Human Exposure Report

Application No.:	SZEM1812000466CR
Applicant:	Huizhou Artsun Industrial Company Limited
Address of Applicant:	No.2, Floor 14th, Unit one, Ruihe Commercial Square, No.1 Yandayi Road, Henan'an District, Huizhou, China 516007
Manufacturer:	VOLANT ROC ELECTRONICS TECH CO., LTD
Address of Manufacturer:	A Building, QianLi Industrial Park, Sandong Town, Huizhou City 516025, Guangdong, China
Factory:	VOLANT ROC ELECTRONICS TECH CO., LTD
Address of Factory:	A Building, QianLi Industrial Park, Sandong Town, Huizhou City 516025, Guangdong, China
Equipment Under Test (EUT):	
EUT Name:	Gravity Phone Holder & Wireless Charger 2-in-1 Kit
Model No.:	VCW-502K
Trade mark:	AUTO DRIVE
FCC ID:	2ALU4DX502A04
Standards:	47 CFR PART 1, Subpart I, Section 1.1310
Date of Receipt:	2018-12-12
Date of Test:	2018-12-26
Date of Issue:	2018-12-27
Test Result :	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu
EMC Laboratory Manager

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2018-12-27		Original

Authorized for issue by:

Leo Lai /Project Engineer

Eric Fu /Reviewer

1 Contents

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2 General Information

2.1 Details of E.U.T.

Power supply:	Input: DC 5V/2A, DC 9V/1.67A, DC 12V/1.5A
Antenna Type:	Inductive Loop Coil Antenna
Modulation Type:	Load Modulation
Operation Frequency:	119.07kHz to 128.68kHz

2.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
DC power	ZHAOXIN	RXN-305D	REF. No.SEA2700
Adapter	HUAWEI	HW-059200EHQ	---
Adapter	Apple	A1357 W010A051	REF. No.SEA0500
Mobile Phone	SAMSUNG	SM-G9500	R28J9140LPB
Micro USB Cable	PHILIPS	SWR2101	REF. No.SEA0700

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2.3 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch
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.

2.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• 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.

2.5 Deviation from Standards

None.

2.6 Abnormalities from Standard Conditions

None.

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3 Equipments Used during Test

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Due date (yyyy-mm-dd)
1	Electric and Magnetic Field Analyzer	narda	NBM-550/EHP-50F	EMC092	2019-02-06

4 Test Results

4.1 RF Exposure test

Test Requirement: 47 CFR PART 1, Subpart I, Section 1.1310
Measurement Distance: 0, 2, 4, 8, 10, 15cm
Power supply: Input: DC 5V/2A, DC 9V/1.67A, DC 12V/1.5A
Antenna Type: Inductive Loop Coil Antenna
Modulation Type: Load Modulation
Operation Frequency: 119.07kHz to 128.68kHz
Remark: 3 Input voltage was conducted test and DC 12V/1.5A is the worst case and show the data in the report only.

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).				

4.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 51 % 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.

4.1.2 Measurement Data

Output Voltage=DC 5V; The max output power = 10W;Calculation of resistor value=2.5Ω

Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (V/m)	50% Limit (V/m)
120.0 kHz	0	Side 1	10.68	307
		Side 2	8.89	307
		Side 3	7.53	307
		Side 4	7.12	307
		Top	9.22	307

Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
120.0 kHz	0	Side 1	0.0869	0.815
		Side 2	0.0731	0.815
		Side 3	0.0667	0.815
		Side 4	0.0643	0.815
		Top	0.0782	0.815

Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (V/m)	50% Limit (V/m)
120.0 kHz	2	Side 1	5.30	307
		Side 2	3.46	307
		Side 3	3.21	307

		Side 4	3.53	307
		Top	3.61	307

Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
120.0 kHz	2	Side 1	0.0404	0.815
		Side 2	0.0364	0.815
		Side 3	0.0296	0.815
		Side 4	0.0315	0.815
		Top	0.0383	0.815

Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (V/m)	50% Limit (V/m)
120.0 kHz	4	Side 1	2.90	307
		Side 2	2.54	307
		Side 3	1.94	307
		Side 4	1.82	307
		Top	2.12	307

Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
120.0 kHz	4	Side 1	0.0256	0.815
		Side 2	0.0238	0.815
		Side 3	0.0190	0.815
		Side 4	0.0200	0.815
		Top	0.0252	0.815

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Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (V/m)	50% Limit (V/m)
120.0 kHz	8	Side 1	1.78	307
		Side 2	1.54	307
		Side 3	1.22	307
		Side 4	1.04	307
		Top	1.35	307

Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
120.0 kHz	8	Side 1	0.0160	0.815
		Side 2	0.0144	0.815
		Side 3	0.0122	0.815
		Side 4	0.0124	0.815
		Top	0.0160	0.815

Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (V/m)	50% Limit (V/m)
120.0 kHz	10	Side 1	1.04	307
		Side 2	0.90	307
		Side 3	0.80	307
		Side 4	0.69	307
		Top	0.87	307

Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
120.0 kHz	10	Side 1	0.0099	0.815

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		Side 2	0.0091	0.815
		Side 3	0.0073	0.815
		Side 4	0.0065	0.815
		Top	0.0093	0.815

Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (V/m)	50% Limit (V/m)
120.0 kHz	15	Side 1	0.49	307
		Side 2	0.54	307
		Side 3	0.44	307
		Side 4	0.34	307
		Top	0.45	307

Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
120.0 kHz	15	Side 1	0.0068	0.815
		Side 2	0.0064	0.815
		Side 3	0.0049	0.815
		Side 4	0.0048	0.815
		Top	0.0067	0.815

Mobile phone has been charge at zero charge, intermediate charge, and full charge.

Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			zero charge	intermediate charge	full charge	
120.0 kHz	0	Side 1	19.61	16.88	13.07	307
		Side 2	15.52	11.85	9.52	307
		Side 3	10.92	8.99	8.51	307

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		Side 4	11.31	7.90	5.71	307
		Top	17.26	15.34	11.95	307

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	
120.0 kHz	0	Side 1	0.1252	0.1111	0.0835	0.815
		Side 2	0.0898	0.0876	0.0711	0.815
		Side 3	0.0786	0.0630	0.0501	0.815
		Side 4	0.0724	0.0677	0.0545	0.815
		Top	0.1082	0.0890	0.1156	0.815

Mobile phone has been charge at zero charge, intermediate charge, and full charge.

Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			zero charge	intermediate charge	full charge	
120.0 kHz	2	Side 1	9.74	7.85	6.48	307
		Side 2	6.96	5.57	4.13	307
		Side 3	5.45	3.51	3.92	307
		Side 4	5.22	3.44	2.67	307
		Top	7.82	7.53	5.37	307

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	
120.0 kHz	2	Side 1	0.0583	0.0364	0.0219	0.815
		Side 2	0.0402	0.0316	0.0241	0.815
		Side 3	0.0358	0.0280	0.0110	0.815

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		Side 4	0.0346	0.0245	0.0163	0.815
		Top	0.0514	0.0284	0.0472	0.815

Mobile phone has been charge at zero charge, intermediate charge, and full charge.

Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			zero charge	intermediate charge	full charge	
120.0 kHz	4	Side 1	6.28	5.33	4.28	307
		Side 2	4.90	3.13	2.91	307
		Side 3	3.56	2.44	2.21	307
		Side 4	3.45	2.53	1.66	307
		Top	5.26	4.61	3.73	307

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	
120.0 kHz	4	Side 1	0.0376	0.0236	0.0142	0.815
		Side 2	0.0256	0.0191	0.0149	0.815
		Side 3	0.0230	0.0169	0.0073	0.815
		Side 4	0.0227	0.0160	0.0090	0.815
		Top	0.0339	0.0177	0.0296	0.815

Mobile phone has been charge at zero charge, intermediate charge, and full charge.

Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			zero charge	intermediate charge	full charge	
120.0 kHz	8	Side 1	4.10	3.41	2.69	307
		Side 2	3.18	1.93	1.76	307

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		Side 3	2.21	1.51	1.31	307
		Side 4	2.29	1.65	1.09	307
		Top	3.43	2.94	2.39	307

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	
120.0 kHz	8	Side 1	0.0250	0.0151	0.0087	0.815
		Side 2	0.0154	0.0119	0.0086	0.815
		Side 3	0.0136	0.0105	0.0070	0.815
		Side 4	0.0132	0.0088	0.0085	0.815
		Top	0.0211	0.0116	0.0089	0.815

Mobile phone has been charge at zero charge, intermediate charge, and full charge.

Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			zero charge	intermediate charge	full charge	
120.0 kHz	10	Side 1	2.54	2.11	1.73	307
		Side 2	1.94	1.12	1.16	307
		Side 3	1.42	0.87	0.78	307
		Side 4	1.40	0.91	0.55	307
		Top	2.15	1.95	1.55	307

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	
120.0 kHz	10	Side 1	0.0155	0.0099	0.0088	0.815
		Side 2	0.0097	0.0066	0.0056	0.815

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		Side 3	0.0089	0.0060	0.0083	0.815
		Side 4	0.0076	0.0064	0.0075	0.815
		Top	0.0128	0.0074	0.0085	0.815

Mobile phone has been charge at zero charge, intermediate charge, and full charge.

Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			zero charge	intermediate charge	full charge	
120.0 kHz	15	Side 1	1.65	1.23	1.13	307
		Side 2	1.11	0.64	0.73	307
		Side 3	0.91	0.38	0.39	307
		Side 4	0.79	0.53	0.37	307
		Top	1.18	1.02	0.91	307

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	
120.0 kHz	15	Side 1	0.0118	0.0070	0.0073	0.815
		Side 2	0.0070	0.0066	0.0065	0.815
		Side 3	0.0067	0.0059	0.0053	0.815
		Side 4	0.0056	0.0056	0.0051	0.815
		Top	0.0096	0.0053	0.0063	0.815

5 Photographs

Please refer RF Setup Photos.

- End of the Report -

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