

JVIS USA, INC.

RF Exposure Exhibit

SCOPE OF WORK

EMC TESTING –15W Wireless Charger, Model Number: 99237200

REPORT NUMBER

104661128MPK-002

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RF Exposure Exhibit

Report Number: 104661128MPK-002

Project Number: G104661128

Report Issue Date: June 03, 2021

Product Designation: 15W Wireless Charger

Model Number: 99237200

FCC ID: 2AZX6-1LCID350001

to

**Standards: ISED SPR-002 Issue 1 September 2016
Supplementary Procedure for Assessing Compliance with RSS-102 Nerve
Stimulation Exposure Limits**

FCC KDB 680106 D01 RF Exposure Wireless Charging App v03r01

for

JVIS USA, INC.

Tested by:

Intertek
1365 Adams Court
Menlo Park, CA 94025 USA

Client:

JVIS USA, INC.
52048 Shelby Parkway
Shelby Twp, MI 48315 USA

Report prepared by:



Minh Ly/ Project Engineer

Report reviewed by:



Krishna Vemuri / EMC Manager

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1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary

Section	Test full name	Result
3	Client Information	-
4	Description of Equipment Under Test and Variant Models	-
5	System Setup and Method	-
6	RF Exposure for Electric and Magnetic Field	Compliant
7	Revision History	-

3 Client Information

This EUT was tested at the request of:

Client: JVIS USA, INC.
52048 Shelby Parkway
Shelby Twp, MI 48315 USA

Contact: Karl Krohn
Telephone: (586) 884-5834
Email: krohn@jvisusallc.com

4 Description of Equipment Under Test and Variant Models

Equipment Under Test			
Description	Manufacturer	Model/Part Number	Serial Number
15W Wireless Charger	JVIS USA, Inc.	99237200	0004

Receive Date:	May 03, 2021	Test Started:	June 02, 2021
Received Condition:	Good	Test Completed:	June 02, 2021
Type:	Production		

Description of Equipment Under Test (provided by client)

The 15W Wireless Charger is mounted under the surface of the center counsel. It is connected to the vehicle harness and is supplied with 12v DC with ignition on command. There is no communication with the vehicle. When the phone being charged is removed from the charging pad the charging transmission stops, and the device goes into sleep mode until a device is placed back on the charger.

Radio Information (provided by client)

FCC Identifier	2AZX6-1LCID350001
Operating Frequency	Charger coil is operated between 119.62kHz
Number of Channels	1
Type of Modulation	FSK Modulation
Antenna Type	Internal Antenna

Equipment Under Test Power Configuration

Rated Voltage	Rated Power	Rated Frequency	Number of Phases
12V _{DC}	15W	N/A	N/A

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	A load was placed on the Charging Pad and continuously charging through inductive wireless power transfer technique.

Software used by the EUT:

No.	Descriptions of EUT Exercising
1	NA

5 System Setup and Method

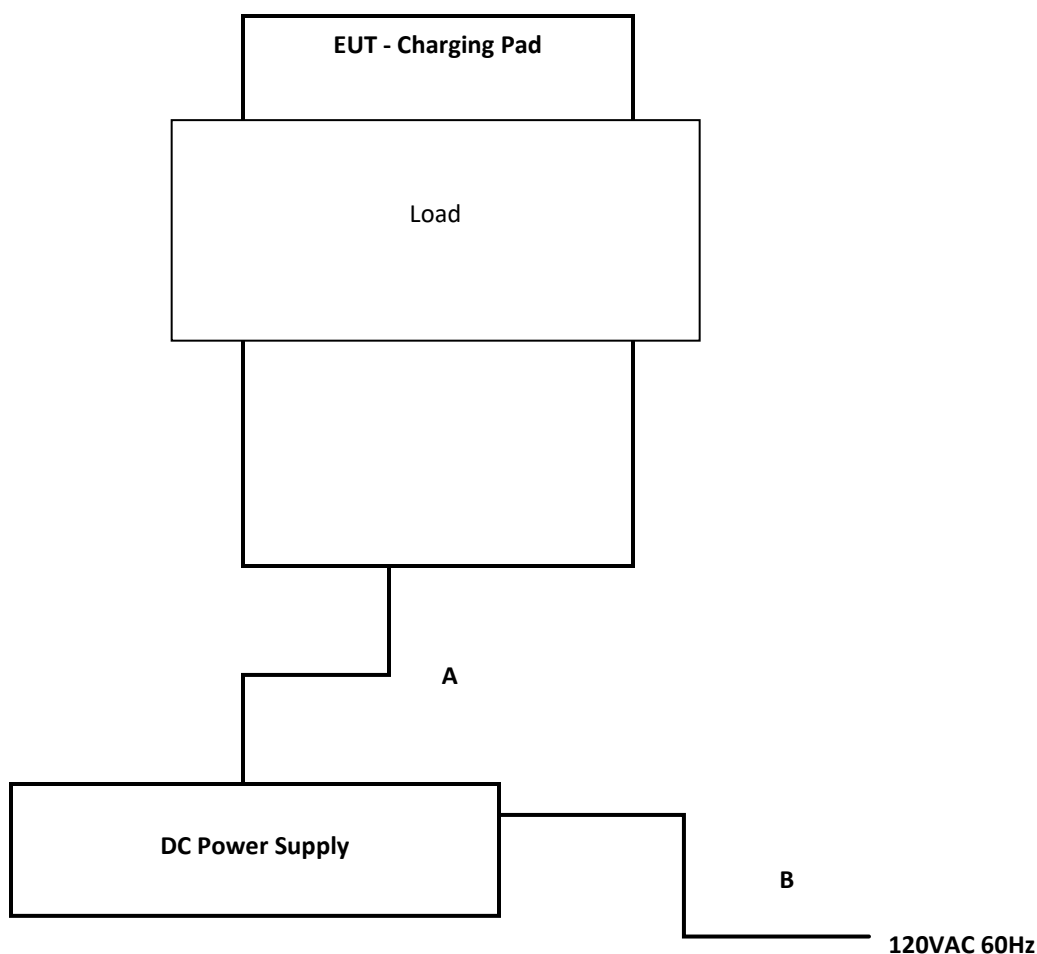
Cables					
ID	Description	Length	Shielding	Ferrites	Termination
A	DC Power cable	1m	No	No	DC Power Supply
B	Power cable	2m	No	No	120VAC 60Hz

Support Equipment		
Description	Manufacturer	Model Number
Load	N/A	N/A

5.1 Method:

Measurements were performed on all sides of the device and the worst result is recorded.
Measurement uncertainty is estimated 2.0 dB for the coverage factor of 2.

5.2 EUT Block Diagram:



6 RF Exposure for Electric and Magnetic Field

6.1 Performance Requirement(s)

The field strength limits are established in Health Canada's RF exposure guideline, Safety Code 6.

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10	83	90	-	Instantaneous

The field strength limits are established FCC KDB 680106 D01 RF Exposure Wireless Charging App v03r01:

Frequency Range (MHz)	Electric Field (V/m rms) @ 15cm	Magnetic Field (A/m rms) @15cm	Power Density (W/m ²)	Reference Period (minutes)
100 kHz to 300 kHz	614	1.63	*(100)	Instantaneous

6.2 Method

Tests are performed in accordance with ISED SPR-002 & FCC KDB 680106 D01 RF Exposure Wireless Charging App v03r01.

The EMC-20 three-axis electric field probe with X, Y, Z field sensors was used.

FCC KDB 680106 D01 RF Exposure Wireless Charging Section 3. a) (2):

For devices designed for typical desktop applications, such as 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.

Electric Field

Direct measurement was used. Measurements were performed on all sides of the device and the worst result is recorded.

Magnetic Field

The Narda ELT-400 Exposure Level Tester measures magnetic field in the frequency range 1 Hz to 400 kHz. Its display takes all frequency components into account automatically. It uses a standard-compliant three-axis 100 cm² probe.

Direct measurement was used. The center of the magnetic field probe is 0, 10, 15 & 20 cm from the equipment under test (EUT) during the test. Measurements were performed on all sides of the device and the worst result is recorded.

Test Site:

The test facility is located at 1365 Adams Court, Menlo Park CA 94025 USA. This test laboratory has been accredited by A2LA and registered with ISED, company number: 2042L.

6.3 Test Equipment Used:

Description	Manufacturer	Model	Serial	Cal Date	Cal Due
Probe Interface	Wandel & Golterman	Type 8.2	None	05/19/2021	05/19/2022
Electric Field Probe	Wandel & Goltermann	EMC-20	BN2244/29	05/19/2021	05/19/2022
Exposure Level Tester	Narda	ELT-400	N-0044	11/04/2020	11/04/2021
B-Field Probe	Narda	2300/90.10	M-0487	11/04/2020	11/04/2021

6.4 Results:

The sample tested at 0mm, 10cm, 15cm & 20cm from EUT was found to Comply.

6.5 Electric Field Data:**Measured at 0cm:**

EUT Location (worst-case)	Measured Value (V/m rms)	Limit (V/m rms)
Top Side	17.80	83
Front Side	8.14	83
Right Side	7.13	83
Left Side	4.95	83
Back Side	19.41	83

Measured at 10cm:

EUT Location (worst-case)	Measured Value (V/m rms)	Limit (V/m rms)
Top Side	6.43	83
Front Side	3.01	83
Right Side	3.54	83
Left Side	2.47	83
Back Side	8.75	83

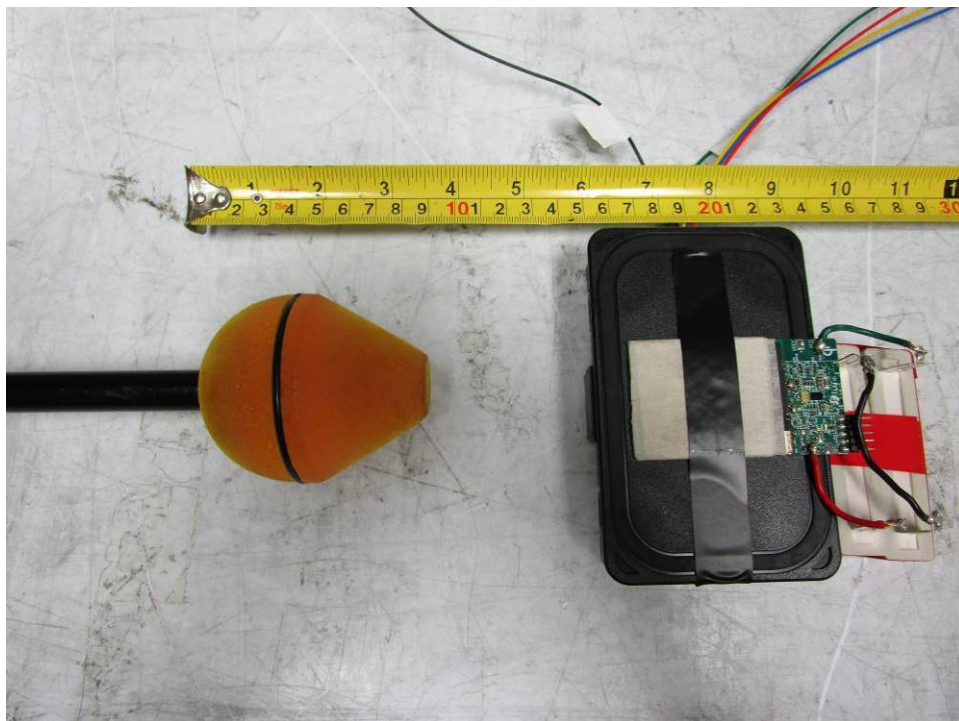
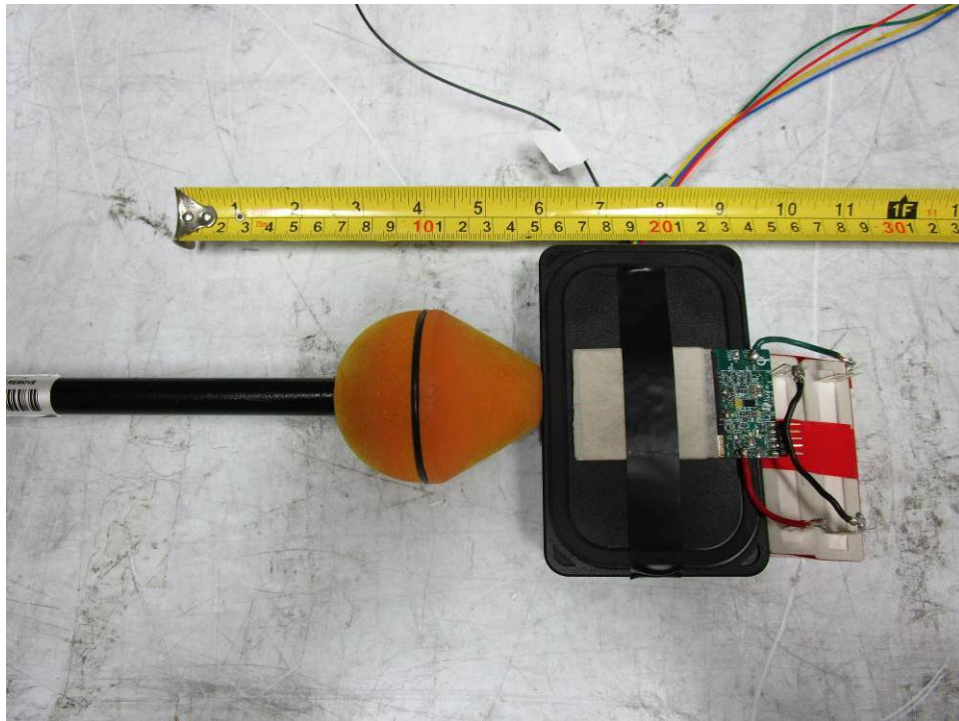
Measured at 15cm:

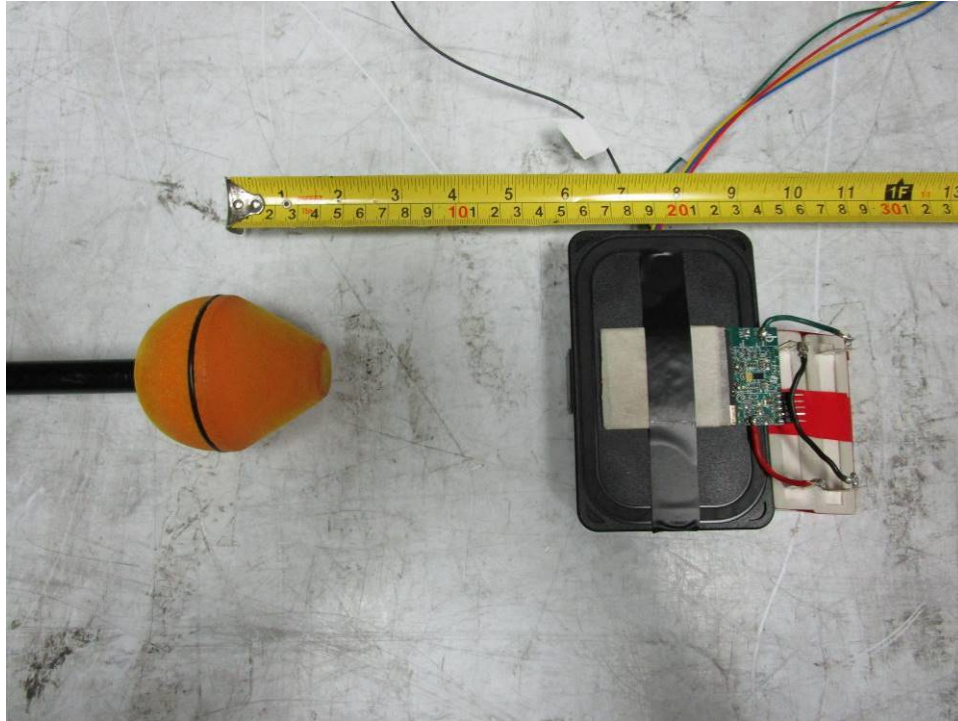
EUT Location (worst-case)	Measured Value (V/m rms)	Limit (V/m rms)
Top Side	2.79	614
Front Side	1.65	614
Right Side	2.77	614
Left Side	1.43	614
Back Side	3.99	614

Test was performed with probe touching the EUT i.e. 0mm from EUT 10cm and 15cm from EUT, worst case results are reported here. The values indicated above are highest instantaneous values observed on the meter used for measurement.

Test Result:	Complies
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6.6 Electric Field Setup Photographs:





6.7 Magnetic Field Data:**Measured at 0cm:**

EUT Location (worst-case)	Measured Value (μT)	Calculated Value (A/m rms)	Limit (A/m rms)
Top Side	28.80	22.86	90
Front Side	4.63	3.67	90
Right Side	2.91	2.31	90
Left Side	2.92	2.32	90
Back Side	3.65	2.90	90

Measured at 10cm:

EUT Location (worst-case)	Measured Value (μT)	Calculated Value (A/m rms)	Limit (A/m rms)
Top Side	3.81	3.02	90
Front Side	1.35	1.07	90
Right Side	0.91	0.72	90
Left Side	1.28	1.02	90
Back Side	1.51	1.20	90

Measured at 15cm:

EUT Location (worst-case)	Measured Value (uT)	Calculated Value (A/m rms)	Limit (A/m rms)
Top Side	0.60	0.48	1.63
Front Side	0.51	0.40	1.63
Right Side	0.28	0.22	1.63
Left Side	0.39	0.31	1.63
Back Side	0.51	0.40	1.63

Measured at 20cm:

EUT Location (worst-case)	Measured Value (uT)	Calculated Value (A/m rms)	50% Limit of 1.63 (A/m rms)*
Top Side	0.40	0.32	0.815
Front Side	0.31	0.25	0.815
Right Side	0.22	0.17	0.815
Left Side	0.34	0.27	0.815
Back Side	0.34	0.27	0.815

*Per KDB680106 D01 RF Exposure Wireless Charging App v03r01, Section 5 b) (6)

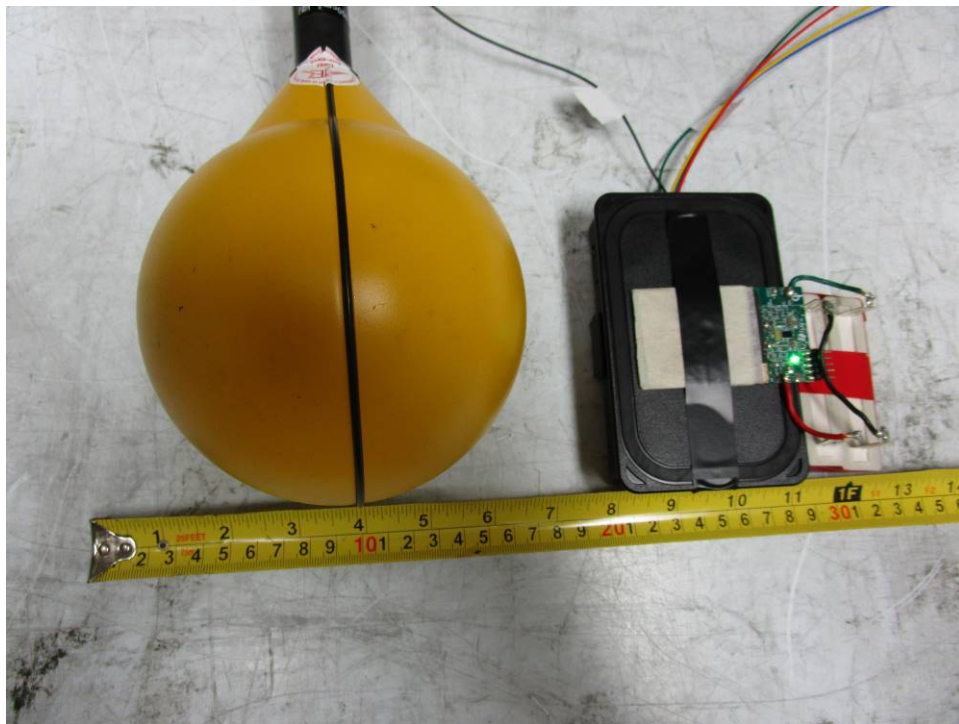
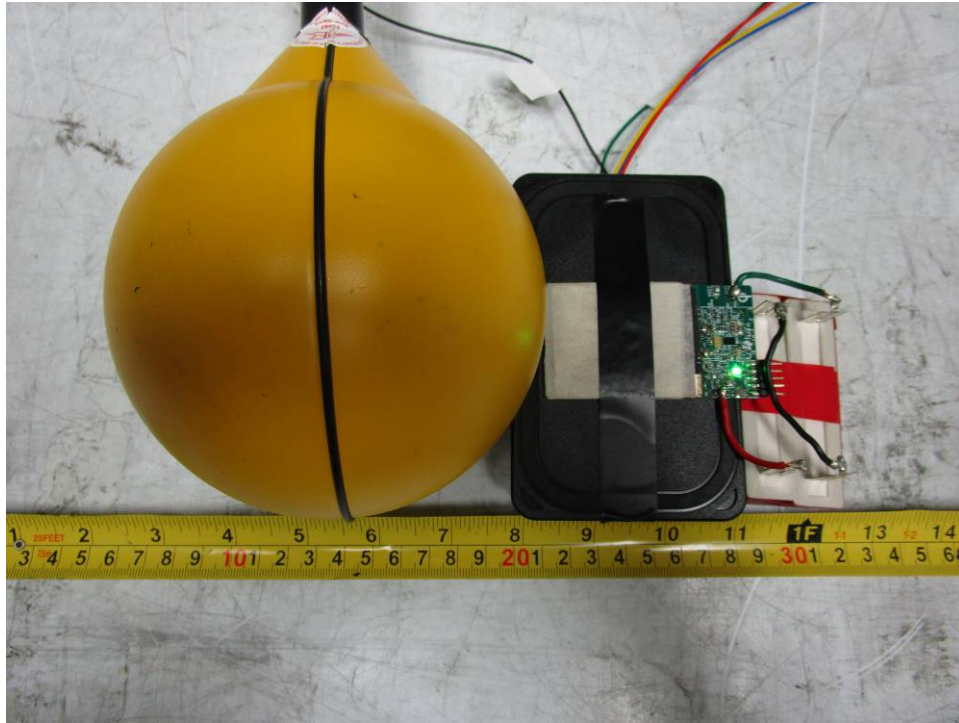
Calculated Value (A/m) = Measured Value (uT) / 1.26

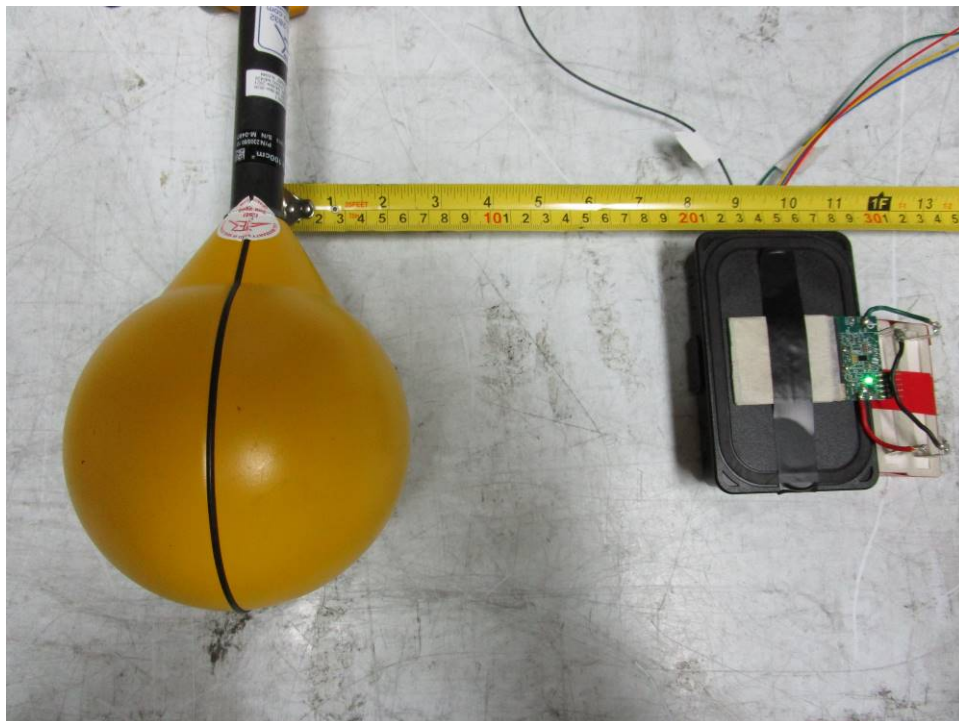
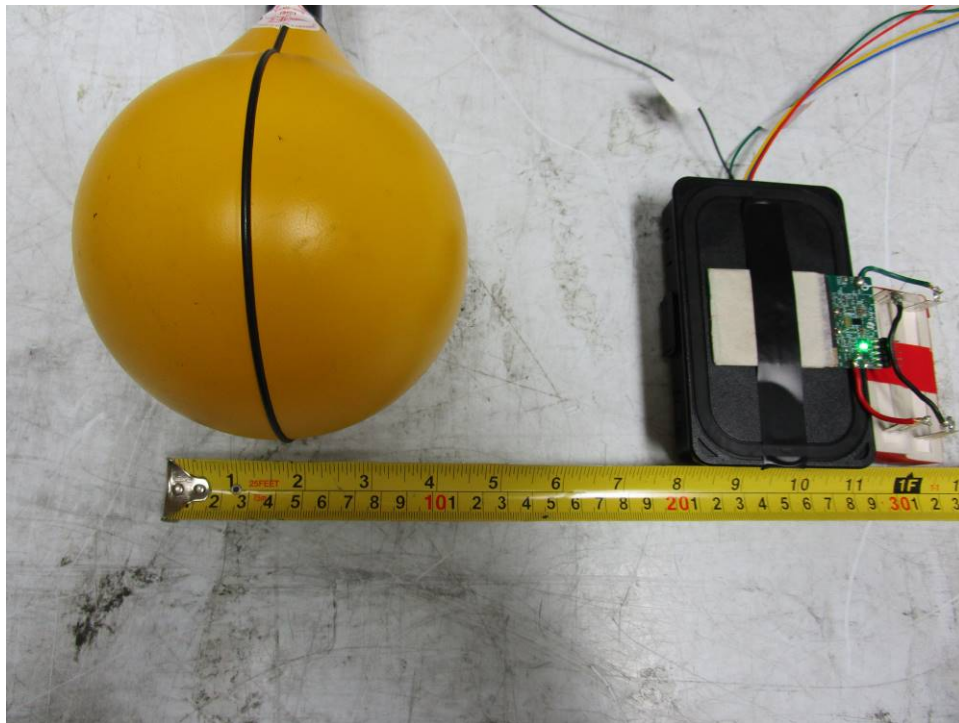
1) Test was performed with probe touching the EUT i.e. 0mm from EUT, 10cm, 15cm and 20cm from EUT. The values indicated above are highest instantaneous rms values observed on the meter used for measurement.

2) The above values show the device complies without applying duty cycle correction

Test Result:	Complies
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6.8 Magnetic Field Setup Photographs:





Test Personnel:	Minh Ly
	ISED SPR-002, FCC KDB
Product Standard:	680106 D01
Input Voltage:	12 Vdc
Pretest Verification w/ Ambient Signals or	
BB Source:	N/A

Test Date:	June 02, 2021
Limit Applied:	ISED SPR-102, FCC KDB 680106 D01
Ambient Temperature:	24.6°C
Relative Humidity:	45.2%
Atmospheric Pressure:	
	990 mBar

Deviations, Additions, or Exclusions: None

7 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	June 03, 2021	104661128MPK-002	ML	KV	Initial Release

END OF REPORT