Test Report

Report No.:	MTi230619024-01E2
Date of issue:	2023-08-16
Applicant:	Electronic Silk Road (Shenzhen) Tech Co., Ltd
Product:	ESR 65W 5-in-1 Charging Station(HaloLock)
Model(s):	6E004
FCC ID:	2APEW-6E004

Shenzhen Microtest Co., Ltd.

http://www.mtitest.com

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Instructions

1. This test report shall not be partially reproduced without the written consent of the laboratory.

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.

Contents

Test Result Certification	
Applicant:	**Electronic Silk Road (Shenzhen) Tech Co., Ltd**
Address:	439, Building A7, Fuhai Xinxigang, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Manufacturer:	**Electronic Silk Road (Shenzhen) Tech Co., Ltd**
Address:	439, Building A7, Fuhai Xinxigang, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Product description	
Product name:	ESR 65W 5-in-1 Charging Station(HaloLock)
Trademark:	ESR
Model name:	6E004
Series Model:	N/A
Standards:	FCC CFR 47 PART 1, § 1.1310
Test method:	KDB 680106 v03r01
Date of Test	
Date of test:	2023-06-30 ~ 2023-08-16
Test result:	Pass

Test Engineer : David. Lee

(David Lee)

Reviewed By: Leon Chen

(Leon Chen)

Approved By: Tom Xue

(Tom Xue)

1 General Description

1.1 Description of the EUT

Product name:	ESR 65W 5-in-1 Charging Station(HaloLock)
Model name:	6E004
Series Model:	N/A
Model difference:	N/A
Electrical rating:	Input: AC 100-240V~50/60Hz, 1.6A(Max) Output: One port charging: USB-C: PPS:3.3V-11.0V⎓3.0A 33.0W,5.0V⎓3.0A 15.0W, 9.0V⎓3.0A 27.0W, 12.0V⎓3.0A 36.0W, 15.0V⎓3.0A 45.0W, 20.0V⎓3.25A 65.0W USB-A: 5.0V⎓1.0A 5.0W USB-A for iWacth charger:5V⎓1A 5W USB-C for iWacth charger:5V⎓1A 5W Wireless Charging:7.5W for iPhone,5W for AirPods Two port charging: USB-C+USB-A:PPS:3.3V-11.0V⎓3.0A 33.0W,5.0V⎓3.0A 15.0W,9.0V⎓3.0A 27.0W,12.0V⎓3.0A 36.0W,15.0V⎓3.0A 45.0W, 20.0V⎓3.0A 60.0W + 5.0V⎓1.0A 5.0W USB-C+ Wireless Charging: PPS:3.3V-11.0V⎓3.0A 33.0W, 5.0V⎓3.0A 15.0W, 9.0V⎓3.0A 27.0W, 12.0V⎓3.0A 36.0W, 15.0V⎓2.6A 39.0W, 20.0V⎓2.0A 40.0W + USB-A for iWacth charger/USB-C for iWacth charger:5V⎓1A 5W+7.5W for iPhone + 5W for AirPods USB-A + Wireless Charging: 5.0V⎓1.0A 5.0W + USB-A for iWacth charger/USB-C for iWacth charger:5V⎓1A 5W+7.5W for iPhone + 5W for AirPods Three port charging: USB-C+ USB-A+Wireless Charging: PPS:3.3V-11.0V⎓3.0A 33.0W, 5.0V⎓3.0A 15.0W, 9.0V⎓3.0A 27.0W, 12.0V⎓2.9A 34.8W, 15.0V⎓2.3A 34.5W, 20.0V⎓1.75A 35.0W+ 5.0V⎓1.0A 5.0W+USB-A for iWacth charge/USB-C for iWacth charger:5V⎓1A 5W + 7.5W for iPhone, 5W for AirPods Total:65.0W（Max）
Accessories:	AC Power cable(190cm)
Hardware version:	Z27 V1.0
Software version:	Z27 V1.0
RF specification:	
Operation frequency:	Transmitter 1: 115 kHz – 205 kHz Transmitter 2: 115 kHz – 205 kHz
Modulation type:	ASK
Antenna type:	Coil Antenna

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
Mode 1	Wireless output for earphone (5W)
Mode 2	Wireless output for phone (7.5W)
Mode 3	Wireless output(7.5W+5W)
Mode 4	Wireless output(7.5W+5W)+ iWatch wireless charging
Mode 5	Stand-by
The test data only show worst test mode: Mode3, mode4	

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
iPhone	iPhone 13	MGYJ0HNQHL	Apple
Air Pods	A2190	H6LDLEZ70C6L	Apple Inc.
iWatch	iWatch S8	M0JVGQG1VP	Apple Inc.
iWatch Charger	A2515	DLC24040EXF1NR1AN	Apple Inc.
Support cable list			
Description	Length (m)	From	To
/	/	/	/

2 Measurement uncertainty

Parameter	Expanded Uncertainty
Magnetic field measurement (9kHz~30MHz)	±18.6%
Electric field measurements (9kHz~30MHz)	±18.6%

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-E115	Electric and Magnetic Field Probe – Analyzer	Narda	EHP-200A	101166	2022/08/15	2023/08/14
MTi-E115	Electric and Magnetic Field Probe – Analyzer	Narda	EHP-200A	101166	2023/08/14	2024/08/13

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)

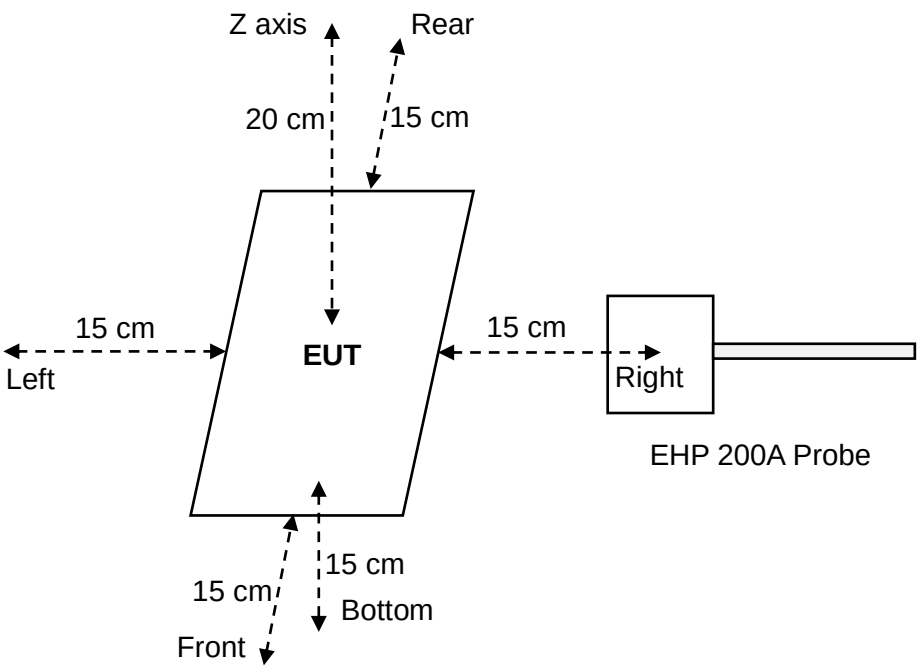
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(i) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*($900/f^2$)	<6
30-300	61.4	0.163	1.0	<6
300-1500			f/300	<6
1500-100000			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

a. The RF exposure test was performed in anechoic chamber.

b. E and H-field measurements should be made with the center of the probe at a distance of 15 cm surrounding the device and 20 cm above the top surface of the primary/client pair.

c. The highest emission level was recorded and compared with limit.

d. The EUT was measured according to the dictates of KDB 680106 v03r01.

5.4 Equipment Approval Considerations item 5 b) of KDB 680106 D01 v03r01

Requirement	Device
1. Power transfer frequency is less than 1 MHz.	Yes. The operating frequencies are: 115 kHz – 205 kHz
2. Output power from each primary coil is less than or equal to 15 watts	Yes. The maximum output power is: 7.5W
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 EUT has two source primary coils.
4. Client device is placed directly in contact with the transmitter.	Yes. The 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. Mobile exposure conditions only.
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. See the test result in item 5.5.

5.5 Test results

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

Antenna	Probe Position	E –field (V/m)			H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
1	Z axis	1.1746	614	0.26%	0.0488	1.63	18.12%
	Left	0.5935			0.0611		
	Right	1.4171			0.0834		
	Front	1.5954			0.2204		
	Rear	1.3246			0.0664		
	Bottom	0.8090			0.2953		

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

Antenna	Probe Position	E –field (V/m)			H–field (A/m)		
		Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
1	Z axis	1.1922	614	0.26%	0.0529	1.63	18.25%
	Left	0.5781			0.0683		
	Right	1.4347			0.0737		
	Front	1.6018			0.2291		
	Rear	1.3182			0.0634		
	bottom	0.8036			0.2974		

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

Antenna	Probe Position	E –field (V/m)			H–field (A/m)		
		Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
1	Z axis	1.1655	614	0.26%	0.0447	1.63	17.81%
	Left	0.5929			0.0545		
	Right	1.4116			0.0752		
	Front	1.5822			0.2106		
	Rear	1.314			0.0652		
	bottom	0.7904			0.2903		

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

Antenna	Probe Position	E –field (V/m)			H–field (A/m)		
		Measurement	Limit	Max. Percentage (%)	Measurement	Limit	Max. Percentage (%)
1	Z axis	1.0981	614	0.22%	0.0563	1.63	14.94%
	Left	0.5316			0.0533		
	Right	1.2215			0.0784		
	Front	1.3456			0.1932		
	Rear	1.2215			0.0664		
	Bottom	0.7861			0.2436		

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

Antenna	Probe Position	E –field (V/m)			H–field (A/m)		
		Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
1	Z axis	1.1084	614	0.22%	0.0531	1.63	15.08%
	Left	0.5198			0.0449		
	Right	1.2253			0.0848		
	Front	1.3584			0.1981		
	Rear	1.2153			0.071		
	bottom	0.7956			0.2458		

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

Antenna	Probe Position	E –field (V/m)			H–field (A/m)		
		Measurement	Limit	Percentage (%)	Measurement	Limit	Percentage (%)
1	Z axis	1.0904	614	0.22%	0.0481	1.63	14.59%
	Left	0.5116			0.0526		
	Right	1.2151			0.0699		
	Front	1.3329			0.1866		
	Rear	1.2149			0.0612		
	bottom	0.7804			0.2378		

Photographs of the Test Setup

See the Appendix - Test Setup Photos.

Photographs of the EUT

See the Appendix - EUT Photos.

----End of Report----