



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

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Report No.: SZEM180700609402  
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## Human Exposure Report

**Application No.:** SZEM1807006094CR  
**Applicant:** acv GmbH  
**Address of Applicant:** Strassburger Allee 10-12, 41812 Erkelenz, Germany  
**Manufacturer:** DerSun / NERA TECH (HK) LIMITED  
**Address of Manufacturer:** Huameiju Business Centre, Xinhua Road, Bao'an District, Floor 7, Zone A, Shenzhen, China  
**Factory:** acv GmbH  
**Address of Factory:** Strassburger Allee 10-12, 41812 Erkelenz, Germany  
**Equipment Under Test (EUT):**  
**EUT Name:** Wireless charging kit  
**Model No.:** 240000-01-023, 240000-01-025, 241250-51-5, 241250-51-1 ♣  
♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.  
**Trade mark:** Inbay  
**FCC ID:** 2AQWT241250511  
**Standards:** 47 CFR PART 1, Subpart I, Section 1.1310  
**Date of Receipt:** 2018-07-10  
**Date of Test:** 2018-07-13  
**Date of Issue:** 2018-07-18

<b>Test Result :</b>	<b>Pass*</b>
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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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## 2 General Information

### 2.1 Details of E.U.T.

Power supply: INPUT:DC 12V  
ADAPTOR  
MODEL:GME36A-120300FDS  
INPUT:AC 100-240V 50/60Hz 1.2A  
OUTPUT:DC 12V 3A

Output power: 5W

Cable: DC POWER CABEL: 60CM  
ADAPTOR:  
DC POWER CABLE: 120CM  
AC POWER CABLE:130CM

Operation frequency: 134.6-193.5kHz

Antenna type: Inductive Loop Coil Antenna

Modulation type: Load modulation

### 2.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
DC power	ZHAOXIN	RXN-305D	REF. No.SEA2700
Load receiver	SUPPLIED BY CLIENT	10W	N/A
Mobile Phone	SAMSUNG	SM-G9500	R28J9140LPB

#### Remark:

Model No.: 240000-01-023, 240000-01-025, 241250-51-5, 241250-51-1

Only the model 241250-51-1 was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for all the above models, with only difference on housing and color.

The wireless charging PCB (240000-01-09)of these 4 applications is always the same.

240000-01-025 is a subsystem which houses the PCB in a plastic housing.

240000-01-023 is a subsystem which houses the PCB in an aluminum housing with plastic cover.

241250-51-1 is the full assembly application (for Renault Megane) using the subsystem 240000-01-025.

241250-51-5 is the full assembly application (for Renault Megane) using the subsystem 240000-01-023.



## 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

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Due date (yyyy-mm-dd)
1	10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2019-03-31
2	Electric Field Meter	Schaffner	EMC20	EMC068	2019-03-21



## 4 Test Results

### 4.1 RF Exposure test

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

Measurement Distance: 0/2/4/6/8/10cm

Limit:

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	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:

- 1.This device contains three coupling coils and only one of them can react at one time during working period.
- 2.The measurement distance is 0/2/4/6/8/10cm from the the edges of the device to the probe.
- 3.There are 5 sides test date and test setup photo recorded in the report.
- 4.when we measure the H/E field we move the load from left to right on the device to find out the worse case data to be recorded in the report.



#### 4.1.2 Measurement Data

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

##### Electric Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (V/m)	50% Limit (V/m)
162.1 kHz	0	Side 1	4.30	307
		Side 2	3.65	307
		Side 3	3.24	307
		Side 4	4.02	307
		Top	4.26	307

##### Magnetic Field Emissions

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
162.1 kHz	0	Side 1	0.0611	0.815
		Side 2	0.0504	0.815
		Side 3	0.0603	0.815
		Side 4	0.0657	0.815
		Top	0.0269	0.815



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

**Electric Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (V/m)	50% Limit (V/m)
162.1 kHz	2	Side 1	3.26	307
		Side 2	3.65	307
		Side 3	3.16	307
		Side 4	3.69	307
		Top	3.78	307

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
162.1 kHz	2	Side 1	0.0624	0.815
		Side 2	0.0269	0.815
		Side 3	0.0592	0.815
		Side 4	0.0516	0.815
		Top	0.0625	0.815





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

**Electric Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (V/m)	50% Limit (V/m)
162.1 kHz	4	Side 1	3.62	307
		Side 2	3.16	307
		Side 3	3.94	307
		Side 4	3.17	307
		Top	3.16	307

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
162.1 kHz	4	Side 1	0.0426	0.815
		Side 2	0.0541	0.815
		Side 3	0.0510	0.815
		Side 4	0.0621	0.815
		Top	0.0624	0.815



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

**Electric Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (V/m)	50% Limit (V/m)
162.1 kHz	6	Side 1	3.26	307
		Side 2	3.01	307
		Side 3	3.03	307
		Side 4	3.14	307
		Top	3.61	307

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
162.1 kHz	6	Side 1	0.0254	0.815
		Side 2	0.0621	0.815
		Side 3	0.0516	0.815
		Side 4	0.0510	0.815
		Top	0.0258	0.815



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

**Electric Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (V/m)	50% Limit (V/m)
162.1 kHz	8	Side 1	1.29	307
		Side 2	2.56	307
		Side 3	2.34	307
		Side 4	2.45	307
		Top	2.61	307

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result (A/m)	50% Limit (A/m)
162.1 kHz	8	Side 1	0.0641	0.815
		Side 2	0.0512	0.815
		Side 3	0.0531	0.815
		Side 4	0.0482	0.815
		Top	0.0354	0.815



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

**Electric Field Emissions**

<b>Operation frequency</b>	<b>Test Distance (cm)</b>	<b>Test Position</b>	<b>Probe Measure Result (V/m)</b>	<b>50% Limit (V/m)</b>
162.1 kHz	10	Side 1	1.23	307
		Side 2	1.62	307
		Side 3	2.30	307
		Side 4	2.14	307
		Top	0.65	307

**Magnetic Field Emissions**

<b>Operation frequency</b>	<b>Test Distance (cm)</b>	<b>Test Position</b>	<b>Probe Measure Result (A/m)</b>	<b>50% Limit (A/m)</b>
162.1 kHz	10	Side 1	0.0421	0.815
		Side 2	0.0534	0.815
		Side 3	0.0553	0.815
		Side 4	0.0547	0.815
		Top	0.1233	0.815



Mobile phone has been charge at 10% , 50% and 90% electric quantity left.

**Electric Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			10%	50%	90%	
162.1 kHz	0	Side 1	4.26	4.34	4.29	307
		Side 2	4.29	4.26	4.27	307
		Side 3	4.36	4.31	4.61	307
		Side 4	4.16	4.64	4.29	307
		Top	4.36	4.16	4.34	307

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10%	50%	90%	
162.1 kHz	0	Side 1	0.0541	0.0517	0.0583	0.815
		Side 2	0.0529	0.0503	0.0570	0.815
		Side 3	0.0558	0.0535	0.0501	0.815
		Side 4	0.0545	0.0522	0.0588	0.815
		Top	0.0507	0.0578	0.0502	0.815



Mobile phone has been charge at 10% , 50% and 90% electric quantity left.

**Electric Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			10%	50%	90%	
162.1 kHz	2	Side 1	4.10	3.97	4.52	307
		Side 2	3.69	3.68	3.64	307
		Side 3	3.95	4.06	3.59	307
		Side 4	4.06	4.36	3.71	307
		Top	3.98	4.26	3.67	307

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10%	50%	90%	
162.1 kHz	2	Side 1	0.0562	0.0551	0.0529	0.815
		Side 2	0.0534	0.0561	0.0542	0.815
		Side 3	0.0519	0.0518	0.0529	0.815
		Side 4	0.0561	0.0539	0.0509	0.815
		Top	0.0528	0.0542	0.0515	0.815



Mobile phone has been charge at 10% , 50% and 90% electric quantity left.

**Electric Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			10%	50%	90%	
162.1 kHz	4	Side 1	3.16	3.45	2.64	307
		Side 2	3.24	3.61	2.98	307
		Side 3	3.19	3.26	2.57	307
		Side 4	3.41	3.59	2.64	307
		Top	3.16	3.64	3.01	307

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10%	50%	90%	
162.1 kHz	4	Side 1	0.0495	0.0436	0.0509	0.815
		Side 2	0.0492	0.0439	0.0529	0.815
		Side 3	0.0429	0.0492	0.0515	0.815
		Side 4	0.0641	0.0528	0.0510	0.815
		Top	0.0695	0.0501	0.0595	0.815



Mobile phone has been charge at 10% , 50% and 90% electric quantity left.

**Electric Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			10%	50%	90%	
162.1 kHz	6	Side 1	3.02	3.26	3.06	307
		Side 2	3.26	3.54	3.14	307
		Side 3	3.15	3.21	3.26	307
		Side 4	3.06	3.09	3.58	307
		Top	3.21	3.21	3.14	307

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10%	50%	90%	
162.1 kHz	6	Side 1	0.0462	0.0456	0.0412	0.815
		Side 2	0.0427	0.0405	0.0521	0.815
		Side 3	0.0420	0.0407	0.0416	0.815
		Side 4	0.0490	0.0509	0.0445	0.815
		Top	0.0495	0.0501	0.0397	0.815





Mobile phone has been charge at 10% , 50% and 90% electric quantity left.

**Electric Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			10%	50%	90%	
162.1 kHz	6	Side 1	3.01	2.65	3.06	307
		Side 2	3.06	3.04	2.94	307
		Side 3	2.95	2.95	2.58	307
		Side 4	2.84	2.64	2.64	307
		Top	2.35	2.45	2.98	307

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10%	50%	90%	
162.1 kHz	6	Side 1	0.0427	0.0454	0.0470	0.815
		Side 2	0.0445	0.0395	0.0520	0.815
		Side 3	0.0419	0.0402	0.0415	0.815
		Side 4	0.0447	0.0426	0.0399	0.815
		Top	0.0419	0.0445	0.0456	0.815



Mobile phone has been charge at 10% , 50% and 90% electric quantity left.

**Electric Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			10%	50%	90%	
162.1 kHz	8	Side 1	2.69	3.02	3.61	307
		Side 2	2.69	3.16	2.97	307
		Side 3	2.64	3.05	2.64	307
		Side 4	2.65	2.95	2.97	307
		Top	2.98	2.67	2.56	307

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10%	50%	90%	
162.1 kHz	8	Side 1	0.0412	0.0441	0.0427	0.815
		Side 2	0.0404	0.0316	0.0445	0.815
		Side 3	0.0411	0.0401	0.0474	0.815
		Side 4	0.0429	0.0414	0.0347	0.815
		Top	0.0407	0.0416	0.0404	0.815



Mobile phone has been charge at 10% , 50% and 90% electric quantity left.

**Electric Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(V/m)			50%Limit (V/m)
			10%	50%	90%	
162.1 kHz	10	Side 1	2.69	2.64	2.47	307
		Side 2	2.31	2.98	2.41	307
		Side 3	2.05	2.58	2.64	307
		Side 4	2.61	2.69	2.58	307
		Top	2.52	2.67	2.68	307

**Magnetic Field Emissions**

Operation frequency	Test Distance (cm)	Test Position	Probe Measure Result(A/m)			50%Limit (A/m)
			10%	50%	90%	
162.1 kHz	10	Side 1	0.0368	0.0462	0.0327	0.815
		Side 2	0.0398	0.0310	0.0404	0.815
		Side 3	0.0211	0.0415	0.0394	0.815
		Side 4	0.0269	0.0408	0.0412	0.815
		Top	0.0369	0.0402	0.0352	0.815



## **5 Photographs**

### **5.1 Test photos**

Please refer to RF exposure setup.

### **5.1 EUT Constructional Details (EUT Photos)**

Please Refer to external and internal photos for details.

- End of the Report -