RF Exposure Test Report

Report No.: ADQW-ESH-P22110744B-2

FCC ID: 2A9QJ-74T0

Product: WIRELESS CHARGER

Model: 74T0

Received Date: Nov.13, 2022

Test Date: Nov.13 to Dec.12, 2022

Issued Date: Dec.12, 2022

Applicant: APTIV CONNECTION SYSTEMS INDIA PVT LTD

Address: 7/60-A, 60-B, Arakunnam-Pulickamaly Road, Arakunnam P.O, Ernakulam, Kerala, INDIA, 68231

Manufacturer: APTIV CONNECTION SYSTEMS INDIA PVT LTD

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Issued By: BUREAU VERITAS ADT (Shanghai) Corporation

Lab Address: No. 829, Xinzhuan Road, Shanghai, P.R.China (201612)

Test Lab
Cert 2343.01

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Release Control Record

Issue No.	Description	Date Issued
ADQW-ESH-P22110744B-2	Original release	Dec.12, 2022

1 Certificate of Conformity

Product: WIRELESS CHARGER

Brand: • APTIV •

Model: 74T0

Applicant: APTIV CONNECTION SYSTEMS INDIA PVT LTD

Test Date: Nov.13 to Dec.12, 2022

Standards: 47 CFR FCC Part 1,1.1307(b) and 1.1310
KDB 680106 D01v03

The above equipment has been tested by **BUREAU VERITAS ADT (Shanghai) Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

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Approved by : Sean Yu , **Date:** Dec.12, 2022

Sean YU

RF Supervisor

2 General Information

2.1 General Description of EUT

WPT

Product	WIRELESS CHARGER
Brand	•APTIV•
Test Model	74T0
Power Rating	12V DC ,3A MAX
Modulation Type	FSK, ASK
Modulation Technology	Qi
Operating Frequency	127.7kHz
Antenna Type	Coil Antenna
Antenna Connector	--

Note:

1. For more details, please refer to the User's manual of the EUT.

3 RF Exposure

3.1 Limits For Maximum Permissible Exposure (MPE)

(1) Table 1 to § 1.1310(e)(1) 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)
(i) Limits for Occupational/Controlled Exposure				
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
(ii) 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
300-1,500			f/1500	<30
1,500-100,000			1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

(2) Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. The phrase fully aware in the context of applying these exposure limits means that an exposed person has received written and/or verbal information fully explaining the potential for RF exposure resulting from his or her employment. With the exception of transient persons, this phrase also means that an exposed person has received appropriate training regarding work practices relating to controlling or mitigating his or her exposure. In situations when an untrained person is transient through a location where occupational/controlled limits apply, he or she must be made aware of the potential for exposure and be supervised by trained personnel pursuant to § 1.1307(b)(2) of this part where use of time averaging is required to ensure compliance with the general population exposure limit. The phrase exercise control means that an exposed person is allowed and also knows how to reduce or avoid exposure by administrative or engineering work practices, such as use of personal protective equipment or time averaging of exposure.

(3) General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

3.2 Measurement Equipment

Instrument	Manufacturer	Model No.	Fre Range	Last Cal.	Due Date
Field Meter Probe	WAVECONTROL	WPF6-HP	100KHz-400kHz	Aug.01, 22	Jul.31, 23
Field Meter	WAVECONTROL	SMP2	-	Aug.01, 22	Jul.31, 23
Fully Anechoic Chamber	ETS-LINDGREN	C1FA002	-	Jan.17, 20	Jan.16, 23

3.3 Support Units

Description	Manufacturer	Model No.	Serial No.
Iphone 14	Apple Inc.	A2884	NA

3.4 RF Exposure Evaluation

Desktop WPT testing guidance from FCC KDB 680106 D01v03 is applied. RF Exposure evaluation at 15cm surrounding the device and 20cm above the top surface, Emissions between 50 KHz to 300 KHz should be assessed versus the limits at 300 KHz in table 1 of section 1.1310:1.63A/m and aggregate H-field strengths from all simultaneous transmitting coils.

Power density (S) is calculated according to the formula:

$$S = PG / (4\pi R^2)$$

Where S = power density in mW/cm^2

P = transmit power in mW

G = numeric gain of transmit antenna (numeric gain=Log-1(dB antenna gain/10))

R = distance (cm)

3.5 Test mode

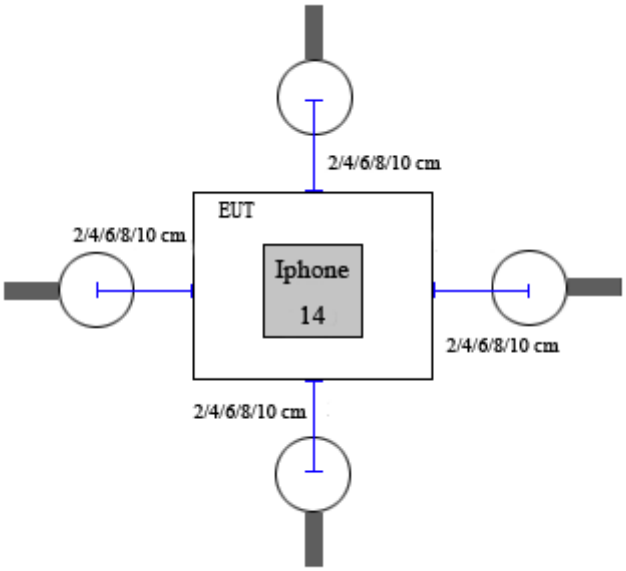
The EUT was tested under the following modes, the final worst mode were marked in boldface and recorded in this report.

WPT

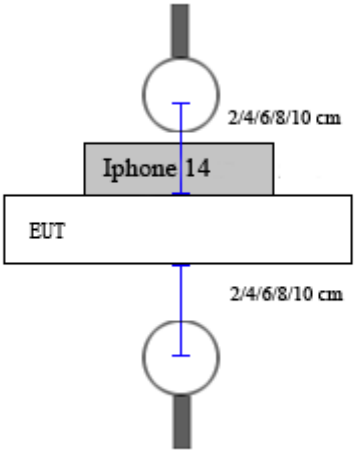
Test Mode	Test setup configuration	Changing current condition
Mode 1	EUT charging to receiver load	Near 100% battery status
Mode 2	**EUT charging to receiver load**	**50% battery status**
Mode 3	EUT charging to receiver load	<1% battery status
Mode 4	EUT charging standby mode	

3.6 Test setup for WPT

Side View



Top View



3.7 Calculation Result of Maximum Permissible Exposure

WPT

Magnetic Field Emissions

Frequency Band	Test Distance (cm)	H-Field Strength (A/m)	Limit (A/m)	50% of the MPE Limit (A/m)	10% of the MPE Limit (A/m)	Pass / Fail
Side 1	10	0.086	1.63	0.815	0.163	Pass
	8	0.095	1.63	0.815	0.163	Pass
	6	0.098	1.63	0.815	0.163	Pass
	4	0.109	1.63	0.815	0.163	Pass
	2	0.134	1.63	0.815	0.163	Pass
Side 2	10	0.090	1.63	0.815	0.163	Pass
	8	0.098	1.63	0.815	0.163	Pass
	6	0.109	1.63	0.815	0.163	Pass
	4	0.123	1.63	0.815	0.163	Pass
	2	0.137	1.63	0.815	0.163	Pass
Side 3	10	0.095	1.63	0.815	0.163	Pass
	8	0.108	1.63	0.815	0.163	Pass
	6	0.112	1.63	0.815	0.163	Pass
	4	0.130	1.63	0.815	0.163	Pass
	2	0.133	1.63	0.815	0.163	Pass
Top	10	0.126	1.63	0.815	0.163	Pass
	8	0.140	1.63	0.815	0.163	Pass
	6	0.150	1.63	0.815	0.163	Pass
	4	0.155	1.63	0.815	0.163	Pass
	2	0.157	1.63	0.815	0.163	Pass
Bottom	10	0.140	1.63	0.815	0.163	Pass
	8	0.144	1.63	0.815	0.163	Pass
	6	0.145	1.63	0.815	0.163	Pass
	4	0.152	1.63	0.815	0.163	Pass
	2	0.154	1.63	0.815	0.163	Pass

Electric Field Emissions

Frequency Band	Test Distance (cm)	E-Field Strength (V/m)	Limit (V/m)	50% of the MPE Limit (V/m)	10% of the MPE Limit (V/m)	Pass / Fail
Side 1	10	3.78	614	307	61.4	Pass
	8	3.90	614	307	61.4	Pass
	6	3.99	614	307	61.4	Pass
	4	4.09	614	307	61.4	Pass
	2	4.12	614	307	61.4	Pass
Side 2	10	3.76	614	307	61.4	Pass
	8	3.86	614	307	61.4	Pass
	6	3.89	614	307	61.4	Pass
	4	4.02	614	307	61.4	Pass
	2	4.29	614	307	61.4	Pass
Side 3	10	3.90	614	307	61.4	Pass
	8	4.06	614	307	61.4	Pass
	6	4.09	614	307	61.4	Pass
	4	4.12	614	307	61.4	Pass
	2	4.15	614	307	61.4	Pass
Top	10	5.54	614	307	61.4	Pass
	8	5.65	614	307	61.4	Pass
	6	5.81	614	307	61.4	Pass
	4	5.86	614	307	61.4	Pass
	2	5.97	614	307	61.4	Pass
Bottom	10	4.90	614	307	61.4	Pass
	8	5.09	614	307	61.4	Pass
	6	5.32	614	307	61.4	Pass
	4	5.67	614	307	61.4	Pass
	2	5.87	614	307	61.4	Pass

Conclusion:

The test worst result of MPE is less than the limit

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