

RF Exposure Report

Report No.: SA170814C07

FCC ID: K7SF7U027

Test Model: F7U027

Received Date: Aug. 14, 2017

Test Date: Aug. 20 ~ Aug. 23, 2017

Issued Date: Aug. 23, 2017

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

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Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)



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Release Control Record

Issue No.	Description	Date Issued
SA170814C07	Original release	Aug. 23, 2017

1 Certificate of Conformity

Product: Wireless Charging Pad

Brand: belkin

Test Model: F7U027

Sample Status: Engineering sample

Applicant: Belkin International., Inc

Test Date: Aug. 20 ~ Aug. 23, 2017

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 EMC characteristics under the conditions specified in this report.

Prepared by : Celine Chou , **Date:** Aug. 23, 2017
Celine Chou / Specialist

Approved by : Ken Liu , **Date:** Aug. 23, 2017
Ken Liu / Senior Manager

2 RF Exposure

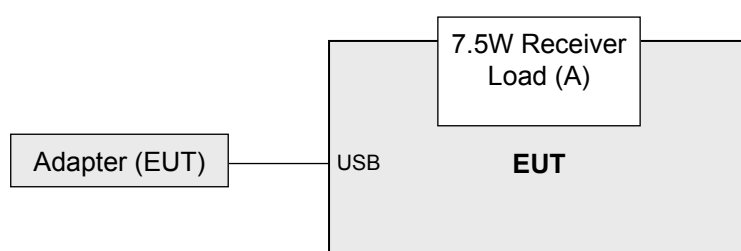
2.1 Description of Support Units

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.

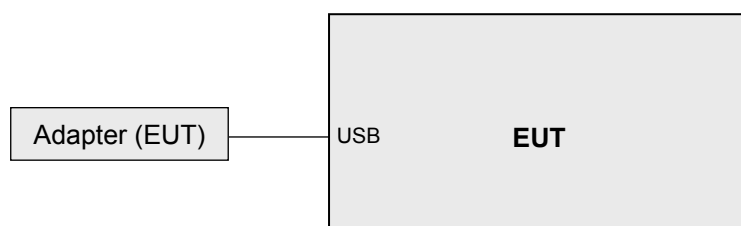
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	7.5W Receiver Load	AVID	Qi Receiver Simulator	NA	NA	Provided by manufacturer

2.1.1 Configuration of System Under Test

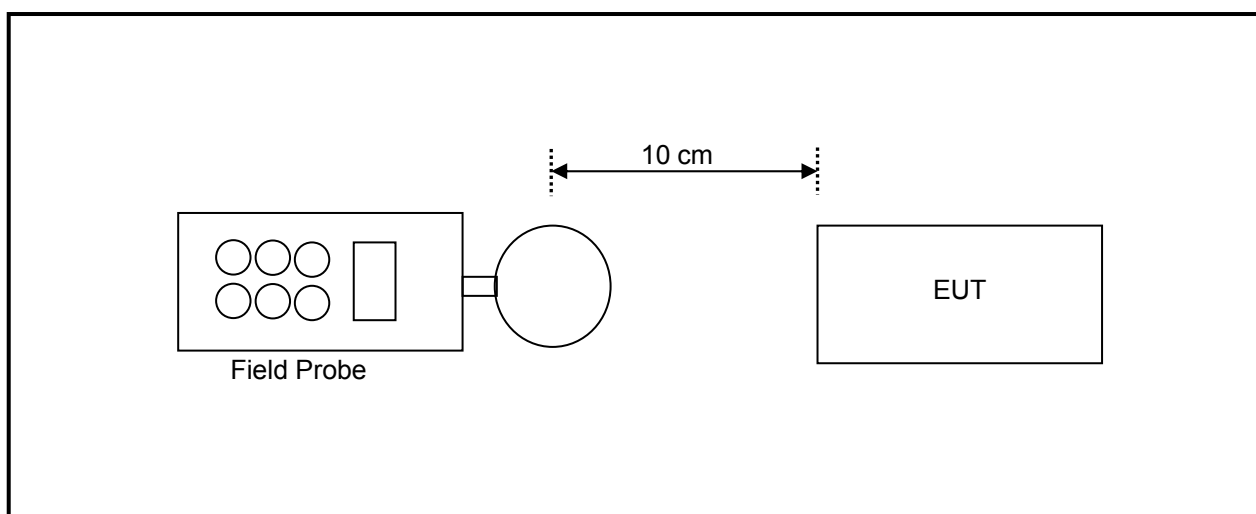
Charging Mode



Standby Mode



2.2 Test Setup



Note: Measurements should be 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.

2.3 Test Instruments

Description	Brand	Model No.	Frequency Range	Calibrated Date	Calibrated Until
Broadband Field Meter	NARDA	NBM-550	-	Feb. 9, 2016	Feb. 8, 2018
Magnetic Field Meter	NARDA	ELT-400	1 – 400kHz	Feb. 11, 2016	Feb. 10, 2018
Magnetic Probe	NARDA	HF-3061	300kHz – 30MHz	Feb. 9, 2016	Feb. 8, 2018
Magnetic Probe	NARDA	HF-0191	27 – 1000MHz	Feb. 9, 2016	Feb. 8, 2018
Broadband Field Meter	NARDA	NBM-550	-	Feb. 9, 2016	Feb. 8, 2018
Electric Field Meter	COMBINOVA	EFM 200	5Hz – 400kHz	Oct. 16, 2016	Oct. 15, 2017
E-Field Probe	NARDA	EF-0391	100kHz – 3GHz	Feb. 9, 2016	Feb. 8, 2018
E-Field Probe	NARDA	EF-6091	100MHz – 60GHz	Feb. 9, 2016	Feb. 8, 2018

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 HwaYa RF Chamber

2.4 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

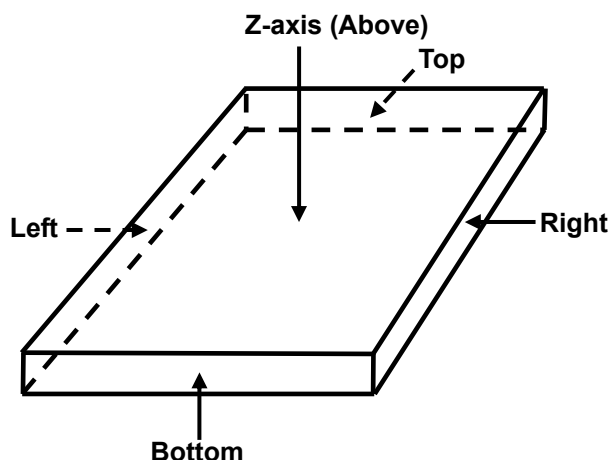
NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply 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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Aggregate leakage fields at 10 cm surrounding the device from all simultaneous transmitting coils are demonstrated to be less than 30% of the MPE limit.

2.5 Test Point Description



3 Calculation Result Of Maximum Conducted Power

Charging Mode with receiver

E-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max E-field (V/m)	3.79	3.81	3.53	3.59	11.71
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-610.21	-610.19	-610.47	-610.41	-602.29
70 % Limit (V/m)	429.8	429.8	429.8	429.8	429.8
70 % Margin (V/m)	-427.147	-427.133	-427.329	-427.287	-421.603

H-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max H-field (uT)	0.251	0.263	0.269	0.279	0.483
Max H-field (A/m)	0.2008	0.2104	0.2152	0.2232	0.3864
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.4292	-1.4196	-1.4148	-1.4068	-1.2436
70 % Limit (A/m)	1.141	1.141	1.141	1.141	1.141
70 % Margin (A/m)	-1.00044	-0.99372	-0.99036	-0.98476	-0.87052

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 with receiver shift 12mm to top

E-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max E-field (V/m)	2.79	3.8	4.02	3.11	12.11
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-611.21	-610.2	-609.98	-610.89	-601.89
70 % Limit (V/m)	429.8	429.8	429.8	429.8	429.8
70 % Margin (V/m)	-427.847	-427.14	-426.986	-427.623	-421.323

H-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max H-field (uT)	0.334	0.323	0.463	0.474	0.796
Max H-field (A/m)	0.2672	0.2584	0.3704	0.3792	0.6368
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.3628	-1.3716	-1.2596	-1.2508	-0.9932
70 % Limit (A/m)	1.141	1.141	1.141	1.141	1.141
70 % Margin (A/m)	-0.95396	-0.96012	-0.88172	-0.87556	-0.69524

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 with receiver shift 12mm to bottom

E-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max E-field (V/m)	4.36	3.31	3.5	4.23	9.73
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-609.64	-610.69	-610.5	-609.77	-604.27
70 % Limit (V/m)	429.8	429.8	429.8	429.8	429.8
70 % Margin (V/m)	-426.748	-427.483	-427.35	-426.839	-422.989

H-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max H-field (uT)	0.276	0.291	0.378	0.367	1.22
Max H-field (A/m)	0.2208	0.2328	0.3024	0.2936	0.976
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.4092	-1.3972	-1.3276	-1.3364	-0.654
70 % Limit (A/m)	1.141	1.141	1.141	1.141	1.141
70 % Margin (A/m)	-0.98644	-0.97804	-0.92932	-0.93548	-0.4578

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 with receiver shift 12mm to left

E-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max E-field (V/m)	3.46	3.21	3.44	3.78	10.5
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-610.54	-610.79	-610.56	-610.22	-603.5
70 % Limit (V/m)	429.8	429.8	429.8	429.8	429.8
70 % Margin (V/m)	-427.378	-427.553	-427.392	-427.154	-422.45

H-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max H-field (uT)	0.437	0.465	0.336	0.344	0.847
Max H-field (A/m)	0.3496	0.372	0.2688	0.2752	0.6776
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.2804	-1.258	-1.3612	-1.3548	-0.9524
70 % Limit (A/m)	1.141	1.141	1.141	1.141	1.141
70 % Margin (A/m)	-0.89628	-0.8806	-0.95284	-0.94836	-0.66668

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 with receiver shift 12mm to right

E-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max E-field (V/m)	2.97	3.34	3.49	3.18	12.63
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-611.03	-610.66	-610.51	-610.82	-601.37
70 % Limit (V/m)	429.8	429.8	429.8	429.8	429.8
70 % Margin (V/m)	-427.721	-427.462	-427.357	-427.574	-420.959

H-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max H-field (uT)	0.464	0.459	0.31	0.325	0.665
Max H-field (A/m)	0.3712	0.3672	0.248	0.26	0.532
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.2588	-1.2628	-1.382	-1.37	-1.098
70 % Limit (A/m)	1.141	1.141	1.141	1.141	1.141
70 % Margin (A/m)	-0.88116	-0.88396	-0.9674	-0.959	-0.7686

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 airgap 3mm

E-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max E-field (V/m)	3.94	2.91	3.85	3.36	10.29
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-610.06	-611.09	-610.15	-610.64	-603.71
70 % Limit (V/m)	429.8	429.8	429.8	429.8	429.8
70 % Margin (V/m)	-427.042	-427.763	-427.105	-427.448	-422.597

H-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max H-field (uT)	0.307	0.258	0.254	0.271	0.903
Max H-field (A/m)	0.2456	0.2064	0.2032	0.2168	0.7224
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.3844	-1.4236	-1.4268	-1.4132	-0.9076
70 % Limit (A/m)	1.141	1.141	1.141	1.141	1.141
70 % Margin (A/m)	-0.96908	-0.99652	-0.99876	-0.98924	-0.63532

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.

Standby Mode

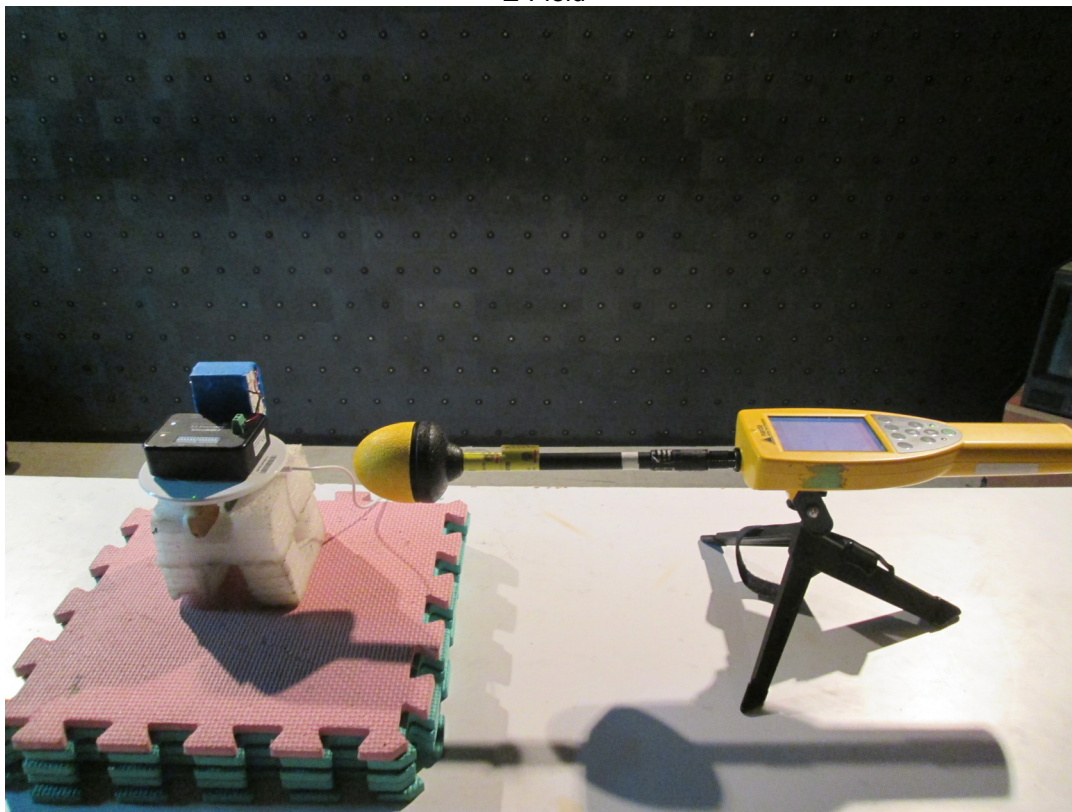
E-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max E-field (V/m)	0.38	0.39	0.38	0.42	0.36
Limit (V/m)	614	614	614	614	614
Margin (V/m)	-613.62	-613.61	-613.62	-613.58	-613.64
70 % Limit (V/m)	429.8	429.8	429.8	429.8	429.8
70 % Margin (V/m)	-429.534	-429.527	-429.534	-429.506	-429.548

H-Field Measurement (10cm)					
EUT Side	Left	Right	Top	Bottom	Z-axis (Above)
Max H-field (uT)	0.241	0.245	0.245	0.241	0.446
Max H-field (A/m)	0.1928	0.196	0.196	0.1928	0.3568
Limit (A/m)	1.63	1.63	1.63	1.63	1.63
Margin (A/m)	-1.4372	-1.434	-1.434	-1.4372	-1.2732
70 % Limit (A/m)	1.141	1.141	1.141	1.141	1.141
70 % Margin (A/m)	-1.00604	-1.0038	-1.0038	-1.00604	-0.89124

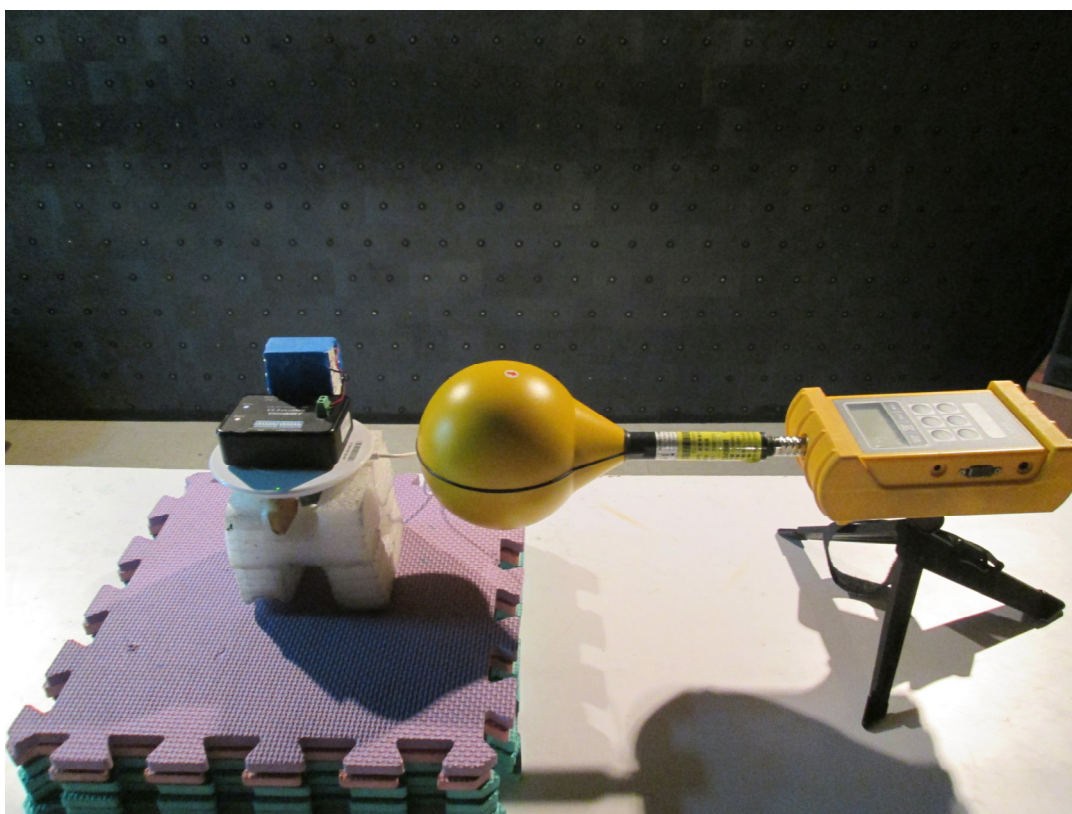
Measurements was made from all sides and the top of the primary/client pair, with the 10 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

4 Photographs of the Test Configuration

E-Field



H-Field



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