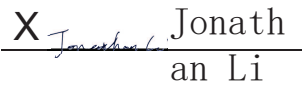


Prüfbericht-Nr.: <i>Test report no.:</i>	DE25HFLW 003	Auftrags-Nr.: <i>Order no.:</i>	168530508	Seite 1 von 21 <i>Page 1 of 21</i>
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2025-01-10	
Auftraggeber: <i>Client:</i>	Axis Communications AB Gränden 1, SE-223 69 Lund, Sweden			
Prüfgegenstand: <i>Test item:</i>	Network Video Door Station			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	AXIS I8307-VE			
Auftrags-Inhalt: <i>Order content:</i>	Test Report			
Prüfgrundlage: <i>Test specification:</i>	47 CFR FCC Part 1.1310 RSS-102 Issue 6			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2025-03-02	Refer to Photo Documentation		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003910070-001~006			
Prüfzeitraum: <i>Testing period:</i>	2025-02-28 – 2025-004-20			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	genehmigt von: <i>authorized by:</i>			
				
Datum: <i>Date:</i>	2025-08-26		Ausstellungsdatum: <i>Issue date:</i> 2025-08-26	
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position: Sachverständige(r)/Expert	
Sonstiges / <i>Other:</i>	FCC ID: PNB-AXIS I8307-VE IC:3919A-I8307VE HVIN: I8307-VE			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <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				
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. <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	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: Photographs of the Test Set-up

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

2-3F, 101 & 102, No.2, Nuclear Power Industrial Park, Fuming Community, Fucheng Street, Longhua District, Shenzhen 518000, People's Republic of China

FCC Test Site Number: CN1260

ISED Test Lab CAB identifier:CN0078

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

EMF						
Equip. No.	Description	Manufacturer	Model	Serial No.	Calibrated Date (DD.MM.YYYY)	Calibrated until (DD.MM.YYYY)
9050046	Electric and Magnetic Field Analyzer	Narda	EHP200A	180ZX20517	22.09.2023	21.09.2025

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)	1.5dB
Electric Field Emissions (V/m)	1.5dB
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

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

TÜV Rheinland (Shenzhen) Co., Ltd. test facility located at 2-3F, 101 & 102, No.2, Nuclear Power Industrial Park, Fuming Community, Fucheng Street, Longhua District, Shenzhen 518000, People's Republic of 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 network video intercom supporting RFID and T-coil induction technology.

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

3.2 Ratings and System Details

Table 3: Rating of EUT

General Information of EUT	Description
Kind of Equipment	Network Video Intercom
Type Designation	AXIS I8307-VE
Trademark	AXIS
Operating Temperature Range	-30 °C - +55 °C
Operating Voltage	DC 24V via AC/DC adapter or PoE power supply
Extreme Voltage	DC 18V ~ 28V via AC/DC adapter, DC 44V ~ 57V via PoE

Table 4: Technical Specification of EUT

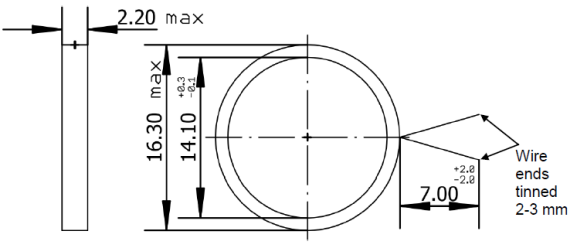
Raido Characteristics	Description
Permitted Frequency Band:	13.553 MHz to 13.567 MHz; 119 kHz to 140 kHz
Operating Frequency:	13.56 MHz; 125 kHz
Type of Modulation:	ASK
Channel Number:	1 Channel
Antenna Type:	Internal Coil Antenna
Product Class:	1

3.3 Operation Modes

The basic operation modes are:

- A. On, RFID active
 - a) 13.56 MHz operating
 - b) 125 kHz operating
- B. Idle
- C. Off

3.4 Coil Specifications

13.56 MHz	125 kHz
- Length: 35mm - Width: 50mm - Track thickness: 35µm - Track width: 1.1mm - Gap between tracks: 400µm - Number of antenna loop turns: 3 - Antenna inductance: 847nH - Antenna resistance: 0.22Ω 	 - Inductance: 490µH ± 5% - Diameter of wire: 0.10 mm - Coil is fixed by using backed wire - Leadfree and RoHS conform

3.5 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.6 Submitted Documents

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

3.7 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N
Laptop PC	Lenovo	Thinkpad T480	10Q67059
Power Supply	RS PRO	LIF120-10B24	N/A
PoE Midspan	Axis Communications	POEA30U-1ATE	02172-004
Electric Door Strike	Assa	Solid 14 24V	N/A

Table 6: List of Ports and Cables

Description	Specification	Max. Length	Cable Classification
Ethernet Cable	CAT5E/6 STP Cable, shielded	≥ 30 m	Wired Network Port
Relay cable	Two wire conductor cable, 24VD, unshielded	≤ 30 m	Signal/Control Port
I/O cable	Multi conductor cable, 4 x I/O ports, unshielded	≤ 30 m	Signal/Control Port
RS-485 cable	Multi conductor cable, RS-485 A/B type, unshielded	≥ 30 m	Signal/Control Port
Audio line-in/out	Dual shielded cables	< 3m	N/A

4 Radio Frequency Exposure Compliance

4.1 Test Procedures According to the Technical Standards

For FCC 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 section 1.1307(b), except in the case of portable device which shall be evaluated according to the provisions of FCC part 2.1093

For IC, RSS-102 shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in standard.

Standard Section	Test Item	Judgment
CFR 47 Part 1, section 1.1310 RSS-102 — Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus 447498 D01 General RF Exposure Guidance v06	Electric Field Strength (E) (V/m)	PASS
	Magnetic Field Strength (H) (A/m)	PASS

4.2 Limit of Maximum Permissible Exposure

For FCC, following limits

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

For IC, following limits

Electric field strength reference levels (3 kHz to 10 MHz)

Frequency range (MHz)	Reference level basis	Reference level (E_{RL}) for uncontrolled environment (V_{RMS}/m)	Reference level (E_{RL}) for controlled environment (V_{RMS}/m)	Reference period
0.003 -10	NS	83	170	Instantaneous
1.10-10	SAR	$87 / f^{0.5}$	N/A	6 minutes
1.29-10	SAR	N/A	$193 / f^{0.5}$	6 minutes

Magnetic field strength reference levels (3 kHz to 10 MHz)

Frequency range (MHz)	Reference level basis	Reference level (H_{RL}) for uncontrolled environment (A_{RMS}/m)	Reference level (H_{RL}) for controlled environment (A_{RMS}/m)	Reference period
0.003-10	NS	90	180	Instantaneous
0.1-10	SAR	$0.73 / f$	$1.6 / f$	6 minutes

Electric field strength reference levels and magnetic field strength levels (10 MHz to 300 GHz)

Frequency range (MHz)	Electric field (V_{RMS}/m)	Magnetic field (A_{RMS}/m)	Power density (W/m^2)	Reference period (minutes)
10-20	27.46	0.0728	2	6
20-48	$58.07 / f^{0.25}$	$0.1540 / f^{0.25}$	$8.944 / f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000 / f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000 / f^{1.2}$

4.3 Test result

4.3.1 Test Result for 125 kHz

Test Setup and Procedure

For RFID 125 kHz operation, the device is placed directly in contact with the transmitter. The measurement probe was placed at test distance which is between the edge of the EUT and the geometric center of probe.

The electric field strength & H-field measurement results from all applicable edges surrounding the DUT while it is actively operating the device are performed. The highest measured level was recorded and compared with limit.

Assessment for FCC

For RFID 125 kHz operation, the maximum measured field strength of EUT is 51.72 dBuV/m at 3m according to ANSI C63.10, which converts to a RF output power of -55.3 dBm (0.00000134 mW). In accordance with KDB 447498 D06 section 4.3.1 c)2), it's far below the applicable SAR test exclusions thresholds. SAR testing is not required.

Following calculation of RF exposure for reference.

Transmit Frequency (kHz)	Max field strength (dBuV/m)	Max Output Power (dBm)	Max. Output Power (mW)	Min. separation (mm)	Result (calculate)	Limit of Power density
					FCC (mW/cm ²)	FCC (mW/cm ²)
125	51.72	-55.30	0.0000030	200	0.0000000006	100

Conclusion:

The device complies with the FCC RF exposure requirements.

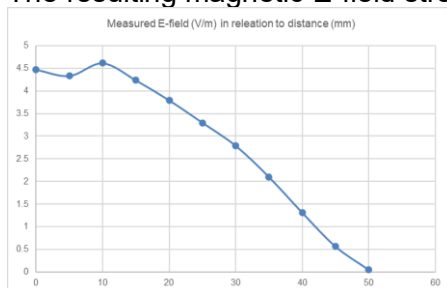
Measured Results for ISED

The Probe parameters as below:

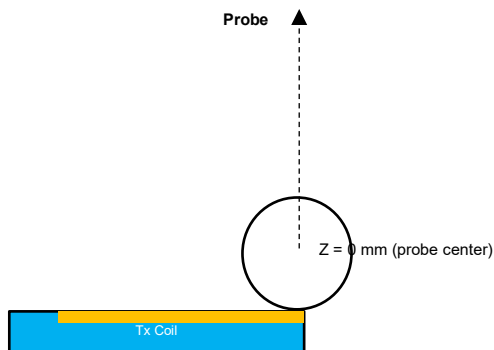
Probe: EHP200A	Probe Center to edge	46mm
	E-field Sensor Dp	52mm
	H-field Sensor Dp	76mm
	1.7Dp E-field	88mm
	1.7Dp H-field	129mm

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; as an 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 E-field strength was plotted against the distance in below figure:

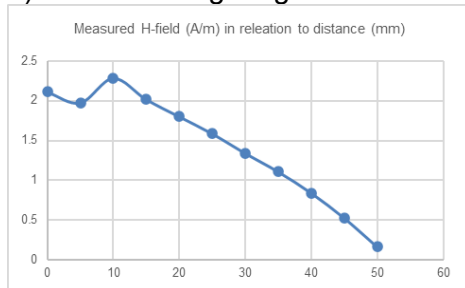


7. The maximum E-field strength (4.583V/m) on this plot occurs at 10 mm from the center of the coil
8. The probe must therefore be placed at 20 mm from the center of the coil to gather electric or magnetic values when measuring along the Z-axis



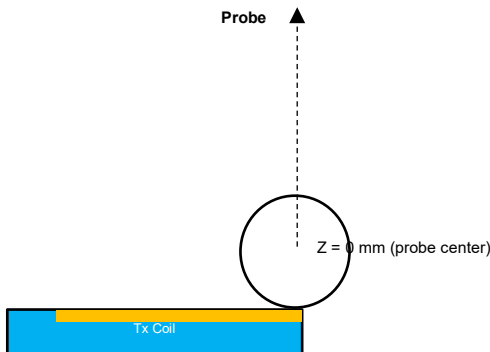
9. Repeat the step1~8 to confirm the maximum H-field strength:

1) The resulting magnetic H-field strength was plotted against the distance in below figure:



2) The maximum H-field strength (2.256A/m) on this plot occurs at 10 mm from the center of the coil

3) The probe must therefore be placed at 10 mm from the center of the coil to gather electric or magnetic values when measuring along the Z-axis



10. Test was performed on operating mode with RFID card, here the worst-case status data are shown.

Testing were performed on 125 kHz for RFID operating, only the worst case was recorded as below:

Electric field level & Magnetic field:

Test Distance (mm)	E-field (V/m) Front	H-field (A/m) Front
70	4.583	2.256
80	4.044	1.557
90	3.394	0.910
100	2.658	0.316
110	1.837	0.254
120	0.957	0.212
130	0.410	0.110
140	0.389	0.050
150	0.375	0.048
160	0.363	0.049
170	0.349	0.048
180	0.363	0.049
190	0.346	0.050
200	0.359	0.049

Performing Curve-fitting

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

Model 1: Quadratic Regression

Model 2: Cubic Regression

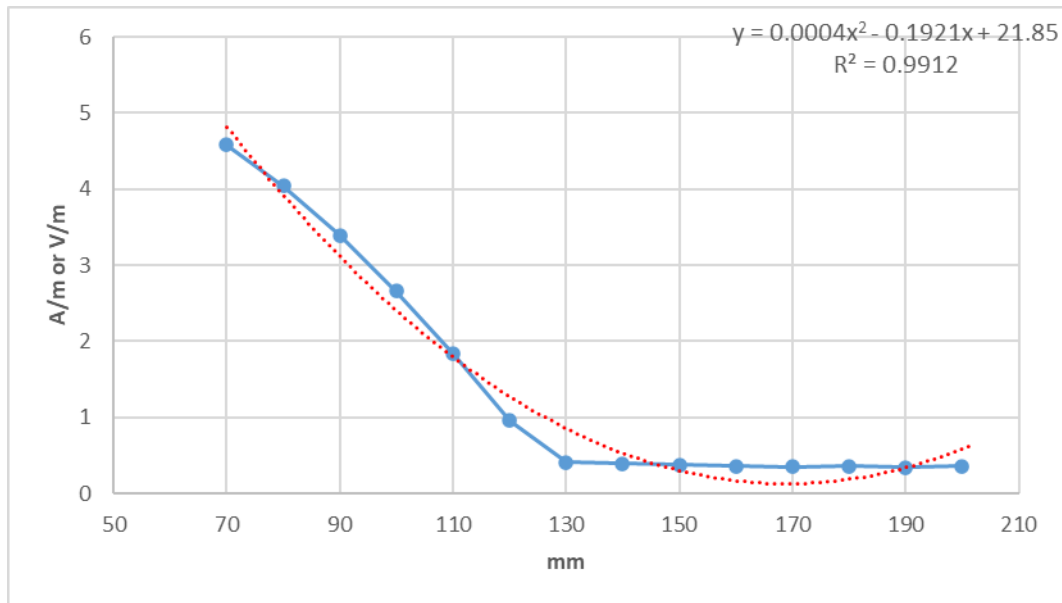
Model 3: Quartic Regression

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

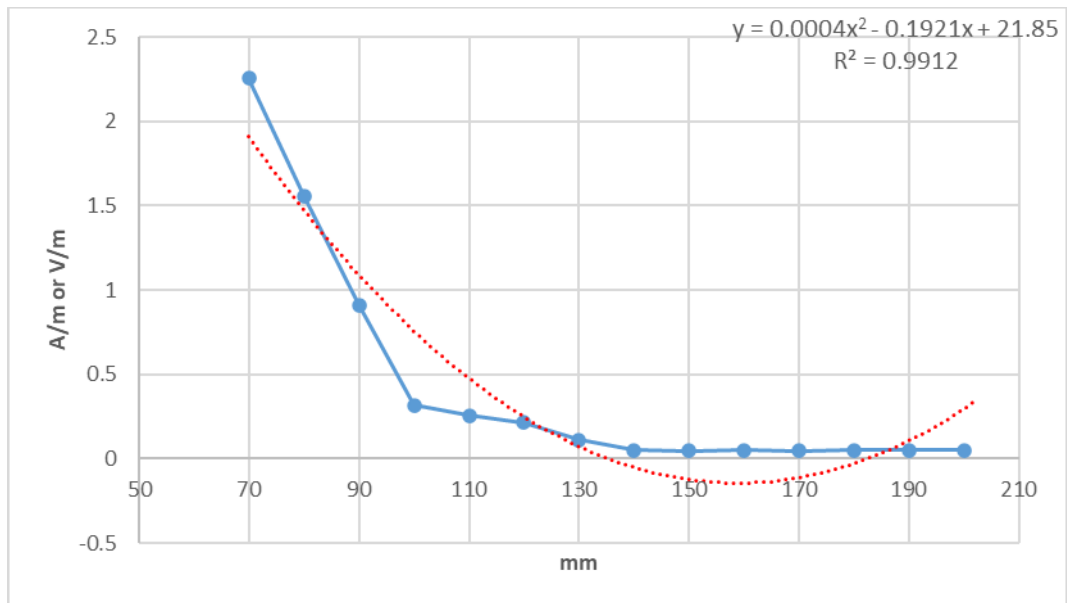
Operating mode 125 kHz RFID activated

Model 1: Quadratic Regression

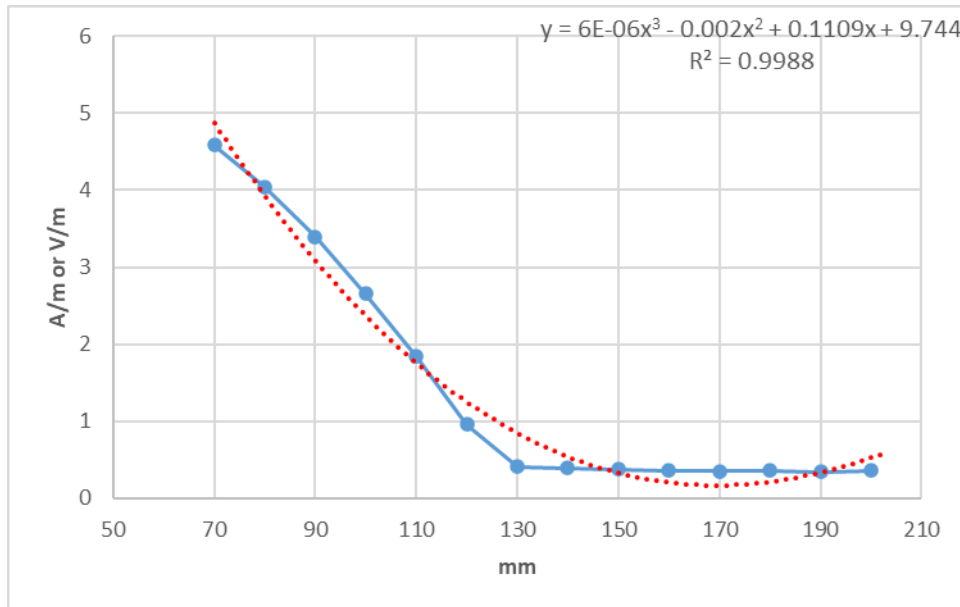
E-Field



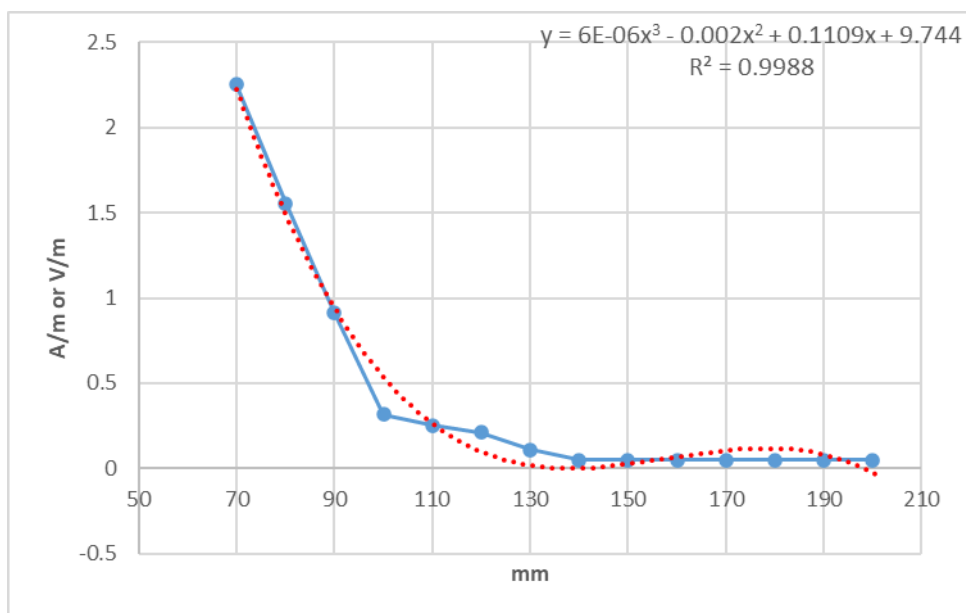
H-Field



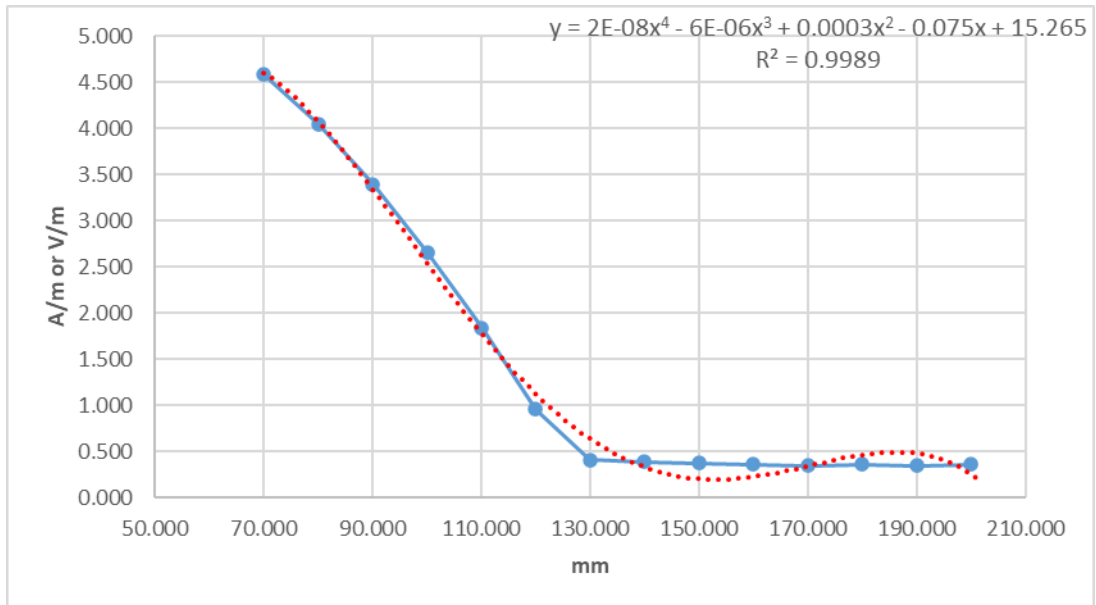
Model 2: Cubic Regression
E-Field



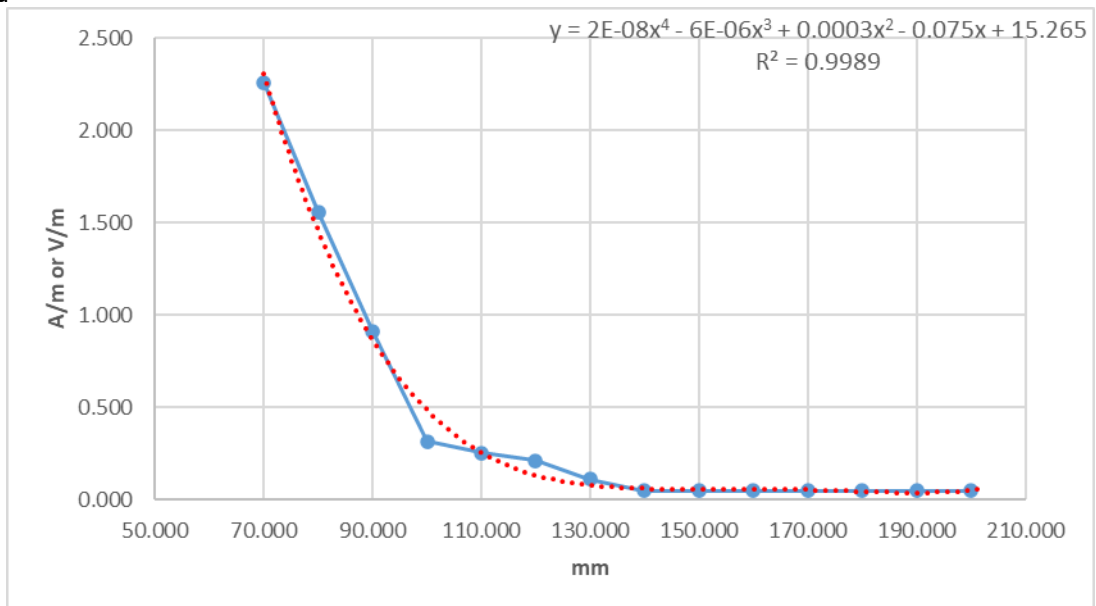
H-Field



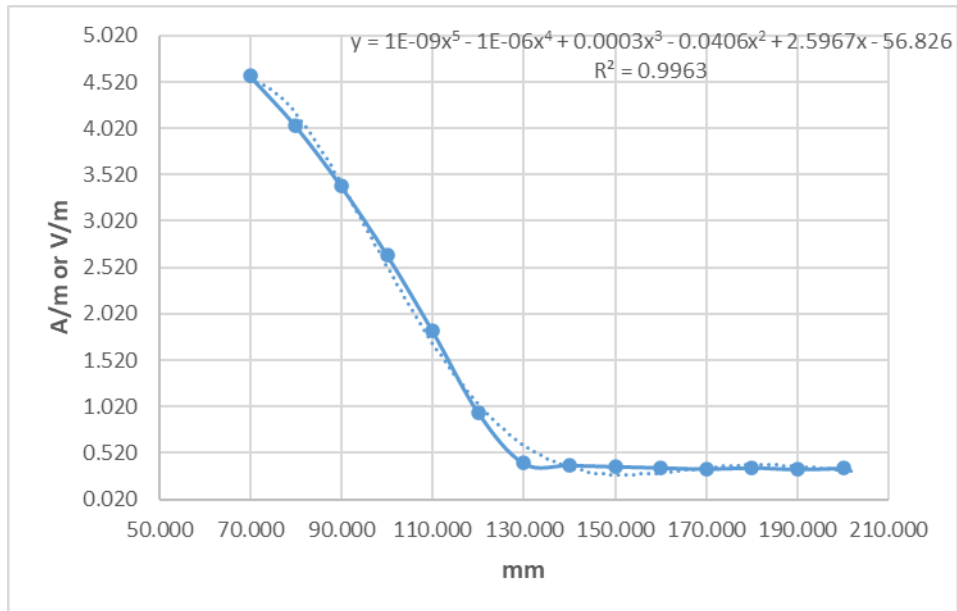
Model 3: Quartic Regression
 E-Field



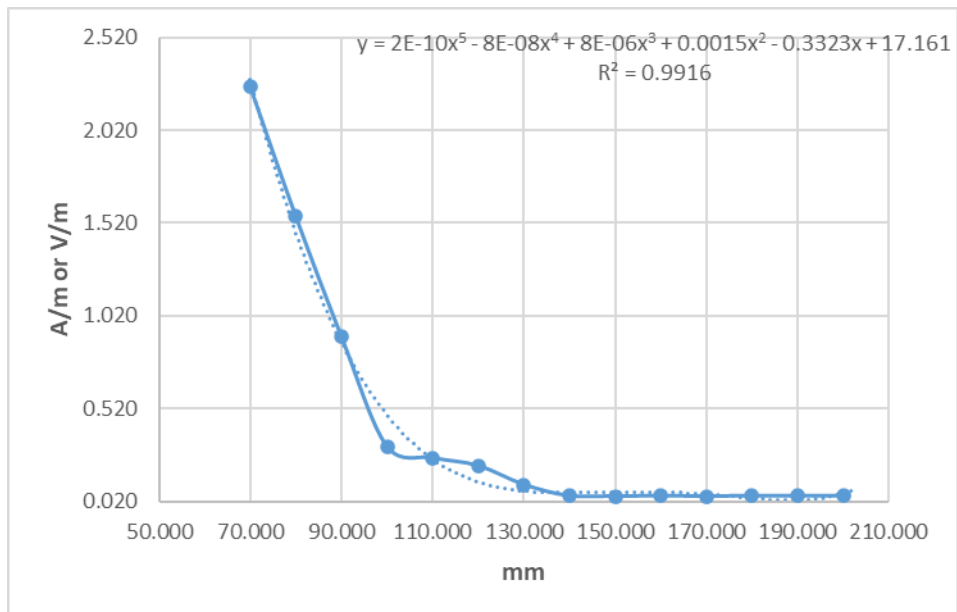
H-Field



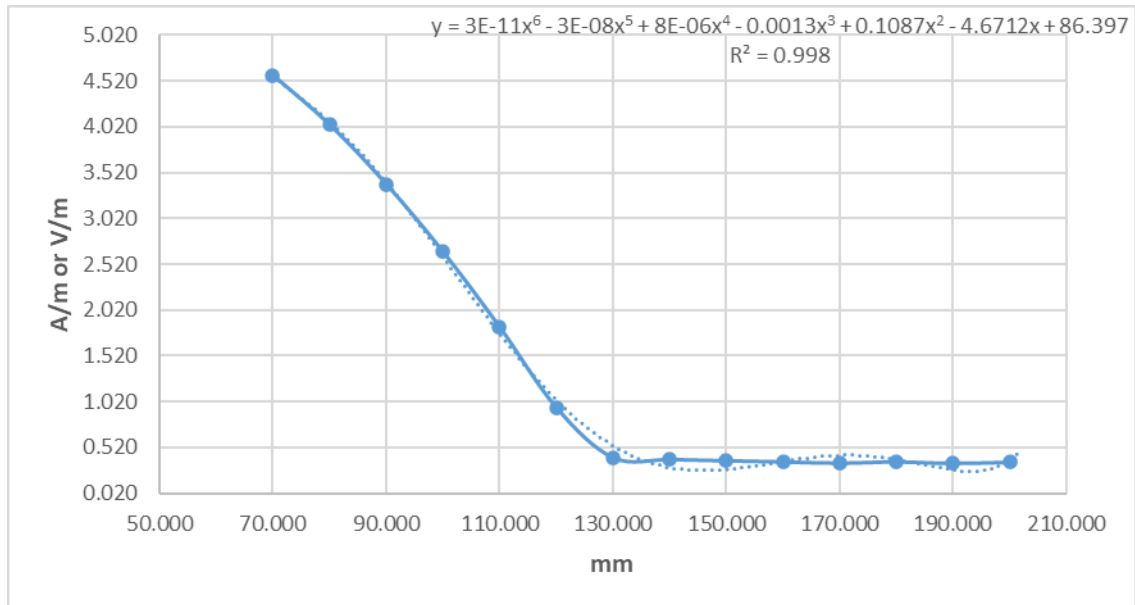
Model 4: 5th Order Regression
 E-Field



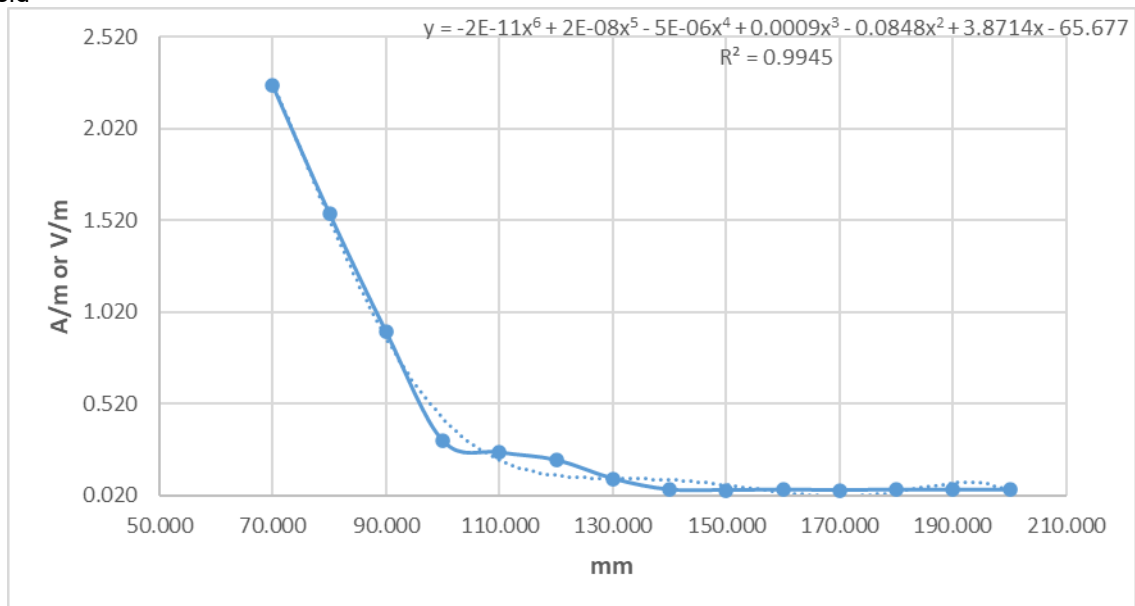
H-Field



Model 5: 6th Order Regression
 E-Field



H-Field



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Analyzing Results

E-Field

Parameter	Quadratic Regression	Cubic Regression	Quartic Regression
Multiple R	0.988642654	0.988891705	0.996964231
R Square	0.977414296	0.977906804	0.993937679
Adjusted R Square	0.973307805	0.971278845	0.991243314
Standard Error (S)	0.254405892	0.26389792	0.145715218
Number of data points used	14	14	14
Estimated magnetic field strength at touch position (V/m)	13.808	15.186	-13.950
Limit (V/m) NS	83	83	83
Limit (V/m) SAR	/	/	/
Result	Pass		
Note: The fourth 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.			

H-Field

Parameter	Quadratic Regression	Cubic Regression	Quartic Regression	5th Order Regression	6th Order Regression
Multiple R	0.950920768	0.992220369	0.995706931	0.99580289	0.997258137
R Square	0.904250307	0.98450126	0.991432293	0.991623397	0.994523792
Adjusted R Square	0.886841272	0.979851638	0.987624423	0.98638802	0.989829899
Standard Error (S)	0.229379502	0.096789991	0.075856587	0.079555688	0.068765912
Number of data points used	14	14	14	14	14
Estimated magnetic field strength at touch position (A/m)	6.409	14.108	22.498	17.161	-65.677
Limit (A/m)_NS	90	90	90	90	90
Limit (A/m)_SAR	3.56	3.56	3.56	3.56	3.56
Result	Pass				
Note: The fourth 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.					

Conclusion:

The device complies with the ISED RF exposure requirements.

4.3.2 Test Result for 13.56 MHz

Assessment:

For RFID 13.56 MHz operation, the maximum measured field strength of EUT is 48.30 dBuV/m at 3m according to ANSI C63.10, which converts to a RF output power of -58.7 dBm (0.00000134 mW). In accordance with KDB 447498 D06 section 4.3.1 c)2), it's far below the applicable SAR test exclusions thresholds. SAR testing is not required.

Following calculation of RF exposure for reference.

Transmit Frequency (MHz)	Max field strength (dBuV/m)	Max Output Power (dBm)	Max. Output Power (mW)	Min. separation (mm)	Result (calculate)		Limit of Power density	
					FCC (mW/cm ²)	ISED (W/m ²)	FCC (mW/cm ²)	ISED (W/m ²)
13.56	48.30	-58.7	0.00000134	200	0.000000000266	0.000000000266	1	2

Conclusion:

The device complies with the FCC and ISED RF exposure requirements.

5 Photographs of the Test Set-Up

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

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