

RF Exposure Lab

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CERTIFICATE OF COMPLIANCE RF EXPOSURE & NERVE STIMULATION EVALUATION

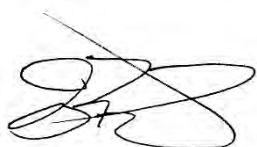
Industrial Scientific
One Life Way
Pittsburgh, PA 15205

Dates of Test: July 31, 2026
Test Report Number: SAR.20260726
Revision A
Lab Designation Number: US1195

FCC ID:	PHH-2533
Model(s):	18109768
Serial Number:	26050100043-02
Equipment Type:	Wireless WPT Charger
Classification:	WPT Transmitter
TX Frequency Range:	128 kHz
Frequency Tolerance:	± 2.5 ppm
Maximum RF Output:	128 kHz – 87.1 µW at 3 m EIRP
Signal Modulation:	ASK
Antenna Type:	Internal
Application Type:	Certification
Standard(s):	KDB680106 D01 v04
Maximum E-Field	10.45 V/m
Maximum H-Field	0.07 A/m
Distance to Probe:	0 mm

This wireless mobile device has been shown to meet the requirements for RF exposure testing for uncontrolled environment/general exposure limits specified in above listed standards. The device has also been shown to meet the simultaneous requirements of each standard as well (See test report).

I attest to the accuracy of the data. I assume full responsibility for the completeness of these calculations and vouch for the qualifications of all persons making them.



Jay M. Moulton
Vice President

N/V – Not Provided



Testing Certificate # 2387.01

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Note: The latest version supersedes all previous versions listed in the above table. The latest version shall be used.

1. Introduction

This report shows the RF exposure evaluation of the Industrial Scientific Model 18109768 Wireless WPT Charging Device with KDB680106 D01 v04.

The test results recorded herein are based on a single type test of Industrial Scientific Model 18109768 and therefore apply only to the tested sample.

2. Radiation Sources

Radio	Description	
128 kHz	Frequency (MHz)	128 kHz
	Maximum Power (dBm)	87.1 μ W at 3m (EIRP)
	Maximum Duty Cycle (%)	100%

3. 18109768



Testing Position

4. RF Exposure Classifications

Device Types	
Fixed	A fixed device is defined as a device physically secured at one fixed location and cannot be easily re-located.
Mobile	A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. (47 CFR 2.1091)
Portable	A portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user. (47 CFR 2.1093)

Exposure Categories	
Occupational / Controlled	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. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.
General population / uncontrolled	Exposures apply in situations in which the general public may be exposed, or in which persons that 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.

5. RF Exposure Limits

FCC Requirements

The RF exposure limits, as set forth in § 1.1310, do not cover the frequency range below 100 kHz for Specific Absorption Rate (SAR) and below 300 kHz for Maximum Permitted Exposure (MPE). In addition, present limitations of RF exposure evaluation systems prevent an accurate evaluation of SAR below 4 MHz. For these reasons, a specific MPE-based RF Exposure compliance procedure for devices operating in the aforementioned low-frequency ranges has been set in place. This procedure is applicable to Equipment Authorization of all RF devices, thus including, but not limited to, Part 18 and WPT devices.

Accordingly, for § 2.1091-Mobile devices, the MPE limits between 100 kHz to 300 kHz are to be considered the same as those at 300 kHz in Table 1 of § 1.1310, that is, 614 V/m and 1.63 A/m, for the electric field and magnetic field, respectively. For § 2.1093-Portable devices below 4 MHz and down to 100 kHz, the MPE limits in § 1.1310 (with the 300 kHz limit applicable all the way down to 100 kHz) can be used for the purpose of equipment authorization in lieu of SAR evaluations. For frequencies below 100 kHz, the peak temporal field strength must not exceed 83 V/m and 90 A/m.

Table 1 to § 1.1310(e)(1)—Limits for Maximum Permissible Exposure (MPE)

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.

6. General Conditions

- This report is only in reference to the item that has undergone the assessment.
- This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.

7. Environmental Conditions

The following limits were not exceeded during the test:

Temperature	Min. = 15 °C
	Max. = 35 °C
Relative Humidity	Min. = 30%
	Max. = 60%

8. Test Equipment

- | | Serial Number | Last Cal. Date | Cal. Due Date |
|--------------------|---------------|----------------|------------------|
| • Wavecontrol SMP2 | 19SN1179 | 04/15/2024 | 04/15/2026 |
| • WP400-3 | 19WP120054 | 04/15/2024 | 04/15/2026 27 mm |
- Positioning Apparatus used is a plastic tripod to hold the meter and probe at a specified position, a camera motion device is installed on the tripod to make precise positions at 10 mm steps away from the EUT
 - Testing was conducted in a shielded room with the EUT sitting on a wooden table.

9. EUT Description

The 18109768 is a Wireless WPT Charging Device that is used to recharge the battery of the Tectra iX5. There is only one transmitter in the device (128 kHz). Therefore, simultaneous evaluation is not required.

When a charging device is removed from the WPT unit, the WPT will stop pulse to look for a device. This is accomplished by when a device is removed, the WPT will detect a drop in current to the coils and if the charging unit does not get an ASK communication the power is not supplied to the charger.

For the measurements, the device Tectra iX5 was completely discharged to insure the maximum charging rate was achieved..

The description of the antenna is listed below

- The element is a 4.5 turn coil antenna
- Shielding is not applicable
- The overall dimensions of the device is 88 mm x 74 mm x 100 mm
- The distance from the antenna to the outside of the enclosure is 2.14 mm
- The position of the antenna in the device is located in the middle of the bottom of the device
- The enclosure over the antenna is Polycarbonate + ABS blend
- D_s of the transmitting antenna is 43.2 mm diameter
- The nominal voltage supplied is 6.5 volts and the nominal current supplied is 400 mA.
- The maximum voltage supplied is 13.6 volts and the maximum current supplied is 700 mA.

10. Nerve Stimulation Evaluation Results 128 kHz Charging Mode

The measurements for the 18109768 was conducted at 20 mm distance from the device to the center of the WP400-3 probe diameter. A pre-scan of the around the antenna was conducted first by moving the probe around all areas of the device being tested. The movement was conducted at a very slow pace to find the peak value for the device. Once the peak position was determined for the device, the meter and probe were installed on the positioning apparatus for conducting the final measurements. The location of the highest value was at x=-29 mm, y=5 mm, z=20 mm. The grid is based on the center of the antenna being 0,0,0 mm.

Below are all the measured values for the E- and H-field. All evaluations were conducted with a 95% confidence.

E-field		H-field	
Distance	Measured Value	Distance	Measured Value
20 mm	5.05	20 mm	0.031
30 mm	4.63	30 mm	0.026
40 mm	4.20	40 mm	0.021
50 mm	4.16	50 mm	0.017
60 mm	3.77	60 mm	0.013
70 mm	3.39	70 mm	0.008
80 mm	3.02	80 mm	0.004
90 mm	2.81	90 mm	0.003
100 mm	2.66	100 mm	0.003
110 mm	2.52	110 mm	0.002
120 mm	2.40	120 mm	0.002
130 mm	2.17	130 mm	0.002
140 mm	2.10	140 mm	0.002
150 mm	1.90	150 mm	0.002

The highest value of all the sides at 20 mm was then tested at 20 mm moving away from the device every 10 mm. All the values were used to extrapolate to the 0 mm distance. The equation used to extrapolate the value to zero is $y = a * b^x$, where x is the distance and y is the extrapolated value. This form of regression is exponential regression decay.

The extrapolated value at 10 mm is 4.27 V/m.

The extrapolated value at 0 mm is 4.96 V/m.

Regression Statistics

Multiple R	0.99598653
R Square	0.991989168
Adjusted R Square	0.991321599
Standard Error	0.029234438
Observations	14

The extrapolated value at 10 mm is 0.04 A/m.

The extrapolated value at 0 mm is 0.05 A/m.

Regression Statistics

Multiple R	0.970268931
R Square	0.941421799
Adjusted R Square	0.936540282
Standard Error	0.277738396
Observations	14

The highest value of all the sides at 20 mm was then tested at 20 mm moving away from the device every 10 mm. All the values were used to extrapolate to the 0 mm distance. The equation used to extrapolate the value to zero is $y = a_4x^4 + a_3x^3 + a_2x^2 + a_1x^1 + a_0$, where x is the distance and y is the extrapolated value. Below are all the measured values for the e- and h-field. This form of regression is quartic regression decay.

The extrapolated value at 10 mm is 4.35 V/m.

The extrapolated value at 0 mm is 4.99 V/m.

Regression Statistics

Multiple R	0.997264756
R Square	0.994536993
Adjusted R Square	0.99210899
Standard Error	0.089717466
Observations	14

The extrapolated value at 10 mm is 0.03 A/m.

The extrapolated value at 0 mm is 0.04 A/m.

Regression Statistics

Multiple R	0.998327692
R Square	0.99665818
Adjusted R Square	0.995172927
Standard Error	0.000698571
Observations	14

The highest value of all the sides at 20 mm was then tested at 20 mm moving away from the device every 10 mm. All the values were used to extrapolate to the 0 mm distance. The equation used to extrapolate the value to zero is the second degree polynomial $y = a_2x^2 + a_1x + a_0$, where x is the distance and y is the extrapolated value. This form of regression is quadratic regression decay.

The extrapolated value at 10 mm is 4.31 V/m.

The extrapolated value at 0 mm is 5.04 V/m.

Regression Statistics

Multiple R	0.996854247
R Square	0.99371839
Adjusted R Square	0.992576279
Standard Error	0.087020494
Observations	14

The extrapolated value at 10 mm is 0.04 A/m.

The extrapolated value at 0 mm is 0.04 A/m.

Regression Statistics

Multiple R	0.995291699
R Square	0.990605566
Adjusted R Square	0.988897487
Standard Error	0.001059448
Observations	14

The highest value of all the sides at 20 mm was then tested at 20 mm moving away from the device every 10 mm. All the values were used to extrapolate to the 0 mm distance. The equation used to extrapolate the value to zero is the fifth degree polynomial $y = a_5x^5 + a_4x^4 + a_3x^3 + a_2x^2 + a_1x + a_0$, where x is the distance and y is the extrapolated value. This form of regression is fifth order polynomial.

The extrapolated value at 10 mm is 5.53 V/m.

The extrapolated value at 0 mm is 6.27 V/m.

Regression Statistics

Multiple R	0.997675742
R Square	0.995356885
Adjusted R Square	0.992454939
Standard Error	0.087728782
Observations	14

The extrapolated value at 10 mm is 0.03 A/m.

The extrapolated value at 0 mm is 0.03 A/m.

Regression Statistics

Multiple R	0.998344113
R Square	0.996690967
Adjusted R Square	0.994622822
Standard Error	0.000737303
Observations	14

The highest value of all the sides at 20 mm was then tested at 20 mm moving away from the device every 10 mm. All the values were used to extrapolate to the 0 mm distance. The equation used to extrapolate the value to zero is the seventh degree polynomial $y = a_7x^7 + a_6x^6 + a_5x^5 + a_4x^4 + a_3x^3 + a_2x^2 + a_1x + a_0$, where x is the distance and y is the extrapolated value. This form of regression is seventh order decay.

The extrapolated value at 10 mm is 6.56 V/m.

The extrapolated value at 0 mm is 10.45 V/m.

Regression Statistics

Multiple R	0.998678146
R Square	0.99735804
Adjusted R Square	0.994275753
Standard Error	0.076413469
Observations	14

The extrapolated value at 10 mm is 0.04 A/m.

The extrapolated value at 0 mm is 0.07 A/m.

Regression Statistics

Multiple R	0.99914835
R Square	0.998297426
Adjusted R Square	0.996311089
Standard Error	0.000610686
Observations	14

Table of Regression Statistics				
	Multiple R	R ^ 2	Adjusted R ^ 2	Standard Error
Exponential E-Field	0.99598653	0.991989168	0.991321599	0.029234438
Exponential H-Field	0.970268931	0.941421799	0.936540282	0.277738396
Quartic E-Field	0.997264756	0.994536993	0.99210899	0.089717466
Quartic H-Field	0.998327692	0.99665818	0.995172927	0.000698571
Quadratic E-Field	0.996854247	0.99371839	0.992576279	0.087020494
Quadratic H-Field	0.995291699	0.990605566	0.988897487	0.001059448
5th Order E-Field	0.997675742	0.995356885	0.992454939	0.087728782
5th Order H-Field	0.998344113	0.996690967	0.994622822	0.000737303
7th Order E-Field	0.998678146	0.99735804	0.994275753	0.076413469
7th Order H-Field	0.99914835	0.998297426	0.996311089	0.000610686

Comparison of the Three Interpolations		
	E-Field	H-Field
Exponential	4.96	0.05
Quartic	4.99	0.04
Quadratic	5.04	0.04
5th Order	6.27	0.03
7th Order	10.45	0.07

Frequency	E-Field Measurement	Limit [V/m]	% Limit	Verdict
128 kHz	10.45	614	1.7	Pass

Frequency	H-Field Measurement	Limit [A/m]	% Limit	Verdict
128 kHz	0.07	1.63	4.3	Pass

Appendix A – Calibration Certificates



Certificate of Calibration

ISO/IEC 17025:2017 and ANSI/NCSL Z540.1-1994

Certificate Number 260408-145250-f687bb



Model Number WP400-3; SMP2
Manufacturer Wavecontrol
Description Field Probe
Serial Number 19WP120054; 19SN1179
Customer Asset No. N/A

Customer
RF Exposure Lab, LLC
802 N. Twin Oaks Valley Rd
Suite 105
San Marcos, CA 92069
USA

Date of Calibration 04/13/2026
Temperature 24°C
Humidity 44% RH

Location of Calibration
Keysight Technologies Inc.
1346 Yellowwood Road
Kimballton, IA 51543
United States

This certifies that the equipment has been calibrated using applicable Keysight Technologies procedures and in compliance with ISO/IEC 17025:2017 and ANSI/NCSL Z540.1-1994 (R2002). The quality management system is registered to ISO 9001:2015.

Calibration Standard(s)
IEEE Std 1309-2013

Calibration Method(s)
Substitution

Calibration Procedure(s)
909579

Calibration Software
Probe Comparison 1.5.3

As Received Conditions
The measured values of the equipment were observed in specification at the points tested.

Action Taken
No action was taken.

As Completed Conditions
The measured values of the equipment were observed in specification at the points tested.

Calibration Due
Based on the customer's request, the next calibration is due on 13 Apr 2028

Remarks or Special Requirements
Electric Field measurements outside the frequency range 5kHz to 800MHz are unaccredited and supplied for client reference.

This calibration report shall not be reproduced, except in full. The documented results relate to the equipment calibrated only.

The test limits stated in the report correspond to the published specifications of the equipment, at the points tested.

Keysight Technologies, Inc.
1346 Yellowwood Road
Kimballton, IA 51543
United States


Nate Potts Iowa Service Center Manager



Certificate of Calibration

ISO/IEC 17025:2017 and ANSI/NCSL Z540.1-1994

Certificate Number 260408-145250-f687bb



Traceability Information

Technician Name Dave Grabill

Measurements are traceable to the International System of Units (SI) via national metrology institutes (www.keysight.com/find/NMI) that are signatories to the CIPM Mutual Recognition Arrangement.

Calibration Equipment Used

Manufacturer	Model Number	Model Description	Equipment ID	Cal Due Date	Certificate Number
Agilent Technologies, Inc.	33250A	Function/Arbitrary Waveform Generator	11101	07/31/2026	250701-064719-8eb4c6
AR	350AH1	Amp	11453	NA	NA
EMCO	5101	TEM Cell	10420	NA	2003121920
Hewlett-Packard	8564E	Spectrum Analyzer	10029	08/31/2026	250731-084611-351cb1
Combinova	FD1	Field Detector	10348	01/31/2027	260114-074822-e3729d
Combinova	FD2	Field Detector	10347	02/28/2027	260204-144355-02b7ce
Schwarzbeck Mess-Elektronik	FESP 5133-7/41	Loop	11285	10/31/2026	251023-104122-9f4747
Schwarzbeck Mess-Elektronik	HHS 5204-12	Helmholtz Coil	11091	NA	NA
Holaday	HI-3624	ELF Magnetic Field Meter	10569	09/30/2026	250916-135300-2cde65
Holaday	HI-3627	ELF Magnetic Field Meter	10570	04/30/2026	250407-083804-1f7dae

Compliance with Specification

Unless otherwise noted, the calibration results are reported without factoring in the effect of uncertainty on the assessment of compliance/specification.

In Specification/Out of Specification Explanation

The standard criteria to determine the "In Specification/Out of Specification" status is based on one or more of the following conditions, as requested by the client:

1. If the manufacturer has a specified specification for the item being calibrated, then the calibration values are compared to this specification, and the values must fall within the manufacturer's specification. The specification may be obtained from the manufacturer's web site, data sheets, equipment manuals, etc.
2. Where specifications are called out in a published standard, the calibration results are compared to this specification, and the measured values must fall within the standard's specification.
3. In cases where the manufacturer, standard, or client does not identify any relevant specifications, applicable calibration results are compared to historical data with a +/- 3 dB specification.

Uncertainty of Measurement

The uncertainty evaluation has been performed in accordance with ISO/IEC Guide 98-3:2008(GUM). The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k such that the coverage probability corresponds to approximately 95%. This probability corresponds to a coverage factor of k=2 for a normal distribution.

Parameter	Range	MU (+/-)
Magnetic Field Strength Meters - AC	0.20 mG to 20 G	0.33% + 1.2 mG
RF Isotropic E-Field Probes - TEM Cell - Frequency Response	5 kHz to 800 MHz	0.73 dB

Customer Name: RF Exposure Lab, LLC

Probe Manufacturer: Wavecontrol

Probe Model: WP400-3; SMP2

Probe Serial No.: 19WP120054; 19SN1179

Notes:

CAL CERT #: 260408-145250-f687bb

Electric Field

E Field (V/m)	Linearity - 60Hz						Mean CF
	X axis CF	X axis dB	Y axis CF	Y axis dB	Z axis CF	Z axis dB	
350	1.00	0.00	1.00	0.01	1.00	0.00	1.00
250	1.09	0.76	1.09	0.78	1.09	0.74	1.09
100	1.10	0.80	1.10	0.86	1.09	0.75	1.10
50	1.09	0.75	1.10	0.84	1.09	0.78	1.10
20	0.97	-0.27	1.03	0.25	1.00	0.03	1.00

Freq Hz	Frequency Response 25Hz-100kHz: 350V/m / 10Hz, 200-400kHz: 300V/m						Mean CF
	X axis CF	X axis dB	Y axis CF	Y axis dB	Z axis CF	Z axis dB	
10	1.08	0.67	1.08	0.63	1.07	0.56	1.07
25	1.09	0.75	1.09	0.76	1.08	0.70	1.09
60	1.00	0.00	1.00	0.01	1.00	0.00	1.00
100	0.99	-0.06	0.99	-0.12	0.99	-0.07	0.99
500	0.96	-0.33	0.95	-0.48	0.97	-0.30	0.96
1000	0.97	-0.31	0.95	-0.46	0.97	-0.27	0.96
2000	1.02	0.21	1.00	0.04	1.03	0.24	1.02
10000	1.00	-0.04	0.99	-0.08	1.00	0.01	1.00
100000	1.02	0.15	1.02	0.16	1.02	0.19	1.02
200000	0.98	-0.15	0.98	-0.14	0.99	-0.06	0.99
300000	1.00	-0.03	0.99	-0.09	1.01	0.11	1.00
400000	1.24	1.89	1.04	0.35	1.05	0.41	1.11

Customer Name: RF Exposure Lab, LLC

Probe Manufacturer: Wavecontrol

Probe Model: WP400-3; SMP2

Probe Serial No.: 19WP120054; 19SN1179

Notes:

CAL CERT #: 260408-145250-f687bb

Magnetic Field

B Field (uT)	Linearity - 60Hz						Mean CF
	X axis CF	X axis dB	Y axis CF	Y axis dB	Z axis CF	Z axis dB	
750	0.98	-0.14	0.99	-0.10	0.99	-0.13	0.99
500	0.97	-0.26	0.98	-0.22	0.97	-0.26	0.97
250	1.00	0.01	1.01	0.07	1.00	0.04	1.00
100	0.97	-0.27	0.97	-0.24	0.97	-0.30	0.97
50	1.00	0.04	1.01	0.08	1.00	0.02	1.01
10	1.05	0.42	1.06	0.48	1.05	0.42	1.05
5	0.96	-0.38	0.96	-0.36	0.96	-0.36	0.96

Freq Hz	Frequency Response						Mean CF
	X axis CF	X axis dB	Y axis CF	Y axis dB	Z axis CF	Z axis dB	
10	1.06	0.54	1.07	0.57	1.07	0.55	1.07
30	1.00	-0.01	1.00	0.03	1.00	-0.02	1.00
60	0.97	-0.28	0.97	-0.24	0.97	-0.30	0.97
100	0.97	-0.27	0.97	-0.23	0.97	-0.26	0.97
500	1.00	0.04	1.01	0.10	1.01	0.07	1.01
1000	0.99	-0.12	0.99	-0.06	0.99	-0.10	0.99
2000	0.99	-0.07	1.00	-0.01	0.99	-0.05	1.00
10000	0.80	-1.91	0.80	-1.98	0.80	-1.91	0.80
100000	0.83	-1.64	0.82	-1.74	0.82	-1.72	0.82
200000	0.78	-2.17	0.77	-2.21	0.78	-2.15	0.78