

Test Report

Report No.: MTi240822017-01E2

Date of issue: 2024-11-08

Applicant: Spigen Korea Co., Ltd.

Product: OneTap Pro 3 Cryomax Wireless Charging Stand,
OneTap Pro 3 Cryomax Wireless Charger with
Kickstand

Model(s): S310WC, S310WCK

FCC ID: 2AFKNS310WC

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.cn>

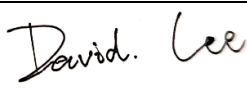
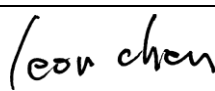
Instructions

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2. The test results in this test report are only responsible for the samples submitted
3. This test report is invalid without the seal and signature of the laboratory.
4. This test report is invalid if transferred, altered, or tampered with in any form without authorization.
5. Any objection to this test report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

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Test Result Certification	
Applicant:	Spigen Korea Co., Ltd.
Address:	Spigen HQ-A, 446, Bongeunsa-ro, Gangnam-gu, Seoul, 06153, South Korea
Manufacturer:	Shenzhen Powerqi Technology Co.,Ltd
Address:	2nd Floor,Building A4,Block A,Fangxing Science &Tech.Park,No.13 of BaoNan Road,Longgang District,Shengzhen,China.
Factory 1:	Shenzhen Powerqi Technology Co.,Ltd.
Address:	Room 201, 302, 401 of A4 Building, Block A, Fangxing Science and Technology Park, No. 13 of Baonan Road, Longgang District, Shenzhen, China.
Factory 2:	SEOSIN ELECTRONICS VINA CO., LTD
Address:	Chau Son industrial Park, Le Chan Road, Le Hong Phong Ward, Phu Ly City.Ha Nam Province, Viet Nam
Product description	
Product name:	OneTap Pro 3 Cryomax Wireless Charging Stand, OneTap Pro 3 Cryomax Wireless Charger with Kickstand
Trademark:	
Model name:	S310WC
Series Model:	S310WCK
Standards:	47 CFR PART 1, § 1.1310 47 CFR PART 2.1091
Test method:	KDB 680106 D01 Wireless Power Transfer v04
Date of Test	
Date of test:	2024-10-18 to 2024-11-06
Test result:	Pass

Test Engineer	:	
		(Yanice.Xie)
Reviewed By	:	
		(David Lee)
Approved By	:	

		(Leon Chen)
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1 General Description

1.1 Description of the EUT

Product name:	OneTap Pro 3 Cryomax Wireless Charging Stand, OneTap Pro 3 Cryomax Wireless Charger with Kickstand
Model name:	S310WC
Series Model:	S310WCK
Model difference:	All the models are the same circuit and module, except the product name,model name and stand base. OneTap Pro 3 Cryomax Wireless Charging Stand is S310WC, OneTap Pro 3 Cryomax Wireless Charger with Kickstand is S310WCK.
Electrical rating:	Input:DC 5V/3A, 9V/2.77A, 12V/1.67A Output:15W Max
Accessories:	Cable:Type-C to type-C 1m
Hardware version:	V10
Software version:	V1.0
Test sample(s) number:	MTi240822017-01S1001
RF specification:	
Operation frequency:	115-205kHz(5W-10W) & 360kHz(15W)
Modulation type:	ASK
Antenna type:	Coil

1.2 Description of test modes

All the test modes were carried out with the EUT in normal operation, the final test mode of the EUT was the worst test mode for emission test, which was shown in this report and defined as:

No.	Emission test modes
Mode1	Wireless Output(5W)
Mode2	Wireless Output(7.5W)
Mode3	Wireless Output(10W)
Mode4	Wireless Output(15W)
Mode5	Standby

1.3 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.

Support equipment list			
Description	Model	Serial No.	Manufacturer
Moible Phone	S9+	/	Samsung
Moible Phone	iPhone 13	/	Apple
HUAWEI QUICK CHARGE(65W)	HW-200200ZP1	JN67LSN7N03451	HUAWEI
Support cable list			
Description	Length (m)	From	To
/	/	/	/

2 Measurement uncertainty

Parameter	Expanded Uncertainty
Magnetic field measurements(3kHz~10MHz)	$\pm 14.8\%$
Electric field measurements(3kHz~10MHz)	$\pm 17.5\%$

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3 Test facilities and accreditations

3.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.
Test site location:	101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573

4 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
MTI-E143	Near-field Electric and Magnetic Field Sensor System	SPEAG	MAGPy-8H3D +ED3	3101	2024/3/12	2027/3/11

No.	Equipment	Manufacturer	Model	Software version:	Cal. date	Cal. Due
MTI-E016S	MPE test software	SPEAG	MAGPY 2.6	2.6	/	/

5 Test result

5.1.1 Requirement

§1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

Table 1 to §1.1310(e)(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)
(i) 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
300-1500			f/300	<6
1500-100000			5	<6
(ii) 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
1500-100000			1.0	<30

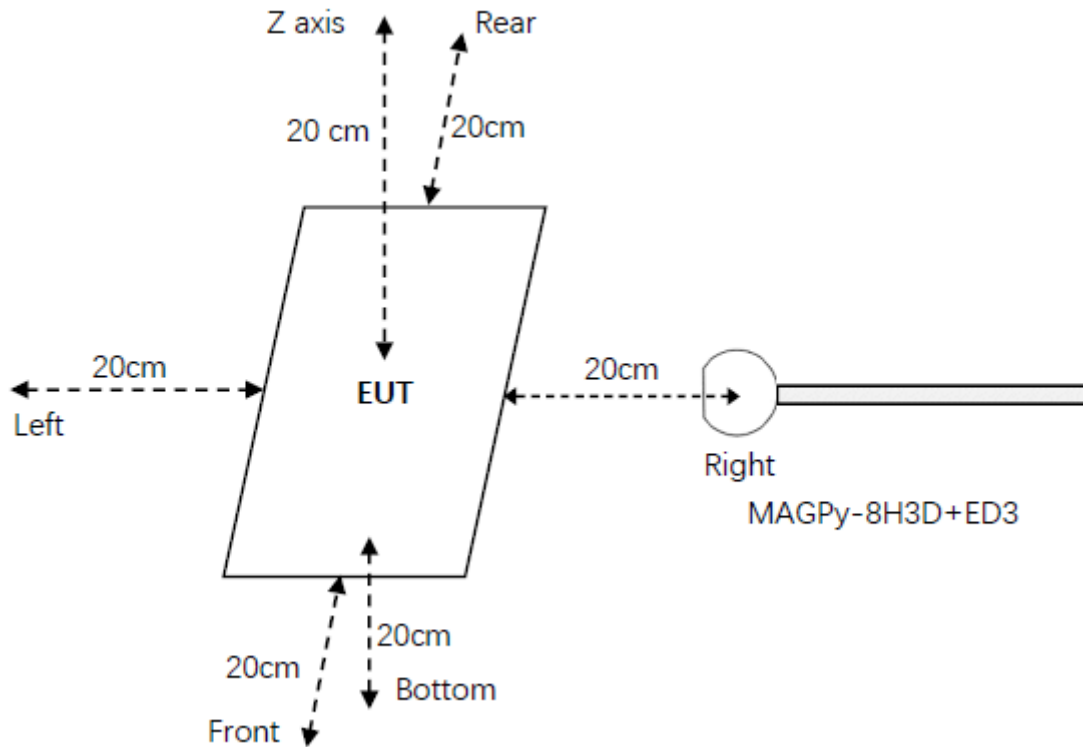
f = frequency in MHz

* = Plane-wave equivalent power density

Note 1: Occupational/controlled exposure 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.

Note 2: General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

5.2 Test setup

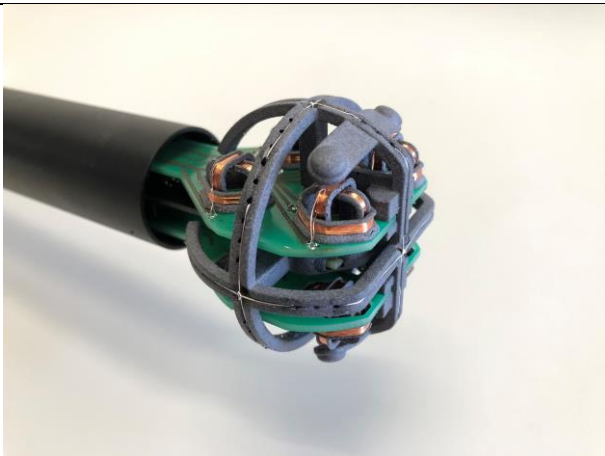


5.3 Test Procedures

- The RF exposure test was performed in anechoic chamber.
- E and H-field measurements should be made with these devices considered to meet the § 2.1091-Mobile conditions ("generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the RF source's radiating structure(s) and [the nearest person]").
- The highest emission level was recorded and compared with limit.
- The EUT was measured according to the dictates of KDB 680106 D01 Wireless Power Transfer v04.

5.4 Information of test equipment

Test equipment: MAGPy-8H3D+ED3	
Diameter	60mm
8 isotropic H-field sensors	Concentric loops of 1cm ² arranged at the corner of a cube of 22mm side length
1 isotropic E-field sensor	Orthogonal dipole/monopole (arm length: 50mm)
Measurement center	18.5mm from the probe tip
Dimensions	110*635*35mm (MAGPy-8H3D+E3D V2 & MAGPy-DAS V2)



Test probe, without the casing

5.5 Test results

S310WC:

Test condition 1: Mode 3 operating mode with client device (1 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	1.69	614	0.28%	0.01	1.63	0.61%
Left	0.56			0.002		
Right	1.39			0.008		
Front	1.15			0.006		
Rear	1.03			0.008		
Bottom	1.08			0.005		

Test condition 2: Mode 3 operating mode with client device (50 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	1.35	614	0.22%	0.008	1.63	0.49%
Left	0.45			0.002		
Right	1.11			0.006		
Front	0.92			0.005		
Rear	0.82			0.006		
Bottom	0.86			0.004		

Test condition 3: Mode 3 operating mode with client device (99 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	1.10	614	0.18%	0.007	1.63	0.40%
Left	0.36			0.001		
Right	0.90			0.005		
Front	0.75			0.004		
Rear	0.67			0.005		
Bottom	0.70			0.003		

Test condition 1: Mode 4 operating mode with client device (1 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.68	614	0.26%	0.002	1.63	0.49%
Left	0.25			0.005		
Right	1.31			0.002		
Front	1.45			0.001		
Rear	1.52			0.008		
Bottom	1.62			0.006		

Test condition 2: Mode 4 operating mode with client device (50 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	0.54	614	0.21%	0.002	1.63	0.39%
Left	0.20			0.004		
Right	1.05			0.002		
Front	1.16			0.001		
Rear	1.22			0.006		
Bottom	1.30			0.005		

Test condition 3: Mode 4 operating mode with client device (99 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.44	614	0.17%	0.001	1.63	0.32%
Left	0.16			0.003		
Right	0.85			0.001		
Front	0.94			0.001		
Rear	0.99			0.005		
Bottom	1.05			0.004		

S310WCK:

Test condition 1: Mode 3 operating mode with client device (1 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	1.57	614	0.26%	0.02	1.63	2.45%
Left	0.76			0.03		
Right	0.98			0.03		
Front	0.94			0.04		
Rear	1.02			0.02		
Bottom	1.04			0.008		

Test condition 2: Mode 3 operating mode with client device (50 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	1.35	614	0.22%	0.02	1.63	1.84%
Left	0.65			0.03		
Right	0.84			0.03		
Front	0.81			0.03		
Rear	0.88			0.02		
Bottom	0.89			0.006		

Test condition 3: Mode 3 operating mode with client device (99 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	1.16	614	0.19%	0.01	1.63	1.23%
Left	0.56			0.02		
Right	0.73			0.02		
Front	0.70			0.02		
Rear	0.75			0.01		
Bottom	0.77			0.005		

Test condition 1: Mode 4 operating mode with client device (1 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	1.01	614	0.16%	0.009	1.63	0.55%
Left	0.98			0.004		
Right	0.86			0.006		
Front	0.53			0.001		
Rear	0.55			0.008		
Bottom	0.69			0.007		

Test condition 2: Mode 4 operating mode with client device (50 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
Z axis	0.87	614	0.14%	0.008	1.63	0.47%
Left	0.84			0.003		
Right	0.74			0.005		
Front	0.46			0.001		
Rear	0.47			0.007		
Bottom	0.59			0.006		

Test condition 3: Mode 4 operating mode with client device (99 % battery status of client device)

Probe Position	E -field (V/m)			H-field (A/m)		
	Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
Z axis	0.75	614	0.12%	0.007	1.63	0.41%
Left	0.73			0.003		
Right	0.64			0.004		
Front	0.39			0.001		
Rear	0.41			0.006		
Bottom	0.51			0.005		

Photographs of the Test Setup

See the Appendix - Test Setup Photos.

Photographs of the EUT

See the Appendix - EUT Photos.

----End of Report----