

# TEST REPORT

## FCC CFR 47 Part 1 Subpart I §1.1310 – Radiofrequency radiation exposure limits


**Report Reference No.** .....: **REP019506-1.** This test report replaces the one identified with number REP019506 issued on 2023-11-17.  
**Date of issue** .....: 2023-11-28  
**Test Report Verdict** .....: PASS

**Testing Laboratory**.....: **Nemko S.p.A.**  
**Address**.....: Via Del Carroccio, 4  
**City** .....: 20853 Biassono (MB)  
**Country** .....: Italy  
**Testing location**.....: Described at clause 1.4

**Customer name**.....: **PRS LAB Srl Unipersonale**  
**Customer contact information** ....: Via Campagna 92 – 22020 Faloppio CO- Italy

**Reference standards**.....: **FCC CFR 47 Part 1 Subpart I §1.1310**  
**Standard application** .....: Full application

**Equipment under test** .....: **Wireless Power Charger**  
**Trademark(s)** .....: ****  
**Manufacturer**.....: DATALOGIC S.r.l.  
**Model/Type reference** .....: Described at clause 4.1

**Tests performed by** .....: D. Guarnone 

**Report approved by**.....: R. Giampaglia 

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## 1. GENERAL INFORMATION

### 1.1 Project history

Report number	Modification to the report / comments	Date
REP019506	First release	2023-11-17
REP019506-1	Second release: typo corrections	2023-11-28
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### 1.2 Symbol used in the report

<input checked="" type="checkbox"/> .....	The crossed square indicates that the listed condition, standard or equipment is applicable for this report.
<input type="checkbox"/> .....	The empty square indicates that the listed condition, standard or equipment is not applicable for this report.
NP (Not performed).....	Test case not performed according to customer request
N (Not applicable) .....	Test case does not apply to the test object
P (Pass).....	Test object does meet the requirement
F (Fail) .....	Test object does not meet the requirement
<input type="checkbox"/> Comma (,) / <input checked="" type="checkbox"/> Dot (.).....	Symbol used as decimal separator throughout this report
Asterisk (*)	Symbol not used throughout this report
EUT .....	Equipment Under Test
The results contained in this report reflect the results for this particular model(s) and serial number(s) and apply to the sample(s) as received. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.	

### 1.3 Date of sample(s) reception and tests

Date of receipt of test sample(s) .....	2023-10-25
Testing start date .....	2023-11-15
Testing termination date .....	2023-11-17

#### 1.4 Testing location

The tests have been performed in the place indicated below:

Nemko premises location .....: Nemko S.p.A.  
 Via Del Carroccio, 4  
 20853 Biassono (MB) - Italy

Other location .....: --  
 --  
 --

#### 1.5 Environmental conditions

The tests were carried out in the ranges of environmental conditions specified below:

Ambient temperature .....: 18-33 °C  
 Relative Humidity .....: 25-70 %  
 Atmospheric pressure .....: 860-1060 hPa

Notes:

The following instruments are used to monitor the environmental conditions:

Equipment	Trademark	Model	Serial No.
Thermo-hygrometer	Testo	175-H2	20012380/305
Thermo-hygrometer	Testo	175-H2	38203337/703
Barometer	Castle	GPB 3300	072015

## 1.6 Measurement uncertainty and assessment of conformity

The measurement uncertainty was calculated for each test and quantity listed in this test report, according to CISPR 16-4-2 and other specific test standard and is documented in Nemko Spa working manual WML1002.

The assessment of conformity for each test performed on the equipment is performed not taking into account the measurement uncertainty. The two following possible verdicts are stated in the report:

P (Pass) - The measured values of the equipment respect the specification limit at the points tested. The specific risk of false accept is up to 50% when the measured result is close to the limit.

F (Fail) - One or more measured values of the equipment do not respect the specification limit at the points tested. The specific risk of false reject is up to 50% when the measured result is close to the limit.

Hereafter Nemko's measurement uncertainties are reported:

Test	Range	Measurement Uncertainty	Notes
Electromagnetic fields (EMF)	Magnetic, Electric and Electromagnetic fields: 0 Hz ÷ 40 GHz	25 %	(1)
NOTES: (1) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2$ , which for a normal distribution corresponds to a coverage probability of approximately 95 %			

## 2. STANDARDS, TEST METHODS AND TECHNICAL PROCEDURES

### 2.1 Standard(s) or other specifications applied

The following standard(s) or specifications were applied:

#### **FCC CFR 47 Part 1 Subpart I**

Code of Federal Regulations – Title 47 – Part 1 Practice and procedure – Subpart I Procedures Implementing the National Environmental Policy Act of 1969

### 2.2 Test method(s) applied

The following document(s) are referred to in the standard(s) or specifications cited at clause 2.1 in such a way that some or all of their content constitutes requirements for the standard itself. For undated document(s), only the edition cited in the standard(s) applies; dated document(s), including amendments, are used when the standard(s) requires to apply the latest edition of the referenced document:

#### **KDB 680106 D01 RF Exposure Wireless Charging App v03**

RF exposure considerations for low power consumer wireless power transfer applications

### 2.3 Nemko technical procedures

**WM L0177:** General routines for using instruments at Nemko

**WM L1002:** Measurement Uncertainty - Policy and Statement

**WM L0078:** Electromagnetic compatibility and radio spectrum matters (ERM) measurement uncertainty


**WM L0077:** General procedure for conducting EMC tests

## 3. SUMMARY OF TEST RESULTS AND VERDICTS

Emission Tests		
Requirement / test	Method Standard	Verdict
MPE evaluation	KDB 680106 D01 RF Exposure Wireless Charging App v03	P

## 4. EQUIPMENT UNDER TEST

### 4.1 EUT Identification

<p>Short description of the EUT</p> <p>The product is a wireless charging base that works in the 134 ÷ 150 kHz band. The base also contains a separately FCC and IC certified 910 MHz RF Module.</p>	
<p>Copy of marking plate(s) (if present)</p>	
 <p>Datalogic S.r.l., Lippo di Calderara di Reno, Bologna Italy          Model: BC9620-910          15V <math>\Rightarrow</math> max 1.5A from USB-C PD          12V <math>\Rightarrow</math> max 1.5A from Power supply          MFG Date: Jun 23 2023          Made in Slovakia S/N: B23P02019</p>	
<p>Sample ID .....</p> <p>Model/Type reference .....</p> <p>Ratings .....</p> <p>Equipment use .....</p> <p>Accessories and detachable parts included .....</p> <p>Test performed.....</p>	<p>PRJ00445820003 assigned by Nemko</p> <p>BC9620-910</p> <p>5 Vdc, 500 mA max from USB port 10 – 30 Vdc, 1.5 A max from power supply</p> <p>Fixed</p> <p>None</p> <p>All tests were performed on this sample</p>
<p>Software and/or firmware information .....</p>	<p>-</p>
<p>Product variants not tested:</p> <p>--</p>	
<p>Opinions and interpretations:</p> <p>--</p>	

#### 4.2 EUT Power Supply

Used <sup>1</sup>	N° <sup>2</sup>	Type	Supply Voltage	Phases N°	Supplementary Information
☒	1	AC	230 V / 50 Hz	L+N+PE	

Notes:

<sup>1</sup> The crossed square indicates that the supply voltage is used in at least one test.

<sup>2</sup> This number will be used all over the report to identify the supply voltage(s) used for each test.

#### 4.3 EUT Information declared by the Customer <sup>1</sup>

Information	Radio Module <sup>2</sup>	Declaration
EUT adopted frequency band (MHz):.....:	1	134 ÷ 150 kHz band
EUT adopted frequency band (MHz):.....:	2	910 MHz

Notes:


<sup>1</sup> Nemko S.p.A. declines all responsibility for the information above declared by the customer that may influence the validity of the results contained in this test report.

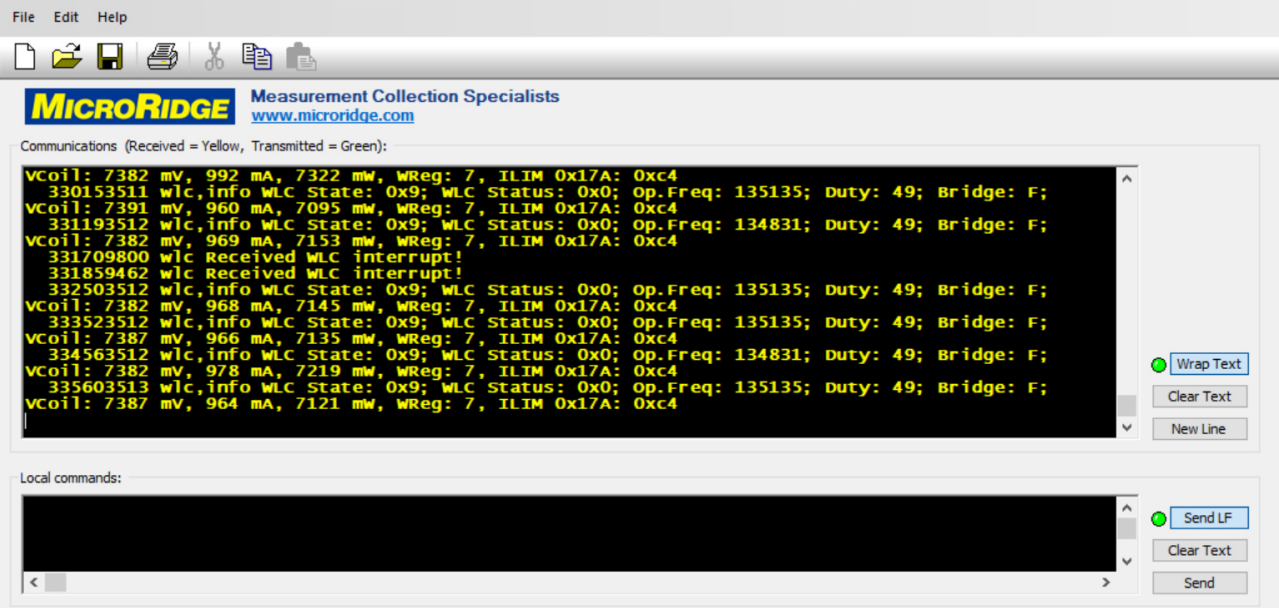
<sup>2</sup> See clause 4.9 for radio module information

#### 4.4 EUT Operation Modes

N°	Description
1	Normal charging battery both from the AC/DC power supply (worst case) and USB-RJ45 cable, provided by the customer.

Notes:

 MicroRidge ComTestSerial (COM8 @ 9600-N-8-1)



The screenshot shows the MicroRidge Measurement Collection Specialists software interface. The main window displays a terminal window with the following text:

```

Communications (Received = Yellow, Transmitted = Green):
VCoil: 7382 mV, 992 mA, 7322 mW, WReg: 7, ILIM 0x17A: 0xc4
330153511 wlc,info WLC State: 0x9; WLC Status: 0x0; Op.Freq: 135135; Duty: 49; Bridge: F;
VCoil: 7391 mV, 960 mA, 7095 mW, WReg: 7, ILIM 0x17A: 0xc4
331193512 wlc,info WLC State: 0x9; WLC Status: 0x0; Op.Freq: 134831; Duty: 49; Bridge: F;
VCoil: 7382 mV, 969 mA, 7153 mW, WReg: 7, ILIM 0x17A: 0xc4
331709800 wlc Received WLC interrupt!
331859462 wlc Received WLC interrupt!
332503512 wlc,info WLC State: 0x9; WLC Status: 0x0; Op.Freq: 135135; Duty: 49; Bridge: F;
VCoil: 7382 mV, 968 mA, 7145 mW, WReg: 7, ILIM 0x17A: 0xc4
333523512 wlc,info WLC State: 0x9; WLC Status: 0x0; Op.Freq: 135135; Duty: 49; Bridge: F;
VCoil: 7387 mV, 966 mA, 7135 mW, WReg: 7, ILIM 0x17A: 0xc4
334563512 wlc,info WLC State: 0x9; WLC Status: 0x0; Op.Freq: 134831; Duty: 49; Bridge: F;
VCoil: 7382 mV, 978 mA, 7219 mW, WReg: 7, ILIM 0x17A: 0xc4
335603513 wlc,info WLC State: 0x9; WLC Status: 0x0; Op.Freq: 135135; Duty: 49; Bridge: F;
VCoil: 7387 mV, 964 mA, 7121 mW, WReg: 7, ILIM 0x17A: 0xc4

```

Local commands:

Send LF, Clear Text, New Line, Send, Send



#### 4.5 EUT Configuration Modes

The EUT was configured to measure its highest possible radiation level. The test modes selected are according to EUT instruction manual.

N°	Description
1	EUT in maximum output power transfer mode, WPT battery initially discharged Radiated measurements were performed with the reader placed above the base; it produced worst case emissions and output power, therefore this alignment was used for all measurements. 910 MHz carrier on at max power. DC 100%
Notes:	

#### 4.6 EUT Input/Output Ports

Port	Name	Type <sup>1</sup>	Cable Max. >3m	Cable Shielded	Description
0	Enclosure	N/E	—	—	—
1	RJ45	I/O	<input type="checkbox"/>	<input checked="" type="checkbox"/>	RJ45 Multi-interface
2	DC	DC	<input type="checkbox"/>	<input type="checkbox"/>	AC/DC Adapter
Notes:					
<sup>1</sup> Port type:					
AC = AC Power Port		DC = DC Power Port	N/E = Non-Electrical	ANT = Antenna Port	
I/O = Signal/Control Input or Output Port			TP = Wired network or telecommunication Port		

#### 4.7 EUT and Equipment Used During Test

Use <sup>1</sup>	Product Type	Manufacturer	Model	Comments
EUT	WPT	DATALOGIC	CM9630	Provided by the customer
AE	PowerScan	DATALOGIC	PBT9600	Provided by the customer
AE	AC/DC Power supply	EDACPOWER	EA10681V-240	Provided by the customer
Notes: <sup>1</sup> Use EUT - Equipment Under Test                      SIM - Simulator (Not Subjected to Test) AE - Auxiliary/Associated Equipment (Not Subjected to Test)				

#### 4.8 Information about radio module(s)

Radio module 1	
Description	Information
Identification:	Model: Datalogic                      Trademark: Mizar
Frequency band (MHz):	902.8-927.484 MHz
Antenna information:	1.8 dB, Sinbon Electronics Co
Notes:	

## 5 Radiofrequency radiation exposure Evaluation

### 5.1.1 Photo documentation of the test set-up



Test on the frontal side



Test on the right side



Test on the left side



Test on the rear



Test above the top surface

### 5.1.2 Test method

For devices designed for typical desktop applications, such as wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 15 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device.

### 5.1.3 Limits

The aggregate H-field strengths at 15 cm surrounding the device and 20 cm above the top surface from all simultaneous transmitting coils must be less than 50% of the MPE limit.

Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m.

### 5.1.4 Test result

Test point	Distance	E-field strengths	H-field strengths	Verdict
Front side	15 cm	2.16 V/m	0.15 A/m	P
Right side	15 cm	1.6 V/m	0.12 A/m	P
Left side	15 cm	2.4 V/m	0.10 A/m	P
Rear side	15 cm	2.3 V/m	0.18 A/m	P
Above the top	20 cm	0.45 V/m	0.01 A/m	P

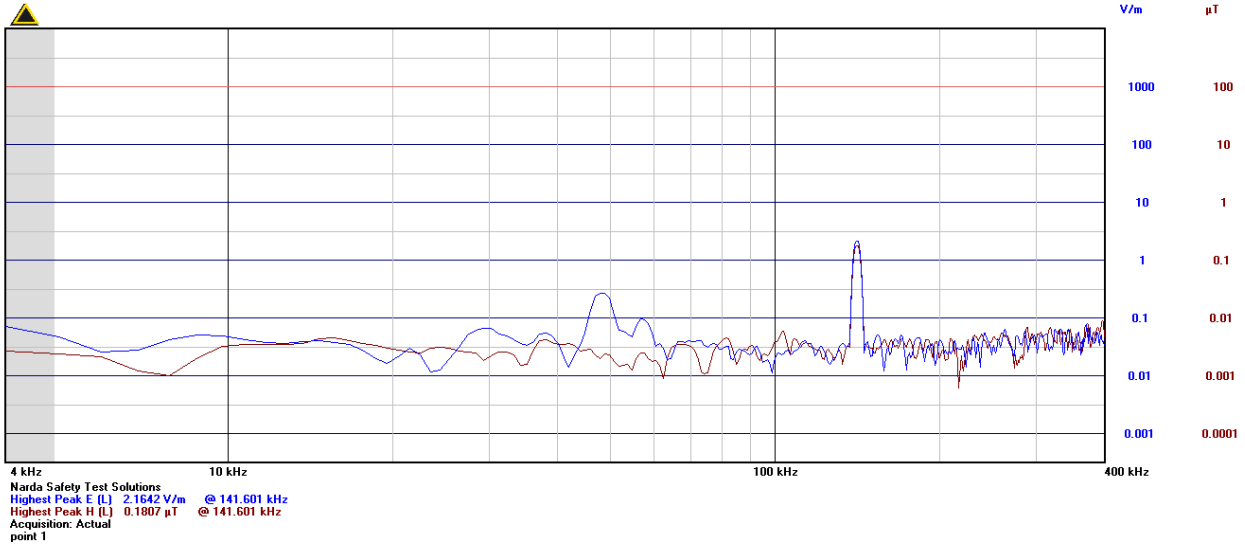
Verdict:	<input checked="" type="checkbox"/> P <input type="checkbox"/> F <input type="checkbox"/> N
Frequency range:	100 kHz – 300 kHz
Kind of test site:	Shielded room
Remarks:	

### 5.1.5 Test equipment used

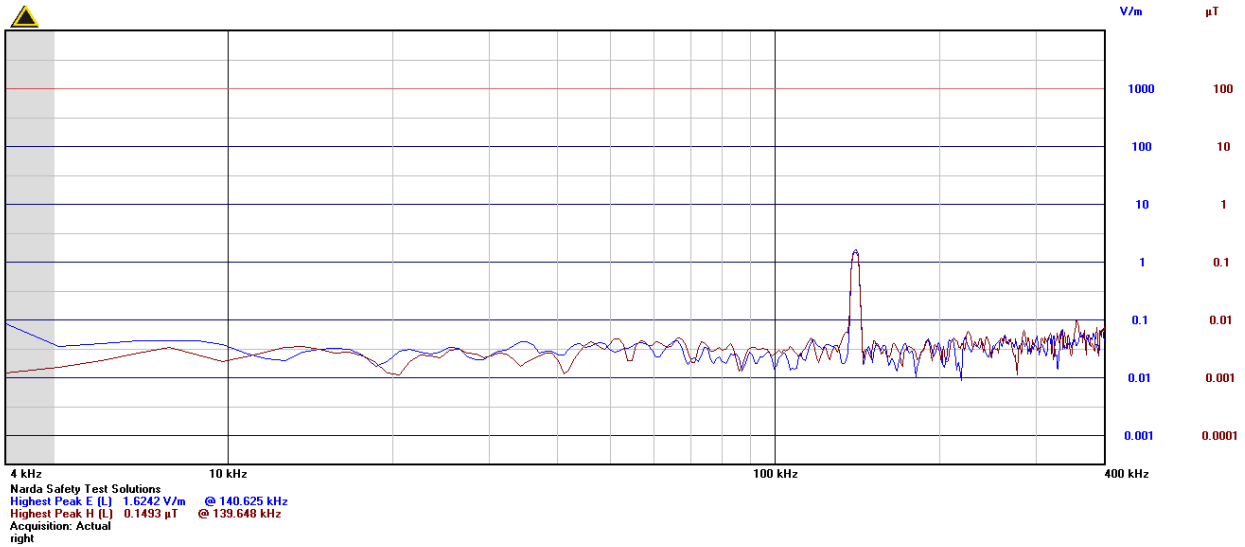
Equipment	Manufacturer	Model	Serial N°	Cal Date	Due Date
Filed meter	Narda	EHP-200A	170WX90208	2022-04	2024-04
Filed meter	Narda	EHP-50G	510ZY00109	2022-04	2024-04
Shielded room	Siemens	Conducted emission test room	1862	NSC	NSC
Software	Narda	EHP50-TS	1.73	NSC	NSC
Software	Narda	EHP200-TS	1.94	NSC	NSC

NSC = Not Subject to Calibration

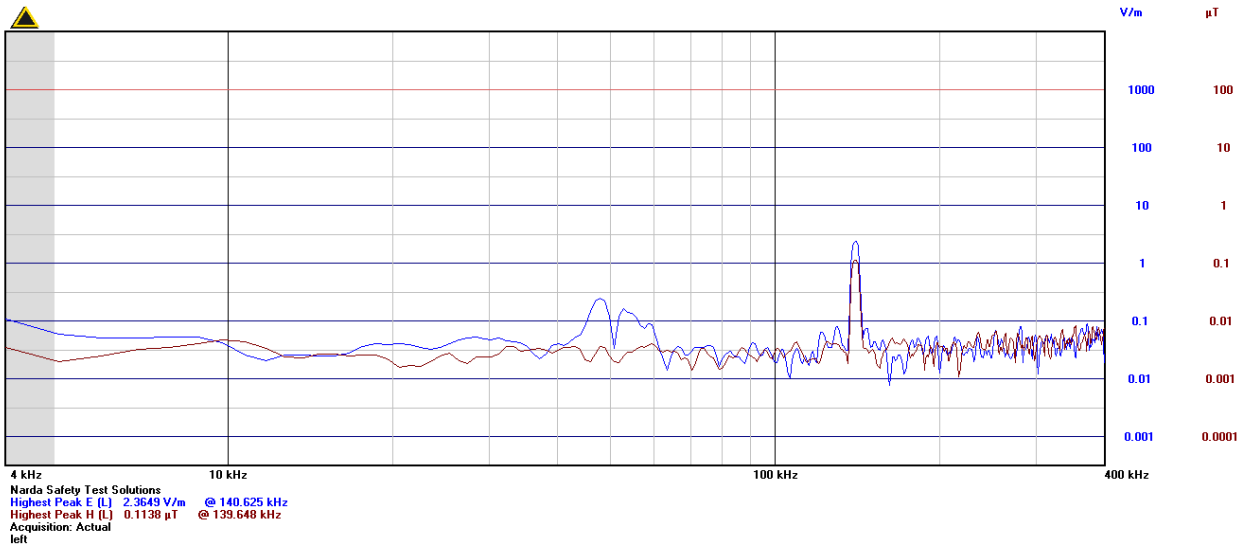
5.1.7 Test protocol



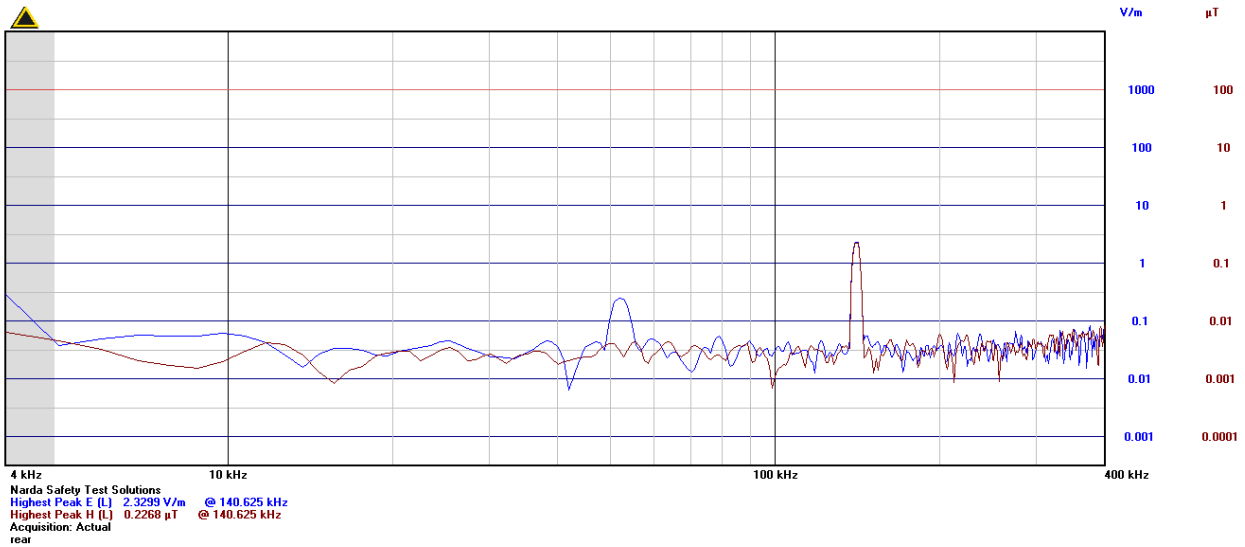
Front side



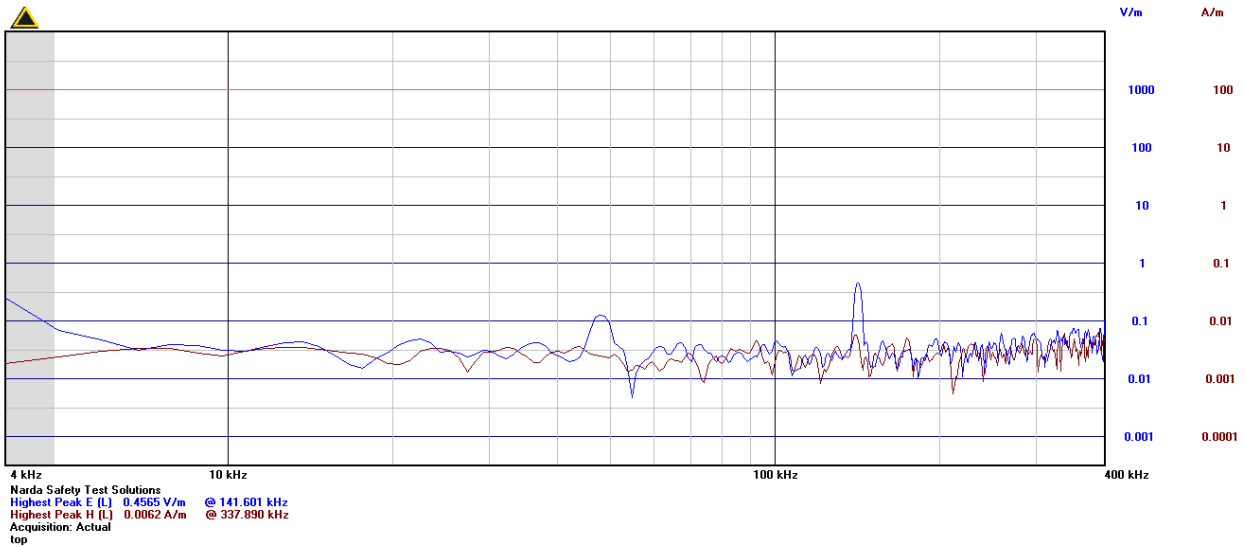
Right side



Left side

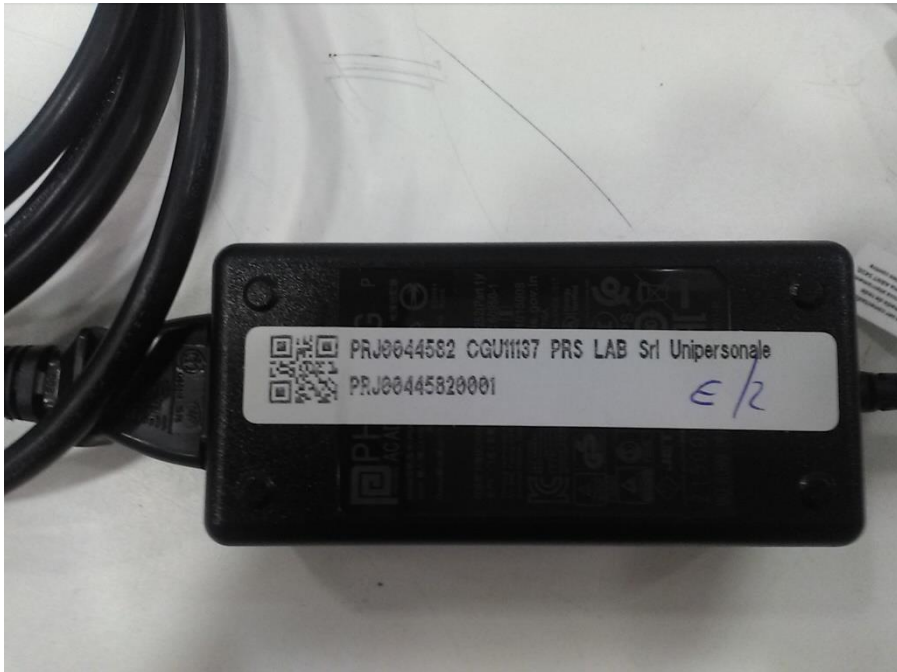


Rear side



Above the top

6 EUT PHOTOS











End of report