



RF MEASUREMENT REPORT

FCC ID: 2ATJC-FM29000
Applicant: Aptiv Electrical Centers (Shanghai) Co.,Ltd
Product: Wireless Charger
Model No.: 15W Wireless Charger
FCC Classification: Part 15 Low Power Transmitter Below 1705 kHz (DCD)
FCC Rule Part(s): FCC Part 2.1091
Received Date: 2022-11-24
Test Date: 2022-11-25

Reviewed By:

Vincent Yu

Approved By:

Robin Wu



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

Report No.	Version	Description	Issue Date	Note
2211RSU024-U2	V01	Initial Report	2023-03-14	Valid

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1. General Information

1.1. Applicant

Aptiv Electrical Centers (Shanghai) Co.,Ltd

Zone A, Building 7, No.60, Yuanguo Road, Anting Town, Jiading District, Shanghai, China

1.2. Manufacturer

Aptiv Electrical Centers (Shanghai) Co.,Ltd

Zone A, Building 7, No.60, Yuanguo Road, Anting Town, Jiading District, Shanghai, China

1.3. Testing Facility

<input checked="" type="checkbox"/>	<p>Test Site – MRT Suzhou Laboratory</p> <hr/> <p>Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China</p> <p>Laboratory Location (Suzhou - SIP) 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China</p> <hr/> <p>Laboratory Accreditations</p> <p>A2LA: 3628.01 CNAS: L10551 FCC: CN1166 ISED: CN0001</p> <p>VCCI: <input type="checkbox"/>R-20025 <input type="checkbox"/>G-20034 <input type="checkbox"/>C-20020 <input type="checkbox"/>T-20020 <input type="checkbox"/>R-20141 <input type="checkbox"/>G-20134 <input type="checkbox"/>C-20103 <input type="checkbox"/>T-20104</p>
<input type="checkbox"/>	<p>Test Site – MRT Shenzhen Laboratory</p> <hr/> <p>Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China</p> <hr/> <p>Laboratory Accreditations</p> <p>A2LA: 3628.02 CNAS: L10551 FCC: CN1284 ISED: CN0105</p>
<input type="checkbox"/>	<p>Test Site – MRT Taiwan Laboratory</p> <hr/> <p>Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)</p> <hr/> <p>Laboratory Accreditations</p> <p>TAF: L3261-190725 FCC: 291082, TW3261 ISED: TW3261</p>

1.4. Product Information

Product Name	Wireless Charger
Model No.	15W Wireless Charger
Operating Temp.	-40~80 C
Input Voltage	DC 12V
Output	15W (MAX)
EUT Identification	20221124Sample#01
WPT Specification	
Standby Frequency	127.7kHz
Standby Secondary Frequency	120kHz
Charging Frequency	127.7kHz
Notes:	
<ol style="list-style-type: none">1. The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.2. Standby mode has two different frequencies, and the secondary frequency is for detecting objects on charging pad.	

1.5. Radio Specification

Working Frequency	120kHz, 127.7kHz
Modulation	FSK
Antenna Type	Coil Antenna

2. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
Exposure Level Tester	narda	ELT-400	MRTSUE06920	3 years	2023-11-29	WZ-SR4
Broadband EM Field Meter	ar	SM40G	MRTSUE06358	3 years	2024-05-05	WZ-SR4
E-field sensor head	ar	SHE100K6z5G	MRTSUE06444	3 years	2024-05-05	WZ-SR4
Probe	narda	B-Field	MRTSUE06919	3 years	2024-02-14	WZ-SR4
Thermohygrometer	testo	608-H1	MRTSUE06222	1 year	2023-10-11	WZ-SR4

3. Measurement Uncertainty

Magnetic Field Emissions (A/m)
1Hz-10Hz: 12.74%
10Hz-120kHz: 2.91%
120kHz-400kHz: 3.98%
Electric Field Emissions (V/m)
100kHz-6.5GHz: 39.42%

4. Test Result

4.1. Summary

Equipment Approval Consideration	Product Technical Specification	Result
(1) Wireless power transfer frequency is below 1 MHz	120kHz, 127.7kHz	Complied
(2) The output power from each primary coil is less than or equal to 15 watts.	Max 15W	Complied
(3) The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.	This device has three overlapping primary coils, and is only capable of wireless power transfer between one source and one client at a time, and allows wireless power transfer to take place between this zone and a single client device.	Complied
(4) Client device is placed directly in contact with the transmitter.	Placed directly	Complied
(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Mobile exposure conditions only	Complied
(6) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.	The test result (Refer to clause 4.6) can meet the requirements.	Complied

4.2. Test Limits

§1.1310 Radiofrequency radiation exposure limits.

Below sets forth limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields

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/ Control 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
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
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
300-1,500	--	--	f/1500	30
1,500-100,000	--	--	1.0	30

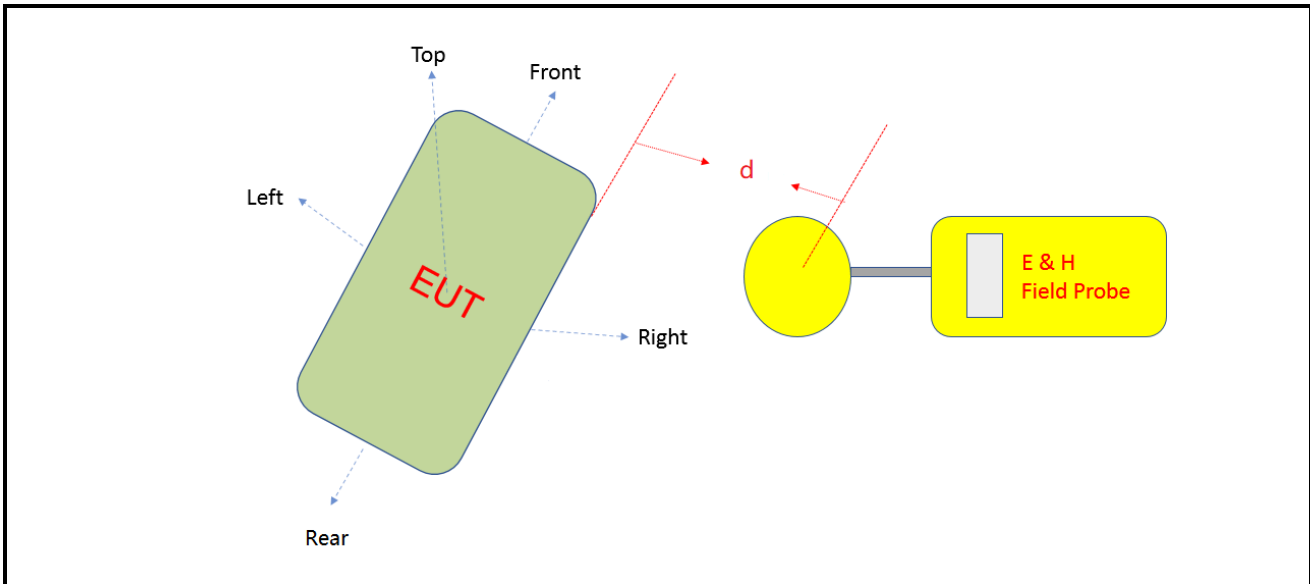
f= Frequency in MHz

* = Plane-wave equivalent power density

4.3. Test Mode

Test Mode	
Mode 1:	Standby Mode
Mode 2:	Charge the Load

4.4. Test Setup



Note:

1. This shall be measured as the distance from the edge of the device to the center of the measurement probe.
2. d is the test distance at cm. Detailed information please refer to clause 4.6 of this report.

4.5. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~ 75%RH

4.6. Test Result

Test Site	WZ-SR4	Test Engineer	Amy Zhang
Test Date	2022-11-25	Test Mode	Mode 1

Electric Field Emissions					
Test Position	Test Distance (d) (cm)	Measure Value (V/m)	Limit (V/m)	50% Limit (V/m)	Result
Front	15	0.87	614	307	Pass
Rear	15	0.16	614	307	Pass
Left	15	2.94	614	307	Pass
Right	15	2.97	614	307	Pass
Top	20	2.45	614	307	Pass
Magnetic Field Emissions					
Test Position	Test Distance (d) (cm)	Measure Value (A/m)	Limit (A/m)	50% Limit (A/m)	Result
Front	15	0.127	1.63	0.815	Pass
Rear	15	0.124	1.63	0.815	Pass
Left	15	0.099	1.63	0.815	Pass
Right	15	0.118	1.63	0.815	Pass
Top	20	0.186	1.63	0.815	Pass

Test Site	WZ-SR4	Test Engineer	Amy Zhang
Test Date	2022-11-25	Test Mode	Mode 2

Electric Field Emissions					
Test Position	Test Distance (d) (cm)	Measure Value (V/m)	Limit (V/m)	50% Limit (V/m)	Result
Front	15	2.35	614	307	Pass
Rear	15	2.02	614	307	Pass
Left	15	3.14	614	307	Pass
Right	15	2.46	614	307	Pass
Top	20	3.16	614	307	Pass
Magnetic Field Emissions					
Test Position	Test Distance (d) (cm)	Measure Value (A/m)	Limit (A/m)	50% Limit (A/m)	Result
Front	15	0.884	1.63	0.815	Pass
Rear	15	0.592	1.63	0.815	Pass
Left	15	0.301	1.63	0.815	Pass
Right	15	0.497	1.63	0.815	Pass
Top	20	0.523	1.63	0.815	Pass

Appendix A - Test Setup Photograph

Refer to "2211RSU024-UT" file.

Appendix B - EUT Photograph

Refer to "2211RSU024-UE" file.