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Idvorsky Laboratories

EMC TEST REPORT #	**1446-2**
Date of issue	24.05.2024.
Date of testing	05 – 20.03.2024.
Job #	1446
Customer	Grigorii Grabovoi PR KONSALTING TECHNOLOGIES OF ETERNAL DEVELOPMENT, Kneza Mihaila 21A lok 113 TC Milenijum, 11102 Beograd, Srbija
Manufacturer	Grigorii Grabovoi PR KONSALTING TECHNOLOGIES OF ETERNAL DEVELOPMENT, Kneza Mihaila 21A lok 113 TC Milenijum, 11102 Beograd, Srbija
Product/EUT	The device of development of concentrations of eternal life PRK-1UM is of three-modes
Model	**PRK-1UM three-mode**
Serial No.	P18948982.2M

VERDICT (based solely on tests listed in Clause 1)	**PASS**

Remarks:

None.

Tested by:

LAB engineer, Predrag Savić

LAB technician, Slaven Pavlekić

Verified by:

LAB engineer, Andrijana Lazić

Idvorski laboratorije Beograd-Zvezdara

Approved by:

Technical manager, Saša Jorgovanović

Disclaimer:
This testing and results apply only for tested sample of the product (EUT). Laboratory is not responsible for the data submitted by the customer. Laboratory accepts no responsibility either misuses or wrong interpretations and decisions based on this report.

1. TEST SUMMARY

The EUT is tested in the laboratory.
The EUT is tested as tabletop equipment.

The EUT is tested according to the following product standards:

EN IEC 61000-3-2:2019 + A1:2021,
EN 61000-3-3:2013 + A1:2019 +A2:2021 + AC:2022-01,
EN IEC 55014-1:2021 and
EN IEC 55014-2:2021.

The EUT is classified as **category IV equipment**, according to Clause 4.5 of EN IEC 55014-2:2021.

The EUT contains the following ports:

- **enclosure port**
- **DC mains port – USB, 5 V DC nominal**

and only tests concerning these ports shall be taken into account following the customer's request, including:

- **AC mains port of the auxiliary equipment.**

Overview of the test results according to the test plan and specified performance criteria listed in Clause 3.5 and in EUT's mode of operation as noted in Clause 3.4 of this report:

STANDARD	TEST METHOD	PORT	MODE OF OPERATION	TEST SPECIFICATIONS	VERDICT
EN IEC 55014-1: 2021	**Conducted RF emission test** Applied EN IEC 55014-1:2021	AC mains port of the auxiliary equipment	The first, the second, the third and the fourth mode	Frequency range: 150 kHz – 30 MHz Measurement by application of LISN. Limits: Table 5, Clause 4.3.3.6 of EN IEC 55014-1: 2021	**PASS**
EN IEC 55014-1: 2021	**Radiated RF emission test** Applied (1) EN 55016-2-3:2017 + A1:2019	Enclosure	The third mode	Frequency range: 30 MHz – 1GHz(2) Limits: Table 9, Clause 4.3.4.5 of EN IEC 55014-1:2021 Performed in SAC with BiLog antenna at 3 m distance.	**PASS**
EN IEC 61000-3-2:2019 + A1:2021	**Current harmonics emissions test** Applied EN IEC 61000-3-2:2019 + A1:2021	AC mains port of the auxiliary equipment	The first, the second, the third and the fourth mode	Test type: fluctuating harmonics 2.5 min Test voltage:230 V, 50 Hz Time window: 200 ms Class A, limits: table 1 of EN IEC 61000-3-2:2019 + A1:2021	**PASS**

EN 61000-3-3: 2013 + A1:2019 + A2:2021 + AC:2022-01	**Flicker limitations test** Applied EN 61000-3-3:2013 + A1:2019 +A2:2021 + AC:2022-01	AC mains port of the auxiliary equipment	The third and the fourth mode	10 min, 1 observation Limits: clause 5 of EN 61000-3-3:2013 + A1:2019 +A2:2021 + AC:2022-01	**PASS**
EN IEC 55014-2: 2021	**Immunity to electrostatic discharge** Applied (1) EN 61000-4-2:2009	Enclosure	The third mode	Clause 5.1, Table 1 of EN IEC 55014-2:2021 Test level and discharge points: ±4 kV (Contact discharge) at HCP, VCP, screws, metal button, metal frame of the LED indicator, enclosure (conductive parts). ±8 kV (Air discharge) at OLED screen, plastic buttons, green LED indicator, motion sensor, USB cable connector, enclosure (non-conductive parts). No post-installation tests apply. **Requested criterion: B**	**PASS**
EN IEC 55014-2: 2021	**Immunity to fast transients** Applied (1) EN 61000-4-4:2012	AC mains port of the auxiliary equipment	The third mode	Clause 5.2, Table 4 of EN IEC 55014-2:2021 Test level: ±1 kV Rise time/hold time: 5/50 ns Repetition frequency: 5 kHz Duration 120 s; Burst time 75 spikes; Repetition time 300 ms; Common mode coupling, using coupling decoupling network; **Requested criterion: B**	**PASS**
EN IEC 55014-2: 2021	**Immunity to injected currents** Applied (1) EN 61000-4-6:2014	AC mains port of the auxiliary equipment	The third mode	Clause 5.4, Table 10 of EN IEC 55014-2:2021 Frequency range: 0.15 – 80 MHz Frequency step: 1 %; Test level: 3 V r.m.s. (unmodulated) Dwell time 1 s; Modulation: 80 % AM, sine wave 1 kHz Injection method: CDN M216 **Requested criterion: A**	**PASS**

EN IEC 55014-2:2021	**Immunity to radio frequency electromagnetic fields** Applied (1) EN IEC 61000-4-3: 2020	Enclosure	The third mode	Clause 5.5, Table 11 of EN IEC 55014-2:2021 Frequency range: 80 – 1000 MHz with 1 % logarithmic step; Test level: 3 V/m r.m.s. (unmodulated); Modulation: 80 % AM sine wave 1 kHz; Dwell time 1 s; Performed in SAC with horizontal and vertical polarizations of BiLog type antenna, EM field application to 4 sides of the EUT UFA: rectangular 1.5 x 1.5 m at 0.8 m height; at 2.3 m distance from antenna. Full illumination method (no partial illumination method). **Requested criterion: A**	**PASS**
EN IEC 55014-2:2021	**Immunity to surge** Applied (1) EN 61000-4-5:2014 + A1:2017	AC mains port of the auxiliary equipment	The third mode	Clause 5.6, Table 12 of EN IEC 55014-2:2021 Tr/Td: 1.2/50 (8/20) μS; Using CDN for mains port; Test level: ±1 kV, line to line (5 positive pulses at phase angle at 90 ˚ and 5 negative pulses at phase angle at 270˚) Pause 60 s, Impedance 2 Ω **Requested criterion: B**	**PASS**
EN IEC 55014-2:2021	**Immunity to voltage dips and interruptions** Applied (1) EN IEC 61000-4-11:2020 + AC:2020-06	AC mains port of the auxiliary equipment	The third mode	Clause 5.7, Table 14 of EN IEC 55014-2:2021 Supply voltage: 230 V, 50 Hz Changes to occur at 0 degree crossover point of the voltage waveform. Voltage dips: Test voltage level: 0, 40, 70 % Duration: 0.5, 10, 25 cycles acc. **Requested criterion: C**	**PASS**

(1) In cases where, in regard to the year of publication, the test method referenced by the applied product standard does not coincide with the laboratory's scope of accreditation (SoA), the test method within the SoA shall be applied as noted. In all such cases, the test methods were compared and no significant differences consigning to the testing had been found.

(2) The highest internal frequency of the EUT is 16 MHz, according to the customer. The test is performed up to 1 GHz in accordance with clause 4.3.5.1 and table 10 of standard EN IEC 55014-1:2021.

2. CONTENTS

3. IDENTIFICATION of the EUT

3.1. Data*

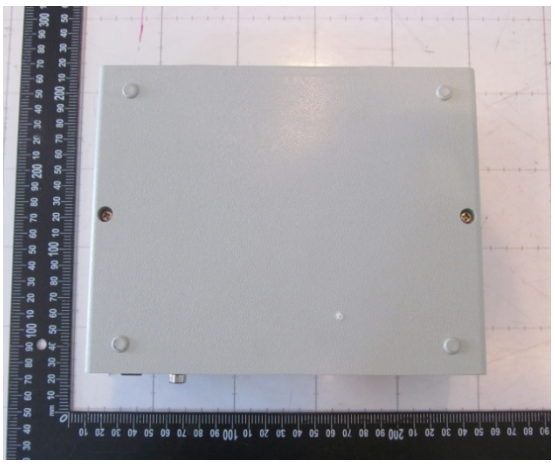
EUT:	**PRK-1UM three-mode**
Model:	PRK-1UM three-mode
Serial number:	P18948982.2M
Nominal voltage:	5 V DC
Nominal current:	0.4 A
Dimensions:	200 mm x 160 mm x 65 mm
Mass:	1 kg
USB power supply cable:	95 cm length, with the ferrite choke CF-65SN (2 turns) at 3 cm distance from EUT's connector
Note:	EUT is not a medical device, according to the customer.

**Supplied by the customer*

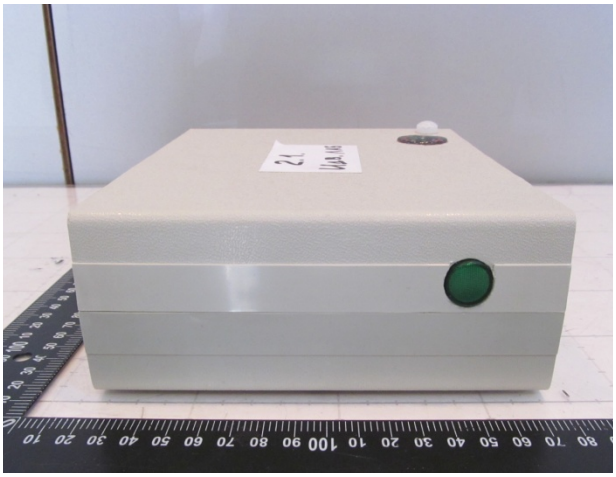
3.2. Photographs/schematics

EUT, front and top side

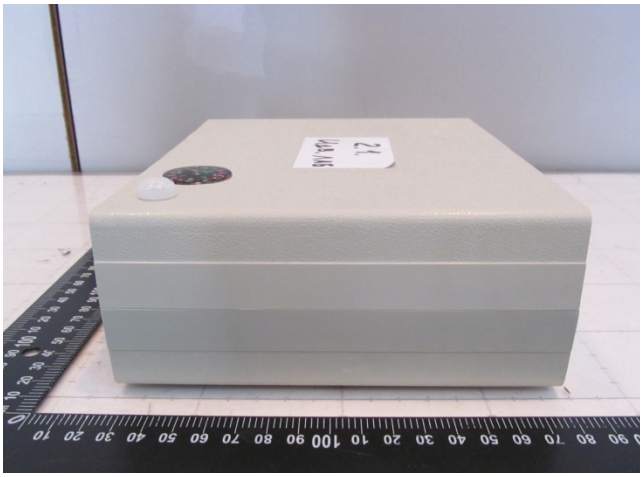
EUT, rear side



EUT, bottom side



EUT, left side



EUT, right side

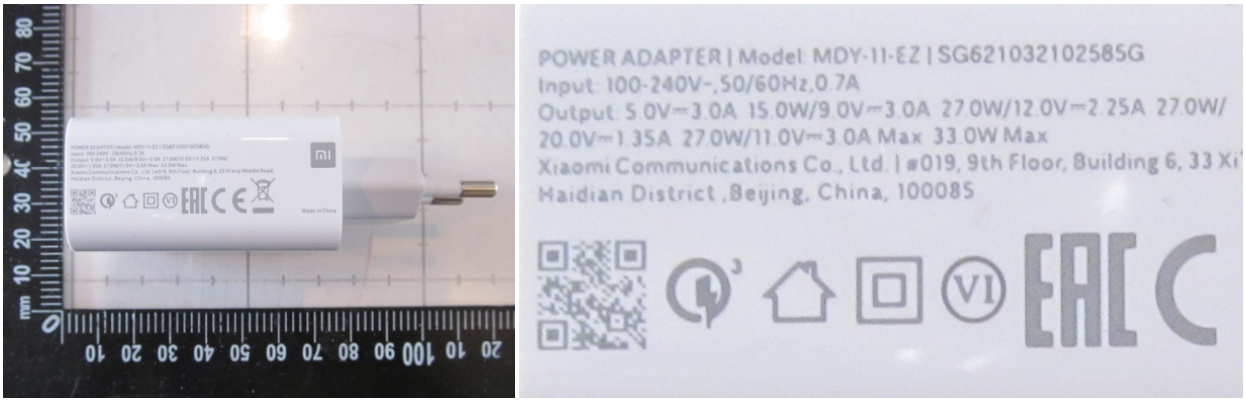
EUT, inside

EUT, USB power supply cable (95 cm length)

3.3. Auxiliary equipment

MARK	NAME / TYPE / PURPOSE	QUANTITY
Xiaomi MDY-11-EZ	AC/DC adapter for power supply of the EUT Input voltage and current: 100 – 240 V, 50/60 Hz, 0.7 A Output voltage and current: 5 V DC, 3 A	1

Photographs:



AC/DC power supply adapter 5 V DC

3.4. Modes of operation

MODE OF OPERATION	DESCRIPTION
The first mode	The EUT is powered via USB cable of 95 cm connected to 5 V DC AC/DC adapter which is connected to 230 V, 50 Hz distribution network. Buttons 2 and 3 are off. The first mode is activated by turning on the button 1 which lights up red when is turned on. SD card is inserted into a special slot on the front panel on the right side.
The second mode	The EUT is powered via USB cable of 95 cm connected to 5 V DC AC/DC adapter which is connected to 230 V, 50 Hz distribution network. The button 1 is turned on and lights up red. The button 3 if off. The second mode is activated by turning on the button 2 which lights up green when is turned on. The second mode is manifested by a static light on the left side of the device, inside the device. SD card is inserted into a special slot on the front panel on the right side.
The third mode	The EUT is powered via USB cable of 95 cm connected to 5 V DC AC/DC adapter which is connected to 230 V, 50 Hz distribution network. Buttons 1 and 2 are turned on, button 3 is off. The third mode is activated by turning off and on the button 1 again. The third mode is manifested by pulse-periodic emission of light from the left side of the device, inside the device, while button 1 lights up red in pulses and button 2 constantly lights up green. SD card is inserted into a special slot on the front panel on the right side.
The fourth mode	The EUT is powered via USB cable of 95 cm connected to 5 V DC AC/DC adapter which is connected to 230 V, 50 Hz distribution network. Buttons 1 and 2 are turned on, and the fourth mode is activated by turning on the button 3 which lights up blue when is turned on. This mode includes two lasers and an OLED screen. The inclusion of the laser can be observed from the back of the device through the ventilation holes. The required series of numbers is written to the SD card. An OLED display is used to read the numeric series. For this additional function, It is necessary to turn off the button on the left side of the OLED screen, insert the SD card and turn on the button on the left side of the OLED screen. Inscriptions appear on the display. SD card is inserted into a special slot on the front panel on the right side.

3.5. Performance criteria

3.5.1. Emission criteria

Conducted RF emission 150 kHz – 30 MHz: Required emission limits are according to the customer's request and also in accordance with table 5, Clause 4.3.3.6 of EN IEC 55014-1:2021.

Radiated RF emission 30 MHz – 1 GHz: Required emission limits are according to the customer's request and also in accordance with the limits from table 9, Clause 4.3.4.5 of EN IEC 55014-1:2021.

Current harmonics emissions test: Required emission limits are according to the customer's request and also in accordance with the limits for class A equipment from table 1 of EN IEC 61000-3-2:2019 + A1:2021.

Flicker limitations test: Required limits are according to the customer's request and also in accordance with clause 5 of EN 61000-3-3:2013 + A1:2019 +A2:2021 + AC:2022-01.

3.5.2. Immunity criteria

GENERAL PERFORMANCE CRITERIA:		
See clause 6 of EN IEC 55014-2:2021.		
APPLIED PERFORMANCE CRITERIA:		
CRITERIA	**DESCRIPTION OF NORMAL OPERATION OR DEGRADATION OF PERFORMANCE**	**MODE OF OPERATION**
A	During and after the test EUT shall continue to operate as intended. During and after the test, the following phenomena are not allowed: • Restart • Change of mode of operation • Change of intensity and/or frequency of the pulsing light by visual observation	**The third mode**
B	After the test, EUT shall continue to operate as intended. During and after the test, the following phenomena are not allowed: • Restart • Change of mode of operation During the test, the following phenomena are allowed, if after the test EUT continues to operate as intended, without an operator's intervention: • Change of intensity and/or frequency of the pulsing light by visual observation, for a few seconds	
C	After the test, EUT shall continue to operate as intended. During the test, the following phenomena are allowed, if after the test EUT continues to operate as intended, with or without an operator's intervention: • Restart • Change of mode of operation • Change of intensity and/or frequency of the pulsing light by visual observation	

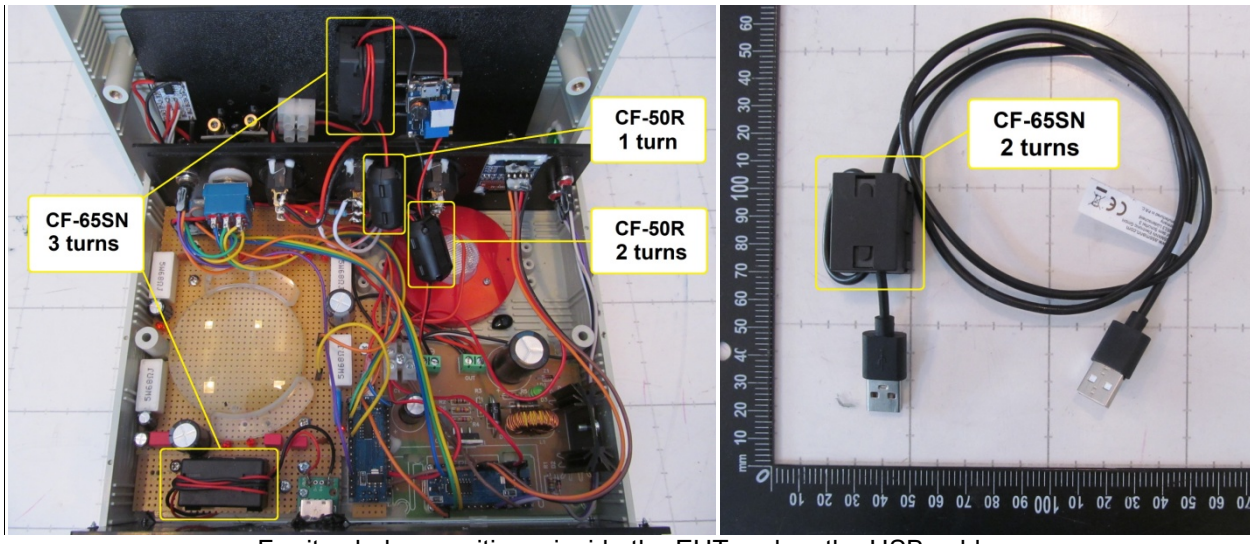
3.6. Product related notes

Inside the EUT there are 4 ferrite chokes (see photos below for positions), according to the customer:

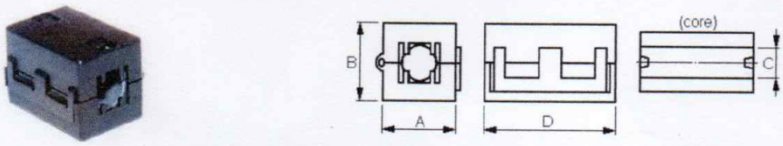
- Crown Ferrite CF-65SN, 2 komada (3 turns each),
- Crown Ferrite CF-50R, 2 komada (1 and 2 turns).

Outside the EUT there is one ferrite choke Crown Ferrite CF-65SN (2 turns) on the USB power supply cable, positioned at 3 cm distance from the EUT's USB connector.

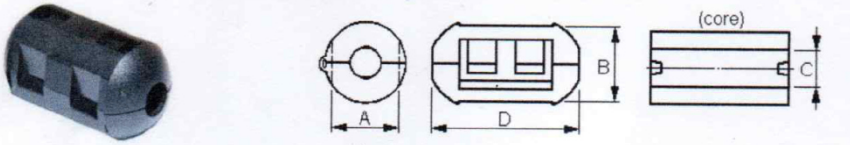
Ferrite chokes manufacturer: Crown Ferrite Enterprise Co., 17, Alley 14, Lane 165, Kang-Ning Rd., Sec. 3, Nei-Hu District Taipei, Taiwan



Ferrite chokes positions, inside the EUT and on the USB cable

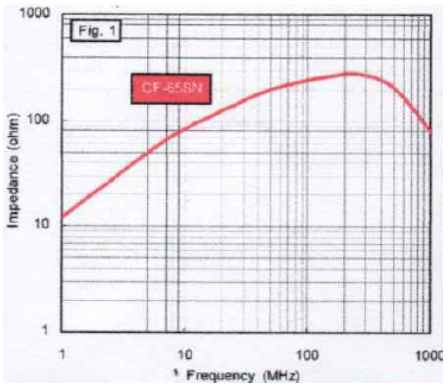


Part Number	A (mm)	B (mm)	C (mm)	D (mm)	Typical Impedance (ohm)		Z-F Fig.
					25MHz	100MHz	
V CF-65SN	17.8	19.5	6.5	32.5	140	240	1
CF-100SN	22.3	23.3	10.0	32.6	120	190	2
CF-130SN	29.6	30.5	13. 0	33.0	125	280	3

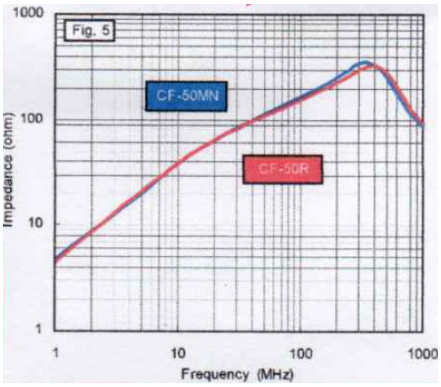


Part Number	A (mm)	B (mm)	C (mm)	D (mm)	Typical Impedance (ohm)		Z-F Fig.
					25MHz	100MHz	
V CF-50R	14.5	15.7	5.6	29.0	75	155	5
CF-75RH	18.9	20.7	7.0	39.1	105	285	6

Specifications of the ferrite chokes (models used are marked red)

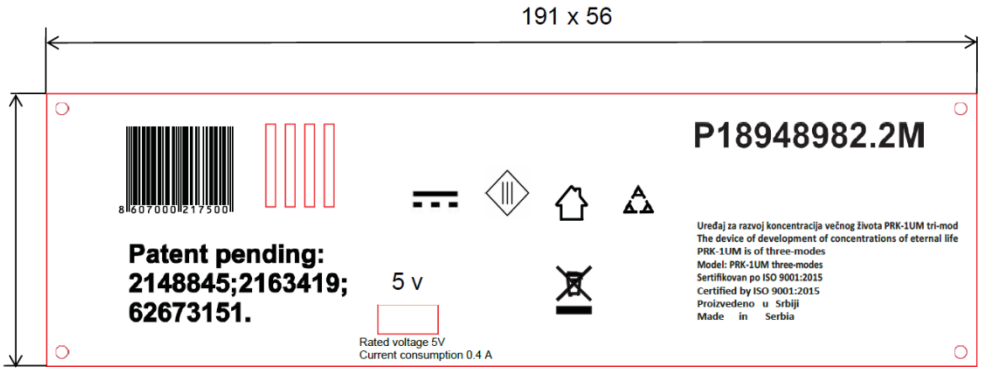


CF-65SN

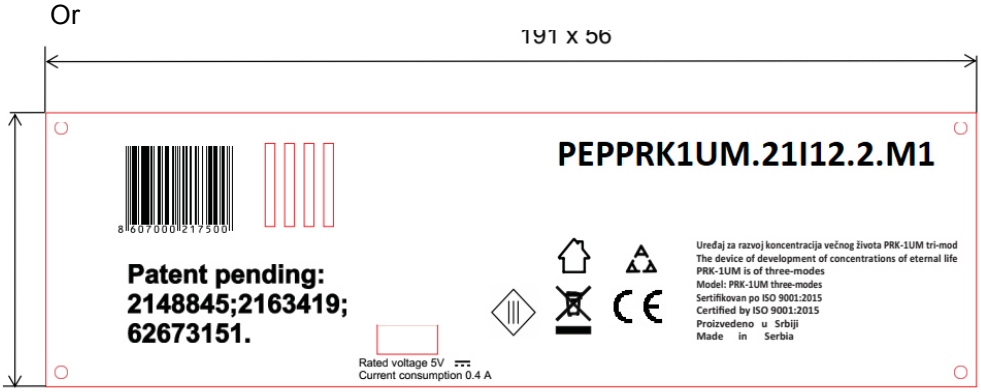


CF-50R

Photos below shows the back covers of the EUT additionally provided by the manufacturer and were not present during the tests.



Or



4. TESTING LOCATION AND CONDITIONS

Location: **Idvorsky Laboratories Ltd. Belgrade**
Volgina 15, 11060 Belgrade, Serbia

Conditions:

Temperature:	20.5 °C – 22.7 °C
Relative humidity:	32.9 % – 47.1 %
Atmospheric pressure:	984 hPa – 998 hPa

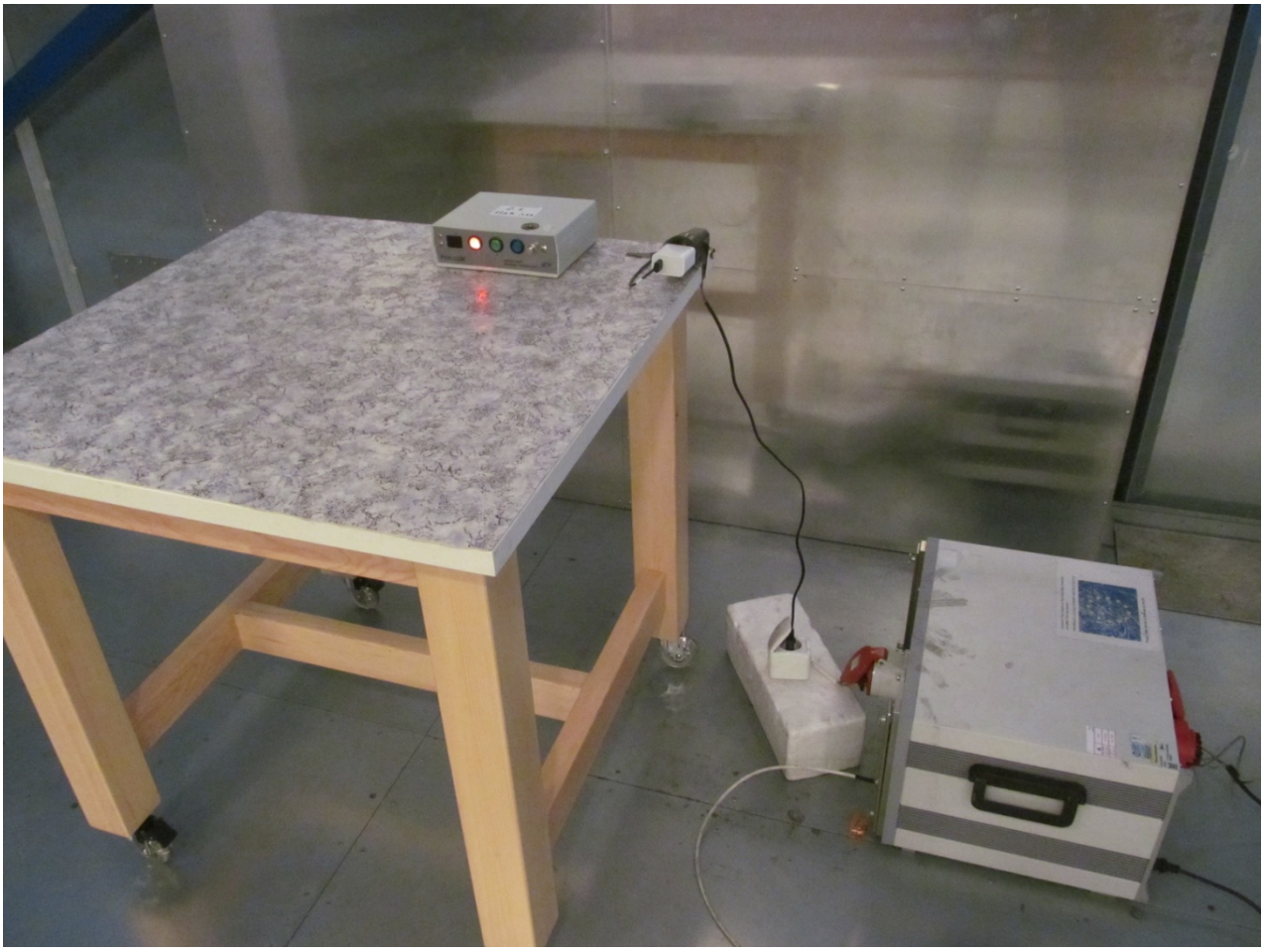
5. TEST RESULTS

5.1. Conducted RF emission test

Date: 05.03.2024.
Test standard: EN IEC 55014-1:2021
Tested by: Slaven Pavlekić

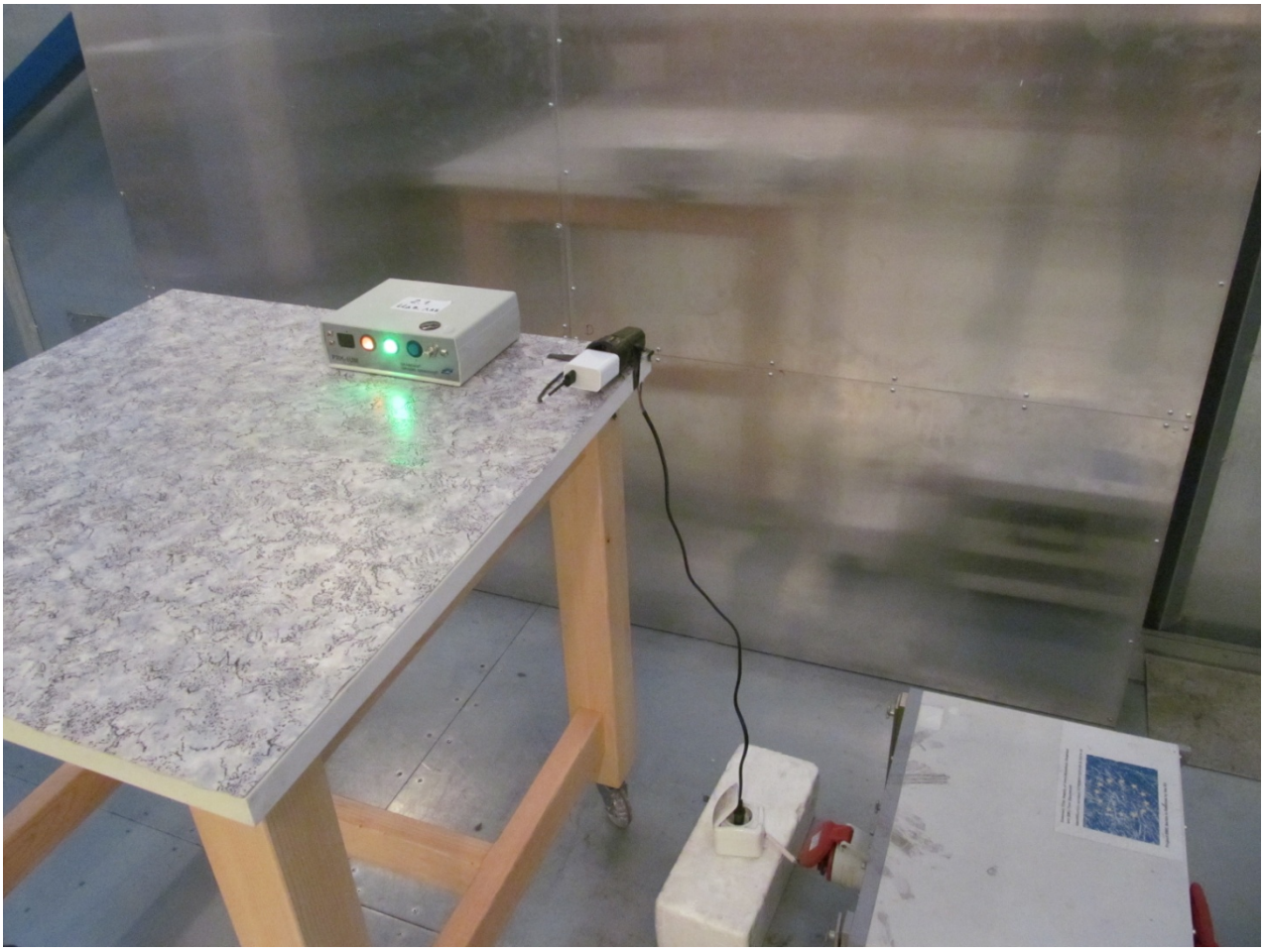
5.1.1. Setup

5.1.1.1. The first mode



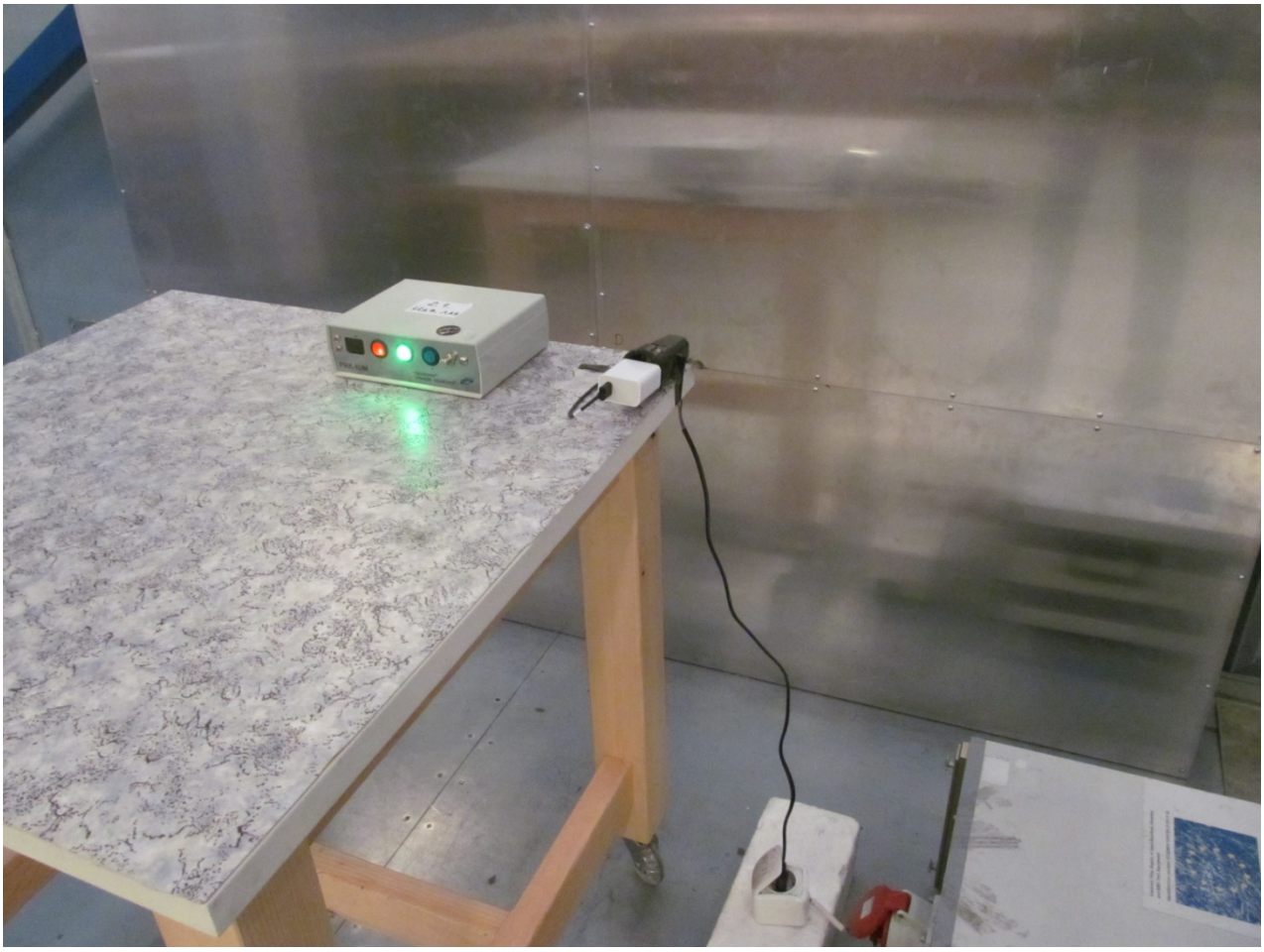
Port under test: AC mains port of the auxiliary equipment (LISN)
AC mains port voltage: 224 V, 50 Hz (Imax = 11 mA)
Frequency range: 150 kHz – 30 MHz
Pre-scan dwell time: 10 ms
Pre-scan detector: Peak
Step: 4 kHz
Final measurement time: 15 s
Mode of operation: The first mode

5.1.1.2. The second mode



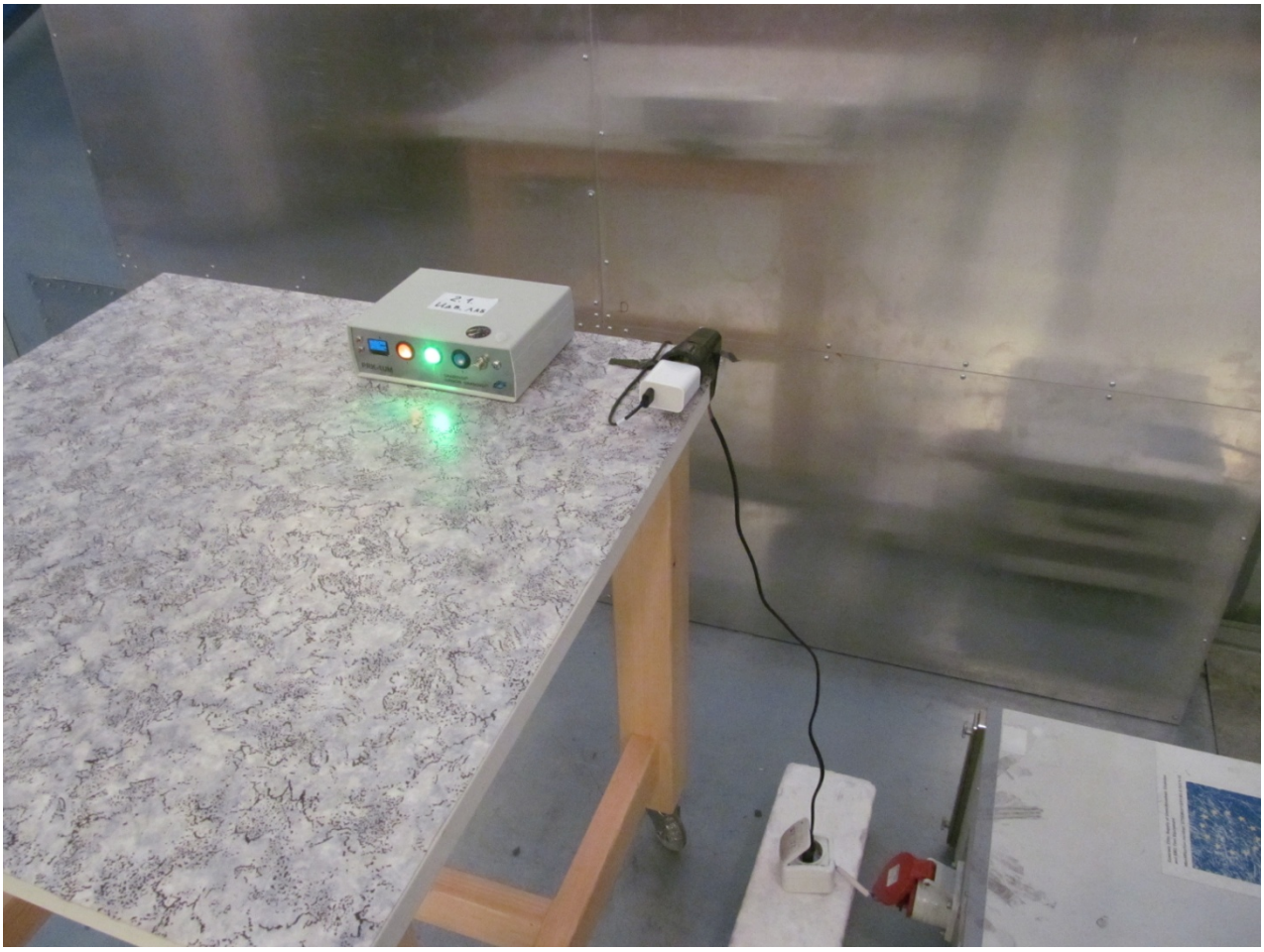
Port under test:	AC mains port of the auxiliary equipment (LISN)
AC mains port voltage:	224 V, 50 Hz (Imax = 41 mA)
Frequency range:	150 kHz – 30 MHz
Pre-scan dwell time:	10 ms
Pre-scan detector:	Peak
Step:	4 kHz
Final measurement time:	15 s
Mode of operation:	The second mode

5.1.1.3. The third mode



Port under test:	AC mains port of the auxiliary equipment (LISN)
AC mains port voltage:	224 V, 50 Hz (Imax = 132 mA)
Frequency range:	150 kHz – 30 MHz
Pre-scan dwell time:	10 ms
Pre-scan detector:	Peak
Step:	4 kHz
Final measurement time:	15 s
Mode of operation:	The third mode

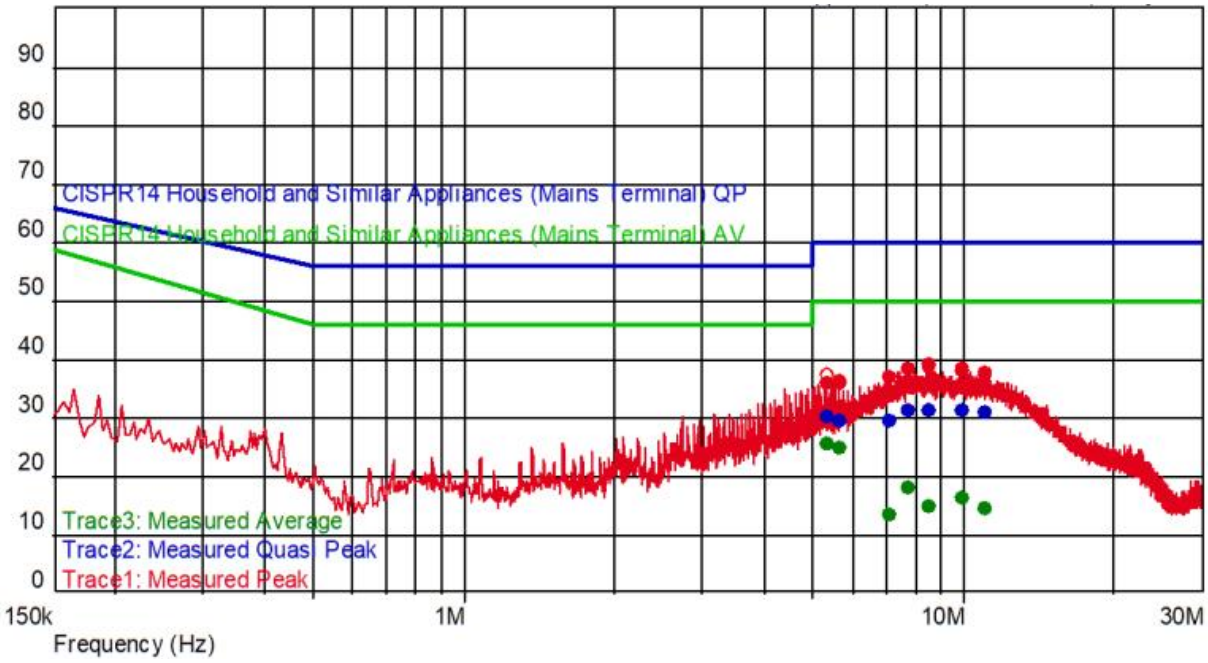
5.1.1.4. The fourth mode



Port under test:	AC mains port of the auxiliary equipment (LISN)
AC mains port voltage:	224 V, 50 Hz (Imax = 56 mA)
Frequency range:	150 kHz – 30 MHz
Pre-scan dwell time:	10 ms
Pre-scan detector:	Peak
Step:	4 kHz
Final measurement time:	15 s
Mode of operation:	The fourth mode

5.1.2. Results

5.1.2.1. The first mode



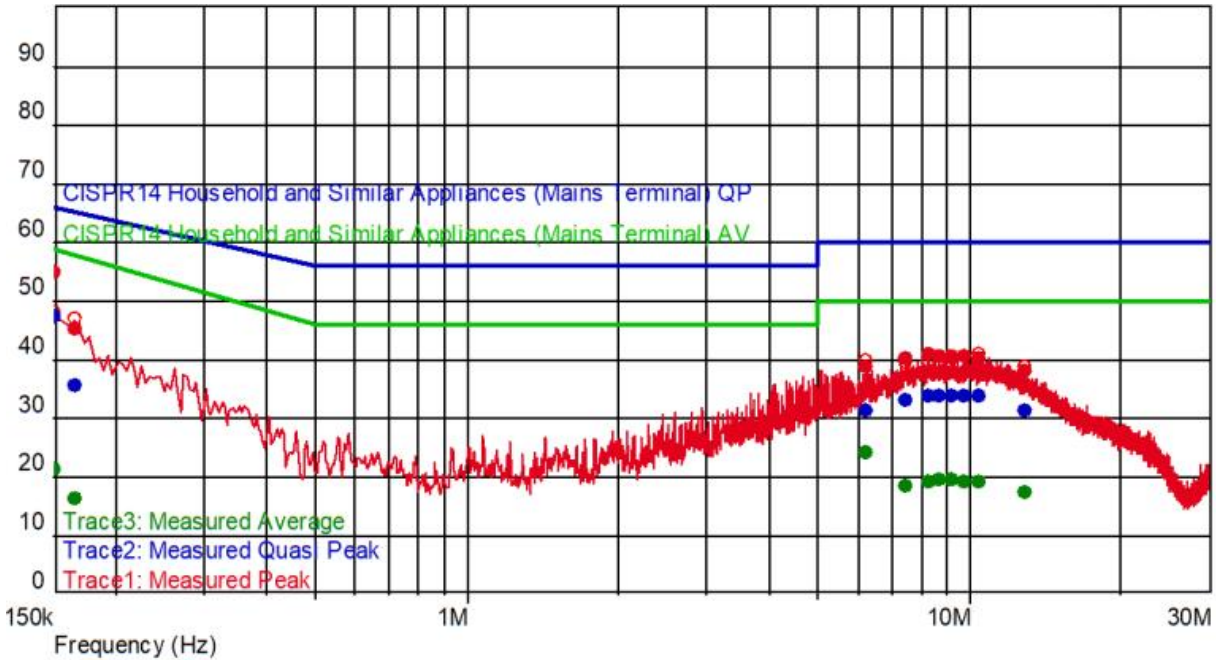
List of selected disturbances:

f [MHz]	Pk level [dBuV]	QP level [dBuV]	QP limit [dBuV]	QP margin [dB]	Av level [dBuV]	Av limit [dBuV]	Av margin [dB]	LINE
5.330	35.618	29.97	60	-30.03	25.478	50	-24.522	N
5.618	35.804	29.33	60	-30.67	24.574	50	-25.426	N
7.126	36.946	29.43	60	-30.57	13.176	50	-36.824	N
7.714	38.258	31.03	60	-28.97	18.128	50	-31.872	N
8.490	39.037	31.15	60	-28.85	14.687	50	-35.313	N
9.874	37.951	31.15	60	-28.85	16.081	50	-33.919	N
11.014	37.251	30.66	60	-29.34	14.321	50	-35.679	N

Limits: Clause 4.3.3.6, table 5 of EN IEC 55014-1:2021.

Verdict: **PASS**

5.1.2.2. The second mode



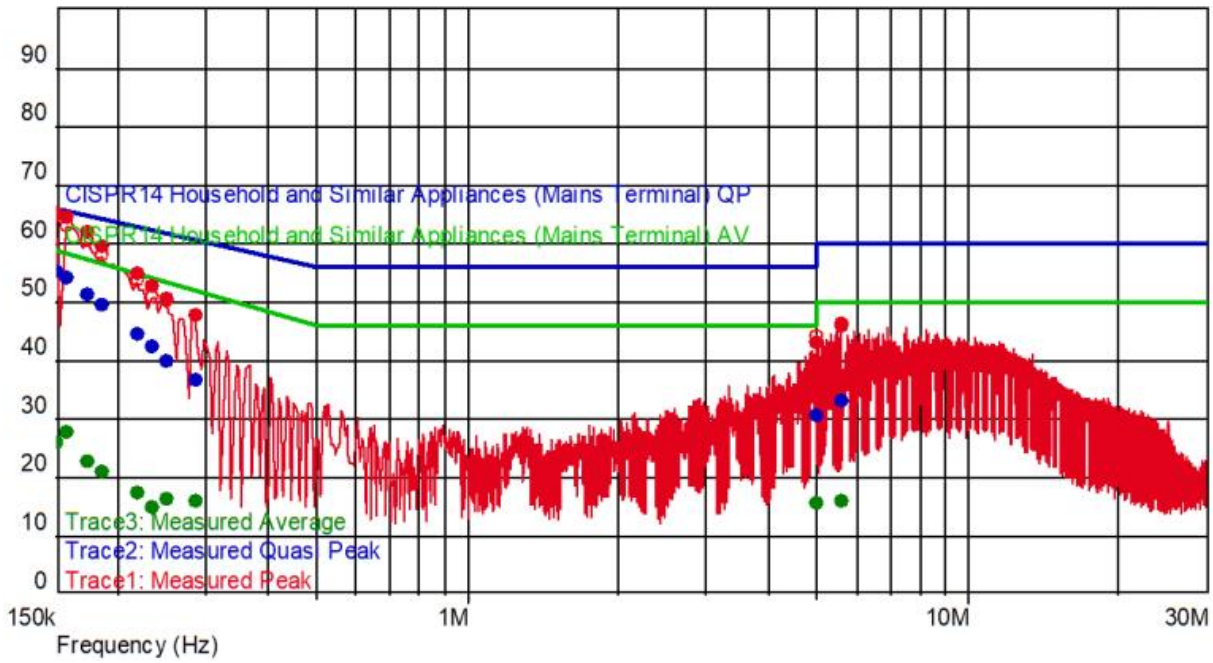
List of selected disturbances:

f [MHz]	Pk level [dBuV]	QP level [dBuV]	QP limit [dBuV]	QP margin [dB]	Av level [dBuV]	Av limit [dBuV]	Av margin [dB]	LINE
0.150	54.534	47.25	66.000	-18.75	21.164	59.000	-37.836	N
0.166	45.148	35.26	65.158	-29.90	16.018	57.906	-41.888	N
6.230	38.556	31.24	60.000	-28.76	23.976	50.000	-26.024	L1
7.442	39.921	32.79	60.000	-27.21	18.361	50.000	-31.639	N
8.262	40.594	33.55	60.000	-26.45	19.214	50.000	-30.786	N
8.702	40.561	33.74	60.000	-26.26	19.321	50.000	-30.679	N
9.206	40.099	33.79	60.000	-26.21	19.319	50.000	-30.681	N
9.766	40.227	33.64	60.000	-26.36	19.157	50.000	-30.843	N
10.438	39.971	33.67	60.000	-26.33	19.041	50.000	-30.959	N
12.894	37.825	31.28	60.000	-28.72	17.135	50.000	-32.865	N

Limits: Clause 4.3.3.6. table 5 of EN IEC 55014-1:2021.

Verdict: **PASS**

5.1.2.3. The third mode



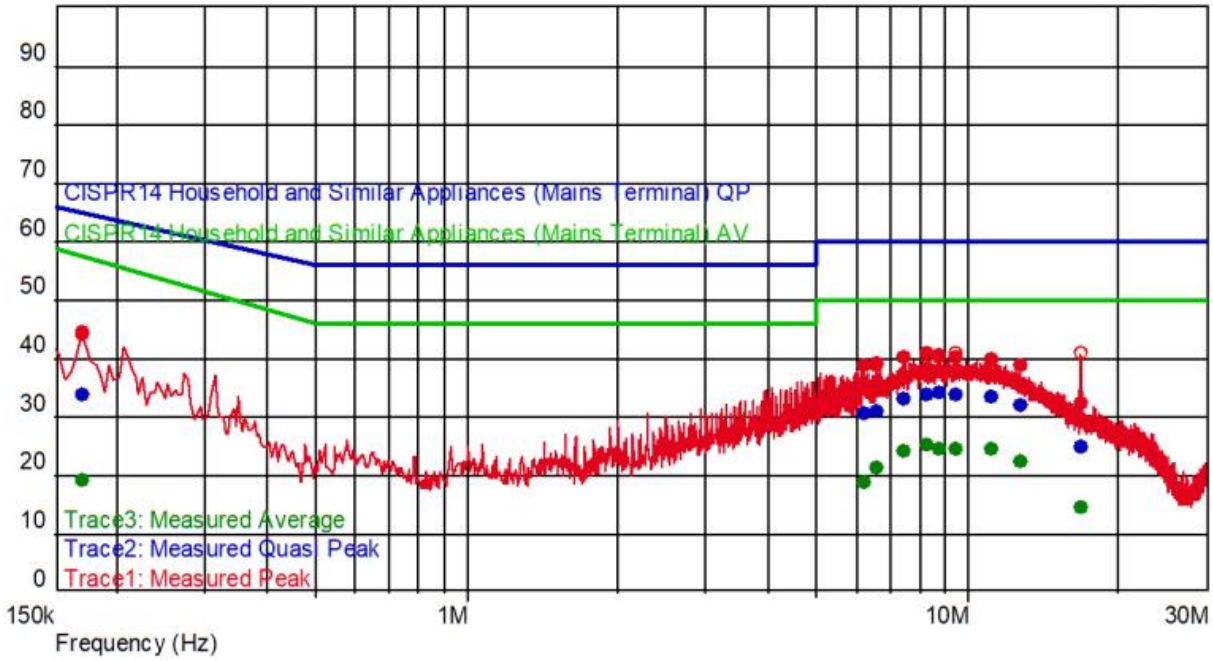
List of selected disturbances:

f [MHz]	Pk level [dBuV]	QP level [dBuV]	QP limit [dBuV]	QP margin [dB]	Av level [dBuV]	Av limit [dBuV]	Av margin [dB]	LINE
0.150	64.994	55.08	66.000	-10.92	25.934	59.000	-33.066	L1
0.158	64.364	54.05	65.568	-11.51	27.454	58.439	-30.984	N
0.174	61.615	51.16	64.767	-13.61	22.695	57.397	-34.702	L1
0.186	59.278	49.24	64.213	-14.98	20.828	56.677	-35.849	L1
0.218	54.467	44.15	62.895	-18.75	17.357	54.963	-37.606	L1
0.234	52.507	42.05	62.307	-20.26	14.887	54.198	-39.312	L1
0.250	50.447	39.74	61.757	-22.02	16.247	53.484	-37.237	L1
0.286	47.457	36.58	60.640	-24.06	15.787	52.032	-36.244	N
4.998	42.870	30.26	56.000	-25.74	15.340	46.000	-30.660	N
5.562	45.723	32.91	60.000	-27.09	15.823	50.000	-34.177	N

Limits: Clause 4.3.3.6. table 5 of EN IEC 55014-1:2021.

Verdict: **PASS**

5.1.2.4. The fourth mode



List of selected disturbances:

f [MHz]	Pk level [dBuV]	QP level [dBuV]	QP limit [dBuV]	QP margin [dB]	Av level [dBuV]	Av limit [dBuV]	Av margin [dB]	LINE
0.170	44.051	33.66	64.96	-31.30	19.011	57.649	-38.638	N
6.174	38.582	30.26	60.00	-29.74	18.742	50.000	-31.258	L1
6.586	39.144	30.75	60.00	-29.25	21.334	50.000	-28.666	N
7.450	40.001	32.91	60.00	-27.09	23.941	50.000	-26.059	N
8.290	40.674	33.72	60.00	-26.28	24.914	50.000	-25.086	N
8.754	40.311	33.81	60.00	-26.19	24.431	50.000	-25.569	N
9.478	40.185	33.78	60.00	-26.22	24.525	50.000	-25.475	N
11.086	39.632	33.35	60.00	-26.65	24.312	50.000	-25.688	N
12.702	38.521	31.71	60.00	-28.29	22.401	50.000	-27.599	N
16.834	32.158	24.56	60.00	-35.44	14.298	50.000	-35.702	L1

Limits: Clause 4.3.3.6. table 5 of EN IEC 55014-1:2021.

Verdict: **PASS**

5.1.3. Deviations

None.

5.1.4. Comments

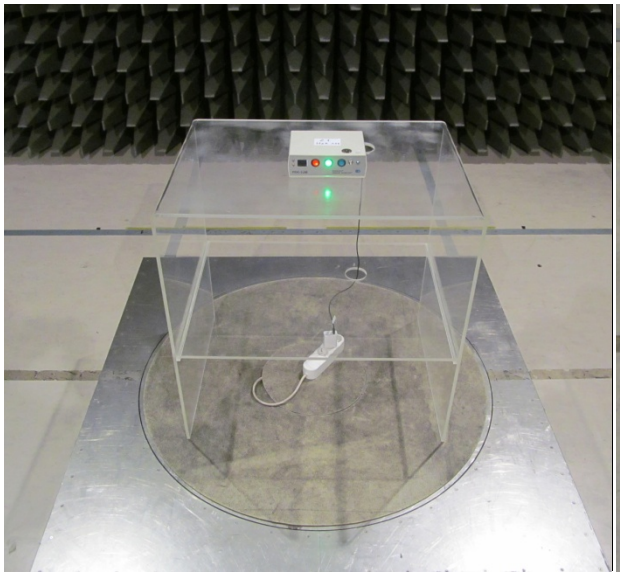
None.

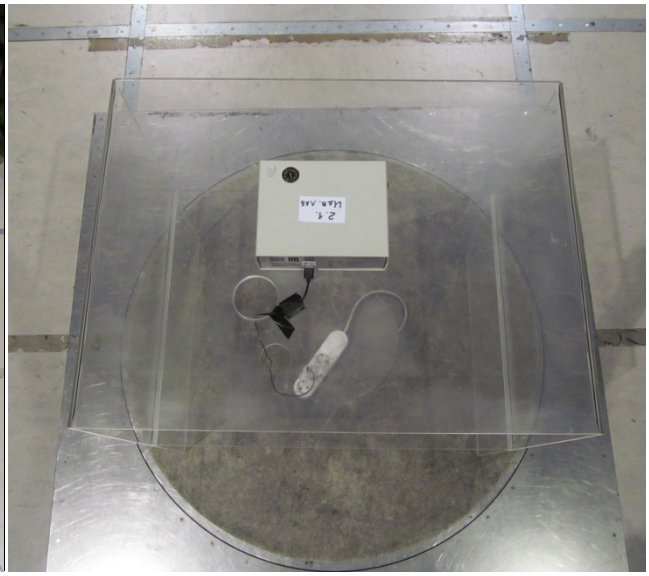
5.2. Radiated RF emission test

Date: 05.03.2024.
Test standard: EN 55016-2-3:2017 + A1:2019
Tested by: Slaven Pavlekić

5.2.1. Setup

Note: Pre-scan measurements were made in different modes of operation of the EUT in order to determine the worst case regarding radiated RF emission.





Test location: semi-anechoic chamber
EUT to antenna distance: 3 m
Pre-scan RBW: 1 MHz (step 200 kHz)
Pre-scan dwell time: 50 ms
Final measurement: 15 s
Final RBW: 120 kHz
Mode of operation: The first mode (U = 224 V, I_{max} = 11 mA)
The second mode (U = 224 V, I_{max} = 43 mA)
The third mode (U = 224 V, I_{max} = 135 mA)
The fourth mode (U = 224 V, I_{max} = 58 mA)

Pre-scan, all four modes of operation, deciding the worst case:

Pre-scan angles: 0°
Pre-scan antenna height: 1 m
Pre-scan antenna polarization: VER

Pre-scan, the worst case, complete test

Pre-scan angles: 0°, 90°, 180° and 270°
Pre-scan antenna height: 1 m, 2.5 m and 4 m
Pre-scan antenna polarization: HOR and VER
Mode of operation: The third mode (U = 224 V, I_{max} = 135 mA)

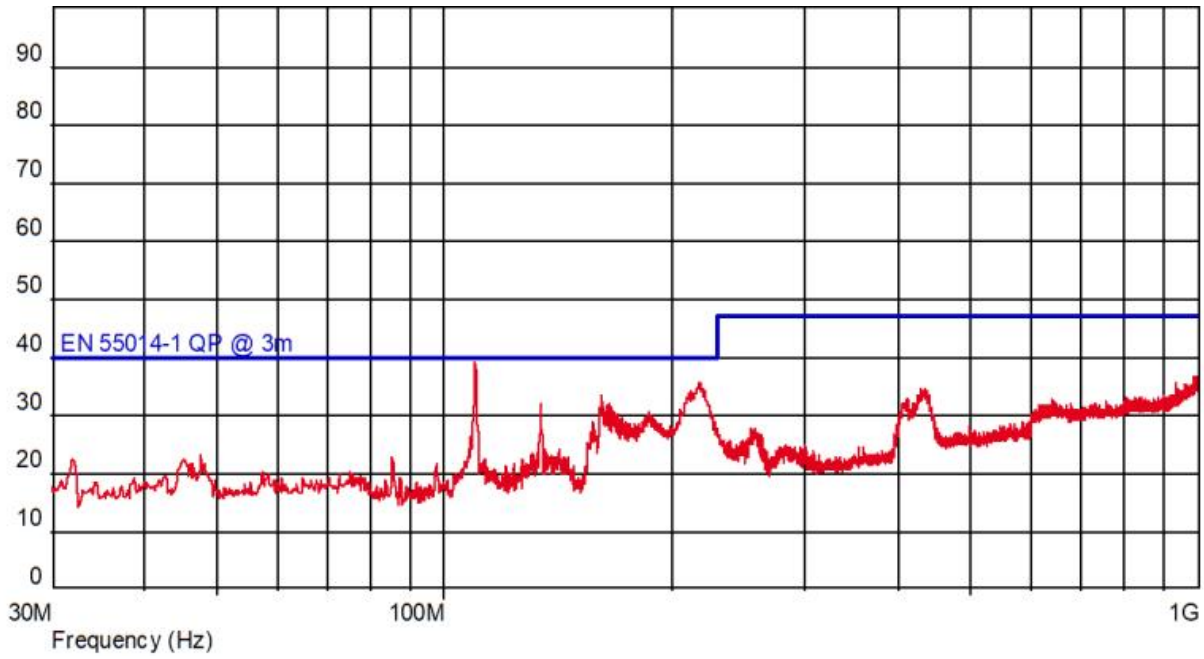
Limits:

Frequency range [MHz]	Average limit dB(μV/m)	Quasi-peak limit dB(μV/m)	Peak limit dB(μV/m)
30 – 230	--	40	--
230 – 1000	--	47	--

5.2.2. Results

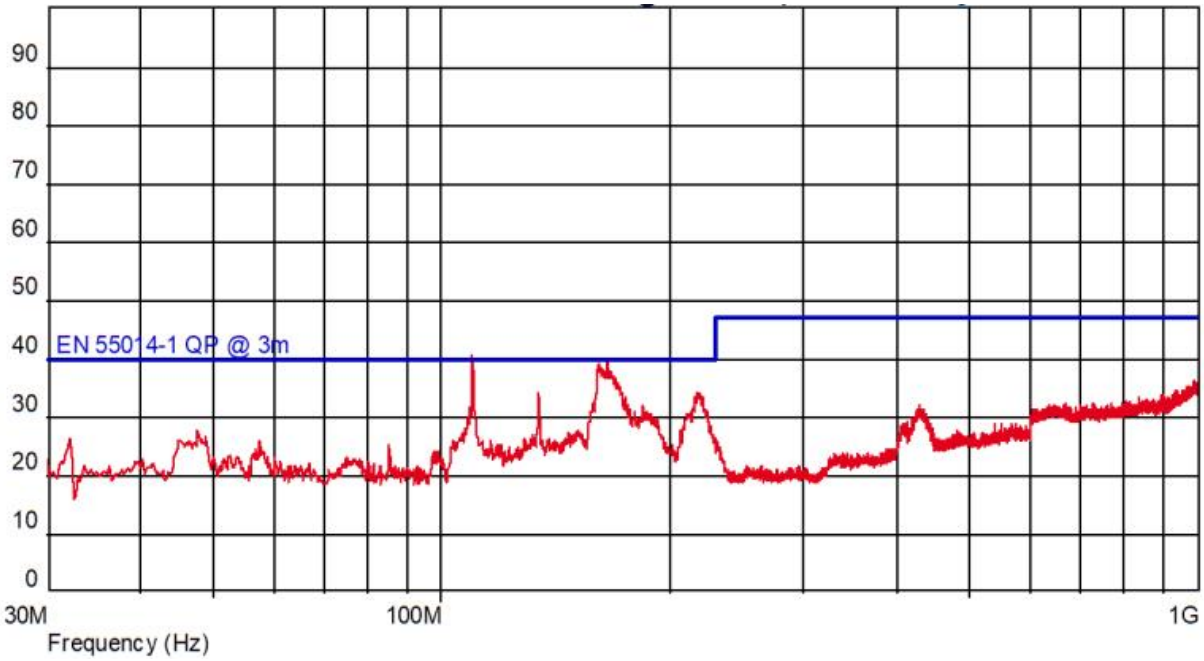
5.2.2.1. Pre-scan, all four modes of operation, deciding the worst case

The first mode



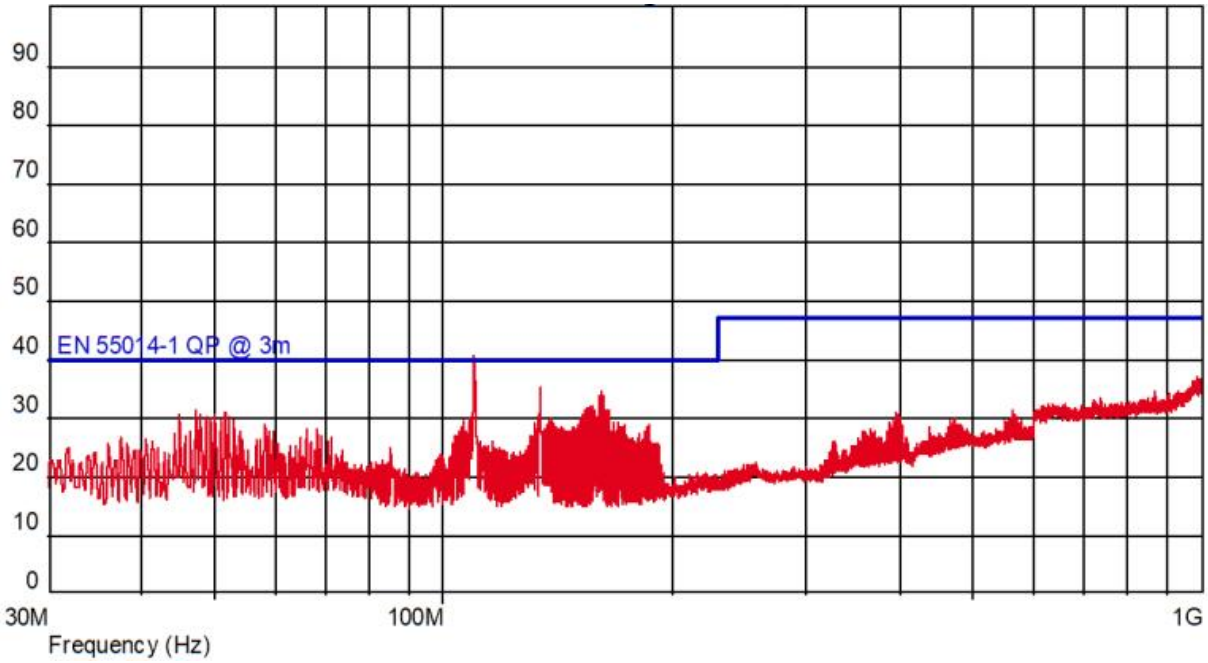
Note: Pre-scan measurement was made in order to determine the worst case regarding radiated RF emission.

The second mode



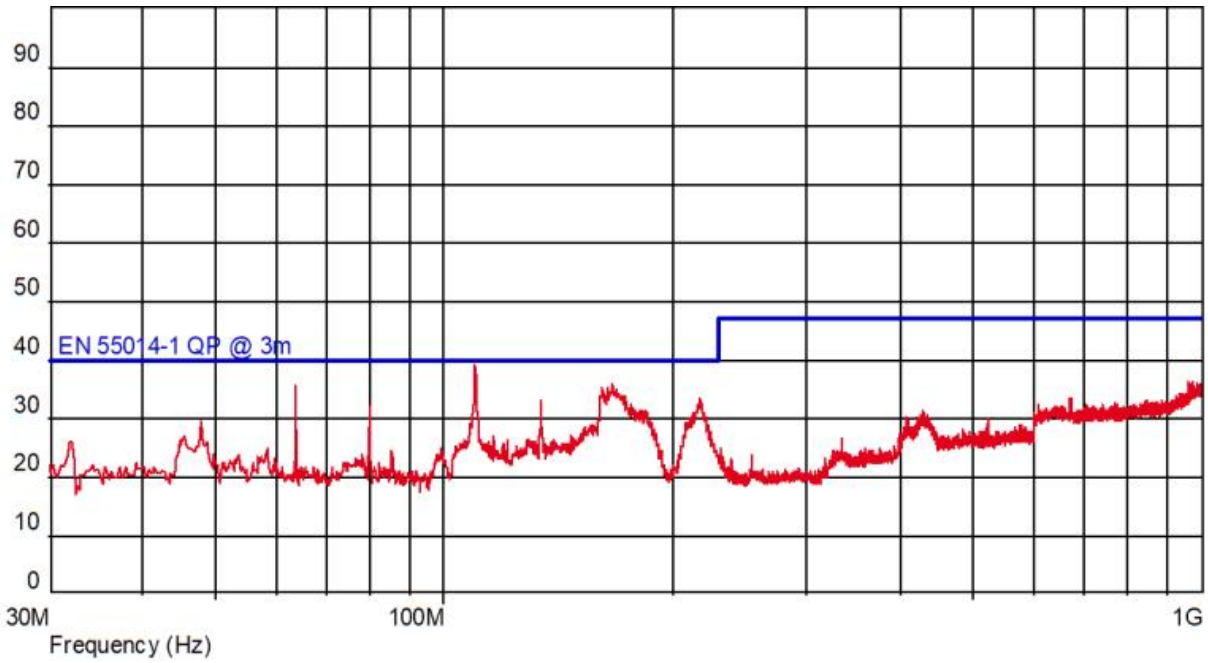
Note: Pre-scan measurement was made in order to determine the worst case regarding radiated RF emission.

The third mode



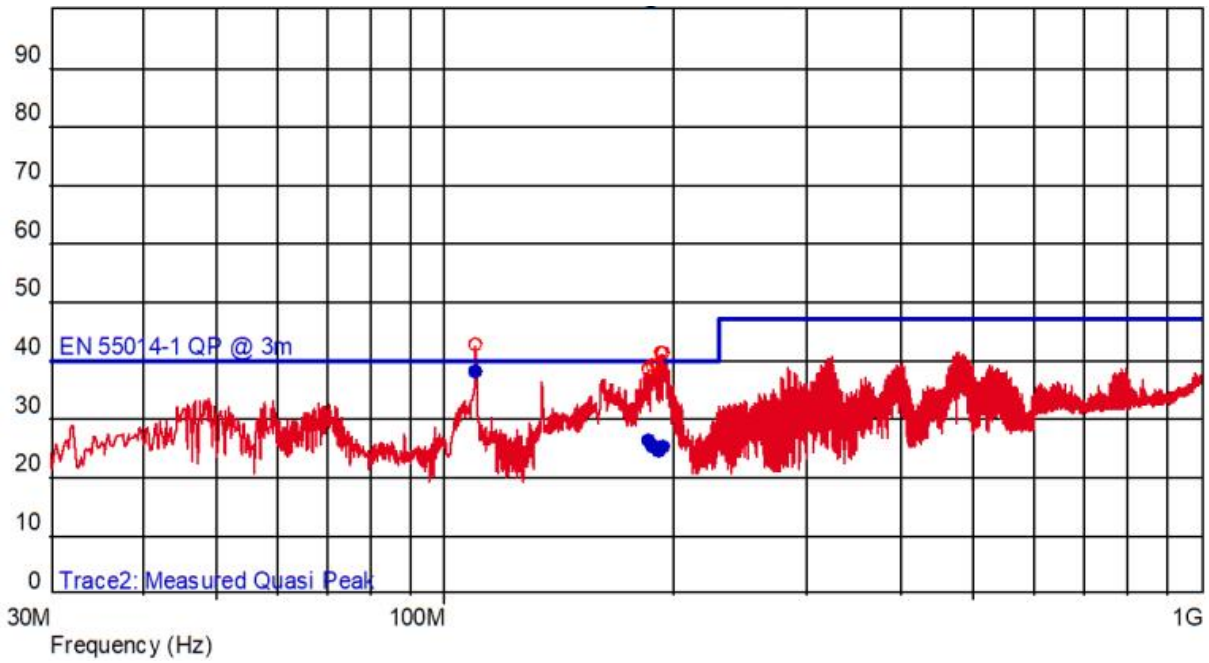
Note: Pre-scan measurement was made in order to determine the worst case regarding radiated RF emission.

The fourth mode



Note: Pre-scan measurement was made in order to determine the worst case regarding radiated RF emission.

5.2.2.2. Complete test, the third mode



Lista odabranih smetnji:

Frequency [MHz]	QP level [dBuV/m]	QP limit [dBuV/m]	Margin [dB]	Antenna polarization	Azimuth [deg]	Antenna height [m]
109.845	37.75	40	-2.25	|	185	1.03
185.740	26.15	40	-13.85	|	306	1.67
188.055	25.05	40	-14.95	--	321	1.67
189.810	25.26	40	-14.74	--	310	1.39
192.210	24.29	40	-15.71	--	328	1.83
194.060	24.93	40	-15.07	--	324	1.41

Limits: Clause 4.3.4.5, table 9 of EN IEC 55014-1:2021

Verdict: **PASS**

5.2.3. Deviations

None.

5.2.4. Comments

The highest internal frequency of the EUT is 16 MHz, according to the customer. The test is performed up to 1 GHz in accordance with clause 4.3.5.1 and table 10 of standard EN IEC 55014-1:2021.

5.3. Current harmonics emissions test

Date: 05.03.2024.
Test standard: EN IEC 61000-3-2:2019 + A1:2021
Tested by: Slaven Pavlekić

5.3.1. Setup

5.3.1.1. The first mode

Parameter	Equipment setting
Device class	Class A
Test type	Fluctuating harmonics, 2.5 min
Test voltage	230V, 50 Hz
Time window	200 ms

Mode of operation: The first mode

5.3.1.2. The second mode

Parameter	Equipment setting
Device class	Class A
Test type	Fluctuating harmonics, 2.5 min
Test voltage	230V, 50 Hz
Time window	200 ms

Mode of operation: The second mode

5.3.1.3. The third mode

Parameter	Equipment setting
Device class	Class A
Test type	Fluctuating harmonics, 2.5 min
Test voltage	230V, 50 Hz
Time window	200 ms

Mode of operation: The third mode

5.3.1.4. The fourth mode

Parameter	Equipment setting
Device class	Class A
Test type	Fluctuating harmonics, 2.5 min
Test voltage	230V, 50 Hz
Time window	200 ms

Mode of operation: The fourth mode

5.3.2. Results

5.3.2.1. The first mode

Maximum RMS current and corresponding values in timewindow 12:

Voltage:	230.54 Vrms		THD=0.01 %	THV=0.030 V	POHV=0.010 V	PWHD=0.03 %
Current:	0.011 Arms		THD=305.61 %	THC=0.010 A	POHC=0.006 A	PWHD=1123.07
Power:	0.6 W	P1=0.6 W	2.4 VA			
Power factor:	0.262	CosPhi1: 0.866				

HARMONIC ANALYSIS: Test PASS
Tobs = entire measurement; POHC: avg=0.00 A, limits=0.25 A
Iavg=0.010 Arms

Ha	Entire measurement (2.5 min = 750 time windows)							Worst 2.5 min		Average		PASS	FAIL
	Maximum	Window	EN61000-3-2 Class A	Margin in MaxWin	100 to 150%	150 to 200%	Exceeded	100 to 150%	Exceeded	Value	Exceeded		
DC	-0.0002 A	344	-.- - - -	- - - .-	0	0	0	n.e.	n.e.	-0.0001 A	0	X	
1	0.0032 A	749	-.- - - -	- - - .-	0	0	0	n.e.	n.e.	0.0032 A	0	X	
2	0.0003 A	1	1.0800 A	-100.0 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
3	0.0027 A	14	2.3000 A	-99.9 %	0	0	0	n.e.	n.e.	0.0027 A	0	X	
4	0.0003 A	211	0.4300 A	-99.9 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
5	0.0027 A	278	1.1400 A	-99.8 %	0	0	0	n.e.	n.e.	0.0027 A	0	X	
6	0.0003 A	1	0.3000 A	-99.9 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
7	0.0027 A	31	0.7700 A	-99.7 %	0	0	0	n.e.	n.e.	0.0027 A	0	X	
8	0.0003 A	1	0.2300 A	-99.9 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
9	0.0026 A	19	0.4000 A	-99.3 %	0	0	0	n.e.	n.e.	0.0026 A	0	X	
10	0.0003 A	1	0.1840 A	-99.8 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
11	0.0026 A	19	0.3300 A	-99.2 %	0	0	0	n.e.	n.e.	0.0026 A	0	X	
12	0.0003 A	1	0.1533 A	-99.8 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
13	0.0025 A	52	0.2100 A	-98.8 %	0	0	0	n.e.	n.e.	0.0025 A	0	X	
14	0.0003 A	1	0.1314 A	-99.8 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
15	0.0025 A	26	0.1500 A	-98.3 %	0	0	0	n.e.	n.e.	0.0025 A	0	X	
16	0.0003 A	1	0.1150 A	-99.8 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
17	0.0024 A	67	0.1324 A	-98.2 %	0	0	0	n.e.	n.e.	0.0024 A	0	X	
18	0.0003 A	1	0.1022 A	-99.7 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
19	0.0023 A	42	0.1184 A	-98.0 %	0	0	0	n.e.	n.e.	0.0023 A	0	X	
20	0.0002 A	1	0.0920 A	-99.7 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
21	0.0023 A	26	0.1071 A	-97.9 %	0	0	0	n.e.	n.e.	0.0023 A	0	X	
22	0.0002 A	1	0.0836 A	-99.7 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
23	0.0022 A	42	0.0978 A	-97.8 %	0	0	0	n.e.	n.e.	0.0022 A	0	X	
24	0.0002 A	1	0.0767 A	-99.7 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
25	0.0021 A	39	0.0900 A	-97.7 %	0	0	0	n.e.	n.e.	0.0021 A	0	X	
26	0.0002 A	1	0.0708 A	-99.7 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
27	0.0020 A	39	0.0833 A	-97.6 %	0	0	0	n.e.	n.e.	0.0020 A	0	X	
28	0.0002 A	1	0.0657 A	-99.7 %	0	0	0	n.e.	n.e.	0.0001 A	0	X	
29	0.0019 A	50	0.0776 A	-97.6 %	0	0	0	n.e.	n.e.	0.0019 A	0	X	
30	0.0002 A	2	0.0613 A	-99.7 %	0	0	0	n.e.	n.e.	0.0001 A	0	X	
31	0.0018 A	73	0.0726 A	-97.5 %	0	0	0	n.e.	n.e.	0.0018 A	0	X	
32	0.0002 A	1	0.0575 A	-99.7 %	0	0	0	n.e.	n.e.	0.0001 A	0	X	
33	0.0017 A	50	0.0682 A	-97.5 %	0	0	0	n.e.	n.e.	0.0017 A	0	X	
34	0.0002 A	2	0.0541 A	-99.7 %	0	0	0	n.e.	n.e.	0.0001 A	0	X	
35	0.0016 A	39	0.0643 A	-97.5 %	0	0	0	n.e.	n.e.	0.0016 A	0	X	
36	0.0001 A	2	0.0511 A	-99.7 %	0	0	0	n.e.	n.e.	0.0001 A	0	X	
37	0.0015 A	42	0.0608 A	-97.6 %	0	0	0	n.e.	n.e.	0.0015 A	0	X	
38	0.0001 A	1	0.0484 A	-99.7 %	0	0	0	n.e.	n.e.	0.0001 A	0	X	
39	0.0014 A	39	0.0577 A	-97.6 %	0	0	0	n.e.	n.e.	0.0014 A	0	X	
40	0.0001 A	2	0.0460 A	-99.8 %	0	0	0	n.e.	n.e.	0.0001 A	0	X	

average value < 0.6 % of Iavg or < 5 mA n.e. = not evaluated

Limits: Given in table above and defined in standard EN IEC 61000-3-2:2019 + A1:2021

Verdict: PASS

5.3.2.2. The second mode

Maximum RMS current and corresponding values in timewindow 3:

Voltage:	230.53 Vrms		THD=0.01 %	THV=0.032 V	POHV=0.014 V	PWHD=0.03 %
Current:	0.040 Arms		THD=288.32 %	THC=0.038 A	POHC=0.017 A	PWHD=830.72 %
Power:	3.0 W	P1=3.0 W	9.3 VA			
Power factor:	0.323	CosPhi1: 0.988				

HARMONIC ANALYSIS: Test PASS
Tobs = entire measurement; POHC: avg=0.02 A, limits=0.25 A
Iavg=0.040 Arms

Ha	Entire measurement (2.5 min = 750 time windows)							Worst 2.5 min		Average		PASS	FAIL
	Maximum	Window	EN61000-3-2 Class A	Margin in MaxWin	100 to 150%	150 to 200%	Ex-ceeded	100 to 150%	Ex-ceeded	Value	Ex-ceeded		
DC	-0.0002 A	118	-.- - - -	- - - .-	0	0	0	n.e.	n.e.	-0.0001 A	0	X	
1	0.0132 A	1	-.- - - -	- - - .-	0	0	0	n.e.	n.e.	0.0131 A	0	X	
2	0.0004 A	1	1.0800 A	-100.0 %	0	0	0	n.e.	n.e.	0.0003 A	0	X	
3	0.0129 A	3	2.3000 A	-99.4 %	0	0	0	n.e.	n.e.	0.0129 A	0	X	
4	0.0006 A	1	0.4300 A	-99.9 %	0	0	0	n.e.	n.e.	0.0005 A	0	X	
5	0.0127 A	142	1.1400 A	-98.9 %	0	0	0	n.e.	n.e.	0.0127 A	0	X	
6	0.0006 A	1	0.3000 A	-99.8 %	0	0	0	n.e.	n.e.	0.0005 A	0	X	
7	0.0124 A	1	0.7700 A	-98.4 %	0	0	0	n.e.	n.e.	0.0124 A	0	X	
8	0.0005 A	1	0.2300 A	-99.8 %	0	0	0	n.e.	n.e.	0.0004 A	0	X	
9	0.0120 A	1	0.4000 A	-97.0 %	0	0	0	n.e.	n.e.	0.0120 A	0	X	
10	0.0005 A	1	0.1840 A	-99.7 %	0	0	0	n.e.	n.e.	0.0004 A	0	X	
11	0.0115 A	3	0.3300 A	-96.5 %	0	0	0	n.e.	n.e.	0.0115 A	0	X	
12	0.0005 A	1	0.1533 A	-99.7 %	0	0	0	n.e.	n.e.	0.0004 A	0	X	
13	0.0110 A	73	0.2100 A	-94.8 %	0	0	0	n.e.	n.e.	0.0109 A	0	X	
14	0.0005 A	1	0.1314 A	-99.6 %	0	0	0	n.e.	n.e.	0.0004 A	0	X	
15	0.0104 A	122	0.1500 A	-93.1 %	0	0	0	n.e.	n.e.	0.0103 A	0	X	
16	0.0004 A	1	0.1150 A	-99.6 %	0	0	0	n.e.	n.e.	0.0004 A	0	X	
17	0.0097 A	3	0.1324 A	-92.7 %	0	0	0	n.e.	n.e.	0.0097 A	0	X	
18	0.0004 A	80	0.1022 A	-99.6 %	0	0	0	n.e.	n.e.	0.0004 A	0	X	
19	0.0090 A	3	0.1184 A	-92.4 %	0	0	0	n.e.	n.e.	0.0090 A	0	X	
20	0.0004 A	1	0.0920 A	-99.6 %	0	0	0	n.e.	n.e.	0.0004 A	0	X	
21	0.0082 A	73	0.1071 A	-92.3 %	0	0	0	n.e.	n.e.	0.0082 A	0	X	
22	0.0004 A	587	0.0836 A	-99.6 %	0	0	0	n.e.	n.e.	0.0004 A	0	X	
23	0.0075 A	519	0.0978 A	-92.4 %	0	0	0	n.e.	n.e.	0.0074 A	0	X	
24	0.0004 A	520	0.0767 A	-99.5 %	0	0	0	n.e.	n.e.	0.0003 A	0	X	
25	0.0067 A	519	0.0900 A	-92.6 %	0	0	0	n.e.	n.e.	0.0067 A	0	X	
26	0.0003 A	520	0.0708 A	-99.5 %	0	0	0	n.e.	n.e.	0.0003 A	0	X	
27	0.0059 A	519	0.0833 A	-92.9 %	0	0	0	n.e.	n.e.	0.0059 A	0	X	
28	0.0003 A	520	0.0657 A	-99.5 %	0	0	0	n.e.	n.e.	0.0003 A	0	X	
29	0.0051 A	519	0.0776 A	-93.4 %	0	0	0	n.e.	n.e.	0.0051 A	0	X	
30	0.0003 A	520	0.0613 A	-99.5 %	0	0	0	n.e.	n.e.	0.0003 A	0	X	
31	0.0044 A	519	0.0726 A	-93.9 %	0	0	0	n.e.	n.e.	0.0044 A	0	X	
32	0.0003 A	520	0.0575 A	-99.6 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
33	0.0037 A	519	0.0682 A	-94.6 %	0	0	0	n.e.	n.e.	0.0037 A	0	X	
34	0.0002 A	520	0.0541 A	-99.6 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
35	0.0031 A	519	0.0643 A	-95.3 %	0	0	0	n.e.	n.e.	0.0030 A	0	X	
36	0.0002 A	520	0.0511 A	-99.6 %	0	0	0	n.e.	n.e.	0.0002 A	0	X	
37	0.0024 A	519	0.0608 A	-96.0 %	0	0	0	n.e.	n.e.	0.0024 A	0	X	
38	0.0002 A	514	0.0484 A	-99.7 %	0	0	0	n.e.	n.e.	0.0001 A	0	X	
39	0.0019 A	557	0.0577 A	-96.7 %	0	0	0	n.e.	n.e.	0.0019 A	0	X	
40	0.0001 A	514	0.0460 A	-99.7 %	0	0	0	n.e.	n.e.	0.0001 A	0	X	

average value < 0.6 % of Iavg or < 5 mA n.e. = not evaluated

Limits: Given in table above and defined in standard EN IEC 61000-3-2:2019 + A1:2021

Verdict: PASS

5.3.2.3. The third mode

Maximum RMS current and corresponding values in timewindow 4:

Voltage:	230.54 Vrms		THD=0.01 %	THV=0.029 V	POHV=0.009 V	PWHD=0.03 %
Current:	0.117 Arms		THD=323.21 %	THC=0.105 A	POHC=0.019 A	PWHD=498.14 %
Power:	7.4 W	P1=7.4 W	27.0 VA			
Power factor:	0.274	CosPhi1: 0.985				

HARMONIC ANALYSIS: Test PASS
Tobs = entire measurement; POHC: avg=0.02 A, limits=0.25 A
Iavg=0.112 Arms

Ha	Entire measurement (2.5 min = 750 time windows)							Worst 2.5 min		Average		PASS	FAIL
	Maximum	Window	EN61000-3-2 Class A	Margin in MaxWin	100 to 150%	150 to 200%	Ex-ceeded	100 to 150%	Ex-ceeded	Value	Ex-ceeded		
DC	-0.0040 A	148	-.- - - -	- - - .-	0	0	0	n.e.	n.e.	-0.0014 A	0	X	
1	0.0326 A	5	-.- - - -	- - - .-	0	0	0	n.e.	n.e.	0.0304 A	0	X	
2	0.0055 A	1	1.0800 A	-99.5 %	0	0	0	n.e.	n.e.	0.0047 A	0	X	
3	0.0484 A	4	2.3000 A	-97.9 %	0	0	0	n.e.	n.e.	0.0464 A	0	X	
4	0.0076 A	1	0.4300 A	-98.2 %	0	0	0	n.e.	n.e.	0.0064 A	0	X	
5	0.0459 A	1	1.1400 A	-96.0 %	0	0	0	n.e.	n.e.	0.0440 A	0	X	
6	0.0072 A	1	0.3000 A	-97.6 %	0	0	0	n.e.	n.e.	0.0062 A	0	X	
7	0.0422 A	1	0.7700 A	-94.5 %	0	0	0	n.e.	n.e.	0.0405 A	0	X	
8	0.0067 A	4	0.2300 A	-97.1 %	0	0	0	n.e.	n.e.	0.0059 A	0	X	
9	0.0378 A	4	0.4000 A	-90.6 %	0	0	0	n.e.	n.e.	0.0362 A	0	X	
10	0.0061 A	4	0.1840 A	-96.7 %	0	0	0	n.e.	n.e.	0.0056 A	0	X	
11	0.0327 A	1	0.3300 A	-90.1 %	0	0	0	n.e.	n.e.	0.0314 A	0	X	
12	0.0055 A	5	0.1533 A	-96.4 %	0	0	0	n.e.	n.e.	0.0052 A	0	X	
13	0.0273 A	1	0.2100 A	-87.0 %	0	0	0	n.e.	n.e.	0.0262 A	0	X	
14	0.0049 A	561	0.1314 A	-96.3 %	0	0	0	n.e.	n.e.	0.0048 A	0	X	
15	0.0220 A	1	0.1500 A	-85.3 %	0	0	0	n.e.	n.e.	0.0211 A	0	X	
16	0.0045 A	38	0.1150 A	-96.1 %	0	0	0	n.e.	n.e.	0.0043 A	0	X	
17	0.0170 A	1	0.1324 A	-87.2 %	0	0	0	n.e.	n.e.	0.0163 A	0	X	
18	0.0041 A	38	0.1022 A	-95.9 %	0	0	0	n.e.	n.e.	0.0039 A	0	X	
19	0.0125 A	4	0.1184 A	-89.4 %	0	0	0	n.e.	n.e.	0.0121 A	0	X	
20	0.0038 A	38	0.0920 A	-95.9 %	0	0	0	n.e.	n.e.	0.0034 A	0	X	
21	0.0091 A	4	0.1071 A	-91.5 %	0	0	0	n.e.	n.e.	0.0088 A	0	X	
22	0.0034 A	38	0.0836 A	-95.9 %	0	0	0	n.e.	n.e.	0.0030 A	0	X	
23	0.0070 A	4	0.0978 A	-92.9 %	0	0	0	n.e.	n.e.	0.0067 A	0	X	
24	0.0030 A	38	0.0767 A	-96.0 %	0	0	0	n.e.	n.e.	0.0026 A	0	X	
25	0.0062 A	4	0.0900 A	-93.1 %	0	0	0	n.e.	n.e.	0.0059 A	0	X	
26	0.0027 A	38	0.0708 A	-96.2 %	0	0	0	n.e.	n.e.	0.0023 A	0	X	
27	0.0062 A	4	0.0833 A	-92.6 %	0	0	0	n.e.	n.e.	0.0058 A	0	X	
28	0.0023 A	38	0.0657 A	-96.4 %	0	0	0	n.e.	n.e.	0.0020 A	0	X	
29	0.0062 A	4	0.0776 A	-92.0 %	0	0	0	n.e.	n.e.	0.0059 A	0	X	
30	0.0020 A	38	0.0613 A	-96.7 %	0	0	0	n.e.	n.e.	0.0017 A	0	X	
31	0.0060 A	4	0.0726 A	-91.7 %	0	0	0	n.e.	n.e.	0.0057 A	0	X	
32	0.0018 A	38	0.0575 A	-96.9 %	0	0	0	n.e.	n.e.	0.0015 A	0	X	
33	0.0056 A	1	0.0682 A	-91.9 %	0	0	0	n.e.	n.e.	0.0052 A	0	X	
34	0.0015 A	38	0.0541 A	-97.2 %	0	0	0	n.e.	n.e.	0.0013 A	0	X	
35	0.0048 A	4	0.0643 A	-92.5 %	0	0	0	n.e.	n.e.	0.0045 A	0	X	
36	0.0013 A	37	0.0511 A	-97.4 %	0	0	0	n.e.	n.e.	0.0012 A	0	X	
37	0.0039 A	2	0.0608 A	-93.5 %	0	0	0	n.e.	n.e.	0.0037 A	0	X	
38	0.0012 A	36	0.0484 A	-97.5 %	0	0	0	n.e.	n.e.	0.0011 A	0	X	
39	0.0032 A	1	0.0577 A	-94.5 %	0	0	0	n.e.	n.e.	0.0030 A	0	X	
40	0.0011 A	36	0.0460 A	-97.7 %	0	0	0	n.e.	n.e.	0.0010 A	0	X	

average value < 0.6 % of Iavg or < 5 mA n.e. = not evaluated

Limits: Given in table above and defined in standard EN IEC 61000-3-2:2019 + A1:2021

Verdict: PASS

5.3.2.4. The fourth mode

Maximum RMS current and corresponding values in timewindow 67:

Voltage:	230.54 Vrms		THD=0.01 %	THV=0.029 V	POHV=0.011 V	PWHD=0.03 %
Current:	0.120 Arms		THD=3015.54 %	THC=0.108 A	POHC=0.021 A	PWHD=490.12 %
Power:	8.2 W	P1=8.2 W	27.6 VA			
Power factor:	0.295	CosPhi1: 0.986				

HARMONIC ANALYSIS: Test PASS
Tobs = entire measurement; POHC: avg=0.02 A, limits=0.25 A
Iavg=0.116 Arms

Ha	Entire measurement (2.5 min = 750 time windows)							Worst 2.5 min		Average		PASS	FAIL
	Maximum	Window	EN61000-3-2 Class A	Margin in MaxWin	100 to 150%	150 to 200%	Ex-ceeded	100 to 150%	Ex-ceeded	Value	Ex-ceeded		
DC	-0.0042 A	463	-.- - - -	- - - - .-	0	0	0	n.e.	n.e.	-0.0015 A	0	X	
1	0.0359 A	45	-.- - - -	- - - - .-	0	0	0	n.e.	n.e.	0.0341 A	0	X	
2	0.0052 A	72	1.0800 A	-99.5 %	0	0	0	n.e.	n.e.	0.0045 A	0	X	
3	0.0494 A	67	2.3000 A	-97.9 %	0	0	0	n.e.	n.e.	0.0478 A	0	X	
4	0.0070 A	72	0.4300 A	-98.4 %	0	0	0	n.e.	n.e.	0.0062 A	0	X	
5	0.0469 A	67	1.1400 A	-95.9 %	0	0	0	n.e.	n.e.	0.0454 A	0	X	
6	0.0067 A	72	0.3000 A	-97.8 %	0	0	0	n.e.	n.e.	0.0060 A	0	X	
7	0.0432 A	22	0.7700 A	-94.4 %	0	0	0	n.e.	n.e.	0.0419 A	0	X	
8	0.0063 A	72	0.2300 A	-97.2 %	0	0	0	n.e.	n.e.	0.0057 A	0	X	
9	0.0387 A	45	0.4000 A	-90.3 %	0	0	0	n.e.	n.e.	0.0375 A	0	X	
10	0.0059 A	72	0.1840 A	-96.8 %	0	0	0	n.e.	n.e.	0.0054 A	0	X	
11	0.0336 A	45	0.3300 A	-89.8 %	0	0	0	n.e.	n.e.	0.0326 A	0	X	
12	0.0054 A	73	0.1533 A	-96.5 %	0	0	0	n.e.	n.e.	0.0051 A	0	X	
13	0.0282 A	45	0.2100 A	-86.6 %	0	0	0	n.e.	n.e.	0.0274 A	0	X	
14	0.0049 A	684	0.1314 A	-96.3 %	0	0	0	n.e.	n.e.	0.0047 A	0	X	
15	0.0228 A	45	0.1500 A	-84.8 %	0	0	0	n.e.	n.e.	0.0222 A	0	X	
16	0.0045 A	698	0.1150 A	-96.1 %	0	0	0	n.e.	n.e.	0.0043 A	0	X	
17	0.0178 A	109	0.1324 A	-86.5 %	0	0	0	n.e.	n.e.	0.0174 A	0	X	
18	0.0041 A	96	0.1022 A	-96.0 %	0	0	0	n.e.	n.e.	0.0039 A	0	X	
19	0.0135 A	109	0.1184 A	-88.6 %	0	0	0	n.e.	n.e.	0.0131 A	0	X	
20	0.0039 A	96	0.0920 A	-95.7 %	0	0	0	n.e.	n.e.	0.0036 A	0	X	
21	0.0101 A	109	0.1071 A	-90.6 %	0	0	0	n.e.	n.e.	0.0098 A	0	X	
22	0.0037 A	104	0.0836 A	-95.6 %	0	0	0	n.e.	n.e.	0.0032 A	0	X	
23	0.0079 A	88	0.0978 A	-91.9 %	0	0	0	n.e.	n.e.	0.0078 A	0	X	
24	0.0034 A	104	0.0767 A	-95.6 %	0	0	0	n.e.	n.e.	0.0029 A	0	X	
25	0.0070 A	187	0.0900 A	-92.2 %	0	0	0	n.e.	n.e.	0.0069 A	0	X	
26	0.0031 A	104	0.0708 A	-95.6 %	0	0	0	n.e.	n.e.	0.0025 A	0	X	
27	0.0069 A	81	0.0833 A	-91.8 %	0	0	0	n.e.	n.e.	0.0067 A	0	X	
28	0.0029 A	104	0.0657 A	-95.7 %	0	0	0	n.e.	n.e.	0.0023 A	0	X	
29	0.0068 A	81	0.0776 A	-91.2 %	0	0	0	n.e.	n.e.	0.0066 A	0	X	
30	0.0026 A	104	0.0613 A	-95.8 %	0	0	0	n.e.	n.e.	0.0020 A	0	X	
31	0.0066 A	80	0.0726 A	-90.9 %	0	0	0	n.e.	n.e.	0.0064 A	0	X	
32	0.0023 A	104	0.0575 A	-96.0 %	0	0	0	n.e.	n.e.	0.0017 A	0	X	
33	0.0061 A	80	0.0682 A	-91.1 %	0	0	0	n.e.	n.e.	0.0058 A	0	X	
34	0.0021 A	104	0.0541 A	-96.2 %	0	0	0	n.e.	n.e.	0.0015 A	0	X	
35	0.0053 A	80	0.0643 A	-91.7 %	0	0	0	n.e.	n.e.	0.0051 A	0	X	
36	0.0019 A	104	0.0511 A	-96.4 %	0	0	0	n.e.	n.e.	0.0013 A	0	X	
37	0.0045 A	81	0.0608 A	-92.7 %	0	0	0	n.e.	n.e.	0.0043 A	0	X	
38	0.0017 A	104	0.0484 A	-96.6 %	0	0	0	n.e.	n.e.	0.0012 A	0	X	
39	0.0037 A	81	0.0577 A	-93.6 %	0	0	0	n.e.	n.e.	0.0036 A	0	X	
40	0.0015 A	104	0.0460 A	-96.8 %	0	0	0	n.e.	n.e.	0.0010 A	0	X	

average value < 0.6 % of Iavg or < 5 mA n.e. = not evaluated

Limits: Given in table above and defined in standard EN IEC 61000-3-2:2019 + A1:2021

Verdict: PASS

5.3.3. Deviations

None.

5.3.4. Comments

None.

5.4. Flicker limitations test

Date: 05.03.2024.
Test standard: EN 61000-3-3:2013 + A1:2019 +A2:2021 + AC:2022-01
Tested by: Slaven Pavlekić

5.4.1. Setup

Parameter	Setting
Test voltage	230 V, 50 Hz
Number of observations	1
Observation period	10 min

Mode of operation: The third mode

5.4.2. Results

FLICKER: Test PASS!

Time	Pmax	Pst	Sliding Plt	d(t)>3.30% [s]	dmax[%]	dc [%]	PASS	FAIL
15:59:33	0.003	0.0380	- . - - - -	0.000	+0.000	- . - - -	X	
Limits:		1.000	0.650	0.500	4.000	3.300		
Plt: 0.016598 (calculated over 12 periods)							X	
Evaluated: PST, PLT, Sliding PLT, dc, dmax, d(t)								

FLICKER: Source test PASS!

Time	Pmax	Pst	Sliding Plt	d(t)>3.30% [s]	dmax[%]	dc [%]	PASS	FAIL
15:59:33	0.000	0.0040	- . - - - -	0.000	+0.000	- . - - -	X	
Plt: 0.001747 (calculated over 12 periods)								
Evaluated: PST <= 0.4 dmax< 20 % dmax1								

Limits: Given in table above and defined in standard
EN 61000-3-3:2013 + A1:2019 +A2:2021 + AC:2022-01

Verdict: **PASS**

5.4.3. Deviations

None.

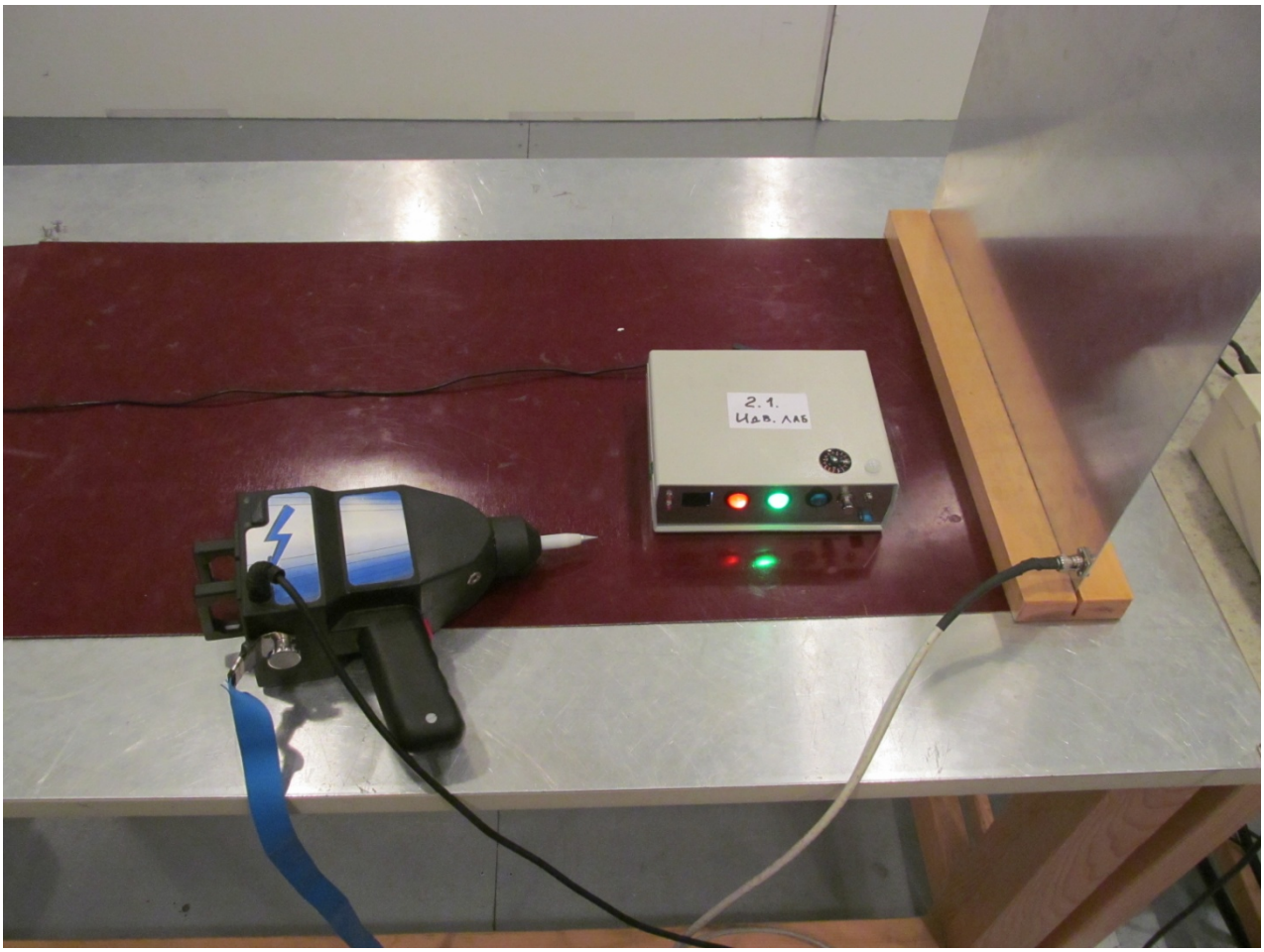
5.4.4. Comments

None.

5.5. Immunity to electrostatic discharge

Date: 20.03.2024.
Test standard: EN 61000-4-2:2009
Tested by: Predrag Savić i Slaven Pavlekić

5.5.1. Setup



Temperature: 20.7 °C
Relative humidity: 32.9 % RH
Atmospheric pressure: 998 hPa

Mode of operation: The third mode

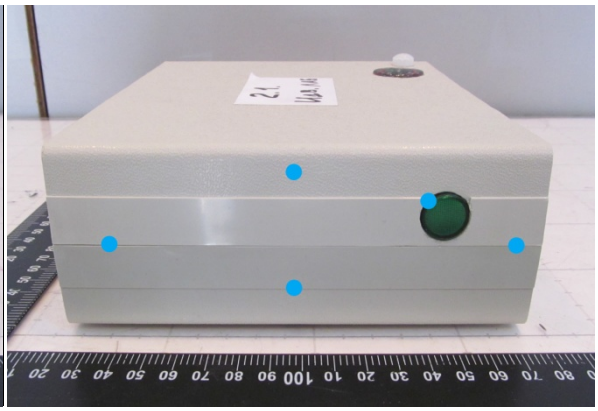
5.5.2. Results

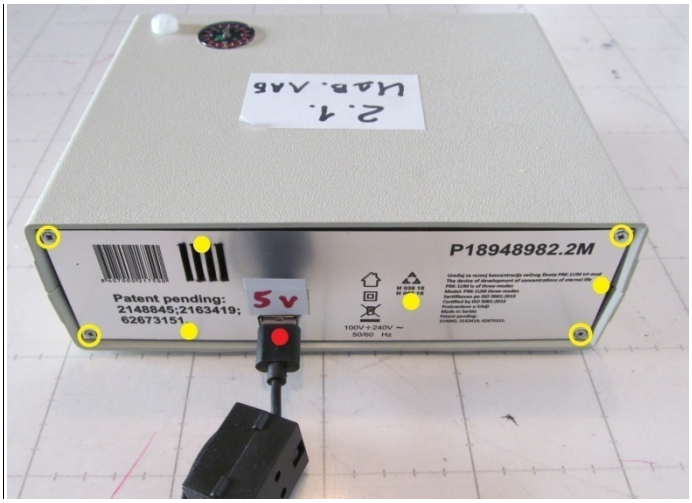
Discharge type – Contact discharge *(A. B. C. D – performance criteria. X – not tested)*			
Test level [kV] **Place of discharge**	**+4 kV**	**-4 kV**	**Notes**
HCP	**A**	**A**	**A** – No changes in the EUT's performance observed.
VCP	**A**	**A**	**A** – No changes in the EUT's performance observed.
Metal frame of the LED indicator	**A**	**A**	**A** – No changes in the EUT's performance observed.
Screws	**A**	**A**	**A** – No changes in the EUT's performance observed.
Metal button	**A**	**A**	**A** – No changes in the EUT's performance observed.
Enclosure (conductive parts)	**A**	**A**	**A** – No changes in the EUT's performance observed.

Discharge type – Air discharge *(A. B. C. D – performance criteria. X – not tested)*			
Test level [kV] **Place of discharge**	**+8 kV**	**-8 kV**	**Notes**
OLED screen	**A**	**B**	±8 kV, discharge with the spark at the corners of the screen **A** – No changes in the EUT's performance observed. **B** – A short interruption (~1 s) in the pulsation of the red light of button 1.
Plastic buttons	**A**	**A**	No discharge. **A** – No changes in the EUT's performance observed.
Green LED indicator	**A**	**A**	No discharge. **A** – No changes in the EUT's performance observed.
Motion sensor	**A**	**A**	No discharge. **A** – No changes in the EUT's performance observed.
Plastic connector of the USB cable	**A**	**B**	±8 kV, discharge with the spark **A** – No changes in the EUT's performance observed. **B** – A short interruption (~1 s) in the pulsation of the red light of button 1.
Enclosure (non-conductive parts)	**A**	**A**	No spark. **A** – No changes in the EUT's performance observed.

Note: The discharge points are shown in the figures below.

Discharge points:





- Contact discharge points - A
- Air discharge points without spark - A
- Air discharge points with spark - B

Requested performance criterion: **B**

Verdict: **PASS**

5.5.3. Deviations

None.

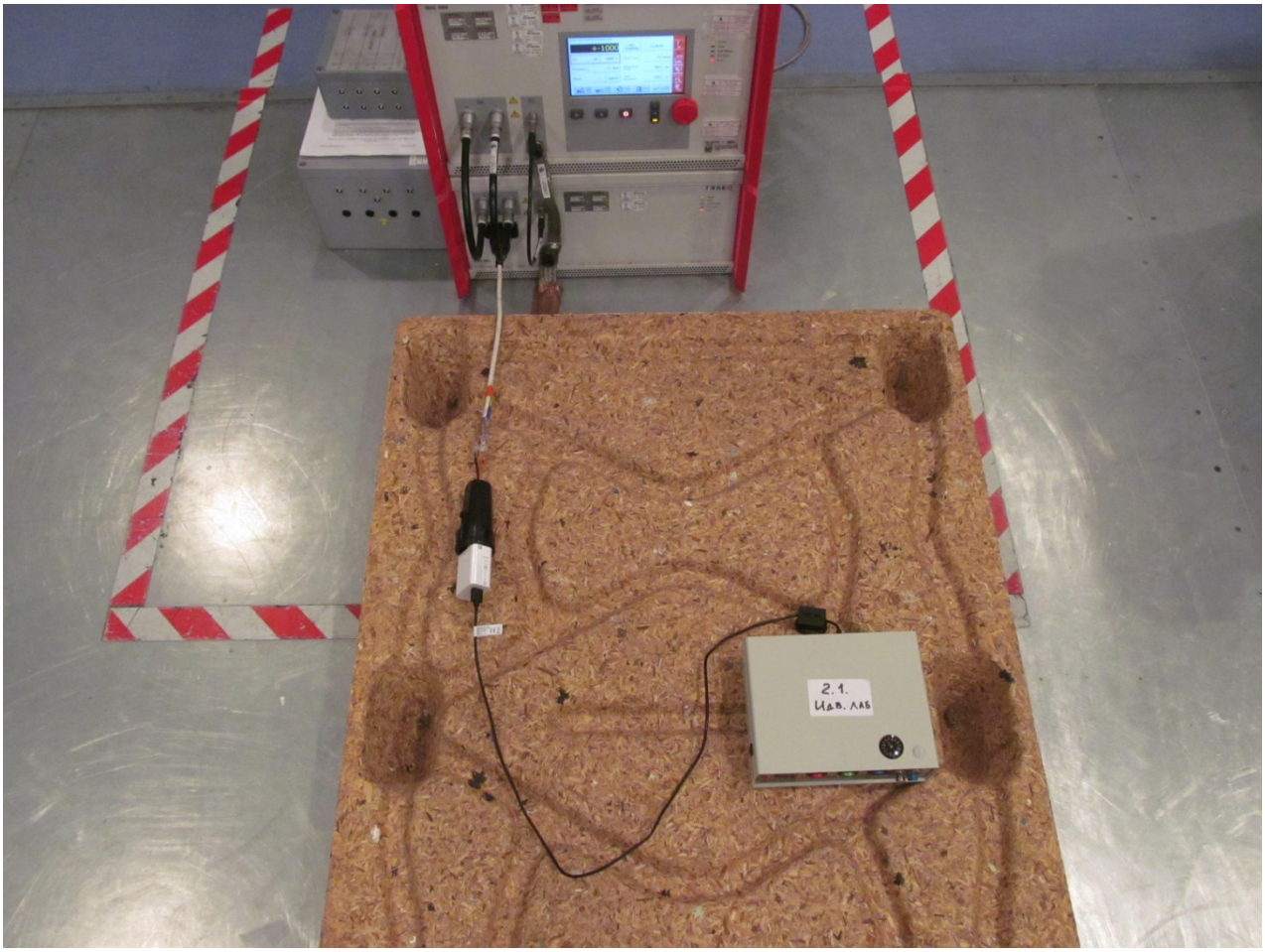
5.5.4. Comments

None.

5.6. Immunity to fast transients

Date: 06.03.2024.
Test standard: EN 61000-4-4:2012
Tested by: Slaven Pavlekić

5.6.1. Setup



Level: ± 1 kV
Duration: 120 s per polarity
Coupling: Coupling decoupling network
Port under test: AC mains port of the auxiliary equipment
Frequency: 5 kHz
Burst time: 75 spikes
Repetition time: 300 ms
Mode of operation The third mode

5.6.2. Results

Port under test	Requested performance criterion	Performance criterion	Comments
AC mains port of the auxiliary equipment	**B**	**A**	**A** – No changes in the EUT's performance observed

Verdict: **PASS**

5.6.3. Deviations

None.

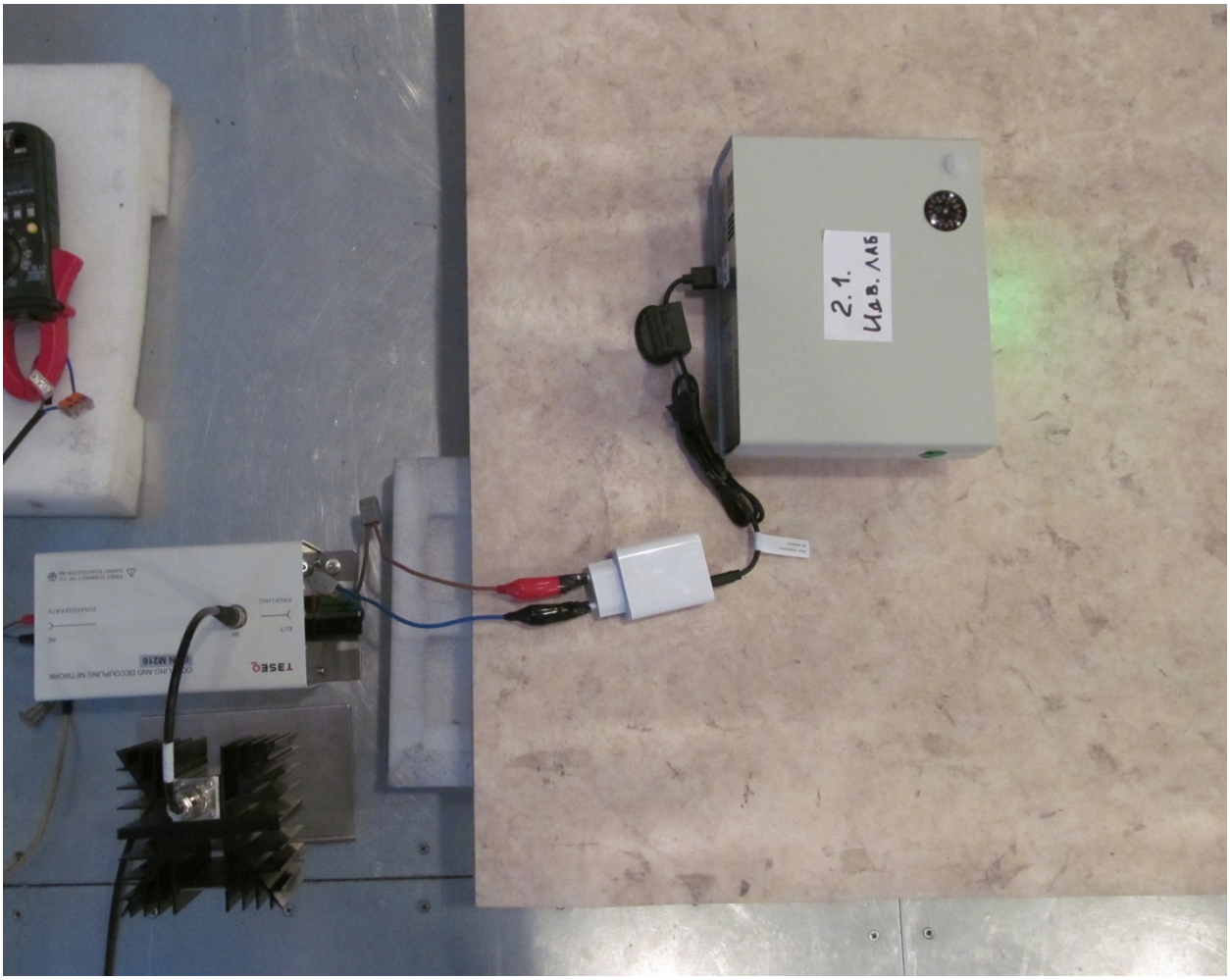
5.6.4. Comments

None.

5.7. Immunity to injected currents

Date: 06.03.2024.
Test standard: EN 61000-4-6:2014
Tested by: Slaven Pavlekić

5.7.1. Setup



Frequency range: 150 kHz – 80 MHz
Test level: 3 V
Modulation: 80 % AM; sine wave 1 kHz
Frequency step: 1 % with dwell time 1 s
Injection port: AC mains port of the auxiliary equipment via CDN M216
Mode of operation: The third mode

5.7.2. Results

Port under test	Requested performance criterion	Performance criterion	Comments
AC mains port of the auxiliary equipment	A	**A**	**A** – No changes were observed in the EUT performance during and after the test.

Verdict: **PASS**

5.7.3. Deviations

None.

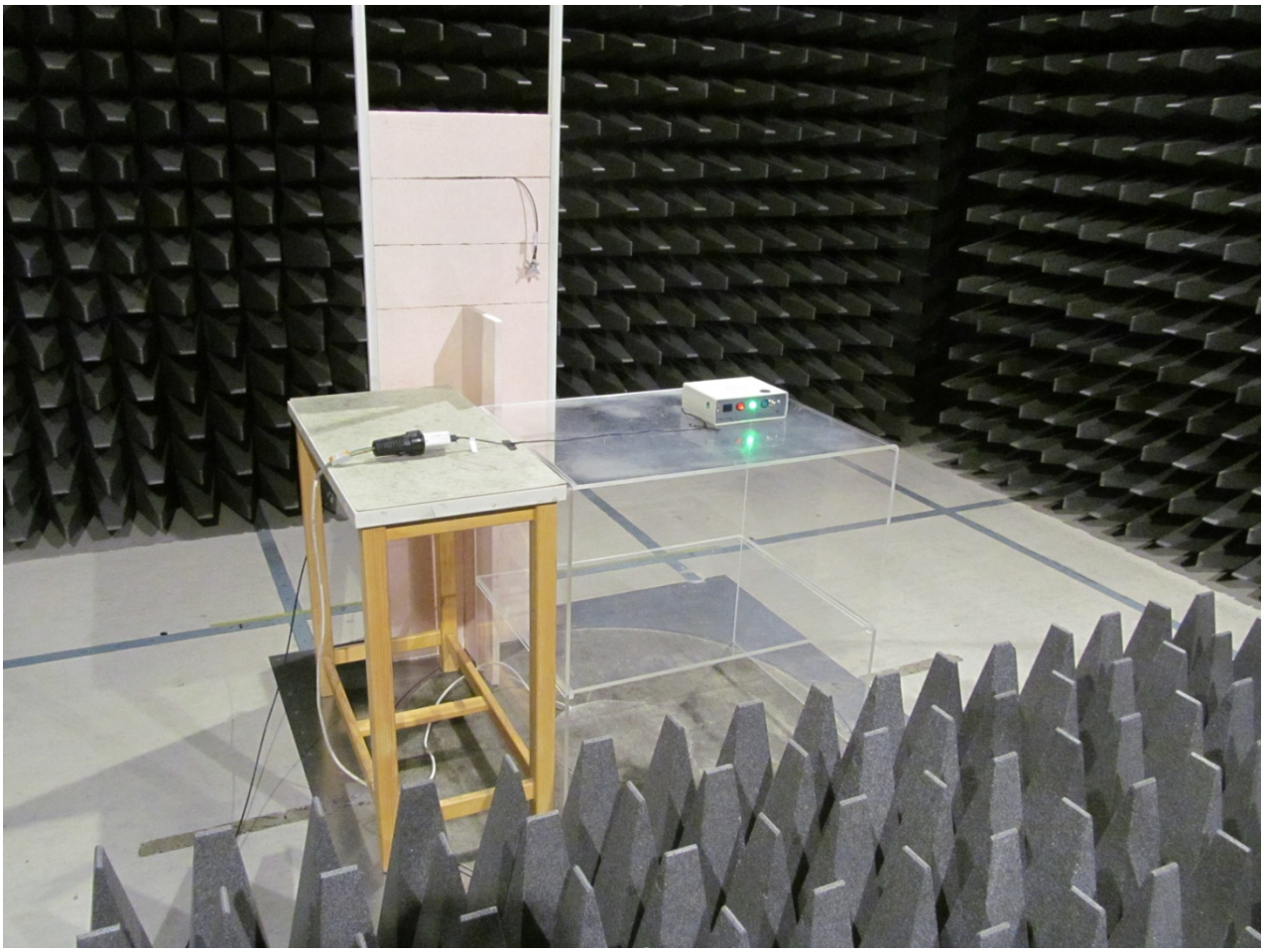
5.7.4. Comments

None.

5.8. Immunity to radio frequency electromagnetic fields

Date: 13.03.2024.
Test standard: EN IEC 61000-4-3:2020
Tested by: Predrag Savić and Slaven Pavlekić

5.8.1. Setup



Frequency range:	80 – 1000 MHz
Frequency step:	1 %
Dwell time:	1 s
Level:	3 V/m
Polarization:	HOR and VER
Modulation:	80 % AM; sine wave 1 kHz
UFA:	Rectangular 1.5 x 1.5 m at 2.3 m from the antenna (full illumination method)
Mode of operation:	The third mode

5.8.2. Results

3 V/m	80 MHz – 1 GHz HOR	80 MHz – 1 GHz VER
Front (setup photo)	**A**	**A**
Rear	**A**	**A**
Left	**A**	**A**
Right	**A**	**A**

A – No changes were observed in EUT performance during and after the test.

Requested performance criterion: **A** Verdict: **PASS**

5.8.3. Deviations

None.

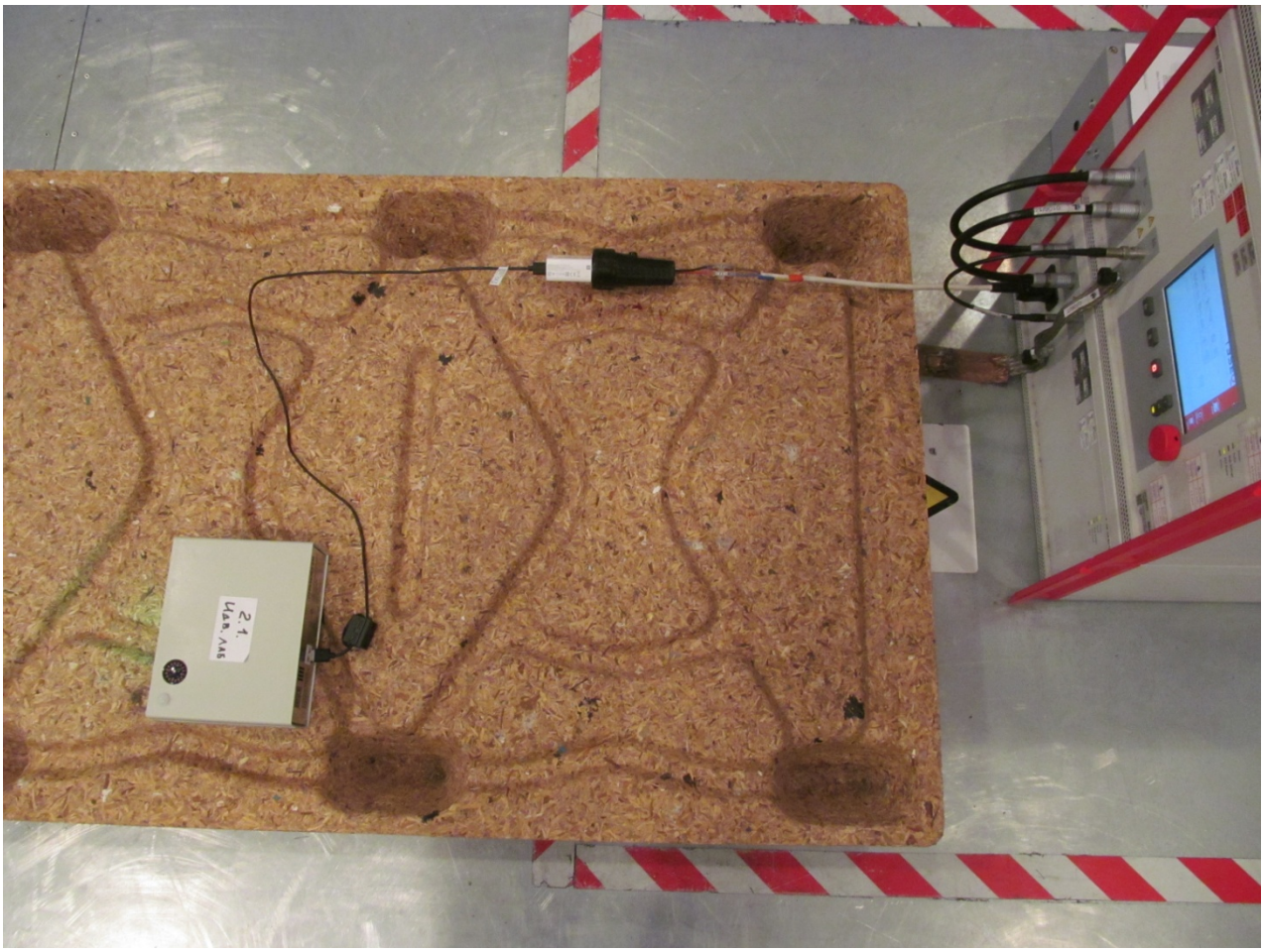
5.8.4. Comments

None.

5.9. Immunity to surge

Date: 21.06.2023.
Test standard: EN 61000-4-5:2014 + A1:2017
Tested by: Slaven Pavlekić

5.9.1. Setup



Port under test:	AC mains port of the auxiliary equipment
AC power port voltage:	230 V, 50 Hz
Test level:	±1 kV (peak) Line to line Generator impedance: 2 Ω
Pulse shape:	1.2/50 (8/20) μs
Number of pulses:	5 POS and 5 NEG
Synchronization:	90˚ (positive) and 270˚ (negative)
Pause:	60 s
Mode of operation:	The third mode

5.9.2. Results

L – N	+1 kV	-1 kV
90°	**A**	/
270°	/	**A**

A – No changes in the EUT's performance observed.

Requested performance criterion: **B** Verdict: **PASS**

5.9.3. Deviations

None.

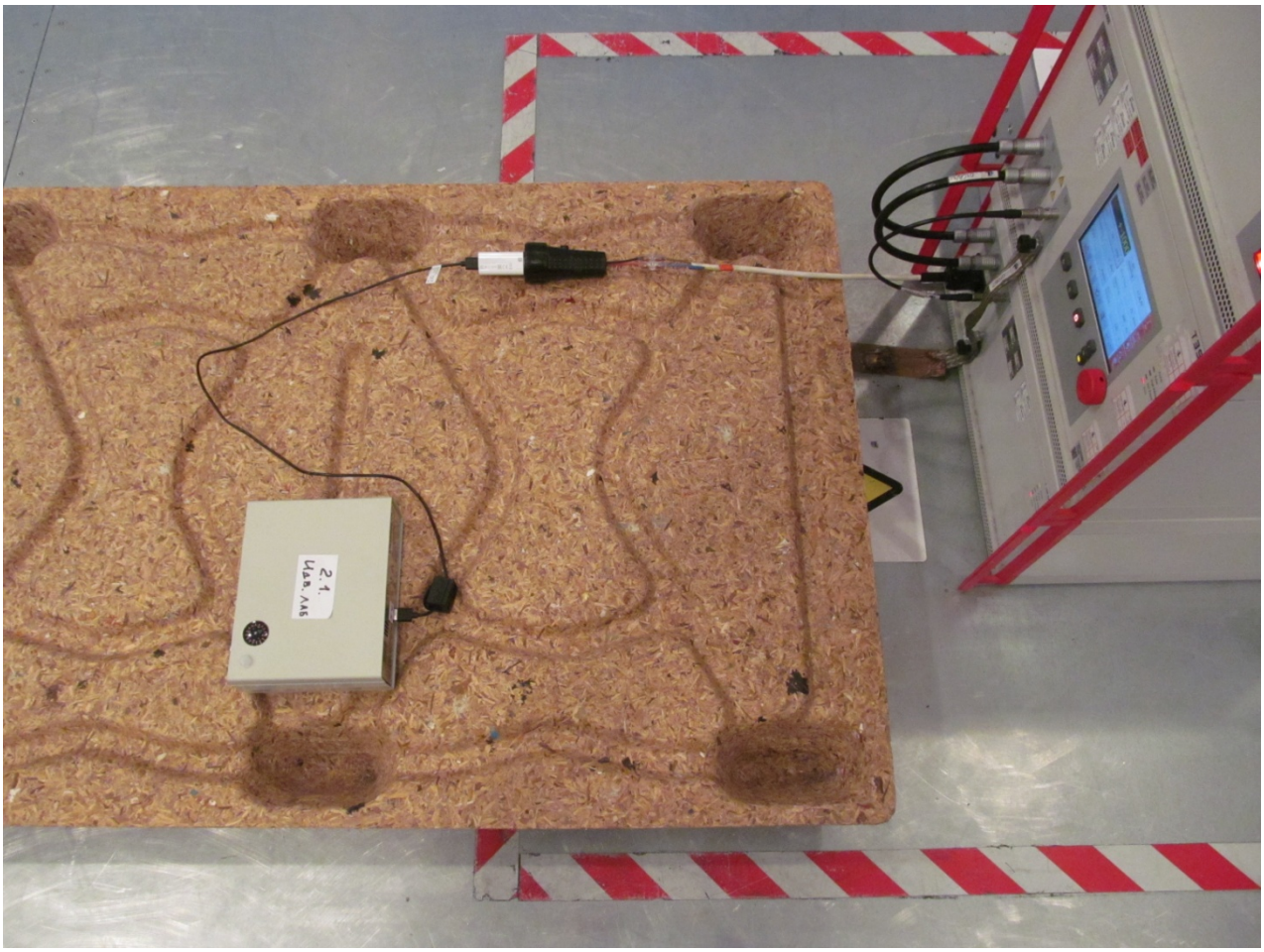
5.9.4. Comments

None.

5.10. Immunity to voltage dips and interruptions

Date: 06.03.2024.
Test standard: EN IEC 61000-4-11:2020 + AC:2020-06
Tested by: Slaven Pavlekić

5.10.1. Setup



Port under test: AC mains port of the auxiliary equipment
AC power port voltage: 230 V, 50 Hz
Mode of operation: The third mode

Changes to occur at 0 degree crossover point of the voltage waveform.

5.10.2. Results

Test	Repetition time [s]	Test duration [trials]	T-event [cycles]	Voltage U_T [%]	Requested performance criterion	Performance criterion	Comments
Voltage dip	10	3	0.5	0	C	**A**	No changes in the EUT's performance observed.
Voltage dip	10	3	10	40	C	**A**	No changes in the EUT's performance observed.
Voltage dip	10	3	25	70	C	**A**	No changes in the EUT's performance observed.

Verdict: **PASS**

5.10.3. Deviations

None.

5.10.4. Comments

None.

6. MEASUREMENT EQUIPMENT

The following equipment is used for tests:

Type	Manufacturer	Model	Ser.No.	IN number	USED IN TEST/-S Reported in the Clause/-s:
Power supply/ Amplifier/ Control unit/ Analyzer Reference System	Spitzenberger &Spies	EMV E 5000/PAS 1	A 4979 02/0 1112	0100-0104	5.3. 5.4
EMI receiver	Schaffner	SMR4503	81	0138	5.1. 5.2
Software	Teseq	Compliance 5 E/I v5.26.4	517-2881623-74 and 517-2846725-70	0125	5.1. 5.2
V-network 4-line	Teseq	NNB52	27384	0134	5.1
Antenna	Teseq	CBL6144	35349	0115	5.2, 5.8
Semi anechoic chamber	Comtest	3m	/	0305	5.2, 5.8
Antenna mast	Maturo	CAM-4.0	/	306	5.2, 5.8
Controller	Maturo	MSU	/	307	5.2, 5.8
ESD gun set	Haefely	PESD3010	H707203	L-0052	5.5
VCP	/	/	/	E-0212	5.5
HCP	/	/	/	E-0213	5.5
Conducted immunity generator	Teseq	NSG3060	1497	0106	5.6, 5.9, 5.10
CDN	Teseq	CDN 3061-C16	1422	0105	5.6, 5.9, 5.10
Dual variac	Teseq	VAR 3005-D16	1999	0110	5.10
Compact immunity test system	Teseq	NSG4070-75	35059	0126	5.7
Attenuator	Teseq	ATN6075	33644	0127	5.7
CDN	Teseq	M216S	32742	0129	5.7
Environmental monitor	Kimo	AQ200	12115072	0144	All
FU absorbers + ferrite tiles	Comtest	DMAS HT45 + CAF-6	/	0308 + 0309	5.8
Amplifier	Teseq	CBA 1G-150	T44175	0116	5.8
Directional coupler	Bonn	BDC 0810-40/500	129058-02	0121	5.8
Power meter	Teseq	PMU6006	73368	0123	5.8
Signal generator	Rigol	DSG3060	DSG3A205000108	0326	5.8
Field strength sensor	Narda	EP601	501WX20456	0124	5.8

7. MEASUREMENT UNCERTAINTY

For test 5.1: AC mains port: $U_{LAB} = U_{CISPR} = 3.4$ dB in frequency range 150 kHz – 30 MHz. Expanded uncertainty of measurement. expressed as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for normal distribution corresponds to a coverage probability of approximately 95 %. Measurement uncertainty calculation is carried out according to EN 55016-4-2:2011 + A1:2014 + A2:2018.

For test 5.2: 4.9 dB (HOR 30 MHz – 300 MHz)
5 dB (VER 30 MHz – 300 MHz)
5.2 dB (HOR and VER 300 MHz – 1000 MHz)
Expanded uncertainty of measurement expressed as the standard uncertainty of measurement multiplied by the coverage factor k = 2. which for normal distribution corresponds to a coverage probability of approximately 95 %.
Measurement uncertainty is according to EN 55016-4-2:2011 + A1:2014 + A2:2018 ($U_{LAB} \leq U_{CISPR}$).

For test 5.3: 2.8654%
Expanded uncertainty of measurement. expressed as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for normal distribution corresponds to a coverage probability of approximately 95 %.

For test 5.4: 2.87 % (d)
4.23 % (Pst)
Expanded uncertainty of measurement. expressed as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for normal distribution corresponds to a coverage probability of approximately 95 %.

For immunity tests (5.5 – 5.10) used test equipment has been demonstrated during calibration to comply with the requirements of test standards having the calibration uncertainty taken into account.

8. GENERAL REMARKS

Date format is dd.mm.yyyy.

Decimal mark is indicated by dot (.) within the report.

9. APPENDIXES

None.

END OF THE REPORT