

# Limitless Innovations, Inc

## TEST REPORT

**SCOPE OF WORK**

EMC TESTING–CRGRD-X5-E3015-XXX

**REPORT NUMBER**

190228165GZU-002

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## TEST REPORT

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Applicant Name & : LIMITLESS INNOVATIONS INC  
Address : 4800 Metalmaster Way McHenry, IL 60050, United States  
Manufacturing Site : Same as applicant  
Intertek Report No: 190228165GZU-002  
FCC ID: 2AQ9A-E3015

### Test standards

**47 CFR PART 1, Subpart I, Section 1.1310**  
**KDB 680106 D01 RF Exposure Wireless Charging Apps v03**

### Sample Description

Product : ChargeHub X5 Elite  
Model No. : CRGRD-X5- E3015-XXX  
Electrical Rating : Input: 100-240Vac, 50/60Hz 1500mA, Max  
4×USB Output: 5Vdc, 2.4A Max current per port/4.4A Max Total  
Output Current  
1× Type-C Output: 5Vdc, 3A or 9Vdc, 3A or 12Vdc, 2.25A  
Wireless output: 5Vdc, 1A or 9Vdc, 1.1A, or 9Vdc, 1.67A  
Serial No. : Not Labeled  
Date Received : 01 September 2019  
Date Test : 01 September 2019-15 September 2019  
Conducted

Prepared and Checked By

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## TEST REPORT

### 1.0 TEST RESULT SUMMARY

Classification of EUT: Class B

Test Item	Standard	Result
EMF	47 CFR PART 1, Subpart I, Section 1.1310	PASS

Remark:

When determining the test results, measurement uncertainty of tests has been considered.

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### 2.0 General Description

#### 2.1 Product Description

Operating Frequency	113-145KHz
Type of Modulation:	MSK
Antenna Type	Inductive loop coil antenna
Antenna gain:	0 dBi
Power Supply:	Input: 100-240Vac, 50/60Hz 1500mA, Max 4×USB Output: 5Vdc, 2.4A Max current per port/4.4A Max Total Output Current 1× Type-C Output: 5Vdc, 3A or 9Vdc, 3A or 12Vdc, 2.25A Wireless output: 5Vdc, 1A or 9Vdc, 1.1A, or 9Vdc, 1.67A
Normal test voltage:	120Vac, 60Hz
Power cord:	1.2m x 2 wires unshielded cable

#### 2.2 Test Facility

Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD Guangzhou, China

A2LA Certificate Number 0078.10

Intertek Testing Services Shenzhen Ltd. Guangzhou Branch is accredited by A2LA and Listed in FCC website. FCC accredited test labs may perform both Certification testing under Parts 15 and 18 and Declaration of Conformity testing.

#### 2.3 EUT Exercising Software

N/A

#### 2.4 Special Accessories

N/A

#### 2.5 Equipment Modification


Any modifications installed previous to testing by LIMITLESS INNOVATIONS INC will be incorporated in each production model sold / leased in the United States.  
No modifications were installed by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch.

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**2.6 Support Equipment List and Description**

This product was tested with corresponding support equipment as below:

Support Equipment:

Equipment	Model No.	Rating	Supplier
Load	CWJ-A15W-R0	--	Client
			

Remark: Load supplied by client, it's used such that the EUT was fully exercised at maximum power from its transmitter. It will not be sold together.

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above evaluated respectively.

Pre-test mode	Description	
Standby Mode	kept transmitting continuously	
Charging Mode	CH: Low	EUT was set different wireless output(5W, 10W, 15W) by Load
	CH: Middle	
	CH: High	

Pre-test all modes listed above, find the worst case as: wireless charging at low channel and Max wireless output power (15W).

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**3.0 EMF TEST**

**3.1 Standard Requirement**

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 limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 20cm normally can be maintained between the user and the device.

**(a) Limits for Occupational / Controlled Exposure**

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S)(mW/cm <sup>2</sup> )	Averaging Times  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	F/300	6
1500-100000	--	--	5	6

**(b) Limits for General Population / Uncontrolled Exposure**

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S)(mW/cm <sup>2</sup> )	Averaging Times  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	F/1500	30
1500-100000	--	--	1.0	30

Note: f=frequency in MHz; \*Plane-wave equivalent power density

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### 3.2 Test Data

Input Voltage: 120V/60Hz  
Ambient Condition: 24°C, 50%RH

Test distance: 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils

H-Filed Strength:

Test Position	Probe Measure Result (A/m) Max power	50% Limit (A/m)	Limit (A/m)
Side 1	0.19	0.815	1.63
Side 2	0.18	0.815	1.63
Side 3	0.16	0.815	1.63
Side 4	0.18	0.815	1.63
Top	0.21	0.815	1.63



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### 4.0 Test Equipment List

Equip. No.	Equipment	Model	Manufacturer	Cal. date	Due date
EM007-03	Exposure Level Tester	ELT-400	NARDA	2018/12/11	2019/12/11

\*\*\*\*\*End of the test report\*\*\*\*\*