




Human Exposure Report

Application No.: SZEM2003001212CR
Applicant: Shearwater Research Inc.
Address of Applicant: Unit 250 13155 Delf Place Richmond, British Columbia, Canada
Manufacturer: Shearwater Research Inc.
Address of Manufacturer: Unit 250 13155 Delf Place Richmond, British Columbia, Canada
Factory: Shenzhen Itian Technology Co., Ltd
Address of Factory: 501, Buliding C, Hongde Industrial Area, Lianrun Road, Dalang Street, Longhua District, Shenzhen

Equipment Under Test (EUT):
EUT Name: Peregrine Charger Pad
Model No.: 56021-01
Trade mark: 

FCC ID: 2AO24-56021-01
Standards: 47 CFR PART 1, Subpart I, Section 1.1310
47 CFR PART 2, Subpart J, Section 2.1091

Date of Receipt: 2020-03-09
Date of Test: 2020-03-12 to 2020-03-18
Date of Issue: 2020-03-24

Test Result :	Pass*
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* In the configuration tested, the EUT complied with the standards specified above



Keny Xu
EMC Laboratory Manager



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Shenzhen Branch

Report No.: SZEM200300121202
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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2020-03-24		Original

Authorized for issue by:				
				
		Calvin Weng /Project Engineer		
				
		Eric Fu /Reviewer		



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3 General Information

3.1 Details of E.U.T.

Power Supply: Input: DC5V, 1.5A
Output: DC5V, 0.5A
Operation Frequency: 124.38kHz to 206.46kHz
Modulation Type: Load modulation
Antenna Type: Loop antenna
Antenna Gain: 0dBi
Remark: This device has been tested the full load at 2.5W.

3.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	Apple	A1357 W010A051	REF. No.SEA0500
Micro USB Cable	PHILIPS	SWR2101	REF. No.SEA0700
Peregrine	Shearwater Research Inc.	16001	N/A





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.



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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	2020-02-06	2022-02-05



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5 Test Results

5.1 RF Exposure test

Test Requirement: 47 CFR PART 1, Subpart I, Section 1.1310

Measurement Distance: 15cm

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 with a load at zero charge, intermediate charge, and full charge.





5.1.2 Measurement Data

The max load =2.5W

Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
125 kHz	15	Side 1	0.0368	0.815
		Side 2	0.0339	0.815
		Side 3	0.0365	0.815
		Side 4	0.0321	0.815
		Top	0.0287	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	
125 kHz	15	Side 1	0.0459	0.0347	0.0307	0.815
		Side 2	0.0453	0.0344	0.0294	0.815
		Side 3	0.0488	0.0385	0.0342	0.815
		Side 4	0.0452	0.0291	0.0247	0.815
		Top	0.0416	0.0279	0.0235	0.815



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6 Photographs

6.1 Test setup photos

Please refer to RF exposure test setup photo.

- End of the Report -

