

Test Report

Report Number:

F230142E9

Equipment under Test (EUT):

NICP-EM30-IOL-H1141 + NICS-EM30-IOL-HK1141

Applicant:

Turck Beierfeld GmbH

Manufacturer:

Turck Beierfeld GmbH



Deutsche
Akkreditierungsstelle
D-PL-17186-01-00

References

- [1] **CFR 47 Rule part 1** Practice and Procedure
- [2] **CFR 47 Rule part 2** Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
- [3] **KDB 447498 D04** Interim General RF Exposure Guidance v01
- [4] **KDB 680106 D01** Wireless Power Transfer v04

Test Result

The requirements of the tests performed as shown in the overview (clause 4) were fulfilled by the equipment under test. The complete test results are presented in the following.

“Passed” indicates that the equipment under test conforms with the relevant limits of the testing standard without taking any measurement uncertainty into account. However, the measurement uncertainty is calculated and shown in this test report.

Tested and written
by:



Michael DINTER
01.10.2025

Signature

Reviewed and
approved by:



Bernd STEINER
01.10.2025

Signature

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1 Identification

1.1 Applicant

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Country:	Germany
Name for contact purposes:	Michael SIEGEL
Phone:	+49 3774-135-153
eMail address:	michael.siegel@turck.com
Applicant represented during the test by the following person:	None

1.2 Manufacturer

Name:	Turck Beierfeld GmbH
Address:	Am Bockwald 2, 08344 Grünhain-Beierfeld
Country:	Germany
Name for contact purposes:	Michael SIEGEL
Phone:	+49 3774-135-153
eMail address:	michael.siegel@turck.com
Manufacturer represented during the test by the following person:	None

1.3 Test Laboratory

The tests were carried out by: **PHOENIX TESTLAB GmbH**
Königswinkel 10
32825 Blomberg
Germany

accredited by Deutsche Akkreditierungsstelle GmbH (DAkkS) according to DIN EN ISO/IEC 17025:2018. The accreditation is only valid for the scope of accreditation listed in the annex of the certificate D-PL-17186-01-00. FCC Test Firm Designation Number DE0004, FCC Test Firm Registration Number 469623, CAB Identifier DE0003 and ISED# 3469A.

1.4 EUT (Equipment under Test)

Test object: *	Inductive coupler (base coupler)
Model name: *	NICP-EM30-IOL-H1141
Model number: *	-
Order number: *	100018258
FCC ID: *	YQ7-NICP-EM30

Test object: *	Inductive coupler (remote coupler)
Model name: *	NICS-EM30-IOL-HK1141
Model number: *	-
Order number: *	100018259
FCC ID: *	YQ7-NICS-EM30

	EUT number		
	1 (NICP-EM30-IOL-H1141)	2 (NICS-EM30-IOL-HK1141)	3
Serial number: *	230714_16	230413_1	-
PCB identifier: *	07763008	07763107	-
Hardware version: *	2.1.0	2.0.0	-
Software version: *	1.0.14.2	1.0.1.0	-

* Declared by the applicant

1 set of EUTs base/remote coupler (primary and secondary part) were used for the WPT tests. In the overview (chapter 4) is shown which EUT was used for each test case.

Note: PHOENIX TESTLAB GmbH does not take samples. The samples used for tests are provided exclusively by the applicant.

1.5 Technical Data of Equipment

General:			
Power supply EUT 1: *	DC		
Supply voltage EUT 1: *	$U_{nom} = 24 \text{ V}_{DC}$	$U_{min} = 20.4 \text{ V}_{DC}$	$U_{max} = 28.8 \text{ V}_{DC}$
Temperature range: *	-25 °C to +55 °C		
Lowest / highest internal frequency: *	16 MHz / 2472 MHz		
Max. Distance EUT 1 to EUT 2: *	7 mm		
Min. Distance EUT 1 to EUT 2: *	Direct touch		

* Declared by the applicant

Energy power part:	
Frequency range: *	100 kHz – 148 kHz
Number of channels: *	-
Type of modulation: *	CW carrier only. No other data (information) is transmitted.
Data rate: *	-
Duty cycle: *	100%
Antenna type: *	Internal coil
Antenna connector: *	None

* Declared by the applicant

Proprietary radio communication part	
Operating frequency range: *	2.412 GHz – 2.472 GHz
Number of channels: *	13
Nominal channel bandwidth: *	4 MHz
Type of modulation: *	FSK
Antenna type: *	Internal
Antenna connector: *	None
Radio chip: *	Semtech SX1281

* Declared by the applicant

Ports / Connectors				
Identification	Connector		Length during test	Shielding (Yes / No)
	EUT	Ancillary		
NICP-EM30-IOL-H1141 24V SDCI	M12 - Code A	M12 - Code A	~ 3 m	yes
NICS-EM30-IOL-HK1141 24V SDCI	M12 - Code A	M12 - Code A	~ 3 m	yes

Ancillary equipment	
Laptop* ²	Lenovo Think Pad X201t
Fieldbus master* ¹	TEBEN-L5-8ILO (Ident No.:6814017)
AC Adapter* ¹	MEAN WELL (Order No.: GST160A24-R7B)
IO-Link Sensor* ¹	IO-Link Sensor CMTH-M12-IOL6X2-H1141
Resistor load* ¹	R47 / R33 (47 Ohm and 33 Ohm)

*¹ Provided by the applicant

*² Provided by the laboratory

1.6 Dates

Date of receipt of test sample:	18.10.2022
Start of test:	24.11.2023
End of test:	24.11.2023

2 Operational States

Description of function of the EUT:

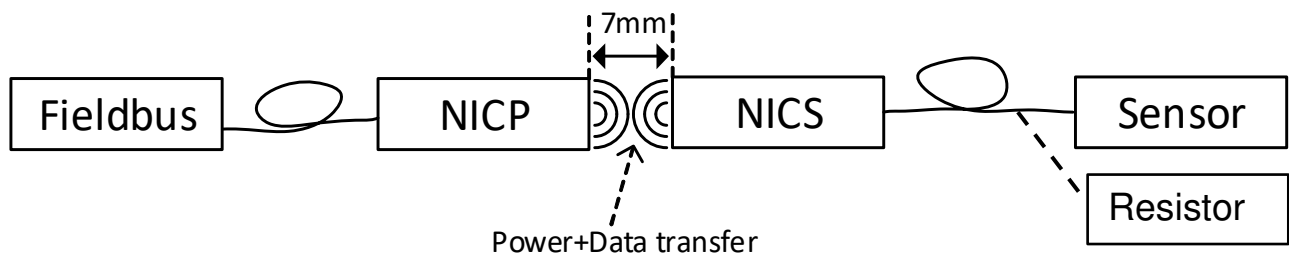
The NICP-M30 couplers transmit power contact-free over an air gap of a few millimetres. For contactless transmission at least two devices are needed: a primary part (base coupler) and a secondary part (remote coupler). The primary part (base coupler) transfers the energy inductively to the secondary part (remote coupler) which could feed a sensor (in this case IO-Link Sensor CMTH-M12-IOL6X2-H1141).

The following states were defined as the operating conditions:

Operational Mode	Set-up	Test	Remark
Mode 1 [1]: Primary part only in TX mode	Single device	Applicable	EUT 1
Mode 2 [1]: Communication before charging, adjustment charging mode / position	In combination	Not applicable	EUT has no charging function.
Mode 3 [1]: Communication Mode 4 [1]: Energy transmission	WPT system alignment	Applicable	Distance between EUT 1 and EUT 2: 7 mm The test set-up as described in clause 6.1.4 [1] is used. EUT 2 Load Secondary part load 1: Sensor approx. 150 mA Secondary part load 2: Resistor 47 Ohm approx. 500 mA Secondary part load 3: Resistor 33 Ohm approx. 800 mA
Mode 3 [1]: Communication Mode 4 [1]: Energy transmission	WPT system alignment	Applicable	Distance between EUT 1 and EUT 2: 0 mm The test set-up as described in clause 6.1.4 [1] is used. EUT 2 Load Secondary part load 1 Sensor approx. 150 mA Secondary part load 2 Resistor 47 Ohm approx. 500 mA Secondary part load 3 Resistor 33 Ohm approx. 800 mA

The system was set up as follows:

During the tests the EUT was connected to a field bus of the type TBEN-L5-8IOL. The field bus was connected to a laptop computer via Ethernet. The correct function of the EUT assembly was monitored via a browser on the laptop computer, having access to the fieldbus.



3 Additional Information

The device as declared by the applicant is an industrial device which is used at least at 20 cm separation distance between the device and the users.

4 Evaluation Method

4.1 RF exposure test exemptions for single sources

4.1.1 General Exemption CFR 47 §1.1307(b)(3)(i)(A)

The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

4.1.2 SAR Based Exemption CFR 47 §1.1307(b)(3)(i)(B)

The available maximum time-averaged power of effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz inclusive.

For the following separation distances [d] and frequency ranges P_{th} is given by the following formulas

	0.5 cm ≤ d ≤ 20cm	20 cm < d ≤ 40 cm
0.2 GHz ≤ f < 1.5 GHz	$P_{th}(mW) = ERP_{20cm} \left(\frac{d}{20} \right)^x$ $ERP_{20cm} (mW) = 2040f$ $x = -\log_{10} \left(\frac{60}{ERP_{20cm} \sqrt{f}} \right)$	$P_{th}(mW) = ERP_{20cm}$ $ERP_{20cm} (mW) = 2040f$
1.5 GHz ≤ f ≤ 6 GHz	$P_{th}(mW) = ERP_{20cm} \left(\frac{d}{20} \right)^x$ $ERP_{20cm} (mW) = 3060$ $x = -\log_{10} \left(\frac{60}{ERP_{20cm} \sqrt{f}} \right)$	$P_{th}(mW) = ERP_{20cm}$ $ERP_{20cm} (mW) = 3060$

4.1.3 MPE Based Exemption CFR 47 §1.1307(b)(3)(i)(C)

By using Table 1 and the minimum separation distance (d in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, d must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

RF Source frequency [MHz]	Threshold ERP [W]
0.3 - 1.34	1920 d ²
1.34 – 30	3450 d ² /f ²
30 – 300	3.83 d ²
300 – 1500	0.0128 d ² /f
1500 - 100000	19.2 d ²

d: Minimal separation distance from antenna to the user

4.1.4 Stand alone MPE evaluation limits

The human exposure to RF emissions from such devices could be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and / or power density. The limits for General Population / Uncontrolled Exposure are given in the following table from CFR 47 §1.1310(e)1:

Frequency range [MHz]	Electric field strength (E) [V/m]	Magnetic field strength (H) [A/m]	Power density (S) [mW/cm ²]	Averaging time [min]
(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 – 1500			f/1500	< 30
1500 – 100,000			1.0	< 30

Note: f = frequency in MHz; * Plane – wave equivalent power density

The power density is calculated as follows:

$$S = \frac{P \cdot G \cdot D}{4 \cdot \pi \cdot d^2}$$

Where:

P: conducted power

G: Antenna gain (linear)

D: Duty Cycle

d: Minimal separation distance from antenna to the user

4.2 RF exposure test exemptions for simultaneous transmission sources

4.2.1 1 mW Test Exemption for simultaneous transmission sources

As discussed in CFR 47 §1.1307(b)(3)(ii)(A) [1] the 1 mW exemption intended for single transmitters may be also applied to simultaneous transmission conditions, within the same host device, according one of the following criteria:

- When the maximum available power each individual transmitting antenna with the same time averaging period is ≤ 1 mW, and the nearest parts of the antenna structures of the simultaneously operating transmitters are separated by at least 2 cm
- When the aggregate maximum available power of all transmitting antennas is ≤ 1 mW in the same time-averaging period

This exemption may not be combined with any other exemption.

4.2.2 Simultaneous transmission SAR based and MPE based test exemptions

Although this is not a module integration in the sense of product approval, the procedure for simultaneous transmission specified in KDB 447498 D04 Interim General RF Exposure Guidance v01 [3] in chapter 2.2 was taken into account:

According to the RF exposure KDB 447498 D04 General RF Exposure Guidance v01 [3] in chapter 2.2.2: This case is described in detail in CFR 47 §1.1307(b)(3)(ii)(B) and covers the situations where both SAR-based and MPE-based exemption may be considered for test exemption in fixed, mobile, or portable device exposure conditions. For these cases, a device with multiple RF sources transmitting simultaneously will be considered an RF exempt device if the condition of the following formula is satisfied.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

For these test exemptions to apply, the maximum output power, duty factor, and other applicable parameters used in the standalone ERP determination tests, must be the same, or corresponding to a more conservative choice, than those required for simultaneous transmission.

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0 , according to calculated/estimated, numerically modelled, or measured field strengths or power density. The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to the MPE limit at the test frequency.

4.2.3 Test exemption based on the SAR to Peak Location Separation Ratio

When the ERP-based condition in the previous section does not apply, a test exemption may be still applicable based on the SAR to peak location separation ratio (SPLSR) procedure.

In this case, the simultaneously transmitting antennas in each operating mode and exposure condition combination must be considered one pair at a time to determine the SPLSR that qualifies for the additional test exemption.

This ratio is defined as:

$$SPLSR = (SAR_1 + SAR_2)^{\frac{1.5}{R_i}}$$

Where: SAR_1 and SAR_2 = highest reported SAR or estimated SAR values for the two sources in the pair i , and R_i is their distance in mm.

When $SPLSR \leq 0.0.4$ (rounded to two decimal digits), for all antenna pairs in the configuration, then the device qualifies for 1 g SAR test exemption.

When 10 g SAR applies (e.g. for extremities) the corresponding test exemption condition is $SPLSR \leq 0.10$.

If any antenna pair does not qualify for simultaneous transmission SAR test exemption, then the device must be tested for SAR compliance, according to the enlarged zoom scan and volume scan post-processing procedures in KDB Pub. 865664 D01.

5 Results of evaluation

5.1 Used evaluation methods

RF Exposure test exemptions for single sources			
Used	Method	See sub-clause	Comment
☐	General Exemption acc. CFR 47 §1.1307(b)(3)(i)(A)	4.1.1	-
☐	SAR Based Exemption acc. CFR 47 §1.1307(b)(3)(i)(B)	4.1.2	-
☐	MPE Based Exemption acc. CFR 47 §1.1307(b)(3)(i)(C)	4.1.3	-
☒	MPE Calculation	4.1.4	-
☒	MPE Evaluation	4.1.4	-

RF Exposure test exemptions for simultaneous transmission sources			
Used	Method	See sub-clause	Comment
☐	Not applicable		No simultaneous transmission possible
☐	1 mW test Exemption acc. 2.2.1 [3]	4.2.1	-
☐	SAR Based Exemption acc. 2.2.2 [3]	4.2.2	
☒	MPE Based Exemption acc. 2.2.2 [3]	4.2.2	
☐	SAR to Peak location separation ratio acc. 2.2.3 [3]	4.2.3	

5.2 Evaluation Distance

The device as declared by the applicant is a fixed installed device which is used at least at 20 cm separation distance between the device and the users.

5.3 Measurement of E field strength

Ambient temperature:	22 °C
Relative humidity:	27 %

Date:	24.11.2023
Tested by:	M. DINTER

The EUT operation mode: 1, 3 / 4 with distance of 7 mm and 0 mm.

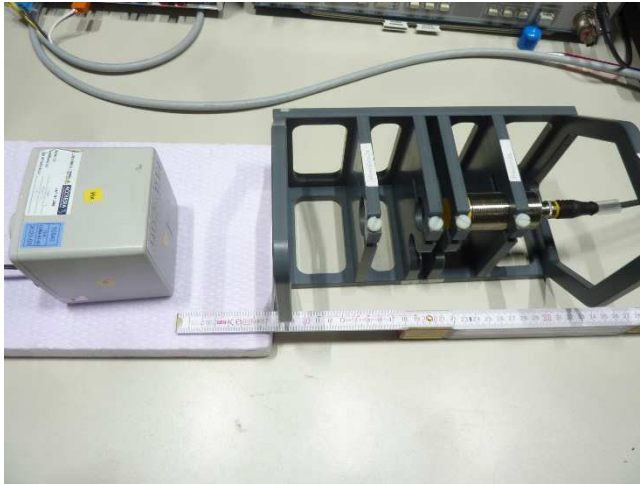
Frequency Mode 1:	145.03 kHz
Frequency Mode 3 / 4 with distance of 7 mm load Sensor:	126.01 kHz
Frequency Mode 3 / 4 with distance of 0 mm load Sensor:	105.3 kHz
Frequency Mode 3 / 4 with distance of 7 mm load R33:	126.05 kHz
Frequency Mode 3 / 4 with distance of 0 mm load R33:	108.8 kHz
Frequency Mode 3 / 4 with distance of 7 mm load R47:	126.05 kHz
Frequency Mode 3 / 4 with distance of 0 mm load R47:	105.3 kHz

As declared by the applicant the EUT is an industrial mounted device.
Therefore, a distance of 20 cm to a person was declared by the applicant.

The position and orientation of the field probe for the maximum field strength emissions was searched before the measurement. This position and orientation could be seen on the photograph below. The measurement distance is defined between the surface of the EUT and the middle of the sensor element of the field probe, which shows the maximum value.

Parameter	Load	Result	Limit	Test result
Electric field strength Mode 1	-	0.3 V/m in 20 cm distance (RMS over 6 minutes)	614 V/m	Passed *
Electric field strength Mode 3 / 4 distance 7 mm	Sensor	0.52 V/m in 20 cm distance (RMS over 6 minutes)	614 V/m	Passed *
Electric field strength Mode 3 / 4 distance 0 mm	Sensor	0.65 V/m in 20 cm distance (RMS over 6 minutes)	614 V/m	Passed *
Electric field strength Mode 3 / 4 distance 7 mm	R33	0.85 V/m in 20 cm distance (RMS over 6 minutes)	614 V/m	Passed *
Electric field strength Mode 3 / 4 distance 0 mm	R33	0.63 V/m in 20 cm distance (RMS over 6 minutes)	614 V/m	Passed *
Electric field strength Mode 3 / 4 distance 7 mm	R47	0.94 V/m in 20 cm distance (RMS over 6 minutes)	614 V/m	Passed *
Electric field strength Mode 3 / 4 distance 0 mm	R47	0.64 V/m in 20 cm distance (RMS over 6 minutes)	614 V/m	Passed *

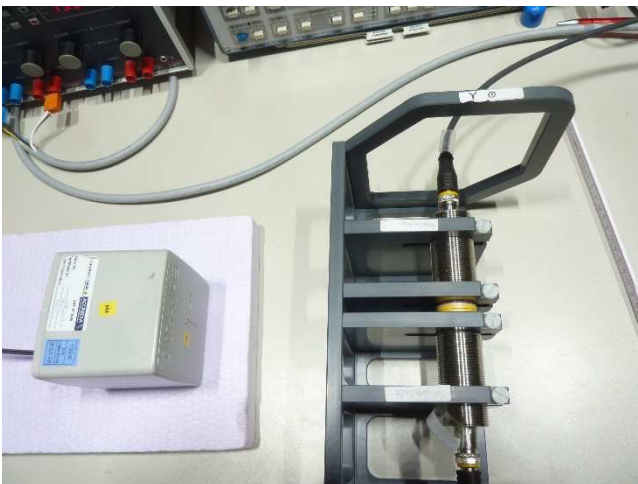
*: Limit for frequencies below 300 kHz according to clause 3.2 [4].



Mode 1



Mode 3 /4 distance 7 mm



Mode 3 /4 distance 0 mm

Test equipment (please refer to chapter 5 for details)
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1 – 3

5.4 Measurement of H field strength

Ambient temperature:	22 °C
Relative humidity:	27 %

Date:	24.11.2023
Tested by:	M. DINTER

The EUT operation mode: 1, 3 / 4 with distance of 7 mm and 0 mm.

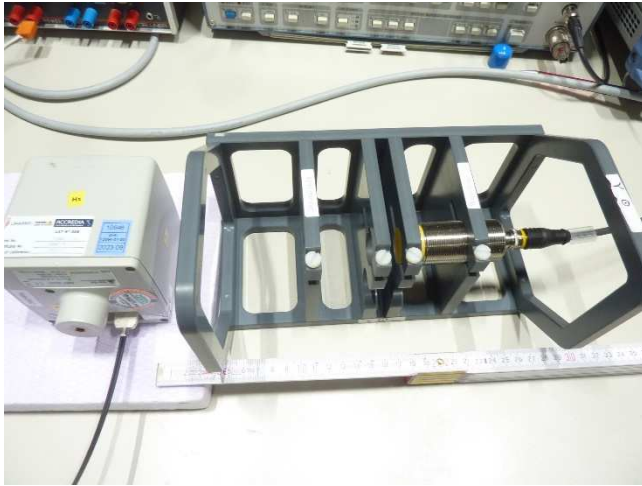
Frequency Mode 1:	145.03 kHz
Frequency Mode 3 / 4 with distance of 7 mm load Sensor:	126.01 kHz
Frequency Mode 3 / 4 with distance of 0 mm load Sensor:	105.3 kHz
Frequency Mode 3 / 4 with distance of 7 mm load R33:	126.05 kHz
Frequency Mode 3 / 4 with distance of 0 mm load R33:	108.8 kHz
Frequency Mode 3 / 4 with distance of 7 mm load R47:	126.05 kHz
Frequency Mode 3 / 4 with distance of 0 mm load R47:	105.3 kHz

As declared by the applicant the EUT is an industrial mounted device.
Therefore, a distance of 20 cm for a normal person was declared by the applicant.

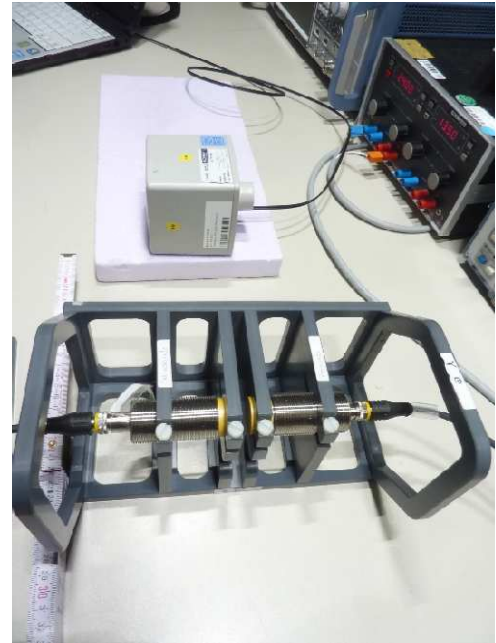
The position and orientation of the field probe for the maximum field strength emissions was searched before the measurement. This position and orientation could be seen on the photograph below. The measurement distance is defined between the surface of the EUT and the middle of the sensor element of the field probe, which shows the maximum value.

Parameter	Load	Result	Limit	Test result
Magnetic field strength Mode 1	-	0.08 A/m in 20 cm distance (RMS over 6 minutes)	1.63 A/m	Passed *
Magnetic field strength Mode 3 / 4 distance 7 mm	Sensor	0.09 A/m in 20 cm distance (RMS over 6 minutes)	1.63 A/m	Passed *
Magnetic field strength Mode 3 / 4 distance 0 mm	Sensor	0.12 A/m in 20 cm distance (RMS over 6 minutes)	1.63 A/m	Passed *
Magnetic field strength Mode 3 / 4 distance 7 mm	R33	0.32 A/m in 20 cm distance (RMS over 6 minutes)	1.63 A/m	Passed *
Magnetic field strength Mode 3 / 4 distance 0 mm	R33	0.3 A/m in 20 cm distance (RMS over 6 minutes)	1.63 A/m	Passed *
Magnetic field strength Mode 3 / 4 distance 7 mm	R47	0.24 A/m in 20 cm distance (RMS over 6 minutes)	1.63 A/m	Passed *
Magnetic field strength Mode 3 / 4 distance 0 mm	R47	0.31 A/m in 20 cm distance (RMS over 6 minutes)	1.63 A/m	Passed *

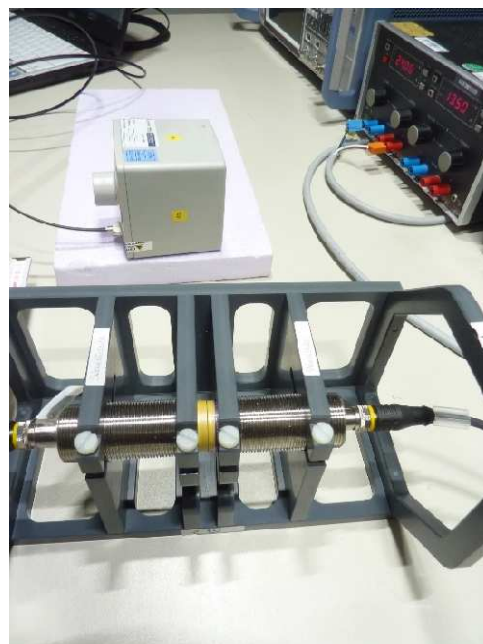
*: Limit for frequencies below 300 kHz according to clause 3.2 [4].



Mode 1



Mode 3 /4 distance 7 mm



Mode 3 /4 distance 0 mm

Test equipment (please refer to chapter 5 for details)

1 – 3

6 2.4 GHz Emissions (data communication) NICS

The following information are based on Test-Report F230178E2 from PHOENIX TESTLAB GmbH

General exemption CFR 47 §1.1307(b)(3)(i)(A)

The EIRP output power is calculated using formula 10.3.9 in [4] (measurement distance of 3m):

$$\text{EIRP [dBm]} = 55.8 \text{ dB}\mu\text{V/m} - 95.3 = -39.5 \text{ dBm}$$

P _{con} [dBm] incl. Tuneup	P _{con} [μW] incl. Tuneup	Ant. Gain [dBi]	Cable Attenuation [dB]	P _{e.i.r.p} [dBm]	P _{e.i.r.p} [μW]	P _{e.r.p} [dBm]	P _{e.r.p} [mW]
-39.5	0.11	0	0	-39.5	0.11	-41.65	0.07
Frequency [MHz]	P _{e.i.r.p} [μW]	Duty cycle D %	Distance d [cm]	S [mW/cm ²]	S _{limit} [mW/cm ²]	Result	
2.442	0.11	100	20	0.00000002232	1	exempted	

Due to this low RF output power this device is exempted from SAR evaluation.

7 2.4 GHz Emissions (data communication) NICP

The following information are based on Test-Report F230142E4 from PHOENIX TESTLAB GmbH

General exemption CFR 47 §1.1307(b)(3)(i)(A)

The EIRP output power is calculated using formula 10.3.9 in [4] (measurement distance of 3m):

$$\text{EIRP [dBm]} = 52.2 \text{ dB}\mu\text{V/m} - 95.3 = -43.1 \text{ dBm}$$

P _{con} [dBm] incl. Tuneup	P _{con} [μW] incl. Tuneup	Ant. Gain [dBi]	Cable Attenuation [dB]	P _{e.i.r.p} [dBm]	P _{e.i.r.p} [μW]	P _{e.r.p} [dBm]	P _{e.r.p} [mW]
-43.1	0.05	0	0	-43.1	0.05	-45.25	0.03
Frequency [MHz]	P _{e.i.r.p} [μW]	Duty cycle D %	Distance d [cm]	S [mW/cm ²]	S _{limit} [mW/cm ²]	Result	
2.442	0.05	100	20	0.000000009744	1	exempted	

Due to this low RF output power this device is exempted from SAR evaluation.

8 Simultaneous transmission

As declared by the applicant, the 2442 MHz communication transmitter and the 105 - 145 kHz power transfer operate simultaneously.

Ratio assessment:

	Field strength [A/m]	Limit [A/m]	H-field / Limit Ratio
maximum at 105 - 145 kHz Power transfer H-field	0.32	1.63	0.1963
NICS	S [mW/cm ²]	S_Limit [mW/cm ²]	Output power / Limit Ratio
2442 MHz; MPE calculation	2.232E-08	1	0.00000002
	Field strength [V/m]	Limit [V/m]	E-field / Limit Ratio
maximum at 105 - 145 kHz Power transfer E-field	0.94	614	0.0015
NICP	S [mW/cm ²]	S_Limit [mW/cm ²]	Output power / Limit Ratio
2442 MHz; MPE calculation	9.74E-09	1	0.00000001
		Limit	Sum Ratios
		1	0.1978

Result

The sum of the ratios is below 1. Therefore, this device is also below the reference level while all transmitters operate simultaneously in a safety distance between the user and the EUT of 20 cm.

9 Conclusion

The Inductive coupler (base coupler) NICP-EM30-IOL-H1141 and Inductive coupler (remote coupler) NICS-EM30-IOL-HK1141 comply in all operational modes to the limits given in CFR 47 §1.1310(e)1 at a distance of 20 cm.

10 Measurement Uncertainties

Measurement method	Standard used for calculating measurement uncertainty	Expanded measurement uncertainty (95 %) U_{lab}
Measurements of electric and magnetic fields	EN 50413, Ch. C2 EN 62233, Ch. 5.6	20.6 % (H-F) 24.8 % (E-F)

11 Test Equipment used for Tests

No.	Test equipment	Type	Manufacturer	Serial No.	PM. No.	Cal. Date	Cal. Due
1	Isotropical E- and H-field analyser	EHP-200A	Narda	170WX80314	482643	31.08.2023	08.2025
2	Power supply	TOE8752-32	Toellner	31569	480009	Calibration not necessary	
3	Multimeter	971A	Hewlett Packard	JP39009358	480721	07.09.2023	09.2024

12 Report History

Report Number	Date	Comment
F230142E9	01.10.2025	Initial Test Report
-	-	-
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----- end of test report -----