

FCC RF EXPOSURE
CERTIFICATION TEST REPORT

For

BOLT+ Power Pack

MODEL NUMBER: 920-0902-000

REPORT NUMBER: 4791216058-RF-2

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Prepared for

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Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	June 18, 2024	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Sphero HK Limited
Address: Unit 4307-08, Level 43, Tower 1 Metroplaza, 223 Hing Fong Road, Kwai Fong, N.T.Hongkong

Manufacturer Information

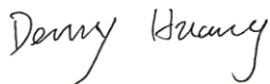
Company Name: Sphero, Inc.
Address: 7121 B Shelby Ave, Dock 19 Greenville, TX, 75402 USA

EUT Information

EUT Name: BOLT+ Power Pack
Model: 920-0902-000
Brand: Sphero
Sample Received Date: April 15, 2024
Sample Status: Normal
Sample ID: 7147934
Date of Tested: April 18, 2024 to June 5, 2024

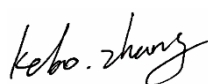
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 47CFR§1.1307	PASS
FCC 47CFR§1.1310	PASS
FCC 47CFR§2.1093	PASS
FCC 47CFR§2.1091	PASS

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC 47CFR§1.1307(b)(1), FCC 47CFR§1.1310, FCC 47CFR§2.1093, KDB 680106 D01 Wireless Power Transfer v04.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	A2LA (Certificate No.: 4102.01) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. FCC (FCC Designation No.: CN1187) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules ISED (Company No.: 21320) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046. VCCI (Registration No.: G-20192, R-20202, C-20153 and T-20155) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber D, the VCCI registration No. is G-20192 and C-20153 Shielding Room B, the VCCI registration No. is C-20153 and T-20155
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Note: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

4. DESCRIPTION OF EUT

EUT Name	BOLT+ Power Pack	
Model	920-0902-000	
Product Description	Operation Frequency	111 kHz to 205 kHz
Rated Output Power	3 W	
Antenna type	Coil	
Ratings	DC 12 V, 5 A	

5. REQUIREMENT

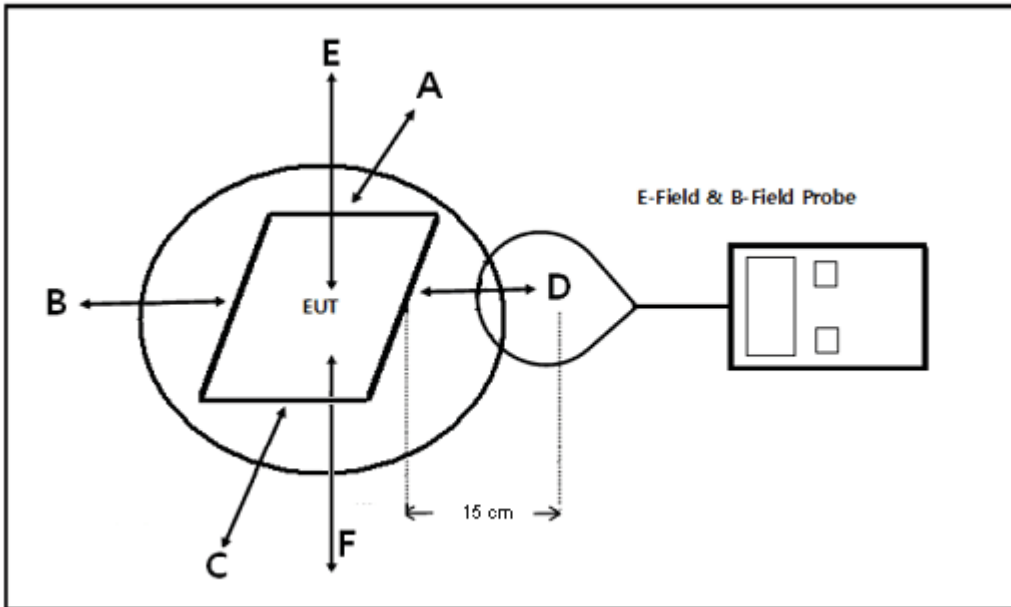
LIMIT

Frequency Range (MHz)	E-field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (Minutes)
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 -- 100,000	--	--	1.0	30

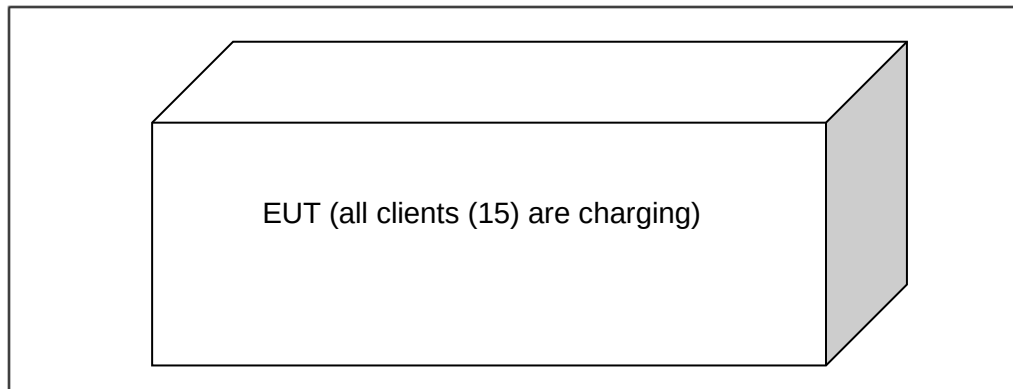
METHOD OF MEASUREMENT

- The RF exposure test was performed in shielded chamber.
- The geometric centre of probe was placed at 15 cm test distance surrounding the device and 20 cm above the top surface.
- 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 Wireless Power Transfer v04.

BLOCK DIAGRAM OF TEST SETUP



Note: As bottom point is not required to test for desktop devices, so we scanning all the surfaces and recorded the worst level in E.



Note: While in testing, test probe will be scan along the principal axes until found the worst cast potin and record data in this report.

EQUIPMENT APPROVAL CONSIDERATIONS

The EUT comply with KDB680106 D01 Wireless Power Transfer v04.

1) Power transfer frequency is less than 1 MHz.

Yes; the device operated in the frequency range 111 kHz to 205 kHz.

2) The output power from each transmitting element (e.g., coil) is less than or equal to 15 watts.

Yes; the maximum output power of each primary coil is 3 watts.

3) A client device providing the maximum permitted load is placed in physical contact with the transmitter (i.e., the surfaces of the transmitter and client device enclosures need to be in physical contact).

Yes; Client device is placed directly in contact with the transmitter.

4) Only § 2.1091-Mobile exposure conditions apply (i.e., this provision does not cover § 2.1093-Portable exposure conditions).

Yes; The EUT is a mobile device.

5) The E-field and H-field strengths, at and beyond 20 cm surrounding the device surface, are demonstrated to be less than 50% of the applicable MPE limit, per KDB 447498, Table 1. These measurements shall be taken along the principal axes of the device, with one axis oriented along the direction of the estimated maximum field strength, and for three points per axis or until a 1/d (inverse distance from the emitter structure) field strength decay is observed. Symmetry considerations may be used for test reduction purposes. The device shall be operated in documented worst-case compliance scenarios (i.e., the ones that lead to the maximum field components), and while all the radiating structures (e.g., coils or antennas) that by design can simultaneously transmit are energized at their nominal maximum power.

Yes; The EUT's field strength levels are less than 50% of the MPE limit.

6) For systems with more than one radiating structure, the conditions specified in (5) must be met when the system is fully loaded (i.e., clients absorbing maximum power available), and with all the radiating structures operating at maximum power at the same time, as per design conditions. If the design allows one or more radiating structures to be powered at a higher level while other radiating structures are not powered, then those cases must be tested as well. For instance, a device may use three RF coils powered at 5 W, or one coil powered at 15 W: in this case, both scenarios shall be tested.

Yes; The EUT have 15 transmitters maximum, each coil have the same power, and each transmitter only have one coil, the maximum wireless charging power is the same no matter how many transmitters were put in the EUT.

MEASURING INSTRUMENT USED

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
Electric and Magnetic Field Analyzer	Narda	EHP-200A	170WX90204	June 9, 2023	June 8, 2024

E FIELD AND H FIELD STRENGTH TEST RESULT

Test Mode	Description
Mode 1	Charging with 3 W (1 % battery status of client device)
Mode 2	Charging with 3 W (50 % battery status of client device)
Mode 3	Charging with 3 W (99 % battery status of client device)

Note:

- 1.All the modes had been tested, but only the worst data was recorded in the report.
- 2.Charging mode can be performed while the case is both open and closed. both modes have pre-scan, while the case is open, test probe will be closer to the EUT. So, only the worst-case mode(open case) data recorded in this report.

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	H-Filed Strength Measure Result		Limits (A/m)
	Mode 1		
	A/m		
A	0.1877		1.63
B	0.0754		1.63
C	0.1395		1.63
D	0.1896		1.63
E	0.6280		1.63
F	0.1895		1.63

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	E-Filed Strength Measure Result		Limits (V/m)
	Mode 1		
	V/m		
A	1.2479		614
B	0.6800		614
C	1.3497		614
D	1.2169		614
E	2.5044		614
F	1.3588		614

END OF REPORT