WPT, RF Exposure Exhibit

FCC Rule Part: 47 CFR Part 1.1310

Project Number: 22-0212

Manufacturer: ARO Technology
Model: ARO5-001

FCC ID: 2A7ZV-ARO5-001

SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:
FCC KDB680106 D01 RF Exposure Wireless Charging Apps v03 r01

FCC CFR 47		
Standard Section	Test Item	Comment
FCC CFR 47 part1, 1.1310 KDB 680106 D01 v03r01	Electric Field Strength (E) (V/m)	PASS
	Magnetic Field Strength (H) (A/m)	PASS

General Information:

Applicant: ARO Technology
Environment: General Population/Uncontrolled Exposure
Exposure Conditions: Mobile
Operating Frequency: 110 kHz to 145 kHz

The EUT antenna is Coil Antenna. No antenna other than that furnished by the responsible party shall be used with the device.

INSTRUMENT	MODEL NUMBER	MANUFACTURER	SERIAL NUMBER	CALIBRATION DUE DATE
SPECTRUM ANALYZER	8593E	Hewlett Packard	3205A00124	2/28/2023
ELECTRIC FIELD PROBE	FST-100X (E)	Foresight Intelligence Technology	NS101	9/11/2022 2 yr.
MAGNETIC FIELD PROBE	FST-100X (H)	Foresight Intelligence Technology	NS100	9/11/2022 2 yr

Note 1: The calibration interval of the above test instruments is 12 months unless stated otherwise.
Note 2: Probes used to make measurements are single-axis probes. The measurements were made with the probe positioned in each of the three axes. All probes used are calibrated from 3 kHz to 10 MHz.
Note 3: Magnetic Field Meter calibrated from 3kHz – 10MHz. Isotropic Field Probe calibrated from 3kHz – 10MHz
Dimension of all probe receiving elements is less than 11.5 cm as specified by section 5.2.6 of SPR-002.
Measurement Uncertainty with a k=2:
+/- 0.003 A/m (+/- 0.035 mGuass)
+/- 0.288 V/m

MAXIMUM PERMISSIBLE EXPOSURE

Limit of Maximum Permissible Exposure

Limits for Occupational / Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6
Limits for General Population / Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180 / f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1	30

Note 1: f = frequency in MHz ; *Plane-wave equivalent power density

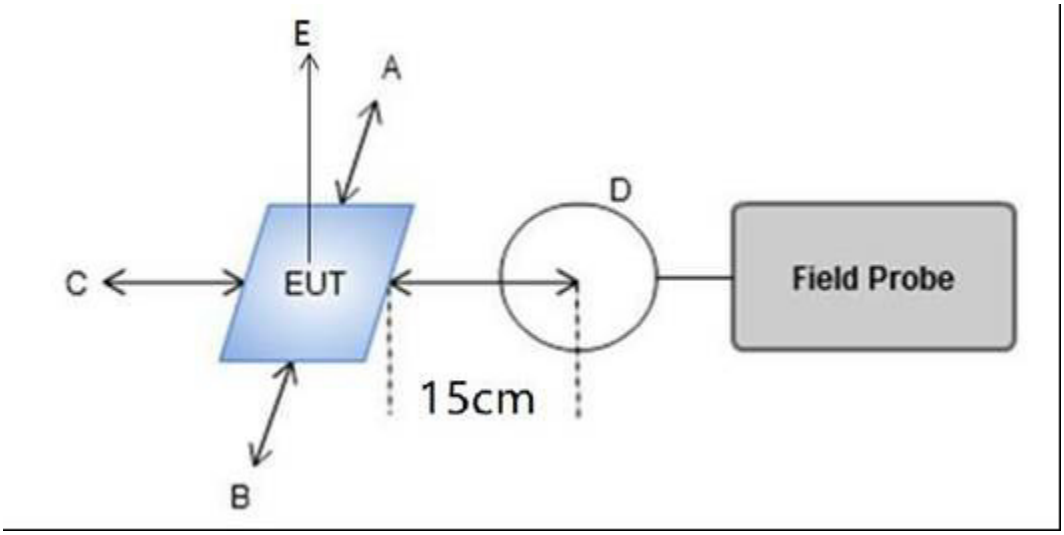
Note 2: For the applicable limit, see FCC 1.1310, 680106 D01 RF Exposure Wireless Charging Apps v03

Note 3: Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m. A KDB inquiry is required to determine the applicable exposure limits below 100 kHz.

TEST PROCEDURE

For devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 15 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device. Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m. Below 100 kHz, applicable reference levels for maximum instantaneous exposure field strengths are defined in clause 3.a).(2) of KDB 680106 D01 v03r01.

TEST SETUP



RESULT OF MAXIMUM PERMISSIBLE EXPOSURE

Considerations:

The device comply with the RF exposure requirement according to 680106 D01 v03r01, section 5, b
(1) The operating frequency is 145kHz, is less than 1MHz.
(2) The max Output power for each primary coil is 15W, less than 15W.
(3) The transfer system includes only single primary and secondary coils.
(4) Client device is placed directly in contact with the transmitter.
(5) 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.

The EUT in operational mode, without a smart phone charging yield the worst case emissions.

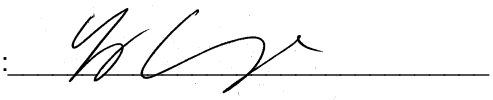
E-Field Strength at 15cm from the edges surrounding the EUT (V/m)

Frequency Range (MHz)	Worst Case location	Limits (V/m)
0.110 to 0.145	Lid Open: 146.92	614

H-Field Strength at 15cm from the edges surrounding the EUT (A/m)

Frequency Range (MHz)	Worst Case location	Limits (A/m)
0.110 to 0.145	Lid Open: 0.1	1.63

Test By: George Yang
Test Date: August 31, 2022

Signature: 

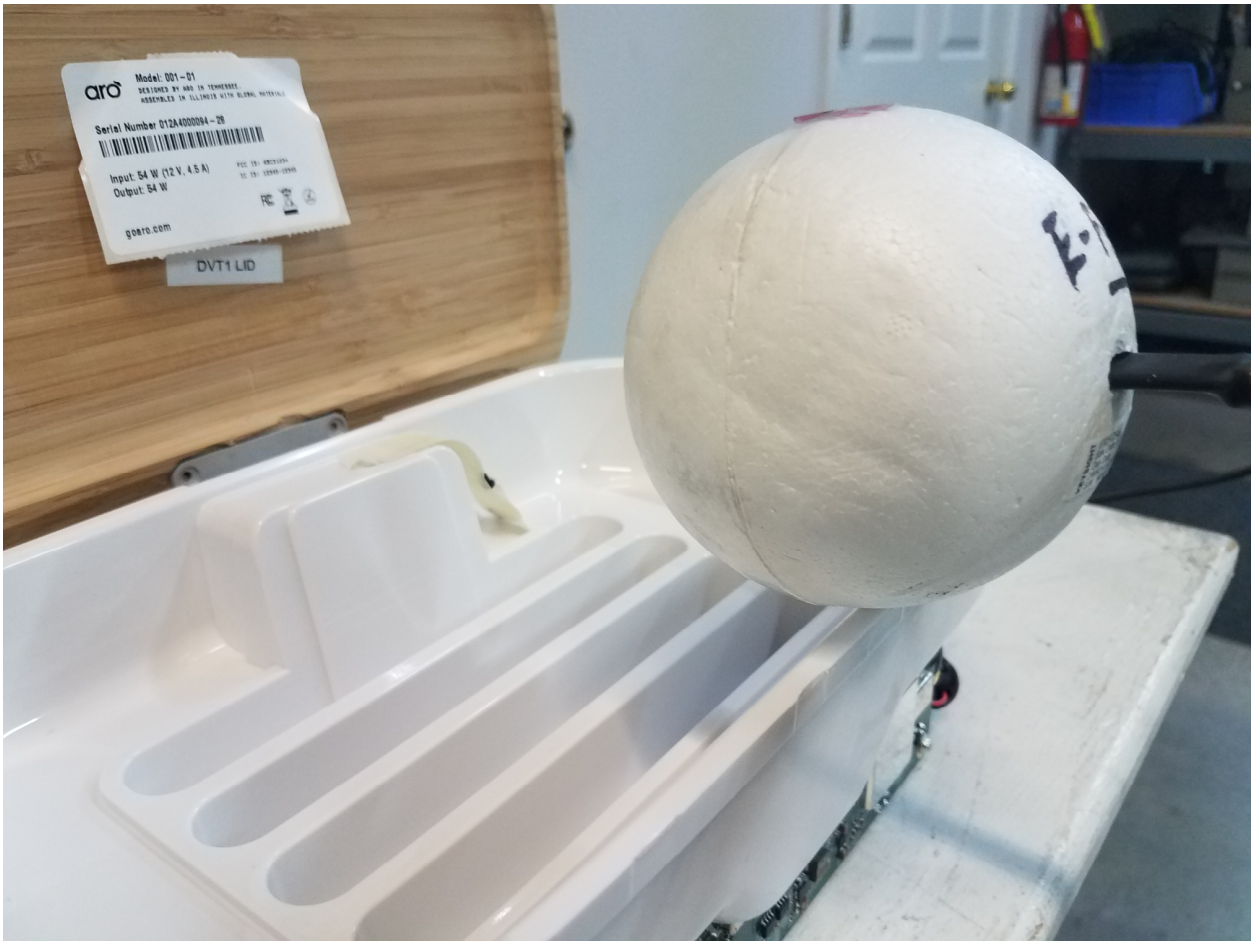


Figure 1. Field Probe measuring at the worst case location.