



Prüfbericht-Nr.: <i>Test report no.:</i>	DE25FL6Y 001	Auftrags-Nr.: <i>Order no.:</i>	1185269 70	Seite 1 von 12 Page 1 of 12
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	Mail Riham Karim	Auftragsdatum: <i>Order date:</i>	2025-02-11	
Auftraggeber: <i>Client:</i>	Axis Communications AB, Gränden 1, 223 69 LUND, Sweden			
Prüfgegenstand: <i>Test item:</i>	Surveillance Radar			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	AXIS D2123-VE Radar White			
Auftrags-Inhalt: <i>Order content:</i>	Prüfung der Funkparameter nach FCC & ISED <i>Test of radio parameters acc. to FCC & ISED</i>			
Prüfgrundlage: <i>Test specification:</i>	Vollprüfung / Complete test RF exposure evaluation acc. to FCC CFR 47 Part 2 §2.1091 acc. to FCC CFR 47 Part 1 §1.1310 acc. to RSS-102 issue 6_December, 2023			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2025-01-14	For reasons of confidentiality, no photos of the EUT are included in this report. For EUT and test setup photos please see the Photo Documentation to this report Number.		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003954064-001			
Prüfzeitraum: <i>Testing period:</i>	2025-03-03 - 2025-07-24			
Ort der Prüfung: <i>Place of testing:</i>	Nürnberg Nuremberg			
Prüflaboratorium: <i>Testing laboratory:</i>	Wireless Labor Wireless Test Lab			
Prüfergebnis*: <i>Test result*:</i>	Pass			
erstellt von: <i>created by:</i>	 X	9/11/2025	genehmigt von: <i>authorized by:</i>	 X
Datum: <i>Date:</i>	Signed by: Shrinivas Naikar		Ausstellungsdatum: <i>Issue date:</i>	Signiert von: Matthias Kraeutlein
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position:	Sachverständige(r)/Expert
Sonstiges / <i>Other:</i>				
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				
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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.</i> <i>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 115:2023, 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 115:2023, 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>
5	Wenn auf dem Bericht kein Akkreditierungshinweis aufgebracht ist, wurde der Bericht nicht im akkreditierten Bereich erstellt und ist folglich auch nicht vom EA MLA abgedeckt. Unabhängig davon wurde der Bericht auf Basis der allgemeinen Regeln der ISO/IEC 17000er Reihe erstellt. Mit "#" gekennzeichnete Prüfungen sind nicht Bestandteil der Akkreditierung D-PL-14169-03-00. <i>If there is no accreditation notice on the report, the report has not been produced in the accredited area and is consequently not covered by the EA MLA. Regardless of this, the report has been prepared based on the general rules of the ISO/IEC 17000 series. Tests marked with "#" are not covered by the accreditation D-PL-14169-03-00.</i>

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Produktbeschreibung
Product description

1	Test item	Surveillance Radar
2	Typ-No.	AXIS D2123-VE Radar White
3	Identical Type-No. /Model-No.:	AXIS D2123-VE Radar Black AXIS D2133-VE Radar White AXIS D2133-VE Radar Black
4	Test sample obtaining	☒ Sampling by customer ☐ Sampling by TÜV Rheinland Group ☐ others:
5	Serial-No.	A003954064-001 (rad. Sample with Test fixture): B8A44FF12CF4 A003954064-001 (rad. sample): B8A44FF12CF4
6	Supported radio technologies evaluated in this report	Radar 24GHz
7	Supported radio technologies not evaluated in this report	-
8	Description of EUT	This product will classify different targets with a 24 Ghz radar and alert if there are any intruders.
9	Max RF field strength (measured)	114.75dBµV/m (Peak); 88.75dBµV/m (Average)
10	Rated Voltage / Frequency	53.5V DC POE
11	FCC-ID (Radio module)	PNB-AXISD2123-VE
12	IC (Radio module)	3919A-D2123VE
13	Antenna Gain (declared)	11.6 dBi
14	Radio Module / Antenna Type	☒ Radio module with antenna on module PCB ☐ Radio module with dedicated antenna ☐ Radio module with user accessible antenna connector
15	Antenna Type	☒ Integral antenna (designed as a fixed part of the EUT) ☐ Dedicated antenna (removable, obligation to be used) ☐ Permanent antenna connector
16	Antenna number of chains	EUT contains 3 Radar Modules Each Radar Module uses 2 TX-Antennas and 8 RX Antennas
17	Software / Firmware	12
18	Hardware	R1
19	Provided Samples	A003954064-001
20	Conducted measurements sample	A003954064-001 (rad. Sample with Test fixture)
21	Radiated measurements sample	A003954064-001 (rad. sample)
22	Companion Device used for radio connection with the EUT	EUT in Test Mode. Therefore, no Companion Device was used.
23	Auxiliary equipment used to set up the EUT	PC with PUTTY and Test Software provided by customer
24	Accessory Devices used together with the EUT	POE-Adapter provided by customer
25	Temperature Range	-40°C to + 60°C
26	Environment	Indoor and Outdoor

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1 Registration

The measurement facilities for conducted and radiated disturbance measurements of the TÜV Rheinland LGA Products have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules. Measurement data will be accepted in conjunction with applications for Certification under Parts 15 and 18 of the Commission's Rules.

FCC Registration Number: 939976

Bundesnetzagentur Registration Number: BNetzA-CAB-17/21-16

The measurement facilities are also recognized by Innovation, Science and Economic Development (ISED) Canada to test to Canadian radio equipment requirements.

Company Number: 11235A

CAB Identifier: DE0018

2 EUT Classification

2.1 Wireless technologies and frequencies supported by the EUT.

Technology	Used Test report for evaluation	Applied standard in the used Test report FCC CFR 47 Part 15	Band (TX)	Band f _{Range TX} [GHz]	Evaluated in this report
Radar	DE2500IA 001	Subpart C - §15.249	24GHz	24.05-24.25	☒

2.2 Technical data summary taken from Test reports in 2.1

2.2.1 Maximum Time Averaged Power (conducted) used in Test report

Technology	Band (TX)	Band F _{Lowest TX} [GHz]	P _{max} EIRP [dBμV/m]	P _{max} EIRP [dBm]
Radar	24GHz	24.05	114.75	19.45

The values from the test reports are measured in Radiated as dBμV/m with Antenna Gain correction and corrected to be EIRP in dBm by using the following formula:

$EIRP(dBm) = E(dBμV/m) - 95.3.$

2.3 Standard specific classification of the EUT

2.3.1 Applied FCC standards

FCC CFR 47 Part 1 Subpart I §1.1310 (limits)

FCC CFR 47 Part 2 Subpart J §2.1091 (mobile)

FCC KDB 447498 D04 v01 – Interim General RF Exposure procedures Guidance (Procedures and Equipment Authorization Policies for Mobile and Portable Devices)

2.3.2 Applied ISED standards

RSS-GEN (General Requirements for Compliance of Radio Apparatus)

RSS-102 issue 6 (Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus)

Health Canada's Safety Code 6 (2015)

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2.3.3 Exposure conditions

	Type of exposure
☒	General public exposure
☐	Occupational exposure

	Separation distance – Intended usage location
☐	< 20 cm – portable
☐	Body-worn device -
☐	Limb-worn device -
☐	Head exposure device -
☐	Implanted device
☒	≥ 20 cm
☐	Fixed device (physically secured at one location, even temporarily) specific mitigation actions are required
☒	Mobile device

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3 Test results in detail FCC RF exposure evaluation

Radio frequency devices operating under the provisions of FCC CFR 47 Part 15 Subpart C - §15.249 are subject to the radio frequency radiation exposure requirements specified in §§ 1.1307(b), 1.1310, 2.1091, and 2.1093, as appropriate.

3.1 Maximum Permissible Exposure Evaluation (MPE) Mobile device or fixed RF source

3.1.1 Description

For operating frequencies above 6 GHz, the MPE limits listed in Table 1 in § 1.1310(e)(1), shall be used in all cases to evaluate the environmental impact of human exposure to RF radiation as specified in § 1.1307(b) of this part.

3.1.2 Limits

Limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields from §1.1310(e)(1) are shown in the table below.

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.

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3.1.3 Evaluation for Technologies assumed to be in far field at the distance d

In the far-field zone of an electromagnetic source, electric field strength, magnetic field strength and power density are interrelated by simple mathematical expressions, where any one of these parameters defines the remaining two.

For the MPE evaluation the maximum measured output powers $P_{\max}$ for each Band from the above-mentioned test reports are considered.

With these, the respective power densities S in a distance of d can be calculated with $S = \frac{P_{\max}}{4\pi d^2}$. For this calculation $P_{\max}$ has to be specified as or transferred to an EIRP Value.

As some limits are frequency dependent, for each Band the limit is calculated based of the lowest band edge frequency f_{Lowest} .

Technology	Band	Note	d [cm]	f_{Lowest} [MHz]	$P_{\max}$ Including tune-up tolerance EIRP [dBm]	$P_{\max}$ EIRP [mW]	S [mW/cm ²]	S_L [mW/cm ²]	S/S_L
RADAR	24GHz	1	20	24050	19.95	98.86	0.0197	1.0000	0.0197

Note1: The 0.5 dB dB tune-up tolerance is considered for the MPE Evaluation as declared by the customer.

3.1.4 Final evaluation

3.1.4.1 Single RF source

The equipment meets the requirements according to FCC Part 2 §2.1091 since the calculated result for the power density is below the applicable limit from §1.1310(e)(1)

3.1.5 Final test result

Final test result	Pass
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4 Test results in detail ISED RF exposure Compliance

Radio frequency devices operating under the provisions of RSS-Gen are subject to the radio frequency radiation exposure requirements specified in RSS-102.

Test reduction methods employed to reduce the testing burden and ensure timely access to the Canadian market are accepted. However, the allowance to apply test reduction methods does not constitute an exemption from compliance with the applicable exposure limit(s) and the other relevant requirements. The use of any test reduction methods for certification purposes does not prevent ISED from employing enforcement measures regarding non-compliances with Health Canada's Safety Code 6 limits specified in this document; including those that are outside of the scope of test reduction methods.

The specific test reduction methods for NS, SAR, APD, IPD and FRL are outlined in each specific standard.

4.1 ISED Maximum Exposure Requirements

According to RSS-102 issue 6, Industry Canada has adopted the SAR and RF field strength limits established in Health Canada's RF exposure guideline, Safety Code 6 (2015) and its Notice. Any updates to Safety Code 6 and/or its Notice will supersede the values outlined in RSS-102 issue 6

4.1.1 . Electric and Magnetic Field Strength (3 kHz - 10 MHz)

4.1.2 Electric Field Strength, Magnetic Field Strength and Power Density (10 MHz - 300 GHz)

According to the limits of human exposure in Safety Code 6 clause 2.2.2:

To ensure compliance with the basic restrictions at frequencies between 10 MHz and 300 GHz, the reference levels for electric- and magnetic-field strength and power density must be complied with.

Table 5. Reference Levels for Electric Field Strength, Magnetic Field Strength and Power Density in Uncontrolled Environments

Frequency (MHz)	Electric Field Strength (E_{RL}), (V/m, RMS)	Magnetic Field Strength (H_{RL}), (A/m, RMS)	Power Density (S_{RL}), (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	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000 / f^{1.2}$

Frequency, f , is in MHz.

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Table 6. Reference Levels for Electric Field Strength, Magnetic Field Strength and Power Density in Controlled Environments

Frequency (MHz)	Electric Field Strength (E_{RL}), (V/m, RMS)	Magnetic Field Strength (H_{RL}), (A/m, RMS)	Power Density (S_{RL}), (W/m ²)	Reference Period (minutes)
10 - 20	61.4	0.163	10	6
20 - 48	$129.8 / f^{0.25}$	$0.3444 / f^{0.25}$	$44.72 / f^{0.5}$	6
48 - 100	49.33	0.1309	6.455	6
100 - 6000	$15.60 f^{0.25}$	$0.04138 f^{0.25}$	$0.6455 f^{0.5}$	6
6000 - 15000	137	0.364	50	6
15000 - 150000	137	0.364	50	$616000 / f^{1.2}$
150000 - 300000	$0.354 f^{0.5}$	$9.40 \times 10^{-4} f^{0.5}$	$3.33 \times 10^{-4} f$	$616000 / f^{1.2}$

Frequency, f , is in MHz.

4.1.2.1 Evaluation for Technologies assumed to be in far field at the distance d

In the far-field zone of an electromagnetic source, electric field strength, magnetic field strength and power density are interrelated by simple mathematical expressions, where any one of these parameters defines the remaining two.

For the Maximum Exposure evaluation the maximum measured output powers P_{max} for each Band from the above-mentioned test reports are considered.

With these, the respective power densities S in a distance of d can be calculated with $S = \frac{P_{max}}{4\pi d^2}$. For this calculation P_{max} has to be specified as or transferred to an EIRP Value.

As some limits are frequency dependent, for each Band the limit is calculated based of the lowest band edge frequency f_{Lowest} .

Technology	Band	Note	d [cm]	f_{Lowest} [MHz]	P_{max} Including tune-up tolerance EIRP [dBm]	P_{max} EIRP [mW]	S [W/m ²]	S_L [W/m ²]	S/S_L
RADAR	24GHz	1	20	24050	19.95	98.86	0.1967	10.0000	0.0197

Note1: The 0.5 dB dB tune-up tolerance is considered for the MPE Evaluation as declared by the customer.

4.1.3 Final evaluation

4.1.3.1 Single RF source

The equipment meets the requirements according to Safety Code 6 clause 2.2.2 since the calculated result for the power density is below the applicable limit.

4.1.4 Final test result

The equipment is compliant according to Health Canada Safety Code 6 (2015).

Final test result

Pass

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Zusatzdokumentation
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5 Application form

The following information was provided by the customer and form the basis for the execution of the tests and the assessment of conformity. The given information can affect the results of both.

No application form was provided.

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Änderungsverzeichnis
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6 Change history

Revision Number	List of revisions
001	Initial Release
Note: Latest revision report will replace all previous reports.	

Ende des Prüfberichts
End of Test Report