



1 Cover Page

Human Exposure Report

Application No.: SHEM2104003314CR
FCC ID: 2A2EZVW30ACAP
Applicant: Delta Electronics, Inc.
Address of Applicant: No. 256, Yangguang Street, Neihu District, Taipei 114067, Taiwan
Manufacturer: Delta Electronics, Inc.
Address of Manufacturer: No. 256, Yangguang Street, Neihu District, Taipei 114067, Taiwan
Factory: Delta Electronics, Inc.
Address of Factory: 252, Shangying Road, Guishan District, Taoyuan City 333425, Taiwan
Equipment Under Test (EUT):
EUT Name: Wireless Charger Module
Model No.: PT00062426-B
Standards: 47 CFR PART 1, Subpart I, Section 1.1310
Date of Receipt: 2021-04-23
Date of Test: 2021-04-26 to 2021-05-28
Date of Issue: 2021-08-10

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

Parlan Zhan

Parlan Zhan
E&E Section 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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Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN_Doccheck@sgs.com



Revision Record			
Version	Description	Date	Remark
00	Original	2021-06-30	/
01	Update	2021-08-10	Revise the description of test mode.

Authorized for issue by:			
			
	<hr/> Micheal Niu / Project Engineer		
			
	<hr/> Parlam Zhan / Reviewer		



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3 General Information

3.1 Details of E.U.T.

Power supply: Input: DC 13.5V,2.4A by DC power supply
 Output: DC 5V,6A
 Wireless charging (Single):15W
 Wireless charging (Dual):15W*2

Test voltage: AC 120V/60Hz

Antenna Type: Inductive Loop Coil Antenna

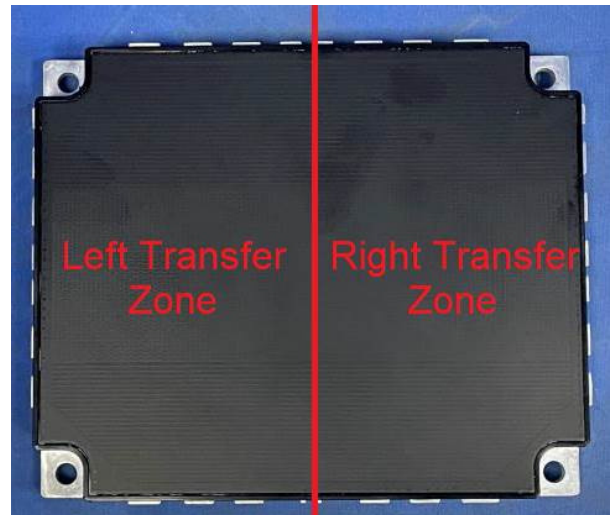
Modulation Type: Load Modulation

Operation Frequency: 126.7KHz-128.7KHz

3.2 Description of Support Units

Description	Manufacturer	Model No.
DC power supply	Agilent	E3632A
Load	/	/
Mobilephone	Apple	Iphone 12
Mobilephone	Huawei	P40

3.3 Description of Product installation location



The device is intended for installation inside a vehicle as shown in the figure above. The manufacturer declares that it is only installed in a armrest position of specified vehicle, where that a passenger may rest part of their body for an extended period. It is considered as a portable condition, so we test all four sides and the top of the device at a test distance of 0cm, 2cm, 4cm, 6cm, 8cm and 10cm.

3.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

3.5 Test Facility

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

- **CNAS (No. CNAS L4354)**

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 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. 2541.01)**

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

- **FCC (Designation Number: CN1172)**

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

- **ISED (CAB identifier: CN0072)**

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

CAB Identifier: CN0072.

- **VCCI (Member No.: 1938)**

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-1600, C-1707, T-1499, G-10216 respectively.

3.6 Deviation from Standards

None

3.7 Abnormalities from Standard Conditions

None



4 Equipments Used during Test

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal date	Cal. Due date
1	3m Semi-Anechoic Chamber	ST	N/A	KSEM078-2	2020-07-21	2023-07-20
2	Electromagnetic Field Probe	Narda	EHP-200AC	KSEM0907	2021-04-10	2022-04-09

5 RF Exposure Test Results

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 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
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(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 Operating Environment

Temperature: 24.0 °C Humidity: 52% RH Atmospheric Pressure: 1015 mbar

5.2 EUT Operation

This device has been charge at zero charge, intermediate charge, and full charge. The Maximum value has been recorded in the below table

5.3 Simulation Load Mode

Pre-test modes:	a: Left Transfer Zone Charging_The load shall be set at full, half and empty load (15W/7.5W/0W) respectively. b: Right Transfer Zone Charging_The load shall be set at full, half and empty load (15W/7.5W/0W) respectively. c: Dual Transfer Zones Charging_The load of each side shall be set at full, half and empty load (15W*2/7.5W*2/0W) respectively and simultaneous charging at same time.
The worst case for final test:	c: Dual Transfer Zones Charging_The load of each side shall be set at full, half and empty load (15W*2 / 7.5W*2 / 0W) respectively and simultaneous charging at same time.

5.3.1 Measurement Data

Electric Field Emissions

Test Distance (cm)	Test Position	Test Data (V/m)			Limit /50%Limit (V/m)	Result
		Full Load	Half Load	Empty Load		
0	Side 1	3.2859	2.7282	2.0018	614/307	Pass
	Side 2	3.4051	2.7818	2.3996	614/307	Pass
	Side 3	3.4239	2.4779	1.9803	614/307	Pass
	Side 4	4.0692	3.1165	2.5646	614/307	Pass
	Top	17.2652	13.6320	10.2611	614/307	Pass
2	Side 1	3.1125	2.0185	1.6316	614/307	Pass
	Side 2	3.1715	2.0585	1.5216	614/307	Pass
	Side 3	3.2055	2.0665	2.1516	614/307	Pass
	Side 4	3.6692	2.7165	2.1646	614/307	Pass
	Top	14.2688	8.0171	5.1536	614/307	Pass
4	Side 1	2.7586	1.9635	1.4068	614/307	Pass
	Side 2	2.7926	1.9215	1.3068	614/307	Pass
	Side 3	2.8266	1.9865	1.2268	614/307	Pass
	Side 4	3.0429	2.3513	1.9057	614/307	Pass
	Top	9.6325	5.0741	2.7108	614/307	Pass
6	Side 1	2.5873	1.5873	1.1179	614/307	Pass
	Side 2	2.4743	1.5113	1.2169	614/307	Pass
	Side 3	2.5513	1.5573	1.3369	614/307	Pass
	Side 4	2.6003	1.6213	1.3679	614/307	Pass
	Top	7.6324	4.7412	1.9469	614/307	Pass
8	Side 1	1.7893	1.2073	0.6774	614/307	Pass
	Side 2	1.7343	1.1883	0.5361	614/307	Pass
	Side 3	1.7923	1.2043	0.6961	614/307	Pass
	Side 4	1.8343	1.2883	0.8561	614/307	Pass
	Top	6.0215	4.2015	1.6217	614/307	Pass
10	Side 1	1.1923	1.0143	0.2033	614/307	Pass
	Side 2	1.1883	0.9653	0.3033	614/307	Pass
	Side 3	1.2033	1.0113	0.3633	614/307	Pass
	Side 4	1.2803	1.0453	0.6233	614/307	Pass
	Top	4.0639	2.5547	1.0256	614/307	Pass



Magnetic Field Emissions

Test Distance (cm)	Test Position	Test Data (A/m)			Limit /50%Limit A/m	Result
		Full Load	Half Load	Empty Load		
0	Side 1	0.6188	0.5890	0.4768	1.63/0.815	Pass
	Side 2	0.6139	0.5309	0.3824	1.63/0.815	Pass
	Side 3	0.6769	0.6132	0.4478	1.63/0.815	Pass
	Side 4	0.7108	0.6156	0.4841	1.63/0.815	Pass
	Top	1.2108	1.1156	0.9841	1.63/0.815	Pass
2	Side 1	0.4301	0.2252	0.1415	1.63/0.815	Pass
	Side 2	0.4673	0.2835	0.2278	1.63/0.815	Pass
	Side 3	0.4497	0.2846	0.1268	1.63/0.815	Pass
	Side 4	0.5006	0.3935	0.2309	1.63/0.815	Pass
	Top	0.5622	0.4125	0.3494	1.63/0.815	Pass
4	Side 1	0.2049	0.1839	0.2044	1.63/0.815	Pass
	Side 2	0.2606	0.1742	0.1569	1.63/0.815	Pass
	Side 3	0.1791	0.1717	0.1552	1.63/0.815	Pass
	Side 4	0.3042	0.2847	0.2568	1.63/0.815	Pass
	Top	0.4421	0.2963	0.2615	1.63/0.815	Pass
6	Side 1	0.1740	0.1597	0.0783	1.63/0.815	Pass
	Side 2	0.1524	0.1392	0.0632	1.63/0.815	Pass
	Side 3	0.1329	0.1265	0.1113	1.63/0.815	Pass
	Side 4	0.2848	0.2372	0.1859	1.63/0.815	Pass
	Top	0.3526	0.3147	0.2295	1.63/0.815	Pass
8	Side 1	0.2017	0.1644	0.1225	1.63/0.815	Pass
	Side 2	0.1252	0.0820	0.0621	1.63/0.815	Pass
	Side 3	0.1103	0.0936	0.0658	1.63/0.815	Pass
	Side 4	0.1019	0.0856	0.0707	1.63/0.815	Pass
	Top	0.2771	0.2457	0.1744	1.63/0.815	Pass
10	Side 1	0.0945	0.0741	0.0541	1.63/0.815	Pass
	Side 2	0.0963	0.0746	0.0523	1.63/0.815	Pass
	Side 3	0.1021	0.0804	0.0477	1.63/0.815	Pass
	Side 4	0.0886	0.0654	0.0412	1.63/0.815	Pass
	Top	0.1964	0.1846	0.1542	1.63/0.815	Pass

5.4 Mobile phone Load Mode

Pre-test modes:	<p>a: Left Transfer Zone Charging_The load shall be set at full, half and empty load (15W/7.5W/0W) respectively.</p> <p>b: Right Transfer Zone Charging_The load shall be set at full, half and empty load (15W/7.5W/0W) respectively.</p> <p>c: Dual Transfer Zones Charging_The load of each side shall be set at full, half and empty load (15W*2/7.5W*2/0W) respectively and simultaneous charging at same time.</p>
The worst case for final test:	c: Dual Transfer Zones Charging_The load of each side shall be set at full load (15W*2) respectively and simultaneous charging at same time.

5.4.1 Measurement Data

Test Distance (cm)	Test Position	Field Emissions Test Data		Limit / 50% Limit		Result
		V/m	A/m	V/m	A/m	
0	Side 1	1.6618	0.4628	614 / 307	1.63 / 0.815	Pass
	Side 2	2.1496	0.3674			Pass
	Side 3	1.7203	0.4368			Pass
	Side 4	2.2846	0.4721			Pass
	Top	9.9411	0.9741			Pass
2	Side 1	1.3916	0.1275			Pass
	Side 2	1.1016	0.2168			Pass
	Side 3	1.6416	0.1158			Pass
	Side 4	1.8446	0.2189			Pass
	Top	4.9036	0.3394			Pass
4	Side 1	1.1868	0.1904			Pass
	Side 2	1.1668	0.1459			Pass
	Side 3	1.0368	0.1432			Pass
	Side 4	1.6857	0.2468			Pass
	Top	2.2008	0.2475			Pass
6	Side 1	0.9979	0.0563			Pass
	Side 2	0.9669	0.0522			Pass
	Side 3	1.1169	0.0993			Pass
	Side 4	1.2279	0.1759			Pass
	Top	1.6969	0.2155			Pass
8	Side 1	0.8574	0.1115	Pass		
	Side 2	0.7961	0.0501	Pass		
	Side 3	0.7045	0.0558	Pass		
	Side 4	0.8362	0.0527	Pass		
	Top	1.4817	0.1624	Pass		
10	Side 1	0.2467	0.0441	Pass		
	Side 2	0.1833	0.0383	Pass		
	Side 3	0.2233	0.0367	Pass		
	Side 4	0.3733	0.0292	Pass		
	Top	0.8056	0.1422	Pass		

6 Test photos

Side 1 (0cm)



Side 2 (0cm)



Side 3 (0cm)



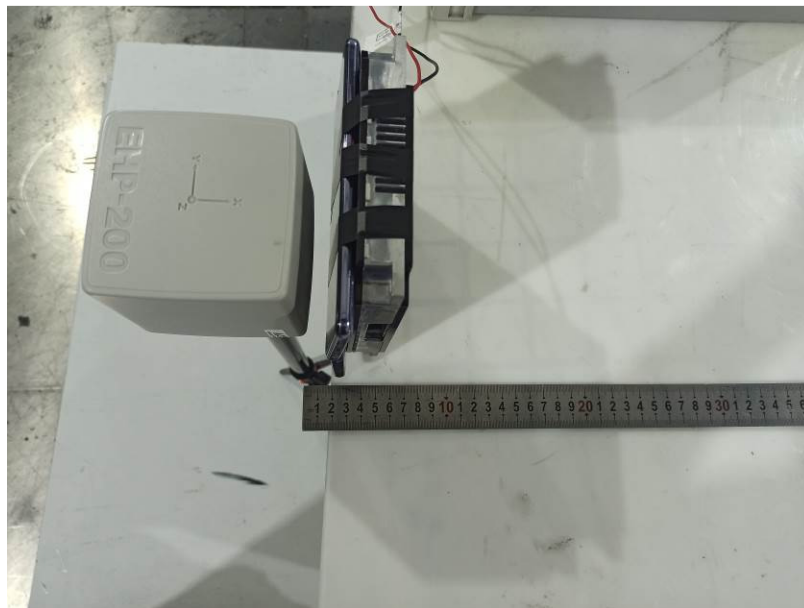
Side 4 (0cm)



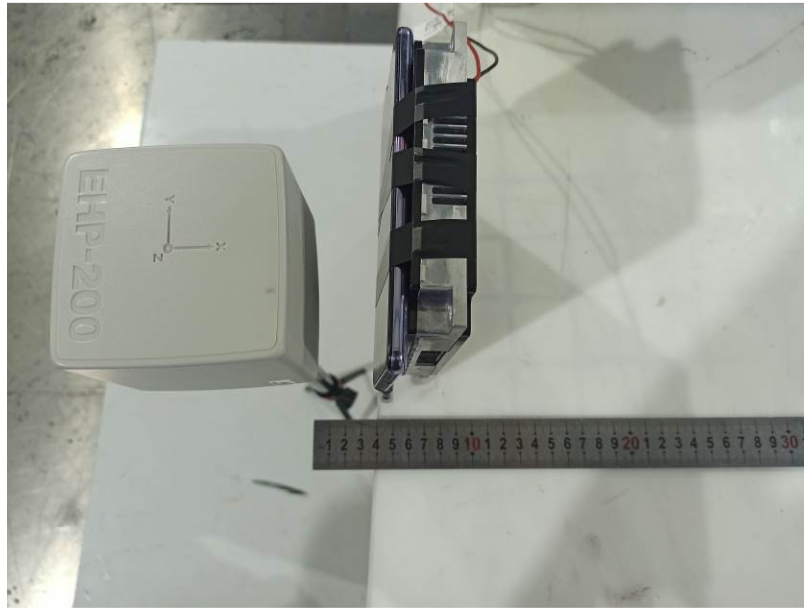
Top (0cm)



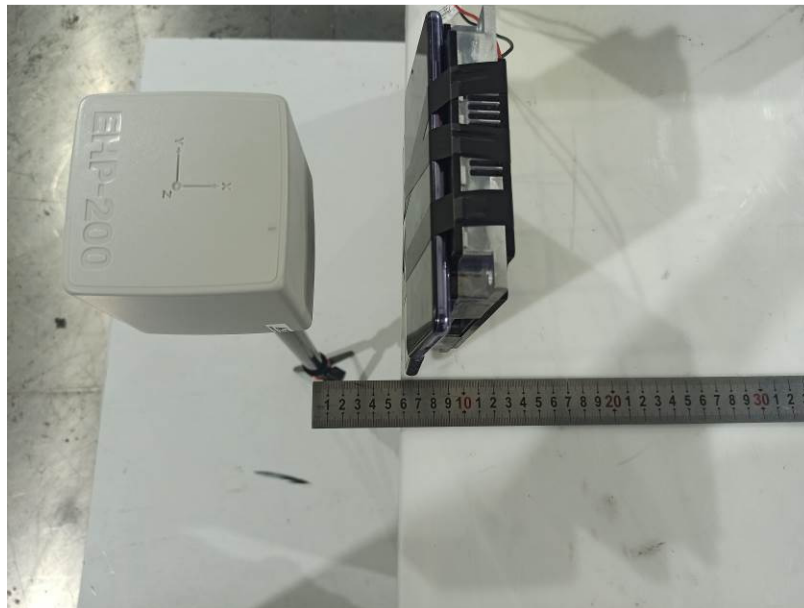
Top (2cm)



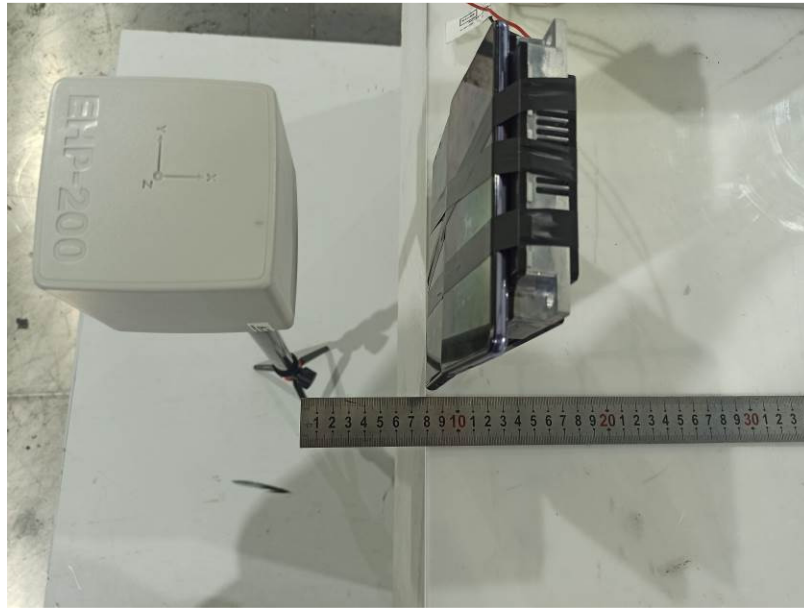
Top (4cm)



Top (6cm)



Top (8cm)



Top (10cm)



- End of the Report -