

# Human Exposure Report

**Application No.:** SZCR2103000020AT  
**Applicant:** Spigen Korea Co., Ltd.  
**Address of Applicant:** Spigen HQ-A, 446, Bongeunsa-ro, Gangnam-gu, Seoul, 06153, South Korea  
**Manufacturer:** Shenzhen Wireless Technology Co., Ltd.  
**Address of Manufacturer:** Floor 2,3,4 building A4, Fangxing Science and Technology park, NO.13 Baonan Road, Longgang street, Longgang District  
**Factory:** Shenzhen Wireless Technology Co., Ltd.  
**Address of Factory:** Floor 2,3,4 building A4, Fangxing Science and Technology park, NO.13 Baonan Road, Longgang street, Longgang District

**Equipment Under Test (EUT):**  
**EUT Name:** Spigen OneTap Pro Wireless Car Charger / Spigen OneTap Pro Wireless Magnetic Charging Stand  
**Model No.:** ITS35W, ITS12W, S310W ♣  
 ♣ Please refer to section 3.1 of this report which indicates which model was actually tested and which were electrically identical.

**Trade Mark:** Spigen  
**FCC ID:** 2AFKNITS12W  
**Standards:** 47 CFR PART 1, Subpart I, Section 1.1310  
 47 CFR PART 2, Subpart J, Section 2.1091  
 47 CFR PART 2, Subpart J, Section 2.1093

**Date of Receipt:** 2021-03-09  
**Date of Test:** 2021-03-17 to 2021-03-31  
**Date of Issue:** 2021-04-08

<b>Test Result :</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above



Keny Xu  
 EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.  
 Shenzhen Branch EMC Laboratory

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<i>Revision Record</i>				
<b>Version</b>	<b>Chapter</b>	<b>Date</b>	<b>Modifier</b>	<b>Remark</b>
01		2021-04-08		Original

<b>Authorized for issue by:</b>			
		Leo Li/Project Engineer	
		Eric Fu/Reviewer	



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### 3 General Information

#### 3.1 Details of E.U.T.

Power supply:	Input: DC5.0V/2A, DC9.0V/1.67V Output: WPC: 5W/7.5W
Cable(s):	Type-C cable: 113cm unshielded
Operation frequency:	110.10kHz to 150.16kHz
Modulation type:	Load modulation
Antenna type:	Loop Antenna
Remark:	This devices had been tested the worst status of full load and the worst case 7.5W is reported only.

#### Declaration of EUT Family Grouping:

Model No.: ITS35W, ITS12W, S310W

Only the model ITS35W and S310W were tested. According to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on back shell and accessories.

#### 3.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	Apple	A2167	REF. No.SEA05B04D
Adapter	SAMSUNG	EP-TA200	REF. No.SEA05K03A
E-loading	Client supply	N/A	N/A
Car charger	Xiaomi	XM010A028	REF. No.:SEA0732
iPhone Magsafe	Apple	A2400	Client supply



### 3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

### 3.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

### 3.5 Deviation from Standards

None.

### 3.6 Abnormalities from Standard Conditions

None.



## 4 Equipments Used during Test

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Due date
1	Shielding Room	SAEMC	MSR733	SEM001-09	2021-11-08
2	Electric and Magnetic Field Analyzer	Narda	EHP-50F	EMC092	2021-11-26



## 5 Test Results

### 5.1 RF Exposure test

Test Requirement: 47 CFR PART 1, Subpart I, Section 1.1310  
47 CFR PART 2, Subpart J, Section 2.1091  
47 CFR PART 2, Subpart J, Section 2.1093

Measurement Distance: 15cm for S310W; 0/2/4/6/8/10/15 for ITS35W

Limit:

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

RF exposure compliance will need to be determined with respect to 1.1307(c) and (d) of the FCC rules. The emissions should be within the limits at 300kHz in Table 1 of 1.1310(use the 300kHz limits for 150kHz:614V/m,1.63A/m).

#### 5.1.1 E.U.T. Operation

##### Operating Environment:

Temperature: 22.3 °C Humidity: 52.9 % RH Atmospheric Pressure: 1015 mbar

This device has been tested the worst status of full load and the device has been tested with mobile phone at zero charge, intermediate charge, and full charge.



For ITS35W:

**5.1.2 Measurement Data**

**Output Voltage=DC 7.5V; The max output power =7.5W;Calculation of resistor value=7.5Ω**

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
133.4 kHz	0	Side 1	0.4316	0.815
		Side 2	0.3671	0.815
		Side 3	0.3726	0.815
		Side 4	0.3062	0.815
		Top	0.2249	0.815

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
133.4 kHz	2	Side 1	0.3669	0.815
		Side 2	0.3047	0.815
		Side 3	0.3204	0.815
		Side 4	0.2419	0.815
		Top	0.1844	0.815

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
133.4 kHz	4	Side 1	0.3045	0.815
		Side 2	0.2438	0.815
		Side 3	0.2756	0.815
		Side 4	0.2032	0.815
		Top	0.1568	0.815





**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
133.4 kHz	6	Side 1	0.2527	0.815
		Side 2	0.2072	0.815
		Side 3	0.2232	0.815
		Side 4	0.1666	0.815
		Top	0.1332	0.815

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
133.4 kHz	8	Side 1	0.1997	0.815
		Side 2	0.1720	0.815
		Side 3	0.1741	0.815
		Side 4	0.1350	0.815
		Top	0.1026	0.815

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
133.4 kHz	10	Side 1	0.1517	0.815
		Side 2	0.1359	0.815
		Side 3	0.1323	0.815
		Side 4	0.1039	0.815
		Top	0.0811	0.815



**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
133.4 kHz	15	Side 1	0.0742	0.815
		Side 2	0.0682	0.815
		Side 3	0.0655	0.815
		Side 4	0.0531	0.815
		Top	0.0400	0.815

Mobile phone has been charge at zero charge, intermediate charge, and full charge.

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10% charge	50% charge	90% charge	
133.4 kHz	0	Side 1	0.5102	0.4393	0.3713	0.815
		Side 2	0.4014	0.3272	0.2938	0.815
		Side 3	0.3745	0.3166	0.2909	0.815
		Side 4	0.3256	0.2745	0.2318	0.815
		Top	0.1583	0.1802	0.1626	0.815

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10% charge	50% charge	90% charge	
133.4 kHz	2	Side 1	0.4270	0.3677	0.3108	0.815
		Side 2	0.3398	0.2770	0.2487	0.815
		Side 3	0.3333	0.2817	0.2589	0.815
		Side 4	0.2402	0.2025	0.1710	0.815
		Top	0.1326	0.1509	0.1362	0.815



**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10% charge	50% charge	90% charge	
133.4 kHz	4	Side 1	0.3452	0.2972	0.2512	0.815
		Side 2	0.2707	0.2207	0.1982	0.815
		Side 3	0.2838	0.2399	0.2205	0.815
		Side 4	0.2284	0.1925	0.1626	0.815
		Top	0.1050	0.1195	0.1078	0.815

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10% charge	50% charge	90% charge	
133.4 kHz	6	Side 1	0.3092	0.2663	0.2250	0.815
		Side 2	0.2458	0.2004	0.1799	0.815
		Side 3	0.2285	0.1932	0.1775	0.815
		Side 4	0.1770	0.1492	0.1260	0.815
		Top	0.0958	0.1091	0.0984	0.815

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10% charge	50% charge	90% charge	
133.4 kHz	8	Side 1	0.2424	0.2087	0.1764	0.815
		Side 2	0.1893	0.1543	0.1385	0.815
		Side 3	0.2139	0.1808	0.1662	0.815
		Side 4	0.1421	0.1198	0.1012	0.815
		Top	0.0676	0.0769	0.0694	0.815



**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10% charge	50% charge	90% charge	
133.4 kHz	10	Side 1	0.1954	0.1682	0.1422	0.815
		Side 2	0.1648	0.1344	0.1207	0.815
		Side 3	0.1534	0.1297	0.1192	0.815
		Side 4	0.1225	0.1032	0.0872	0.815
		Top	0.0447	0.0509	0.0460	0.815

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10% charge	50% charge	90% charge	
133.4 kHz	15	Side 1	0.1366	0.1176	0.0994	0.815
		Side 2	0.1531	0.1248	0.1120	0.815
		Side 3	0.0958	0.0810	0.0744	0.815
		Side 4	0.0903	0.0761	0.0643	0.815
		Top	0.0236	0.0269	0.0243	0.815



For S310W:

**5.1.3 Measurement Data**

**Output Voltage=DC 7.5V; The max output power =7.5W;Calculation of resistor value=5Ω**

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
135.6 kHz	15	Side 1	0.0441	0.815
		Side 2	0.0428	0.815
		Side 3	0.0472	0.815
		Side 4	0.0394	0.815
		Top	0.0263	0.815

**Mobile phone has been charge at zero charge, intermediate charge, and full charge.**

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			zero charge	intermediate charge	full charge	
135.6 kHz	15	Side 1	0.0476	0.0410	0.0347	0.815
		Side 2	0.0475	0.0387	0.0348	0.815
		Side 3	0.0500	0.0423	0.0389	0.815
		Side 4	0.0426	0.0359	0.0303	0.815
		Top	0.0204	0.0232	0.0209	0.815

- End of the Report -

