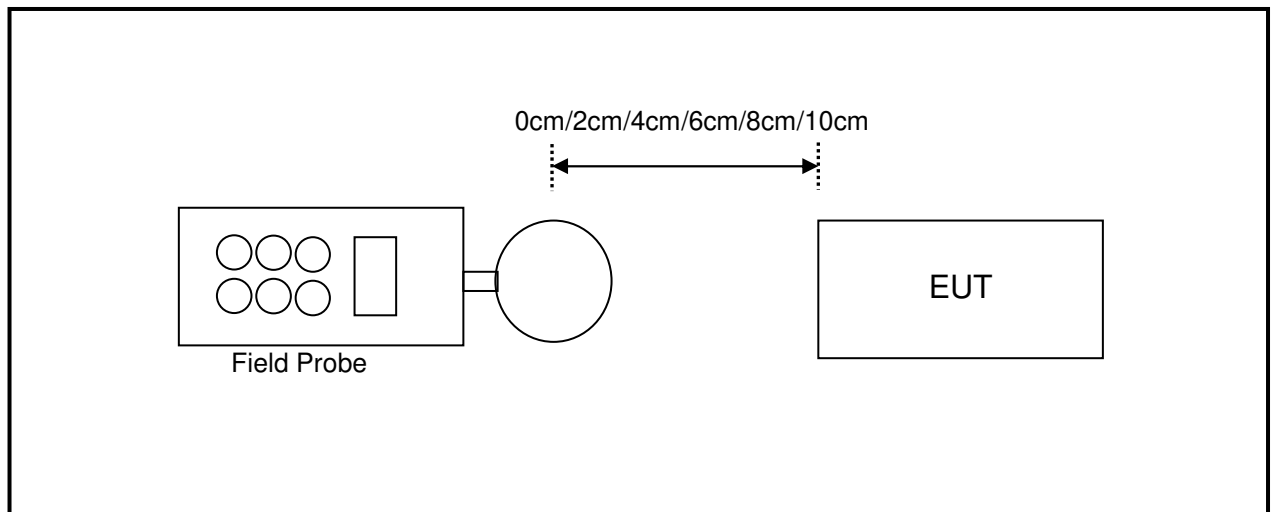
The EUT has been tested with associated equipment below

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	iPhone 12 Pro	Apple	A2408	N/A	N/A

### 2.3 CONFIGURATION OF SYSTEM UNDER TEST



### 2.4 TEST SETUP FOR WPC



Note: Measurements should be made from all sides and the top of the primary/client pair, with the 0cm, 2 cm, 4cm, 6cm, 8cm, or 10 cm measured from the center of the probe(s) to the edge of the device.

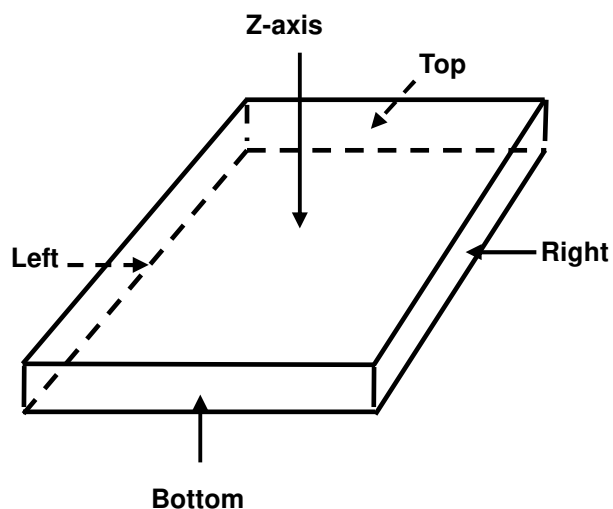


## 2.5 EQUIPMENTS USED DURING TEST

Item	Test Equipment	Manufacturer	Model No.	S/No	Due date.
1	3m Semi-Anechoic Chamber	ETS-LINDGRE N	7m*4m*3m	NSEMC003	2021-03-19
2	B-field Probe	Narda	Y2006	L-0017	2021-12-23
3	E-Field probe	Narda	NBM-520	2403/01B	2021-12-23

**NOTE:** 1. The test was performed in RS chamber.  
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

## 2.6 TEST POINT DESCRIPTION





## 2.7 TEST RESULTS

### Mode 1 Standby (distance 0 cm)

E-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-Field(V/m)	4.26	5.21	4.96	4.09	4.76
Limit(V/m)	614	614	614	614	614
Margin (V/m)	-609.74	-608.79	-609.04	-609.91	-609.24
50% Limit (V/m)	307	307	307	307	307
50% Margin (V/m)	-302.74	-301.79	-302.04	-302.91	-302.24

H-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-Field(uT)	0.328	0.27	0.565	0.285	0.667
Max H-Field(A/m)	0.261	0.215	0.450	0.227	0.531
Limit(A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.369	-1.415	-1.180	-1.403	-1.099
50% Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50% Margin (A/m)	-0.554	-0.600	-0.365	-0.588	-0.284

Measurements was made from all sides and the top of the primary/client pair, with the 0 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

### Charging Mode 2 Charging Mode with iPhone 12 10% Charger (distance 0 cm)

E-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-Field(V/m)	7.87	8.28	8.82	7.25	8.76
Limit(V/m)	614	614	614	614	614
Margin (V/m)	-606.13	-605.72	-605.18	-606.75	-605.24
50% Limit (V/m)	307	307	307	307	307
50% Margin (V/m)	-299.13	-298.72	-298.18	-299.75	-298.24

H-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-Field(uT)	0.218	0.219	0.22	0.223	0.275
Max H-Field(A/m)	0.174	0.174	0.175	0.178	0.219
Limit(A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.456	-1.456	-1.455	-1.452	-1.411
50% Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50% Margin (A/m)	-0.641	-0.641	-0.640	-0.637	-0.596

Measurements was made from all sides and the top of the primary/client pair, with the 0 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.





**Charging Mode 3 Charging Mode with iPhone 12 10% Charger (distance 2 cm)**

E-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-Field(V/m)	5.64	5	4.73	5.95	6.53
Limit(V/m)	614	614	614	614	614
Margin (V/m)	-608.36	-609	-609.27	-608.05	-607.47
50% Limit (V/m)	307	307	307	307	307
50% Margin (V/m)	-301.36	-302	-302.27	-301.05	-300.47

H-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-Field(uT)	0.218	0.218	0.219	0.222	0.229
Max H-Field(A/m)	0.174	0.174	0.174	0.177	0.182
Limit(A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.456	-1.456	-1.456	-1.453	-1.448
50% Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50% Margin (A/m)	-0.641	-0.641	-0.641	-0.638	-0.633

Measurements was made from all sides and the top of the primary/client pair, with the 2 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

**Charging Mode 4 Charging Mode with iPhone 12 10% Charger (distance 4 cm)**

E-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-Field(V/m)	4.27	3.09	3.46	3.79	5.35
Limit(V/m)	614	614	614	614	614
Margin (V/m)	-609.73	-610.91	-610.54	-610.21	-608.65
50% Limit (V/m)	307	307	307	307	307
50% Margin (V/m)	-302.73	-303.91	-303.54	-303.21	-301.65

H-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-Field(uT)	0.217	0.218	0.218	0.2	0.226
Max H-Field(A/m)	0.173	0.174	0.174	0.159	0.180
Limit(A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.457	-1.456	-1.456	-1.471	-1.450
50% Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50% Margin (A/m)	-0.642	-0.641	-0.641	-0.656	-0.635

Measurements was made from all sides and the top of the primary/client pair, with the 4 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.



**Charging Mode 5 Charging Mode with iPhone 12 10% Charger (distance 6 cm)**

E-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-Field(V/m)	1.95	2.08	2.35	2.52	3.96
Limit(V/m)	614	614	614	614	614
Margin (V/m)	-612.05	-611.92	-611.65	-611.48	-610.04
50% Limit (V/m)	307	307	307	307	307
50% Margin (V/m)	-305.05	-304.92	-304.65	-304.48	-303.04

H-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-Field(uT)	0.217	0.217	0.219	0.218	0.222
Max H-Field(A/m)	0.173	0.173	0.174	0.174	0.177
Limit(A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.457	-1.457	-1.456	-1.456	-1.453
50% Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50% Margin (A/m)	-0.642	-0.642	-0.641	-0.641	-0.638

Measurements was made from all sides and the top of the primary/client pair, with the 6 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

**Charging Mode 6 Charging Mode with iPhone 12 10% Charger (distance 8 cm)**

E-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-Field(V/m)	1.33	1.53	1.89	1.64	2.77
Limit(V/m)	614	614	614	614	614
Margin (V/m)	-612.67	-612.47	-612.11	-612.36	-611.23
50% Limit (V/m)	307	307	307	307	307
50% Margin (V/m)	-305.67	-305.47	-305.11	-305.36	-304.23

H-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-Field(uT)	0.218	0.219	0.217	0.218	0.22
Max H-Field(A/m)	0.174	0.174	0.173	0.174	0.175
Limit(A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.456	-1.456	-1.457	-1.456	-1.455
50% Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50% Margin (A/m)	-0.641	-0.641	-0.642	-0.641	-0.640

Measurements was made from all sides and the top of the primary/client pair, with the 8 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.



**Charging Mode 7 Charging Mode with iPhone 12 10% Charger (distance 10 cm)**

E-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-field (V/m)	0.92	1.24	1.53	1.4	2.45
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-613.08	-612.76	-612.47	-612.6	-611.55
50% Limit (V/m)	307	307	307	307	307
50% Margin (V/m)	-306.08	-305.76	-305.47	-305.6	-304.55

H-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-field (uT)	0.218	0.219	0.218	0.219	0.219
Max H-field (A/m)	0.174	0.174	0.174	0.174	0.174
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.456	-1.456	-1.456	-1.456	-1.456
50% Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50% Margin (A/m)	-0.641	-0.641	-0.641	-0.641	-0.641

Measurements was made from all sides and the top of the primary/client pair, with the 10 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

**Charging Mode 8 Charging Mode with iPhone 12 50% Charger (distance 0 cm)**

E-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-field (V/m)	7.76	8.16	8.67	7.01	8.67
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-606.24	-605.84	-605.33	-606.99	-605.33
50% Limit (V/m)	307	307	307	307	307
50% Margin (V/m)	-299.24	-298.84	-298.33	-299.99	-298.33

H-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-field (uT)	0.217	0.219	0.221	0.224	0.273
Max H-field (A/m)	0.173	0.174	0.176	0.178	0.217
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.457	-1.456	-1.454	-1.452	-1.413
50% Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50% Margin (A/m)	-0.642	-0.641	-0.639	-0.637	-0.598

Measurements was made from all sides and the top of the primary/client pair, with the 0 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.



**Charging Mode 9 Charging Mode with iPhone 12 90% Charger (distance 0 cm)**

E-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max E-field (V/m)	7.79	8.16	8.92	7.13	8.66
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-606.21	-605.84	-605.08	-606.87	-605.34
50% Limit (V/m)	307	307	307	307	307
50% Margin (V/m)	-299.21	-298.84	-298.08	-299.87	-298.34

H-Field Measurement					
EUT Side	Left	Right	Top	Bottom	Z-axis
Max H-field (uT)	0.219	0.22	0.221	0.221	0.277
Max H-field (A/m)	0.174	0.175	0.176	0.176	0.221
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.456	-1.455	-1.454	-1.454	-1.409
50% Limit (A/m)	0.815	0.815	0.815	0.815	0.815
50% Margin (A/m)	-0.641	-0.640	-0.639	-0.639	-0.594

Measurements was made from all sides and the top of the primary/client pair, with the 0 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.



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### 3. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (FCC MPE Test Photos, Reference No.: 2101WDG0239-1)

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