

RF EXPOSURE REPORT

FOR

Applicant	:	Spigen Korea Co., Ltd.
Address	:	Spigen HQ-A, 446, Bongeunsa-ro, Gangnam-gu, Seoul, 06153, South Korea
Equipment under Test	:	Spigen PowerArc ArcField™ Wireless Charger
Model No.	:	PF2009
Trade Mark	:	
FCC ID	:	2AFKNPF2009A
Manufacturer	:	Spigen Korea Co., Ltd.
Address	:	Spigen HQ-A, 446, Bongeunsa-ro, Gangnam-gu, Seoul, 06153, South Korea

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park,
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REPORT

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Test Report Declare

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Assess Standard Used: FCC CFR 47 part1, 1.1307(b), 1.1310; KDB680106 DR03-44118

We Declare:

The equipment described above is assessed by Dongguan Dongdian Testing Service Co., Ltd. and in the configuration assessed the equipment complied with the standards specified above. The assessed results are contained in this report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these assess.

After evaluation, our opinion is that the equipment In Accordance with above standard.

Report No.:	DDT-R21111811-2E02		
Date of Receipt:	Nov. 29, 2021	Date of Test:	Nov. 29, 2021~ Dec. 21, 2021

Prepared By:

Johnny Wang

Johnny Wang/Engineer

Approved By:



Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Dec. 22, 2021	

1. General Information

1.1. Description of equipment

EUT* Name	: Spigen PowerArc ArcField™ Wireless Charger
Model Number	: PF2009
EUT function description	: Please reference user manual of this device
Power supply	: Powered by DC 5V3A or 9V2.22A external adapter
Wireless charging Operation frequency	: 110-205KHz
Antenna Type	: Inductive loop coil antenna

Note: EUT is the abbreviation of equipment under test.

1.2. Assistant equipment used for test

Description of Accessories	Manufacturer	Model number	Serial No.	Other
Dummy load	N/A	N/A	N/A	N/A
Adapter	UGREEN	CD137	N/A	Input: 100-240~, 50/60Hz, 0.5A; Output: 5V/3A or 9V/2.22A

1.3. Assess laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808.

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, G-20118

2. Equipment used during test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Electric and Magnetic Field Analyzer	narda	EHP-200A	170WX91016	Jan. 06, 2021	1 Year

3. Method of Measurement

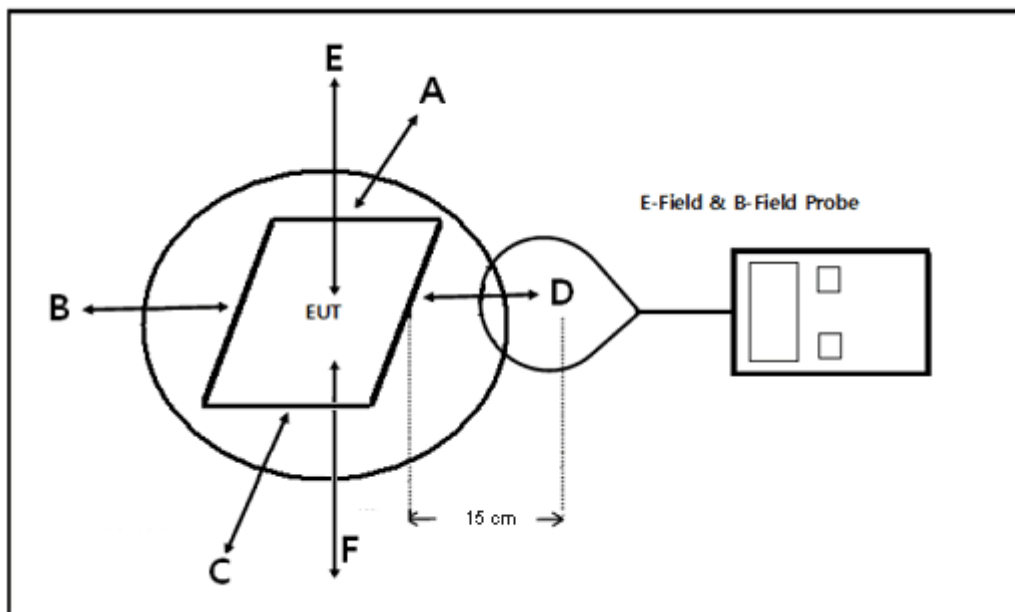
3.1. Applicable standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

According KDB 680106 D01: RF Exposure Wireless Charging Apps v03r01.

3.2. Block diagram of test setup



Note: Due to installation limitations no tests from the underside of the charging device (Test Position F) are required.

3.3. Test procedure

- The RF exposure test was performed in shielded chamber.
- The measurement probe was placed at test distance (15 cm) which is between the edge of the charger and the geometric centre of probe.
- The measurement probe used to search of highest strength.
- The highest emission level was recorded and compared with limit as soon as measurement of each points (A, B, C, D, E) were completed.
- The EUT were measured according to the dictates of KDB680106 DR03-44118.

3.4. Equipment approval considerations:

The EUT does comply with section 5 b) of KDB 680106 D01 RF Exposure Wireless Charging Apps v03r01.

(1) Power transfer frequency is less than 1 MHz.

Yes, the device operates in the frequency range from 110-205KHz

(2) Output power from each primary coil is less than or equal to 15 watts

Yes, the maximum output power of the primary coil is 7.5 W.

(3) The system may consist of more than one source primary coils, charging one or more clients.

If more than one primary coil is present, the coil pairs may be powered on at the same time.

Yes, the transfer system includes two primary coils.

(4) Client device is placed directly in contact with the transmitter.

Yes. client device is placed directly in contact with the transmitter.

(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

Yes.

(6) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.

Yes, the EUT H-field strengths levels are less than 50% of MPE limit.

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 Exposure				
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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

3.5. E and H Field Strength

Test mode for wireless charger:

Dummy load: 5W and 7.5W load mode, All the multitudinous primary coils modes were tested; the data of the worst mode are described in the following table

E-Filed Strength at 15 cm from the edges surrounding the EUT and 20 cm above the top surface of the EUT (V/m)

Test Position	Probe Measure Result(V/m)		Limits Test (V/m)
	5W	7.5W	
A	2.6595	1.3060	614
B	2.8922	3.7672	614
C	2.1484	3.1324	614
D	3.2005	2.9476	614
E	2.3191	2.1357	614

H-Filed Strength at 15 cm from the edges surrounding the EUT and 20 cm above the top surface of the EUT (A/m)

Test Position	Probe Measure Result(A/m)		Limits Test (A/m)
	5W	7.5W	
A	0.0542	0.0535	1.63
B	0.0542	0.0540	1.63
C	0.0554	0.0535	1.63
D	0.0535	0.0523	1.63
E	0.0564	0.0554	1.63