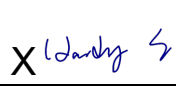
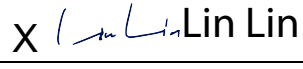


|  |   |   |   |                                |
|--|---|---|---|--------------------------------|
| <b>Prüfbericht-Nr.:</b><br><i>Test report no.:</i>   | <b>CN24JN4H 002</b>   | <b>Auftrags-Nr.:</b><br><i>Order no.:</i>       | <b>168481196</b>  | Seite 1 von 23<br>Page 1 of 23 |
| <b>Kunden-Referenz-Nr.:</b><br><i>Client reference no.:</i>  | N/A   | <b>Auftragsdatum:</b><br><i>Order date:</i>     | 2024-05-06  |                                |
| <b>Auftraggeber:</b><br><i>Client:</i>   | <b>Guangdong Pisen Electronics Co., Ltd.</b><br>Building 5, 1st Floor, No. 9, Qinfu 1st Street, Liuyue Nan Community, Henggang Town, Longgang District, Shenzhen, China |   |   |                                |
| <b>Prüfgegenstand:</b><br><i>Test item:</i>  | Extension Cable Socket  |   |   |                                |
| <b>Bezeichnung / Typ-Nr.:</b><br><i>Identification / Type no.:</i>   | KF27<br>(Trademark: PISEN)  |   |   |                                |
| <b>Auftrags-Inhalt:</b><br><i>Order content:</i>   | Test Report   |   |   |                                |
| <b>Prüfgrundlage:</b><br><i>Test specification:</i>  | CFR47 FCC Part 2.1093<br>KDB 680106 D01 Wireless Power Transfer v04   |   |   |                                |
| <b>Wareneingangsdatum:</b><br><i>Date of sample receipt:</i>   | 2024-05-06  | Please refer to Photo Document                  |   |                                |
| <b>Prüfmuster-Nr.:</b><br><i>Test sample no.:</i>  | A003771963-004  |   |   |                                |
| <b>Prüfzeitraum:</b><br><i>Testing period:</i>   | 2024-05-06 to 2024-06-22  |   |   |                                |
| <b>Ort der Prüfung:</b><br><i>Place of testing:</i>  | TÜV Rheinland<br>(Shenzhen) Co., Ltd.   |   |   |                                |
| <b>Prüflaboratorium:</b><br><i>Testing laboratory:</i>   | TÜV Rheinland<br>(Shenzhen) Co., Ltd.   |   |   |                                |
| <b>Prüfergebnis*:</b><br><i>Test result*:</i>  | Pass  |   |   |                                |
| <b>geprüft von:</b><br><i>tested by:</i>   | X  Hardy Suo   | <b>genehmigt von:</b><br><i>authorized by:</i>  | X  Lin Lin |                                |
| <b>Datum:</b><br><i>Date:</i>  | 2024-08-29  | <b>Ausstellungsdatum:</b><br><i>Issue date:</i> | 2024-08-29  |                                |
| <b>Stellung / Position:</b>  | Sachverständige(r)/Expert   | <b>Stellung / Position:</b>                     | Sachverständige(r)/Expert   |                                |
| <b>Sonstiges /</b><br><i>Other:</i>  | FCC ID: 2BCVO-KF27  |   |   |                                |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br><i>Condition of the test item at delivery:</i>   | Prüfmuster vollständig und unbeschädigt<br><i>Test item complete and undamaged</i>  |   |   |                                |
| * Legende:   | P(ass) = entspricht o.g. Prüfgrundlage(n)   | F(ail) = entspricht nicht o.g. Prüfgrundlage(n) | N/A = nicht anwendbar   | N/T = nicht getestet           |
| * Legend:  | P(ass) = passed a.m. test specification(s)  | F(ail) = failed a.m. test specification(s)      | N/A = not applicable  | N/T = not tested               |
| <b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br><i>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i> |   |   |   |                                |

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Test report no.:

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**Anmerkungen**  
*Remarks*

|   |  |
|---|--|
| 1 | <p>Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben.<br/>Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</p> <p><i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i></p>   |
| 2 | <p>Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben.</p> <p><i>As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged.</i></p>  |
| 3 | <p>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben.<br/>Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</p> <p><i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i><br/><i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i></p>   |
| 4 | <p>Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.</p> <p><i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i></p> |

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# 1 General Remarks

## 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

## 2 Test Sites

### 2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China.

FCC Accreditation Designation No.: CN1260

### 2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

| EMF                                  |              |         |            |            |
|--------------------------------------|--------------|---------|------------|------------|
| Equipment                            | Manufacturer | Model   | Serial No. | Cal. until |
| Electric and Magnetic Field Analyzer | Narda        | EHP200A | 180ZX20517 | 2024-09-21 |

### 2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

### 2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

### 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Table 2: Measurement Uncertainty

| Parameter                      | Uncertainty |
|--------------------------------|-------------|
| Magnetic Field Emissions (A/m) | ±1.2µT      |
| Electric Field Emissions (V/m) | ±18%        |

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## 2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

## 2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China. is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

## 3 General Product Information

### 3.1 Product Function and Intended Use

The EUT is a Extension Cable Socket, which supports wireless charging (WPT) function.

For details refer to the User Manual, Technical Description and Circuit Diagram.

### 3.2 Ratings and System Details

**Table 3: Technical Specification of EUT**

| General Information of EUT                             | Value                             |
|--|-----------------------------------|
| Kind of Equipment:                                     | Extension Cable Socket            |
| Type Designation:                                      | KF27                              |
| Trademark:   | PISEN                             |
| FCC ID:  | 2BCVO-KF27                        |
| Operating Voltage:                                     | DC 5V, 1A input via AC/DC Adapter |
| Testing Voltage:                                       | AC 120V, 60Hz                     |
| <b>Technical Specification of WPT (Coil 1)</b>         |                                   |
| Frequency Range:                                       | 115~205KHz<br>360kHz              |
| Type of Modulation:                                    | ASK                               |
| Antenna Type:  | Induction Coil Antenna            |
| Wireless output power:                                 | 15W Max                           |
| <b>Technical Specification of Apple watch (Coil 2)</b> |                                   |
| Operating Frequency                                    | 326.5KHz                          |
| Modulation   | ASK                               |
| Antenna Type   | Induction Coil Antenna            |
| Wireless Charger output power                          | 2.5W Max                          |

### 3.3 Independent Operation Modes

| Test Mode | Description of Mode   |
|-----------|---|
| 1         | EUT + Mobile Phone @115kHz to 205kHz (Battery Status: <1%)  |
| 2         | EUT + Mobile Phone @115kHz to 205kHz (Battery Status: <50%) |
| 3         | EUT + Mobile Phone @115kHz to 205kHz (Battery Status: <99%) |
| 4         | EUT + Mobile Phone @360kHz (Battery Status: <1%)            |
| 5         | EUT + Mobile Phone @360kHz (Battery Status: <50%)           |
| 6         | EUT + Mobile Phone @360kHz (Battery Status: <99%)           |
| 7         | EUT + Mobile Watch @326.5kHz (Battery Status: <1%)          |
| 8         | EUT + Mobile Watch @326.5kHz (Battery Status: <50%)         |

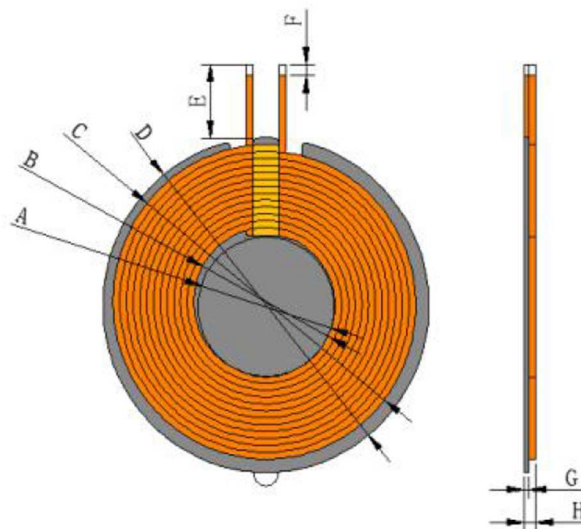
|                  |   |
|------------------|---|
| 9                | EUT + Mobile Watch @326.5kHz (Battery Status: <99%) |
| 10               | Stand-by mode                                       |
| <b>Test Item</b> | <b>Description of Mode</b>                          |
| H-field          | 1/2/3/4/5/6/7/8/9/10                                |
| E-field          | 1/2/3/4/5/6/7/8/9/10                                |

### 3.4 Coil Description

| Configuration | Mode  | Description   |
|---------------|---|---|
| 1             | Standby (Flatbed Position)  | EUT Alone powered by AC/DC adapter                                    |
| 2             | Operating (Flatbed Position)<br>(@115kHz-205kHz, ~10%, 20~50%,<br>and >75%, Power Charging) | EUT with lightning to AC/DC Adapter & Wireless Charging to WPT Client |
| 3             | Operating (Flatbed Position)<br>(@360kHz, ~10%, 20~50%, and >75%,<br>Power Charging)        | EUT with lightning to AC/DC Adapter & Wireless Charging to WPT Client |
| 4             | Operating (Flatbed Position)<br>(@326.5kHz, ~10%, 20~50%, and >75%,<br>Power Charging)      | EUT with lightning to AC/DC Adapter & Wireless Charging to WPT Client |

### 3.5 Coil Specifications

Coil-1(Phone):15W

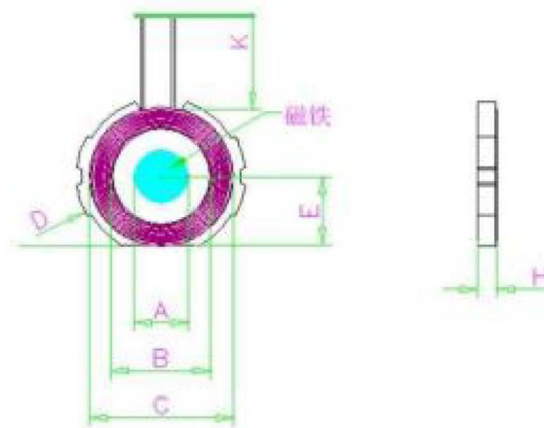


Unit: mm

| A        | B        | C        | D        | E        | F       | G       | H        |
|----------|----------|----------|----------|----------|---------|---------|----------|
| 20.0±1.5 | 20.5±1.5 | 39.5±1.5 | 42.5±1.5 | 10.0±2.0 | 3.0±1.5 | 0.8±0.2 | 2.15±0.3 |

Coil 2(Watch): 2.5W





Unit: mm

| A         | B        | C        | D        | E        | K       | H       |
|-----------|----------|----------|----------|----------|---------|---------|
| 7.6.0±1.0 | 13.8±1.0 | 20.7±1.0 | 25.0±1.0 | 10.0±1.0 | 5.0±2.0 | 2.6±0.3 |

### 3.6 Noise Generating and Noise Suppressing Parts

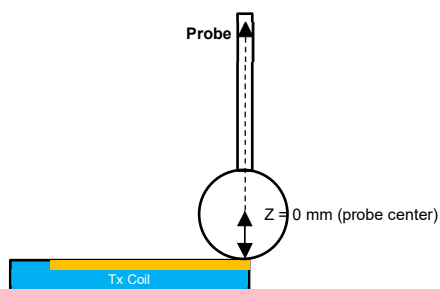
Refer to Circuit Diagram for further details.

### 3.7 Submitted Documents

- Application Form
- Block Diagram
- ID Label and Location Info
- User Manual
- Schematics
- Operation Description

### 3.8 Test Procedures

A grid of 10mm by 10mm is used due to the size of the EUT and the probe. A probe Electric and Magnetic Field Analyzer is used to measure the E- and stemming from the EUT. These initial measurements are made at Z = 50 mm from the surface of the XY plane.



## 4 Safety Human Exposure

### 4.1 Radio Frequency Exposure Compliance

#### 4.1.1 Test procedures according to the technical standards

| Standard Section  | Test Item                         | Judgment | Remark |
|---|-----------------------------------|----------|--------|
| FCC CFR 47 part1,<br>1.1310<br>KDB 680106 D01<br>Wireless Power Transfer<br>v04 | Electric Field Strength (E) (V/m) | PASS     | -      |
|   | Magnetic Field Strength (H) (A/m) | PASS     | -      |

#### 4.1.2 Limit of Maximum Permissible Exposure

Limit of Maximum Permissible Exposure

| Frequency range (MHz)  | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|--|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| <b>(A) Limits for Occupational/Controlled Exposure</b>         |                               |                               |                                     |                          |
| 0.3-3.0  | 614                           | 1.63                          | *100                                | 6                        |
| 3.0-30   | 1842/f                        | 4.89/f                        | *900/f <sup>2</sup>                 | 6                        |
| 30-300   | 61.4                          | 0.163                         | 1.0                                 | 6                        |
| 300-1,500  |                               |                               | f/300                               | 6                        |
| 1,500-100,000  |                               |                               | 5                                   | 6                        |
| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                               |                               |                                     |                          |
| 0.3-1.34   | 614                           | 1.63                          | *100                                | 30                       |
| 1.34-30  | 824/f                         | 2.19/f                        | *180/f <sup>2</sup>                 | 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

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

Note 2: For the applicable limit, see FCC 1.1310, KDB 680106 D01 Wireless Power Transfer v04.

### 4.1.3 Test Result

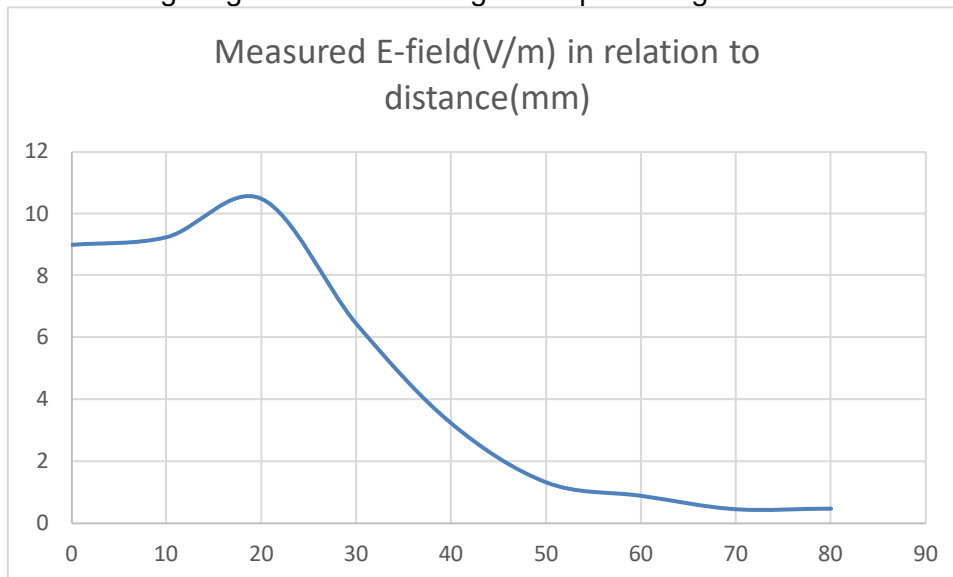
#### The Probe parameters as below:

|                  |                      |       |
|------------------|----------------------|-------|
| Probe: EHP-200AC | Probe Center to edge | 46mm  |
|                  | E-field Sensor Dp    | 52mm  |
|                  | H-field Sensor Dp    | 76mm  |
|                  | 1.7Dp E-field        | 88mm  |
|                  | 1.7Dp H-field        | 129mm |

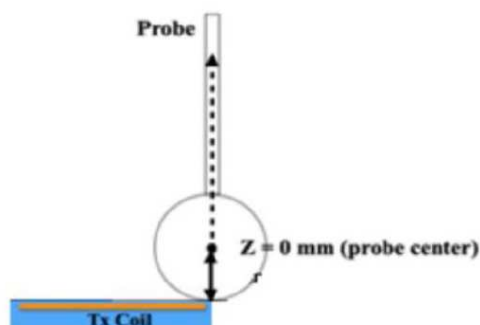
Test modes 1-7 use the same test method, only the power of the test load is changed. The data only reflects the worst mode EUT+Mobile Phone (battery status: <1%)

#### E-field and H-field Test Procedures

1. The grid of 10mm by 10mm is used as the size between the EUT and the probe when measurement.
2. The probe is used to measure the E-field and H-field from the EUT;
3. Measurements are made perpendicular to the XY plane;
4. Locate the MFS in the XY plane; take coil 1 for example.
5. These initial measurements are made at Z = 70 mm from the surface of the XY plane when 1.7Dp E-field=88mm, and 1.7Dp H-field=129mm of the probe.
6. The resulting magnetic H-field strength was plotted against the distance in below figure:



7. The maximum E-field strength (10.48V/m) on this plot occurs at 20 mm from the center of the coil.
8. The probe must therefore be placed at 20 mm from the center of the coil to gather electric or magnetic values when measuring along the Z-axis.



9. Repeat the step1~8 to confirm the maximum H-field strength.

#### 4.1.4 Test Result for Coil 1, 110.5-205kHz for Phone, 7.5W max

##### Data Collecting Process

Operating, Device removal and standby modes use the same test method, only the power of the test load is changed. The data only reflects the worst mode EUT+Mobile Phone (battery status: <20%).

| Test Distance (mm) | E-Field (V/m):                            |  | H-Field (A/m):                            |  |
|--------------------|---|--|---|--|
|                    | EUT + Mobile Phone (Battery Status: <20%) |  | EUT + Mobile Phone (Battery Status: <20%) |  |
| 70                 | 5.23                                      |  | 0.21                                      |  |
| 80                 | 4.76                                      |  | 0.19                                      |  |
| 90                 | 4.12                                      |  | 0.16                                      |  |
| 100                | 3.46                                      |  | 0.14                                      |  |
| 110                | 3.19                                      |  | 0.11                                      |  |
| 120                | 2.94                                      |  | 0.095                                     |  |
| 130                | 2.73                                      |  | 0.089                                     |  |
| 140                | 2.48                                      |  | 0.083                                     |  |
| 150                | 2.15                                      |  | 0.081                                     |  |
| 160                | 2.08                                      |  | 0.077                                     |  |
| 170                | 1.90                                      |  | 0.072                                     |  |
| 180                | 1.61                                      |  | 0.068                                     |  |
| 190                | 1.43                                      |  | 0.065                                     |  |
| 200                | 1.24                                      |  | 0.061                                     |  |

##### Performing Curve-fitting

Four (4) regression techniques were used to validate their model errors.

Model 1: Quadratic Regression

Model 2: Cubic Regression

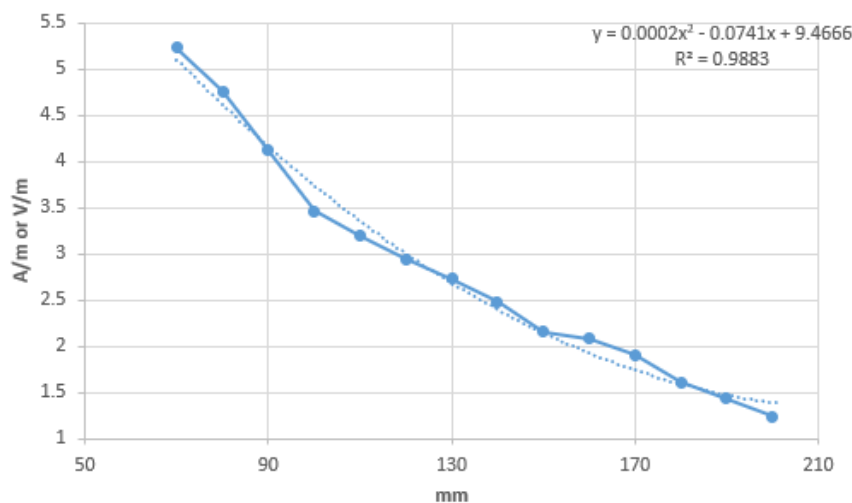
Model 3: Quartic Regression

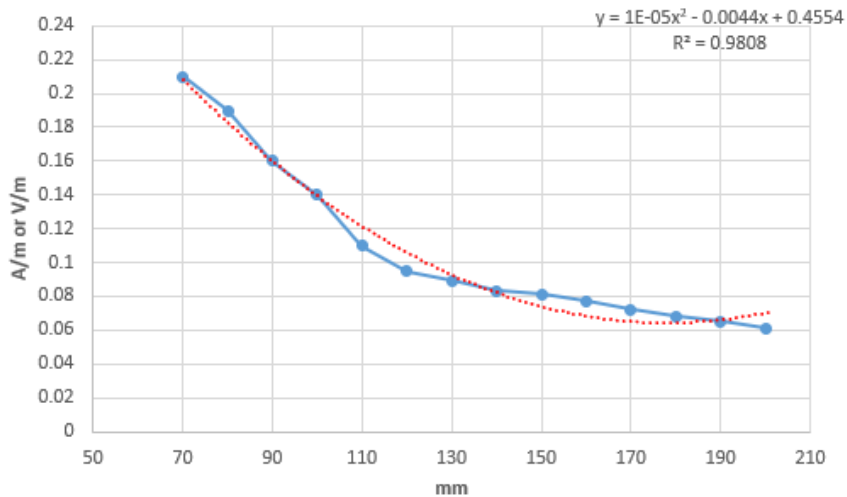
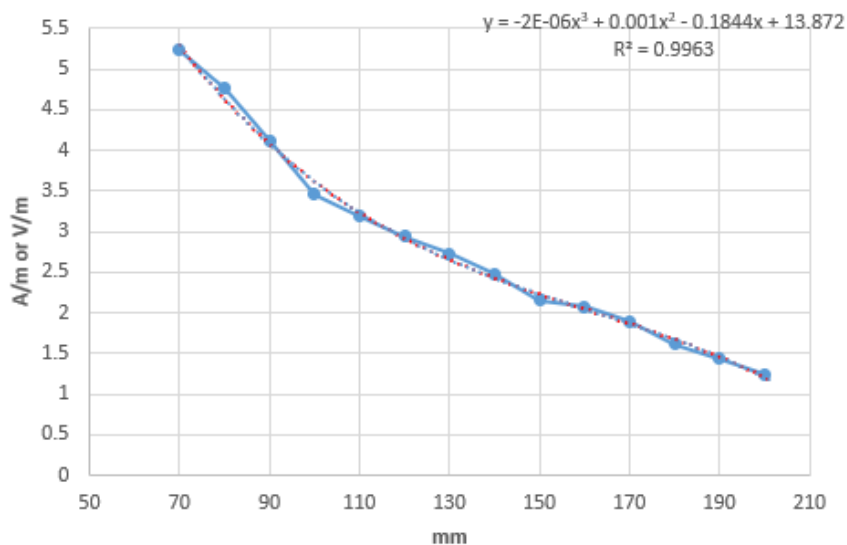
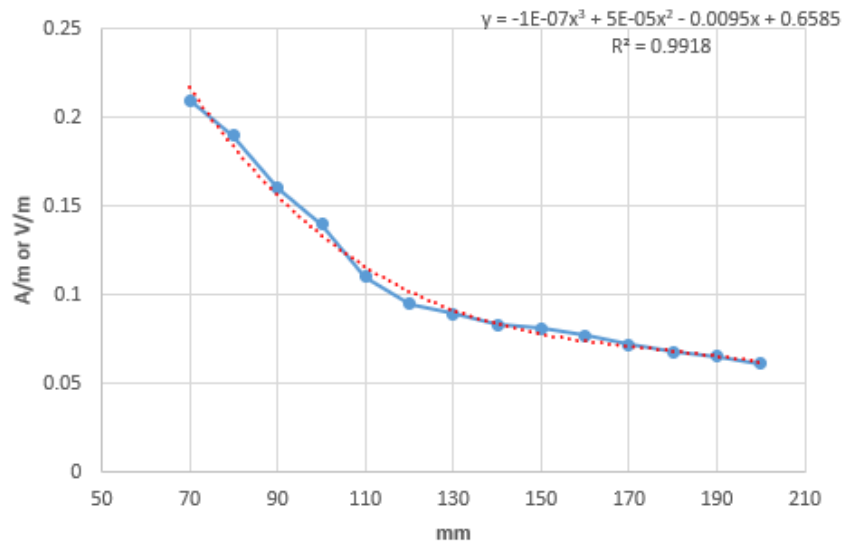
The Data Analysis package included in MS Excel was used to perform the regression analyses.

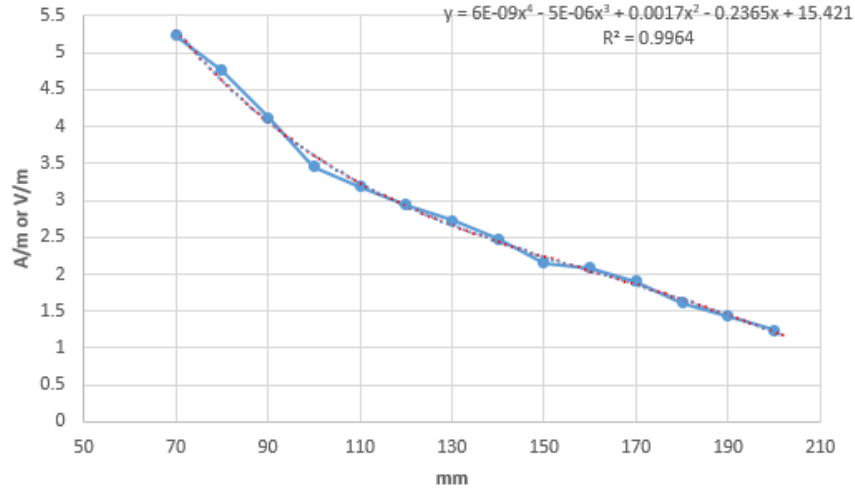
Operating mode (Battery Status: <20%)-Worst case

##### Model 1: Quadratic Regression

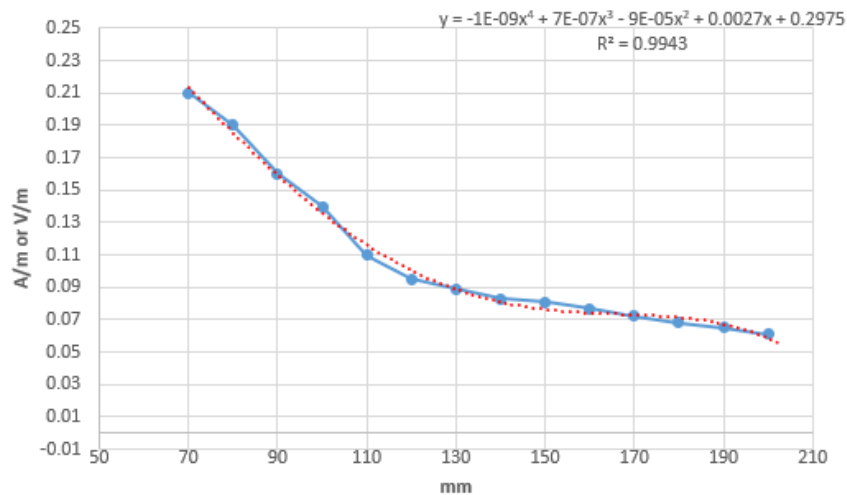
E-Field



**H-Field**

**Model 2: Cubic Regression**  
**E-Field**

**H-Field**


**Model 3: Quartic Regression**  
 E-Field


## H-Field


**Analyzing Results**

## E-Field

| Parameter   | Quadratic Regression | Cubic Regression | Quartic Regression |
|---|----------------------|------------------|--------------------|
| Multiple R  | 0.994                | 0.998            | 0.998              |
| R Square  | 0.988                | 0.996            | 0.996              |
| Adjusted R Square   | 0.986                | 0.995            | 0.995              |
| Standard Error (S)  | 0.145                | 0.085            | 0.089              |
| Number of data points used                                | 14                   | 14               | 14                 |
| Estimated magnetic field strength at touch position (V/m) | 9.467                | 13.872           | 15.421             |
| Limit (V/m)   | 614                  | 614              | 614                |
| Result  | Pass                 |                  |                    |

Note: The regression analysis utilized a confidence level of 95%, which is the minimum value that should be used by applicants, by using curve fitting techniques for modeling and calculation.

**H-Field**

| Parameter   | Quadratic Regression | Cubic Regression | Quartic Regression |
|---|----------------------|------------------|--------------------|
| Multiple R  | 0.990                | 0.996            | 0.997              |
| R Square  | 0.981                | 0.992            | 0.994              |
| Adjusted R Square   | 0.977                | 0.989            | 0.992              |
| Standard Error (S)  | 0.007                | 0.005            | 0.004              |
| Number of data points used                                | 14                   | 14               | 14                 |
| Estimated magnetic field strength at touch position (A/m) | 0.455                | 0.658            | 0.298              |
| Limit (A/m)   | 1.63                 | 1.63             | 1.63               |
| Result  | Pass                 |                  |                    |

Note: The regression analysis utilized a confidence level of 95%, which is the minimum value that should be used by applicants, by using curve fitting techniques for modeling and calculation.

### 4.1.5 Test Result for Coil 1, 360kHz for Phone, 15W max

#### Data Collecting Process

Operating, Device removal and standby modes use the same test method, only the power of the test load is changed. The data only reflects the worst mode EUT+Mobile Phone (battery status: <20%).

| Test Distance (mm) | E-Field (V/m):                            | H-Field (A/m):                            |
|--------------------|---|---|
|                    | EUT + Mobile Phone (Battery Status: <20%) | EUT + Mobile Phone (Battery Status: <20%) |
| 70                 | 1.375                                     | 0.056                                     |
| 80                 | 1.218                                     | 0.054                                     |
| 90                 | 1.136                                     | 0.051                                     |
| 100                | 0.933                                     | 0.049                                     |
| 110                | 0.884                                     | 0.047                                     |
| 120                | 0.842                                     | 0.044                                     |
| 130                | 0.798                                     | 0.039                                     |
| 140                | 0.724                                     | 0.037                                     |
| 150                | 0.658                                     | 0.033                                     |
| 160                | 0.619                                     | 0.030                                     |
| 170                | 0.587                                     | 0.027                                     |
| 180                | 0.532                                     | 0.024                                     |
| 190                | 0.501                                     | 0.020                                     |
| 200                | 0.462                                     | 0.018                                     |

#### Performing Curve-fitting

Four (4) regression techniques were used to validate their model errors.

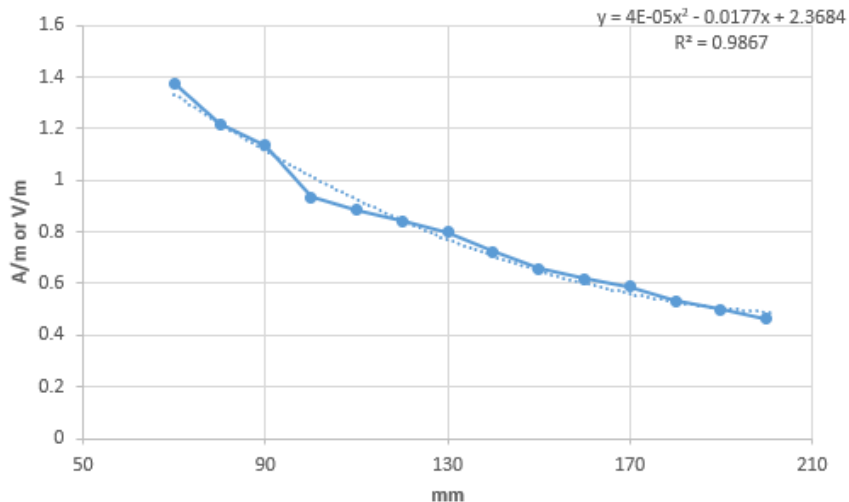
Model 1: Quadratic Regression

Model 2: Cubic Regression

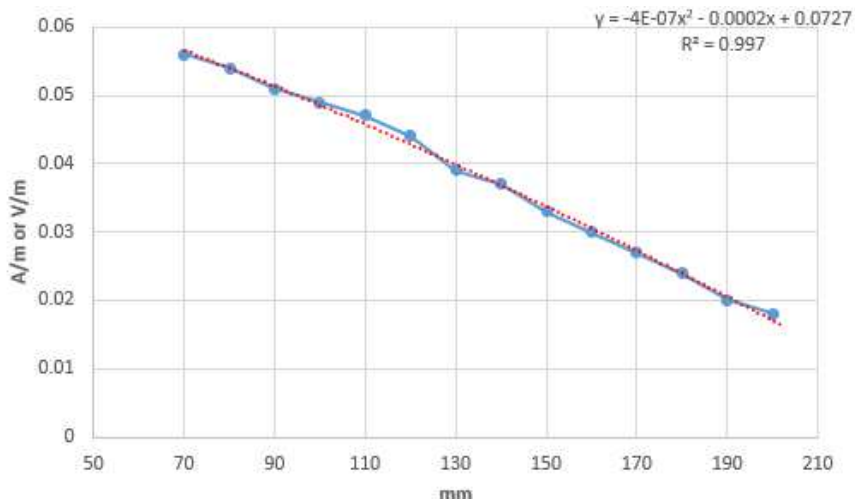
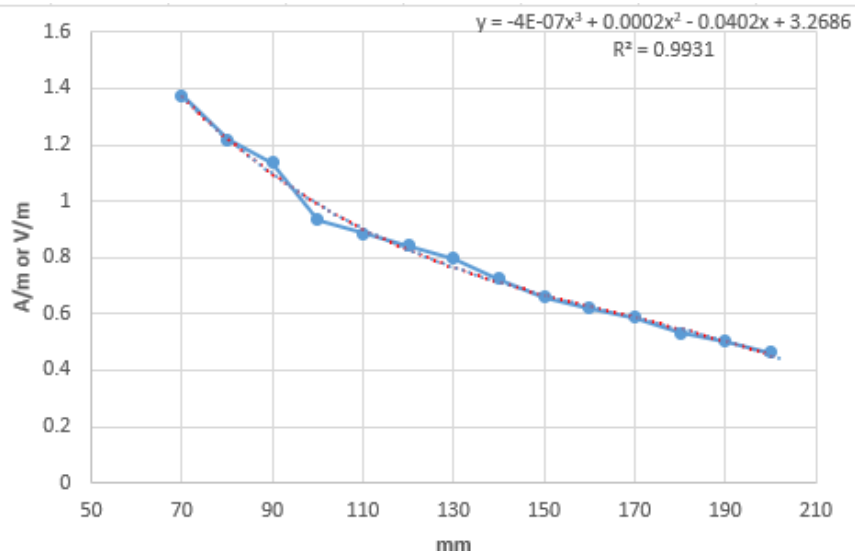
Model 3: Quartic Regression

The Data Analysis package included in MS Excel was used to perform the regression analyses.

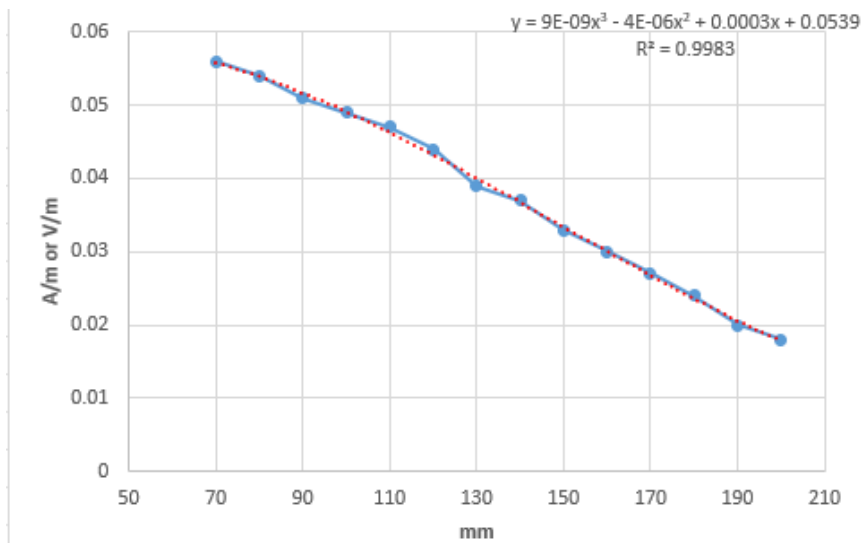
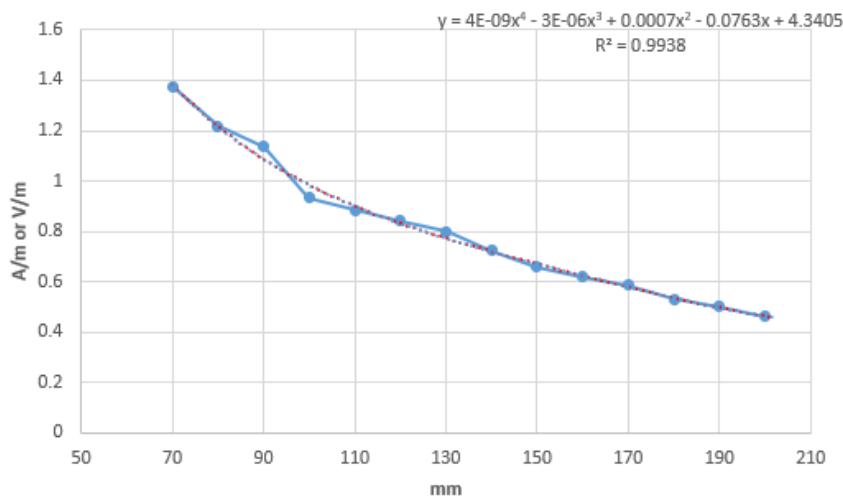
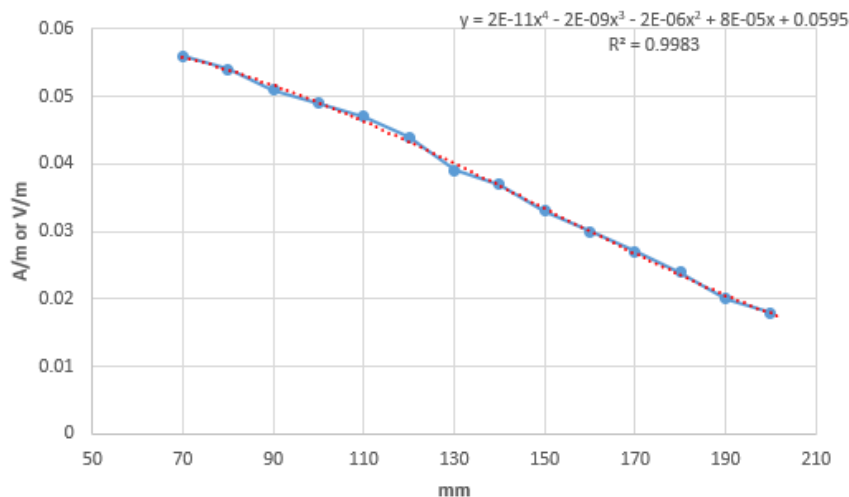
Operating mode (Battery Status: <20%)-Worst case

**Model 1: Quadratic Regression**  
 E-Field


## H-Field


**Model 2: Cubic Regression**  
 E-Field




**H-Field**

**Model 3: Quartic Regression**
**E-Field**

**H-Field**


**Analyzing Results**
**E-Field**

| Parameter   | Quadratic Regression | Cubic Regression | Quartic Regression |
|---|----------------------|------------------|--------------------|
| Multiple R  | 0.993                | 0.997            | 0.997              |
| R Square  | 0.987                | 0.993            | 0.994              |
| Adjusted R Square   | 0.984                | 0.991            | 0.991              |
| Standard Error (S)  | 0.035                | 0.027            | 0.027              |
| Number of data points used                                | 14                   | 14               | 14                 |
| Estimated magnetic field strength at touch position (V/m) | 2.368                | 3.269            | 4.340              |
| Limit (V/m)   | 614                  | 614              | 614                |
| Result  | Pass                 |                  |                    |

Note: The regression analysis utilized a confidence level of 95%, which is the minimum value that should be used by applicants, by using curve fitting techniques for modeling and calculation.

**H-Field**

| Parameter   | Quadratic Regression | Cubic Regression | Quartic Regression |
|---|----------------------|------------------|--------------------|
| Multiple R  | 0.998                | 0.999            | 0.999              |
| R Square  | 0.997                | 0.998            | 0.998              |
| Adjusted R Square   | 0.996                | 0.998            | 0.998              |
| Standard Error (S)  | 0.001                | 0.001            | 0.001              |
| Number of data points used                                | 14                   | 14               | 14                 |
| Estimated magnetic field strength at touch position (A/m) | 0.073                | 0.054            | 0.059              |
| Limit (A/m)   | 1.63                 | 1.63             | 1.63               |
| Result  | Pass                 |                  |                    |

Note: The regression analysis utilized a confidence level of 95%, which is the minimum value that should be used by applicants, by using curve fitting techniques for modeling and calculation.

### 4.1.6 Test Result for Coil 2, 326.5kHz for Apple Watch, 2.5W max

**Data Collecting Process**

Operating, Device removal and standby modes use the same test method, only the power of the test load is changed. The data only reflects the worst mode EUT+Mobile Phone (battery status: <20%).

| Test Distance (mm) | E-Field (V/m):                     |  |
|--------------------|------------------------------------|--|
|                    | EUT + Watch (Battery Status: <20%) | H-Field (A/m):<br>EUT + Watch (Battery Status: <20%) |
| 70                 | 0.803                              | 0.052  |
| 80                 | 0.767                              | 0.050  |
| 90                 | 0.694                              | 0.049  |
| 100                | 0.606                              | 0.046  |
| 110                | 0.584                              | 0.042  |
| 120                | 0.524                              | 0.039  |
| 130                | 0.498                              | 0.038  |
| 140                | 0.449                              | 0.037  |
| 150                | 0.408                              | 0.035  |
| 160                | 0.389                              | 0.032  |
| 170                | 0.373                              | 0.030  |
| 180                | 0.352                              | 0.029  |
| 190                | 0.343                              | 0.028  |
| 200                | 0.338                              | 0.026  |

**Performing Curve-fitting**

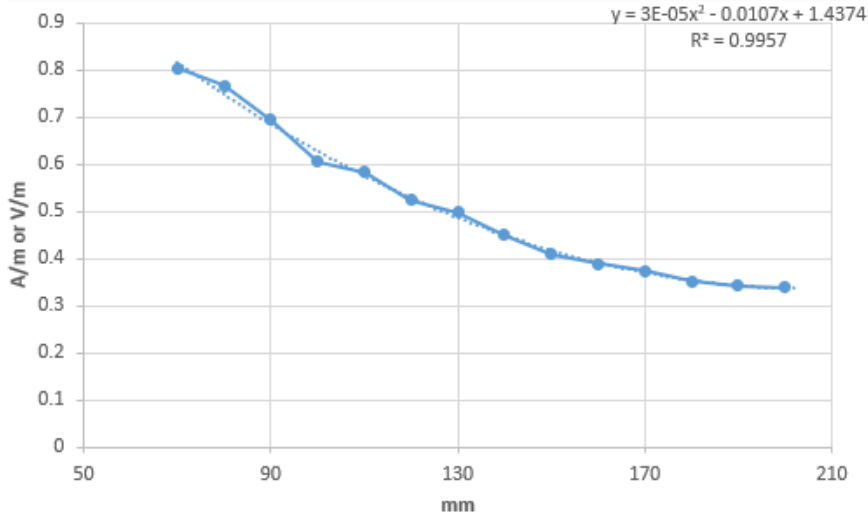
Four (4) regression techniques were used to validate their model errors.

Model 1: Quadratic Regression

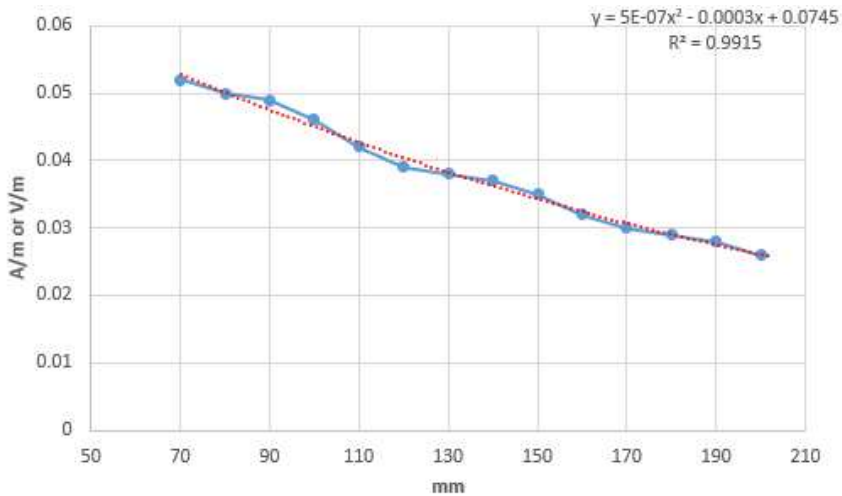
Model 2: Cubic Regression

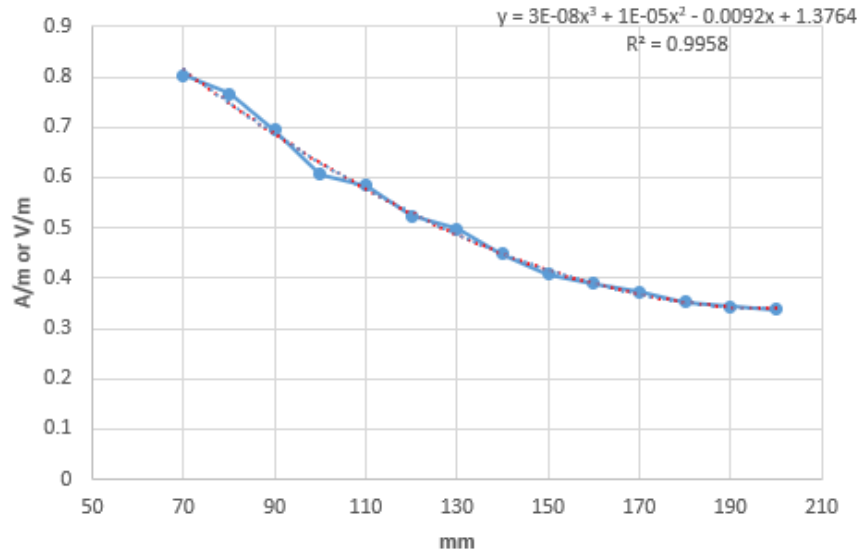
Model 3: Quartic Regression

The Data Analysis package included in MS Excel was used to perform the regression analyses.  
 Operating mode (Battery Status: <20%)-Worst case

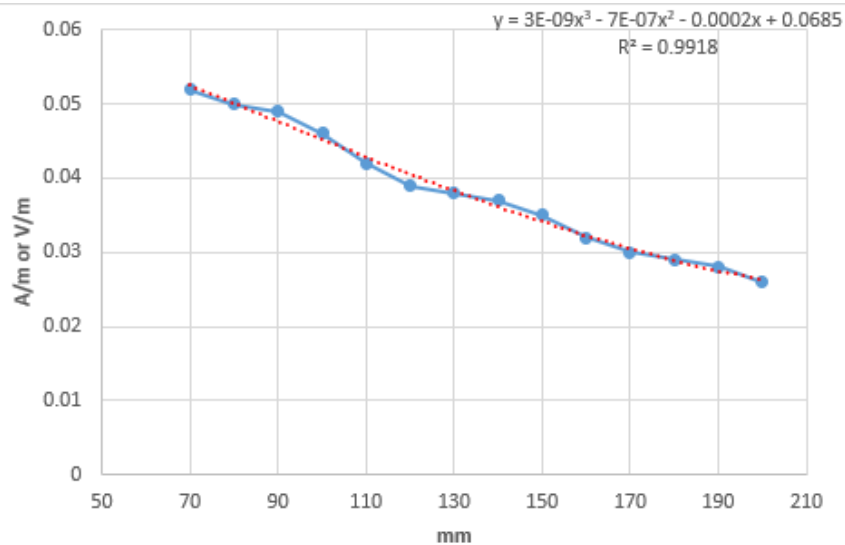
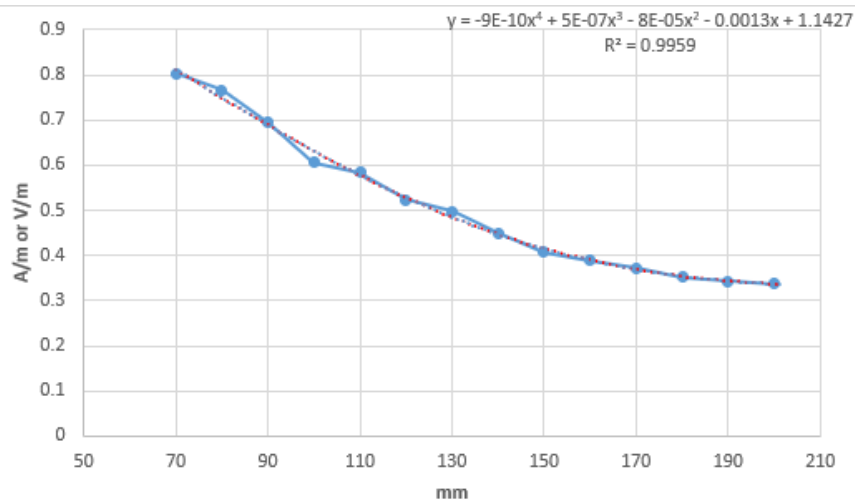
**Model 1: Quadratic Regression**  
 E-Field


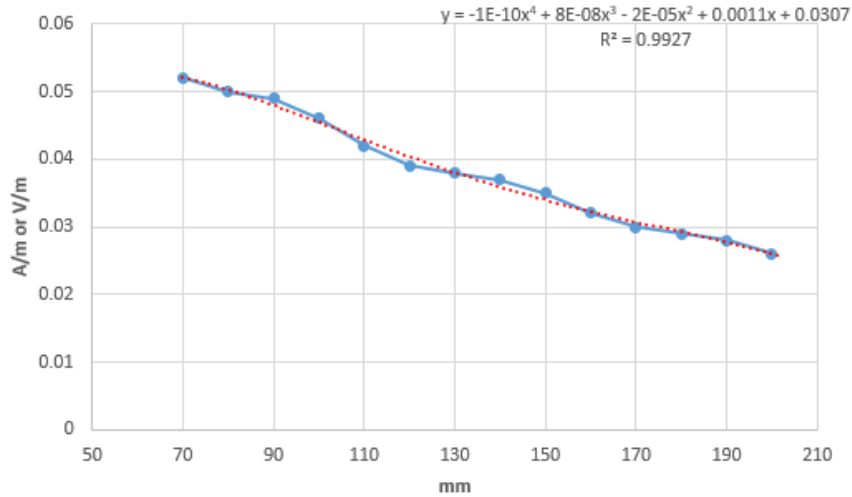
## H-Field



**Model 2: Cubic Regression**  
 E-Field


## H-Field


**Model 3: Quartic Regression**  
 E-Field


**H-Field**

**Analyzing Results**
**E-Field**

| Parameter   | Quadratic Regression | Cubic Regression | Quartic Regression |
|---|----------------------|------------------|--------------------|
| Multiple R  | 0.998                | 0.998            | 0.998              |
| R Square  | 0.996                | 0.996            | 0.996              |
| Adjusted R Square   | 0.995                | 0.995            | 0.994              |
| Standard Error (S)  | 0.011                | 0.012            | 0.012              |
| Number of data points used                                | 14                   | 14               | 14                 |
| Estimated magnetic field strength at touch position (V/m) | 1.437                | 1.376            | 1.143              |
| Limit (V/m)   | 614                  | 614              | 614                |
| Result  | Pass                 |                  |                    |

Note: The regression analysis utilized a confidence level of 95%, which is the minimum value that should be used by applicants, by using curve fitting techniques for modeling and calculation.

**H-Field**

| Parameter   | Quadratic Regression | Cubic Regression | Quartic Regression |
|---|----------------------|------------------|--------------------|
| Multiple R  | 0.996                | 0.996            | 0.996              |
| R Square  | 0.991                | 0.992            | 0.993              |
| Adjusted R Square   | 0.990                | 0.989            | 0.989              |
| Standard Error (S)  | 0.001                | 0.001            | 0.001              |
| Number of data points used                                | 14                   | 14               | 14                 |
| Estimated magnetic field strength at touch position (A/m) | 0.074                | 0.068            | 0.031              |
| Limit (A/m)   | 1.63                 | 1.63             | 1.63               |
| Result  | Pass                 |                  |                    |

Note: The regression analysis utilized a confidence level of 95%, which is the minimum value that should be used by applicants, by using curve fitting techniques for modeling and calculation.

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### 4.1.7 Test Result for Coil 1 + Coil 2, 20W max

**Max. E-Field and H-Field for each coil as below:**

|                               | Max. E-Field<br>V/m | Limit-E-Field<br>V/m | Max. H-Field<br>A/m | Limit-H-Field<br>A/m@SAR |
|-------------------------------|---------------------|----------------------|---------------------|--------------------------|
| Coil 1_110.5-205kHz or 360kHz | 15.421              | 614                  | 0.658               | 1.63                     |
| Coil 1_360kHz                 | 4.340               | 614                  | 0.073               | 1.63                     |
| Coil 2_326.5kHz               | 1.437               | 614                  | 0.074               | 1.63                     |

**Sum E-Field:**

|                                       | Max. E-Field V/m |        | Sum E-Field<br>V/m | Limit-E-Field<br>V/m | Result |
|---------------------------------------|------------------|--------|--------------------|----------------------|--------|
|                                       | Coil 1           | Coil 2 |                    |                      |        |
| Coil 1@110.5-205kHz + Coil 2@326.5kHz | 15.421           | 1.437  | 16.858             | 614                  | Pass   |
| Coil 1@360kHz + Coil 2@326.5kHz       | 4.340            | 1.437  | 5.777              | 614                  | Pass   |

**Sum H-Field:**

|                                       | Max. H-Field A/m |        | Sum H-Field<br>A/m | Limit-H-Field<br>A/m | Result |
|---------------------------------------|------------------|--------|--------------------|----------------------|--------|
|                                       | Coil 1           | Coil 2 |                    |                      |        |
| Coil 1@110.5-205kHz + Coil 2@326.5kHz | 0.658            | 0.074  | 0.732              | 1.63                 | Pass   |
| Coil 1@360kHz + Coil 2@326.5kHz       | 0.073            | 0.074  | 0.147              | 1.63                 | Pass   |

## 5 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

## 6 List of Tables

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