

Prüfbericht-Nr.: Test report no.:	CN2597P9 002	Auftrags-Nr.: Order no.:	170423650	Seite 1 von 17 Page 1 of 17
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2025.06.26	
Auftraggeber: Client:	Shenzhen Xingfangshi Optoelectronic Technology Co., Ltd. Haiyuan International Financial Center 1716, No. 8 Fu'an Avenue, Pinghu Street, Longgang District, Shenzhen			
Prüfgegenstand: Test item:	Wireless Power Bank			
Bezeichnung / Typ-Nr.: Identification / Type no.:	ROLE37, ROLE38, ROLE39, ROLE40, ROLE41, ROLE42 (Trademark: RociLife)			
Auftrags-Inhalt: Order content:	Test Report			
Prüfgrundlage: Test specification:	CFR47 FCC Part 1.1310 CFR47 FCC Part 2.1091 KDB 680106 D01 RF Exposure Wireless Charging			
Wareneingangsdatum: Date of sample receipt:	2025.06.26			
Prüfmuster-Nr.: Test sample no.:	170423650-004			
Prüfzeitraum: Testing period:	2025.06.26 - 2025.07.07			
Ort der Prüfung: Place of testing:	Refer to section 2.1			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Guangdong) Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:			genehmigt von: authorized by:	
Datum: Date:	2025.08.21	Ausstellungsdatum: Issue date:		2025.08.21
Stellung / Position:	Sachverständige(r)/Expert	Stellung / Position:		Sachverständige(r)/Expert
Sonstiges / Other:	FCC ID: 2BQK8-ROLE37			
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* 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				
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. 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.				

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Anmerkungen
Remarks

1	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. Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden. <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>
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3	Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt. <i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i> <i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i>
4	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. <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>

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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 setup photos

2 Test Sites

2.1 Test Facilities

Shenzhen LGT Test Service Co., Ltd.

Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China

FCC Accreditation Designation No.: CN1333

TÜV Rheinland (Guangdong) Co., Ltd. subcontract all test to Shenzhen LGT Test Service Co., Ltd. And all tests at this site have been conducted under the supervision of a TÜV Rheinland engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

EMF					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Until
Magnetic Amplitude and Gradient Probe System	SPEAG	MAGPy-8H3D+E3D V2.6 & MAGPy-DAS V2.6	3107 & 3097	2025.03.15	2026.03.14

Test equipment: MAGPy-8H3D+ED3	
Diameter	60mm
8 isotropic H-field sensors	Concentric loops of 1cm ² arranged at the corner of a cube of 22mm side length
1 isotropic E-field sensor	Orthogonal dipole/monopole (arm length:50mm)
Measurement center	18.5mm from the probe tip
Dimensions	110*635*35mm (MAGPy-8H3D+E3D V2 & MAGPy-DAS V2)
	
Test probe, without the casing	

Item	Requirement	Specification
Test frequency range:	3kHz ~ 10MHz	3kHz ~ 10MHz
Probe sensitivity	≤ 1 V/m for E-field measurements ≤ 1 A/m for H-field measurements against the NS-based reference level $\leq 0.1/f_{MHz}$ A/m for H-field measurements against the SAR-based reference level	E-filed: 0.08-2000 V/m H-filed: 0.1-3200 A/m
Probe level response	± 1 dB	E-filed: ± 1 dB H-field: ± 1 dB
Probe linear range	-10dB ~ 5dB	E-filed: 0.08-2000 V/m H-filed: 0.1-3200 A/m
linearity error	± 0.5 dB	E-filed: ± 0.3 dB H-field: ± 0.3 dB
Antenna size	Dp(E-filed): 50mm Dp(H-filed): 1mm	
Isotropy	± 1 dB	E-filed: ± 0.8 dB H-field: ± 0.6 dB

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

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Table 2: Measurement Uncertainty

Parameter	Uncertainty
Magnetic field measurements (100kHz~100MHz)	$\pm 13.8\%$
Electric field measurements (100kHz~100MHz)	$\pm 15.5\%$

2.6 Location of Original Data

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

2.7 Status of Facility Used for Testing

The Shenzhen LGT Test Service Co., Ltd. Test facility located at Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, 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 Product is Wireless Power Bank, which supports wireless charging (WPT) function.
This report is for WPT EMF.
Model list: ROLE37, ROLE38, ROLE39, ROLE40, ROLE41, ROLE42
All the models are identical with each other, except for their model's name, colour and decorate.

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	Description
Kind of Equipment:	Wireless Power Bank
Type Designation:	ROLE37
Operating Voltage:	USB-C input/Wire USB-C input: 5VDC,3A/9VDC,2A/12VDC,1.5A; USB-C output/Wire USB-C output: 5VDC,2A/9VDC,2.2A/12VDC,1.67A; Wireless charging output: 15W Max.; Total output: 5VDC, 3A(15W Max.)
Testing Voltage:	DC 5V/9V/12V (Rated)
Temperature Range:	-20°C ~ +65 °C
FCC ID:	2BQK8-ROLE37
Technical Specification of WPC	
Frequency Range:	111-205kHz
Type of Modulation:	FSK
Antenna Type	Induction coil
Wireless output	5W, 7.5W, 10W, 15W

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Wireless output(5W, 7.5W, 10W, 15W) find worst-case.
- B. On, Stand by

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- Block Diagram
- Model Difference Letter
- User Manual
- Operation Description
- FCC Label and Location Info
- Schematics

3.6 Test Setup Diagram

Diagram of Measurement Configuration (10cm distance):

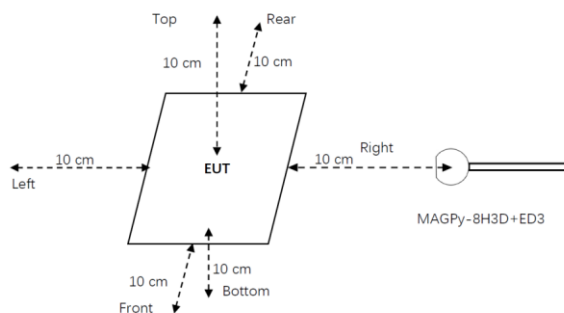
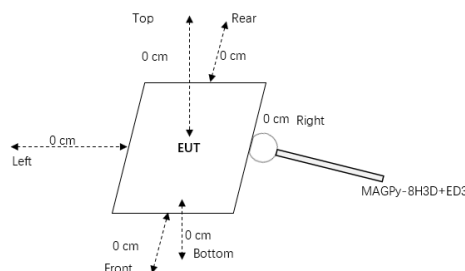


Diagram of Measurement Configuration (0cm distance):



Note: For H-Field measurement, tips mode of the test probe is used. For E-Field measurement the center mode of the probe is used, and curve-fitting method refer to ISED Notice 2024-DRS0004.

3.7 Test Procedures

- a). The RF exposure test was performed in anechoic chamber.
- b). E and H-field measurements performed under the § 2.1093-Portable conditions, as a conservative evaluation. (This WPT will be fixed installed on the vehicle)
- c). The highest emission level was recorded and compared with limit.
- d). The EUT was measured according to the dictates of KDB 680106 D01 Wireless Power Transfer v04.

3.8 Special Accessories and Auxiliary Equipment

Accessories Equipment

Description	Manufacturer	Model	S/N	Rating
USB-C to USB-C Cable	N/A	N/A	N/A	0.3m

Auxiliary Equipment for RF

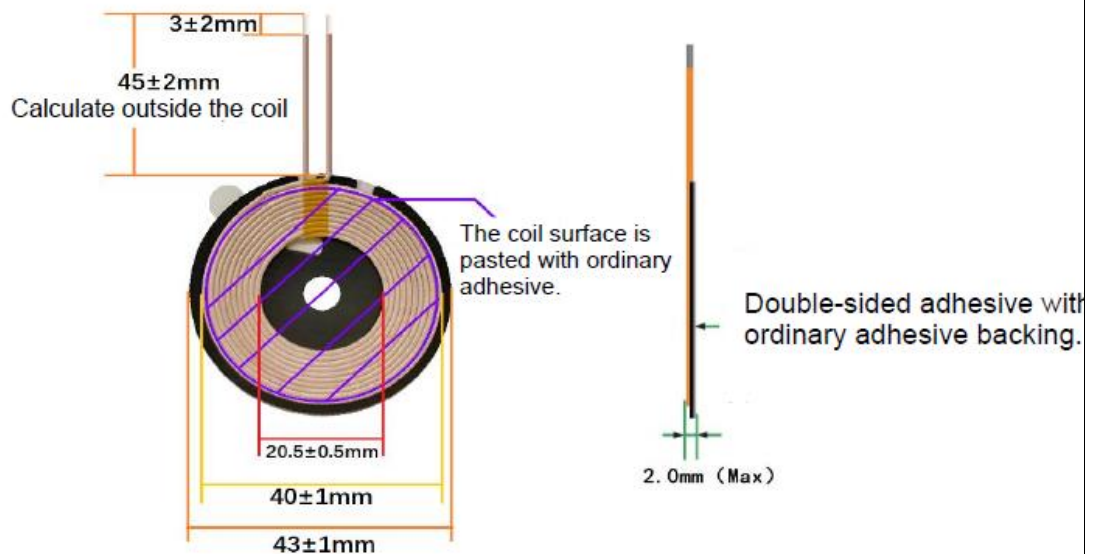
Description	Manufacturer	Model	S/N	Rating
Adapter	HuntKey	HKA06520033-0C1	N/A	Input: 100-240V ~ 50/60Hz 1.8A Output: 5V3A or 9V3A or 12V3A or 15V5A or 20V3.25A
Wireless Charger Load	YBZ	RX005	N/A	5W, 7.5W, 10W, 15W

3.9 Coil Description

1	Antenna number:	Primary coil*1
2	Input inductance:	6.3uH±10%
3	Method(s) of shielding	Passive shielding
4	Coil diameter:	Outer radius: 40 ± 1 mm Inner radius: 20.5 ± 0.5mm

Coil to the outer surface of the enclosure(s)

Product shape and size Product Appearance & Dimensions (Unit: mm)



4 RF exposure information

4.1 Test procedures according to the technical standards:

§1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

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
300-1500			f/300	<6
1500-100000			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
300-1500			f/1500	<30
1500-100000			1.0	<30

f = frequency in MHz

* = Plane-wave equivalent power density

Note 1: 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.

Note 2: 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.

4.2 Test result

Operating mode with client device (0mm)

Notes: The H-field results is used the tips mode of the test probe. The E-field results is used the curve-fitting method, please refer to the curve-fitting test report. All modes are tested, the result only shown the worst test mode.

H-field Test Result

Mode A: Charging mode:

Operating(kHz)			
Battery levels	Test sides	Test distance(cm)	H-field(A/m)
<1%	Top	0	0.64
<1%	Bottom	0	1.08
<1%	Left	0	1.21
<1%	Right	0	1.19
<1%	Front	0	1.12
<1%	Back	0	0.89
Limit			1.63
Margin Limit (%)			74.23%

Mode B: Standby mode

Operating(kHz)			
Battery levels	Test sides	Test distance(cm)	H-field(A/m)
<1%	Top	0	1.29
<1%	Bottom	0	1.15
<1%	Left	0	1.22
<1%	Right	0	1.24
<1%	Front	0	1.06
<1%	Back	0	1.02
Limit			1.63
Margin Limit (%)			79.14%

E-field Test Result

Curve-fitting analysis

1. Locating the Maximum Field Strength (MFS)

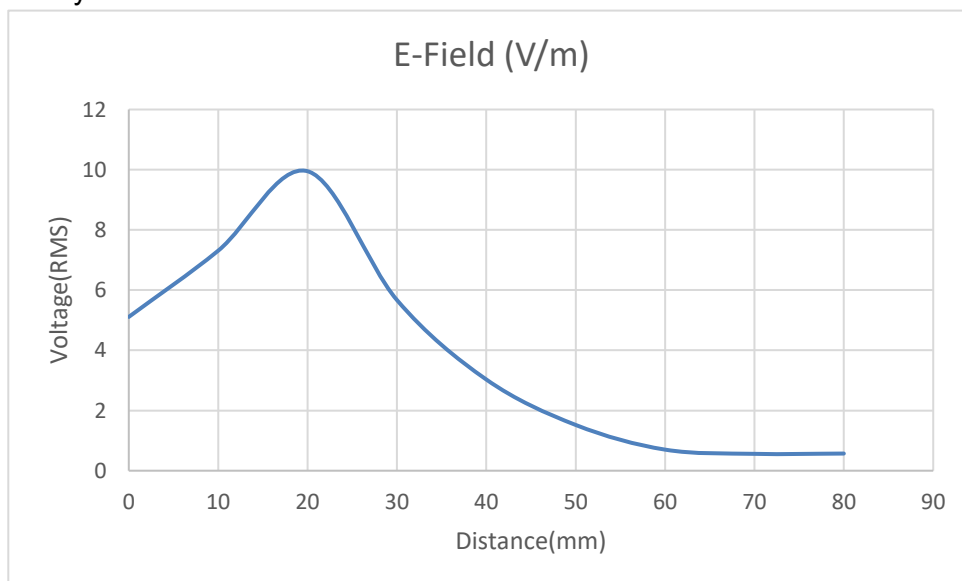
EUT will be a coil with the following parameters :

- Outer radius: 20 mm
- Inner radius: 10.25 mm
- Number of turns: 10
- Current: 1 A rms
- Frequency: 111~205 kHz

1. A grid of 5mm by 5mm is used due to the size of the EUT and the probe.
2. These initial measurements are made at Z = 55 mm from the surface of the XY plane.
3. The MFS of the magnetic field is located at 20 mm from the center of the coil (9.95 V/m)

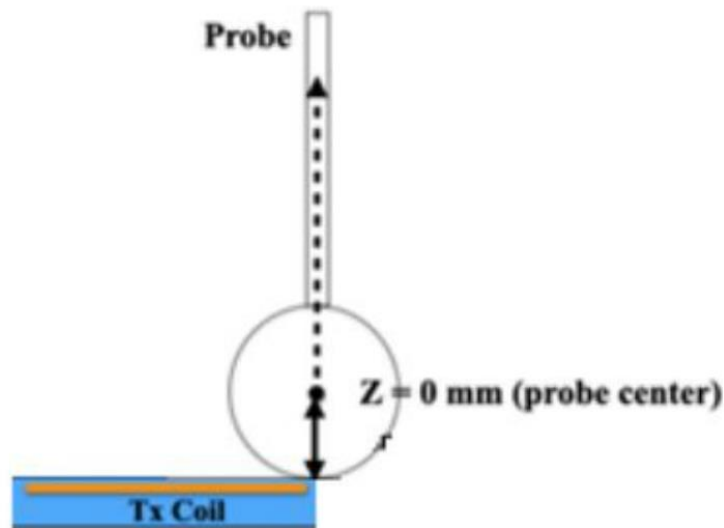
Distance (mm)	E-Field (V/m)	
	Mode A Charging mode	Mode B Standby mode
0	5.11	5.1
10	7.31	6.32
20	9.95	8.81
30	5.67	5.4
40	3.03	2.89
50	1.52	1.48
60	0.7	0.66
70	0.56	0.54
80	0.57	0.56

Note: Through the measurement and analysis of MFS data from mode A to mode B, it is concluded that mode A produces the maximum MFS point field strength, and the worst case is mode A. Only the MFS of mode A is reflected in the report. Subsequent data collection and analysis is performed using mode A only.



2. Data Collecting Process

Measurements are made perpendicular to the XY plane ;
Locate the MFS in the XY plane ;



Note: The MFS of the magnetic field is located at 20 mm from the center of the coil (9.95 V/m)

Start gathering the data ;

Once the MFS is located, we proceed to collect the 11 measurement points that will be used to build the predictive model. We measured 11 data points at varying distances (z-direction) and 20 mm from the center of the coil. The resulting data is captured in table below :

Distance (mm)	E-Field (V/m)
55	9.95
65	8.65
75	7.65
85	6.85
95	6.17
105	5.43
115	4.81
125	4.11
135	3.39
145	2.72
155	2.12

3. Performing Curve-fitting

We use four regression techniques to validate their model errors.

Model 1: Linear Regression

Model 2: Quadratic Regression

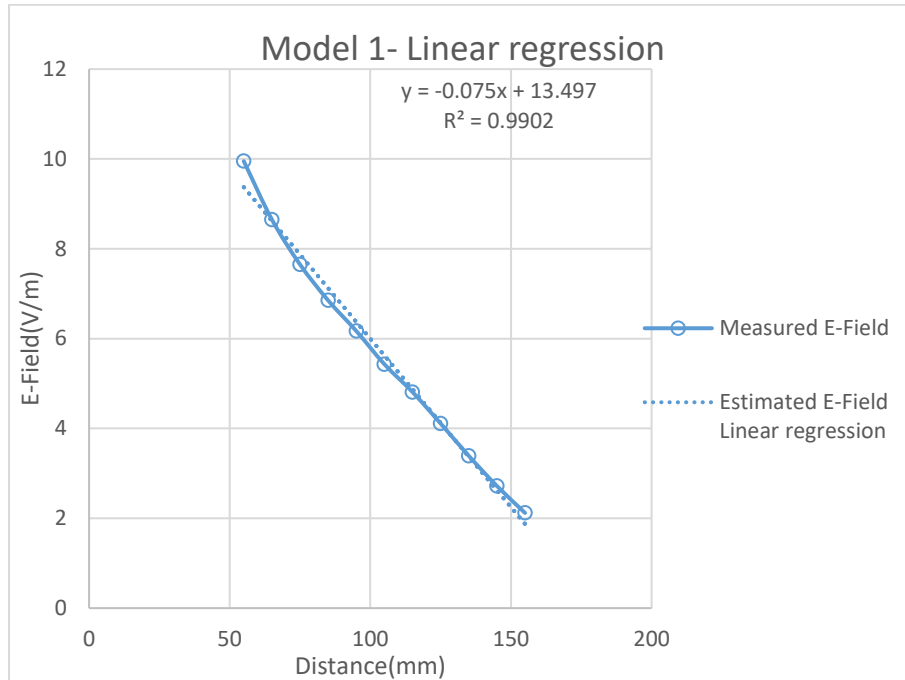
Model 3: Cubic Regression

Model 4: Four times regression

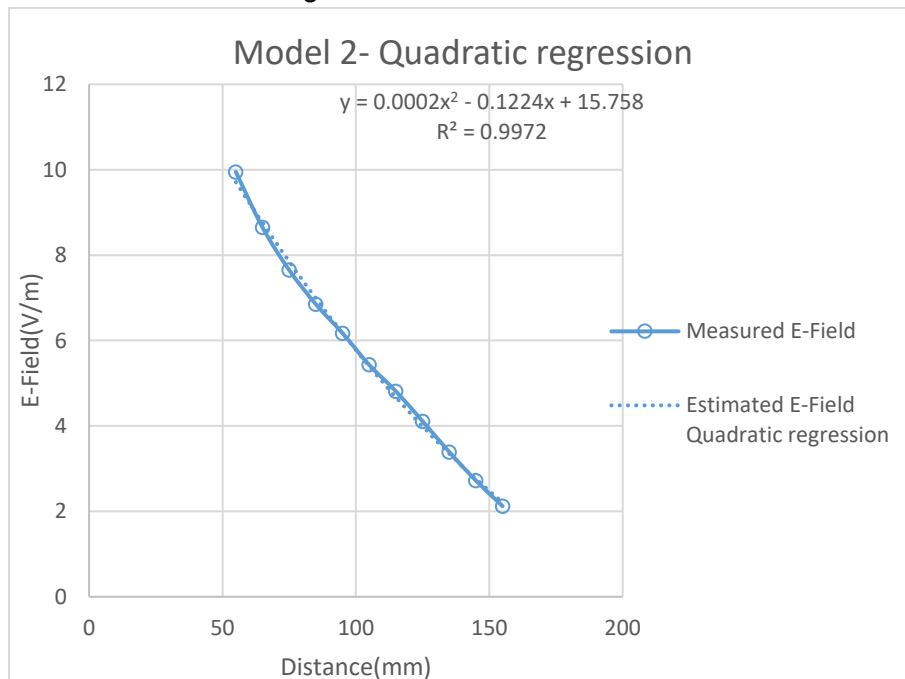
Each regression model will use the 11 data points from Table 1. The Data Analysis package included in MS Excel was used to perform the regression analyses.

Note: Linear regression model would never be a suitable for characterization of the E and/or H field at the distance being evaluated for NS. This model was only included in the report to illustrate error analysis and not to establish a baseline for model selection.

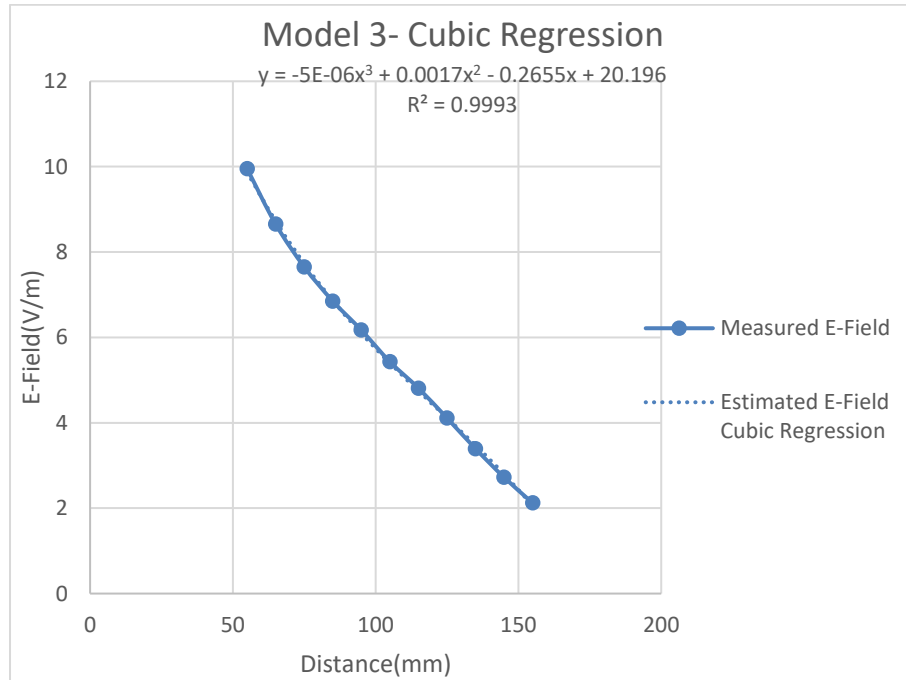
Model 1: Linear Regression



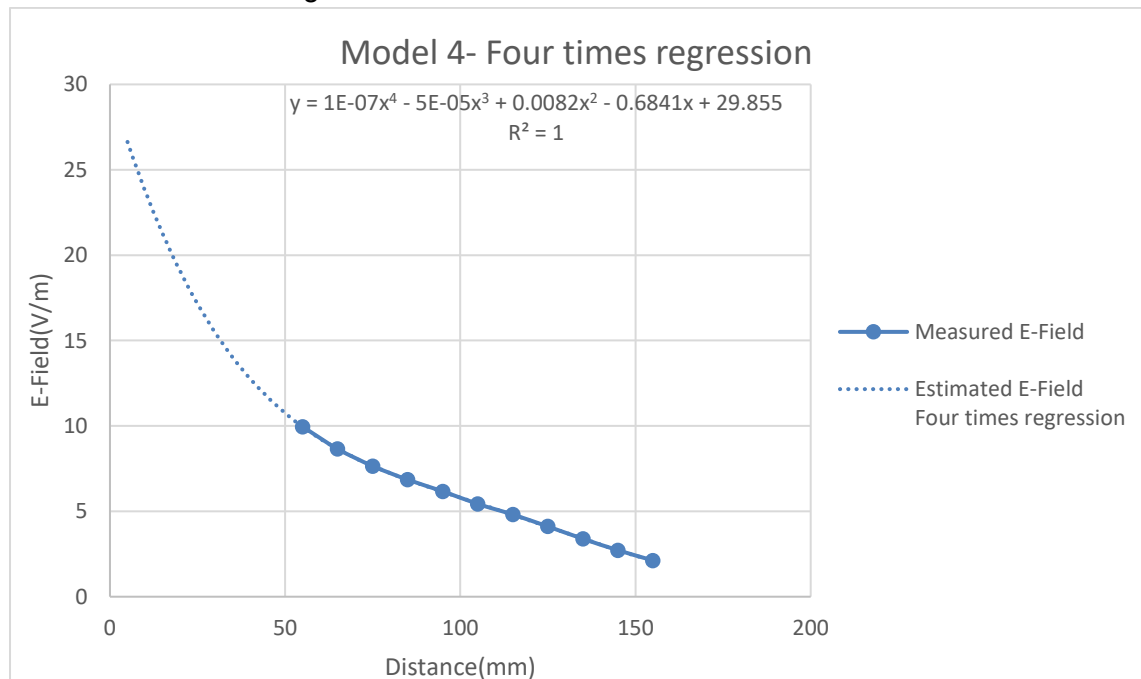
Model 2: Quadratic Regression



Model 3: Cubic Regression



Model 4: Four times regression



4. Analyzing the Results

Parameter	Linear Regression Model	Quadratic Regression Model	Cubic Regression Model	Four times regression Model
Multiple R	0.995	0.999	1.000	1.000
R Square	0.990	0.997	0.999	1.000
Adjusted R Square	0.989	0.997	0.999	1.000
Standard Error (S)	0.261	0.148	0.081	0.022
Number of data points used	11	11	11	11
Estimated magnetic field strength at touch position (V/m)	13.497	15.758	20.196	29.855

Note :

1. The model 1 linear regression model would never be a suitable for characterization of the E and/or H field at the distance being evaluated for NS. This model was only included in the report to illustrate error analysis and not to establish a baseline for model selection.
2. In Four times regression Model, if the plot the curve from 50mm down to the touch position and find that the curve collapses down as the distance becomes smaller, it means that the model is overfitting, resulting in abnormal results, so the results will not be accepted.

As shown in above, the Cubic Regression Model produced the lowest standard error, and is below the minimum standard error threshold of 15% that ISED prescribes. 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, it can be inferred that the electric field at a distance of 0mm is 29.855 V/m, which is less than the limit value of 83 V/m.

The judgment result is pass.

5 Photographs of the Test Set-Up

Refer to Appendix A.

-----END OF REPORT-----

Appendix A: Photographs of the Test Set-Up

APPENDIX A: PHOTOGRAPHS OF THE TEST SET-UP	1
PHOTOGRAPH 1: SET-UP PHOTO FOR SAFETY HUMAN EXPOSURE	2

Photograph 1: Set-up photo for Safety Human Exposure

