

# Český metrologický institut

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Testing laboratory No. 1341 accredited by the Czech Accreditation Institute according to ČSN EN

ISO/IEC 17025:2018

TESTCOM Praha, Hvožďanská 3, Praha 4, 148 01 Laboratory:

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# TEST REPORT

# 8551-PT-B0061-22

Copy No. 1 of 2

Date of issue:

February 23th, 2022

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**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:

Electrical safety

Kind of equipment:

Lift Communication System

Type:

2N®LiftIP2.0

Serial number:

52-2869-0020

Order number:

9216xxx

Test procedure

EN IEC 62368-1:2020+A11:2020 (in the scope specified on the page 2)

(used standard):

Place of the test:

TESTCOM Praha, Hvožďanská 3, Praha 4, Czech Republic

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.

Date of the test:

February 14th-18th, 2022

Tested by:

Pavel Jonáš

**Head of the Department:** 

Karel Pitaš

#### Instruments and equipment used in the test:

Name of the instrument /equipment	Туре	Serial number	Number of the metrological card
Digital thermometer / hygrometer	Comet D3120	01910051	B29
Multimeter	M-3850D	HF612094	B07
Thermocamera	FLIR E8xt	639066267	B47
Digital caliper	Proma		B18
Multimeter	Rohde&Schwarz HMC8012	100039017110	B46
Climatic chamber Feutron	KPK400P	142	Z10
Temperature and relative humidity sensor	Comet system T0211	13964256	B44
Temperature and relative humidity sensor	Comet system T0211	13964257	B45

#### Test procedure:

Tests were made according to the standard:

ČSN EN IEC 62368-1 ed.2:2020+A11:2020, clause 4, 5, 6, 7, 8, 9, 10, annex B, C, D, E, F, G, H, J, K, L, M, N, O, P, Q, R, S, T, U, V

The standard is the Czech Version of the European Standard:

EN IEC 62368-1:2020+A11:2020

Audio/Video, Information and Communication Technology Equipment

Part 1: Safety requirements

The standard applies to safety of electrical and electronical equipment in the field of audio/video, information and telecommunication technology and business and office machines with a rated voltage not exceeding 600 V. The standard does not include requirements for operational or functional characteristics of the equipment.

The laboratory environment		
Uncertainty of measurement:	U	
temperature	±5°C	
relative humidity	±10% RH	

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#### Description of the test equipment:

#### 2N® LiftIP 2.0 - Basic features:

The 2N® LiftIP 2.0 communicator is a speakerphone designed for two-way emergency communication between the elevator and the control center. It is designed for installation in the elevator car and is connected to the LAN via Ethernet.

The communicator supports voice connections using VoIP technology. Typical use requires the support of an external SIP Proxy server. Direct connection can also be realized within the local network between the same communicators (peer to peer).

The device is powered either from an external DC voltage source or using PoE technology.

The outgoing call is initiated by pressing the ALARM button and then a call is made to the numbers stored in the device's memory.

## **Technical parameters:**

Supply voltage: 10-30 V DC or PoE 802.3af

Power consumption: 2 W<sub>max</sub>

Working temperature: -20°C - +50°C

Dimensions: (130 x 65 x 25) mm

Weight: 135 g

## Labeling:

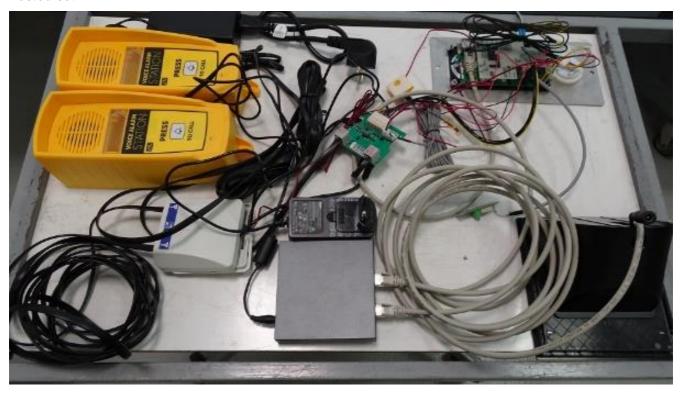


#### **Tested equipment-overall view**



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#### Tested set:



Note: The subject of the test was the LiftIP2.0 communicator only.

## Note:

The equipment was powered from PoE injector or external power source, delivered by the costumer, and from laboratory power source, which were not a subjects of the test.

#### The test results:

Note:

Tests or results that are marked "\*" have been made beyond the laboratory accreditation according to ČSN EN ISO/IEC 17025:2018

#### Test case verdicts:

Test case does not apply to the test objects: N/A (not applicable)

Test item does meet the requirement of standard clause: P (pass)

Test item does not meet the requirement of standard clause: **F** (fail)

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TEST ITEM PARTICULARS:	
Classification of use by:	<ul> <li>☐ Ordinary person</li> <li>☐ Instructed person</li> <li>☑ Skilled person</li> <li>☐ Children likely to be present</li> </ul>
Supply Connection:	☐ AC Mains ☐ DC Mains ☐ External Circuit - not Mains connected -☑ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance:	□ +10%/-10% □ +20%/-15% □ 15%/ - <u>15</u> % ☑ None
Supply Connection – Type:	□ pluggable equipment type A - □ non-detachable supply □ cordappliance coupler □ direct plug-in □ mating connector □ pluggable equipment type B - □ non-detachable supply □ cordappliance coupler □ permanent connection □ mating connector □ other: building-in equipment shall be evaluated inend system (see also general product information).
Considered current rating of protective device as part of building or equipment installation:	US, CA: 20 A; UK: 13 A; Others: 16 A Installation location: □ building; ⊠ equipment
Equipment mobility:	<ul> <li>☐ movable</li> <li>☐ hand-held</li> <li>☐ stationary</li> <li>☐ for building-in</li> <li>☐ direct plug-in</li> <li>☐ wall-mounted</li> <li>mounting</li> </ul>
Over voltage category (OVC):	□ OVC II    □ OVC III     ○ OVC IV    □ other:
Class of equipment:	☐ Class I ☐ Class II ☒ Class III
Access location	restricted access location    N/A
Pollution degree (PD):	□ PD 1 図 PD 2 □ PD 3
Manufacturer's specified maximum operating ambient :	□ -20-+50°C
IP protection class	⊠ IPX0 □ IP <u>30</u>
Power Systems	□ TN □ TT □ IT
Altitude during operation (m):	☑ 2000 m or less ☐ up to 2000 m
Altitude of test laboratory (m):	⊠ 2000 m or lessm
Mass of equipment (kg)	☑ less than 7 kg

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### **ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:** (Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3. **Electrically-caused injury (Clause 5):** (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input Source of electrical energy Corresponding classification (ES) ES<sub>1</sub> Input **Electrically-caused fire (Clause 6):** (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS<sub>2</sub> Source of power or PIS Corresponding classification (PS) PS<sub>1</sub> Input Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol Source of hazardous substances Corresponding chemical N/A N/A Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS<sub>2</sub> Source of kinetic/mechanical energy Corresponding classification (MS) Sharp edges and corners MS<sub>1</sub> MS1 Equipment mass less than 7 kg Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure Source of thermal energy Corresponding classification (TS) Accessible surfaces TS1 Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD - Class 1 Laser Product Type of radiation Corresponding classification (RS) N/A N/A

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OVERVIEW OF EMPLOYED SAFEGUARDS					
Clause	Possible Hazard	Possible Hazard			
5.1	Electrically-caused injury	Electrically-caused injury			
Body Part	Energy Source		Safeguards		
(e.g. Ordinary)	(ES3: Primary Filter circuit)	Basic	Supplementary	Reinforced	
Ordinary	ES1	N/A	N/A	N/A	
6.1	Electrically-caused fire				
Material part	Energy Source		Safeguards		
(e.g. mouse enclosure)	(PS2: 100 Watt circuit)	Basic	Supplementary	Reinforced	
All circuits inside the enclosure	PS1	N/A	N/A	N/A	
7.1	Injury caused by hazardous substances				
Body Part	Energy Source				
e.g., skilled) (hazardous material)	Basic	Supplementary	Reinforced		
N/A	N/A	N/A	N/A	N/A	
8.1	Mechanically-caused injury	/			
Body Part	Energy Source	Safeguards			
(e.g. Ordinary)	(MS3:High Pressure Lamp)	Basic	Supplementary	Reinforced	
Ordinary	MS1	N/A	N/A	N/A	
Ordinary	MS1: Equipment mass <7kg	N/A	N/A	N/A	
9.1	Thermal Burn				
Body Part	Energy Source		Safeguards		
(e.g., Ordinary)	(TS2)	Basic	Supplementary	Reinforced	
Ordinary	TS1: Accessible surfaces	N/A	N/A	N/A	
10.1	Radiation				
Body Part	Energy Source Safeguards				
(e.g., Ordinary)	(Output from audio port)	Basic	Supplementary	Reinforced	
N/A	N/A	N/A	N/A	N/A	
Supplementary Information:	•				

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Supplementary Information:
(1) See attached energy source diagram for additional details.
(2) "N" – Normal Condition; "A" – Abnormal Condition; "S" Single Fault

	EN IEC 62368-1:2020+A11:	2020	
Clause	Requirement	Remarks	Verdict

4	GENERAL REQUIREMENTS		
4.1.1	Acceptance of materials, components and subassemblies	Proved by checking of delivered documents	Р
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings	Р
4.1.3	Equipment design and construction		Р
4.1.15	Markings and instructions:	(See Annex F)	Р
4.4.3	Safeguard robustness	Electrical energy source class 1 – no requirements for safeguard	Р
4.4.3.2	Steady force tests:	(See Annex T.5)	N/A
4.4.3.3	Drop tests	(See Annex T.7)	N/A
4.4.3.4	Impact tests:	(See Annex T6)	N/A
4.4.3.5	Internal accessible safeguard enclosure and barrier tests:	(See Annex T.3)	N/A
4.4.3.6	Glass impact tests:	No glass used	N/A
4.4.3.7	Glass fixation test:		N/A
4.4.3.8	Thermoplastic material tests:	(See Annex T8	N/A
4.4.3.9	Air comprising a safeguard:		N/A
4.4.3.10	Accessibility and safeguard effectiveness	All safeguards remain effective No energy source class 3	Р
4.4.4	Displacement of a safeguard by an insulating liquid		N/A
4.4.5	Safety interlocks	Not used	N/A
4.5	Explosion	No explosion	N/A
4.6	Fixing of conductors	Class III equipment, displacement of conductors cannot defeat the safeguard	Р
4.6.1	Fix conductors not to defeat a safeguard		N/A
4.6.2	Compliance criteria	Checked by inspection	Р
4.7	Equipment for direct insertion into mains socket - outlets	No such equipment	N/A
4.7.2	Mains plug part complies with the relevant standard:		N/A
4.7.3	Torque (Nm):		N/A
4.8	Products containing coin/button cell batteries	Not contains such cells	N/A
4.8.2	Instructional safeguard		N/A

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EN IEC 62368-1:2020+A11:2020			
Clause	Requirement	Remarks	Verdict
4.8.3	Battery compartment construction		N/A
	Means to reduce the possibility of children removing the battery		N/A
4.8.4	Battery compartment mechanical tests:		N/A
4.8.5	Battery accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object:	The equipment is designed for built-in, without own cover	N/A
4.10	Components requirements		N/A
4.10.1	Disconnect device	(See Annex L)	N/A
4.10.2	Switches and relays		N/A
5	ELECTRICALLY-CAUSED INJURY		
5.2.1	Electrical energy source classifications:	(See appended Table 5.2)	Р
5.2.2	Electrical energy source ES1 and ES2 limits	ES1 limit is considered	Р
5.2.2.2	Steady-state voltage and current limits:	ES1 not exceeded, see appended Table 5.2	Р
5.2.2.3	Capacitance limits:	Capacitor is not power source	N/A
5.2.2.4	Single pulse limits:	No single pulse	N/A
5.2.2.5	Limits for repetitive pulses:	No repetitive pulses	N/A
5.2.2.6	Ringing signals:	No ringing signals	N/A
5.2.2.7	Audio signals:	No audio signals	N/A
5.3	Protection against electrical energy sources	Energy source ES1, no requirements	N/A
5.3.1	General requirements for accessible parts to ordinary, instructed and skilled persons		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards		N/A
5.3.2.2	Contact requirements		N/A
	a) Test with test probe from Annex V:		N/A
	b) Electric strength test potential (V):		N/A
	c) Air gap (mm):		N/A
5.3.2.4	Terminals for connecting stripped wire		N/A
5.4	Insulation materials and requirements	1	Р
5.4.1.2	Properties of insulating material	(See Annex T) – functional insulation only	Р
5.4.1.3	Humidity conditioning:	(See sub-clause 5.4.8)	Р

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	EN IEC 62368-1:2020+A11	:2020	
Clause	Requirement	Remarks	Verdict
5.4.1.4	Maximum operating temperature for insulating materials, components and systems:	Temperature limits are not exceeded, the device does not heat up during normal operation	Р
5.4.1.5	Pollution degrees:	Pollution degree 2 is considered	Р
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling test procedure		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage		N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	Not such parts	N/A
5.4.1.10.2	Vicat test:		N/A
5.4.1.10.3	Ball pressure test:		N/A
5.4.2	Clearances		N/A
5.4.2.2	Procedure 1 for determining clearance:	(See appended Table 5.4.2.2) Functional insulation only	N/A
5.4.2.3	Procedure 2 for determining clearance:	(See appended Table 5.4.2.3)	N/A
	a) a.c. mains transient voltage:		
	b) d.c. mains transient voltage:		
	c) external circuit transient voltage:		
	d) transient voltage determined by measurement:		
5.4.2.4	Determining the adequacy of a clearance using an electric strength test		N/A
5.4.2.5	Multiplication factors for altitudes higher than 2 000 m above sea level:	Not considered, up to 2000m multiplication factor is 1.00	N/A
5.4.3	Creepage distances:		Р
5.4.3.1	General	Frequency <30kHz	Р
5.4.3.3	Material group and CTI:	IIIb is assumed to be used	Р
5.4.4	Solid insulation		N/A
5.4.4.2	Minimum distance through insulation:		N/A
5.4.4.3	Insulation compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material		N/A

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EN IEC 62368-1:2020+A11:2020			
Clause	Requirement	Remarks	Verdict
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs):		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material:		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz:	Less than 30kHz	N/A
5.4.5	Antenna terminal insulation	Not used	N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (M $\Omega$ ):		N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard:		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning	Refer also G.16 a)	Р
	Relative humidity (%):	(93±3)%	
	Temperature (°C):	(20±2)°C	
	Duration (h):	48h	
5.4.9	Electric strength test:	(See appended Table 5.4.9)	N/A
5.4.9.1	Test procedure for type testing and solid insulation		N/A
5.4.9.2	Test procedure for routine tests		N/A
5.4.10	Safeguards against transient voltages from external circuits		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test:		N/A
5.4.10.2.3	Steady-state test:		N/A
5.4.11	Separation between external circuits and earth:		N/A
5.4.11.1	General		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U <sub>op</sub> (V):		
	Nominal voltage U <sub>peak</sub> (V):		
	Max increase due to variation U <sub>sp</sub> :		

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	EN IEC 62368-1:2020+A11	1:2020	
Clause	Requirement	Remarks	Verdict
	Max increase due to ageing ΔU <sub>sa</sub> :		
	$U_{op} = U_{peak} + \Delta U_{sp} + \Delta U_{sa}$		
5.4.12	Insulating requirements		N/A
5.4.12.2	Electric strength of an insulating liquid		N/A
5.4.12.3	Compatibility of an insulating liquid		N/A
5.4.12.4	Container for insulating liquid		N/A
5.5	Components as safeguards		<b>-</b>
5.5.1	General	No components as safeguard, class III equipment	N/A
5.5.2	Capacitors and RC units	Not used	N/A
5.5.2.1	General requirements		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector		N/A
5.5.3	Transformers	Not used	N/A
5.5.4	Optocouplers	Not used	N/A
5.5.5	Relays	Not used	N/A
5.5.6	Resistors	Not used	N/A
5.5.7	SPDs	Not used	N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable:	Not used	N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
5.6	Protective conductor		N/A
5.6.2	Requirement for protective conductors	Class III equipment	N/A
5.6.2.1	General requirements		N/A
5.6.2.2	Color of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm²)		N/A
5.6.4	Requirement for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm²):		N/A
	Protective current rating (A):		N/A
5.6.4.2	Determination of the protective current rating		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Requirement		N/A

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	EN IEC 62368-1:2020+A11:2	2020	
Clause	Requirement	Remarks	Verdict
	Conductor size (mm²), nominal thread diameter (mm).		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test method resistance ( $\Omega$ )		N/A
5.6.7	Reliable connection of a protective earthing conductor		N/A
5.6.8	Functional earthing		N/A
5.7	Prospective touch voltage, touch current and protect	ive conductor current	N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current:		N/A
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
	System of interconnected equipment (separate connections/single connection):		
	Multiple connections to mains (one connection at a time/simultaneous connections)		
5.7.4	Unearthed accessible parts		N/A
5.7.5	Earthed accessible conductive parts		N/A
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
5.7.7	Protective touch voltage and touch current associated with external circuits		N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Protective touch voltage and touch current associated with pair conductor cables		N/A
5.7.8	Summations of touch currents from external circuits		N/A
	a) Equipment connected to an earthed external		N/A
	b) Equipment connected to an unearthed external		N/A
5.8	Backfeed safeguard in battery backed up supplies		N/A
6	ELECTRICALLY- CAUSED FIRE		
6.2	Classification of power sources (PS) and potential igni	ition sources (PIS)	Р
6.2.2	Power source circuit classifications		Р
6.2.2.1	General		Р

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EN IEC 62368-1:2020+A11:2020			
Clause	Requirement	Remarks	Verdict
6.2.2.2	Power measurement for worst-case load fault :	(See appended Table 6.2.2)	Р
6.2.2.3	Power measurement for worst-case power source fault:	(See appended Table 6.2.2)	N/A
6.2.2.4	PS1:	15W is not exceeded	Р
6.2.2.5	PS2:		N/A
6.2.2.6	PS3:	(See appended Table 6.2.2)	N/A
6.2.3	Classification of potential ignition sources		N/A
6.2.3.1	Arcing PIS:	(See appended Table 6.2.3.1)	N/A
6.2.3.2	Resistive PIS:	(See appended Table 6.2.3.1)	N/A
6.3	Safeguards against fire under normal operating and	abnormal operating conditions	Р
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials		Р
6.3.1 (b)	Combustible materials outside fire enclosure		N/A
6.4	Safeguards against fire under single fault conditions		Р
6.4.1	Safeguard method	Method of control fire spread used (fire enclosure is used)	Р
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits	No additional security required, PS1 is not considered to contain enough energy to result in materials reaching ignition	Р
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits	Method of control fire spread used	N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions:		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits	No additional security required	Р
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards:		N/A
6.4.6	Control of fire spread in PS3 circuit		N/A
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.1	General:		N/A
6.4.7.2	Separation by distance		N/A

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EN IEC 62368-1:2020+A11:2020			
Clause	Requirement	Remarks	Verdict
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	Without own enclosure	N/A
6.4.8.2	Fire enclosure and fire barrier material properties		N/A
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm):		N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom openings in fire enclosure, condition met a), b) and/or c) dimensions (mm):		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
6.4.8.3.5	Side openings and side opening properties:		N/A
6.4.8.3.6	Integrity of the fire enclosure, condition met: a), b) or c):		N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating:		N/A
6.5	Internal and external wiring	,	N/A
6.5.1	Requirements	PS1 is considered, no requirements	N/A
6.5.2	Requirements for interconnection to building wiring:		N/A
6.5.3	Internal wiring for socket-outlets:		N/A
6.6	Safeguards against fire due to connection to additional equipment		N/A
	External port limited to PS2 or complies with Clause Q.1		N/A
7	INJURY CAUSED BY HAZARDOUS SUBSTANCE	S	
7.2	Reduction of exposure to hazardous substances	No such substances	N/A
7.3	Ozone exposure	No ozone production	N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions:		N/A
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010):		N/A
7.6	Batteries		N/A

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Clause	Requirement	Remarks	Verdict

8	MECHANICALLY-CAUSED INJURY		
8.1	General		Р
8.2	Mechanical energy source classifications	MS1 category	Р
8.3	Safeguards against mechanical energy sources	No such sources	Р
8.4	Safeguards against parts with sharp edges and corners	Accessible edges and corners of the equipment are classified as MS1	Р
8.4.1	Safeguards		N/A
8.5	Safeguards against moving parts	No moving parts	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard::		N/A
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Restricted access areas		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
8.5.4.2.4	Endurance requirements		N/A
8.5.4.3	Equipment having an electromechanical device for destruction of media		N/A
8.5.4.3.2	Instructional safeguards against moving parts		N/A
8.5.4.3.2	Instructional safeguards against moving parts		N/A
8.5.4.3.4	Test method		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test:		N/A
8.6	Stability		Р
8.6.1	Product classification	MS1 category, no requirements	Р
	Instructional Safeguard		N/A
8.6.2	Static stability		N/A
8.6.2.2	Static stability test		N/A
	Applied Force:		N/A
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A

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Clause	Requirement	Remarks	Verdict
	Unit configuration during 10° tilt:		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force):		N/A
	Position of feet or movable parts		N/A
8.7	Equipment mounted to wall or ceiling		N/A
8.7.1	Mounting Means (Length of screws (mm) and mounting surface):		N/A
8.7.2	Direction and applied force:		N/A
8.8	Handles strength	Not used	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force:		N/A
8.9	Wheels or casters attachment requirements	Not used	N/A
8.9.1	Classification		N/A
8.9.2	Applied force:		N/A
8.10	Carts, stands and similar carriers	Not used	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard:		N/A
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force:		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N)		N/A
8.10.6	Thermoplastic temperature stability (°C)		N/A
8.11	Mounting means for rack mounted equipment		N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable N		N/A
8.11.4	Compliance criteria		N/A
8.12	Telescoping or rod antennas		N/A
	Button/Ball diameter (mm):		N/A
)	THERMAL BURN INJURY		
9.2	Thermal energy source classifications	TS1 category, no hazard	Р
9.3	Touch temperature limits		N/A
9.4	Safeguard against thermal energy sources		N/A
9.5	Requirements for safeguard		N/A

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Clause	Requirement	Remarks	Verdict
9.5.1	Equipment safeguard		N/A
9.5.2	Instructional safeguard		N/A
9.6	Requirements for wireless power transmitters		N/A
10	RADIATION		
10.2	Radiation energy source classification	No radiation energy source	N/A
10.2.1	General classification		N/A
10.3	Protection against laser radiation		N/A
	Laser radiation that exists equipment:		N/A
	Normal, abnormal, single-fault:		N/A
	Instructional safeguard:		N/A
	Tool:		N/A
10.4	Safeguards against optical radiation from lamps and lamp systems (including LED types)		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons:		N/A
10.4.1.b)	RS3 accessible to a skilled person:		N/A
	Personal safeguard (PPE) instructional safeguard:		N/A
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1.:		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions:		N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque:		N/A
10.4.1.f)	UV attenuation		N/A
10.4.1.g)	Materials resistant to degradation UV:		N/A
10.4.1.h)	Enclosure containment of optical radiation:		N/A
10.4.1.i)	Exempt Group under normal operating conditions:		N/A
10.4.2	Requirements for enclosures		N/A
10.4.3	Instructional safeguard		N/A
10.5	Safeguards against X-radiation		N/A
10.5.1	X- radiation energy source that exists equipment:		N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards:		N/A
	Instructional safeguard for skilled person::		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation		N/A
	Abnormal and single-fault condition:		N/A

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	EN IEC 62368-1:2020+A11:	2020	
Clause	Requirement	Remarks	Verdict
	Maximum radiation (pA/kg):		N/A
10.6	Safeguards against acoustic energy sources		N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A):		N/A
	Output voltage, unweighted r.m.s:		N/A
10.6.3	Requirements for dose-based systems		N/A
10.6.4	Measurements methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards:		N/A
	Equipment safeguard prevent ordinary person to RS2:		N/A
	Means to actively inform user of increase sound pressure:		N/A
	Equipment safeguard prevent ordinary person to RS2:		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L <sub>Aeq</sub> acoustic pressure output:		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Maximum dB(A):		N/A
10.6.6.3	Cordless listening device		N/A
	Maximum dB(A)		N/A
В	NORMAL OPERATING CONDITION TESTS, ABNO CONDITION TESTS AND SINGLE FAULT CONDITION		
B.2	Normal operating conditions		Р
B.2.1	General requirements:	(See summary of testing & appended test tables)	Р
	Audio Amplifiers and equipment with audio amplifiers:	Not used	N/A
B.2.2	Supply frequency and tolerances	No direct connection to the mains	N/A
B.2.3	Supply voltage and tolerances	See the marking plate	Р
B.2.4	Normal operating voltage	See the marking plate	Р
B.2.5	Input test:	(See appended Table B.2.5)	Р
B.2.6	Operating temperature measurement conditions		Р

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Clause	Requirement	Remarks	Verdict
B.2.6.2	Operating temperature dependent heating/cooling		N/A
B.2.6.3	Operating temperature independent heating/cooling		Р
B.2.7	Battery charging and discharging under normal operating conditions		N/A
B.3	Simulated abnormal operating conditions	I	N/A
B.3.1	General requirements:		N/A
B.3.2	Covering of ventilation openings		N/A
B.3.3	D.C. mains polarity test	(See appended Table B.4)	Р
B.3.4	Setting of voltage selector:	Not used	N/A
B.3.5	Maximum load at output terminals:		N/A
B.3.6	Reverse battery polarity	No battery used	N/A
B.3.7	Audio amplifier abnormal operating conditions	No such part	N/A
B.3.8	Compliance criteria during and after abnormal operating conditions		N/A
B.4	Simulated single fault conditions	I	N/A
B.4.1	General		N/A
B.4.2	Temperature controlling device open or short-circuited:	Not used	N/A
B.4.3	Motor tests	Not used	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature:		N/A
B.4.4	Short circuit of functional insulation		Р
B.4.4.1	Short circuit of clearances for functional insulation		Р
B.4.4.2	Short circuit of creepage distances for functional insulation		Р
B.4.4.3	Short circuit of functional insulation on coated printed boards		N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		N/A
B.4.6	Short circuit or disconnect of passive components		N/A
B.4.7	Continuous operation of components	No such components	N/A
B.4.8	Energy sources within limits during and after single fault conditions		N/A
B.4.9	Battery charging under single fault conditions:	No battery used	N/A
С	UV RADIATION		
C.1	Protection of materials in equipment from UV radiation	No UV radiation within the EUT	N/A

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Clause	Requirement	Remarks	Verdict
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	TEST GENERATORS		
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	TEST CONDITIONS FOR EQUIPMENT CONTAIN	ING AUDIO AMPLIFIERS	
E.1	Electrical energy source classification for audio signals	Not used	N/A
E.2	Audio amplifier normal operating conditions	Not used	N/A
	Audio signal voltage (V):		N/A
	Rated load impedance (Ω):		N/A
E.3	Audio amplifier abnormal operating conditions		N/A
F	EQUIPMENT MARKINGS, INSTRUCTIONS, AND	INSTRUCTIONAL SAFEGUARDS	
F.1	General requirements		P
	Instructions – Language:	English and Czech	Р
F.2	Letter symbols and graphical symbols		Р
F.2.1	Letter symbols according to IEC60027-1		Р
F.2.2	Graphical symbols IEC, ISO or manufacturer specific		Р
F.3	Equipment markings		Р
F.3.1	Equipment marking locations	Located outside of the equipment	Р
F.3.2	Equipment identification markings	See the marking plate	Р
F.3.2.1	Manufacturer identification:	See the marking plate	Р
F.3.2.2	Model identification:	See the marking plate	Р
F.3.3	Equipment rating markings		Р
F.3.3.1	Equipment with direct connection to mains	Not connected to the mains	N/A
F.3.3.2	Equipment without direct connection to mains	Marking is not required	Р
F.3.3.3	Nature of supply voltage:		N/A

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Clause	Requirement	Remarks	Verdict
F.3.3.4	Rated voltage:		N/A
F.3.3.5	Rated frequency:		N/A
F.3.3.6	Rated current or rated power:		N/A
F.3.3.7	Equipment with multiple supply connections	No such equipment	N/A
F.3.4	Voltage setting device	Not used	N/A
F.3.5	Markings on terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings		N/A
F.3.5.2	Switch position identification marking:		N/A
F.3.5.3	Replacement fuse identification and rating markings:		N/A
F.3.5.4	Replacement battery identification marking	No battery used	N/A
F.3.5.5	Neutral conductor terminal		N/A
F.3.5.6	Terminal marking location		N/A
F.3.6	Equipment markings related to equipment classification		N/A
F.3.6.1	Class I Equipment	Class III equipment	N/A
F.3.6.1.1	Protective earthing conductor terminal		N/A
F.3.6.1.2	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment	Class I equipment	N/A
F.3.6.3	Functional earthing terminal marking		N/A
F.3.7	Equipment IP rating marking:	IP20	N/A
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking		Р
F.3.10	Test for permanence of markings	Water – 15 sec N-hexan min.85% - 15 sec.	Р
F.4	Instructions		Р
	a) Equipment for use in locations where children not likely to be present - marking		N/A
	b) Instructions given for installation or initial use		Р
	c) Equipment intended to be fastened in place		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard		N/A

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EN IEC 62368-1:2020+A11:2020			
Clause	Requirement	Remarks	Verdict
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		Р
	i) Permanently connected equipment not provided with all-pole mains switch		N/A
j)	j) Replaceable components or modules providing safeguard function		N/A
F.5	Instructional safeguards		Р
	Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction		Р
G	COMPONENTS		
G.1	Switches		
G.1.1	General requirements	Not used	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	Relays		
G.2.1	General requirements	Not used	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	Protection devices		
G.3.1	Thermal cut-offs	Not used	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		
G.3.2.1a)	Thermal links separately tested with IEC 60691		N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H):		N/A
	Single Fault Condition:		N/A
	Test Voltage (V) and Insulation Resistance ( $\Omega$ ). :		N/A
G.3.3	PTC thermistors	Not used	N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to	G.3.5	N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A

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Clause	Requirement	Remarks	Verdict
G.3.5.2	Single faults conditions:		N/A
G.4	Connectors		
G.4.1	Clearance and creepage distance requirements	Not used	N/A
G.4.2	Mains connectors:		N/A
G.4.3	Connectors other than mains connectors		N/A
G.5	Wound Components		
G.5.1	Wire insulation in wound components	Not used	N/A
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s)		N/A
	Temperature (°C):		N/A
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	Transformers		
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1)	Not used	N/A
	Position:		N/A
	Method of protection:		N/A
G.5.3.2	Insulation		N/A
	Protection from displacement of windings:		N/A
G.5.3.3	Overload test:		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.3.4	Transformers using fully insulated winding wire (FIW)		N/A
G.5.4	Motors	•	
G.5.4.1	General requirements	Not used	N/A
	Position:		N/A
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days):		N/A

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Clause	Requirement	Remarks	Verdict
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V)		N/A
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		N/A
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature:		N/A
	Electric strength test (V):		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h)		N/A
	Electric strength test (V)		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage		N/A
G.6	Wire Insulation	-	
G.6.1	General	Functional insulation	Р
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	Mains supply cords		
G.7.1	General requirements	Not used	N/A
	Туре		N/A
	Rated current (A)		N/A
	Cross-sectional area (mm²), (AWG):		N/A
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non- detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N)		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm):		N/A
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry:		N/A
G.7.5	Non-detachable cord bend protection		N/A

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Clause	Requirement	Remarks	Verdict	
G.7.5.1	Requirements		N/A	
G.7.5.2	Mass (g)		N/A	
	Diameter (m):		N/A	
	Temperature (°C):		N/A	
G.7.6	Supply wiring space		N/A	
G.7.6.2	Stranded wire		N/A	
G.7.6.2.1	Test with 8 mm strand		N/A	
G.8	Varistors			
G.8.1	General requirements	Not used	N/A	
G.8.2	Safeguard against fire		N/A	
G.8.2.2	Varistor overload test:		N/A	
G.8.2.3	Temporary overvoltage:		N/A	
G.9	Integrated Circuit (IC) Current Limiters	•		
G.9.1 a)	Manufacturer defines limit at max. 5A.	Not used	N/A	
G.9.1 b)	Limiters do not have manual operator or reset		N/A	
G.9.1 c)	Supply source does not exceed 250 VA:		N/A	
G.9.1 d)	IC limiter output current (max. 5A):		N/A	
G.9.1 e)	Manufacturers' defined drift:		N/A	
G.9.2	Test Program 1		N/A	
G.9.3	Test Program 2		N/A	
G.9.4	Test Program 3		N/A	
G.10	Resistors			
G.10.1	General requirements	Not used	N/A	
G.10.2	Conditioning		N/A	
G.10.3	Resistor test		N/A	
G.10.4	Voltage surge test		N/A	
G.10.5	Impulse test		N/A	
G.10.6	Overload test		N/A	
G.11	Capacitor and RC units			
G.11.1	General requirements	Not used	N/A	
G.11.2	Conditioning of capacitors and RC units		N/A	
G.11.3	Rules for selecting capacitors		N/A	
G.12	Optocouplers		N/A	
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results)	Not used	N/A	

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Clause	Requirement	Remarks	Verdict	
	Type test voltage Vini		N/A	
	Routine test voltage, Vini,b:		N/A	
G.13	Printed boards			
G.13.1	General requirements	Functional insulation only, checked by short-circuited of B 4.4	N/A	
G.13.2	Uncoated printed boards		N/A	
G.13.3	Coated printed boards		N/A	
G.13.4	Insulation between conductors on the same inner surface		N/A	
	Compliance with cemented joint requirements (Specify construction)		N/A	
G.13.5	Insulation between conductors on different surfaces		N/A	
	Distance through insulation:		N/A	
	Number of insulation layers (pcs)		N/A	
G.13.6	Tests on coated printed boards		N/A	
G.13.6.1	Sample preparation and preliminary inspection		N/A	
G.13.6.2a)	Thermal conditioning		N/A	
G.13.6.2b)	Electric strength test		N/A	
G.13.6.2c)	Abrasion resistance test		N/A	
G.14	Coating on components terminals			
G.14.1	Requirements		N/A	
G.15	Pressurized liquid filled components			
G.15.1	General requirements	Not used	N/A	
G.15.2	Test methods and compliance criteria		N/A	
G.15.2.1	Hydrostatic pressure test		N/A	
G.15.2.2	Creep resistance test		N/A	
G.15.2.3	Tubing and fittings compatibility test		N/A	
G.15.2.4	Vibration test		N/A	
G.15.2.5	Thermal cycling test		N/A	
G.15.2.6	Force test		N/A	
G.15.3	Compliance criteria		N/A	
G.16	IC including capacitor discharge function (ICX)			
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N/A	
b)	Impulse test using circuit 2 with Uc = to transient voltage		N/A	

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EN IEC 62368-1:2020+A11:2020				
Clause	Requirement	Remarks	Verdict	
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A	
C2)	Test voltage:		N/A	
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer			
D2)	Capacitance		N/A	
D3)	Resistance:		N/A	
Н	CRITERIA FOR TELEPHONE RINGING SIGNALS			
H.1	General		N/A	
H.2	Method A		N/A	
H.3	Method B		N/A	
H.3.1	Ringing signal		N/A	
H.3.1.1	Frequency (Hz)		N/A	
H.3.1.2	Voltage (V)		N/A	
H.3.1.3	Cadence; time (s) and voltage (V):		N/A	
H.3.1.4	Single fault current (mA)::		N/A	
H.3.2	Tripping device and monitoring voltage:		N/A	
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A	
H.3.2.2	Tripping device		N/A	
H.3.2.3	Monitoring voltage (V):		N/A	
I	OVERVOLTAGE CATEGORIES			
	Category:		N/A	
J	INSULATED WINDING WIRES FOR USE WITHOU	JT INTERLEAVED INSULATION		
	General requirements		N/A	
K	SAFETY INTERLOCKS			
K.1	General requirements	Not used	N/A	
K.2	Components of safety interlock safeguard mechanism		N/A	
K.3	Inadvertent change of operating mode		N/A	
K.4	Interlock safeguard override		N/A	
K.5	Fail-safe		N/A	
	Compliance:		N/A	
K.6	Mechanically operated safety interlocks		N/A	
K.6.1	Endurance requirement		N/A	
K.6.2	Compliance and test method:		N/A	
K.7	Interlock circuit isolation		N/A	

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Clause	Requirement	Remarks	Verdict
Ciause	Requirement	Remarks	verdict
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location):		N/A
K.7.2	Overload test, Current (A)		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test:		N/A
L	DISCONNECT DEVICES		
L.1	General requirements		N/A
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		N/A
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		N/A
L.7	Plugs as disconnect devices		N/A
L.8	Multiple power sources		N/A
М	EQUIPMENT CONTAINING BATTERIES AND TH	EIR PROTECTION CIRCUITS	
M.1	General requirements	Batteries were not used	N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method):		N/A
M.3	Protection circuits for batteries provided within the equipment		N/A
M.3.1	Requirements		N/A
M.3.2	Tests method		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance criteria:		N/A
M.4	Additional safeguards for equipment containing secondary lithium battery	No lithium battery	N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature:		N/A
M.4.2.2 b)	Single faults in charging circuitry:		N/A
M.4.3	Fire Enclosure		N/A

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EN IEC 62368-1:2020+A11:2020				
Clause	Requirement	Remarks	Verdict	
M.4.4	Drop test of equipment containing a secondary lithium battery		N/A	
M.4.4.2	Preparation		N/A	
M.4.4.3	Drop and charge/discharge function tests		N/A	
	Drop		N/A	
	Charge		N/A	
	Discharge		N/A	
M.4.4.4	Charge-discharge cycle test		N/A	
M.4.4.5	Result of charge-discharge cycle test		N/A	
M.5	Risk of burn due to short circuit during carrying		N/A	
M.5.1	Requirement		N/A	
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A	
M.6	Safeguards against short-circuits		N/A	
M.6.1	Requirements		N/A	
M.6.2	Compliance criteria		N/A	
M.7	Risk of explosion from lead acid and NiCd batteries		N/A	
M.7.1	Ventilation preventing explosive gas concentration		N/A	
M.7.2	Compliance and test method		N/A	
M.7.3	Ventilation tests		N/A	
M.7.4	Marking requirement		N/A	
M.8	Protection against internal ignition from external spark sources of batteries with aqueous electrolyte		N/A	
M.8.1	General requirements		N/A	
M.8.2	Test method		N/A	
M.8.2.1	General requirements		N/A	
M.8.2.2	Estimation of hypothetical volume Vz (m³/s):		N/A	
M.8.2.3	Correction factors:		N/A	
M.8.2.4	Calculation of distance d (mm):		N/A	
M.9	Preventing electrolyte spillage		N/A	
M.9.1	Protection from electrolyte spillage		N/A	
M.9.2	Tray for preventing electrolyte spillage		N/A	
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing)		N/A	
N	ELECTROCHEMICAL POTENTIALS			
	Metal(s) used:		N/A	

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EN IEC 62368-1:2020+A11:2020					
Clause	Requirement	Remarks	Verdict		
0	MEASUREMENT OF CREEPAGE DISTANCES AN	ID CLEARANCES			
	Figures O.1 to O.20 of this Annex applied:		Р		
Р	SAFEGUARDS AGAINST ENTRY OF FOREIGN O INTERNAL LIQUIDS	BJECTS AND SPILLAGE OF			
P.1	General requirements		N/A		
P.2	Safeguards against entry or consequences of entry of a foreign object		N/A		
P.2.2	Safeguards against entry of foreign object		N/A		
	Location and Dimensions (mm):		N/A		
P.2.3	Safeguard against the consequences of entry of foreign object		N/A		
P.2.3.1	Safeguards against the entry of a foreign object		N/A		
	Openings in transportable equipment		N/A		
	Transportable equipment with metalized plastic parts:		N/A		
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard):		N/A		
P.3	Safeguards against spillage of internal liquids	No internal liquids	N/A		
P.3.1	General requirements		N/A		
P.3.2	Determination of spillage consequences		N/A		
P.3.3	Spillage safeguards		N/A		
P.3.4	Safeguards effectiveness		N/A		
P.4	Metallized coatings and adhesive securing parts		N/A		
P.4.2 a)	Conditioning testing		N/A		
	Tc (°C)		N/A		
	Tr (°C):		N/A		
	Ta (°C):		N/A		
P.4.2 b)	Abrasion testing:		N/A		
P.4.2 c)	Mechanical strength testing:		N/A		
Q	CIRCUITS INTENDED FOR INTERCONNECTION	WITH BUILDING WIRING			
Q.1	Limited power sources		N/A		
Q.1.1 a)	Inherently limited output		N/A		
Q.1.1 b)	Impedance limited output		N/A		
	- Regulating network limited output under normal operating and simulated single fault condition		N/A		
Q.1.1 c)	Overcurrent protective device limited output		N/A		
Q.1.1 d)	IC current limiter complying with G.9		N/A		
Q.1.2	Compliance and test method		N/A		
	•				

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EN IEC 62368-1:2020+A11:2020				
Clause	Requirement	Remarks	Verdict	
Q.2	Test for external circuits – paired conductor cable		N/A	
	Maximum output current (A):		N/A	
	Current limiting method:		N/A	
₹	LIMITED SHORT CIRCUIT TEST			
R.1	General requirements		N/A	
R.2	Determination of the overcurrent protective device and circuit		N/A	
R.3	Test method Supply voltage (V) and short-circuit current (A)):			
3	TESTS FOR RESISTANCE TO HEAT AND FIRE			
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W	No requirements, see clause 6.4.8	N/A	
	Samples, material:		N/A	
	Wall thickness (mm):		N/A	
	Conditioning (°C):		N/A	
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A	
	- Material not consumed completely		N/A	
	- Material extinguishes within 30s		N/A	
	- No burning of layer or wrapping tissue		N/A	
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A	
	Samples, material:		N/A	
	Wall thickness (mm):		N/A	
	Conditioning (°C):		N/A	
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A	
	Test specimen does not show any additional hole		N/A	
S.3	Flammability test for the bottom of a fire enclosure		N/A	
	Samples, material:		N/A	
	Wall thickness (mm):		N/A	
	Cheesecloth did not ignite		N/A	
S.4	Flammability classification of materials		N/A	
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A	
	Samples, material:		N/A	
	Wall thickness (mm):		N/A	

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EN IEC 62368-1:2020+A11:2020				
Clause	Requirement	Remarks	Verdict	
	Conditioning (test condition), (°C):		N/A	
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A	
	After every test specimen was not consumed completely		N/A	
	After fifth flame application, flame extinguished within 1 min		N/A	
Т	MECHANICAL STRENGTH TESTS			
T.1	General requirements	No requirements, energy class 1	Р	
T.2	Steady force test, 10 N		N/A	
T.3	Steady force test, 30 N		N/A	
T.4	Steady force test, 100 N		N/A	
T.5	Steady force test, 250 N		N/A	
T.6	Enclosure impact test		N/A	
	Fall test		N/A	
	Swing test		N/A	
T.7	Drop test		N/A	
T.8	Stress relief test:		N/A	
T.9	Impact test (glass)		N/A	
T.9.1	General requirements		N/A	
T.9.2	Impact test and compliance		N/A	
	Impact energy (J):		N/A	
	Height (m):		N/A	
T.10	Glass fragmentation test:		N/A	
T.11	Test for telescoping or rod antennas		N/A	
	Torque value (Nm):			
U	MECHANICAL STRENGTH OF CATHODE RAY TO AGAINST THE EFECTS OF IMPLOSION	JBES (CRT) AND PROTECTION		
U.1	General requirements		N/A	
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A	
U.3	Protective Screen		N/A	
V	DETERMINATION OF ACCESSIBLE PARTS (FING	GERS, PROBES AND WEDGES)		
V.1	Accessible parts of equipment		Р	
V.2	Accessible part criterion		Р	

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4.1.2	TABLE: List of critical components					
Object / part No.	Manufacturer/ trademark	Type / model	Technical data		Mark(s) conform	
Supplementary information: Provided evidence ensures the agreed level of compliance.						

4.8.4, 4.8.5	TABLE: L	ithium coin/button cell batteri	N/A	
(The followin	ng mechanical tes	sts are conducted in the sequence	e noted.)	
4.8.4.2	TABLE: S	tress Relief test		_
Par	rt	Material	Oven Temperature (°C)	Comments
4.8.4.3	TABLE: B	attery replacement test		_
Battery part	no	· · · · · · · · · · · · · · · · · · ·		_
Battery Insta	allation/withdraw	val	Battery Installation/Removal Cycle	Comments
			1	
			2	
			3	
			4	
			5	
			6	
			8	
			9	
1.8.4.4	TABLE: Dr	op test		_
mpact Area	à	Drop Distance	Drop No.	Observations
			1	
			2	
			3	
4.8.4.5	TABLE: Im	pact		
Impacts pe	er surface	Surface tested	Impact energy (Nm)	Comments

4.8.4.6	TABLE: Cru	_		
Test positi	on	Surface tested	Crushing Force (N)	Duration force applied (s)

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Supplementary information:		

4.8.5	TABLE	TABLE: Lithium coin/button cell batteries mechanical test result					
Test position		on force ied (s)					
Supplementary information:							

5.2	Т	able: Classifica	tion of electrical er	nergy sources			Р	
5.2.2.2	<ul><li>Steady Sta</li></ul>	ite Voltage and C	Current conditions					
No.	Supply	Location (e.g.	Test conditions		Parameters		ES Class	
NO.	Voltage	designation)	1 est conditions	U (Vrms or Vpk)	) (Apk or Ar	ms) Hz		
1	Input	Accessible part	Normal	30 DC			ES1	
		part	Abnormal					
			Single fault – SC/OC	30 DC				
5.2.2.3	- Capacitano	e Limits						
Nia	Supply	Location	Test conditions	Parameter				FC Class
No.	Voltage	(e.g. circuit designation)	Test conditions	•	Capacitance, nF Upk (V)		ES Class	
			Normal					
			Abnormal					
			Single fault – SC/OC					
5.2.2.4	- Single Puls	es						
NI.	Supply	Location	T		F0.01			
No.	Voltage	(e.g. circuit designation)	Test conditions	Duration (ms)	Upk (V)	lpk (mA)	ES Class	
			Normal					
			Abnormal				-	
			Single fault – SC/OC					
5.2.2.5	- Repetitive I	Pulses						
No.	Supply	Location (e.g. circuit	Test conditions		Parameters		ES Class	
NO.	Voltage	designation)	1 65t CONCINUITIONS	Off time (ms)	Upk (V)	lpk (mA)	LO Class	
			Normal					
			Abnormal					

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			Single fault – SC/OC						
Test Conditions:									
	Normal –								
	Abnormal -								
Suppler	mentary infor	mation: SC=Sho	rt Circuit, OC=Open	Circuit					

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements		Р			
	Supply voltage (V):	Powered via PoE, stand-by	Powered via PoE, operating mode	External power, operating mode 10 DC	External power, operating mode 30 DC	
	Ambient T <sub>min</sub> (°C):	20,7	20,7	20,7	20,7	_
	Ambient T <sub>max</sub> (°C):	21,3	21,3	21,3	21,3	_
Maximum n	neasured temperature T of part/at:			Allowed T <sub>max</sub> (°C)		
Plastic surfa	ace	32,3	33,0	29,0	30,3	94
Speaker		22,5	23,8	21,7	22,3	70
Front panel, metal		22,6	25,7	23,1	25,9	70
Button, metal		20,9	22,7	21,3	22,4	60 *)
Terminal bo	х			23,4	24,7	**)
Printed circuit board, bottom				30,3	33,9	**)

## Supplementary information:

The test stopped after stabilization of the temperature.

The hottest place was measured.

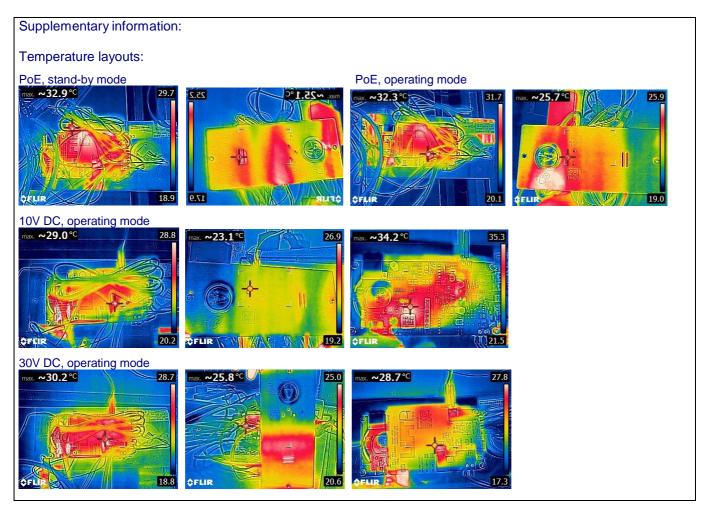
External surfaces which do not need to be touched during normal use (<1s)

- \*) External surfaces touched occasionally for short period (>10s and <1min)
  \*\*) Not accessible to the operator

External power – laboratory power source No. A181

Temperature T of winding:	t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	$R_2(\Omega)$	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class

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5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics					
Penetration (mm):						
Object/ Part	No./Material	Manufacturer/t rademark	T softening (°C)	)		
Supplementary information:						

5.4.1.10.3 TABLE: Ball pressure test of thermoplastics							
Allowed impression diameter (mm) : ≤ 2 mm							
Object/Part No./Material Manufacturer/trademark			Test temperature (°C)	Impression dia	meter (mm)		
Supplementary information:							

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	Ur.m.s . (V)	Frequency (kHz) <sup>1</sup>	Required cl (mm)	cl (mm) <sup>2</sup>	Required <sub>3</sub> cr (mm)	cr (mm)

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		EN IEC 6	2368-1:2020+ <i>A</i>	11:2020				
								_
Supplement	ary information:				 			
5.4.2.3	TABLE: Minimum C	learances dis	stances using	required	withstand	voltage		N/A
	Overvoltage Category (OV):							
	Pollution Degree:						2	
Clearance distanced between:  Required withstand voltage  Required cl (mm)  Measured						d cl (mm)		
Supplementary information:								
5.4.2.4	TABLE: Clearances	based on ele	ectric strength	test				N/A
Test voltage	e applied between:	Re	equired cl (mm)	Test voltage (kV) peak/ r.m.s. / d.c.			Breakdown Yes / No	
Supplement	tary information:	-				1		
5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance th	rough insulat	ion measurem	nents				N/A
Distance thr insulation di		ak voltage (V)	Frequency (kHz)	Mater	rial	Required DTI (mm		DTI (mm)
	ary information: omponents, see 4.1.2				·		·	
5.4.9	TABLE: Electric stre	ength tests						N/A
Test voltage	e applied between:	Voltage si (AC, D			ltage (V)	tage (V) Breakd Yes /		
Functional:								
Supplement	ary information:		ı				ı	

5.5.2.2	TABLE: Stored discharge on capacitors							
Supply Volta	age (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES CI	assification	

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Supplementary information:
X-capacitors installed for testing are: Refer Model Differences for values of X-capacitance
☐ bleeding resistor rating:
☐ ICX: Equipment under test is an ICX component
Notes:
A. Test Location:
Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth
B. Operating condition abbreviations:
N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition

5.6.6.2	.2 TABLE: Resistance of protective conductors and terminations							
P	accessible part	Test current (A)	Duration (min)	= 3.1.3.1.3.1				
Supplemen	tary information:							
5.7.2.2, 5.7.4	TABLE: Earthed a	ccessible conductive	part			N/A		
Supply volt	age	:						
Location			Test conditions IEC 60990 or Fa in IEC 60990 cla through 6.2.2.8,	Touch current (mA)				
				1				
				2*				
				3				
				4				
				5				
				6				
				8				
Notes: [1] Supply [2] Earthed [3] Specify [4] IEC609	neutral conductor [V method used for mea 90, sub-clause 6.2.2.	ated maximum Touch V oltage differences less asurement as described 7, Fault 7 not applicable 2.2.2 is not applicable	than 1% or more] d in IEC 60990 sub- e.		oplianc	e coupler)		

6.2.2	Table: Electrical	power sources (	PS) measurements fo	r classification		P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS CI	assification

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	Input	Power (W) :		PS1 (declared)
Α		V <sub>A</sub> (V) :		
		I <sub>A</sub> (mA) :		
		V <sub>A</sub> (V) :		
		I <sub>A</sub> (A) :		

Supplementary Information:

(\*) Measurement taken only when limits at 3 seconds exceed PS1 limits

6.2.3.1	Table: Determination	Table: Determination of Potential Ignition Sources (Arcing PIS)								
	Location	Open circuit voltage After 3 s (Vp)	Measured r.m.s current (Irms)	Calculated value (V <sub>p</sub> x I <sub>rms</sub> )		ing PIS? es / No				

Supplementary information:

An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage  $(V_p)$  and normal operating condition rms current  $(I_{rms})$  is greater than 15.

6.2.3.2	Table: Dete	Table: Determination of Potential Ignition Sources (Resistive PIS)									
Circuit Location (x-y)		Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment)	Resistive PIS? Yes/No					

Supplementary Information:

A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.

If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.

A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, <u>or</u> (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.

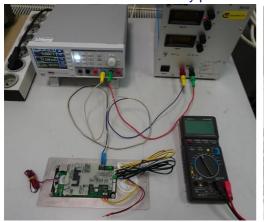
8.5.5	TABLE: High Pressure Lamp						
Description	escription Values Ene		Energy Source C	lassification			
Lamp type.	:		_				
Manufactur	er:		_				
Cat no			_				
Pressure (c	cold) (MPa)		MS_	-			
Pressure (d	pperating) (MPa)		MS_	=			

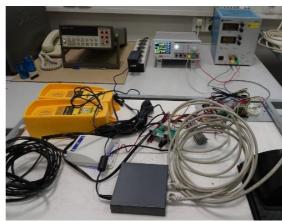
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Operating time (minutes)	_
Explosion method:	<del>-</del>
Max particle length escaping enclosure (mm) .:	MS_
Max particle length beyond 1 m (mm):	MS_
Overall result	•
Supplementary information:	

B.2.5	TABLE: Input to	est				Р
U (V)	I (mA)	P (W)	P rated (W)	I rated (mA)	Condition/status	
10,6	97,9	1,03	2		Tested in the set, stand-b	y mode
19,7	55,3	1,08	2		Tested in the set, stand-b	y mode
29,8	38,2	1,13	2		Tested in the set, stand-b	y mode
10,6	102,4	1,08	2		Tested in the set, operation (calling mode)	ng mode
19,7	56,1	1,10	2		Tested in the set, operation (calling mode)	ng mode
29,8	41,3	1,23	2		Tested in the set, operation (calling mode)	ng mode
10,0	92,4	0,92	2		Tested the device itself o	nly
20,0	48,7	0,97	2		Tested the device itself o	nly
29,8	34,7	1,03	2		Tested the device itself o	nly

Supplementary information:
Powered via external laboratory power source No. A181.





B.3 TABLE: Abnormal operating condition tests						
Ambient temperature (°C)21,2						
Power source	Power source for EUT: Manufacturer, model/type, output rating:					

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•		Abnormal Condition	Supply voltage, (V)	Test time (min)	Fuse no.	Fu currer		T-couple	Temp. (°C)	0	bservation
Thermal but	s prov rn inju r a Cl	rided to recor ury. Column ause B.3 test	d abnormal an "Abnormal/Fau t or "Single Fau I, OC: open cir	ılt." Specify ılt" then the	if test c	ondition	n by in	dicating "Ab			
B.4	TAB	LE: Fault co	ndition tests								Р
Ambient ten	npera	ture (°C)				:					_
Power source	ce for	EUT: Manuf	acturer, model	/type, outpu	ıt rating	:					_
Component	No.	Fault Condition	Supply voltage, (V)	Test time (min)	Fuse no.	Fu currer		T-couple	Temp. (°C)	0	bservation
Input		Polarity changed	10 DC	30						not pla haz	e device does work, not hot ces, no card, novable
Input		Polarity changed	30 DC	30						not not no	e device does work, mA, hot places, hazard, novable
Supplement SC: short ci			I, OC: open cir	cuit		I				<u> </u>	
Annov M		I F. Detterie									NI/A

Annex M T	Annex M TABLE: Batteries									
The tests of Annex M are applicable only when appropriate battery data is not available										
Is it possible to	Is it possible to install the battery in a reverse polarity position? :									
	Non-re	echargeable	e batteries		F	Rechargea	ble batteri	es		
	Disch	arging	Un-	Cha	rging	Disch	arging	Reverse	ed charging	
Meas. Manuf. current Specs.		Un- intentional	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.		
Max. current during normal condition										
Max. current during fault condition										
Test results:								Verdict		
- Chemical leaks										
- Explosion of	the battery									

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- Emission of flame or expulsion of molten metal	
- Electric strength tests of equipment after completion of tests	
Supplementary information:	

Annex M.4 Table: Adbatteries	N/A				
Battery/Cell	Test conditions		Observation		
No.		U	I (A)	Temp (C)	
	Normal				
	Abnormal				
	Single fault –SC/OC				

Supplementary Information:

1) See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6, appended table B.3, B.4, appended table Annex M

Battery identification	Charging at Tlowest ( C)	Observation	Charging at Thighest ( C)	Observation			
				-			
Supplementary Information:							

Annex Q.1	TABLE: Circuits intended for interconnection with building wiring (LPS)							
Note: Measured UOC (V) with all load circuits disconnected:								
Output Circuit	Components	U (V)	Isc (A)		S ('	/A)		
			Meas.	Limit	Meas.	Limit		
						-		
Supplementary Information:								

T.2, T.3, T.4, T.5	TABL	TABLE: Steady force test						
Part/Loca	tion	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Obser	vation	
Supplementary information:								

T.6, T.9	TABLE: Impact tests						
Part/Locati	ion	Material	Thickness (mm)	Vertical distance (mm)	Observation		
					-		
Supplementary information:							

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T.7 T	T.7 TABLE: Drop tests						
Part/Location	n Material	Thickness (mm)	Drop Height (mm)	Observation			
Supplementary information:							

T.8	TABLE: Stress relief test						N/A
Part/Locat	ion	Material	Thickness (mm)	Oven Temperature ( C)	Duration (h)	Obse	rvation
Supplementary information:							

Any comparison of the measured values with the required, as well as any assessment are beyond laboratory accreditation according to CSN EN ISO / IEC 17025:2018.

The standard uncertainty of measurement is in accordance with the document EA-4/16. The expanded measurement uncertainty stated in the protocol is the product of standard uncertainty of measurement and coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%. Interpretation (conclusions) are presented in accordance with ILAC G8.

#### Note:

\*) The tests or interpretations marked with "\*" are outside the scope of laboratory accreditation according to ČSN EN ISO / IEC 17025:2018

#### **Test case verdicts:**

Test case does not apply to the test objects: N/A (not applicable)

Test item does meet the requirement of standard clause: **P** (pass) Test item does not meet the requirement of standard clause: **F** (fail)

#### **General remarks:**

"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

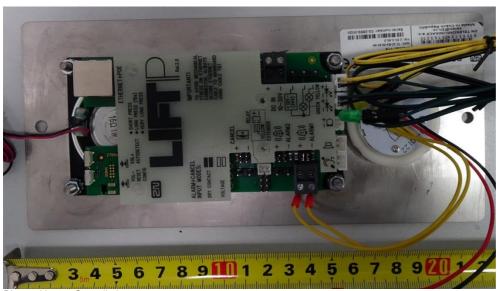
The test results presented in this report relate only to the object tested.

This report shall not be reproduced except in full without the written approval of the testing laboratory.

End of test report

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## **Annex 1: Pictures**



Picture No.1 – Overall view

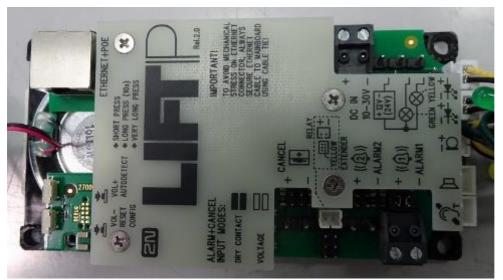


Picture No.2 – Front panel



Picture No.3 – Without front panel

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Picture No.4 – Marking



Picture No.5 – Components



Picture No.6 – Printed circuit board