

# RF EXPOSURE REPORT

## FOR

<b>Applicant</b>	:	Spigen Korea Co., Ltd.
<b>Address</b>	:	446, Bongeunsa-ro, Gangnam-gu, Seoul, 06153, Korea
<b>Equipment under Test</b>	:	ArcField Wireless Charger
<b>Model No.</b>	:	PF2101
<b>Trade Mark</b>	:	
<b>FCC ID</b>	:	2AFKNPF2101
<b>Manufacturer</b>	:	Spigen Korea Co., Ltd.
<b>Address</b>	:	446, Bongeunsa-ro, Gangnam-gu, Seoul, 06153, Korea

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

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# REPORT

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## Test Report Declare

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<b>Trade Mark</b>	:	
<b>Manufacturer</b>	:	Spigen Korea Co., Ltd.
<b>Address</b>	:	446, Bongeunsa-ro, Gangnam-gu, Seoul, 06153, Korea
<b>Factory</b>	:	Power7 Technology (Dong Guan) Co., Ltd.
<b>Address</b>	:	No.28 Binjiang Street.Shishuikou Village,Qiaotou Town,Dongguan City,GuangDong Province P.R.China

**Assess Standard Used:** FCC CFR 47 part1, 1.1307(b), 1.1310; KDB 680106 D01 RF Exposure Wireless Charging App v03r01.

### 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.**

<b>Report No.:</b>	DDT-R22021110-2E02		
<b>Date of Receipt:</b>	Apr. 24, 2022	<b>Date of Test:</b>	Apr. 24, 2022 ~ Jul. 18, 2022

**Prepared By:**

*Sanvin Zheng*

**Sanvin Zheng/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	Jul. 18, 2022	

## 1. General Information

### 1.1. Description of equipment

EUT* Name	: ArcField Wireless Charger
Model Number	: PF2101
EUT function description	: Please reference user manual of this device
Power Supply	: Input: 5V---1.5A, 9V---1.67A by Type-C port Output: 5W or 7.5W
Wireless charging Operation frequency	: 115 kHz - 205 kHz
Antenna Type	: Inductive loop coil antenna
Sample Type	: Series production
Serial Number	: S22021110-02

Note: EUT is the abbreviation of equipment under test.

### 1.2. Accessories of EUT

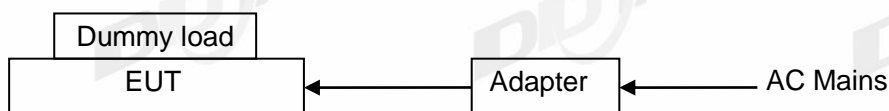
Description of Accessories	Manufacturer	Model number	Description	Remark
N/A	N/A	N/A	N/A	N/A

### 1.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number or Type	Description	Other
AC Adapter	UGREEN	CD137	N/A	Input: 100-240V~50/60Hz, Output: 5V/3A or 9V/2.22A or 12V/1.67A
Dummy load	N/A	N/A	N/A	N/A

### 1.4. Block diagram of EUT configuration for test

For mode 1: Tx mode (5W load, 7.5W load):



For mode 2: Standby mode:



Note: Scan with mode 1 and mode 2, the worst case is mode 1 Tx mode (7.5W load) and recorded in this report.

### 1.5. Assess laboratory

Dongguan Dongdian Testing Service Co., Ltd

Addr.: 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](mailto: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

### 1.6. Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Electric field strength(V/m)	3.02 dB
Uncertainty for Magnetic field strength(A/m)	3.00 dB
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

## 2. Equipment Used During Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Isotropic EM Field Probe	Wavecontrol	WP400	21WP100741	Aug. 03, 2021	1 Year

### 3. Method of Measurement

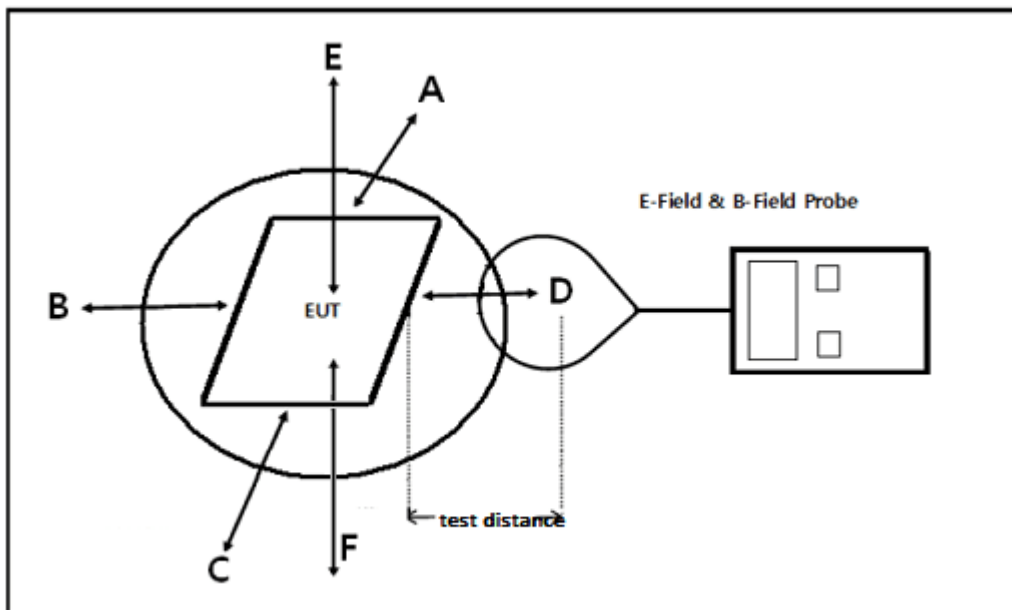
#### 3.1. Applicable standard

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 to KDB 680106 D01 RF Exposure Wireless Charging App 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 surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit.
- 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 KDB 680106 D01 RF Exposure Wireless Charging App v03r01.

### 3.4. Equipment approval considerations:

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

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

Yes; the device operates in the frequency range from 115 kHz - 205 kHz.

(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.

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

Yes.

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

Yes; the EUT is a Mobile device.

(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; EUT was evaluated as above.

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 Exposure</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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			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 Load and 7.5W Load mode

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	15.76	16.32	614
B	19.08	19.78	614
C	16.83	17.43	614
D	19.74	21.67	614
E-20cm	22.31	23.07	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	0.04	0.04	1.63
B	0.04	0.05	1.63
C	0.04	0.04	1.63
D	0.04	0.04	1.63
E-20cm	0.05	0.04	1.63