

Human Exposure Report

Application No.: SZEM2005004389BA
Applicant: Otter Products, LLC.
Address of Applicant: 209 South Meldrum, Fort Collins, Colorado, 80521 United States
Manufacturer: Hamedata Technology Co., Limited
Address of Manufacturer: 3F, Building 1, Huahan Industrial Park, No.16, Jinniu West Rd., Pingshan New District., Shenzhen
Factory: Hamedata Technology Co., Limited
Address of Factory: 3F, Building 1, Huahan Industrial Park, No.16, Jinniu West Rd., Pingshan New District., Shenzhen

Equipment Under Test (EUT):
EUT Name: Power Bank
Model No.: OBFTC-0041-A
Trade mark: OTTERBOX
FCC ID: 2AEEV-OBFTC0041A
Standards: 47 CFR PART 1, Subpart I, Section 1.1310
 47 CFR PART 2, Subpart J, Section 2.1091

Date of Receipt: 2020-06-01
Date of Test: 2020-06-02 to 2020-06-09
Date of Issue: 2020-06-10

Test Result :	Pass*
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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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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2020-06-10		Original

Authorized for issue by:			
			
		<hr/> Peter Geng /Project Engineer	
			
		<hr/> Eric Fu /Reviewer	



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3 General Information

3.1 Details of E.U.T.

Power Supply:	Battery Capacity: 10000mAh/3.7V 37Wh Rated Capacity(min):5800mAh USB-C Input: DC 5V, 3A; DC 9V, 2A; DC 12V, 1.5A USB-A Output: DC 5V, 2.4A; DC 9V, 2A; DC 12V, 1.5A USB-C Output: DC 5V, 3A; DC 9V, 2A; DC 12V, 1.5A Qi Output: 5W; 7.5W; 10W Total Output: DC 5V, 3A
Operation Frequency:	125.80kHz to 129.49kHz
Modulation Type:	Load modulation
Antenna Type:	Loop antenna

3.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
iPhone 8	Apple	A1863	F4GVQ656JC6D
SAMSUNG Galaxy S8	SAMSUNG	SM-G9500	R28J9140LPB



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	Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
1	Electric and Magnetic Field Analyzer	Narda	EHP-50F	EMC092	2019-11-28	2020-11-27
2	Shielding Room	SAEMC	MSR733	SEM001-09	2019-11-28	2020-11-27



5 Test Results

5.1 RF Exposure test

Test Requirement: 47 CFR PART 1, Subpart I, Section 1.1310
 Measurement Distance: 15cm for all sides
 Limit:

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
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
1500-100,000	/	/	5	6
(B) 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
1500-100,000	/	/	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: 24.0 °C Humidity: 52 % RH Atmospheric Pressure: 1015 mbar

EUT Operation:

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.



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Pretest these modes to find the worst case:
 The worst case for final test:

a: Charge mode_Keep the EUT charging(5W)
 b: Charge mode_Keep the EUT charging(7.5W)
 c: Charge mode_Keep the EUT charging(10W)
 c: Charge mode_Keep the EUT charging(10W)

5.1.2 Measurement Data

Output Voltage=DC 5V; The max output power =10W;Calculation of resistor value=5Ω

Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
127 kHz	15	Side 1	0.1436	0.815
		Side 2	0.0651	0.815
		Side 3	0.1349	0.815
		Side 4	0.0598	0.815
		Top	0.1035	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	
127 kHz	15	Side 1	0.1545	0.1420	0.1379	0.815
		Side 2	0.0757	0.0649	0.0607	0.815
		Side 3	0.1438	0.1334	0.1294	0.815
		Side 4	0.0689	0.0554	0.0506	0.815
		Top	0.1163	0.1005	0.0959	0.815





6 Photographs

6.1 Test setup photos

Please refer to RF exposure test setup photo.

- End of the Report -

