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Report No.: SZEM180600546802
 Page: 1 of 11

Human Exposure Report

Application No.: SZEM1806005468CR
Applicant: HANK ELECTRONICS CO., LTD.
Address of Applicant: Floor 2nd-7th, A8, Hongye Industry City Lezhujiao, Zhoushi Road, Baoan District Shenzhen China
Manufacturer/ Factory: HANK Electronics co., Ltd.
Address of Manufacturer/ Factory: Floor 2nd-7th, A8, Hongye Industry City, Lezhujiao, Zhoushi Road, Baoan District, Shenzhen, China
Equipment Under Test (EUT):
EUT Name: Wireless Charging Pad
Model No.: HKWP1010-10QFC, QIC31FA, QIC-31, QIC31FA7440, QIC31FARG, QIC31FAR11G ♣
 ♣ Please refer to section 2.2 of this report which indicates which model was actually tested and which were electrically identical.
FCC ID: 2AIOC-1010QFC
Standard(s) : 47 CFR PART 1, Subpart I, Section 1.1310
Date of Receipt: 2018-06-28
Date of Test: 2018-06-29 to 2018-07-03
Date of Issue: 2018-07-05

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



Keny Xu
 EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch

Report No.: SZEM180600546802
Page: 2 of 11

<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2018-07-05		Original

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



1 Contents

	Page
1 COVER PAGE	1
1 CONTENTS	3
2 GENERAL INFORMATION	4
2.1 DETAILS OF E.U.T.	4
2.2 DESCRIPTION OF SUPPORT UNITS	4
2.3 TEST LOCATION.....	5
2.4 TEST FACILITY.....	5
2.5 DEVIATION FROM STANDARDS	5
2.6 ABNORMALITIES FROM STANDARD CONDITIONS.....	5
3 EQUIPMENTS USED DURING TEST	6
4 TEST RESULTS	7
4.1 RF EXPOSURE TEST	7
4.1.1 <i>E.U.T. Operation</i>	7
<i>Operating Environment:</i>	7
<i>EUT Operation:</i>	7
4.1.2 <i>Measurement Data</i>	8
4.2 RF EXPOSURE	10-11



2 General Information

2.1 Details of E.U.T.

Power supply:	AC/DC adapter information: MODEL: HKAP1231Q INPUT: AC 100-240V, 50/60Hz OUTPUT: DC 5V/3A, 9V/2A, 12V/1.5A for wireless charger: INPUT: DC 5V/2A, 9V/1.7A OUTPUT: DC 5V/1A, 9V/1.1A
Cable:	USB charging line with Type C port: 180cm, unshielded
Operation frequency:	110.6-161.8 kHz
Modulation type:	Load modulation
Antenna type:	Inductive Loop Coil Antenna
Remark:	Tests were conducted in both load modes and the worst case (10W) is reported only.

2.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
E-loading	Provided by SGS	N/A	DC 5V/1A
Mobile phone	SAMSUNG	SM-G9500	R28J9140LPB

Declaration of EUT Family Grouping:

Model No.: HKWP1010-10QFC, QIC31FA, QIC-31, QIC31FA7440, QIC31FARG, QIC31FAR11G

Only the model HKWP1010-10QFC was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on model number.



2.3 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.

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.

• Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

2.5 Deviation from Standards

None.

2.6 Abnormalities from Standard Conditions

None.



3 Equipments Used during Test

Radiated emission					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2018-03-31	2021-03-30
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM029-01	2017-07-13	2018-07-12
EMI Test Receiver (9kHz-3GHz)	Rohde & Schwarz	ESCI	SEM004-01	2018-04-02	2019-04-01
Trilog-Broadband Antenna(30MHz-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-01-26	2019-01-25
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2018-04-13	2019-04-12
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21



4 Test Results

4.1 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).				

4.1.1 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.



4.1.2 Measurement Data

Output Voltage=DC 9V; The max output power =10W;Calculation of resistor value=8.1Ω

Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (V/m)	50% Limit (V/m)
147.5 kHz	15	Side 1	5.81	307
		Side 2	6.26	307
		Side 3	6.42	307
		Side 4	5.47	307
		Top	5.71	307

Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
147.5 kHz	15	Side 1	0.0752	0.815
		Side 2	0.0578	0.815
		Side 3	0.0425	0.815
		Side 4	0.0458	0.815
		Top	0.0741	0.815



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

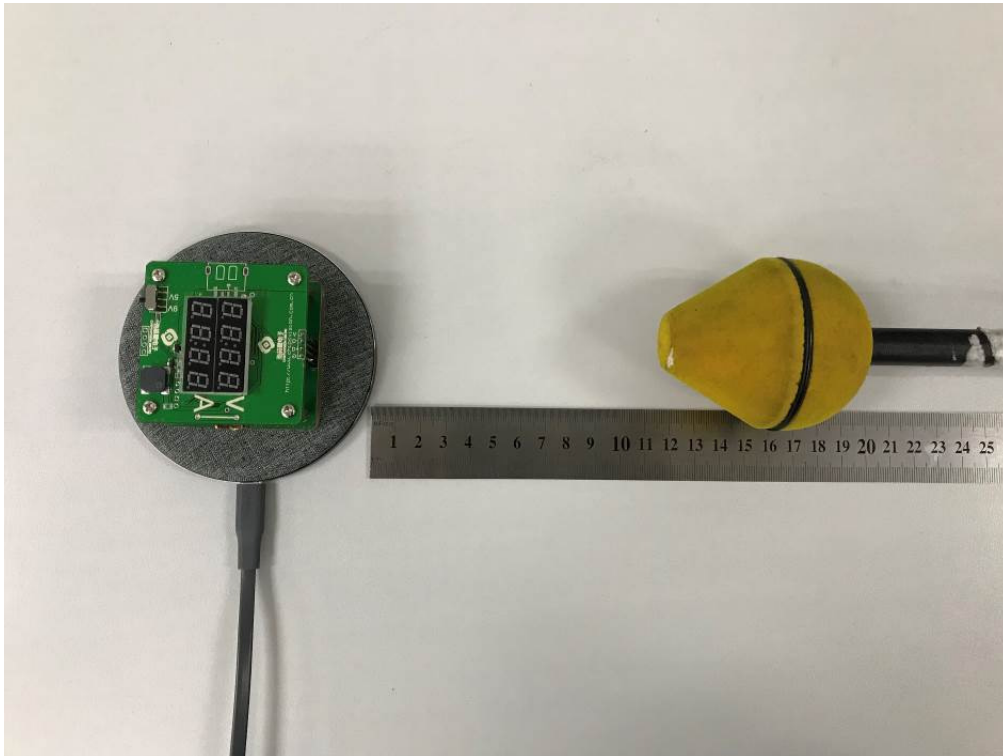
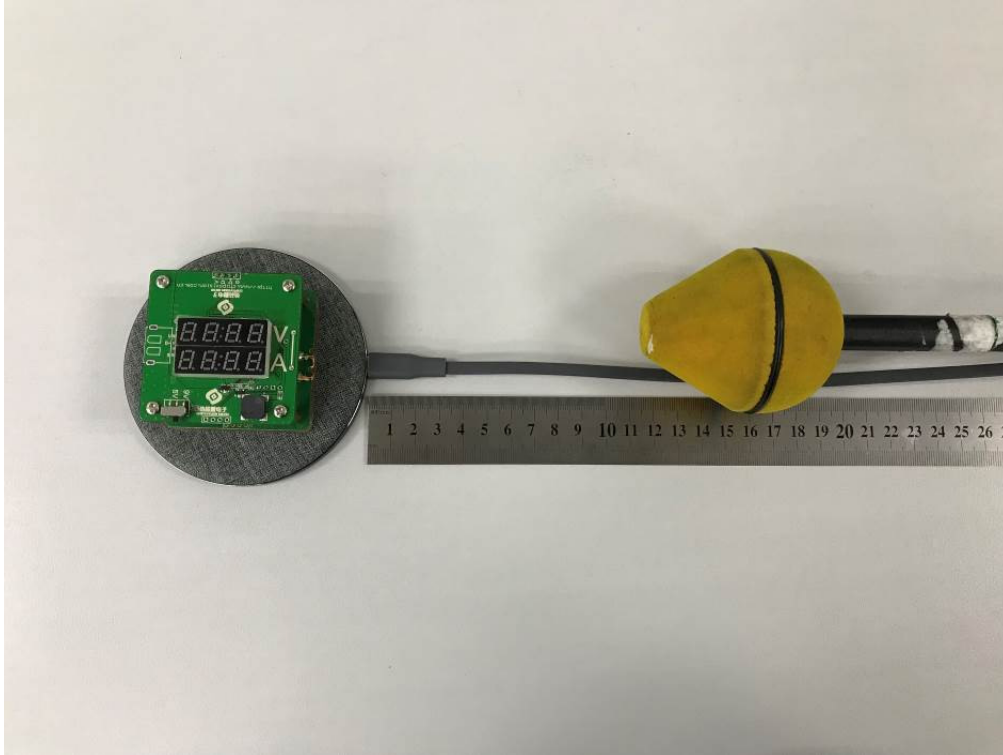
Electric Field Emissions

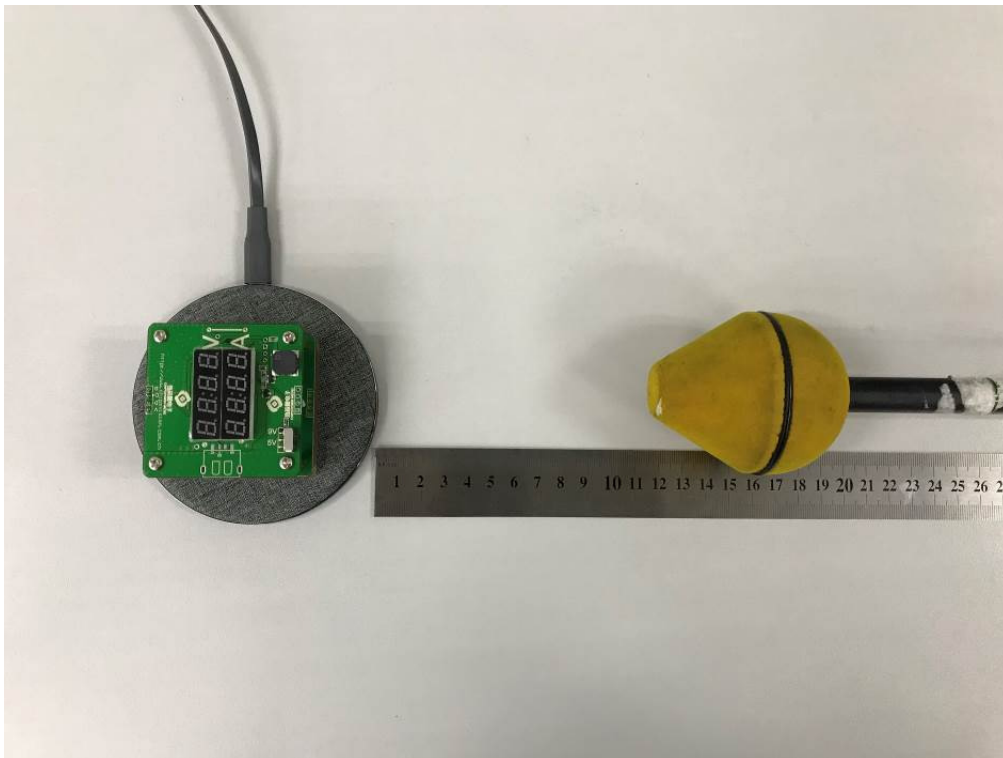
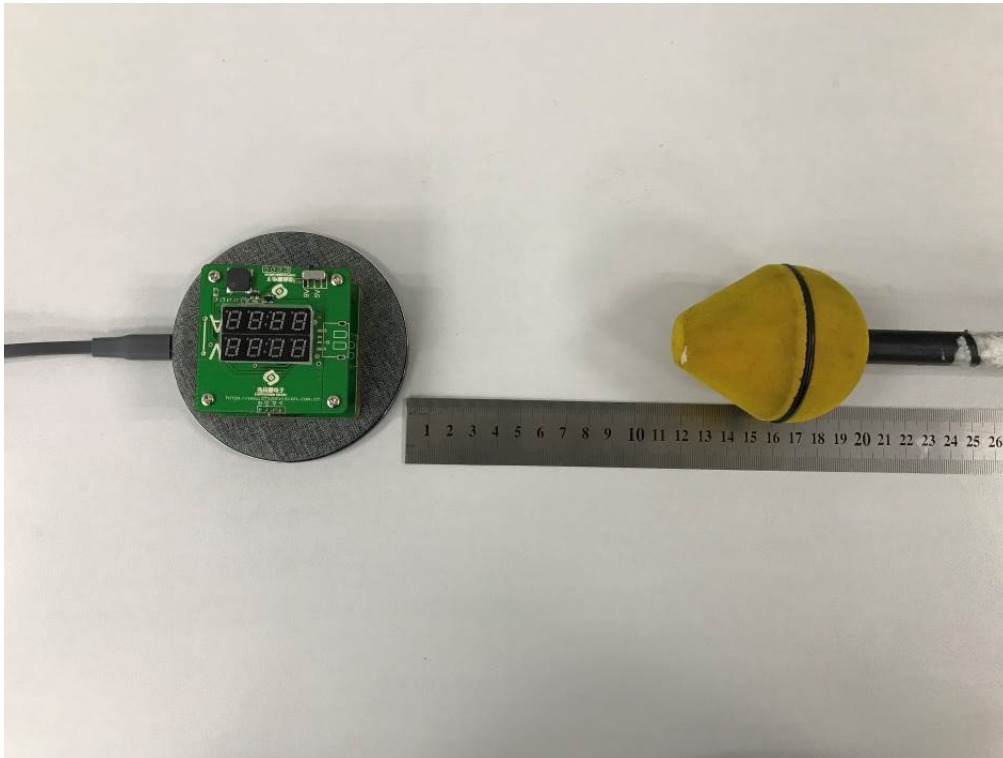
Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			zero charge	intermediate charge	full charge	
147.5 kHz	15	Side 1	5.59	5.16	5.32	307
		Side 2	6.03	5.56	5.73	307
		Side 3	6.18	5.70	5.88	307
		Side 4	5.26	4.85	5.01	307
		Top	5.50	5.07	5.23	307

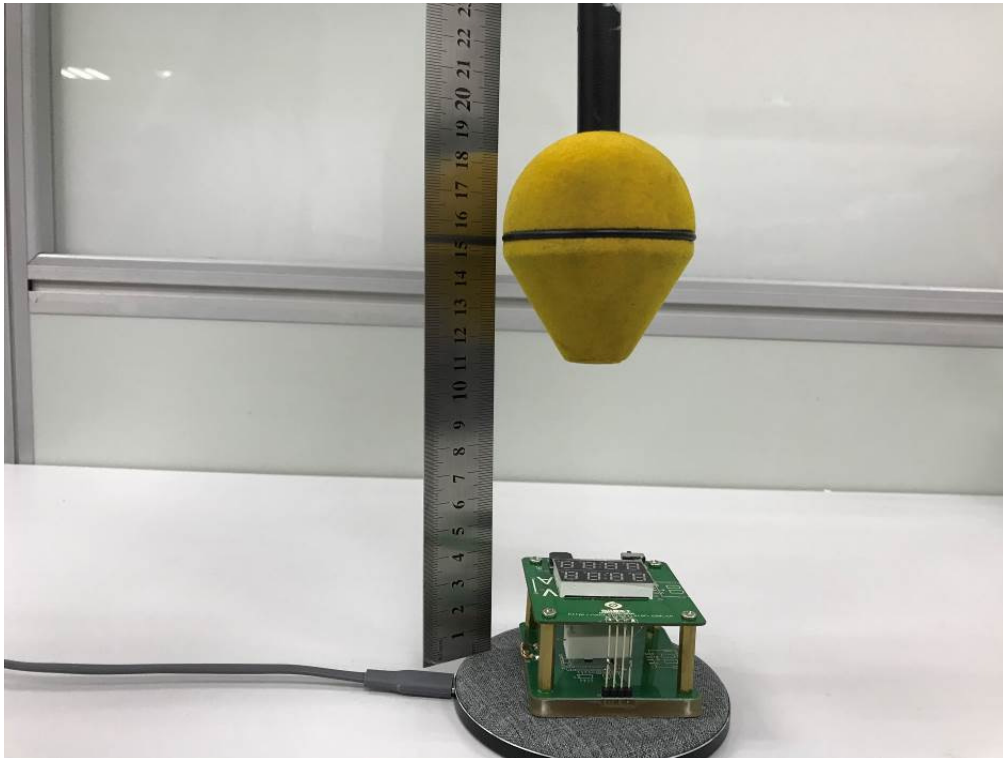
Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			zero charge	intermediate charge	full charge	
147.5 kHz	15	Side 1	0.0697	0.0621	0.0656	0.815
		Side 2	0.0535	0.0477	0.0504	0.815
		Side 3	0.0394	0.0351	0.0371	0.815
		Side 4	0.0424	0.0378	0.0399	0.815
		Top	0.0687	0.0585	0.0646	0.815

4.2 RF exposure







- End of the Report -