**Test Report issued under the responsibility of:**

**Eurofins MET Laboratories, Inc.**

# TEST REPORT
# UL 62368-1
# Audio/video, information and communication technology equipment
# Part 1: Safety requirements

| | |
|---|---|
| **Report Number..... :** | MET 132954 |
| **Date of issue ..... :** | October 24, 2024 |
| **Total number of pages ..... :** | 66 pages |
| **Name of Testing Laboratory preparing the Report ..... :** | Eurofins Electrical and Electronic Testing NA, Inc. |
| **Applicant's name..... :** | VotingWorks |
| **Address ..... :** | 2512 W Pecan St, Unit #250<br>Pflugerville, TX 78660<br>USA |
| **Test specification:** | |
| **Standard ..... :** | UL 62368-1:2018 |
| **Test procedure..... :** | MET TRF - Informative Test Report |
| **Non-standard test method..... :** | N/A |
| **TRF template used ..... :** | IECEE OD-2020-F1:2021, Ed.1.4 |
| **Test Report Form No. ..... :** | IEC62368_1E |
| **Test Report Form(s) Originator.... :** | UL(US) |
| **Master TRF ..... :** | Dated 2022-04-14 |



**General disclaimer:**

The test results presented in this report relate only to the object tested.
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| | | | |
|---|---|---|---|
| **Test item description .....:** | Precinct Scanner in Voting System | | |
| **Trade Mark(s) .....:** | N/A | | |
| **Manufacturer.....:** | VotingWorks | | |
| **Model/Type reference .....:** | VxScan v4.0 | | |
| **Ratings .....:** | AC Input: 115 - 120 Vac, 60 Hz, 6.5 A max | | |
| | | | |
| **Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):** | | | |
| ☒ | **CB Testing Laboratory:** | Eurofins Electrical and Electronic Testing NA, Inc. | |
| **Testing location/ address ..... :** | | 3162 Belick St.<br>Santa Clara, CA 95054 USA | |
| **Tested by (name, function, signature) ..... :** | | Carl Huang<br>(Engineer) | *Carl Huang* |
| **Approved by (name, function, signature) .. :** | | Rafat Enam<br>(Reviewer) | *Rafat Enam* |
| | | | |
| ☐ | **Testing procedure: CTF Stage 1:** | N/A | |
| **Testing location/ address ..... :** | | N/A | |
| **Tested by (name, function, signature) ..... :** | | N/A | |
| **Approved by (name, function, signature) .. :** | | N/A | |
| | | | |
| ☐ | **Testing procedure: CTF Stage 2:** | N/A | |
| **Testing location/ address ..... :** | | N/A | |
| **Tested by (name, function, signature) .....** | | N/A | |
| **Witnessed by (name, function, signature). :** | | N/A | |
| **Approved by (name, function, signature) .. :** | | N/A | |
| | | | |
| ☐ | **Testing procedure: CTF Stage 3:** | N/A | |
| ☐ | **Testing procedure: CTF Stage 4:** | N/A | |
| **Testing location/ address ..... :** | | N/A | |
| **Tested by (name, function, signature) ..... :** | | N/A | |
| **Witnessed by (name, function, signature). :** | | N/A | |
| **Approved by (name, function, signature) .. :** | | N/A | |
| **Supervised by (name, function, signature) :** | | N/A | |

**List of Attachments (including a total number of pages in each attachment):**

Attachment 1 - National Deviations - 8 Pages

Attachment 2 - Photos and Illustrations - 5 Pages

**Summary of testing:** Testing was conducted on the max configured Precinct Scanner in Voting System Model VxScan v4.0

**Tests performed (name of test and test clause):**

| | |
|---|---|
| 4.4.3/T.3 & T.5 | Steady Force - 30N & 250N |
| 4.4.3/T.6 | Impact |
| 5.3.2/T.3 Annex V | Accessibility to Electrical Energy Sources |
| 5.4.9 | Electric Strength |
| 5.5.2 | Capacitor Discharge |
| 5.6.6 | Resistance of Earthing |
| 5.7 | Touch Current and Protective Conductor Current |
| 8.6.2 | Static Stability |
| 8.8.2 | Handle Strength |
| F.3.10 | Marking Durability |
| B.2.5 | Input Current |
| B.2.6 | Temperatures |
| B.3/B.4 | Abnormal Operations |

**Testing location:**

Eurofins Electrical and Electronic Testing NA, Inc.
13501 McCallen Pass
Austin, TX 78753 USA

**Summary of compliance with National Differences (List of countries addressed):** US

☒ **The product fulfils the requirements of UL 62368-1:2019 rev 10/22/2021**

**Use of uncertainty of measurement for decisions on conformity (decision rule) :**

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

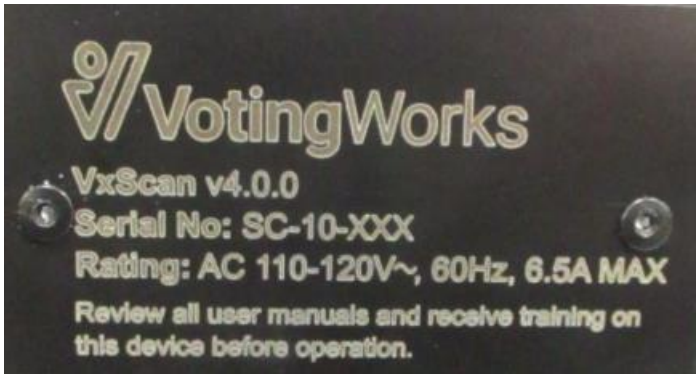
☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

**Information on uncertainty of measurement:**
The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.
IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

**Copy of marking plate:**

**The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.**



| **Test item particulars:** | |
|---|---|
| **Product group .....:** | ☒ end product ☐ built-in component |
| **Classification of use by .....:** | ☒ Ordinary person ☒ Children likely present<br>☐ Instructed person<br>☐ Skilled person |
| **Supply connection.....:** | ☒ AC mains ☐ DC mains<br>☐ not mains connected:<br>☐ ES1 ☐ ES2 ☒ ES3 |
| **Supply tolerance .....:** | ☒ +10%/-10%<br>☐ +20%/-15%<br>☐ +20%/ -0%<br>☐ None |
| **Supply connection – type .....:** | ☒ pluggable equipment type A -<br>☒ non-detachable supply cord<br>☐ appliance coupler<br>☐ direct plug-in<br>☐ pluggable equipment type B -<br>☐ non-detachable supply cord<br>☐ appliance coupler<br>☐ permanent connection<br>☐ mating connector ☐ other: |
| **Considered current rating of protective device.....:** | ☒ 20 A;<br>Location: ☒ building ☐ equipment<br>☐ N/A |
| **Equipment mobility .....:** | ☐ movable ☐ hand-held ☐ transportable<br>☐ direct plug-in ☒ stationary ☐ for building-in<br>☐ wall/ceiling-mounted ☐ SRME/rack-mounted<br>☐ other: |
| **Overvoltage category (OVC) .....:** | ☐ OVC I ☒ OVC II ☐ OVC III<br>☐ OVC IV ☐ other: |
| **Class of equipment .....:** | ☒ Class I ☐ Class II ☐ Class III<br>☐ Not classified ☐ |
| **Special installation location .....:** | ☐ N/A ☐ restricted access area<br>☐ outdoor location ☐ |
| **Pollution degree (PD) .....:** | ☐ PD 1 ☒ PD 2 ☐ PD 3 |
| **Manufacturer's specified $T_{ma}$.....:** | 35C ☐ Outdoor: minimum °C |
| **IP protection class .....:** | ☒ IPX0 ☐ IP___ |
| **Power systems .....:** | ☒ TN (AC) ☐ TT ☐ IT - $V_{L-L}$<br>☐ not AC mains |
| **Altitude during operation (m) .....:** | ☒ 2000 m or less ☐ m |
| **Altitude of test laboratory (m) .....:** | ☒ 2000 m or less ☐ m |
| **Mass of equipment (kg) .....:** | 11 (24 lbs, Pelican case),<br>16.2 (36 lbs, Ballot box receptacle) |

| | |
|---|---|
| **Possible test case verdicts:** | |
| **- test case does not apply to the test object....:** | N/A |
| **- test object does meet the requirement.....:** | P (Pass) |
| **- test object does not meet the requirement....:** | F (Fail) |
| **Testing:** | |
| **Date of receipt of test item .....:** | 8/23/2024 |
| **Date (s) of performance of tests.....:** | 8/26/2024 to 10/11/2024 |

**General remarks:**

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

**Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**

**Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:**

| | |
|---|---|
| The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....: | ☐ **Yes**<br>☒ **Not applicable** |

**When differences exist; they shall be identified in the General product information section.**

| | |
|---|---|
| **Name and address of factory (ies) ..... :** | VotingWorks<br>1708 Carolina St. Ste C16,<br>Bellingham, WA 98229 |

**General product information and other remarks:**

The Precinct Scanner in Voting System, Model VxScan v4.0 is intended for use in elections in precincts across the USA.

**Model Differences -** N/A

**Additional application considerations - (Considerations used to test a component or sub-assembly) -**

The Precinct Scanner in Voting System, Model VxScan v4.0 has been investigated in accordance with UL 62368-1, Third Edition Standard for Safety Audio/Video, Information and Communication Technology Equipment, dated Dec. 2019, with Rev. Oct. 22, 2021.

This product must be installed in accordance with all codes applicable to the location of the installation and in accordance with its instructions for use.

All safety instructions and installation instructions are provided in the user manual provided with every product.

The product is stationary, Class I pluggable Type A equipment.

A suitable disconnect device is provided as part of the equipment. The Power Supply cord plug is considered the equipment's disconnect device.

Ground pin of the Cord Set plug is considered protective earthing.

The product shall be connected to a receptacle protected by a 20A branch circuit (AC Unit).

Product is intended for Pollution Degree 2 environment.

The unit is intended for use up to 2000 m (6500 ft).

The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification: 35C.

| **OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS** | | | | |
|---|---|---|---|---|
| **Clause** | **Possible Hazard** | | | |
| 5 | Electrically-caused injury | | | |
| Class and Energy Source (e.g. ES3: Primary circuit) | Body Part (e.g. Ordinary) | Safeguards | | |
| | | B | S | R |
| ES3: AC Input | Ordinary | Internal spacing | Earth enclosure | Internal spacing |
| 6 | Electrically-caused fire | | | |
| Class and Energy Source (e.g. PS2: 100 Watt circuit) | Material part (e.g. Printed board) | Safeguards | | |
| | | B | 1st S | 2nd S |
| PS2 | Internal circuits, Certified Power Supplies | Enclosure | Enclosure | - |
| 7 | Injury caused by hazardous substances | | | |
| Class and Energy Source (e.g. Ozone) | Body Part (e.g., Skilled) | Safeguards | | |
| | | B | S | R |
| None | N/A | - | - | - |
| 8 | Mechanically-caused injury | | | |
| Class and Energy Source (e.g. MS3: Plastic fan blades) | Body Part (e.g. Ordinary) | Safeguards | | |
| | | B | S | R |
| MS2: Mass = 11kg | Ordinary | Enclosure | - | - |
| 9 | Thermal burn | | | |
| Class and Energy Source (e.g. TS1: Keyboard caps) | Body Part (e.g., Ordinary) | Safeguards | | |
| | | B | S | R |
| TS1, no safeguard needed | Ordinary | - | - | - |
| 10 | Radiation | | | |
| Class and Energy Source (e.g. RS1: PMP sound output) | Body Part (e.g., Ordinary) | Safeguards | | |
| | | B | S | R |
| Indicating LEDs | Ordinary | - | - | - |
| Supplementary Information: *Additionally covered by separately certified power supplies.<br>"B" – Basic Safeguard; "S" – Supplementary Safeguard; "R" – Reinforced Safeguard | | | | |

| ENERGY SOURCE DIAGRAM |
| --- |
| **Optional**. Manufacturers are to provide the energy sources diagram identify declared energy sources and identifying the demarcations are between power sources. Recommend diagram be provided included in power supply and multipart systems.<br>Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings |
| See Above Overview of Energy Sources and Safeguards<br>☐ **ES** ☐ **PS** ☐ **MS** ☐ **TS** ☐ **RS** |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **4** | **GENERAL REQUIREMENTS** | | P |
| 4.1.1 | Acceptance of materials, components and subassemblies | Certified Components comply with the requirements of the relevant component standards.<br>Components not Certified are used in accordance with their ratings and they comply with applicable parts of this standard. | P |
| 4.1.2 | Use of components | Certified Components comply with the requirements of the relevant component standards.<br>Components not Certified are used in accordance with their ratings and they comply with applicable parts of this standard. | P |
| 4.1.3 | Equipment design and construction | Designed and constructed to reduce the likelihood of injury | P |
| 4.1.4 | Specified ambient temperature for outdoor use (°C) .....: | Not for outdoor use | N/A |
| 4.1.5 | Constructions and components not specifically covered | | N/A |
| 4.1.8 | Liquids and liquid filled components (LFC) | No LFCs | N/A |
| 4.1.15 | Markings and instructions | (See Annex F) | P |
| 4.4.3 | Safeguard robustness | | P |
| 4.4.3.1 | General | | P |
| 4.4.3.2 | Steady force tests | (See Clause T.5) | P |
| 4.4.3.3 | Drop tests | Not transportable, hand-held, direct plug-in, moveable, or desk-top equipment | N/A |
| 4.4.3.4 | Impact tests | | P |
| 4.4.3.5 | Internal accessible safeguard tests | No internal safeguards, not accessible to ordinary person | N/A |
| 4.4.3.6 | Glass impact tests | No glass | N/A |
| 4.4.3.7 | Glass fixation tests | No glass | N/A |
| | Glass impact test (1J) | | N/A |
| | Push/pull test (10 N) | | N/A |
| 4.4.3.8 | Thermoplastic material tests | None used | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.4.3.9 | Air comprising a safeguard | (See Annex T) | P |
| 4.4.3.10 | Accessibility, glass, safeguard effectiveness | | P |
| 4.4.4 | Displacement of a safeguard by an insulating liquid | No insulating liquid | N/A |
| 4.4.5 | Safety interlocks | No interlocks | N/A |
| **4.5** | **Explosion** | | P |
| 4.5.1 | General | No explosion | P |
| 4.5.2 | No explosion during normal/abnormal operating condition | (See Clause B.2, B.3) | P |
| | No harm by explosion during single fault conditions | | N/A |
| **4.6** | **Fixing of conductors** | | P |
| | Fix conductors not to defeat a safeguard | Certified Power Supply used, conductors are not likely to become loose or detached. | P |
| | Compliance is checked by test ..... : | Checked by inspection | N/A |
| **4.7** | **Equipment for direct insertion into mains socket–outlets** | | N/A |
| 4.7.2 | Mains plug part complies with relevant standard .. : | Not for direct insertion into socket-outlets | N/A |
| 4.7.3 | Torque (Nm) ..... : | See above | N/A |
| **4.8** | **Equipment containing coin/button cell batteries** | | N/A |
| 4.8.1 | General | No batteries | N/A |
| 4.8.2 | Instructional safeguard ..... : | None | N/A |
| 4.8.3 | Battery compartment door/cover construction | | N/A |
| | Open torque test | | N/A |
| 4.8.4.2 | Stress relief test | | N/A |
| 4.8.4.3 | Battery replacement test | | N/A |
| 4.8.4.4 | Drop test | | N/A |
| 4.8.4.5 | Impact test | | N/A |
| 4.8.4.6 | Crush test | | N/A |
| 4.8.5 | Compliance | | N/A |
| | 30N force test with test probe | | N/A |
| | 20N force test with test hook | | N/A |
| **4.9** | **Likelihood of fire or shock due to entry of conductive object** | | P |
| **4.10** | **Component requirements** | | P |
| 4.10.1 | Disconnect Device | (See Annex L) | P |
| 4.10.2 | Switches and relays | (See Annex G) | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **5** | **ELECTRICALLY-CAUSED INJURY** | | P |
| **5.2** | **Classification and limits of electrical energy sources** | | P |
| 5.2.2 | ES1, ES2 and ES3 limits | | P |
| 5.2.2.2 | Steady-state voltage and current limits .....: | Certified Power Supply used | P |
| 5.2.2.3 | Capacitance limits .....: | Certified Power Supply used | P |
| 5.2.2.4 | Single pulse limits .....: | No pulses | 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** | | P |
| 5.3.1 | General Requirements for accessible parts to ordinary, instructed and skilled persons | | P |
| 5.3.1 a) | Accessible ES1/ES2 derived from ES2/ES3 circuits | Certified Power Supply used | P |
| 5.3.1 b) | Skilled persons not unintentional contact ES3 bare conductors | No bare ES3 conductors | P |
| 5.3.2.1 | Accessibility to electrical energy sources and safeguards | Certified Power Supply used, no bare ES2 or ES3 parts | P |
| | Accessibility to outdoor equipment bare parts | Not for outdoor use | N/A |
| 5.3.2.2 | Contact requirements | | N/A |
| | Test with test probe from Annex V | Certified Power Supply used | — |
| 5.3.2.2 a) | Air gap – electric strength test potential (V) .....: | Certified Power Supply used | N/A |
| 5.3.2.2 b) | Air gap – distance (mm) .....: | Certified Power Supply used | N/A |
| 5.3.2.3 | Compliance | | N/A |
| 5.3.2.4 | Terminals for connecting stripped wire | No such terminals | N/A |
| **5.4** | **Insulation materials and requirements** | | P |
| 5.4.1.2 | Properties of insulating material | Certified Power Supply used | P |
| 5.4.1.3 | Material is non-hygroscopic | Non-hygroscopic materials used | P |
| 5.4.1.4 | Maximum operating temperature for insulating materials .....: | Certified Power Supply used | N/A |
| 5.4.1.5 | Pollution degrees .....: | PD2 | P |
| 5.4.1.5.2 | Test for pollution degree 1 environment and for an insulating compound | Not PD1 | N/A |
| 5.4.1.5.3 | Thermal cycling test | | N/A |
| 5.4.1.6 | Insulation in transformers with varying dimensions | Certified Power Supply used | N/A |
| 5.4.1.7 | Insulation in circuits generating starting pulses | No stating pulses | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.1.8 | Determination of working voltage .....: | Certified Power Supply used | N/A |
| 5.4.1.9 | Insulating surfaces | No such surfaces | N/A |
| 5.4.1.10 | Thermoplastic parts on which conductive metallic parts are directly mounted | None used | N/A |
| 5.4.1.10.2 | Vicat test.....: | See above | N/A |
| 5.4.1.10.3 | Ball pressure test .....: | See above | N/A |
| 5.4.2 | Clearances | Certified Power Supply used | N/A |
| 5.4.2.1 | General requirements | | N/A |
| | Clearances in circuits connected to AC Mains, Alternative method | | N/A |
| 5.4.2.2 | Procedure 1 for determining clearance | | N/A |
| | Temporary overvoltage .....: | 2000 Vpk | — |
| 5.4.2.3 | Procedure 2 for determining clearance | | N/A |
| 5.4.2.3.2.2 | a.c. mains transient voltage.....: | 2500 V | — |
| 5.4.2.3.2.3 | d.c. mains transient voltage .....: | AC Mains | — |
| 5.4.2.3.2.4 | External circuit transient voltage.....: | No such circuits | — |
| 5.4.2.3.2.5 | Transient voltage determined by measurement .....: | See above | — |
| 5.4.2.4 | Determining the adequacy of a clearance using an electric strength test .....: | Certified Power Supply used | N/A |
| 5.4.2.5 | Multiplication factors for clearances and test voltages .....: | Not for over 2000 m | N/A |
| 5.4.2.6 | Clearance measurement .....: | See above | N/A |
| 5.4.3 | Creepage distances | | N/A |
| 5.4.3.1 | General | | N/A |
| 5.4.3.3 | Material group .....: | IIIb assumed | — |
| 5.4.3.4 | Creepage distances measurement .....: | Certified Power Supply used | N/A |
| 5.4.4 | Solid insulation | | N/A |
| 5.4.4.1 | General requirements | | N/A |
| 5.4.4.2 | Minimum distance through insulation .....: | Certified Power Supply used | N/A |
| 5.4.4.3 | Insulating 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 |
| 5.4.4.6.1 | General requirements | | N/A |
| 5.4.4.6.2 | Separable thin sheet material | | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Number of layers (pcs) .....: | See above | N/A |
| 5.4.4.6.3 | Non-separable thin sheet material | | N/A |
| | Number of layers (pcs) ..... : | See above | N/A |
| 5.4.4.6.4 | Standard test procedure for non-separable thin sheet material ..... : | See above | 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, $E_P$, $K_R$, $d$, $V_{PW}$ (V) ..... : | See above | N/A |
| | Alternative by electric strength test, tested voltage (V), $K_R$ ..... : | See above | N/A |
| 5.4.5 | Antenna terminal insulation | No antenna terminal | N/A |
| 5.4.5.1 | General | | N/A |
| 5.4.5.2 | Voltage surge test | | N/A |
| 5.4.5.3 | Insulation resistance (MΩ)..... : | See above | N/A |
| | Electric strength test .....: | See above | 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 | | N/A |
| | Relative humidity (%), temperature (°C), duration (h) ..... : | Certified Power Supply used | — |
| 5.4.9 | Electric strength test | | P |
| 5.4.9.1 | Test procedure for type test of solid insulation.....: | (See appended table 5.4.9) | P |
| 5.4.9.2 | Test procedure for routine test | Manufacturer's responsibility | P |
| 5.4.10 | Safeguards against transient voltages from external circuits | No such circuit | 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 ..... : | No impulse | N/A |
| 5.4.10.2.3 | Steady-state test..... : | See above | N/A |
| 5.4.10.3 | Verification for insulation breakdown for impulse test ..... : | See above | N/A |
| 5.4.11 | Separation between external circuits and earth | No such circuit | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.4.11.1 | Exceptions to separation between external circuits and earth | | N/A |
| 5.4.11.2 | Requirements | | N/A |
| | SPDs bridge separation between external circuit and earth | | N/A |
| | Rated operating voltage $U_{op}$ (V) ..... : | See above | — |
| | Nominal voltage $U_{peak}$ (V) ..... : | See above | — |
| | Max increase due to variation $\Delta U_{sp}$ ..... : | See above | — |
| | Max increase due to ageing $\Delta U_{sa}$ ..... : | See above | — |
| 5.4.11.3 | Test method and compliance ..... : | See above | N/A |
| 5.4.12 | Insulating liquid | None | N/A |
| 5.4.12.1 | General requirements | | N/A |
| 5.4.12.2 | Electric strength of an insulating liquid ..... : | See above | N/A |
| 5.4.12.3 | Compatibility of an insulating liquid ..... : | See above | N/A |
| 5.4.12.4 | Container for insulating liquid ..... : | See above | N/A |
| **5.5** | **Components as safeguards** | | P |
| 5.5.1 | General | | P |
| 5.5.2 | Capacitors and RC units | Certified Power Supply used | N/A |
| 5.5.2.1 | General requirement | | N/A |
| 5.5.2.2 | Safeguards against capacitor discharge after disconnection of a connector ..... : | AC: (See appended table 5.5.2.2)<br>DC: N/A | P |
| 5.5.3 | Transformers | Certified power supply used | N/A |
| 5.5.4 | Optocouplers | Certified power supply used | N/A |
| 5.5.5 | Relays | Certified power supply used | N/A |
| 5.5.6 | Resistors | Certified power supply used | N/A |
| 5.5.7 | SPDs | Certified power supply used | N/A |
| 5.5.8 | Insulation between the mains and an external circuit consisting of a coaxial cable ..... : | No coaxial cable | N/A |
| 5.5.9 | Safeguards for socket-outlets in outdoor equipment | Not for outdoor | N/A |
| | RCD rated residual operating current (mA) ..... : | See above | — |
| **5.6** | **Protective conductor** | | P |
| 5.6.2 | Requirement for protective conductors | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.6.2.1 | General requirements | Protective conductor does not contain switches, current limiting devices, or overcurrent devices, part of Certified Cord Set | P |
| 5.6.2.2 | Colour of insulation | Certified Power Supply used | P |
| 5.6.3 | Requirement for protective earthing conductors | See above | P |
| | Protective earthing conductor size ($mm^2$) ..... : | See above | — |
| | Protective earthing conductor serving as a reinforced safeguard | | N/A |
| | Protective earthing conductor serving as a double safeguard | | N/A |
| 5.6.4 | Requirements for protective bonding conductors | Certified Power Supply used | N/A |
| 5.6.4.1 | Protective bonding conductors | | N/A |
| | Protective bonding conductor size ($mm^2$). ..... : | N/A | — |
| 5.6.4.2 | Protective current rating (A)..... : | N/A | N/A |
| 5.6.5 | Terminals for protective conductors | Certified Power Supply used | N/A |
| 5.6.5.1 | Terminal size for connecting protective earthing conductors (mm)..... : | See above | P |
| | Terminal size for connecting protective bonding conductors (mm) .....: | See above | N/A |
| 5.6.5.2 | Corrosion | No combinations of Annex J | P |
| 5.6.6 | Resistance of the protective bonding system | | P |
| 5.6.6.1 | Requirements | | P |
| 5.6.6.2 | Test Method..... : | (See appended table 5.6.6) | P |
| 5.6.6.3 | Resistance (Ω) or voltage drop..... : | (See appended table 5.6.6) | P |
| 5.6.7 | Reliable connection of a protective earthing conductor | | P |
| 5.6.8 | Functional earthing | No functional earthing | N/A |
| | Conductor size ($mm^2$)..... : | N/A | N/A |
| | Class II with functional earthing marking ..... : | N/A | N/A |
| | Appliance inlet cl & cr (mm)..... : | N/A | N/A |
| **5.7** | **Prospective touch voltage, touch current and protective conductor current** | | P |
| 5.7.2 | Measuring devices and networks | | P |
| 5.7.2.1 | Measurement of touch current | Test conducted | P |
| 5.7.2.2 | Measurement of voltage | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.7.3 | Equipment set-up, supply connections and earth connections | | P |
| 5.7.4 | Unearthed accessible parts ..... : | None | N/A |
| 5.7.5 | Earthed accessible conductive parts ..... : | (See appended table 5.7.5) | P |
| 5.7.6 | Requirements when touch current exceeds ES2 limits | Does not exceed limits | N/A |
| | Protective conductor current (mA)..... : | See above | N/A |
| | Instructional Safeguard..... : | See above | N/A |
| 5.7.7 | Prospective touch voltage and touch current associated with external circuits | No coaxial cables | N/A |
| 5.7.7.1 | Touch current from coaxial cables | | N/A |
| 5.7.7.2 | Prospective touch voltage and touch current associated with paired conductor cables | | N/A |
| 5.7.8 | Summation of touch currents from external circuits | | N/A |
| | a) Equipment connected to earthed external circuits, current (mA) ..... : | N/A | N/A |
| | b) Equipment connected to unearthed external circuits, current (mA) ..... : | N/A | N/A |
| **5.8** | **Backfeed safeguard in battery backed up supplies** | | N/A |
| | Mains terminal ES.....: | No battery backed up supply | N/A |
| | Air gap (mm).....: | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **6** | **ELECTRICALLY- CAUSED FIRE** | | P |
| **6.2** | **Classification of PS and PIS** | | P |
| 6.2.2 | Power source circuit classifications.....: | PS3 | P |
| 6.2.3 | Classification of potential ignition sources | Certified Power Supply used | P |
| 6.2.3.1 | Arcing PIS .....: | Certified Power Supply used | N/A |
| 6.2.3.2 | Resistive PIS .....: | Certified Power Supply used | N/A |
| **6.3** | **Safeguards against fire under normal operating and abnormal operating conditions** | | P |
| 6.3.1 | No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials ..... : | (See appended table B.1.5 and B.3) | P |
| | Combustible materials outside fire enclosure .....: | No such material | N/A |
| **6.4** | **Safeguards against fire under single fault conditions** | | P |
| 6.4.1 | Safeguard method | Certified Components used, does not exceed 4000 W | P |
| 6.4.2 | Reduction of the likelihood of ignition under single fault conditions in PS1 circuits | No PS1 | N/A |
| 6.4.3 | Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits | | P |
| 6.4.3.1 | Supplementary safeguards | Certified Components used | P |
| 6.4.3.2 | Single Fault Conditions ..... : | Test conducted | P |
| | Special conditions for temperature limited by fuse | | N/A |
| 6.4.4 | Control of fire spread in PS1 circuits | No PS1 | N/A |
| 6.4.5 | Control of fire spread in PS2 circuits | | P |
| 6.4.5.2 | Supplementary safeguards | | N/A |
| 6.4.6 | Control of fire spread in PS3 circuits | Certified Components used | N/A |
| 6.4.7 | Separation of combustible materials from a PIS | | P |
| 6.4.7.2 | Separation by distance | | P |
| 6.4.7.3 | Separation by a fire barrier | | N/A |
| 6.4.8 | Fire enclosures and fire barriers | | P |
| 6.4.8.2 | Fire enclosure and fire barrier material properties | | P |
| 6.4.8.2.1 | Requirements for a fire barrier | | P |
| 6.4.8.2.2 | Requirements for a fire enclosure | | P |
| 6.4.8.3 | Constructional requirements for a fire enclosure and a fire barrier | | P |
| 6.4.8.3.1 | Fire enclosure and fire barrier openings | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.4.8.3.2 | Fire barrier dimensions | | N/A |
| 6.4.8.3.3 | Top openings and properties | No top openings | N/A |
| | Openings dimensions (mm)..... : | See above | N/A |
| 6.4.8.3.4 | Bottom openings and properties | No bottom openings | N/A |
| | Openings dimensions (mm)..... : | See above | N/A |
| | Flammability tests for the bottom of a fire enclosure | N/A | N/A |
| | Instructional Safeguard.....: | N/A | N/A |
| 6.4.8.3.5 | Side openings and properties | | P |
| | Openings dimensions (mm)..... : | Certified Power Supply used | N/A |
| 6.4.8.3.6 | Integrity of a fire enclosure, condition met: a), b) or c)..... : | No door or cover | N/A |
| 6.4.8.4 | Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating ..... : | Certified Power Supply used | N/A |
| 6.4.9 | Flammability of insulating liquid.....: | No insulating liquids | N/A |
| **6.5** | **Internal and external wiring** | | P |
| 6.5.1 | General requirements | | P |
| 6.5.2 | Requirements for interconnection to building wiring ..... : | Not intended to provide power | N/A |
| 6.5.3 | Internal wiring size ($mm^2$) for socket-outlets..... : | No socket-outlets | N/A |
| **6.6** | **Safeguards against fire due to the connection to additional equipment** | | N/A |

| | | | |
|---|---|---|---|
| **7** | **INJURY CAUSED BY HAZARDOUS SUBSTANCES** | | N/A |
| **7.2** | **Reduction of exposure to hazardous substances** | | N/A |
| **7.3** | **Ozone exposure** | | N/A |
| **7.4** | **Use of personal safeguards or personal protective equipment (PPE)** | | N/A |
| | Personal safeguards and instructions ..... : | No PPE | — |
| **7.5** | **Use of instructional safeguards and instructions** | | N/A |
| | Instructional safeguard (ISO 7010)..... : | N/A | — |
| **7.6** | **Batteries and their protection circuits** | | N/A |

| | | | |
|---|---|---|---|
| **8** | **MECHANICALLY-CAUSED INJURY** | | P |
| **8.2** | **Mechanical energy source classifications** | | P |
| **8.3** | **Safeguards against mechanical energy sources** | | P |
| **8.4** | **Safeguards against parts with sharp edges and corners** | | P |
| 8.4.1 | Safeguards | No sharp edges or corners | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Instructional Safeguard.....: | See above | N/A |
| 8.4.2 | Sharp edges or corners | | N/A |
| **8.5** | **Safeguards against moving parts** | | N/A |
| 8.5.1 | Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts | Moving parts enclosed | N/A |
| | MS2 or MS3 part required to be accessible for the function of the equipment | No such part | N/A |
| | Moving MS3 parts only accessible to skilled person | Obvious and guarded | N/A |
| 8.5.2 | Instructional safeguard.....: | See above | N/A |
| 8.5.4 | Special categories of equipment containing moving parts | Not large data storage equipment | N/A |
| 8.5.4.1 | General | | 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 |
| 8.5.4.2.2.1 | Override system | | N/A |
| 8.5.4.2.2.2 | Visual indicator | | N/A |
| 8.5.4.2.3 | Emergency stop system | | N/A |
| | Maximum stopping distance from the point of activation (m).....: | | N/A |
| | Space between end point and nearest fixed mechanical part (mm) .....: | | N/A |
| 8.5.4.2.4 | Endurance requirements | | N/A |
| | Mechanical system subjected to 100 000 cycles of operation | | N/A |
| | - Mechanical function check and visual inspection | | N/A |
| | - Cable assembly .....: | No such equipment | N/A |
| 8.5.4.3 | Equipment having electromechanical device for destruction of media | | N/A |
| 8.5.4.3.1 | Equipment safeguards | | N/A |
| 8.5.4.3.2 | Instructional safeguards against moving parts .....: | None | N/A |
| 8.5.4.3.3 | Disconnection from the supply | | N/A |
| 8.5.4.3.4 | Cut type and test force (N).....: | None | N/A |
| 8.5.4.3.5 | Compliance | | N/A |
| 8.5.5 | High pressure lamps | No high pressure lamps | N/A |
| | Explosion test.....: | N/A | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.5.5.3 | Glass particles dimensions (mm) .....: | None | N/A |
| **8.6** | **Stability of equipment** | | P |
| 8.6.1 | General | MS2 | P |
| | Instructional safeguard.....: | Not a television set | N/A |
| 8.6.2 | Static stability | | P |
| 8.6.2.2 | Static stability test .....: | 250N | P |
| 8.6.2.3 | Downward force test | Complies | P |
| 8.6.3 | Relocation stability | | P |
| | Wheels diameter (mm) .....: | Complies | — |
| | Tilt test | | P |
| 8.6.4 | Glass slide test | | N/A |
| 8.6.5 | Horizontal force test.....: | No controls | N/A |
| **8.7** | **Equipment mounted to wall, ceiling or other structure** | | N/A |
| 8.7.1 | Mount means type .....: | Not wall or ceiling mounted | N/A |
| 8.7.2 | Test methods | | N/A |
| | Test 1, additional downwards force (N).....: | N/A | N/A |
| | Test 2, number of attachment points and test force (N).....: | N/A | N/A |
| | Test 3 Nominal diameter (mm) and applied torque (Nm).....: | N/A | N/A |
| **8.8** | **Handles strength** | | P |
| 8.8.1 | General | | P |
| 8.8.2 | Handle strength test | | P |
| | Number of handles.....: | 1 | — |
| | Force applied (N) .....: | 320N | — |
| **8.9** | **Wheels or casters attachment requirements** | | N/A |
| 8.9.2 | Pull test | Not moved during normal operation | N/A |
| **8.10** | **Carts, stands and similar carriers** | | N/A |
| 8.10.1 | General | No carts, stands, or similar carriers | N/A |
| 8.10.2 | Marking and instructions.....: | See above | N/A |
| 8.10.3 | Cart, stand or carrier loading test | | N/A |
| | Loading force applied (N) .....: | See above | N/A |
| 8.10.4 | Cart, stand or carrier impact test | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.10.5 | Mechanical stability | | N/A |
| | Force applied (N) .....: | See above | — |
| 8.10.6 | Thermoplastic temperature stability | | N/A |
| **8.11** | **Mounting means for slide-rail mounted equipment (SRME)** | | N/A |
| 8.11.1 | General | No slide rail mounted | N/A |
| 8.11.2 | Requirements for slide rails | | N/A |
| | Instructional Safeguard.....: | See above | N/A |
| 8.11.3 | Mechanical strength test | | N/A |
| 8.11.3.1 | Downward force test, force (N) applied.....: | See above | N/A |
| 8.11.3.2 | Lateral push force test | | N/A |
| 8.11.3.3 | Integrity of slide rail end stops | | N/A |
| 8.11.4 | Compliance | | N/A |
| **8.12** | **Telescoping or rod antennas** | | N/A |
| | Button/ball diameter (mm) .....: | No antennas | — |
| **9** | **THERMAL BURN INJURY** | | P |
| **9.2** | **Thermal energy source classifications** | | P |
| **9.3** | **Touch temperature limits** | | P |
| 9.3.1 | Touch temperatures of accessible parts.....: | TS1 | P |
| 9.3.2 | Test method and compliance | | P |
| **9.4** | **Safeguards against thermal energy sources** | | N/A |
| **9.5** | **Requirements for safeguards** | | N/A |
| 9.5.1 | Equipment safeguard | TS1; no safeguard required | N/A |
| 9.5.2 | Instructional safeguard.....: | See above | N/A |
| **9.6** | **Requirements for wireless power transmitters** | | N/A |
| 9.6.1 | General | Not wireless power transmitter | N/A |
| 9.6.2 | Specification of the foreign objects | | N/A |
| 9.6.3 | Test method and compliance .....: | See above | N/A |
| **10** | **RADIATION** | | P |
| **10.2** | **Radiation energy source classification** | | P |
| 10.2.1 | General classification | Low power LEDs used for indicating light purpose, considered as RS1 (exempted group per IEC 62471-1). | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Lasers ..... : | None | — |
| | Lamps and lamp systems ..... : | Indicating LEDs only | — |
| | Image projectors ..... : | No image projectors | — |
| | X-Ray ..... : | No x-ray | — |
| | Personal music player ..... : | Not a personal music player | — |
| **10.3** | **Safeguards against laser radiation** | | |
| | The standard(s) equipment containing laser(s) comply .....: | See above | N/A |
| **10.4** | **Safeguards against optical radiation from lamps and lamp systems (including LED types)** | | N/A |
| 10.4.1 | General requirements | Indicating LEDs only | N/A |
| | Instructional safeguard provided for accessible radiation level needs to exceed | | N/A |
| | Risk group marking and location .....: | N/A | N/A |
| | Information for safe operation and installation | | N/A |
| 10.4.2 | Requirements for enclosures | | N/A |
| | UV radiation exposure .....: | N/A | N/A |
| 10.4.3 | Instructional safeguard ..... : | N/A | N/A |
| **10.5** | **Safeguards against X-radiation** | | N/A |
| 10.5.1 | Requirements | No x-radiation | N/A |
| | Instructional safeguard for skilled persons ..... : | N/A | — |
| 10.5.3 | Maximum radiation (pA/kg)..... : | N/A | — |
| **10.6** | **Safeguards against acoustic energy sources** | | N/A |
| 10.6.1 | General | No acoustic energy sources | N/A |
| 10.6.2 | Classification | | N/A |
| | Acoustic output $L_{Aeq,T}$, dB(A).....: | N/A | N/A |
| | Unweighted RMS output voltage (mV).....: | N/A | N/A |
| | Digital output signal (dBFS).....: | N/A | N/A |
| 10.6.3 | Requirements for dose-based systems | | N/A |
| 10.6.3.1 | General requirements | | N/A |
| 10.6.3.2 | Dose-based warning and automatic decrease | | N/A |
| 10.6.3.3 | Exposure-based warning and requirements | | N/A |
| | 30 s integrated exposure level (MEL30) .....: | N/A | N/A |
| | Warning for MEL ≥ 100 dB(A) .....: | N/A | N/A |
| 10.6.4 | Measurement methods | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 10.6.5 | Protection of persons | | N/A |
| | Instructional safeguards ..... : | N/A | N/A |
| 10.6.6 | Requirements for listening devices (headphones, earphones, etc.) | | N/A |
| 10.6.6.1 | Corded listening devices with analogue input | | N/A |
| | Listening device input voltage (mV)..... : | N/A | N/A |
| 10.6.6.2 | Corded listening devices with digital input | | N/A |
| | Max. acoustic output $L_{Aeq,T}$, dB(A) .....: | N/A | N/A |
| 10.6.6.3 | Cordless listening devices | | N/A |
| | Max. acoustic output $L_{Aeq,T}$, dB(A) .....: | N/A | N/A |

| | | | |
|---|---|---|---|
| **B** | **NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS** | | P |
| **B.1** | **General** | | P |
| B.1.5 | Temperature measurement conditions | (See appended table B.1.5) | P |
| **B.2** | **Normal operating conditions** | | P |
| B.2.1 | General requirements..... : | (See Test Item Particulars and appended test tables) | P |
| | Audio Amplifiers and equipment with audio amplifiers ..... : | No audio amplifiers | N/A |
| B.2.3 | Supply voltage and tolerances | AC Input: +10%, -10% | P |
| B.2.5 | Input test..... : | (See appended table B.2.5) | P |
| **B.3** | **Simulated abnormal operating conditions** | | P |
| B.3.1 | General | | P |
| B.3.2 | Covering of ventilation openings | | P |
| | Instructional safeguard ..... : | Not used on a soft support | N/A |
| B.3.3 | DC mains polarity test | AC Mains | N/A |
| B.3.4 | Setting of voltage selector | No such device | N/A |
| B.3.5 | Maximum load at output terminals | No such terminals | N/A |
| B.3.6 | Reverse battery polarity | No batteries | N/A |
| B.3.7 | Audio amplifier abnormal operating conditions | No audio amplifier | N/A |
| B.3.8 | Safeguards functional during and after abnormal operating conditions ..... : | (See appended table B.3) | P |
| **B.4** | **Simulated single fault conditions** | | P |
| B.4.1 | General | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| B.4.2 | Temperature controlling device | No such device | N/A |
| B.4.3 | Blocked motor test | | N/A |
| B.4.4 | Functional insulation | | N/A |
| B.4.4.1 | Short circuit of clearances for functional insulation | | N/A |
| B.4.4.2 | Short circuit of creepage distances for functional insulation | | N/A |
| B.4.4.3 | Short circuit of functional insulation on coated printed boards | No coating | N/A |
| B.4.5 | Short-circuit and interruption of electrodes in tubes and semiconductors | No electrodes in tubes or semiconductors | N/A |
| B.4.6 | Short circuit or disconnection of passive components | | N/A |
| B.4.7 | Continuous operation of components | Continuous operation only | N/A |
| B.4.8 | Compliance during and after single fault conditions ..... : | (See appended table B.4) | P |
| B.4.9 | Battery charging and discharging under single fault conditions | (See Annex M) | N/A |
| **C** | **UV RADIATION** | | N/A |
| **C.1** | **Protection of materials in equipment from UV radiation** | | N/A |
| C.1.2 | Requirements | No UV radiation | N/A |
| C.1.3 | Test method | | N/A |
| **C.2** | **UV light conditioning test** | | N/A |
| C.2.1 | Test apparatus..... : | N/A | N/A |
| C.2.2 | Mounting of test samples | | N/A |
| C.2.3 | Carbon-arc light-exposure test | | N/A |
| C.2.4 | Xenon-arc light-exposure test | | N/A |
| **D** | **TEST GENERATORS** | | N/A |
| **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 CONTAINING AUDIO AMPLIFIERS** | | N/A |
| **E.1** | **Electrical energy source classification for audio signals** | | N/A |
| | Maximum non-clipped output power (W)..... : | No audio amplifiers | — |
| | Rated load impedance (Ω) ..... : | N/A | — |
| | Open-circuit output voltage (V)..... : | N/A | — |
| | Instructional safeguard ..... : | N/A | — |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| **E.2** | **Audio amplifier normal operating conditions** | | N/A |
| | Audio signal source type ..... : | N/A | — |
| | Audio output power (W)..... : | N/A | — |
| | Audio output voltage (V) ..... : | N/A | — |
| | Rated load impedance (Ω) ..... : | N/A | — |
| | Requirements for temperature measurement | | N/A |
| E.3 | Audio amplifier abnormal operating conditions | | N/A |
| **F** | **EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS** | | P |
| **F.1** | **General** | | P |
| | Language ..... : | English evaluated | — |
| **F.2** | **Letter symbols and graphical symbols** | | P |
| F.2.1 | Letter symbols according to IEC60027-1 | | P |
| F.2.2 | Graphic symbols according to IEC, ISO or manufacturer specific | | P |
| **F.3** | **Equipment markings** | | P |
| F.3.1 | Equipment marking locations | Marking located near part or region that is subject of the marking, not on parts that can be removed without the use of a tool | P |
| F.3.2 | Equipment identification markings | | P |
| F.3.2.1 | Manufacturer identification ..... : | VotingWorks | P |
| F.3.2.2 | Model identification ..... : | VxScan | P |
| F.3.3 | Equipment rating markings | AC Input: 115 - 120 Vac, 60 Hz, 6.5 A max | P |
| F.3.3.1 | Equipment with direct connection to mains | | P |
| F.3.3.2 | Equipment without direct connection to mains | | N/A |
| F.3.3.3 | Nature of the supply voltage..... : | AC, frequency indicated | P |
| F.3.3.4 | Rated voltage ..... : | 115 - 120 Vac | P |
| F.3.3.5 | Rated frequency ..... : | 60 Hz | P |
| F.3.3.6 | Rated current or rated power..... : | 6.5 A | P |
| F.3.3.7 | Equipment with multiple supply connections | | N/A |
| F.3.4 | Voltage setting device | No such device | N/A |
| F.3.5 | Terminals and operating devices | | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| F.3.5.1 | Mains appliance outlet and socket-outlet markings ..... : | No outlets | N/A |
| F.3.5.2 | Switch position identification marking..... : | No such switch | N/A |
| F.3.5.3 | Replacement fuse identification and rating markings ..... : | No replacement fuses | N/A |
| | Instructional safeguards for neutral fuse ..... : | N/A | N/A |
| F.3.5.4 | Replacement battery identification marking ..... : | None used | N/A |
| F.3.5.5 | Neutral conductor terminal | Not permanently connected | N/A |
| F.3.5.6 | Terminal marking location | | P |
| F.3.6 | Equipment markings related to equipment classification | | P |
| F.3.6.1 | Class I equipment | | P |
| F.3.6.1.1 | Protective earthing conductor terminal..... : | Part of Certified Power Cord Set | P |
| F.3.6.1.2 | Protective bonding conductor terminals ..... : | No such terminal | N/A |
| F.3.6.2 | Equipment class marking ..... : | Not Class II | N/A |
| F.3.6.3 | Functional earthing terminal marking ..... : | No functional earthing | N/A |
| F.3.7 | Equipment IP rating marking ..... : | IPX0 | N/A |
| F.3.8 | External power supply output marking ..... : | No Power Supply output | N/A |
| F.3.9 | Durability, legibility and permanence of marking | | P |
| F.3.10 | Test for permanence of markings | | P |
| **F.4** | **Instructions** | | P |
| | a) Information prior to installation and initial use | | P |
| | b) Equipment for use in locations where children not likely to be present | | N/A |
| | c) Instructions for installation and interconnection | | P |
| | d) Equipment intended for use only in restricted access area | | N/A |
| | e) Equipment intended to be fastened in place | | N/A |
| | f) Instructions for audio equipment terminals | No audio equipment | N/A |
| | g) Protective earthing used as a safeguard | | P |
| | h) Protective conductor current exceeding ES2 limits | Does not exceed limits | N/A |
| | i) Graphic symbols used on equipment | | P |
| | j) Permanently connected equipment not provided with all-pole mains switch | | N/A |
| | k) Replaceable components or modules providing safeguard function | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | l) Equipment containing insulating liquid | No insulating liquid | N/A |
| | m) Installation instructions for outdoor equipment | Not for outdoor installation | N/A |
| **F.5** | Instructional safeguards | | P |
| **G** | **COMPONENTS** | | P |
| **G.1** | **Switches** | | N/A |
| G.1.1 | General | No switches | N/A |
| G.1.2 | Ratings, endurance, spacing, maximum load | | N/A |
| G.1.3 | Test method and compliance | | N/A |
| **G.2** | **Relays** | | N/A |
| G.2.1 | Requirements | No relays outside of Certified Power Supply | N/A |
| G.2.2 | Overload test | | N/A |
| G.2.3 | Relay controlling connectors supplying power to other equipment | | N/A |
| G.2.4 | Test method and compliance | | N/A |
| **G.3** | **Protective devices** | | P |
| G.3.1 | Thermal cut-offs | No thermal cut-offs | N/A |
| | Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b) | | N/A |
| | Thermal cut-outs tested as part of the equipment as indicated in c) | | N/A |
| G.3.1.2 | Test method and compliance | | N/A |
| G.3.2 | Thermal links | No thermal links | N/A |
| G.3.2.1 | a) Thermal links tested separately according to IEC 60691 with specifics | | N/A |
| | b) Thermal links tested as part of the equipment | | N/A |
| G.3.2.2 | Test method and compliance | | N/A |
| G.3.3 | PTC thermistors | No PTC | N/A |
| G.3.4 | Overcurrent protection devices | Certified Power Supply used | P |
| G.3.5 | Safeguards components not mentioned in G.3.1 to G.3.4 | | N/A |
| G.3.5.1 | Non-resettable devices suitably rated and marking provided | No other Components used as safeguard | N/A |
| G.3.5.2 | Single faults conditions..... : | See above | N/A |
| **G.4** | **Connectors** | | P |
| G.4.1 | Spacings | Certified Components used | P |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.4.2 | Mains connector configuration ..... : | Certified Power Cord Set used | P |
| G.4.3 | Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely | | P |
| **G.5** | **Wound components** | | N/A |
| G.5.1 | Wire insulation in wound components | Certified Power Supply used | N/A |
| G.5.1.2 | Protection against mechanical stress | | N/A |
| G.5.2 | Endurance test | | N/A |
| G.5.2.1 | General test requirements | | N/A |
| G.5.2.2 | Heat run test | | N/A |
| | Test time (days per cycle) ..... : | See above | — |
| | Test temperature (°C)..... : | See above | — |
| G.5.2.3 | Wound components supplied from the mains | | N/A |
| G.5.2.4 | No insulation breakdown | | N/A |
| G.5.3 | Transformers | | N/A |
| G.5.3.1 | Compliance method..... : | See above | N/A |
| | Position..... : | See above | N/A |
| | Method of protection..... : | See above | N/A |
| G.5.3.2 | Insulation | | N/A |
| | Protection from displacement of windings..... : | See above | — |
| G.5.3.3 | Transformer overload tests | | N/A |
| G.5.3.3.1 | Test conditions | | N/A |
| G.5.3.3.2 | Winding temperatures | | N/A |
| G.5.3.3.3 | Winding temperatures - alternative test method | | N/A |
| G.5.3.4 | Transformers using FIW | | N/A |
| G.5.3.4.1 | General | | N/A |
| | FIW wire nominal diameter..... : | See above | — |
| G.5.3.4.2 | Transformers with basic insulation only | | N/A |
| G.5.3.4.3 | Transformers with double insulation or reinforced insulation..... : | See above | N/A |
| G.5.3.4.4 | Transformers with FIW wound on metal or ferrite core | | N/A |
| G.5.3.4.5 | Thermal cycling test and compliance | | N/A |
| G.5.3.4.6 | Partial discharge test | | N/A |
| G.5.3.4.7 | Routine test | | N/A |
| G.5.4 | Motors | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.5.4.1 | General requirements | | N/A |
| G.5.4.2 | Motor overload test conditions | | N/A |
| G.5.4.3 | Running overload test | | N/A |
| G.5.4.4.2 | Locked-rotor overload test | | N/A |
| | Test duration (days) ..... : | | — |
| G.5.4.5 | Running overload test for DC motors | | N/A |
| G.5.4.5.2 | Tested in the unit | | N/A |
| G.5.4.5.3 | Alternative method | | N/A |
| G.5.4.6 | Locked-rotor overload test for DC motors | | N/A |
| G.5.4.6.2 | Tested in the unit | | N/A |
| | Maximum Temperature ..... : | See above | N/A |
| G.5.4.6.3 | Alternative method | | 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 ..... : | See above | — |
| **G.6** | **Wire Insulation** | | P |
| G.6.1 | General | Certified Components used | P |
| G.6.2 | Enamelled winding wire insulation | | N/A |
| **G.7** | **Mains supply cords** | | N/A |
| G.7.1 | General requirements | Power Supply Cords not part of evaluation | N/A |
| | Type..... : | See above | — |
| G.7.2 | Cross sectional area ($mm^2$ or AWG) ..... : | See above | 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)..... : | See above | 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) ..... : | See above | N/A |
| G.7.3.2.4 | Strain relief and cord anchorage 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 + Test | Result - Remark | Verdict |
| G.7.5.1 | Requirements | | N/A |
| G.7.5.2 | Test method and compliance | | N/A |
| | Overall diameter or minor overall dimension, *D* (mm) ..... : | See above | — |
| | Radius of curvature after test (mm) ..... : | See above | — |
| G.7.6 | Supply wiring space | | N/A |
| G.7.6.1 | General requirements | | N/A |
| G.7.6.2 | Stranded wire | | N/A |
| G.7.6.2.1 | Requirements | | N/A |
| G.7.6.2.2 | Test with 8 mm strand | | N/A |
| **G.8** | **Varistors** | | N/A |
| G.8.1 | General requirements | No such Components outside of Certified Power Supply | N/A |
| G.8.2 | Safeguards against fire | | N/A |
| G.8.2.1 | General | | N/A |
| G.8.2.2 | Varistor overload test | | N/A |
| G.8.2.3 | Temporary overvoltage test | | N/A |
| **G.9** | **Integrated circuit (IC) current limiters** | | N/A |
| G.9.1 | Requirements | No IC current limiters | N/A |
| | IC limiter output current (max. 5A) ..... : | N/A | — |
| | Manufacturers' defined drift ..... : | N/A | — |
| G.9.2 | Test Program | | N/A |
| G.9.3 | Compliance | | N/A |
| **G.10** | **Resistors** | | N/A |
| G.10.1 | General | No such Components outside of Certified Power Supply | 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** | **Capacitors and RC units** | | N/A |
| G.11.1 | General requirements | No such Components outside of Certified Power Supply | N/A |
| G.11.2 | Conditioning of capacitors and RC units | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.11.3 | Rules for selecting capacitors | | N/A |
| **G.12** | **Optocouplers** | | N/A |
| | Optocouplers comply with IEC 60747-5-5 with specifics | No such Components outside of Certified Power Supply | N/A |
| | Type test voltage $V_{ini,a}$ ..... : | N/A | — |
| | Routine test voltage, $V_{ini,b}$ ..... : | N/A | — |
| **G.13** | **Printed boards** | Certified Components used | N/A |
| G.13.1 | General requirements | | N/A |
| G.13.2 | Uncoated printed boards | | N/A |
| G.13.3 | Coated printed boards | No coating | N/A |
| G.13.4 | Insulation between conductors on the same inner surface | | N/A |
| G.13.5 | Insulation between conductors on different surfaces | | N/A |
| | Distance through insulation ..... : | N/A | 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.13.6.2 | Test method and compliance | | N/A |
| **G.14** | **Coating on components terminals** | | N/A |
| G.14.1 | Requirements ..... : | (See Clause G.13) No coating | N/A |
| **G.15** | **Pressurized liquid filled components** | | N/A |
| G.15.1 | Requirements | No liquid filled components | N/A |
| G.15.2 | Test methods and compliance | | 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 | | N/A |
| **G.16** | **IC including capacitor discharge function (ICX)** | | N/A |
| G.16.1 | Condition for fault tested is not required | No ICX | N/A |
| | ICX with associated circuitry tested in equipment | | N/A |
| | ICX tested separately | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.16.2 | Tests | | N/A |
| | Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test..... : | N/A | — |
| | Mains voltage that impulses to be superimposed on ..... : | N/A | — |
| | Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test ..... : | N/A | — |
| G.16.3 | Capacitor discharge test..... : | N/A | N/A |
| **H** | **CRITERIA FOR TELEPHONE RINGING SIGNALS** | | N/A |
| **H.1** | **General** | | N/A |
| **H.2** | **Method A** | | N/A |
| **H.3** | **Method B** | | N/A |
| H.3.1 | Ringing signal | No telephone ringing signals | 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 | | N/A |
| H.3.2.2 | Tripping device | | N/A |
| H.3.2.3 | Monitoring voltage (V) ..... : | N/A | N/A |
| **J** | **INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION** | | P |
| **J.1** | **General** | | P |
| | Winding wire insulation..... : | Certified Power Supply used | — |
| | Solid round winding wire, diameter (mm)..... : | | N/A |
| | Solid square and rectangular (flatwise bending) winding wire, cross-sectional area ($mm^2$)..... : | | N/A |
| **J.2/J.3** | Tests and Manufacturing | | — |
| **K** | **SAFETY INTERLOCKS** | | N/A |
| **K.1** | **General requirements** | | N/A |
| | Instructional safeguard ..... : | No safety interlocks | 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 |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **K.5** | **Fail-safe** | | N/A |
| K.5.1 | Under single fault condition | | N/A |
| **K.6** | **Mechanically operated safety interlocks** | | N/A |
| K.6.1 | Endurance requirement | | N/A |
| K.6.2 | Test method and compliance ..... : | See above | N/A |
| **K.7** | **Interlock circuit isolation** | | N/A |
| K.7.1 | Separation distance for contact gaps & interlock circuit elements | | N/A |
| | In circuit connected to mains, separation distance for contact gaps (mm)..... : | See above | N/A |
| | In circuit isolated from mains, separation distance for contact gaps (mm)..... : | See above | N/A |
| | Electric strength test before and after the test of K.7.2 ..... : | See above | N/A |
| K.7.2 | Overload test, Current (A) ..... : | See above | N/A |
| K.7.3 | Endurance test | | N/A |
| K.7.4 | Electric strength test | | N/A |
| **L** | **DISCONNECT DEVICES** | | P |
| **L.1** | **General requirements** | Plug on Certified Power Supply Cord is considered disconnect device | P |
| **L.2** | **Permanently connected equipment** | Not permanently connected | N/A |
| **L.3** | **Parts that remain energized** | None remain energized | N/A |
| **L.4** | **Single-phase equipment** | Both poles disconnected simultaneously | P |
| **L.5** | **Three-phase equipment** | Single phase | N/A |
| **L.6** | **Switches as disconnect devices** | No such switch | N/A |
| **L.7** | **Plugs as disconnect devices** | In Manual | P |
| **L.8** | **Multiple power sources** | | N/A |
| | Instructional safeguard ..... : | Single power source | N/A |
| **M** | **EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS** | | N/A |
| **M.1** | **General requirements** | | N/A |
| **M.2** | **Safety of batteries and their cells** | | N/A |
| M.2.1 | Batteries and their cells comply with relevant IEC standards..... : | No Battery | N/A |
| **M.3** | **Protection circuits for batteries provided within the equipment** | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| M.3.1 | Requirements | | N/A |
| M.3.2 | Test method | | N/A |
| | Overcharging of a rechargeable battery | | N/A |
| | Excessive discharging | | N/A |
| | Unintentional charging of a non-rechargeable battery | | N/A |
| | Reverse charging of a rechargeable battery | | N/A |
| M.3.3 | Compliance | | N/A |
| **M.4** | **Additional safeguards for equipment containing a portable secondary lithium battery** | | N/A |
| M.4.1 | General | | N/A |
| M.4.2 | Charging safeguards | | N/A |
| M.4.2.1 | Requirements | | N/A |
| M.4.2.2 | Compliance..... : | See above | N/A |
| M.4.3 | Fire enclosure..... : | See above | N/A |
| M.4.4 | Drop test of equipment containing a secondary lithium battery | | N/A |
| M.4.4.2 | Preparation and procedure for the drop test | | N/A |
| M.4.4.3 | Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): ..... : | See above | N/A |
| M.4.4.4 | Check of the charge/discharge function | | N/A |
| M.4.4.5 | Charge / discharge cycle test | | N/A |
| M.4.4.6 | Compliance | | N/A |
| **M.5** | **Risk of burn due to short-circuit during carrying** | | N/A |
| M.5.1 | Requirement | | N/A |
| M.5.2 | Test method and compliance | | N/A |
| **M.6** | **Safeguards against short-circuits** | | N/A |
| M.6.1 | External and internal faults | | N/A |
| M.6.2 | Compliance | | 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 |
| | Calculated hydrogen generation rate ..... : | See above | N/A |
| M.7.2 | Test method and compliance | | N/A |
| | Minimum air flow rate, $Q$ ($m^3/h$)..... : | See above | N/A |
| M.7.3 | Ventilation tests | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| M.7.3.1 | General | | N/A |
| M.7.3.2 | Ventilation test – alternative 1 | | N/A |
| | Hydrogen gas concentration (%) ..... : | See above | N/A |
| M.7.3.3 | Ventilation test – alternative 2 | | N/A |
| | Obtained hydrogen generation rate ..... : | See above | N/A |
| M.7.3.4 | Ventilation test – alternative 3 | | N/A |
| | Hydrogen gas concentration (%) ..... : | See above | N/A |
| M.7.4 | Marking ..... : | See above | N/A |
| **M.8** | **Protection against internal ignition from external spark sources of batteries with aqueous electrolyte** | | N/A |
| M.8.1 | General | | N/A |
| M.8.2 | Test method | | N/A |
| M.8.2.1 | General | | N/A |
| M.8.2.2 | Estimation of hypothetical volume $V_Z$ ($m^3/s$) ..... : | See above | — |
| M.8.2.3 | Correction factors ..... : | See above | — |
| M.8.2.4 | Calculation of distance *d* (mm) ..... : | See above | — |
| **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 | | N/A |
| | Instructional safeguard ..... : | See above | N/A |
| **N** | **ELECTROCHEMICAL POTENTIALS** | | N/A |
| | Material(s) used ..... : | Aluminum | — |
| **O** | **MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES** | | N/A |
| | Value of *X* (mm) ..... : | N/A | — |
| **P** | **SAFEGUARDS AGAINST CONDUCTIVE OBJECTS** | | P |
| **P.1** | **General** | | P |
| **P.2** | **Safeguards against entry or consequences of entry of a foreign object** | | P |
| P.2.1 | General | Foreign object entry unlikely | P |
| P.2.2 | Safeguards against entry of a foreign object | | N/A |
| | Location and Dimensions (mm) ..... : | See above | — |
| P.2.3 | Safeguards against the consequences of entry of a foreign object | | N/A |
| P.2.3.1 | Safeguard requirements | | N/A |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment | Not transportable equipment | N/A |
| | Transportable equipment with metalized plastic parts..... : | Not transportable equipment | N/A |
| P.2.3.2 | Consequence of entry test..... : | See above | N/A |
| **P.3** | **Safeguards against spillage of internal liquids** | | N/A |
| P.3.1 | General | No internal liquids | N/A |
| P.3.2 | Determination of spillage consequences | | N/A |
| P.3.3 | Spillage safeguards | | N/A |
| P.3.4 | Compliance | | N/A |
| **P.4** | **Metallized coatings and adhesives securing parts** | | N/A |
| P.4.1 | General | No metallized coatings or adhesives securing parts | N/A |
| P.4.2 | Tests | | N/A |
| | Conditioning, $T_C$ (°C) ..... : | See above | — |
| | Duration (weeks) ..... : | See above | — |
| **Q** | **CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING** | | N/A |
| **Q.1** | **Limited power sources** | Not intended for interconnection with building wiring | N/A |
| Q.1.1 | Requirements | | N/A |
| | a) Inherently limited output | | N/A |
| | b) Impedance limited output | | N/A |
| | c) Regulating network limited output | | N/A |
| | d) Overcurrent protective device limited output | | N/A |
| | e) IC current limiter complying with G.9 | | N/A |
| Q.1.2 | Test method and compliance ..... : | See above | N/A |
| | Current rating of overcurrent protective device (A) ..... : | See above | N/A |
| **Q.2** | **Test for external circuits – paired conductor cable** | Does not supply power | N/A |
| | Maximum output current (A) ..... : | See above | N/A |
| | Current limiting method ..... : | See above | — |
| **R** | **LIMITED SHORT CIRCUIT TEST** | | N/A |
| **R.1** | **General** | | N/A |
| **R.2** | **Test setup** | | N/A |
| | Overcurrent protective device for test ..... : | See above | — |

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|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **R.3** | **Test method** | | N/A |
| | Cord/cable used for test ..... : | See above | — |
| **R.4** | **Compliance** | | N/A |
| **S** | **TESTS FOR RESISTANCE TO HEAT AND FIRE** | | N/A |
| **S.1** | **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..... : | Temperatures do not exceed limits | — |
| | Wall thickness (mm) ..... : | See above | — |
| | Conditioning (°C) ..... : | See above | — |
| | 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..... : | See above | — |
| | Wall thickness (mm) ..... : | See above | — |
| | Conditioning (°C) ..... : | See above | — |
| **S.3** | **Flammability test for the bottom of a fire enclosure** | | N/A |
| S.3.1 | Mounting of samples | | N/A |
| S.3.2 | Test method and compliance | | N/A |
| | Mounting of samples ..... : | See above | — |
| | Wall thickness (mm) ..... : | See above | — |
| **S.4** | **Flammability classification of materials** | | N/A |
| **S.5** | **Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W** | | N/A |
| | Samples, material..... : | See above | — |
| | Wall thickness (mm) ..... : | See above | — |
| | Conditioning (°C) ..... : | See above | — |
| **T** | **MECHANICAL STRENGTH TESTS** | | P |
| **T.1** | **General** | | P |
| **T.2** | **Steady force test, 10 N ..... :** | No Components serving as safeguards | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |
| **T.3** | **Steady force test, 30 N ..... :** | No accessible parts | N/A |
| **T.4** | **Steady force test, 100 N ..... :** | Not transportable, hand-held, or direct-plug-in equipment | N/A |
| **T.5** | **Steady force test, 250 N ..... :** | (See appended table T.5) | P |
| **T.6** | **Enclosure impact test** | (See appended table T.6) | P |
| | Fall test | | P |
| | Swing test | | N/A |
| **T.7** | **Drop test ..... :** | Not moveable, hand-held, direct plug-in, or transportable equipment | N/A |
| **T.8** | **Stress relief test..... :** | Noted | N/A |
| **T.9** | **Glass Impact Test .....:** | No glass | N/A |
| **T.10** | **Glass fragmentation test** | | N/A |
| | Number of particles counted.....: | No glass | N/A |
| **T.11** | **Test for telescoping or rod antennas** | | N/A |
| | Torque value (Nm) ..... : | No antennas | N/A |
| **U** | **MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION** | | N/A |
| **U.1** | **General** | | N/A |
| | Instructional safeguard **:** | No CRTs | N/A |
| **U.2** | **Test method and compliance for non-intrinsically protected CRTs** | | N/A |
| **U.3** | **Protective screen** | | N/A |
| **V** | **DETERMINATION OF ACCESSIBLE PARTS** | | P |
| **V.1** | **Accessible parts of equipment** | | P |
| V.1.1 | General | Enclosure only, no entry | P |
| V.1.2 | Surfaces and openings tested with jointed test probes | | P |
| V.1.3 | Openings tested with straight unjointed test probes | | P |
| V.1.4 | Plugs, jacks, connectors tested with blunt probe | | N/A |
| V.1.5 | Slot openings tested with wedge probe | | N/A |
| V.1.6 | Terminals tested with rigid test wire | | N/A |
| **V.2** | **Accessible part criterion** | | P |
| **X** | **ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)** | | N/A |
| | Clearance .....: | Not used | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| **Y** | **CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES** | | N/A |
| **Y.1** | **General** | Not outdoor enclosure | N/A |
| **Y.2** | **Resistance to UV radiation** | | N/A |
| **Y.3** | **Resistance to corrosion** | | N/A |
| Y.3.1 | Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by ..... : | N/A | N/A |
| Y.3.2 | Test apparatus | | N/A |
| Y.3.3 | Water – saturated sulphur dioxide atmosphere | | N/A |
| Y.3.4 | Test procedure ..... : | See above | N/A |
| Y.3.5 | Compliance | | N/A |
| **Y.4** | **Gaskets** | | N/A |
| Y.4.1 | General | | N/A |
| Y.4.2 | Gasket tests | | N/A |
| Y.4.3 | Tensile strength and elongation tests | | N/A |
| | Alternative test methods ..... : | See above | N/A |
| Y.4.4 | Compression test | | N/A |
| Y.4.5 | Oil resistance | | N/A |
| Y.4.6 | Securing means | | N/A |
| **Y.5** | **Protection of equipment within an outdoor enclosure** | | N/A |
| Y.5.1 | General | | N/A |
| Y.5.2 | Protection from moisture | | N/A |
| | Relevant tests of IEC 60529 or Y.5.3 ..... : | See above | N/A |
| Y.5.3 | Water spray test | | N/A |
| Y.5.4 | Protection from plants and vermin | | N/A |
| Y.5.5 | Protection from excessive dust | | N/A |
| Y.5.5.1 | General | | N/A |
| Y.5.5.2 | IP5X equipment | | N/A |
| Y.5.5.3 | IP6X equipment | | N/A |
| **Y.6** | **Mechanical strength of enclosures** | | N/A |
| Y.6.1 | General | | N/A |
| Y.6.2 | Impact test ..... : | See above | N/A |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| **5.2** | **TABLE: Classification of electrical energy sources** | | | | | | P |
|---|---|---|---|---|---|---|---|
| Supply Voltage | Location (e.g. circuit designation) | Test conditions | Parameters | | | | ES Class |
| | | | U (V) | I (A) | Type[1)] | Additional Info [2)] | |
| 115 - 120 Vac | Mains Input | Normal | 103/132 Vac | 7 | SS | 60 Hz | ES3 |
| Supplementary information: | | | | | | | |
| 1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc. | | | | | | | |
| 2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc. | | | | | | | |

| **5.4.1.8** | **TABLE: Working voltage measurement** | | | | N/A |
|---|---|---|---|---|---|
| Location | RMS voltage (V) | Peak voltage (V) | Frequency (Hz) | Comments | |
| | | | | | |
| Supplementary information: | | | | | |
| | | | | | |

| **5.4.1.10.2** | **TABLE: Vicat softening temperature of thermoplastics** | | | N/A |
|---|---|---|---|---|
| Method.....: | | ISO 306 / B50 | | — |
| Object/ Part No./Material | Manufacturer/trademark | Thickness (mm) | T softening (°C) | |
| | | | | |
| Supplementary information: | | | | |
| | | | | |

| **5.4.1.10.3** | **TABLE: Ball pressure test of thermoplastics** | | | | N/A |
|---|---|---|---|---|---|
| Allowed impression diameter (mm).....: | | ≤ 2 mm | | | — |
| Object/Part No./Material | Manufacturer/trademark | Thickness (mm) | Test temperature (°C) | Impression diameter (mm) | |
| | | | | | |
| Supplementary information: | | | | | |
| | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| **5.4.2, 5.4.3** | **TABLE: Minimum Clearances/Creepage distance** | | | | | | | N/A |
|---|---|---|---|---|---|---|---|---|
| Clearance (cl) and creepage distance (cr) at/of/between: | $U_p$ (V) | $U_{rms}$ (V) | Freq [1] (Hz) | Required cl (mm) | cl (mm) | E.S. [2] (V) | Required cr (mm) | cr (mm) |
| | | | | | | | | |
| Supplementary information: | | | | | | | | |
| 1) Only for frequency above 30 kHz | | | | | | | | |
| 2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied) | | | | | | | | |

| **5.4.4.2** | **TABLE: Minimum distance through insulation** | | | N/A |
|---|---|---|---|---|
| Distance through insulation (DTI) at/of | Peak voltage (V) | Insulation | Required DTI (mm) | Measured DTI (mm) |
| | | | | |
| Supplementary information: | | | | |
| | | | | |

| **5.4.4.9** | **TABLE: Solid insulation at frequencies >30 kHz** | | | | | N/A |
|---|---|---|---|---|---|---|
| Insulation material | $E_P$ | Frequency (kHz) | $K_R$ | Thickness $d$ (mm) | Insulation | $V_{PW}$ (Vpk) |
| | | | | | | |
| Supplementary information: | | | | | | |
| | | | | | | |

| **5.4.9** | **TABLE: Electric strength tests** | | | P |
|---|---|---|---|---|
| Test voltage applied between: | Voltage shape (Surge, Impulse, AC, DC, etc.) | Test voltage (V) | Breakdown Yes / No | |
| Mains to Ground | DC | 1768 | No | |
| Mains to USB Port | DC | 1768 | No | |
| Mains to LCD Screen | DC | 1768 | No | |
| Supplementary information: | | | | |
| | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 5.5.2.2 | TABLE: Stored discharge on capacitors | | | | P |
|---|---|---|---|---|---|
| Location | Supply voltage (V) | Operating and fault condition [1)] | Switch position | Measured voltage (Vpk) | ES Class |
| AC Input (Delta, Configuration 1) | | | | | |
| 132VAC, 60Hz | Line to Neutral | N | On | 0.8 | ES1 |
| 132VAC, 60Hz | Line to Neutral | N | On | 0.0 | ES1 |
| 132VAC, 60Hz | Line to Ground | N | On | -3.8 | ES1 |
| 132VAC, 60Hz | Line to Ground | N | On | -14.5 | ES1 |
| 132VAC, 60Hz | Neutral to Ground | N | On | -4.6 | ES1 |
| 132VAC, 60Hz | Neutral to Ground | N | On | -15.2 | ES1 |
| Supplementary information: | | | | | |
| Highest two values provided for each combination provided.<br>1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit | | | | | |

| 5.6.6 | TABLE: Resistance of protective conductors and terminations | | | | P |
|---|---|---|---|---|---|
| Location | | Test current (A) | Duration (min) | Voltage drop (V) | Resistance (Ω) |
| PE to enclosure screw | | 25 | 2 | 0.45 | 0.018 |
| Supplementary information: | | | | | |
| | | | | | |

| 5.7.4 | TABLE: Unearthed accessible parts | | | | | N/A |
|---|---|---|---|---|---|---|
| Location | Operating and fault conditions | Supply Voltage (V) | Parameters | | | ES class |
| | | | Voltage ($V_{rms}$ or $V_{pk}$) | Current ($A_{rms}$ or $A_{pk}$) | Freq. (Hz) | |
| | | | | | | |
| Supplementary information: | | | | | | |
| Abbreviation: SC= short circuit; OC= open circuit | | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| **5.7.5** | **TABLE: Earthed accessible conductive part** | | | P |
|---|---|---|---|---|
| Supply voltage (V) ..... : | AC units only: 132Vac, 60Hz | | | — |
| Phase(s) ..... : | [x] Single Phase; [ ] Three Phase: [ ] Delta [ ] Wye | | | |
| Power Distribution System ..... : | [x] TN [ ]TT [ ] IT | | | |
| Location | Fault Condition No in IEC 60990 clause 6.2.2 | Touch current (mA) | Comment | |
| Enclosure | | | | |
| Enclosure to Ground | (Nor/Closed/Closed) | 0.0 | | |
| Enclosure and Ground | (Rev/Closed/Closed) | 0.0 | | |
| Enclosure and Ground | (Rev/Open/Closed) | 0.0 | | |
| Enclosure and Ground | (Nor/Open/Closed) | 0.0 | | |
| Enclosure and Ground | (Nor/Closed/Open) | 0.0 | | |
| Enclosure and Ground | (Rev/Closed/Open) | 0.0 | | |
| LCD screen | | | | |
| LCD screen and Ground | (Nor/Closed/Closed) | 0.0 | | |
| LCD screen and Ground | (Rev/Closed/Closed) | 0.0 | | |
| LCD screen and Ground | (Rev/Open/Closed) | 0.0 | | |
| LCD screen and Ground | (Nor/Open/Closed) | 0.0 | | |
| LCD screen and Ground | (Nor/Closed/Open) | 0.0 | | |
| LCD screen and Ground | (Rev/Closed/Open) | 0.0 | | |
| Printer | | | | |
| Printer and Ground | (Nor/Closed/Closed) | 0.0 | | |
| Printer and Ground | (Rev/Closed/Closed) | 0.0 | | |
| Printer and Ground | (Rev/Open/Closed) | 0.0 | | |
| Printer and Ground | (Nor/Open/Closed) | 0.0 | | |
| Printer and Ground | (Nor/Closed/Open) | 0.0 | | |
| Printer and Ground | (Rev/Closed/Open) | 0.0 | | |
| Scanner slot | | | | |
| Scanner slot and Ground | (Nor/Closed/Closed) | 0.0 | | |
| Scanner slot and Ground | (Rev/Closed/Closed) | 0.0 | | |
| Scanner slot and Ground | (Rev/Open/Closed) | 0.0 | | |
| Scanner slot and Ground | (Nor/Open/Closed) | 0.0 | | |
| Scanner slot and Ground | (Nor/Closed/Open) | 0.0 | | |
| Scanner slot and Ground | (Rev/Closed/Open) | 0.0 | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| | | | |
|---|---|---|---|
| USB slot | | | |
| USB slot and Ground | (Nor/Closed/Closed) | 0.0 | |
| USB slot and Ground | (Rev/Closed/Closed) | 0.0 | |
| USB slot and Ground | (Rev/Open/Closed) | 0.47 | |
| USB slot and Ground | (Nor/Open/Closed) | 0.28 | |
| USB slot and Ground | (Nor/Closed/Open) | 0.0 | |
| USB slot and Ground | (Rev/Closed/Open) | 0.0 | |
| Card reader slot | | | |
| Card reader slot and Ground | (Nor/Closed/Closed) | 0.0 | |
| Card reader slot and Ground | (Rev/Closed/Closed) | 0.0 | |
| Card reader slot and Ground | (Rev/Open/Closed) | 0.47 | |
| Card reader slot and Ground | (Nor/Open/Closed) | 0.29 | |
| Card reader slot and Ground | (Nor/Closed/Open) | 0.0 | |
| Card reader slot and Ground | (Rev/Closed/Open) | 0.0 | |
| Ballot insert slot | | | |
| Ballot insert slot and Ground | (Nor/Closed/Closed) | 0.0 | |
| Ballot insert slot and Ground | (Rev/Closed/Closed) | 0.0 | |
| Ballot insert slot and Ground | (Rev/Open/Closed) | 0.0 | |
| Ballot insert slot and Ground | (Nor/Open/Closed) | 0.0 | |
| Ballot insert slot and Ground | (Nor/Closed/Open) | 0.0 | |
| Ballot insert slot and Ground | (Rev/Closed/Open) | 0.0 | |
| Supplementary Information: | | | |
| Fault conditions given as Polarity/Neutral/Ground switch configurations. | | | |

| **5.8** | **TABLE: Backfeed safeguard in battery backed up supplies** | | | | | N/A |
|---|---|---|---|---|---|---|
| Location | Supply voltage (V) | Operating and fault condition | Time (s) | Open-circuit voltage (V) | Touch current (A) | ES Class |
| | | | | | | |
| Supplementary information: | | | | | | |
| Abbreviation: SC= short circuit, OC= open circuit | | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 6.2.2 | TABLE: Power source circuit classifications | | | | | P |
|---|---|---|---|---|---|---|
| Location | Operating and fault condition | Voltage (V) | Current (A) | Max. Power[1)] (W) | Time (S) | PS class |
| Internal circuits | - | 120 | 0.72 | 86.4 | 5 | PS2 |
| Supplementary information: | | | | | | |
| Abbreviation: SC= short circuit; OC= open circuit<br>1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3. | | | | | | |

| 6.2.3.1 | TABLE: Determination of Arcing PIS | | | N/A |
|---|---|---|---|---|
| Location | Open circuit voltage after 3 s (Vpk) | Measured r.m.s current (A) | Calculated value | Arcing PIS? Yes / No |
| - | - | - | - | - |
| Supplementary information: | | | | |
| | | | | |

| 6.2.3.2 | TABLE: Determination of resistive PIS | | N/A |
|---|---|---|---|
| Location | Operating and fault condition | Dissipate power (W) | Arcing PIS? Yes / No |
| - | - | - | - |
| Supplementary information: | | | |
| Abbreviation: SC= short circuit; OC= open circuit | | | |

| 8.5.5 | TABLE: High pressure lamp | | | N/A |
|---|---|---|---|---|
| Lamp manufacturer | Lamp type | Explosion method | Longest axis of glass particle (mm) | Particle found beyond 1 m Yes / No |
| | | | | |
| Supplementary information: | | | | |
| | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| **9.6** | **TABLE: Temperature measurements for wireless power transmitters** | | | | | | | | N/A |
|---|---|---|---|---|---|---|---|---|---|
| Supply voltage (V)..... : | | | | | | | | | — |
| Max. transmit power of transmitter (W)..... : | | | | | | | | | — |
| | w/o receiver and direct contact | | with receiver and direct contact | | with receiver and at distance of 2 mm | | with receiver and at distance of 5 mm | | |
| Foreign objects | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) | |
| | | | | | | | | | |
| Supplementary information: | | | | | | | | | |
| | | | | | | | | | |

| **5.4.1.4, 9.3, B.1.5, B.2.6** | **TABLE: Temperature measurements** | | | | P |
|---|---|---|---|---|---|
| **Table 5.4.1.4, 9.3, B.1.5, B.2.6** | | | | | -- |
| Supply voltage (V)..... : | 132 Vac, 60Hz | | | | — |
| Ambient temperature during test $T_{amb}$ (°C) .... : | See below | | | | — |
| Maximum measured temperature *T* of part/at: | *T* (°C) | | | | Allowed $T_{max}$ (°C) |
| Ambient | 20.2/35 | | | | 70 |
| Coil of AC/DC converter #1 | 33.2/48.0 | | | | 70 |
| Coil of AC/DC converter #2 | 42.3/57.1 | | | | 70 |
| Enclosure near AC/DC converter (closest to edge of EUT) | 23.9/38.7 | | | | 70 |
| LCD screen middle | 27.6/42.4 | | | | 70 |
| Keyboard Enter button | 25.9/40.7 | | | | 70 |
| Enclosure top of External power Supply | 24.5/39.3 | | | | 70 |

| Temperature T of winding: | $t_1$ (°C) | $R_1$ (Ω) | $t_2$ (°C) | $R_2$ (Ω) | T (°C) | Allowed $T_{max}$ (°C) | Insulation class |
|---|---|---|---|---|---|---|---|
| -- | -- | -- | -- | -- | -- | -- | -- |
| Supplementary information: | | | | | | | |
| Operated until temperatures became stable, temperatures were measured using the thermocouple method | | | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| **B.2.5** | **TABLE: Input test** | | | | | | | P |
|---|---|---|---|---|---|---|---|---|
| **Table B.2.5 – AC Input Delta Power Supply** | | | | | | | | -- |
| U (V) | Hz | I (A) | I rated (A) | P (W) | P rated (W) | Fuse No | I fuse (A) | Condition/status |
| 103.5 | 60 | 0.79 | 7 | 81.8 | -- | -- | -- | Loaded |
| 115 | 60 | 0.73 | 7 | 84.0 | -- | -- | -- | Loaded |
| 120 | 60 | 0.72 | 7 | 86.4 | -- | -- | -- | Loaded |
| 125 | 60 | 0.71 | 7 | 88.8 | -- | -- | -- | Loaded |
| 132 | 60 | 0.71 | 7 | 93.7 | -- | -- | -- | Loaded |
| Supplementary information: | | | | | | | | |
| | | | | | | | | |

| **B.3, B.4** | **TABLE: Abnormal operating and fault condition tests** | | | | | | P |
|---|---|---|---|---|---|---|---|
| Ambient temperature $T_{amb}$ (°C)..... : | | | | | 19.4, 19.9 | | — |
| Power source for EUT: Manufacturer, model/type, output rating . : | | | | | KIKUSUI PCR12000W2 | | — |
| Component No. | Condition | Supply voltage (V) | Test time (min) | Fuse no. | Fuse current (A) | Observation | |
| Blocked vents | Block | 132 Vac, 60Hz | 76 | -- | -- | Highest Temp: 41.1C | |
| Input reverse polarity | Reverse | 132 Vac, 60Hz | 220 | -- | -- | Highest Temp: 43C | |
| Supplementary information: | | | | | | | |
| No fire occurred, the equipment did not emit molten metal, and enclosure did not deform | | | | | | | |

| **M.3** | **TABLE: Protection circuits for batteries provided within the equipment** | | | | | | N/A |
|---|---|---|---|---|---|---|---|
| Is it possible to install the battery in a reverse polarity position? ..... : | | | | | | | — |
| Equipment Specification | Charging | | | | | | |
| | Voltage (V) | | | Current (A) | | | |
| | | | | | | | |
| Manufacturer/type | Battery specification | | | | | | |
| | Non-rechargeable batteries | | Rechargeable batteries | | | | |
| | Discharging current (A) | Unintentional charging current (A) | Charging | | Discharging current (A) | Reverse charging current (A) | |
| | | | Voltage (V) | Current (A) | | | |
| | | | | | | | |
| Note: The tests of M.3.2 are applicable only when above appropriate data is not available. | | | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| Specified battery temperature (°C) ..... : | | |
|---|---|---|

| Component No. | Fault condition | Charge/ discharge mode | Test time | Temp. (°C) | Current (A) | Voltage (V) | Observation |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

Supplementary information:

Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.

| **M.4.2** | **TABLE: Charging safeguards for equipment containing a secondary lithium battery** | N/A |
|---|---|---|
| Maximum specified charging voltage (V) ..... : | | — |
| Maximum specified charging current (A) ..... : | | — |
| Highest specified charging temperature (°C) ..... : | | |
| Lowest specified charging temperature (°C) ..... : | | |

| Battery manufacturer/type | Operating and fault condition | Measurement | | | Observation |
|---|---|---|---|---|---|
| | | Charging voltage (V) | Charging current (A) | Temp. (°C) | |
| | | | | | |

Supplementary information:

Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature

| **Q.1** | **TABLE: Circuits intended for interconnection with building wiring (LPS)** | | | | | | N/A |
|---|---|---|---|---|---|---|---|
| Output Circuit | Condition | $U_{oc}$ (V) | Time (s) | $I_{sc}$ (A) | | S (VA) | |
| | | | | Meas. | Limit | Meas. | Limit |
| - | - | - | - | - | - | - | - |

Supplementary Information:

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| T.2, T.3, T.4, T.5 | TABLE: Steady force test | | | | | P |
|---|---|---|---|---|---|---|
| Location/Part | Material | Thickness (mm) | Probe | Force (N) | Test Duration (s) | Observation |
| Enclosure front | PP/ABS/EPDM | - | - | 30 | 5 | No damage |
| Enclosure top | PP/ABS/EPDM | - | - | 30 | 5 | No damage |
| System top (in open position) | PP/ABS/EPDM | - | - | 30 | 5 | No damage |
| Enclosure side | PP/ABS/EPDM | - | - | 30 | 5 | No damage |
| Enclosure back | PP/ABS/EPDM | - | - | 30 | 5 | No damage |
| Enclosure/System front center | PP/ABS/EPDM | - | - | 250 | 5 | No damage |
| Enclosure top center | PP/ABS/EPDM | - | - | 250 | 5 | No damage |
| System top (in open position) | PP/ABS/EPDM | - | - | 250 | 5 | No damage |
| Enclosure/System side center | PP/ABS/EPDM | - | - | 250 | 5 | No damage |
| Enclosure/System back center | PP/ABS/EPDM | - | - | 250 | 5 | No damage |
| Supplementary information: | | | | | | |
| | | | | | | |

| T.6, T.9 | TABLE: Impact test | | | | P |
|---|---|---|---|---|---|
| Location/Part | Material | Thickness (mm) | Height (mm) | Observation | |
| Enclosure front center | PP/ABS/EPDM | - | 1300 | No damage | |
| Enclosure top center | PP/ABS/EPDM | - | 1300 | No damage | |
| Enclosure side center | PP/ABS/EPDM | - | 1300 | No damage | |
| Enclosure back center | PP/ABS/EPDM | - | 1300 | No damage | |
| Supplementary information: | | | | | |
| | | | | | |

| T.7 | TABLE: Drop test | | | | N/A |
|---|---|---|---|---|---|
| Location/Part | Material | Thickness (mm) | Height (mm) | Observation | |
| | | | | | |
| Supplementary information: | | | | | |
| | | | | | |

| IEC 62368-1 | | | |
|---|---|---|---|
| Clause | Requirement + Test | Result - Remark | Verdict |

| **T.8** | **TABLE: Stress relief test** | | | | N/A |
|---|---|---|---|---|---|
| Location/Part | Material | Thickness (mm) | Oven Temperature (°C) | Duration (h) | Observation |
| | | | | | |
| Supplementary information: | | | | | |
| | | | | | |

| **X** | **TABLE: Alternative method for determining minimum clearances distances** | | N/A |
|---|---|---|---|
| Clearance distanced between: | Peak of working voltage (V) | Required cl (mm) | Measured cl (mm) |
| | | | |
| Supplementary information: | | | |
| | | | |

| 4.1.2 | TABLE: Critical components information | | | | P |
|---|---|---|---|---|---|
| Object / part No. | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity[1)] |
| Enclosure | Pelican | 1485 Air | Polypropylene blend (171C), ABS (105C), EPDM (150C), Gore-Tex 3 Micron | UL 62368-1 | Tested in application |
| Description: | Overall enclosure dimensions: 490 x 328 x 190 mm<br>658 x 578 x 727 mm (Ballot box receptacle) | | | | |
| UPS | APC | BE850G2 | 120 V, 50/60 Hz, 12 A, 850 VA | UL 1778 | cTUVus (CU 72213583 02) |
| MCM Card Reader | HID | R31210375-1 | 5 V @ 60 mA | UL 62368-1 | Tested in application |
| MCM Scanner | PDI | PS6 | 12 V | UL 62368-1 | Tested in application |
| USB Port | Tripp Lite/Eaton | U324-001-APM | USB 3.0 | UL 62368-1 | Tested in application |
| Power Cord Set | CUI | AC-C13 | NEMA 5-15P to IEC320-C13, 18 AWG, 125 V, 10 A, 105C | UL 817 | Tested in application |
| Power Supply | Mean Well | LRS-75-12 | 12V @ 72 W | UL 60950-1 | cURus (E183223) |
| Power Supply | Mean Well | LRS-150-24 | 24V @ 156 W | UL 60950-1 | cURus (E183223) |
| MCM LCD | ELO | E535228 | 15.6” TouchPro, max 70C, openings 58 x 23 mm, diameter 3 mm | UL 62368-1 | Tested in application |
| MCM Speaker | PUI Audio | AS07004PO-R | 2 W | UL 62368-1 | Tested in application |
| Supplementary information: | | | | | |
| Licenses available upon request.<br>1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. | | | | | |

**ATTACHMENT TO TEST REPORT**

**IEC 62368-1**
**U.S.A. AND CANADA NATIONAL DIFFERENCES**
(Audio/video, information and communication technology equipment – Part 1: Safety requirements)

| | |
|---|---|
| **Differences according to** ..... : | CSA/UL 62368-1:2019 |
| **TRF template used: ..... :** | IECEE OD-2020-F3, Ed. 1.1 |
| **Attachment Form No**..... : | US_CA_ND_IEC62368_1E |
| **Attachment Originator ..... :** | UL(US) |
| **Master Attachment**..... : | Dated 2022-03-04 |



**IEC 62368-1 - US and Canadian National Differences**
**Special National Conditions based on Regulations and Other National Differences**

| | | | |
|---|---|---|---|
| 1<br>(1DV.1)<br>(1.3) | All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, for such equipment marked or otherwise identified, installation is allowed per the Standard for the Protection of Information Technology Equipment, ANSI/NFPA 75. | | P |
| 1<br>(1DV.2.1) | This standard includes additional requirements for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities. See Annex DVB. | Not for entertainment purposes intended for installation in general patient care areas of health care facilities | N/A |
| 1<br>(1DV.2.2) | This standard includes additional requirements for equipment intended for mounting under cabinets. See Annex DVC. | Not for mounting under cabinets | N/A |
| 1<br>(1DV.2.3) | IEC 62368-3 clause 5 for DC power transfer at ES1 or ES2 voltage levels is considered informative. IEC 62368-3 clause 6 for remote power feeding telecommunication (RFT) circuits is considered normative (see ITU K.50). Alternatively, equipment with RFT circuits are given in either UL 2391 or CSA/UL 60950-21. RFT-C circuits are not permitted unless the RFT-C circuit complies with RFT-V limits (≤ 200V per conductor to earth). | | N/A |
| 1<br>(1DV.3) | For protection against direct lightning strikes, reference is made to NFPA 780 and CAN/CSA-B72 for additional requirements. | | N/A |

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| 1<br>(DV.5) | Additional requirements apply to some forms of power distribution equipment, including sub-assemblies. | Not such equipment | N/A |
| 4.1<br>(4.1.17) | For lengths exceeding 3.05 m, external interconnecting cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the NEC. | Power Supply Cords not part of evaluation | N/A |
| | For lengths 3.05 m or less, external interconnecting cable assemblies that are not types specified in the NEC generally are required to have special construction features and identification markings. | | N/A |
| 4.6<br>(4.6.2) | Wire-wrap terminals have special construction and performance requirements. | | N/A |
| 4.8<br>(4.8.3,<br>4.8.4.5,<br>4.8.5) | Coin / button cell batteries have modified special construction and performance requirements. | None used | N/A |
| 5.4.2.3.2<br>(5.4.2.3.2.1) | Surge Arrestors and Transient Voltage Surge Suppressors installed external to the equipment are required to comply with the appropriate NEC and CEC requirements. | | N/A |
| 5.5.9 | Receptacles, rated 125-V, single phase, 15- or 20-A accessible to either ordinary, instructed, or skilled persons are required to be provided with GFCI Protection for Personnel if the equipment containing the receptacles is installed outdoors. The protection devices are required to comply with UL 943, and CAN/CSA C22.2 No.144. | Not for outdoors | N/A |
| 5.6.3 | Protective earthing conductors comply with the minimum conductor sizes in Table G.7, except as required by Table G.7ADV.1 for cord connected equipment, or Annex DVH for permanently connected equipment. | Certified Power Supply Cord set used | P |
| 5.7.8<br>(5.7.8.1) | Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests. | No telecommunication ringing signals | N/A |
| 6.5.1 | PS3 wiring outside a fire enclosure is required to comply with single fault testing in B.4, or be current limited per one of the permitted methods. | No such wiring | N/A |
| Annex F<br>(F.3.3.9) | Output terminals provided for supply of other equipment, except mains supply, are required to be marked with a maximum rating or reference to equipment permitted to be connected. | No such terminals | N/A |
| Annex F<br>(F.3.7) | Outdoor Enclosures are required to be classified and marked in accordance with UL 50 or 50E, or CAN/CSA C22.2 No. 94.1 or 94.2. | Not for outdoor | N/A |
| Annex G<br>(G.7) | Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs. | Not permanently connected | N/A |

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| | Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment. | Power Supply Cords not part of evaluation | N/A |
| | Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC. | | N/A |
| | Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Power supply cords are required to be no longer than 4.5 m in length if used in ITE Rooms. | | N/A |
| | Power supply cords for outdoor equipment are required to be suitable outdoor use type as required by Section 400.4 of the NEC and Rule 4-012 of the CEC, i.e., marked “W.” | | N/A |
| Annex H.2 | Continuous ringing signals under normal operating conditions up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions. | No ringing signals | N/A |
| Annex H.4 | For circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions. | | N/A |
| Annex Q (Q.3) | Equipment with paired conductor and/or coax communications cables/wiring connected to building wiring are required to have special voltage, current, power and marking requirements. | | N/A |
| Annex DVA (1) | Equipment that is designed such that it may be powered from a separate electrical service, is required to meet applicable requirements for service equipment for control and protection of services and their installation and complies with Article 230 of the National Electrical Code (NEC), NFPA 70 and Section 6 of the Canadian Electrical Code, Part I, CSA C22.1. | | N/A |
| | Equipment intended for use in spaces used for environmental air (plenums) are subjected to special flammability requirements for heat and visible smoke release. | Not for spaces for environmental air | N/A |
| | For ITE room applications, automated information storage systems with combustible media greater than 0.76 $m^3$ (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge. | | N/A |

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| | Consumer products designed or intended primarily for children 12 years of age or younger are subject to additional requirements in accordance with U.S. and Canadian Regulations. | Not for children | N/A |
| | Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors. | Not a baby monitor | N/A |
| | Storage batteries and battery management equipment, other than associated with lead-acid batteries, and including battery backup systems that are not an integral part of stationary AV and ICT equipment, such as provided in separate cabinets, are required to be certified (listed) to the appropriate standard(s) for such storage batteries and equipment. | No such batteries | N/A |
| Annex DVA (5.6) | For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A. | | P |
| Annex DVA (6.3) | The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30. | | N/A |
| Annex DVA (6.4.8) | For ITE room applications, enclosures with combustible material measuring greater than 0.9 $m^2$ (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For equipment with the same dimensions for other applications, an external surface that is not a fire enclosure requires a minimum flammability classification of V-1. | | N/A |
| Annex DVA (10.3) | Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370). | | N/A |
| Annex DVA (10.5) | Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370). | No such radiation | N/A |
| Annex DVA (F.3.3.4) | Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. Additional considerations apply for voltage ratings that exceed the attachment cap rating or that are lower than the “Normal Operating Condition” in Table 2 of CAN/CSA C22.2 No. 235.” | Single phase | N/A |
| Annex DVA (F.3.3.6) | Equipment identified for ITE (computer) room installation is required to be marked with the rated current. | | N/A |

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| Annex DVA (G.1) | Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position, where mounted in an enclosure, vertically mounted **disconnect switches** and **circuit breakers** with vertical operating means extending outside the enclosure are required to indicate in a location visible when accessing the external operating means whether the switch or circuit breaker is in the open (off) or closed (on) position. | No such switch | N/A |
| Annex DVA (G.3.4) | Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. | No outlets | N/A |
| | Where a fuse is used to provide Class 2 or Class 3 current limiting, it is not operator-accessible unless it is non- interchangeable. | | N/A |
| Annex DVA (G.4.2) | Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-400 and 10-612. | No such receptacle | N/A |
| Annex DVA (G.4.3) | Interconnection of units by conductors supplied by a limited power source, or a Class 2 circuit defined in the NEC/CEC may have field wiring connections other than specified in DVH.3, such as wire-wrap and crimp-on types, if the limited power source and Class 2 circuits are separated from all other circuits by barriers, routing or fixing. | | N/A |
| Annex DVA (G.5.3) | Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection. | No such transformers | N/A |
| Annex DVA (G.5.4) | Motor control devices are required for cord-connected equipment with a mains-connected motor if the equipment is rated more than 12 A, or if the equipment has a nominal voltage rating greater than 120 V, or if the motor is rated more than 1/3 hp (locked rotor current over 43 A). | No motor | N/A |
| Annex DVA (G.7) | Flexible cords used outdoors are required to have the suffix “W” marked on the flexible cord. | Not for outdoors | N/A |
| Annex DVA (M) | For ITE room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the ITE room remote power-off circuit. | No battery system | N/A |

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| Annex DVA (Q) | If applicable per NEC 725.121(C), some limited power sources supplied from AV/ICT equipment are required to have a label indicating the maximum voltage and rated current output for per conductor for each connection point. Where multiple connection points have the same rating, a single label is permitted to be used. | No such wiring | N/A |
| | Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1are required to be marked with the voltage rating and “Class 2” or equivalent. The marking is located adjacent to the terminals and visible during wiring. | | N/A |
| | Applicable parts of Chapter 8 of the NEC, and Rules 54 and 60 of the CEC, may be applicable to ITE installed outdoors with connections to communication systems. | | N/A |
| Annex DVB (1) | Additional requirements apply for equipment used for entertainment purposes intended for installation in general patient care areas of health care facilities. | Not for entertainment purposes | N/A |
| Annex DVC (1) | Additional requirements apply for equipment intended for mounting under kitchen cabinets. | Not for such mounting | N/A |
| Annex DVE (4.1.1) | Some equipment, components, sub-assemblies and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These equipment and components include: appliance couplers, attachment plugs, battery backup systems, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), direct plug-in equipment, electrochemical capacitor modules (energy storage modules with ultracapacitors), enclosures (outdoor), flexible cords and cables, fuses (branch circuit), ground-fault current interrupters, interconnecting cables, modular data centres, power supply cords, some power distribution equipment, printed wiring, protectors for communications circuits, receptacles, surge protective devices, vehicle battery adapters, wire connectors, and wire and cables. | Certified Components are properly rated for intended application | P |
| Annex DVH | Equipment for permanent connection to the mains supply is subjected to additional requirements. | Not permanently connected | N/A |
| Annex DVH (DVH.1) | Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains are required to be in accordance with the NEC/CEC. | | N/A |

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| Annex DVH (DVH.2.1) | For safe and reliable connection to a mains, permanently connected equipment is to be provided. | | N/A |
| Annex DVH (DVH.2.2) | Additional considerations for D.C. mains. | AC Mains | N/A |
| Annex DVH (DVH.3.2.1) | Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for U.S./Canadian wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified. | | N/A |
| Annex DVH (DVH.3.2.3) | Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 $mm^2$). | | N/A |
| Annex DVH (DVH.3.2.4) | All associated mains supply terminals are located in proximity to each other and to the main protective earthing terminal, if any. | | N/A |
| Annex DVH (DVH.3.2.5) | Terminals are located, guarded or insulated so that, should a strand of a conductor escape when the conductor is fitted, there is no likelihood of accidental contact between such a strand and accessible conductive parts or unearthed conductive parts separated from accessible conductive parts by supplementary insulation only. | | N/A |
| Annex DVH (DVH.3.3) | When field connection to an external circuit is via wires (example, free conductors), the wires are not smaller than 18 AWG (0.82 $mm^2$) and the free length of the wire inside an outlet box or wiring compartment is 150 mm or more. | | N/A |
| Annex DVH (DVH.3.4) | Size of protective earthing conductors and terminals | | N/A |
| Annex DVH (DVH.4) | Permanently connected equipment is required to have a suitable wiring compartment and wire bending space. | | N/A |
| Annex DVH (DVH.4.1) | Wire bending space | | N/A |
| Annex DVH (DVH.4.2) | Volume of wiring compartment | | N/A |
| Annex DVH (DVH.4.3) | Separation of circuits | | N/A |
| Annex DVH (DVH.5) | Equipment markings and instructional safeguards | | N/A |
| Annex DVH (DVH.5.1) | Identification of protective earthing terminal | | N/A |
| Annex DVH (DVH.5.2) | Identification of terminal for earthed conductor (neutral) | | N/A |
| Annex DVH (DVH.5.3) | Identification of terminals for aluminum conductors | | N/A |
| Annex DVH (DVH.5.4) | Wire temperature ratings | | N/A |

| | | | |
|---|---|---|---|
| Annex DVH (DVH 5.5) | Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements. | AC | N/A |
| Annex DVI (6.7) | Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses. | Not for telecommunication network | N/A |
| Annex DVJ (10.6.1) | Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements. | | N/A |

Attachment 2 - Photographs (Figures) and Illustrations

# Figures

Figure 1 - VxScan

# Figures (Continued)

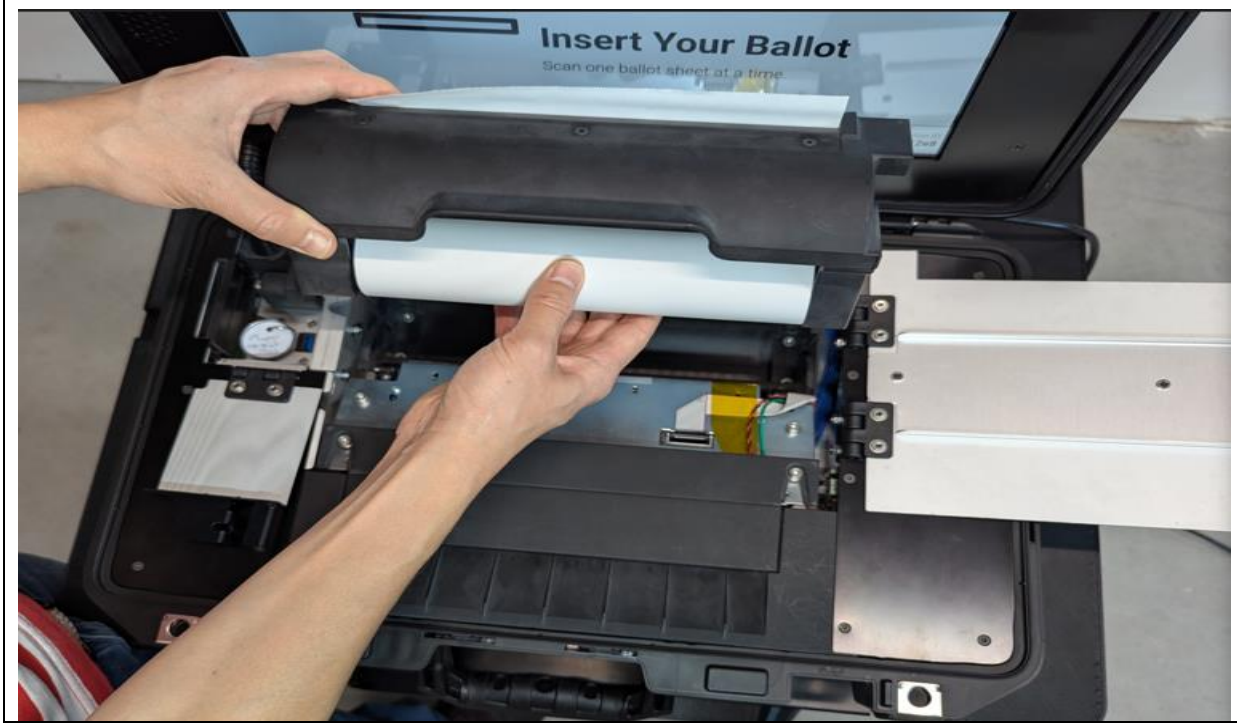
Figure 1 – VxScan with APC UPS

# Figures (Continued)

Figure 2 - MCM back and bottom views

# Figures (Continued)

Figure 3 - Printer views



# Figures (Continued)

Figure 4 - USB Ports and Card Reader