

Applicant:

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Test report no.:

230609-AU01+W02

for:

Nedap N.V.
RFID reader
ASSY PS25 RFID

according to:

47 CFR Part 1
RSS-102

Accreditation:

FCC test firm accreditation expiration date: 2025-09-19
MRA US-EU, FCC designation number: DE0010
Test firm registration number: 997268
FCC Registration Number (FRN): 0032245045
BNetzA-CAB-02/21-02/7 Valid until 2028-11-26

Recognized until 2025-03-16 by the
Department of Innovation, Science and Economic Development Canada (ISED)
as a recognized testing laboratory
CAB identifier: DE0011
Company number: 3472A

Location of Testing:

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Element Materials Technology Straubing GmbH.

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1 Summary of test results

1.1 FCC standard

<i>FCC standard</i>	<i>Requirement</i>	<i>Result</i>	<i>Page</i>
Part 1, § 1.1310(e)(1)	Maximum permissible exposure, except WPT, calculation	Passed	8

1.2 IC standard

<i>IC standard</i>	<i>Requirement</i>	<i>Result</i>	<i>Page</i>
RSS-102 Issue 6, section 6.6	Evaluation for separation distance > 20 cm, except 3 kHz – 10 MHz	Passed	10

Straubing, March 26, 2025



Tested by
Konrad Graßl
Department Manager Radio



Approved by
Christian Kiermeier
Reviewer

2 Test regulations

2.1 FCC standards

Standard	Title
Part 1, Subpart I, Section 1.1310 October 2024	Radiofrequency radiation exposure limits
KDB 447498 D04 v01 November 29, 2021	RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices

2.2 IC standards

Standard	Title
RSS-102 Issue 6 (December 15, 2023)	Spectrum Management and Telecommunications Radio Standards Specification Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands)

3 Equipment under Test

All Information in this clause is declared by customer.

3.1 General information

Product type:	RFID reader		
Model name:	ASSY PS25 RFID		
Serial number(s):	N/A		
Manufacturer:	Nedap N.V.		
Hardware version:	V1.0		
Software version:	V0.5.4		
Short description:	The EUT is an UHF RFID Reader designed to be used in stores, as an anti-pilfering/tag reader device located at the point of sales. The EUT is able to read UHF RFID tags in the 902 – 928 MHz frequency range.		
FCC ID:	CGDPS25RFID		
IC registration number:	1444A-PS25RFID		
Power supply:	DC supply by PoE		
	Nominal voltage:	48 V	
Device type:	<input type="checkbox"/> Portable	<input checked="" type="checkbox"/> Mobile	<input type="checkbox"/> Fixed

3.2 Radio specifications

System type (Note 1):	Frequency hopping system (DSS)		
Application frequency band:	2400.0 MHz - 2483.5 MHz		
Number of RF channels:	50		
Channel spacing:	500 kHz		
Modulation(s):	PR-ASK		
Highest internal frequency:	928 MHz		
Antenna:	Type:	Broadband UHF RFID built-in antenna (Right hand circular)	
	Gain:	-11 dBi maximum	
	Model:	TBD	
	Manufacturer:	Nedap N.V.	
	Connector:	<input type="checkbox"/> external	<input type="checkbox"/> internal
		<input type="checkbox"/> temporary	<input checked="" type="checkbox"/> none (integral antenna)

Note:

1. "DTS" is the equipment class for digital transmission systems, "DSS" for all other Part 15 spread spectrum transmitters as used for equipment authorization system form 731.

3.3 Human exposure specifications

Exposure tier:	Body
Separation distance:	> 20 cm
Evaluated against exposure limits:	General public use
Simultaneous transmissions:	no

3.4 Photographs of EUT

See Annex B of test report 230609-AU01+W01 of test laboratory Element Materials Technology Straubing GmbH.

4 Test results

This clause gives details about the test results as collected in the summary of test results on page 4.

4.1 FCC

4.1.1 Maximum permissible exposure, except WPT, calculation

Requirement: Part 1, § 1.1310(e)(1)

Reference: ---

Performed by:	Konrad Graßl	Date of test:	March 24, 2025
Result:	<input checked="" type="checkbox"/> Limits kept	<input type="checkbox"/> Limits not kept	

4.1.1.1 Requirements and limits maximum permissible exposure

According to §1.1310(e)(1):

Table 1 to § 1.1310(e)(1) sets forth limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields.

<i>Frequency range (MHz)</i>	<i>Electric field strength (V/m)</i>	<i>Magnetic field strength (A/m)</i>	<i>Power density (mW/cm²)</i>	<i>Averaging time (minutes)</i>
1.34-30	824/f	2.19/f	180/f ² (see note 2)	<30
300-1500	---	---	f/1500	<30
1500-100000	---	---	1.0	<30

Table 1: Table 1 to §1.1310(e)(1) Limits for Maximum Permissible Exposure (MPE) for General Population/Uncontrolled Exposure

Notes:

1. f = frequency in MHz
2. Plane-wave equivalent power density

4.1.1.2 Results

The following data are based on applicants document: Test report 230609-AU01+W01 of the test laboratory Element Materials Technology Straubing GmbH

Antenna gain: -11 dBi
Maximum conducted output power: 23.6 dBm at 902.75 MHz

Information related to Exposure:

Tune-up tolerance (according to the manufacturer): 0 dB
Separation distance: 20 cm
Exposure: general public
Power averaging over time: not applied

<i>Operation frequency (MHz)</i>	<i>EIRP + tune-up tolerance (dBm)</i>	<i>Power density (mW/cm²)</i>	<i>Limit (mW/cm²)</i>	<i>Ratio of limit</i>	<i>Result</i>
902.75	12.6	0.004	0.602	0.006	Passed

Table 2: Result of evaluation of compliance

4.2 Canada

4.2.1 Evaluation for separation distance > 20 cm, except 3 kHz – 10 MHz

Requirement: RSS-102 Issue 6, section 6.6

Reference: n/a

Performed by:	Konrad Graßl	Date of test:	March 24, 2025
Result:	<input checked="" type="checkbox"/> Limits kept	<input type="checkbox"/> Limits not kept	

4.2.1.1 Field reference level exposure exemption limits

According to RSS 102, section 6.6:

Field reference level (FRL) exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm (i.e. mobile devices), except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 1 W (adjusted for tune-up tolerance)
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance)
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz
- at or above 6 GHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 5 W (adjusted for tune-up tolerance)

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the EIRP was derived.

4.2.1.2 Results

The following data are based on applicants document: Test report 230609-AU01+W01 of the test laboratory Element Materials Technology Straubing GmbH

Antenna gain: -11 dBi
Maximum conducted output power: 23.6 dBm at 902.75 MHz

Information related to Exposure:

Tune-up tolerance (according to the manufacturer): 0 dB
Separation distance: 20 cm
Exposure: general public
Power averaging over time: not applied

<i>Channel Frequency (MHz)</i>	<i>EIRP + tuneup tolerance (dBm)</i>	<i>EIRP (W)</i>	<i>EIRP limit (W)</i>	<i>Ratio of limit</i>	<i>Result</i>
902.75	12.6	0.018	1.371	0.013	Passed

Table 3: Result of exemption for routine evaluation of RF exposure

5 Revision history

<i>Revision</i>	<i>Date</i>	<i>Issued by</i>	<i>Description of modifications</i>
0	2025-03-26	Konrad Graßl	First edition

Template: RF_FCC_IC_Human Exposure_V1.10