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L 1341

Testing laboratory No. 1341 accredited by the Czech Accreditation Institute according to ČSN EN ISO/IEC 17025:2018

Laboratory: TESTCOM Praha, Hvožďanská 3, Praha 4, 148 00
Laboratories department, phone: +420 271 192 118, e-mail: kpitas@cmi.cz

TEST REPORT

8551-PT-E0112-22

Date of issue: September 27th, 2022

Customer: 2N TELEKOMUNIKACE a.s.
Modřanská 621
143 01 Praha 4
Czech Republic

Manufacturer: 2N TELEKOMUNIKACE a.s.
Modřanská 621
143 01 Praha 4
Czech Republic

Subject of the test: **Electromagnetic compatibility**

Kind of equipment: Lift communication system

Order number.: 9216xxx

Type: 2N® Lift IP 2.0

Serial number: 52-2859-0020

Test procedure (used standard): EN 55032 :2015, EN 55035: :2017
with respect to immunity levels specified in EN 12016: 2013

Place of the test: TESTCOM Praha, Hvožďanská 3, Praha 4, 148 00

The results of the tests have been obtained following the procedures reported in this Report and are related only to the tested item, date, place and conditions of the test. Test Report does not substitute any other document that may be required by national authorities according to relevant regulations.
Measurement equipment, date and place of test, ambient and test conditions, results of testing and statements of compliance and other relevant information are written in the Annex 1 of this Test Report.
Any comparison of measured values with the required ones as well as any other assessment is outside the terms of accreditation pursuing the CSN EN ISO/IEC 17025:2018 standard. Uncertainty of measurement (according to EA-4/02 M: 2022): 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%.

Tested by:

Ing. Marek Svoboda, PhD.

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End of test report

Head of the Department:

Ing. Karel Pitaš

Electromagnetic compatibility laboratory

EMC Test Report - Annex 1

Ref. No. 8551-PT-E0112-22

Customers information

Kind of Equipment:	**Lift communication system**
Type Designation:	**2N® Lift IP 2.0**
Order Number:	**9216xxx**
Serial Number	**52-2859-0020**

Manufacturer:	**2N Telekomunikace** **Modřanská 621** **143 01 Praha 4** **Czech Republic**
Applicant:	**2N Telekomunikace** **Modřanská 621** **143 01 Praha 4** **Czech Republic**
Used Standards:	**EN 55032 :2015, EN 55035: :2017** **with respect to immunity levels specified in EN 12016: 2013**

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Product standard EN 55032

Electromagnetic compatibility of multimedia equipment – Emission Requirements

Measurement method:

Radiated emission **EN 55032**

Electromagnetic compatibility of multimedia equipment – Emission Requirements

Conducted emission **EN 55032**

Electromagnetic compatibility of multimedia equipment – Emission Requirements

Immunity : Requirements according to:

Product Standard EN 55035

Information technology equipment -Immunity characteristics - Limits and methods of measurement

with respect to immunity leveles specified in

Product Standard EN 12016

Electromagnetic compatibility - Product family standard for lifts, escalators and moving walks - Immunity

Measurement methods:

ESD	**EN 61000-4-2**
	Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 2: Electrostatic discharge immunity test
Radiated immunity	**EN IEC 61000-4-3**
	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test
Burst	**EN 61000-4-4**
	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test
Surge	**EN 61000-4-5**
	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test
Conducted immunity	**EN 61000-4-6**
	Electromagnetic compatibility (EMC) - Part 4 - 6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
Volt. Dips and interruptions	**EN IEC 61000-4-11**
	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests

Summary of EMC Tests

Used standards	Class/Level	Result of performed tests	Remark
EN 55032:2015 +AC:2016+A11:2020+A1:2020		pass	conducted emissions
		pass	radiated emissions
EN 55035:2017 +AC:2019 +A11:2020		**pass**	
EN 61000-4-2:2009		pass	
EN IEC 61000-4-3:2020	10 V/m	pass	with respect to severity levels specified in EN 12016
EN 61000-4-4:2012		pass	
EN 61000-4-5:2014 +A1:2017		pass	
EN 61000-4-6:2014	3 V	pass	with respect to severity levels specified in EN 12016
EN IEC 61000-4-11:2020		pass	

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Uncertainties of measurement according to EA - 4/02 M

Standard	measurement	Uncertainty [dB]	Remark
ČSN EN 55032	EM field 30 MHz-300 MHz / bicon. antenna	3,6	
	EM field 30 MHz-1000 MHz /logper. antenna	3,9	
	voltage withESH2-Z5 coupling	2,3	
	voltage with TK12 coupling	3,4	
	current with SMZ 11 coupling	3,4	
	voltage with ENY 22 coupling	2,1	
ČSN EN 55014-1	power 30 MHz - 300 MHz (MDS 21)	2,5	
	voltage withESH2-Z5 coupling	2,3	
	voltage with TK12 coupling	3,4	
ČSN EN 55011	EM field 9 kHz - 30 MHz / loop antenna	3,4	1
	EM field 30 MHz-300 MHz / bicon. antenna	3,6	1
	EM field 30 MHz-1000 MHz /logper. antenna	3,9	1
	voltage withESH2-Z5 coupling	2,3	
	voltage with TK12 coupling	3,4	
	current with SMZ 11 coupling	3,4	
ČSN EN 55015	voltage withESH2-Z5 coupling	2,3	
	attenuation (fluorescent lamp equivalents)	3,0	
	voltage with TK12 coupling	3,4	
	radiated emissions up to 30 MHz	3,4	
ČSN EN 50121-3	EM field 9 kHz - 30 MHz / loop antenna	3,4	1
	EM field 30 MHz-300 MHz / bicon. antenna	3,6	1
	EM field 30 MHz-1000 MHz /logper. antenna	3,9	1
ČSN EN 61000-3-2	harmonic current emissions	1,8	
ČSN EN 61000-3-3	voltage variations and flicker	1,8	
ČSN EN 61000-4-2	electostatic discharge	2,7	
ČSN EN 61000-4-3	EM field immunity test	2,8	
ČSN EN 61000-4-4	burst immunity test	2,2	
ČSN EN 61000-4-5	surge immunity test	2,2	
ČSN EN 61000-4-6	Conducted RF Disturbances Immunity Test	1,8	
ČSN EN 61000-4-11	Voltage Dips and Interruptions Immunity Test	2,2	

Explanation to Remarks

1 Valid for laboratory measurement - uncertainty of site not involved

Uncertainty is expressed according to EA-4/02 M - level of reliability is 95%.

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General EUT information

Description of EUT			
[x] table top equipment		[ ] floor standing equipment	
Mains voltage:	12 V DC (AC-DC adaptor) or PoE injector	Clock frequencies [MHz]:	< 1000 MHz
The EUT is communicator. It is speakerphone designed for two-way emergency communication between the elevator and the control center. EUT is connected to external system by means of internet cable. EUT is equipped with signalization diodes. EUT is powered either by means of external AC/DC adaptor or PoE. EUT was connected to an answering unit. Ethernet connection was established during tests.			

List of cables		
Input / Output	Length [m]:	**S**hielded / **N**onshielded
DC mains cable	1 m	N
Ethernet cable	>2 m	N
Diode indicator cables (2x)	<3 m	N

Major subassemblies or Internal peripherals				
Device	Manufacturer	Type	SN	FCC ID/Canada IC
Unit - Flush mounting, EN, with button	2N	921618BE	52-2869-0020	
Peripheral devices used for testing				
Device	Manufacturer	Type	SN	FCC ID
AC/DC adaptor	SUNNY	SYS1308-2412-W2E	G110206033809	---
PoE injector and switch	TP-link	TL-SF1005P	219B417003540	---
AC/DC adaptor for PoE injector	TP-link	T480125-2-DT	---	---
Answering unit	2N	2N® Indoor Compact	52-3023-0463	---

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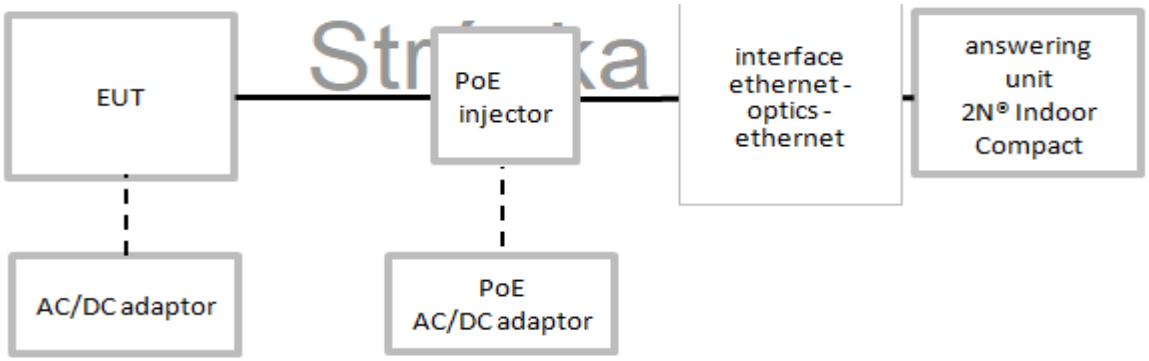
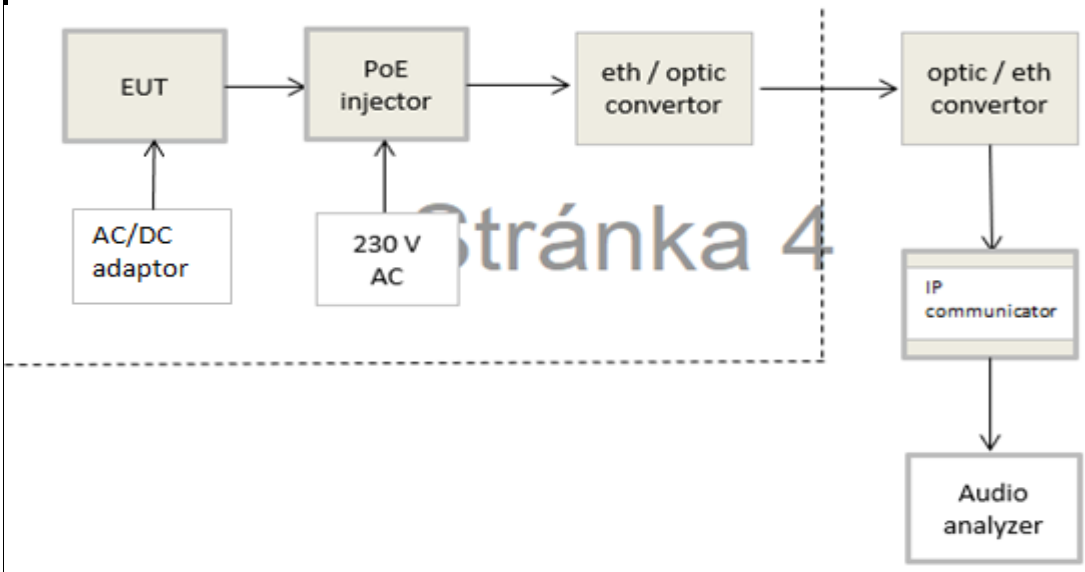
Test configuration - emissions

EUT was connected to an answering unit. Ethernet connection was established during tests.



Test configuration - immunity



EUT monitoring during immunity tests
EUT was connected to 2N® Indoor Compact communicator. During immunity tests acc. to EN 61000-4-3 and EN 61000-4-6 was evaluated 1 kHz sound level in the IP communicator speaker by means of audio analyzer. 1. Connection between the EUT and communicator is established manualy.Led diodes indicate state of EUT. 2. Immunity to RF disturbances (EN 61000-4-3 and EN 61000-4-6) was measured by means of audio analyzer FX 100 in agreement with standard EN 55035, annex G, ch. G.6.4.1 and evaluated acc. to ch. G.7 and table G.3. - performed continuously.

Function criterion A (ch. G.7 of EN 55035, Table G.3)

Type of immunity test	Frequency range [MHz]	Interference ratio accoustic or electric [dB]
conducted	0.15-30	-20
	30 - 80	-10
radiated	80 - 1000	0

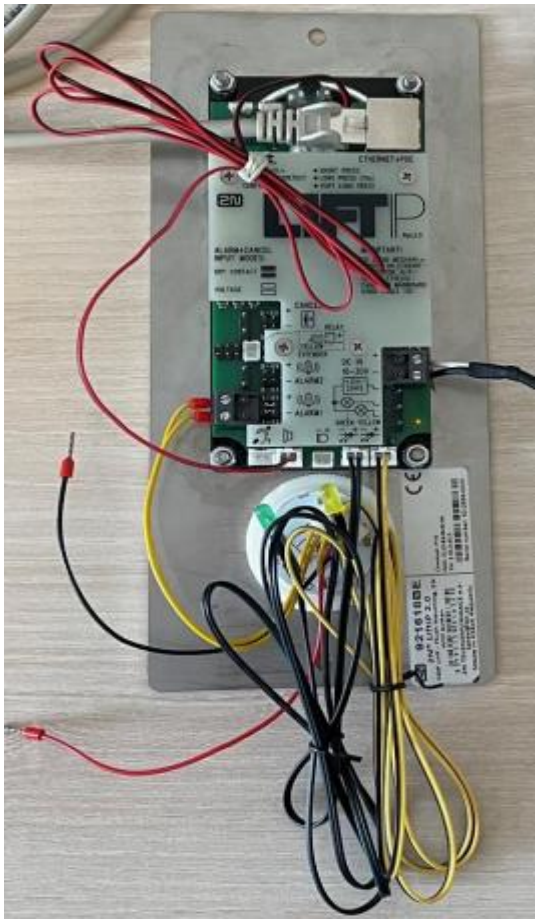
Remark :

Audio analyzer FX100 provides frequency and voltage data of audio signal measured by calibrated measuring microphone. During RF immunity tests according to EN 61000-4-3 and EN 61000-4-6 was measuring microphone arranged to speaker of IP communicator , data were recorded into EMC 32 software and accoustic interference ratio evaluated according to ch. G.6.4.1 and table G3 of EN 55035.

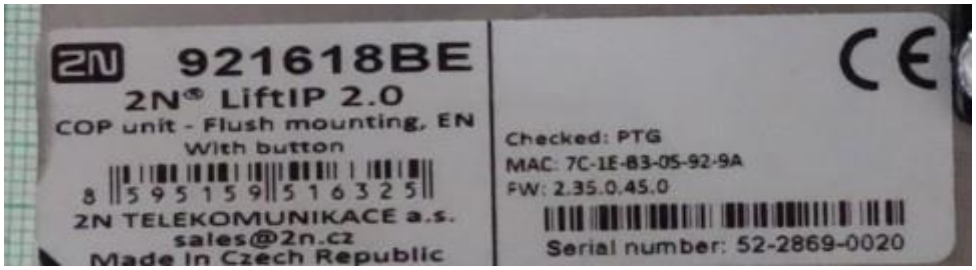
Tests according to EN IEC 61000-4-3:

For frequency ranges exceeeding 1 GHz was used the same acceptance level of interference ratio as in EN 55035 extrapolated to higher frequencies.

External photo front and rear view



EUT label



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EUT AC-DC adaptor

PoE switch with AC-DC adaptor

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Conducted Emissions
EN 55032

Date of test: 09.05.2022, 12.9.2022
Ambient temperature: 21 ºC ± 3 ºC
Relative humidity: 35 % ± 10%
Measured by: MSV

Measured port	Coupling element	Freq. range [MHz]	Res.
AC/DC adaptor port 230 V AC	ESH2-Z5	0.15 - 30	P
ethernet with PoE	T8RJ45		P
ethernet without PoE	T8RJ45		P

Result: **P** passed **F** failed

Uncertainties of measurement see Page No. 6

Remark (all graphics)

blue trace : prescan measurement - peak detector
green trace : prescan measurement - average detector
blue diamond : final measurement - quasi-peak detector
green diamond : final measurement - average detector

Test equipment:	Ident. No.
EMI test receiver R/S ESHS 30	C003
Artifical network R/S ESH2-Z5	C135
T8RJ45	C154

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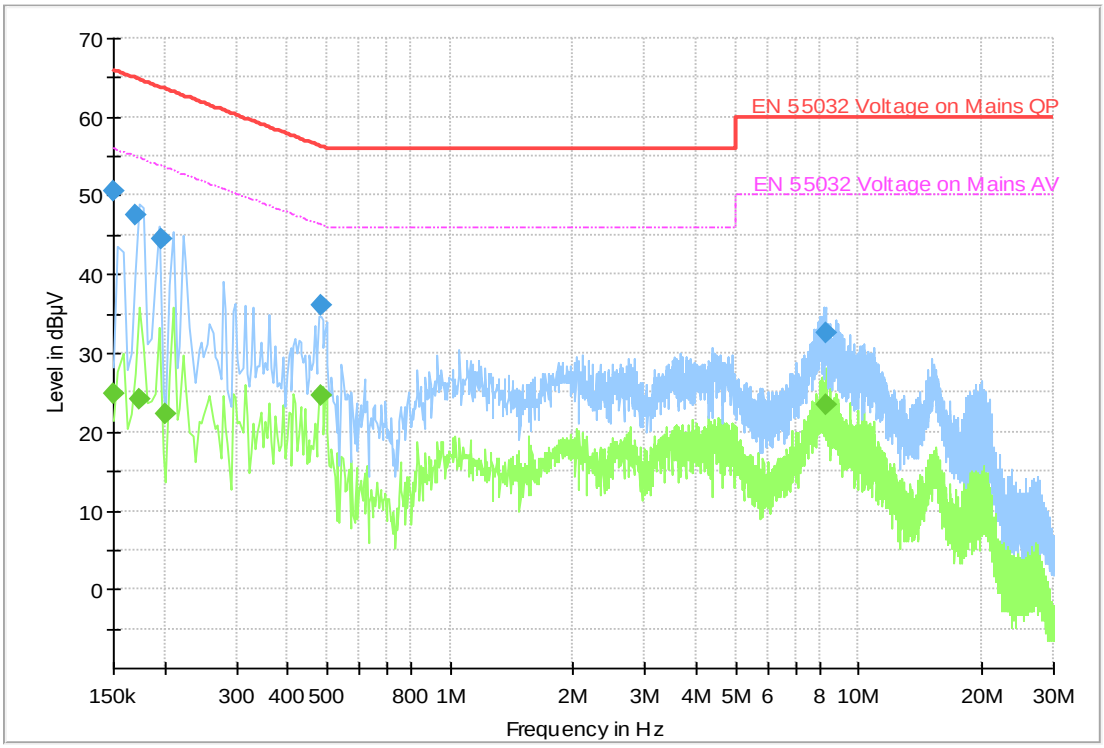
Measured data mains port of AC/DC adaptor

Full Spectrum



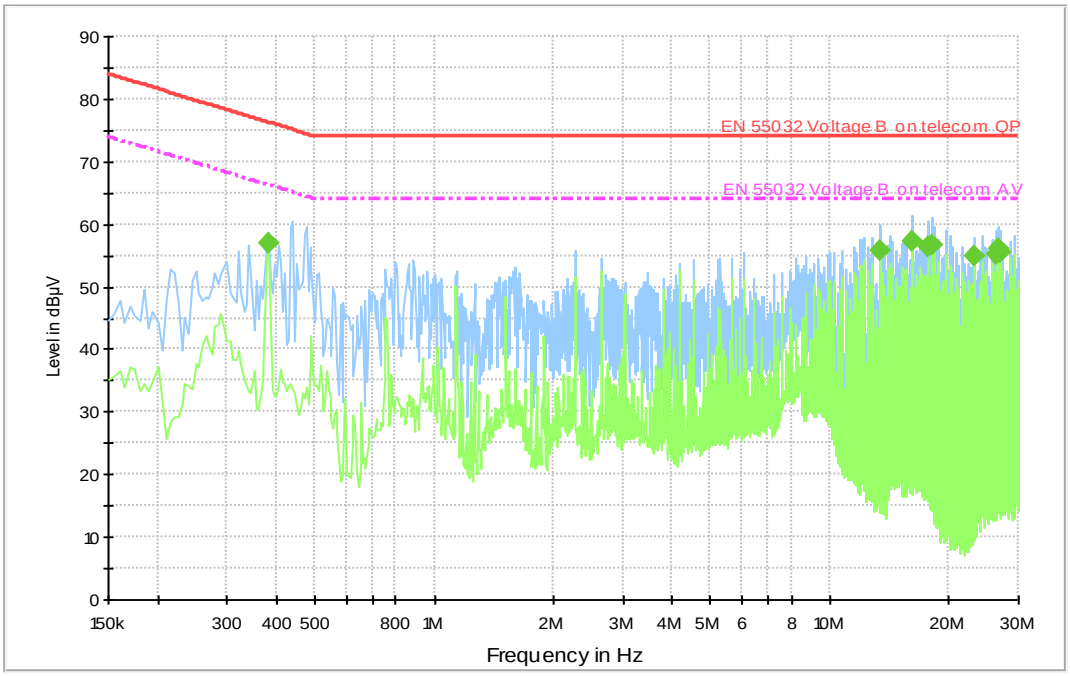
Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.150000	50.66	66.00	15.34	1000.0	10.000	N	FLO	0.0
0.169000	47.60	65.01	17.41	1000.0	10.000	L1	FLO	0.0
0.197000	44.58	63.74	19.15	1000.0	10.000	N	FLO	0.0
0.483000	36.04	56.29	20.25	1000.0	10.000	L1	FLO	0.0
8.288000	32.66	60.00	27.34	1000.0	10.000	N	FLO	0.0

Final_Result_AVG

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.150000	24.76	56.00	31.24	1000.0	10.000	N	FLO	0.0
0.174000	24.04	54.77	30.73	1000.0	10.000	N	FLO	0.0
0.202000	22.40	53.53	31.13	1000.0	10.000	L1	FLO	0.0
0.481000	24.73	46.32	21.60	1000.0	10.000	L1	FLO	0.0
8.281000	23.45	50.00	26.55	1000.0	10.000	N	FLO	0.0

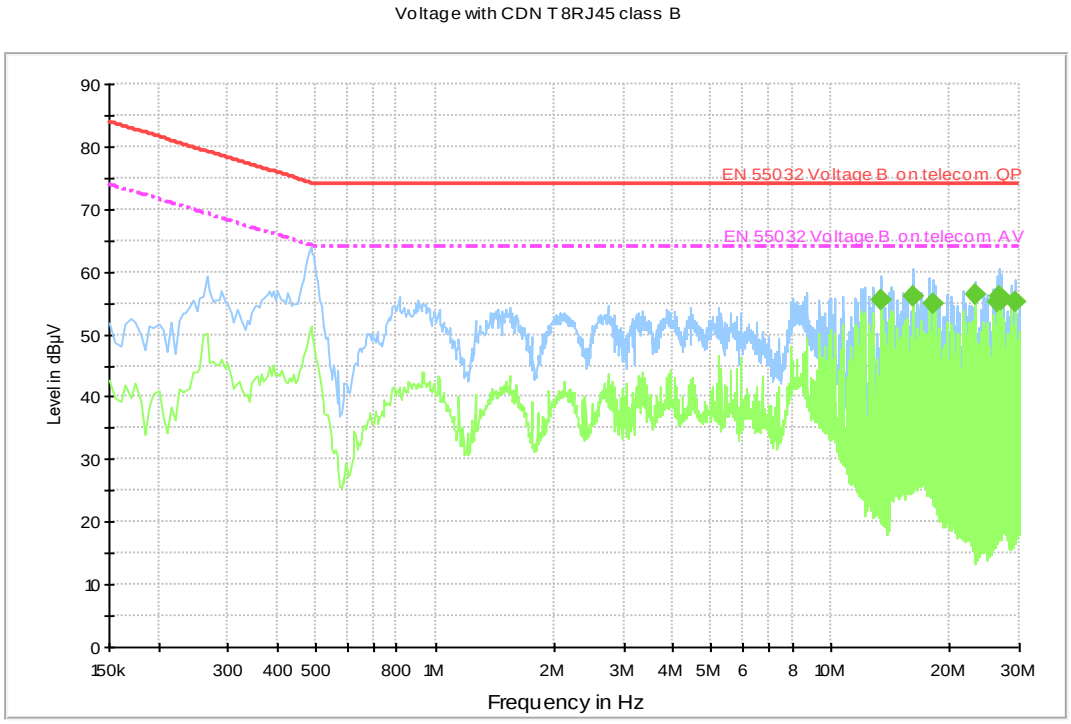
Measured data ethenet line with PoE powering



Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Margin (dB)	Limit (dBµV)
0.380000	57.0	1000.00	10.000	9.3	66.3
13.420000	55.8	1000.00	10.000	8.2	64.0
16.230000	57.2	1000.00	10.000	6.8	64.0
17.695000	56.5	1000.00	10.000	7.5	64.0
18.245000	56.7	1000.00	10.000	7.3	64.0
23.130000	55.0	1000.00	10.000	9.0	64.0
26.485000	55.3	1000.00	10.000	8.7	64.0
26.610000	56.2	1000.00	10.000	7.8	64.0
27.160000	55.5	1000.00	10.000	8.5	64.0

Remark : due to low values compared to limit the QP measurement was not performed.

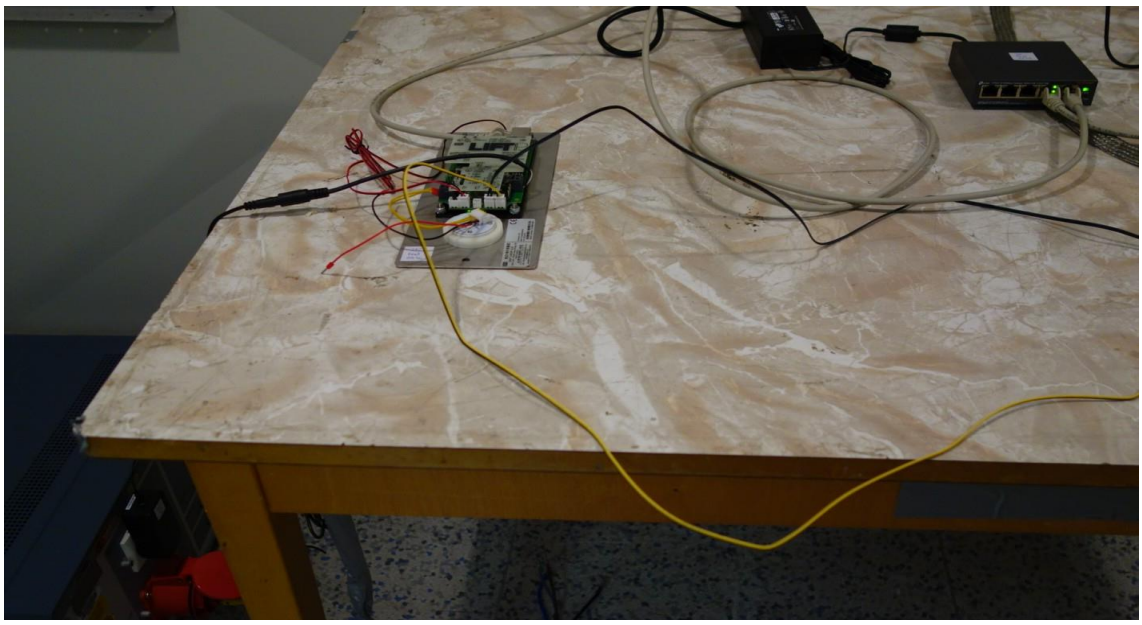
Measured data ethenet line with PoE powering



Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Margin (dB)	Limit (dBµV)
13.420000	55.5	1000.00	10.000	8.5	64.0
16.230000	56.2	1000.00	10.000	7.8	64.0
18.245000	54.8	1000.00	10.000	9.2	64.0
23.130000	56.5	1000.00	10.000	7.5	64.0
26.485000	55.1	1000.00	10.000	8.9	64.0
26.610000	56.0	1000.00	10.000	8.0	64.0
27.160000	55.5	1000.00	10.000	8.5	64.0
29.235000	55.0	1000.00	10.000	9.0	64.0

Remark : due to low values compared to limit the QP measurement was not performed.

Test setup: conducted emissions



Radiated Emissions
EN 55032

Date of test: 29.08.2022
Ambient temperature: 23 ºC ± 3 ºC
Relative humidity: 35 % ± 10%
Measured by: MSV

Frequency range [MHz]	Measuring distance	Antenna	Result
30 - 1000	10 m	C 109	P
1000-6000	3 m	C 148	P

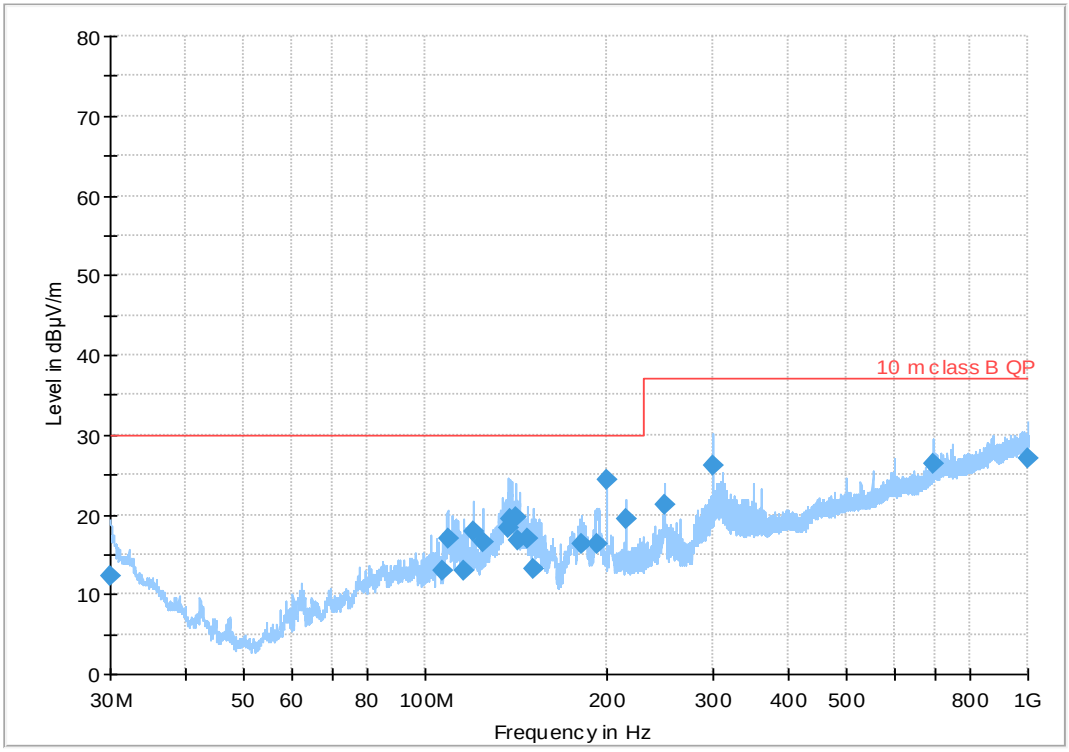
Result: **P** passed **F** failed

Uncertainties of measurement see Page No. 6

Remark (all graphics)
blue trace : prescan measurement - peak detector green trace : prescan measurement - average detector blue diamond : final measurement - quasi-peak detector (f<1GHz), PK detector (f>1GHz) green diamond : final measurement - average detector

Test equipment:	Ident. No.
EMI test receiver R/S ESR7	C186
Broadband antenna BTA-M	C109
Anechoic chamber 10m in TESTCOM	C093

Measured data (f < 1000 MHz)



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
30.000000	12.26	30.00	17.74	1000.0	120.000	190.0	V	232.0
106.680000	13.06	30.00	16.94	1000.0	120.000	158.0	V	101.0
108.810000	16.90	30.00	13.10	1000.0	120.000	175.0	V	-11.0
115.620000	12.85	30.00	17.15	1000.0	120.000	151.0	V	0.0
120.000000	17.95	30.00	12.05	1000.0	120.000	237.0	V	11.0
124.980000	16.47	30.00	13.53	1000.0	120.000	221.0	V	0.0
137.160000	18.37	30.00	11.63	1000.0	120.000	141.0	V	268.0
138.390000	19.33	30.00	10.67	1000.0	120.000	100.0	V	281.0
141.210000	19.66	30.00	10.34	1000.0	120.000	101.0	V	278.0
142.710000	16.82	30.00	13.18	1000.0	120.000	119.0	V	274.0
148.110000	16.97	30.00	13.03	1000.0	120.000	145.0	V	170.0
151.560000	13.15	30.00	16.85	1000.0	120.000	155.0	V	176.0
181.500000	16.36	30.00	13.64	1000.0	120.000	388.0	H	101.0
192.990000	16.42	30.00	13.58	1000.0	120.000	355.0	H	101.0
200.010000	24.43	30.00	5.57	1000.0	120.000	375.0	H	132.0
216.000000	19.47	30.00	10.53	1000.0	120.000	342.0	H	146.0
249.990000	21.24	37.00	15.76	1000.0	120.000	324.0	H	271.0
300.000000	26.13	37.00	10.87	1000.0	120.000	315.0	H	304.0
696.000000	26.32	37.00	10.68	1000.0	120.000	258.0	V	326.0
1000.000000	27.09	37.00	9.91	1000.0	120.000	322.0	H	-3.0

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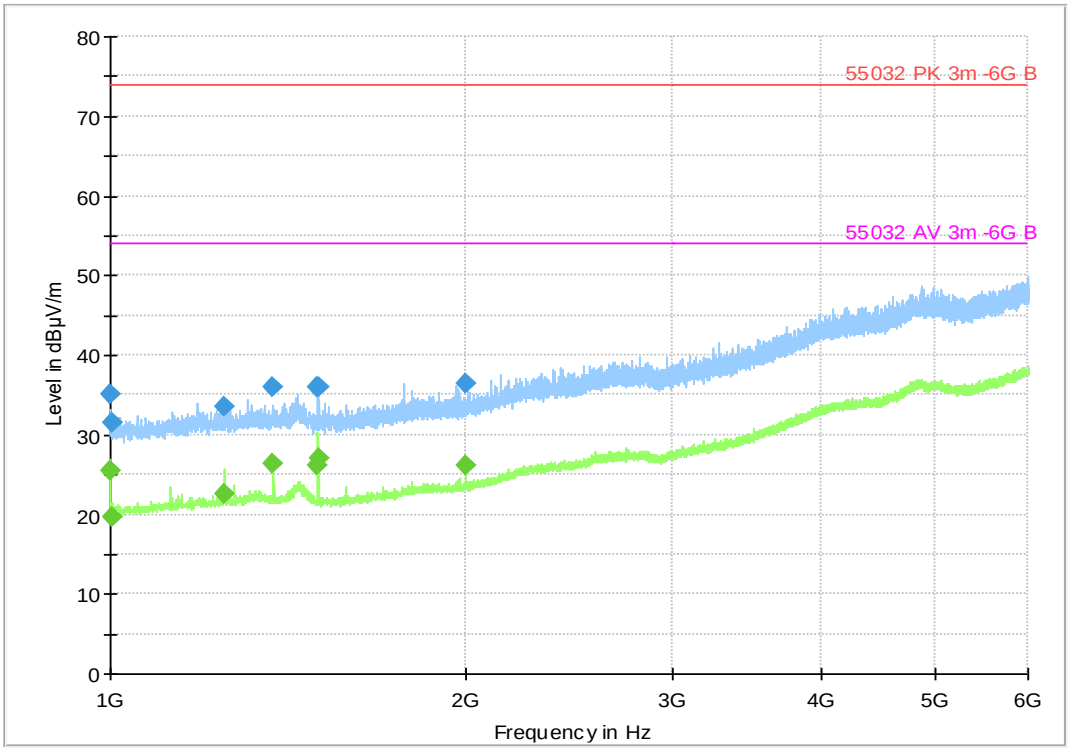
Measured data (f >1000 MHz)



Final_Result_PK+

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
1000.000000	35.01	74.00	38.99	100.0	1000.000	150.0	V	225.0
1004.800000	31.53	74.00	42.47	100.0	1000.000	250.0	V	135.0
1249.800000	33.49	74.00	40.51	100.0	1000.000	100.0	V	225.0
1375.000000	36.03	74.00	37.97	100.0	1000.000	100.0	V	135.0
1499.800000	36.07	74.00	37.93	100.0	1000.000	150.0	V	270.0
1500.200000	36.02	74.00	37.98	100.0	1000.000	200.0	V	270.0
2000.200000	36.33	74.00	37.67	100.0	1000.000	100.0	V	270.0

Final_Result_AVG

Frequency (MHz)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
1000.000000	25.47	54.00	28.53	100.0	1000.000	150.0	V	225.0
1004.800000	19.58	54.00	34.42	100.0	1000.000	250.0	V	135.0
1249.800000	22.54	54.00	31.46	100.0	1000.000	100.0	V	225.0
1375.000000	26.39	54.00	27.61	100.0	1000.000	100.0	V	135.0
1499.800000	26.07	54.00	27.93	100.0	1000.000	150.0	V	270.0
1500.200000	27.04	54.00	26.96	100.0	1000.000	200.0	V	270.0
2000.200000	26.06	54.00	27.94	100.0	1000.000	100.0	V	270.0

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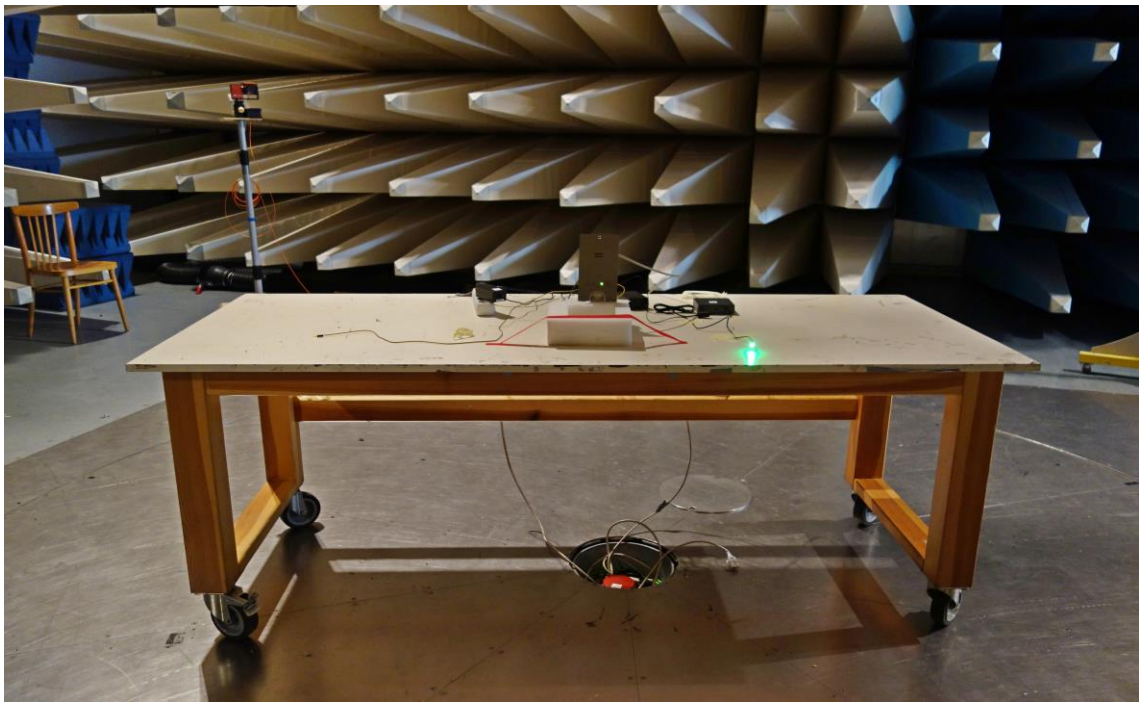
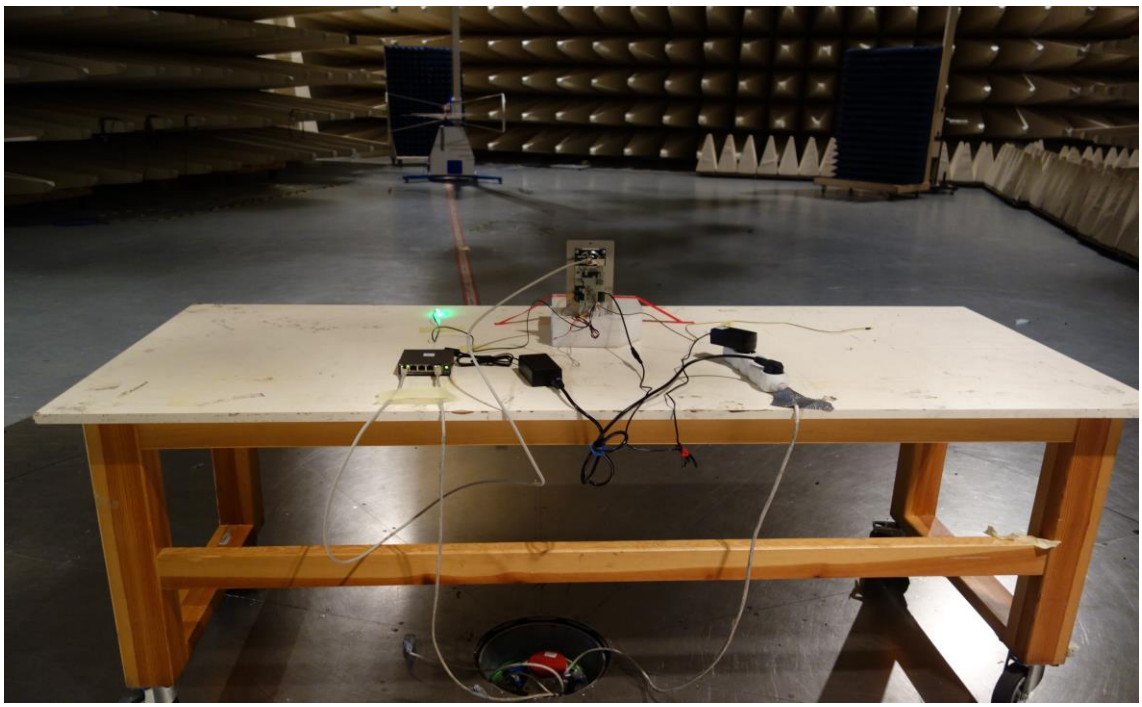
Test setup f<1000MHz front view

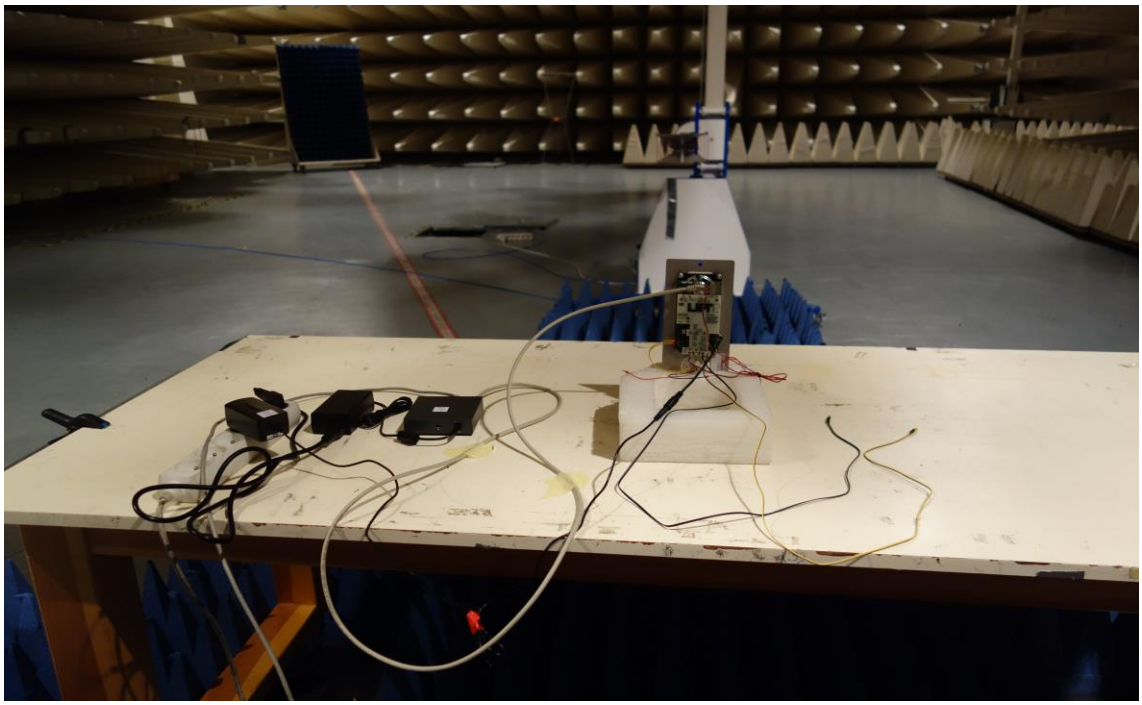


Test setup f<1000MHz rear view



EMC Test Report - Annex 1
Ref. No. 8551-PT-E0112-22
Test setup f>1000MHz front view

Test setup f>1000MHz rear view



Electrostatic Discharge Immunity Test
ČSN EN 61000-4-2

Date of test: 12.09.2022
Ambient temperature: 21 ºC ± 3 ºC
Relative humidity: 38 % ± 10%
Measured by: MSV

Application	Test level	Air (A) Contact (C)	Required criterion	Result
horizontal coupling plane	4 kV	C	B	P
Vertical coupling plane	4 kV	C	B	P
Loudspeaker panel (plastic)	8 kV	A	B	P

Result: **P** passed **F** failed

Annotation: **Criterions used :** **Specification see page 9**

A The product continues to operate as intended.

B Degradation of the product performance occurs, but normal operation resumes at the end of the test with no data loss.

C The product either stops functioning or its performance degrades and does not recover after the test without intervention.

Uncertainties of measurement see Page No. 6

Test equipment:	Ident. No.
Electrostatic discharge generator ESD30	C072

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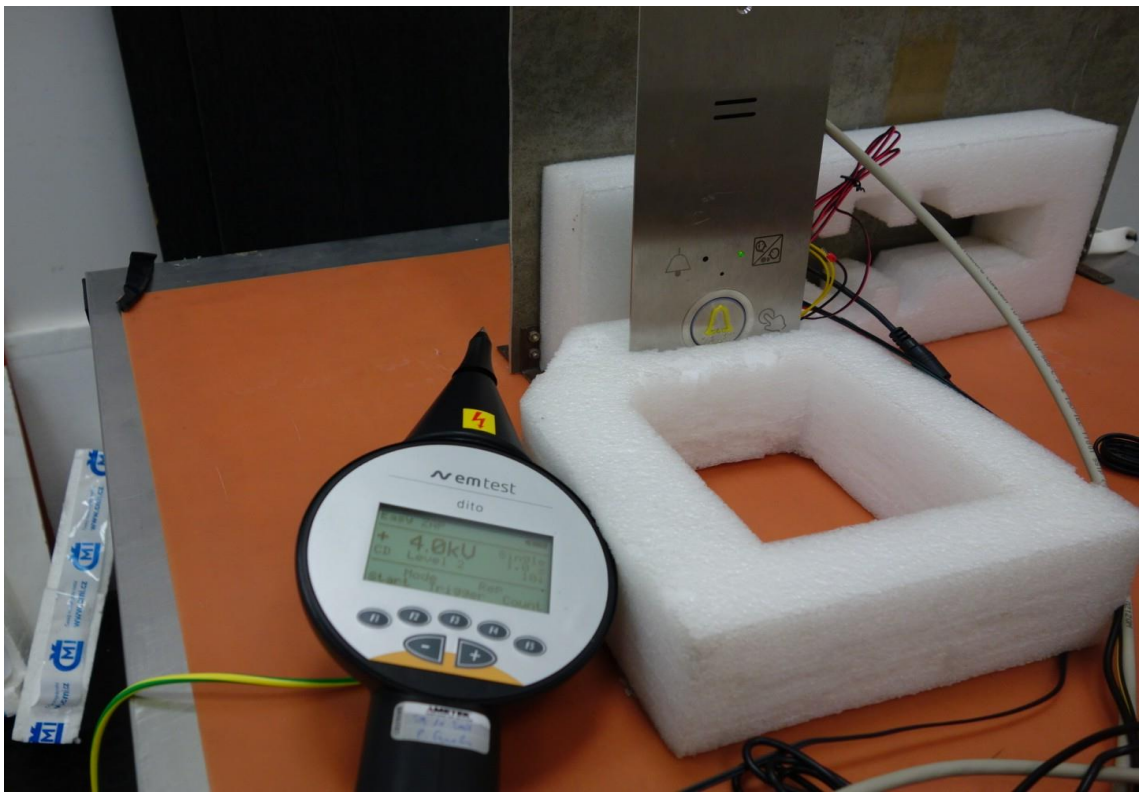
EMC Test Report - Annex 1
Ref. No. 8551-PT-E0112-22
Test setup: Electrostatic discharge Immunity - indirect discharge



RF Electromagnetic Field Immunity Test
EN IEC 61000-4-3 (severity levels acc. to EN 12016)

Date of test: 15.08.2022
Ambient temperature: 25 ºC ± 3 ºC
Relative humidity: 36 % ± 10%
Measured by: MSV

Application	Test level	Frequency range[MHz]	Required criterion	Result
enclosure	10V/m; AM 80%,1kHz	80 - 1000	A	P
	10V/m; AM 80%,1kHz	1400-1800	A	P
	3V/m; AM 80%,1kHz	1800-2700	A	P
Detail of test of levels and tested frequency ranges see below in test template.				

Result: **P** passed **F** failed fail

Annotation: Evaluating criterions used : **Specification see page 9**

A The product continues to operate as intended.

B Degradation of the product performance occurs, but normal operation resumes at the end of the test with no data loss.

C The product either stops functioning or its performance degrades and does not recover after the test without intervention.

Uncertainties of measurement see Page No. 6

Test equipment:	Ident. No.
Power amplifier Amplifier Research 500A250M1	C138
Power amplifier R/S BBA100 250 MHz - 1 GHz	C171
Power amplifier R/S BBA150 0.8 GHz-3 GHz	C187
Power amplifier R/S BBA150 2.5GHz-6GHz	C189
Isotropic probe LS Probe 1.2	C190
Signal generator R/S SMF100A	C143
Switch unit R/S OSP130	C141
Anechoic chamber 10m in TESTCOM	C093
Broadband antenna ETS Lindgren 3140B	C123
Horn antenna ETS Lindgren 3115	C148

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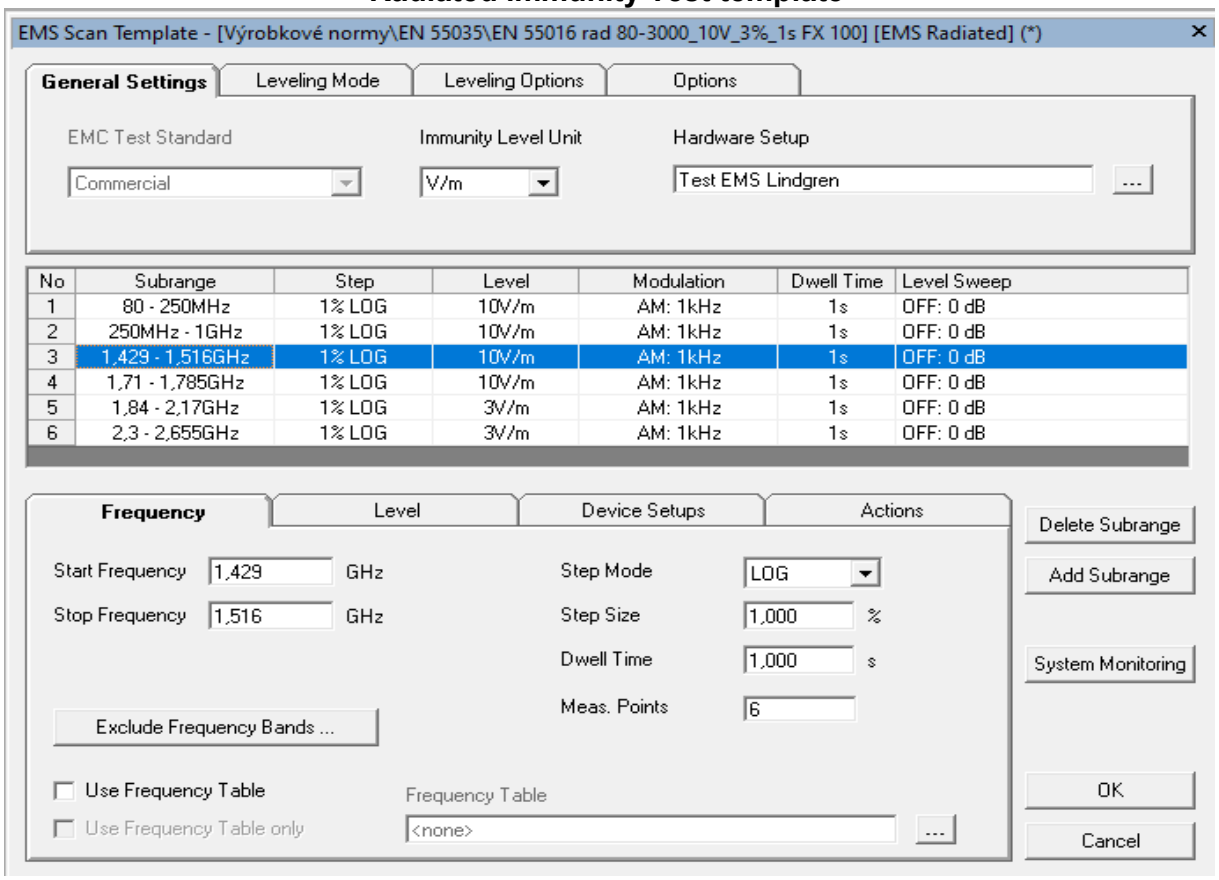
EMC Test Report - Annex 1
Ref. No. 8551-PT-E0112-22

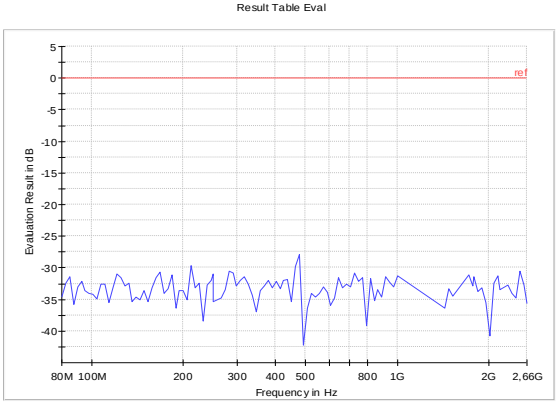
Test detail

Azimuth of EUT	Polariz.	Result	Remark
0	H	P	Frequency range of testing and severity levels defined according to EN 12016, table 1, Test template see below.
	V	P	
90	V	P	
	H	P	
180	H	P	
	V	P	
270	H	P	
	V	P	

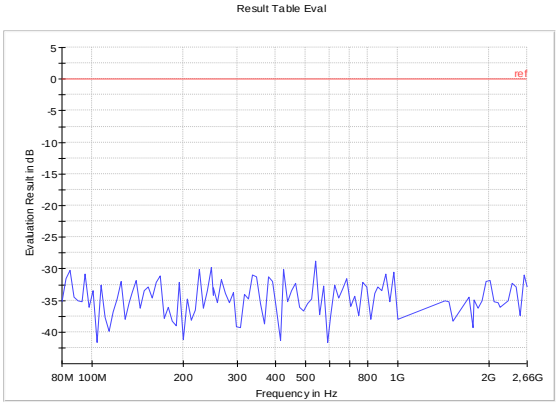
Radiated immunity Test template



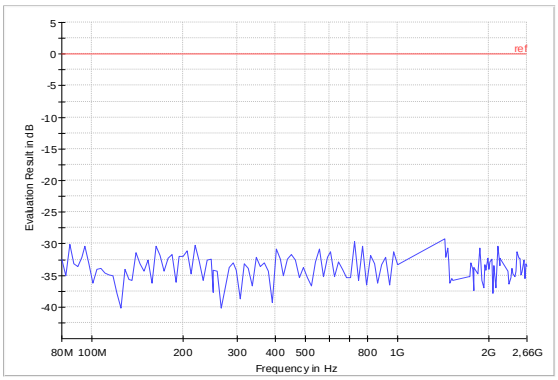
EUT azimuth 0^0, horizontal polarization



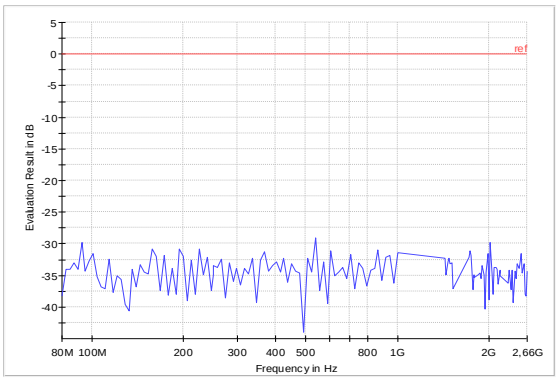
EUT azimuth 0^0, vertical polarization



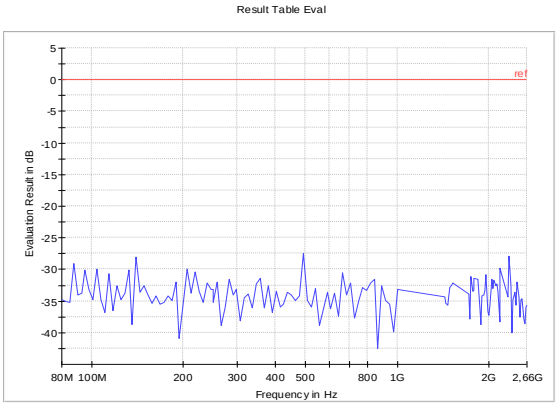
EUT azimuth 90^0, horizontal polarization



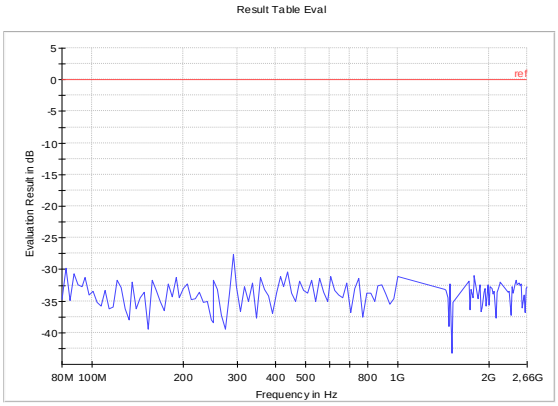
EUT azimuth 90^0, vertical polarization



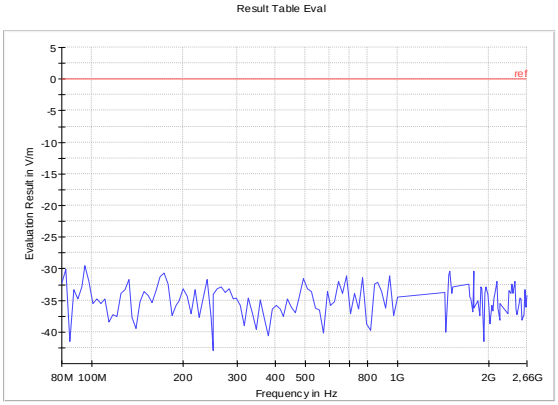
EUT azimuth180^0, horizontal polarization



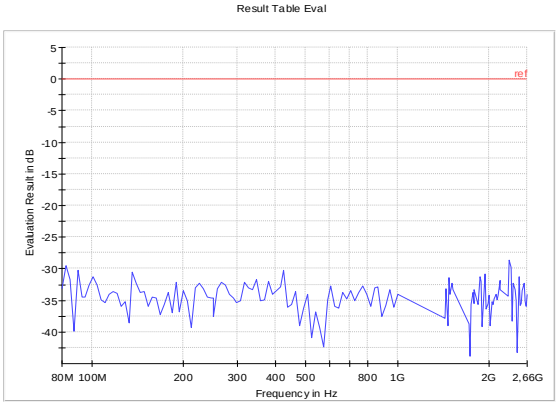
EUT azimuth 180^0, vertical polarization



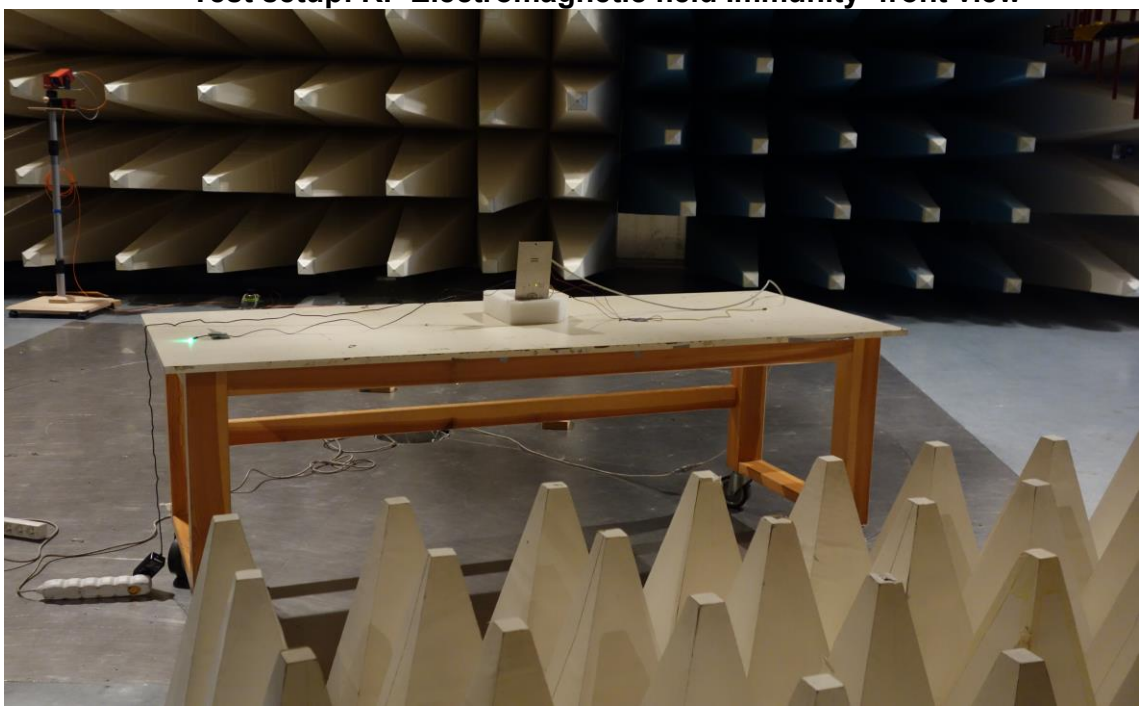
EUT azimuth 270^0, horizontal polarization



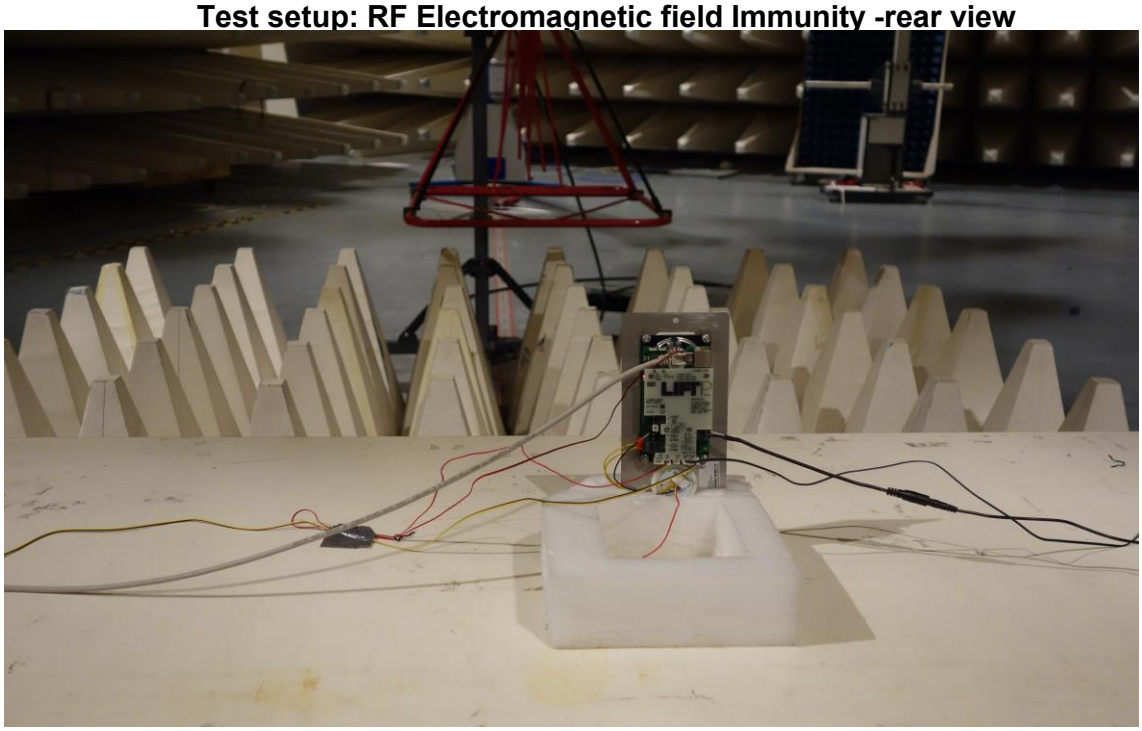
EUT azimuth 270^0, vertical polarization



Test setup: RF Electromagnetic field Immunity -front view



Test setup: RF Electromagnetic field Immunity -rear view



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EMC Test Report - Annex 1

Ref. No. 8551-PT-E0112-22

Electrical Fast Transient / Burst Immunity Test
ČSN EN 61000-4-4

Date of test: 12.09.2022
Ambient temperature: 22 ºC ± 3 ºC
Relative humidity: 41 % ± 10%
Measured by: MSV

Application	Test level [kV]	Coupling element	Required criterion	Result
AC/DC adaptor port 230 V AC	1	internal	B	P
PoE adaptor port 230 V AC	1	internal	B	P
ethernet line with PoE powering	0,5	C157	B	P

equirements a **P** passed **F** failed

Annotation: Evaluating criterions used : **Specification see page 9**

A The product continues to operate as intended.

B Degradation of the product performance occurs, but normal operation resumes at the end of the test with no data loss.

C The product either stops functioning or its performance degrades and does not recover after the test without intervention.

Uncertainties of measurement see Page No. 6

Test equipment:	Ident. No.
Ultra compact simulator EM TEST UCS500N5	C183
Capacitance clamp Haefely	C157

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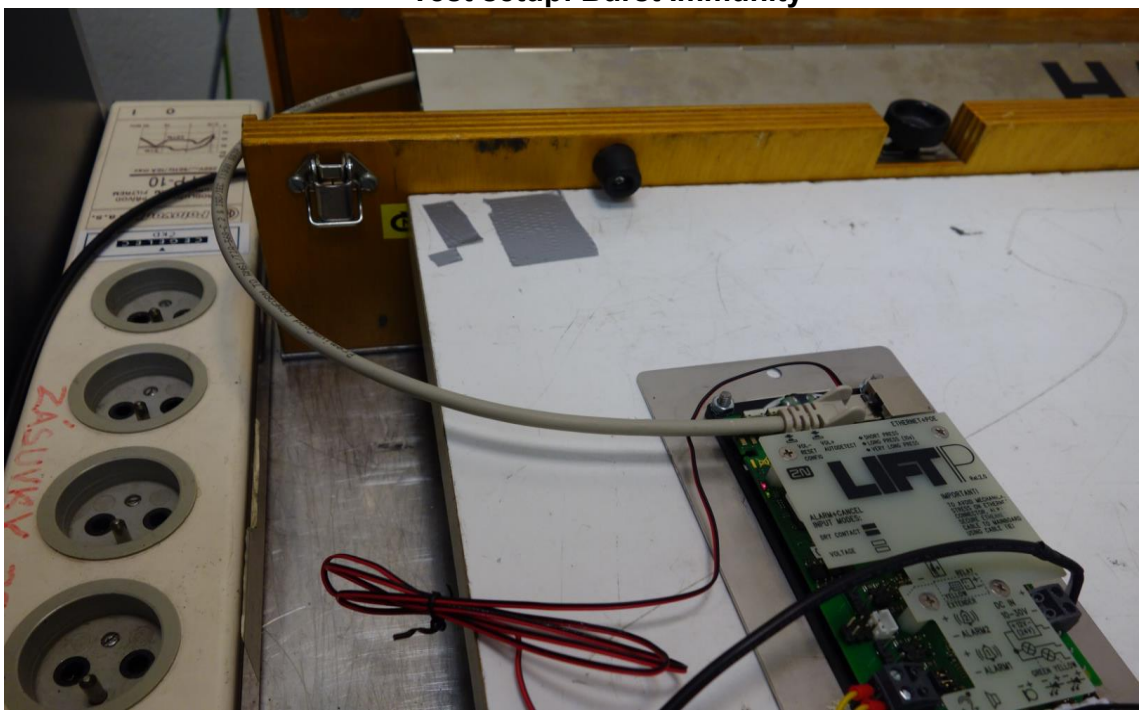
Test setup: Burst Immunity



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EMC Test Report - Annex 1

Ref. No. 8551-PT-E0112-22

Surge Immunity Test
ČSN EN 61000-4-5

Date of test: 12.09.2022
Ambient temperature: 22 ºC ± 3 ºC
Relative humidity: 41 % ± 10%
Measured by: MSV

Application	Test level [kV]	Shape of wave	Required criterion	Result
AC/DC adaptor port 230 V AC	see detail	1.2/50	B	P
PoE adaptor port 230 V AC	see detail	1.2/50	B	P

Result: **P** passed **F** failed

Annotation: Evaluating criterions used : **Specification see page 9**

A The product continues to operate as intended.

B Degradation of the product performance occurs, but normal operation resumes at the end of the test with no data loss.

C The product either stops functioning or its performance degrades and does not recover after the test without intervention.

Uncertainties of measurement see Page No. 6

Test equipment:	Ident. No.
Ultra compact simulator EM TEST UCS500N5	C183

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Test in detail (valid for both adaptors)

	application : L-PE			
	0^0	90^0	180^0	270^0
+0.5 kV	p	p	p	p
-0.5 kV	p	p	p	p
+1kV	p	p	p	p
-1kV	p	p	p	p
+2kV	p	p	p	p
-2kV	p	p	p	p

	application : N-PE			
	0^0	90^0	180^0	270^0
+0.5 kV	p	p	p	p
-0.5 kV	p	p	p	p
+1kV	p	p	p	p
-1kV	p	p	p	p
+2kV	p	p	p	p
-2kV	p	p	p	p

	application : L-N			
	0^0	90^0	180^0	270^0
+0.5 kV	p	p	p	p
-0.5 kV	p	p	p	p
+1kV	p	p	p	p
-1kV	p	p	p	p
+2kV	---	---	---	---
-2kV	---	---	---	---

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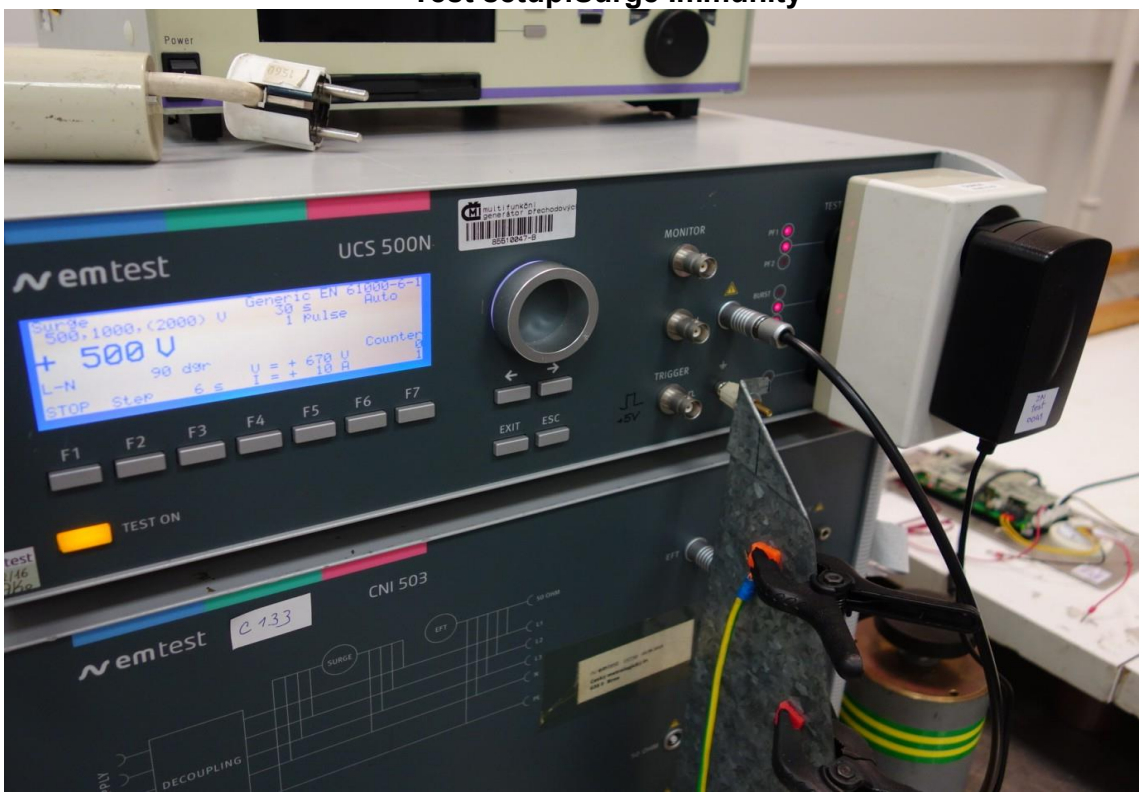
Test setup:Surge Immunity



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Conducted RF Disturbances Immunity Test
ČSN EN 61000-4-6 (severity levels acc. to EN 12016)

Date of test: 15.08.2022
Ambient temperature: 25 ºC ± 3 ºC
Relative humidity: 39 % ± 10%
Measured by: MSV

Frequency range **0,15 MHz - 80 MHz**

Application	Test level	Coupling element	Required criterion	Result
Mains port AC/DC adapror	3V; AM80% 1 kHz	C 048	A	P
ethernet cable	3V; AM80% 1 kHz	C 154	A	P

Result: **P** passed **F** failed

Annotation: Evaluating criterions used : **Specification see page 9**

A The product continues to operate as intended.

B Degradation of the product performance occurs, but normal operation resumes at the end of the test with no data loss.

C The product either stops functioning or its performance degrades and does not recover after the test without intervention.

Uncertainties of measurement see Page No. 6

Test equipment:	Ident. No.
Signal generator R/S SMY02	C032
Power amplifier Bonn Elektronik BSA 0122-20	C080
Coupling and decoupling network T8RJ45	C154
Attenuator 6dB / 100 W Hu+S 5906_N-50-1	C188
Coupling and decoupling network MEB KEN-M2/M3	C048
EM-clamp MEB KEMZ 801	C045

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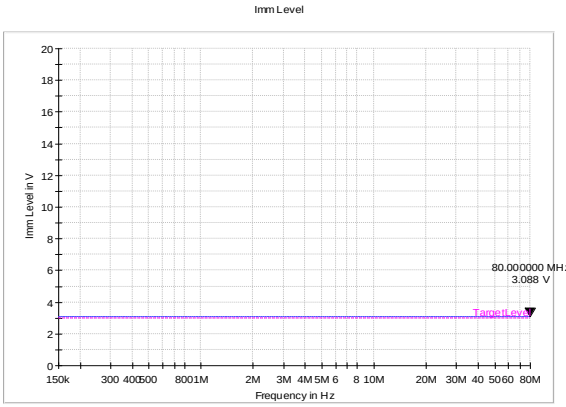
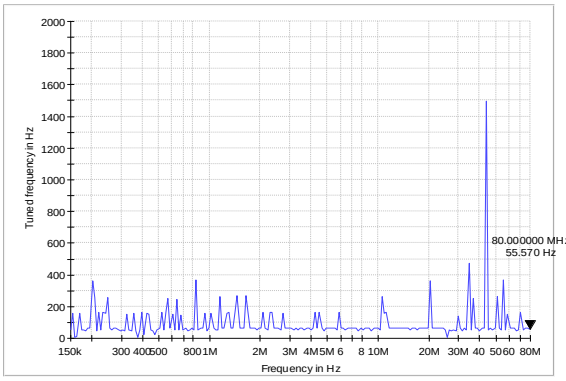
Test levels acc. to EN 12016

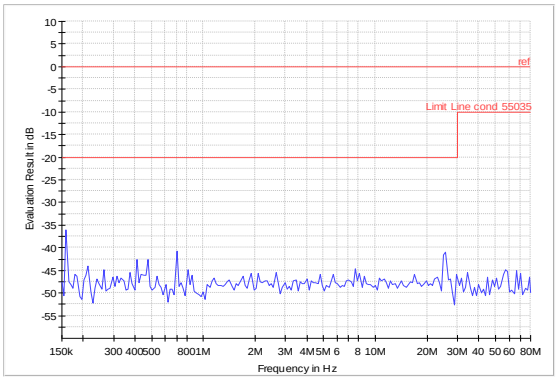


Evaluated test result :AC/DC adaptor - port 230 V AC

Audio analysis : tuned frequency

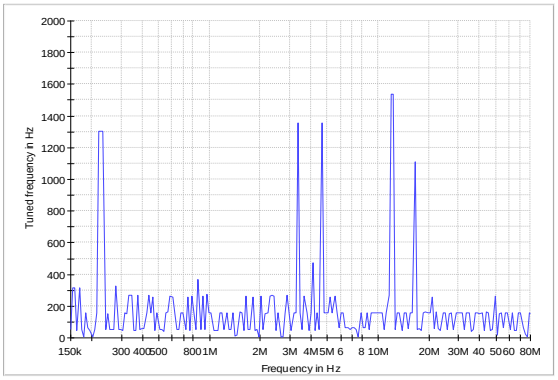


Audio analysis : evaluated accoustic interference ratio

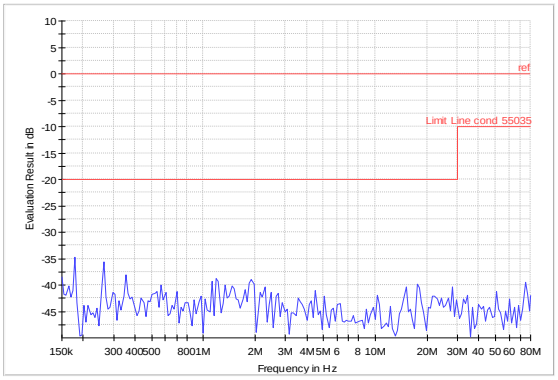


Evaluated test result :Ethernet line

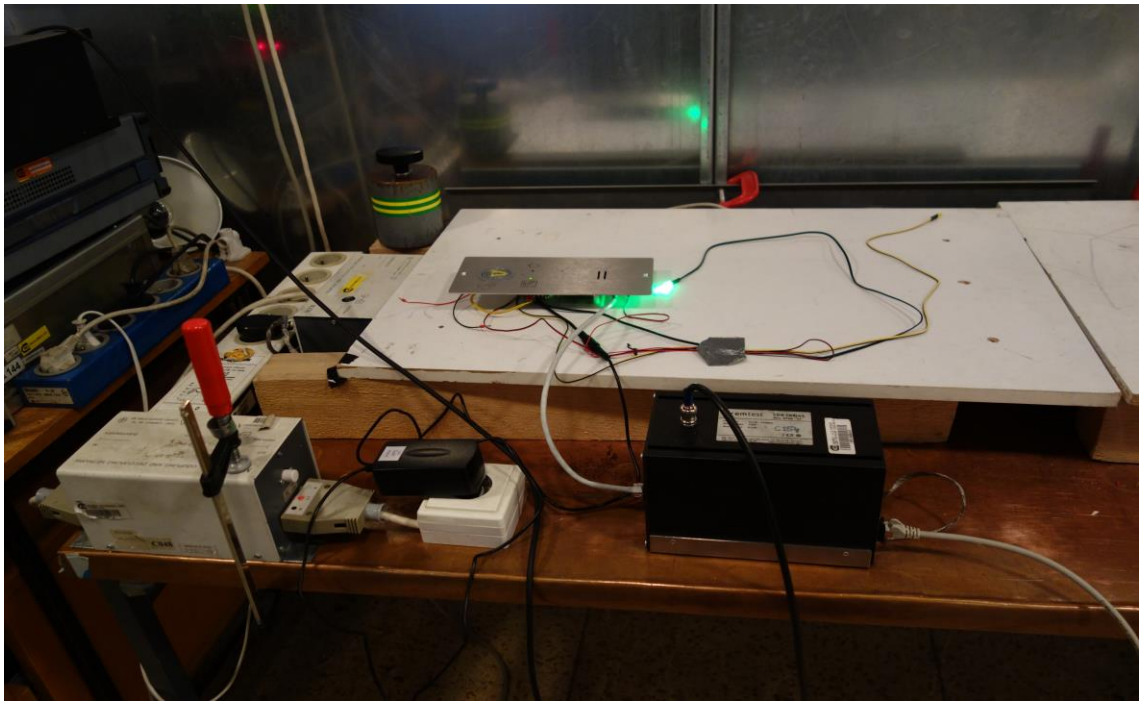
Audio analysis : tuned frequency



Audio analysis : evaluated accoustic interference ratio



Test setup: RF Conducted Immunity



Voltage Dips and Interruptions Immunity Test
ČSN EN 61000-4-11

Date of test: 12.09.2022
Ambient temperature: 22 ºC ± 3 ºC
Relative humidity: 41 % ± 10%
Measured by: MSV

Application	Test level (residual voltage)	Required criterion	Result
AC/DC adaptor port 230 V AC	0% for 20ms	B	P
	40% for 200ms	C	P
	70% for 500ms	C	P
	0% for 5000ms	C	P

Result: **P** passed **F** failed

Annotation: Criterions used : **Specification see page 9**

A The product continues to operate as intended.

B Degradation of the product performance occurs, but normal operation resumes at the end of the test with no data loss.

C The product either stops functioning or its performance degrades and does not recover after the test without intervention.

Uncertainties of measurement see Page No. 6

Test equipment:	Ident. No.
Ultra compact simulator EM TEST UCS500N5	C183
1phase motor driven AC source EM TEST MV 2616	C077

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Modifications for improvement

No modifications.