

RF Exposure Evaluation Declaration

FCC ID: 2ATJC-95560NFC

APPLICANT: Aptiv Electrical Centers (Shanghai) Co.,Ltd

Application Type: Certification

Product: Wireless Charging

Model Number: Wireless Charging with NFC

Brand Name: Aptiv

FCC Classification: Part 15 Low Power Transmitter Below 1705 kHz (DCD)

Test Date: March 11, 2020

Reviewed By:

Oscar Shi

(Oscar Shi)

Approved By:

Robin Wu

(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.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2001WSU016-U2	Rev. 01	Initial Report	03-16-2020	Valid

CONTENTS

Description	Page
General Information	4
1. PRODUCT INFORMATION	5
1.1. Equipment Description.....	5
1.2. Test Mode.....	5
2. TEST EQUIPMENT CALIBRATION DATE	6
3. RF EXPOSURE EVALUATION	7
3.1. Limits	7
3.2. EQUIPMENT APPROVAL CONSIDERATIONS ON KDB 680106 D01v03	8
3.3. Test Setup	9
3.4. Test Result of RF Exposure Evaluation.....	10
Appendix A - Test Setup Photograph	12
Appendix B - EUT Photograph	13

General Information

Applicant:	Aptiv Electrical Centers (Shanghai) Co.,Ltd
Applicant Address:	Zone A, Building 7, No.60, Yuanguo Road, Anting Town, Jiading District, Shanghai, China
Manufacturer:	Aptiv Electrical Centers (Shanghai) Co.,Ltd
Manufacturer Address:	Zone A, Building 7, No.60, Yuanguo Road, Anting Town, Jiading District, Shanghai, China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC accredited (MRT Designation No. CN1166) test facility with the site description report on file and has met all the requirements specified in ANSI C63.4-2014.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications, Radio and SAR testing.



1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	Wireless Charging
Model No.:	Wireless Charging with NFC
Working Center Frequency:	120KHz for android 127.7KHz for IOS 13.56MHz for NFC
Working Voltage:	DC 12V

1.2. Test Mode

Test Mode	Transmit at 120KHz
	Transmit at 127.7KHz

2. TEST EQUIPMENT CALIBRATION DATE

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
CARRIES SENSOR	narda	EMR-20	MRTSUE10033	1 year	2020/07/27

3. RF EXPOSURE EVALUATION

3.1. 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

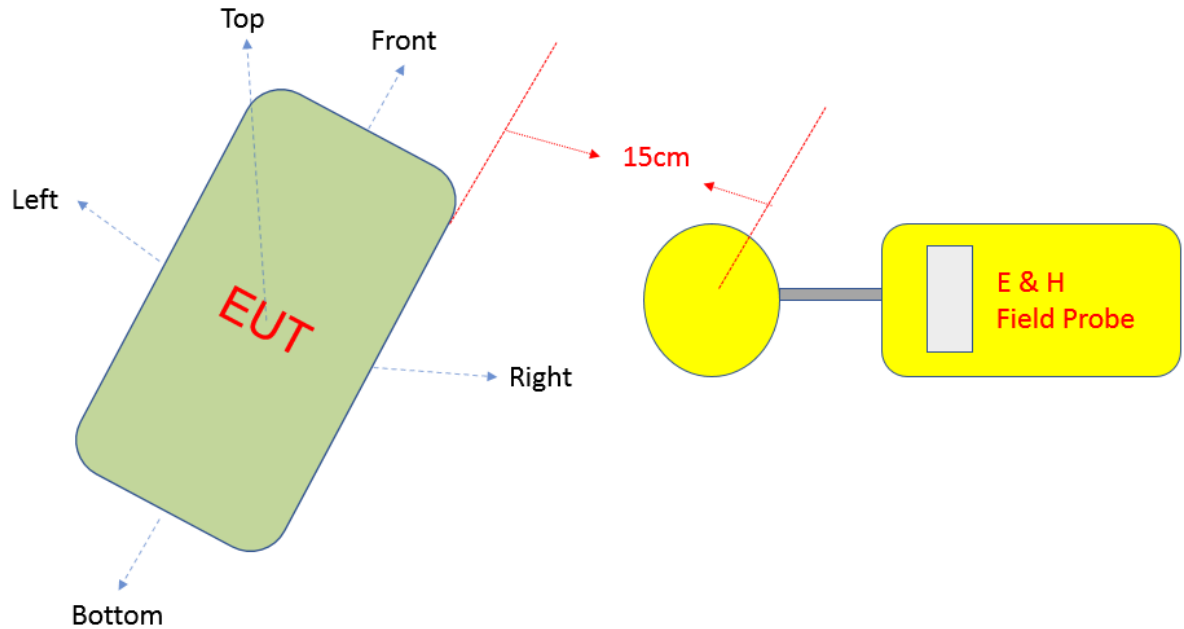
f= Frequency in MHz

* = Plane-wave equivalent power density

3.2. EQUIPMENT APPROVAL CONSIDERATIONS ON KDB 680106 D01v03

EQUIPMENT APPROVAL CONSIDERATIONS	COMPLY
1) Power transfer frequency is less than 1 MHz	Yes, Wireless operating frequency: 120KHz for android, and 127.7KHz for IOS
2) Output power from each primary coil is less than or equal to 15 watts.	Yes, Wireless maximum transmitted power: 10W
3) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.	Yes, We control the 3 coils through the enable signal of coil top, coil center and coil bottom. Once the cellphone is put on the WPC surface, the WPC will detect and then choose only one coil from 3 coils (top, bottom, center) to charge for cellphone. The selections of coil depend on the location of cellphone on WPC surface.
4) Client device is placed directly in contact with the transmitter.	Yes
5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).	Yes
6) The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.	Yes

3.3. Test Setup



- 1) According to the requirements of KDB 680106 D01v03.
- 2) The aggregate strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils.

3.4. Test Result of RF Exposure Evaluation

Product	Wireless Charging
Test Item	RF Exposure Evaluation

Mode 1					
Electric Field Emissions					
Test Position	Test Distance (cm)	Measure Value (V/m)	Limit (V/m)	50% Limit (V/m)	Result
Front	15	0.79	614	307	Pass
Bottom	15	0.72	614	307	Pass
Left	15	0.63	614	307	Pass
Right	15	0.46	614	307	Pass
Top	15	1.93	614	307	Pass
Magnetic Field Emissions					
Test Position	Test Distance (cm)	Measure Value (A/m)	Limit (A/m)	50% Limit (A/m)	Result
Front	15	0.023	1.63	0.815	Pass
Bottom	15	0.014	1.63	0.815	Pass
Left	15	0.017	1.63	0.815	Pass
Right	15	0.028	1.63	0.815	Pass
Top	15	0.033	1.63	0.815	Pass

Mode 2					
Electric Field Emissions					
Test Position	Test Distance (cm)	Measure Value (V/m)	Limit (V/m)	50% Limit (V/m)	Result
Front	15	0.45	614	307	Pass
Bottom	15	0.64	614	307	Pass
Left	15	0.79	614	307	Pass
Right	15	0.72	614	307	Pass
Top	15	2.81	614	307	Pass
Magnetic Field Emissions					
Test Position	Test Distance (cm)	Measure Value (A/m)	Limit (A/m)	50% Limit (A/m)	Result
Front	15	0.013	1.63	0.815	Pass
Bottom	15	0.008	1.63	0.815	Pass
Left	15	0.010	1.63	0.815	Pass
Right	15	0.009	1.63	0.815	Pass
Top	15	0.016	1.63	0.815	Pass

————— The End —————

Appendix A - Test Setup Photograph

Refer to "2001WSU016-UT" file.

Appendix B - EUT Photograph

Refer to "2001WSU016-UE" file.