

TEST REPORT

| Product Name | : Datahub |
|--------------|---------------|
| Model Number | : Datahub1000 |

| Prepared For: | SOLAX POWER NETWORK TECHNOLOGY |
|---------------|--|
| | (ZHEJIANG) CO. , LTD. |
| | No.288, Shizhu Road, Tonglu Economic |
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| | 310000, P. R. CHINA |

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| Date of Test | : | December 11, 2021 to December 15, 2021 |
|----------------|---|--|
| Date of Report | : | December 20, 2021 |
| Report Number | : | ENB2111250113S00301R |





TEST REPORT IEC 62368-1 J62368-1 (H30)

Audio/video, information and communication technology equipment Part 1: Safety requirements

| Fart 1. Safety requirements | | | |
|-------------------------------|---|--|--|
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| Address: | No.288, Shizhu Road, Tonglu Economic Development Zone, Tonglu City, Zhejiang Province 310000,P. R. CHINA | | |
| Test specification: | | | |
| Standard | J62368-1 (H30) | | |
| Test procedure | PSE report | | |
| Non-standard test method | N/A | | |
| Test item description: | Datahub | | |
| Trade Mark | SolaX Power | | |
| Model/Type reference | Datahub1000 | | |
| Ratings | Input: 12V, 2A, Class III | | |
| | (Adaptor was use: Approval Model ABT020120A, Input: 100-240V~,50/60Hz, 1.5A, Output: DC12V 2A, Class II) | | |



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

- Japan Differences
- Attachment I: Photos

Summary of testing:

-All tests were performed on mode Datahub1000 and passed.

Summary of compliance with National Differences: Japan Differences

The product fulfils the requirements of _____ J62368-1 (H30) ____ (insert standard number and edition and delete the text in parenthesis or delete the whole sentence if not applicable)

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.



Remark:

- The above markings are the minimum requirements required by the safety standard. For the final _ production samples, the additional markings which do not give rise to misunderstanding may be added.
- Above information was labelled or silk-screened on rear enclosure.



| TEST ITEM PARTICULARS: | |
|---|---|
| Classification of use by: | ⊠ Ordinary person |
| | Instructed person |
| | Skilled person |
| | Children likely to be present |
| Supply Connection | 🖾 AC Mains 🔲 DC Mains |
| | External Circuit - not Mains connected |
| | - 🗌 ES1 🔲 ES2 🗌 ES3 |
| Supply % Tolerance: | ⊠ +10%/-10% |
| | +20%/-15% |
| | □ +%/% |
| | None |
| Supply Connection – Type: | ☑ pluggable equipment type A - |
| | non-detachable supply cord appliance coupler |
| | direct plug-in |
| | mating connector |
| | pluggable equipment type B - |
| | non-detachable supply cord |
| | appliance coupler |
| | permanent connection |
| | mating connector dther: |
| Considered current rating of protective device as part of building or equipment installation | N/A |
| | Installation location: building; equipment |
| Equipment mobility: | ☐ movable ☐ hand-held ☐ transportable ☐ stationary ☐ for building-in ☐ direct plug-in |
| | □ rack-mounting □ wall-mounted |
| Over voltage category (OVC): | |
| | □ OVC IV □ other: |
| Class of equipment | 🗌 Class I 🛛 Class II 📄 Class III |
| Access location | \Box restricted access location \boxtimes N/A |
| Pollution degree (PD) | □ PD 1 □ PD 2 □ PD 3 |
| Manufacturer's specified maxium operating ambient : | 25 °C |
| IP protection class | 🗌 IPX0 🖾 IP20 |
| Power Systems | ⊠ TN □ TT □ IT V ∟-L |
| Altitude during operation (m) | ⊠ 2000 m or less □ m |
| Altitude of test laboratory (m) | ⊠ 2000 m or less □ m |
| Mass of equipment (kg) | ⊠0.417 kg |
| | |
| 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: | November 25, 2021 |
| Date (s) of performance of tests: | December 11, 2021 to December 15, 2021 |
| | |

GENERAL REMARKS:

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

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Throughout this report a \Box comma / \boxtimes point is used as the decimal separator.

GENERAL PRODUCT INFORMATION:

Product Description -

- 1. The equipment under test is a Class III Datahub.
- 2. Operating ambient temperature (Tma): 25 °C.

Model Differences

N/A

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



| ENERGY SOURCE IDENTIFICATION AND CLASSIFICAT | ION TABLE: | | |
|---|---|--|--|
| (Note 1: Identify the following six (6) energy source forms b (Note 2: The identified classification e.g., ES2, TS1, should on the body or its ability to ignite a combustible material. An worse case classification e.g. PS3, ES3. | be with respect to its ability to cause pain or injury | | |
| Electrically-caused injury (Clause 5): | | | |
| (Note: Identify type of source, list sub-assembly or circuit d classification) Example: +5 V dc input ES1 | esignation and corresponding energy source | | |
| Source of electrical energy | Corresponding classification (ES) | | |
| All circuits inside the equipment enclosure | ES1 | | |
| Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresp Example: Battery pack (maximum 85 watts): PS2 | oonding energy source classification) | | |
| Source of power or PIS | Corresponding classification (PS) | | |
| All circuits inside the equipment enclosure | PS2 | | |
| Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces oze part of the component evaluation.) Example: Liquid in filled component | one or other chemical construction not addressed as Glycol | | |
| Source of hazardous substances Corresponding chemical | | | |
| N/A | N/A | | |
| Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2 | | | |
| Source of kinetic/mechanical energy | Corresponding classification (MS) | | |
| Sharp edges and corners | MS1 | | |
| Equipment mass | MS1 | | |
| Thermal burn injury (Clause 9) | | | |
| (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1 | | | |
| Source of thermal energy | Corresponding classification (TS) | | |
| Accessiblesurfaces | TS1 | | |
| Radiation (Clause 10) | | | |
| (Note: List the types of radiation present in the product and t Example: DVD – Class 1 Laser Product | the corresponding energy source classification.) RS1 | | |
| Type of radiation | Corresponding classification (RS) | | |
| DIFFUSIVE LED | RS1 | | |
| i de la construcción de la constru | | | |



| | ENERGY SOURCE | DIAGRAM | | |
|---|--|--|---|---------------------------|
| Indicate which energy sources | are included in the energy sou | rce diagram. Inse | ert diagram below | |
| | | | S | |
| OVERVIEW OF EMPLOYEDS | AFEGUARDS | | | |
| Clause | Possible Hazard | | | |
| 5.1 | Electrically-caused injury | | | |
| Body Part | Energy Source | | Safeguards | |
| (e.g. Ordinary) | (ES3: Primary Filter circuit) | Basic | Supplementary | Reinforced (Enclosure) |
| Ordinary | ES1: All circuits inside the equipment enclosure | N/A | N/A | N/A |
| 6.1 | Electrically-caused fire | | | |
| Material part | Energy Source | | Safeguards | |
| (e.g. mouse enclosure) | (PS2: 100 Watt circuit) | Basic | Supplementary | Reinforced |
| Combustible materials within equipment fire enclosure | PS2: All circuits inside the equipment enclosure | No ignition occurred. No parts exceeding 90% of its spontaneous ignition temperature. | Min. V-0 PCB. Metal enclosure | N/A |
| 7.1 | Injury caused by hazardous | s substances | | |
| Body Part | Energy Source | Safeguards | | |
| (e.g., skilled) | (hazardous material) | Basic | Supplementary | Reinforced |
| N/A | N/A | N/A | N/A | N/A |
| 8.1 | Mechanically-caused injury | 1 | | |
| Body Part | Energy Source | | Safeguards | |
| (e.g. Ordinary) | (MS3:High Pressure Lamp) | Basic | Supplementary | Reinforced (Enclosure) |
| N/A | N/A | N/A | N/A | N/A |
| 9.1 | Thermal Burn | | | |
| Body Part (e.g., Ordinary) | Energy Source (TS2) | | Safeguards | |
| | | Basic | Supplementary | Reinforced |
| Ordinary | TS1: Accessiblesurfaces | N/A | N/A | N/A |
| 10.1 | Radiation | | | |
| Body Part | Energy Source | | Safeguards | |
| (e.g., Ordinary) | (Output from audio port) | Basic | Supplementary | Reinforced |
| Ordinary person | RS1: DIFFUSIVE LED | N/A | N/A | N/A |



Supplementary Information:

(1) See attached energy source diagram for additional details.

(2) "N" - Normal Condition; "A" - Abnormal Condition; "S" Single Fault



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

| 4 | GENERAL REQUIREMENTS | | Р |
|---------|---|--|-----|
| 4.1.1 | Acceptance of materials, components and subassemblies | | Р |
| 4.1.2 | Use of components | | Р |
| 4.1.3 | Equipment design and construction | | Р |
| 4.1.15 | Markings and instructions: | (See Annex F) | Р |
| 4.4.4 | Safeguard robustness | | Р |
| 4.4.4.2 | Steady force tests: | (See Annex T.2, T.3, T.4, T.5) | Р |
| 4.4.4.3 | Drop tests: | (See Annex T.7) | Р |
| 4.4.4.4 | Impact tests: | (See Annex T.6) | N/A |
| 4.4.4.5 | Internal accessible safeguard enclosure and barrier tests: | | N/A |
| 4.4.4.6 | Glass Impact tests: | | N/A |
| 4.4.4.7 | Thermoplastic material tests: | (See Annex T.8) | Р |
| 4.4.4.8 | Air comprising a safeguard: | | N/A |
| 4.4.4.9 | Accessibility and safeguard effectiveness | No class 3 energy sources become accessible to an ordinary person or an instructed person. No glass is used. All other safeguards remain effective. | Ρ |
| 4.5 | Explosion | | N/A |
| 4.6 | Fixing of conductors | | N/A |
| 4.6.1 | Fix conductors not to defeat a safeguard | | N/A |
| 4.6.2 | 10 N force test applied to: | | N/A |
| 4.7 | Equipment for direct insertion into mains socket - outlets | | N/A |
| 4.7.2 | Mains plug part complies with the relevant standard: | | N/A |
| 4.7.3 | Torque (Nm): | | N/A |
| 4.8 | Products containing coin/button cell batteries | | N/A |
| 4.8.2 | Instructional safeguard | | N/A |
| 4.8.3 | Battery Compartment Construction | | N/A |
| | Means to reduce the possibility of children removing the battery: | | |
| 4.8.4 | Battery Compartment Mechanical Tests: | | N/A |



| 4.8.5 | Battery Accessibility | N/A |
|-------|--|-----|
| 4.9 | Likelihood of fire or shock due to entry of conductive object: | N/A |

| 5 | ELECTRICALLY-CAUSED INJURY | | Р |
|-----------|---|---|-----|
| 5.2.1 | Electrical energy source classifications: | (See appended table 5.2) | Р |
| 5.2.2 | ES1, ES2 and ES3 limits | All circuits inside enclosure were ES1 | Р |
| 5.2.2.2 | Steady-state voltage and current: | (See appended table 5.2) | Р |
| 5.2.2.3 | Capacitance limits: | No such component used | N/A |
| 5.2.2.4 | Single pulse limits | No such pulse | N/A |
| 5.2.2.5 | Limits for repetitive pulses: | No such pulse | 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 | Only ES1 energy source within the equipment | N/A |
| 5.3.1 | General Requirements for accessible parts to ordinary, instructed and skilled persons | | N/A |
| 5.3.2.1 | Accessibility to electrical energy sources and safeguards | | N/A |
| 5.3.2.2 | Contact requirements | | N/A |
| | a) Test with test probe from Annex V | | N/A |
| | b) Electric strength test potential (V): | | N/A |
| | c) Air gap (mm): | | N/A |
| 5.3.2.4 | Terminals for connecting stripped wire | No such terminals | N/A |
| 5.4 | Insulation materials and requirements | | N/A |
| 5.4.1.2 | Properties of insulating material | Only ES1 energy source, only function insulation required | N/A |
| 5.4.1.3 | Humidity conditioning: | (See sub-clau | N/A |
| 5.4.1.4 | Maximum operating temperature for insulating materials: | | N/A |
| 5.4.1.5 | Pollution degree: | Pollution degree 2 | |
| 5.4.1.5.2 | Test for pollution degree 1 environment and for an insulating compound | | N/A |
| 5.4.1.5.3 | Thermal cycling | | N/A |
| 5.4.1.6 | Insulation in transformers with varying dimensions | | N/A |
| 5.4.1.7 | Insulation in circuits generating starting pulses | | N/A |
| 5.4.1.8 | Determination of working voltage | | N/A |
| 5.4.1.9 | Insulating surfaces | | N/A |



| 5.4.1.10 | Thermoplastic parts on which conductive metallic parts are directly mounted | | N/A |
|------------|---|-----------------------|-----|
| 5.4.1.10.2 | Vicat softening temperature: | | N/A |
| 5.4.1.10.3 | Ball pressure: | | N/A |
| 5.4.2 | Clearances | | N/A |
| 5.4.2.2 | Determining clearance using peak working voltage | | N/A |
| 5.4.2.3 | Determining clearance using required withstand voltage: | | N/A |
| | a) a.c. mains transient voltage | | |
| | b) d.c. mains transient voltage: | | |
| | c) external circuit transient voltage: | | |
| | d) transient voltage determined by measurement | | |
| 5.4.2.4 | Determining the adequacy of a clearance using an electric strength test | | N/A |
| 5.4.2.5 | Multiplication factors for clearances and test voltages: | | N/A |
| 5.4.3 | Creepage distances: | | N/A |
| 5.4.3.1 | General | | N/A |
| 5.4.3.3 | Material Group: | Material Group IIIb | |
| 5.4.4 | Solid insulation | | N/A |
| 5.4.4.2 | Minimum distance through insulation: | | N/A |
| 5.4.4.3 | Insulation compound forming solid insulation | | N/A |
| 5.4.4.4 | Solid insulation in semiconductor devices | | N/A |
| 5.4.4.5 | 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 |
| | Number of layers (pcs) | | N/A |
| 5.4.4.6.3 | Non-separable thin sheet material | | N/A |
| 5.4.4.6.4 | Standard test procedure for non-separable thin sheet material: | | N/A |
| 5.4.4.6.5 | Mandrel test | | N/A |
| 5.4.4.7 | Solid insulation in wound components | | N/A |
| 5.4.4.9 | Solid insulation at frequencies >30 kHz: | | N/A |
| 5.4.5 | Antenna terminal insulation | No such terminal used | N/A |
| 5.4.5.1 | General | | N/A |



| 5.4.5.2 | Voltage surge test | | N/A |
|------------|--|--------------------------------------|-----|
| | Insulation resistance (MΩ): | | |
| 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): | | |
| 5.4.9 | Electric strength test: | | N/A |
| 5.4.9.1 | Test procedure for a solid insulation type test | | N/A |
| 5.4.9.2 | Test procedure for routine tests | | N/A |
| 5.4.10 | Protection against transient voltages between external 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: | | N/A |
| 5.4.10.2.3 | Steady-state test: | | N/A |
| 5.4.11 | Insulation between external circuits and earthed circuitry: | | N/A |
| 5.4.11.1 | Exceptions to separation between external circuits and earth | | N/A |
| 5.4.11.2 | Requirements | | N/A |
| | Rated operating voltage U _{op} (V): | | |
| | Nominal voltage U _{peak} (V): | | |
| | Max increase due to variation U _{sp} : | | |
| | Max increase due to ageing DUsa | | |
| | U _{op} = U _{peak} + □U _{sp} +□U _{sa} : | | |
| 5.5 | Components as safeguards | | |
| 5.5.1 | General | | N/A |
| 5.5.2 | Capacitors and RC units | No such capacitors and RC units used | N/A |
| 5.5.2.1 | General requirement | | N/A |
| 5.5.2.2 | Safeguards against capacitor discharge after disconnection of a connector: | | N/A |



| 5.5.3 | Transformers No suc | h component N/A |
|---------|---|---------------------|
| 5.5.4 | Optocouplers No suc | h component N/A |
| 5.5.5 | Relays No suc | h component N/A |
| 5.5.6 | Resistors No suc | h component N/A |
| 5.5.7 | SPD's No suc | h component N/A |
| 5.5.7.1 | Use of an SPD connected to reliable earthing | N/A |
| 5.5.7.2 | Use of an SPD between mains and protective earth | N/A |
| 5.5.8 | Insulation between the mains and external circuit consisting of a coaxial cable | N/A |
| 5.6 | Protective conductor | N/A |
| 5.6.2 | Requirement for protective conductors | N/A |
| 5.6.2.1 | General requirements | N/A |
| 5.6.2.2 | Colour of insulation | N/A |
| 5.6.3 | Requirement for protective earthing conductors | N/A |
| | Protective earthing conductor size (mm ²): | |
| 5.6.4 | Requirement for protective bonding conductors | N/A |
| 5.6.4.1 | Protective bonding conductors | N/A |
| | Protective bonding conductor size (mm ²) | |
| | Protective current rating (A) : | |
| 5.6.4.3 | Current limiting and overcurrent protective devices | N/A |
| 5.6.5 | Terminals for protective conductors | N/A |
| 5.6.5.1 | Requirement | N/A |
| | Conductor size (mm ²), nominal thread diameter (mm): | N/A |
| 5.6.5.2 | Corrosion | N/A |
| 5.6.6 | Resistance of the protective system | N/A |
| 5.6.6.1 | Requirements | N/A |
| 5.6.6.2 | Test Method Resistance (Ω) | N/A |
| 5.6.7 | Reliable earthing | N/A |
| 5.7 | Prospective touch voltage, touch current and protective cor | nductor current N/A |
| 5.7.2 | Measuring devices and networks | N/A |
| 5.7.2.1 | Measurement of touch current | N/A |
| 5.7.2.2 | Measurement of prospective touch voltage | N/A |
| 5.7.3 | Equipment set-up, supply connections and earth connections | N/A |



| | System of interconnected equipment (separate connections/single connection): | |
|---------|--|-----|
| | Multiple connections to mains (one connection at a time/simultaneous connections) | |
| 5.7.4 | Earthed conductive accessible parts | N/A |
| 5.7.5 | Protective conductor current | N/A |
| | Supply Voltage (V) | |
| | Measured current (mA) | |
| | Instructional Safeguard | N/A |
| 5.7.6 | Prospective touch voltage and touch current due to external circuits | N/A |
| 5.7.6.1 | Touch current from coaxial cables | N/A |
| 5.7.6.2 | Prospective touch voltage and touch current from external circuits | N/A |
| 5.7.7 | Summation of touch currents from external circuits | N/A |
| | a) Equipment with earthed external circuits Measured current (mA) | N/A |
| | b) Equipment whose external circuits are not referenced to earth. Measured current (mA): | N/A |

| 6 | ELECTRICALLY- CAUSED FIRE | | Р |
|---------|---|---|-----|
| 6.2 | Classification of power sources (PS) and potential in | gnition sources (PIS) | Р |
| 6.2.2 | Power source circuit classifications | Refer to Energy Source identification and classification table for power source | Р |
| 6.2.2.1 | General | | Р |
| 6.2.2.2 | Power measurement for worst-case load fault : | (See appended table 6.2.2) | Р |
| 6.2.2.3 | Power measurement for worst-case power source fault: | (See appended table 6.2.2) | Р |
| 6.2.2.4 | PS1: | | N/A |
| 6.2.2.5 | PS2: | (See appended table 6.2.2) | Р |
| 6.2.2.6 | PS3: | | N/A |
| 6.2.3 | Classification of potential ignition sources | | Р |
| 6.2.3.1 | Arcing PIS: | | N/A |
| 6.2.3.2 | Resistive PIS: | (See appended table 6.2.3.2) | Р |
| 6.3 | Safeguards against fire under normal operating and | abnormal operating conditions | Р |



| 6.3.1 (a) | No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 C for unknown materials | (See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6) | Ρ |
|-----------|---|---|-----|
| 6.3.1 (b) | Combustible materials outside fire enclosure | No such materials | N/A |
| 6.4 | Safeguards against fire under single fault conditions | | Р |
| 6.4.1 | Safeguard Method | Control fire spread method used | Р |
| 6.4.2 | Reduction of the likelihood of ignition under single fault conditions in PS1 circuits | | N/A |
| 6.4.3 | Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits | | N/A |
| 6.4.3.1 | General | | N/A |
| 6.4.3.2 | Supplementary Safeguards | | N/A |
| | Special conditions if conductors on printed boards are opened or peeled | | N/A |
| 6.4.3.3 | Single Fault Conditions : | | N/A |
| | Special conditions for temperature limited by fuse | | N/A |
| 6.4.4 | Control of fire spread in PS1 circuits | No PS1 circuit | N/A |
| 6.4.5 | Control of fire spread in PS2 circuits | Min. V-0 PCB used, other internal combustible material has a mass of less than 4g or comply class V-2 or better. | Ρ |
| 6.4.5.2 | Supplementary safeguards: | (See appended tables 4.1.2) | Р |
| 6.4.6 | Control of fire spread in PS3 circuit | No PS3 circuit | N/A |
| 6.4.7 | Separation of combustible materials from a PIS | | N/A |
| 6.4.7.1 | General: | | N/A |
| 6.4.7.2 | Separation by distance | | N/A |
| 6.4.7.3 | Separation by a fire barrier | | N/A |
| 6.4.8 | Fire enclosures and fire barriers | See below | Р |
| 6.4.8.1 | Fire enclosure and fire barrier material properties | Metal enclosure used | Р |
| 6.4.8.2.1 | Requirements for a fire barrier | | N/A |
| 6.4.8.2.2 | Requirements for a fire enclosure | | Р |
| 6.4.8.3 | Constructional requirements for a fire enclosure and a fire barrier | No openings | N/A |
| 6.4.8.3.1 | Fire enclosure and fire barrier openings | | N/A |
| 6.4.8.3.2 | Fire barrier dimensions | | N/A |
| 6.4.8.3.3 | Top Openings in Fire Enclosure: dimensions(mm) | No openings | N/A |
| | Needle Flame test | | N/A |



| 6.4.8.3.4 | Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) | No openings | N/A |
|-----------|---|-------------|-----|
| | Flammability tests for the bottom of a fire enclosure: | | N/A |
| 6.4.8.3.5 | Integrity of the fire enclosure, condition met: a), b) or c): | | N/A |
| 6.4.8.4 | Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating | | N/A |
| 6.5 | Internal and external wiring | | N/A |
| 6.5.1 | Requirements | | N/A |
| 6.5.2 | Cross-sectional area (mm2) | | |
| 6.5.3 | Requirements for interconnection to building wiring | | N/A |
| 6.6 | Safeguards against fire due to connection to additional equipment | | N/A |
| | External port limited to PS2 or complies with Clause Q.1 | | N/A |
| | | | |

| 7 | INJURY CAUSED BY HAZARDOUS 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 (PPE) | N/A |
| | Personal safeguards and instructions: | |
| 7.5 | Use of instructional safeguards and instructions | N/A |
| | Instructional safeguard (ISO 7010) | |
| 7.6 | Batteries | N/A |

| 8 | MECHANICALLY-CAUSED INJURY | | Р |
|-------|---|--|-----|
| 8.1 | General | | Р |
| 8.2 | Mechanical energy source classifications | Sharp edges and corners, and equipment mass are both classified as MS1 | Ρ |
| 8.3 | Safeguards against mechanical energy sources | No safeguard is required to be interposed between MS1 and an ordinary person | N/A |
| 8.4 | Safeguards against parts with sharp edges and corners | Accessible edges and corners of the equipment were rounded and are classified as MS1 | N/A |
| 8.4.1 | Safeguards | | N/A |



| 8.5 | Safeguards against moving parts | N/A |
|-----------|---|-----|
| 8.5.1 | MS2 or MS3 part required to be accessible for the function of the equipment | N/A |
| 8.5.2 | Instructional Safeguard | |
| 8.5.4 | Special categories of equipment comprising moving parts | N/A |
| 8.5.4.1 | Large data storage equipment | N/A |
| 8.5.4.2 | Equipment having electromechanical device for destruction of media | N/A |
| 8.5.4.2.1 | Safeguards and Safety Interlocks | N/A |
| 8.5.4.2.2 | Instructional safeguards against moving parts | N/A |
| | Instructional Safeguard | |
| 8.5.4.2.3 | Disconnection from the supply | N/A |
| 8.5.4.2.4 | Probe type and force (N) | N/A |
| 8.5.5 | High Pressure Lamps | N/A |
| 8.5.5.1 | Energy Source Classification | N/A |
| 8.5.5.2 | High Pressure Lamp Explosion Test | N/A |
| 8.6 | Stability | N/A |
| 8.6.1 | Product classification | N/A |
| | Instructional Safeguard | |
| 8.6.2 | Static stability | N/A |
| 8.6.2.2 | Static stability test | N/A |
| | Applied Force | |
| 8.6.2.3 | Downward Force Test | N/A |
| 8.6.3 | Relocation stability test | N/A |
| | Unit configuration during 10 tilt | |
| 8.6.4 | Glass slide test | N/A |
| 8.6.5 | Horizontal force test (Applied Force): | N/A |
| | Position of feet or movable parts: | |
| 8.7 | Equipment mounted to wall or ceiling | N/A |
| 8.7.1 | Mounting Means (Length of screws (mm) and mounting surface) | N/A |
| 8.7.2 | Direction and applied force | N/A |
| 8.8 | Handles strength | N/A |
| 8.8.1 | Classification | N/A |
| 8.8.2 | Applied Force | N/A |
| 8.9 | Wheels or casters attachment requirements | N/A |



| 8.9.1 | Classification | N/A |
|--------|--|-----|
| 8.9.2 | Applied force: | |
| 8.10 | Carts, stands and similar carriers | N/A |
| 8.10.1 | General | N/A |
| 8.10.2 | Marking and instructions | N/A |
| | Instructional Safeguard: | |
| 8.10.3 | Cart, stand or carrier loading test and compliance | N/A |
| | Applied force: | |
| 8.10.4 | Cart, stand or carrier impact test | N/A |
| 8.10.5 | Mechanical stability | N/A |
| | Applied horizontal force (N): | |
| 8.10.6 | Thermoplastic temperature stability (C): | N/A |
| 8.11 | Mounting means for rack mounted equipment | N/A |
| 8.11.1 | General | N/A |
| 8.11.2 | Product Classification | N/A |
| 8.11.3 | Mechanical strength test, variable N | N/A |
| 8.11.4 | Mechanical strength test 250N, including end stops | N/A |
| 8.12 | Telescoping or rod antennas | N/A |
| | Button/Ball diameter (mm): | |

| 9 | THERMAL BURN INJURY | | Р |
|-------|--|--|-----|
| 9.2 | Thermal energy source classifications | Accessiblesurfacesare classified as TS1. | Р |
| 9.3 | Safeguard against thermal energy sources | No safeguards are required between TS1 and ordinary person | N/A |
| 9.4 | Requirements for safeguards | | N/A |
| 9.4.1 | Equipment safeguard | | N/A |
| 9.4.2 | Instructional safeguard | | N/A |

| 10 | RADIATION | | Р |
|--------|--|--|-----|
| 10.2 | Radiation energy source classification | Indicator light in low power application considered as RS1 according to the IEC/EN 62471 | Р |
| 10.2.1 | General classification | | N/A |
| 10.3 | Protection against laser radiation | | N/A |
| | Laser radiation that exists equipment: | | |



| | Normal, abnormal, single-fault: | N/A |
|-----------|--|-----|
| | Instructional safeguard: | |
| | Tool: | |
| 10.4 | Protection against visible, infrared, and UV radiation | N/A |
| 10.4.1 | General | N/A |
| 10.4.1.a) | RS3 for Ordinary and instructed persons: | N/A |
| 10.4.1.b) | RS3 accessible to a skilled person: | N/A |
| | Personal safeguard (PPE) instructional safeguard: | |
| 10.4.1.c) | Equipment visible, IR, UV does not exceed RS1.: | N/A |
| 10.4.1.d) | Normal, abnormal, single-fault conditions: | N/A |
| 10.4.1.e) | Enclosure material employed as safeguard is opaque: | N/A |
| 10.4.1.f) | UV attenuation: | N/A |
| 10.4.1.g) | Materials resistant to degradation UV: | N/A |
| 10.4.1.h) | Enclosure containment of optical radiation: | N/A |
| 10.4.1.i) | Exempt Group under normal operating conditions | N/A |
| 10.4.2 | Instructional safeguard: | N/A |
| 10.5 | Protection against x-radiation | N/A |
| 10.5.1 | X- radiation energy source that exists equipment : | N/A |
| | Normal, abnormal, single fault conditions | N/A |
| | Equipment safeguards | N/A |
| | Instructional safeguard for skilled person : | N/A |
| 10.5.3 | Most unfavourable supply voltage to give maximum radiation | |
| | Abnormal and single-fault condition: | N/A |
| | Maximum radiation (pA/kg): | N/A |
| 10.6 | Protection against acoustic energy sources | N/A |
| 10.6.1 | General | N/A |
| 10.6.2 | Classification | N/A |
| | Acoustic output, dB(A) | N/A |
| | Output voltage, unweighted r.m.s: | N/A |
| 10.6.4 | Protection of persons | N/A |
| | Instructional safeguards: | N/A |
| | Equipment safeguard prevent ordinary person to | |



| | RS2: | |
|----------|---|-----|
| | Means to actively inform user of increase sound pressure: | |
| | Equipment safeguard prevent ordinary person to RS2: | |
| 10.6.5 | Requirements for listening devices (headphones, earphones, etc.) | N/A |
| 10.6.5.1 | Corded passive listening devices with analog input | N/A |
| | Input voltage with 94 dB(A) <i>L</i> _{Aeq} acoustic pressure output: | |
| 10.6.5.2 | Corded listening devices with digital input | N/A |
| | Maximum dB(A) | |
| 10.6.5.3 | Cordless listening device | N/A |
| | Maximum dB(A) | |

| В | NORMAL OPERATING CONDITION TESTS, ABI CONDITION TESTS AND SINGLE FAULT COND | | Р |
|-------|--|---|-----|
| B.2 | Normal Operating Conditions | | Р |
| B.2.1 | General requirements: | (See Test Item Particulars and appended test tables) | Р |
| | Audio Amplifiers and equipment with audio amplifiers | | N/A |
| B.2.3 | Supply voltage and tolerances | 12VDC | Р |
| B.2.5 | Input test: | Not directed connected to the mains, No input power/current marking | N/A |
| B.3 | Simulated abnormal operating conditions | · | N/A |
| B.3.1 | General requirements: | | N/A |
| B.3.2 | Covering of ventilation openings | | N/A |
| B.3.3 | D.C. mains polarity test | | N/A |
| B.3.4 | Setting of voltage selector: | | N/A |
| B.3.5 | Maximum load at output terminals | | N/A |
| B.3.6 | Reverse battery polarity | | N/A |
| B.3.7 | Abnormal operating conditions as specified in Clause E.2. | | N/A |
| B.3.8 | Safeguards functional during and after abnormal operating conditions | | N/A |
| B.4 | Simulated single fault conditions | | N/A |



| B.4.2 | Temperature controlling device open or short- circuited | No Temperature controlling deviceused. | N/A |
|---------|---|--|-----|
| B.4.3 | Motor tests | | N/A |
| B.4.3.1 | Motor blocked or rotor locked increasing the internal ambient temperature: | | N/A |
| B.4.4 | Short circuit of functional insulation | | 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 | | N/A |
| B.4.5 | Short circuit and interruption of electrodes in tubes and semiconductors | | N/A |
| B.4.6 | Short circuit or disconnect of passive components | | N/A |
| B.4.7 | Continuous operation of components | | N/A |
| B.4.8 | Class 1 and Class 2 energy sources within limits during and after single fault conditions | | N/A |
| B.4.9 | Battery charging under single fault conditions : | | N/A |
| С | UV RADIATION | | N/A |
| C.1 | Protection of materials in equipment from UV radiation | | N/A |
| C.1.2 | Requirements | | N/A |
| C.1.3 | Test method | | N/A |
| C.2 | UV light conditioning test | | N/A |
| C.2.1 | Test apparatus | | N/A |
| C.2.2 | Mounting of test samples | | N/A |
| C.2.3 | Carbon-arc light-exposure apparatus | | N/A |
| C.2.4 | Xenon-arc light exposure apparatus | | N/A |
| D | TEST GENERATORS | · | 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 CONTAIN | ING AUDIO AMPLIFIERS | N/A |
| E.1 | Audio amplifier normal operating conditions | | N/A |
| | Audio signal voltage (V) | | |
| | Rated load impedance (Ω): | | |
| E.2 | Audio amplifier abnormal operating conditions | | N/A |



| F | EQUIPMENT MARKINGS, INSTRUCTIONS, AND SAFEGUARDS |) INSTRUCTIONAL | Р |
|-----------|--|---|-----|
| F.1 | General requirements | | Р |
| | Instructions – Language: | English | |
| F.2 | Letter symbols and graphical symbols | | Р |
| F.2.1 | Letter symbols according to IEC60027-1 | Letter symbols for quantities and units are compliance with IEC 60027-1 | Ρ |
| F.2.2 | Graphic symbols IEC, ISO or manufacturer specific | Graphic symbols are compliance with IEC 60417 or ISO 3864-2 or ISO 7000 | Ρ |
| F.3 | Equipment markings | | Р |
| F.3.1 | Equipment marking locations | Equipment marking is located on itsexterior surface and is readily visible | Ρ |
| F.3.2 | Equipment identification markings | | Р |
| F.3.2.1 | Manufacturer identification: | | |
| F.3.2.2 | Model identification: | See marking plate for details | |
| F.3.3 | Equipment rating markings | | Р |
| F.3.3.1 | Equipment with direct connection to mains | | N/A |
| F.3.3.2 | Equipment without direct connection to mains | | Р |
| F.3.3.3 | Nature of supply voltage | | |
| F.3.3.4 | Rated voltage | See marking plate for details | |
| F.3.3.4 | Rated frequency: | | |
| F.3.3.6 | Rated current or rated power: | See marking plate for details | |
| F.3.3.7 | Equipment with multiple supply connections | | N/A |
| F.3.4 | Voltage setting device | | N/A |
| F.3.5 | Terminals and operating devices | | N/A |
| F.3.5.1 | Mains appliance outlet and socket-outlet markings: | | N/A |
| F.3.5.2 | Switch position identification marking: | | N/A |
| F.3.5.3 | Replacement fuse identification and rating markings: | | N/A |
| F.3.5.4 | Replacement battery identification marking : | | N/A |
| F.3.5.5 | Terminal marking location | | N/A |
| F.3.6 | Equipment markings related to equipment classification | Class III apparatus | N/A |
| F.3.6.1 | Class I Equipment | Class III apparatus | N/A |
| F.3.6.1.1 | Protective earthing conductor terminal | | N/A |



| F.3.6.1.2 | Neutral conductor terminal | | N/A |
|-----------|---|---|-----|
| F.3.6.1.3 | Protective bonding conductor terminals | | N/A |
| F.3.6.2 | Class II equipment (IEC60417-5172) | | N/A |
| F.3.6.2.1 | Class II equipment with or without functional earth | Without functional earth | N/A |
| F.3.6.2.2 | Class II equipment with functional earth terminal marking | | N/A |
| F.3.7 | Equipment IP rating marking: | Equipment is not intended for otherthan IPX0. | |
| F.3.8 | External power supply output marking | | N/A |
| F.3.9 | Durability, legibility and permanence of marking | Marking label is tested in appliance | Р |
| F.3.10 | Test for permanence of markings | After the test, the marking remainslegible. | Р |
| F.4 | Instructions | | Р |
| | a) Equipment for use in locations where children not likely to be present - marking | | N/A |
| | b) Instructions given for installation or initial use | | Р |
| | c) Equipment intended to be fastened in place | | N/A |
| | d) Equipment intended for use only in restricted access area | | N/A |
| | e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1 | | N/A |
| | f) Protective earthing employed as safeguard | | N/A |
| | g) Protective earthing conductor current exceeding ES 2 limits | | N/A |
| | h) Symbols used on equipment | | N/A |
| | i) Permanently connected equipment not provided with all-pole mains switch | | N/A |
| j) | j) Replaceable components or modules providing safeguard function | | N/A |
| F.5 | Instructional safeguards | | N/A |
| | Where "instructional safeguard" is referenced in the test report it specifies the required elements, location of marking and/or instruction | | N/A |
| G | COMPONENTS | | N/A |
| G.1 | Switches | | N/A |
| G.1.1 | General requirements | | N/A |
| G.1.2 | Ratings, endurance, spacing, maximum load | | N/A |
| G.2 | Relays | | N/A |
| G.2.1 | General requirements | | N/A |



| | Time (s): | | |
|------------------|--|---------------------|-----|
| G.5.2.2 | Heat run test | | N/A |
| G.5.2.1 | General test requirements | | N/A |
| G.5.2 | Endurance test on wound components | | N/A |
| G.5.1.2 b) | Construction subject to routine testing | | N/A |
| G.5.1.2 a) | Two wires in contact inside wound component, angle between 45° and 90° | | N/A |
| G.5.1 | Wire insulation in wound components | | N/A |
| G.5 | Wound Components | | N/A |
| G.4.3 | Plug is shaped that insertion into mains socket- outlets or appliance coupler is unlikely | | N/A |
| G.4.2 | Mains connector configuration | | N/A |
| G.4.1 | Spacings | | N/A |
| G.4 | Connectors | 1 | N/A |
| G.3.5.2 | Single faults conditions | | N/A |
| G.3.5.1 | Non-resettable devices suitably rated and marking provided | | N/A |
| G.3.5 | Safeguards components not mentioned in G.3.1 to | G.3.5 | N/A |
| G.3.4 | Overcurrent protection devices | | N/A |
| G.3.3 | PTC Thermistors | | N/A |
| | Test Voltage (V) and Insulation Resistance (): | | |
| | Single Fault Condition | | |
| | Aging hours (H): | | |
| G.3.2.1b) | Thermal links tested as part of the equipment | | N/A |
| G.3.2.1a) | Thermal links separately tested with IEC 60691 | | N/A |
| G.3.2 | Thermal links | 1 | N/A |
| G.3.1.2 | Thermal cut-off connections maintained and secure | | N/A |
| G.3.1.1c) | Thermal cut-outs tested as part of the equipment as indicated in c) | | N/A |
| G.3.1.1a) &b) | Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b) | No thermal links | N/A |
| G.3.1 | Thermal cut-offs | No thermal cut-offs | N/A |
| G.3 | Protection Devices | • | N/A |
| G.2.4 | Mains relay, modified as stated in G.2 | | N/A |
| G.2.3 | Relay controlling connectors supply power | | N/A |



| | Temperature (C) | |
|-----------|---|-----|
| G.5.2.3 | Wound Components supplied by mains | N/A |
| G.5.3 | Transformers | N/A |
| G.5.3.1 | Requirements applied (IEC61204-7, IEC61558- 1/-2, and/or IEC62368-1) | N/A |
| | Position | |
| | Method of protection | |
| G.5.3.2 | Insulation | N/A |
| | Protection from displacement of windings | |
| G.5.3.3 | Overload test: | N/A |
| G.5.3.3.1 | Test conditions | N/A |
| G.5.3.3.2 | Winding Temperatures testing in the unit . | N/A |
| G.5.3.3.3 | Winding Temperatures - Alternative test method | N/A |
| G.5.4 | Motors | N/A |
| G.5.4.1 | General requirements | N/A |
| | Position: | |
| G.5.4.2 | Test conditions | N/A |
| G.5.4.3 | Running overload test | N/A |
| G.5.4.4 | Locked-rotor overload test | N/A |
| | Test duration (days) | |
| G.5.4.5 | Running overload test for d.c. motors in secondary circuits | N/A |
| G.5.4.5.2 | Tested in the unit | N/A |
| | Electric strength test (V) | |
| G.5.4.5.3 | Tested on the Bench - Alternative test method; test time (h) | N/A |
| | Electric strength test (V) | |
| G.5.4.6 | Locked-rotor overload test for d.c. motors in secondary circuits | N/A |
| G.5.4.6.2 | Tested in the unit | N/A |
| | Maximum Temperature | N/A |
| | Electric strength test (V) | N/A |
| G.5.4.6.3 | Tested on the bench - Alternative test method; test time (h): | N/A |
| | Electric strength test (V) | N/A |
| G.5.4.7 | Motors with capacitors | N/A |
| G.5.4.8 | Three-phase motors | N/A |



| G.5.4.9 | Series motors | | N/A |
|-----------|---|-------------------------------|-----|
| | Operating voltage | | |
| G.6 | Wire Insulation | | N/A |
| G.6.1 | General | | N/A |
| G.6.2 | Solvent-based enamel wiring insulation | | N/A |
| G.7 | Mains supply cords | l | N/A |
| G.7.1 | General requirements | | N/A |
| | Туре: | | |
| | Rated current (A) | | |
| | Cross-sectional area (mm ²), (AWG): | | |
| G.7.2 | Compliance and test method | | N/A |
| G.7.3 | Cord anchorages and strain relief for non- detachable power supply cords | | N/A |
| G.7.3.2 | Cord strain relief | | N/A |
| G.7.3.2.1 | Requirements | | N/A |
| | Strain relief test force (N): | | |
| G.7.3.2.2 | Strain relief mechanism failure | | N/A |
| G.7.3.2.3 | Cord sheath or jacket position, distance (mm): | | |
| G.7.3.2.4 | Strain relief comprised of polymeric material | | N/A |
| G.7.4 | Cord Entry | (See appended table 5.4.11.1) | N/A |
| G.7.5 | Non-detachable cord bend protection | | N/A |
| G.7.5.1 | Requirements | | N/A |
| G.7.5.2 | Mass (g): | | |
| | Diameter (m): | | |
| | Temperature (C): | | |
| G.7.6 | Supply wiring space | | N/A |
| G.7.6.2 | Stranded wire | | N/A |
| G.7.6.2.1 | Test with 8 mm strand | | N/A |
| G.8 | Varistors | • | N/A |
| G.8.1 | General requirements | | N/A |
| G.8.2 | Safeguard against shock | | N/A |
| G.8.3 | Safeguard against fire | | N/A |
| G.8.3.2 | Varistor overload test | | N/A |
| G.8.3.3 | Temporary overvoltage | | N/A |
| G.9 | Integrated Circuit (IC) Current Limiters | | N/A |



| G.9.1 a) | Manufacturer defines limit at max. 5A. | N/A |
|----------|--|-----|
| G.9.1 b) | Limiters do not have manual operator or reset | N/A |
| G.9.1 c) | Supply source does not exceed 250 VA: | |
| G.9.1 d) | IC limiter output current (max. 5A): | |
| G.9.1 e) | Manufacturers' defined drift: | |
| G.9.2 | Test Program 1 | N/A |
| G.9.3 | Test Program 2 | N/A |
| G.9.4 | Test Program 3 | N/A |
| G.10 | Resistors | N/A |
| G.10.1 | General requirements | N/A |
| G.10.2 | Resistor test | N/A |
| G.10.3 | Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable | N/A |
| G.10.3.1 | General requirements | N/A |
| G.10.3.2 | Voltage surge test | N/A |
| G.10.3.3 | Impulse test | N/A |
| G.11 | Capacitor and RC units | N/A |
| G.11.1 | General requirements | N/A |
| G.11.2 | Conditioning of capacitors and RC units | N/A |
| G.11.3 | Rules for selecting capacitors | N/A |
| G.12 | Optocouplers | N/A |
| | Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results) | N/A |
| | Type test voltage Vini: | |
| | Routine test voltage, Vini,b: | |
| G.13 | Printed boards | Р |
| G.13.1 | General requirements | Р |
| G.13.2 | Uncoated printed boards | Р |
| G.13.3 | Coated printed boards | N/A |
| G.13.4 | Insulation between conductors on the same inner surface | N/A |
| | Compliance with cemented joint requirements (Specify construction): | |
| G.13.5 | Insulation between conductors on different surfaces | N/A |
| | Distance through insulation | N/A |



| | Number of insulation layers (pcs): | |
|------------|---|-----|
| G.13.6 | Tests on coated printed boards | N/A |
| G.13.6.1 | Sample preparation and preliminary inspection | N/A |
| G.13.6.2a) | Thermal conditioning | N/A |
| G.13.6.2b) | Electric strength test | N/A |
| G.13.6.2c) | Abrasion resistance test | N/A |
| G.14 | Coating on components terminals | N/A |
| G.14.1 | Requirements: | N/A |
| G.15 | Liquid filled components | N/A |
| G.15.1 | General requirements | N/A |
| G.15.2 | Requirements | N/A |
| G.15.3 | Compliance and test methods | N/A |
| G.15.3.1 | Hydrostatic pressure test | N/A |
| G.15.3.2 | Creep resistance test | N/A |
| G.15.3.3 | Tubing and fittings compatibility test | N/A |
| G.15.3.4 | Vibration test | N/A |
| G.15.3.5 | Thermal cycling test | N/A |
| G.15.3.6 | Force test | N/A |
| G.15.4 | Compliance | N/A |
| G.16 | IC including capacitor discharge function (ICX) | N/A |
| a) | Humidity treatment in accordance with sc5.4.8 – 120 hours | N/A |
| b) | Impulse test using circuit 2 with Uc = to transient voltage | N/A |
| C1) | Application of ac voltage at 110% of rated voltage for 2.5 minutes | N/A |
| C2) | Test voltage | |
| D1) | 10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer | N/A |
| D2) | Capacitance | |
| D3) | Resistance: | |
| н | 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 | N/A |



| H.3.1.1 | Frequency (Hz) | |
|---------|--|-----|
| H.3.1.2 | Voltage (V) | |
| H.3.1.3 | Cadence; time (s) and voltage (V): | |
| H.3.1.4 | Single fault current (mA): | |
| H.3.2 | Tripping device and monitoring voltage: | N/A |
| H.3.2.1 | Conditions for use of a tripping device or a monitoring voltage complied with | N/A |
| H.3.2.2 | Tripping device | N/A |
| H.3.2.3 | Monitoring voltage (V): | |
| J | INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION | N/A |
| | General requirements | N/A |
| к | SAFETY INTERLOCKS | N/A |
| K.1 | General requirements | N/A |
| K.2 | Components of safety interlock safeguard mechanism | N/A |
| K.3 | Inadvertent change of operating mode | N/A |
| K.4 | Interlock safeguard override | N/A |
| K.5 | Fail-safe | N/A |
| | Compliance: | N/A |
| K.6 | Mechanically operated safety interlocks | N/A |
| K.6.1 | Endurance requirement | N/A |
| K.6.2 | Compliance and Test method: | N/A |
| K.7 | Interlock circuit isolation | N/A |
| K.7.1 | Separation distance for contact gaps & interlock circuit elements (type and circuit location): | N/A |
| K.7.2 | Overload test, Current (A): | N/A |
| K.7.3 | Endurance test | N/A |
| K.7.4 | Electric strength test: | N/A |
| L | DISCONNECT DEVICES | N/A |
| L.1 | General requirements | N/A |
| L.2 | Permanently connected equipment | N/A |
| L.3 | Parts that remain energized | N/A |
| L.4 | Single phase equipment | N/A |
| L.5 | Three-phase equipment | N/A |
| L.6 | Switches as disconnect devices | N/A |
| L.7 | Plugs as disconnect devices | N/A |



| L.8 | Multiple power sources | N/A |
|------------|--|-----|
| М | EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS | N/A |
| M.1 | General requirements | N/A |
| M.2 | Safety of batteries and their cells | N/A |
| M.2.1 | Requirements | N/A |
| M.2.2 | Compliance and test method (identify method) : | N/A |
| M.3 | Protection circuits | N/A |
| M.3.1 | Requirements | N/A |
| M.3.2 | Tests | N/A |
| | - Overcharging of a rechargeable battery | N/A |
| | - Unintentional charging of a non-rechargeable battery | N/A |
| | - Reverse charging of a rechargeable battery | N/A |
| | - Excessive discharging rate for any battery | N/A |
| M.3.3 | Compliance: | N/A |
| M.4 | Additional safeguards for equipment containing secondary lithium battery | N/A |
| M.4.1 | General | N/A |
| M.4.2 | Charging safeguards | N/A |
| M.4.2.1 | Charging operating limits | N/A |
| M.4.2.2a) | Charging voltage, current and temperature: | |
| M.4.2.2 b) | Single faults in charging circuitry: | |
| M.4.3 | Fire Enclosure | N/A |
| M.4.4 | Endurance of equipment containing a secondary lithium battery | N/A |
| M.4.4.2 | Preparation | N/A |
| M.4.4.3 | Drop and charge/discharge function tests | N/A |
| | Drop | N/A |
| | Charge | N/A |
| | Discharge | N/A |
| M.4.4.4 | Charge-discharge cycle test | N/A |
| M.4.4.5 | Result of charge-discharge cycle test | N/A |
| M.5 | Risk of burn due to short circuit during carrying | N/A |
| M.5.1 | Requirement | N/A |
| M.5.2 | Compliance and Test Method (Test of P.2.3) | N/A |
| M.6 | Prevention of short circuits and protection from other effects of electric current | N/A |



| Openings in transportable equipment | | N/A |
|--|---|---|
| Safeguards against the entry of a foreign object | | N/A |
| Safeguard against the consequences of entry of foreign object | | N/A |
| Location and Dimensions (mm): | | |
| Safeguards against entry of foreign object | | N/A |
| General requirements | No openings | N/A |
| SAFEGUARDS AGAINST ENTRY OF FOREIGN | OBJECTS AND SPILLAGE OF | N/A |
| Figures O.1 to O.20 of this Annex applied: | | |
| MEASUREMENT OF CREEPAGE DISTANCES A | ND CLEARANCES | N/A |
| Metal(s) used | Pollution degree considered | |
| ELECTROCHEMICAL POTENTIALS | | N/A |
| Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing): | | N/A |
| Tray for preventing electrolyte spillage | | N/A |
| Protection from electrolyte spillage | | N/A |
| Preventing electrolyte spillage | | N/A |
| Calculation of distance d (mm): | | |
| Correction factors: | | |
| Estimation of hypothetical volume Vz (m ³ /s): | | |
| General requirements | | N/A |
| Test method | | N/A |
| General requirements | | N/A |
| Protection against internal ignition from external spark sources of lead acid batteries | | N/A |
| Compliance and test method | | N/A |
| Ventilation preventing explosive gas concentration | | N/A |
| Risk of explosion from lead acid and NiCd batteries | | N/A |
| Leakage current (mA): | | N/A |
| Compliance (Specify M.6.1.2 or alternative method): | | N/A |
| Test method to simulate an internal fault | | N/A |
| General requirements | | N/A |
| | Test method to simulate an internal fault Compliance (Specify M.6.1.2 or alternative method) Leakage current (mA) Risk of explosion from lead acid and NiCd batteries Ventilation preventing explosive gas concentration Compliance and test method Protection against internal ignition from external spark sources of lead acid batteries General requirements Test method General requirements Estimation of hypothetical volume Vz (m³/s): Calculation of distance d (mm) Protection from electrolyte spillage Protection from electrolyte spillage Protection for preventing electrolyte spillage Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) Metal(s) used Metal(s) used MEASUREMENT OF CREEPAGE DISTANCES A Figures O.1 to O.20 of this Annex applied INTERNAL LIQUIDS General requirements Safeguards against entry of foreign object Location and Dimensions (mm) Safeguard against the entry of a foreign object | Test method to simulate an internal fault Compliance (Specify M.6.1.2 or alternative method) Leakage current (mA) Risk of explosion from lead acid and NiCd batteries Ventilation preventing explosive gas concentration Compliance and test method Protection against internal ignition from external spark sources of lead acid batteries General requirements Test method General requirements Estimation of hypothetical volume Vz (m ³ /s): Carcection factors Calculation of distance d (mm) Protection from electrolyte spillage Protection from electrolyte spillage Tray for preventing electrolyte spillage Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) Metal(s) used Pollution degree considered MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES Figures 0.1 to 0.20 of this Annex applied Instructions be prevent Safeguards against entry of foreign object Location and Dimensions (mm) Lection and Dimensions (mm) Safeguards against the entry of a foreign object |



| | Transportable equipment with metalized plastic parts | N/A |
|----------|--|-----|
| P.2.3.2 | Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard): | N/A |
| P.3 | Safeguards against spillage of internal liquids | N/A |
| P.3.1 | General requirements | N/A |
| P.3.2 | Determination of spillage consequences | N/A |
| P.3.3 | Spillage safeguards | N/A |
| P.3.4 | Safeguards effectiveness | N/A |
| P.4 | Metallized coatings and adhesive securing parts | N/A |
| P.4.2 a) | Conditioning testing | N/A |
| | Tc (°C) | |
| | Tr (°C): | |
| | Ta (°C): | |
| P.4.2 b) | Abrasion testing | N/A |
| P.4.2 c) | Mechanical strength testing: | N/A |
| Q | CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING | Р |
| Q.1 | Limited power sources | Р |
| Q.1.1 a) | Inherently limited output | Р |
| Q.1.1 b) | Impedance limited output | N/A |
| | - Regulating network limited output under normal operating and simulated single fault condition | N/A |
| Q.1.1 c) | Overcurrent protective device limited output | N/A |
| Q.1.1 d) | IC current limiter complying with G.9 | N/A |
| Q.1.2 | Compliance and test method | N/A |
| Q.2 | Test for external circuits – paired conductor cable | N/A |
| | Maximum output current (A) | |
| | Current limiting method: | |
| R | LIMITED SHORT CIRCUIT TEST | N/A |
| R.1 | General requirements | N/A |
| R.2 | Determination of the overcurrent protective device and circuit | N/A |
| R.3 | Test method Supply voltage (V) and short-circuit current (A)). | 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 | |
| | Wall thickness (mm): | |
| | Conditioning (C): | |
| | 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 | |
| | Wall thickness (mm) | |
| | Conditioning (C) | |
| | Test flame according to IEC 60695-11-5 with conditions as set out | N/A |
| | Test specimen does not show any additional hole | N/A |
| S.3 | Flammability test for the bottom of a fire enclosure | N/A |
| | Samples, material | |
| | Wall thickness (mm) | |
| | Cheesecloth did not ignite | N/A |
| S.4 | Flammability classification of materials | N/A |
| S.5 | Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W | N/A |
| | Samples, material | |
| | Wall thickness (mm): | |
| | Conditioning (test condition), (C): | |
| | Test flame according to IEC 60695-11-20 with conditions as set out | N/A |
| | After every test specimen was not consumed completely | N/A |
| | After fifth flame application, flame extinguished within 1 min | N/A |



| т | MECHANICAL STRENGTH TESTS | Р | |
|-------|--|--------------------|--|
| T.1 | General requirements | Р | |
| T.2 | Steady force test, 10 N | N/A | |
| Т.3 | Steady force test, 30 N | N/A | |
| T.4 | Steady force test, 100 N | N/A | |
| T.5 | Steady force test, 250 N (See append | ded table T5) P | |
| Т.6 | Enclosure impact test | N/A | |
| | Fall test | N/A | |
| | Swing test | N/A | |
| T.7 | Drop test: (See append | ded table T7) P | |
| T.8 | Stress relief test: (See append | ded table T8) P | |
| T.9 | Impact Test (glass) | N/A | |
| T.9.1 | General requirements | N/A | |
| T.9.2 | Impact test and compliance | N/A | |
| | Impact energy (J) | | |
| | Height (m) | | |
| T.10 | Glass fragmentation test | N/A | |
| T.11 | Test for telescoping or rod antennas | N/A | |
| | Torque value (Nm) | | |
| U | MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION | | |
| U.1 | General requirements | N/A | |
| U.2 | Compliance and test method for non-intrinsically protected CRTs | N/A | |
| U.3 | Protective Screen: | N/A | |
| V | DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROB | ES AND WEDGES) N/A | |
| V.1 | Accessible parts of equipment | N/A | |
| V.2 | Accessible part criterion | N/A | |



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

| 4.1.2 | TABLE: | List of critical com | ist of critical components | | | | |
|---------------|--------|--|----------------------------|---|------------------------------|--------------------|----------------------|
| Object / part | No. | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) conform | |
| Metal enclos | sure | | | Thickness min.1.5mm | EN 62368- 1 | Test with | appliance |
| РСВ | | Interchangeable | Interchangeabl e | V-0, 130⁰C, | UL 796 | UL | |
| Adapter | | GUANGDONG ABT INDUSTRIAL CO., LTD. | ABT020120A | Input:100-240V~, 50/60Hz, 1.5A, Output: DC12.0V 2.0A | IEC 62368- 1 J 62368-1 | TUV SU PSB-JP- | D Cert. 2020-0188 |

Supplementary information:

¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.

²⁾ Description line content is optional. Main line description needs to clearly detail the component used for testing



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

| 4.8.4, 4.8.5 | TABLE: L | ithium coin/button cell batter | N/A | |
|-----------------|-----------------|-----------------------------------|------------------------------------|-------------------------------|
| (The follow | ing mechanica | al tests are conducted in the seq | uence noted.) | |
| 4.8.4.2 | TABLE: St | ress Relief test | | |
| F | Comments | | | |
| Remote control | | | | |
| 4.8.4.3 | TABLE: Ba | attery replacement test | | |
| Battery pa | rt no | | .: | |
| Battery Ins | stallation/with | drawal | Battery Installation/Removal Cycle | Comments |
| | | | 1 | |
| | | | 2 | |
| | | | 3 | |
| | | | 4 | |
| | | | 5 | |
| | | | 6 | |
| | | | 8 | |
| | | | 9 | |
| | | | 10 | |
| 4.8.4.4 | TABLE: Dr | op test | | |
| mpact Are | ea | Drop Distance | Drop No. | Observations |
| | | | 1 | |
| | | | 2 | |
| | | | 3 | |
| 4.8.4.5 | TABLE: Im | pact | | |
| Impacts | per surface | Surface tested | Impact energy (Nm) | Comments |
| | | | 2 | |
| | | | 2 | |
| | | | 2 | |
| 4.8.4.6 | TABLE: Cr | rush test | | |
| Test | position | Surface tested | Crushing Force (N) | Duration force applied (s) |
| | | 1 | | |


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

| 4.8.5 TABLE: Lithium coin/button cell batteries mechanical test result | | | | | N/A | | | |
|--|------------------------------|--|-----------|----------------|-----|--|--|--|
| Test p | Test position Surface tested | | Force (N) | Force (N) Dura | | | | |
| | | | | | | | | |
| Supplementa | upplementary information: | | | | | | | |

| 5.2 | Table: 0 | Classification of | of electrical energy | gy sources | | | Р | |
|---|-------------------|-------------------|-------------------------|---------------|------------|-----|-------------|--|
| 5.2.2.2 – Steady State Voltage and Current conditions | | | | | | | | |
| | Cumplu | Location (e.g. | | F | Parameters | | F.0 | |
| No. | Supply Voltage | circuit | Test conditions | U | I | Hz | ES Class | |
| desi | designation) | designation) | | (Apk or Arms) | 112 | | | |
| 1 | 12V | All circuit | Normal | N/A | N/A | N/A | | |
| | | | Abnormal | N/A | N/A | N/A | ES1 | |
| | | | Single fault – SC/OC | N/A | N/A | N/A | | |

| 5.2.2.3 | 3 - Capacitan | ce Limits | | | | | |
|---------|----------------|---------------------------|-------------------------|------------------|-----------------|--------------|----------|
| No. | Supply | Location (e.g. circuit | Test | | Parameters | s Upk (V) | ES |
| | Voltage | designation) | conditions | Capacitanc | Capacitance, nF | | Class |
| | | | Normal | | | | |
| | | | Abnormal | | | | |
| | | | Single fault – SC/OC | | | | |
| 5.2.2.4 | 4 - Single Pul | ses | | | | | · |
| | Supply | Location (e.g. | Test | | Parameters | 5 | – ES |
| No. | Voltage | circuit designation) | conditions | Duration (ms) | Upk (V) | lpk (mA) | Class |
| | | | Normal | | | | |
| | | | Abnormal | | | |] |
| | | | Single fault – SC/OC | | | | |



| | | | IEC | 62368-1 | | | | | |
|--------|-----------------------------|-------------------------|-------------------------|-----------|--------|-------------|----------|----------|--|
| Cla | use | Require | ment + Test | | | Result - Re | mark | Verdict | |
| 5.2.2. | 5.2.2.5 - Repetitive Pulses | | | | | | | | |
| Supply | | Location (e.g. | Test | | | Parameters | | | |
| No. | Voltage | circuit designation) | conditions | Off time | (ms) | Upk (V) | lpk (mA) | ES Class | |
| | | | Normal | | | | | | |
| | | | Abnormal | | | | | | |
| | | | Single fault – SC/OC | | | | | | |
| Test (| Conditions | | | 1 | | | l | - | |
| | ١ | Normal – | | | | | | | |
| | Abnormal - | | | | | | | | |
| Supp | lementary | information: SC=S | Short Circuit, OC | =Short Ci | ircuit | | | | |



| | IE | C 62368-1 | | | | |
|--|--------------------------------|-----------|-----|-------------|-----|------------------------------------|
| Clause | Requirement + Test | | Re | esult - Rem | ark | Verdict |
| 5.4.1.4, 6.3.2, 9.0, B.2.6 | TABLE: Temperature measureme | ents | | | | P |
| | Supply voltage (V): | 12V | | | | |
| | Ambient T _{min} (C): | | | | | |
| | Ambient T _{max} (C): | | | | | |
| | Tma (C): | 25.0 | | | | |
| Maximum measured temperature T of part/at: | | | Τ (| C) | 1 | Allowed T _{max} (C) |
| Enclosure | of adaptor | 29.2 | | | | 77(TS1) |
| DC inlet | | 29.4 | | | | Ref. |
| C18 body | | 35.0 | | | | 105 |
| L2 body | | 43.7 | | | | 130 |
| C36 body | | 31.1 | | | | 105 |
| PCB near BZ1 | | 30.8 | | | | 130 |
| LED cover | | 30.6 | | | | Ref. |
| PCB near | TVS27 | 31.7 | | | | 130 |
| RY2 body | | 30.9 | | | | Ref. |
| TX1 coil | | 33.3 | | | | Ref. |
| PCB near | TX1 | 33.5 | | | | 130 |
| PCB near | U14 | 32.3 | | | | 130 |
| PCB near | U7 | 34.7 | | | | 130 |
| PCB near | U1 | 29.9 | | | | 130 |
| PCB near | J4 | 34.0 | | | | 130 |
| PCB near U8 | | 30.7 | | | | 130 |
| PCB near U25 | | 31.9 | | | | 130 |
| Button bod | у | 29.1 | | | | 77(TS1) |
| RS485 terr | ninal | 29.1 | | | | 77(TS1) |
| Metal enclo | osure | 28.9 | | | | 60(TS1) |
| Ambient | | 25.0 | | | | |
| Suppleme | ntary information: | | ı | I | | |



| | IEC 62368-1 | | | | | | | | |
|---|---|----------|----------|------|-----------------|-------------------------------------|----------------------|--|---------|
| Clause | Requirement + Test | | | | Result - Remark | | | | Verdict |
| Temperature T of winding: $t_1 (^{\circ}C)$ $R_1 ()$ $t_2 (^{\circ}C)$ $R_2 ()$ T (| | | | | T (C) | Allowed T _{max} (C) | Insulatio n class | | |
| | | | | | - | | | | |
| Supplemen | tary information: | | | | | | | | |
| Note 1: Tma | Note 1: Tma should be considered as directed by appliable requirement | | | | | | | | |
| Note 2: Tma | a is not included in ass | sessment | of Touch | Temp | erat | ures (Clau | use 9) | | |

| 5.4.1.10.2 | TABLE: Vicat softening temperature of | S | N/A | | | | |
|-------------|---------------------------------------|----------------------------|-----------------|----|--|--|--|
| Penetration | ו (mm): | | | | | | |
| Object/ Par | rt No./Material | Manufacturer /trademark | T softening (°C | ;) | | | |
| | | | | | | | |
| supplemen | supplementary information: | | | | | | |

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

| 5.4.2.2, 5.4.2.4 and 5.4.3 | TABLE: Minimum Clearances/Creepage distance | | | | | | | N/A |
|----------------------------------|--|----------|--|--------------|------|--|--|------------|
| • | $\begin{array}{c} \mbox{Clearance (cl) and creepage} \\ \mbox{distance (cr) at/of/between:} \end{array} & \begin{array}{c} \mbox{Up} \\ (V) \end{array} & \begin{array}{c} \mbox{V} \\ \mbox{r.m.s.} \\ (V) \end{array} & \begin{array}{c} \mbox{Frequenc} \\ \mbox{y} (Hz)^1 \\ \mbox{v} \end{array} & \begin{array}{c} \mbox{Required} \\ \mbox{cl} (mm) \end{array} & \begin{array}{c} \mbox{Cl} \\ \mbox{mmm} \\ \mbox{d}^3 \\ \mbox{cr} (mm) \end{array} \end{array}$ | | | | | | | cr (mm) |
| | | | | | | | | |
| Note 1: On Note 2: Se | ntary information: ly for frequency above table 5.4.2.4 if this povide Material Group | is based | | ric strength | test | | | |



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| | IEC 62368-1 | | | | | | | | |
|-------------------|-----------------------------|----------------------------|---------------------|-----------------|-------|---------|--|--|--|
| Clause | Requireme | ent + Test | Result - Re | Result - Remark | | | | | |
| 5.4.2.3 | TABLE: Minimum C voltage | Clearances distance | es using required | d withs | stand | N/A | | | |
| | Overvoltage Category | / (OV): | | | | | | | |
| Pollution Degree: | | | | | | | | | |
| Clearance | e distanced between: | Required withstand voltage | Required cl (mm) | Measured cl (mr | | cl (mm) | | | |

--

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Supplementary information:

| 5.4.2.4 | TABLE: Clearances based on electric strength test | | | | | | | |
|----------------------------|---|---------------------|--|-----------------|--|--|--|--|
| Test voltag | ge applied between: | Required cl (mm) | Test voltage (kV) peak/ r.m.s. / d.c. | Breakd Yes / | | | | |
| | | | | | | | | |
| Supplementary information: | | | | | | | | |

| 5.4.4.2, 5.4.4.5 c) 5.4.4.9 | TABLE: Distance through insulation measurements | | | | | |
|--|---|---------------------|---------------------|----------|-------------------------|-------------|
| Distance the insulation of the second | - | Peak voltage (V) | Frequenc y (kHz) | Material | Required DTI (mm) | DTI (mm) |
| Plastic enclosure | | | | | | |
| Supplementary information: | | | | | | |

| 5.4.9 | TABLE: Electric strength tests | | | | |
|-------------------------------|--------------------------------|---------------------------|------------------|--|---------------------|
| Test voltage applied between: | | Voltage shape (AC, DC) | Test voltage (V) | | eakdown ′es / No |
| Functional | : | | | | |
| | | | | | |
| Basic/supp | lementary: | | | | |
| | | | | | |
| Reinforced | : | | | | |
| Plastic enc | losure | | | | No |



| | IEC 62368-1 | | | | | | | | | |
|------------|--------------------------------------|--|--|----------------------|---------|--|--|--|--|--|
| Clause | Requirement + Test Result - Remark | | | | Verdict | | | | | |
| | | | | | | | | | | |
| 5.4.9 | TABLE: Electric strength tests N | | | | N/A | | | | | |
| | | | | eakdown ⁄ es / No | | | | | | |
| Routine Te | sts: | | | | | | | | | |
| | | | | | | | | | | |
| Supplemer | Supplementary information: | | | | | | | | | |

| 5.5.2.2 | TABLE: S | tored discha | arge on capa | citors | | | N/A |
|-----------------|---|------------------|----------------------------------|---------------------------------|---------------------------------------|------------|-------------|
| Supply Ve Hz | oltage (V), | Test Location | Operating Condition (N, S) | Switch position On or off | Measured Voltage (after 2 seconds) | ES Clas | ssification |
| | | L/N | Normal | N/A | | | |
| X-capacit | ntary informat tors installed ing resistor ra | for testing ar | e: | | | | |
| Notes: | | | | | | | |
| A. Test L | ocation: | | | | | | |
| Phase to | Neutral; Pha | ase to Phase; | Phase to Ea | rth; and/or Ne | eutral to Earth | | |
| B. Opera | ating conditio | n abbreviatio | ns: | | | | |
| N – Norm | nal operating | condition (e. | g., normal op | eration, or op | en fuse); S –Single fa | ault condi | tion |

 5.6.6.2 TABLE: Resistance of protective conductors and terminations
 N/A

 Accessible part
 Test current (A)
 Duration (min)
 Voltage drop (V)
 Resistance (Ω)

 Image: Colspan="3">Image: Colspan="3">Image: Colspan="3">Image: Colspan="3">Image: Colspan="3">Image: Colspan="3">Image: Colspan="3">Image: Colspan="3">Image: Colspan="3"

 Supplementary information:
 Image: Colspan="3">Image: Colspan="3">Image: Colspan="3"

| 5.7.2.2, 5.7.4 | • | | | |
|-------------------|-------|----------------------------------|-------|--|
| Supply vol | tage: | | — | |
| Location | | Test conditions specified in 6.1 | Touch | |



| IEC 62368-1 | | | | | | | |
|-------------|--------------------|-------------|---|--------------|--|--|--|
| Clause | Requirement + Test | | Result - Remark | Verdict | | | |
| | | Cor clau | EC 60990 or Fault ndition No in IEC 60990 use 6.2.2.1 through 6.2.2.8, ept for 6.2.2.7 | current (mA) | | | |
| | | | 1 | | | | |
| | | | 2* | | | | |
| | | | 3 | | | | |
| | | | 4 | | | | |
| | | | 5 | | | | |
| | | | 6 | | | | |
| | | | 8 | | | | |

Notes:

[1] Supply voltage is the anticipated maximum Touch Voltage

[2] Earthed neutral conductor [Voltage differences less than 1% or more]

[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3

[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.

[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

| 6.2.2 | Table: Electric | n P | | | | | | |
|----------------------------|---|-------------|------------------------|--------------------------------------|----------------------|--|--|--|
| Source | Description | Measurement | Max Power after 3 s | Max Power after 5 s* ⁾ | PS Classification | | | |
| | | Power (W): | | 34.94 | | | | |
| А | DC inlet | VA (V) : | | 11.78 | PS2 | | | |
| | | IA (A) : | | 2.97 | | | | |
| Supplementary Information: | | | | | | | | |
| (*) Measure | (*) Measurement taken only when limits at 3 seconds exceed PS1 limits | | | | | | | |

| 6.2.3.1 | Table: Determination of Potential Ignition Sources (Arcing PIS) | | | | | | | |
|---------|---|--|-------------------------------------|---|--|----------------------|--|--|
| | Location | Open circuit voltage After 3 s (Vp) | Measured r.m.s current (Irms) | Calculated value (V _p x I _{ms}) | | sing PIS? es / No | | |



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| Clause | Requirement + Test | | Result - Remark | | | Verdict | |
|--|----------------------------|---|-----------------|--|---|---------|---|
| All primary of secondary of equipment of the second | circuits inside the | * | * | | * | | * |
| Supplemer | Supplementary information: | | | | | | |

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

| 6.2.3.2 | Table: Det | Table: Determination of Potential Ignition Sources (Resistive PIS) | | | | | | |
|---|--------------|--|--|---|--|-----------------------------|--|--|
| Circuit Loo | cation (x-y) | Operating Condition (Normal / Describe Single Fault) | Measured wattage or VA During first 30 s (W / VA) | Measured wattage or VA After 30 s (W / VA) | Protective Circuit, Regulator, or PTC Operated? Yes / No (Comment) | Resistive PIS? Yes/No | | |
| All primary secondary inside the e enclosure | circuits | * | * | * | * | | | |

Supplementary Information:

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

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

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

| 8.5.5 | TABLE: High Pressure Lamp | | | N/A |
|-------------|---------------------------|--------|-------------------------|-----|
| Description | 1 | Values | Energy So Classifica | |
| Lamp type | : | | — | |
| Manufactu | rer: | | — | |
| Cat no | : | | — | |
| Pressure (| cold) (MPa): | | MS_ | |
| Pressure (| operating) (MPa): | | MS_ | |
| Operating | time (minutes): | | | |
| Explosion I | method: | | | |



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|--|----------------------------|----------------------|-----|--|--|--|--|--|--|--|
| Clause | Requirement + Test | Result - Remark Vero | | | | | | | | |
| Max particle length escaping enclosure (mm): MS_ | | | | | | | | | | |
| Max particle | e length beyond 1 m (mm): | | MS_ | | | | | | | |
| Overall resu | Overall result | | | | | | | | | |
| Supplemen | Supplementary information: | | | | | | | | | |

| B.2.5 | TABLE: Inp | out test | | | | | | Р | | |
|-----------|----------------------------|----------------|-------------|----------------|-------------|---------------|---------|-----------|--|--|
| U (V) | I (A) | I rated (A) | P (W) | P rated (W) | Fuse No | l fuse (A) | Conditi | on/status | | |
| 12 | 0.11 | 2 | 1.32 | | | | Normal | condition | | |
| Supplemen | Supplementary information: | | | | | | | | | |
| Equipment | may be hav | e rated currer | nt or rated | power or both. | . Both shou | ıld be mea | asured | | | |

| B.3 TABLE: Abnormal operating condition tests | | | | | | | | | | | N/A |
|---|----------|---------------------|------------------------|----------------------|-------------|------|----------|-------|---|------------|-----|
| Ambient te | emperati | ure (C) | | | | : | See | below | | | |
| | | | nufacturer, mo | | • | : | | | | | |
| Compone No. | | bnormal ondition | Supply voltage, (V) | Test time (ms) | Fuse no. | curr | rent, A) | | 0 | bservation | |
| | | | | | | - | - | | | | |
| | | | | | | | | | | | |

including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4.

| B.4 | TABLE: Fault condition tests | N/A |
|-----|------------------------------|-----|
|-----|------------------------------|-----|



| | IEC 62368-1 | | | | | | | | | | | | |
|---|---|----|--|--|--|--|--|--|------------|--|--|--|--|
| Clause | Clause Requirement + Test Result - Remark | | | | | | | | | | | | |
| Ambient temperature (C) See below Power source for EUT: Manufacturer, model/type, output rating | | | | | | | | | | | | | |
| | | | | | | | | | bservation | | | | |
| | | | | | | | | | | | | | |
| Supplementa | y information |): | | | | | | | - | | | | |

| Annex M | TABLE: Bat | teries | | | | | | | N/A |
|--|------------------|--|----------------|------------------|------------------|------------------|------------------|------------------|------------------|
| The tests o | f Annex M a | e applicat | ole only wher | n appropr | iate batte | ry data is | not availa | able | |
| Is it possibl | le to install th | e battery i | in a reverse p | polarity po | osition? | : | | | |
| | Non-re | chargeabl | e batteries | | Re | echargeal | ole batter | ies | |
| | Disch | Discharging Un- Charging Dischargin intentional | | | | arging | | ersed rging | |
| | Meas. current | Manuf. Specs. | charging | Meas. current | Manuf. Specs. | Meas. current | Manuf. Specs. | Meas. current | Manuf. Specs. |
| Max. curren during normal condition | nt | | | | | | | | |
| Max. curren during fault condition | | | | | | | | | |
| | | | | | | | | | |
| Test results | 8: | | | | | | | | Verdict |
| - Chemical | leaks | | | | | | | | |
| - Explosion | of the batter | у | | | | | | | |
| - Emission | of flame or e | xpulsion c | of molten met | al | | | | | |
| - Electric st | rength tests | of equipm | ent after com | npletion of | f tests | | | | |
| Supplemer | ntary informat | tion: | | | | | | | |

| Annex | Table: Additional safeguards for equipment containing secondary lithium | N/A |
|-------|---|-----|
| M.4 | batteries | |



| | | | IE | C 62368-1 | | | | |
|--|-------------|------------|--------------|--|-------------|----------|-------------|---------|
| Clause | | Require | ement + Test | | Result | - Remark | | Verdict |
| Battery | | Test | conditions | | Measurement | S | Observation | |
| No. | | | | U | I (A) | Temp (C) | • | |
| | | Normal | | | | | | |
| | | Abnorma | I | | | | | |
| | | Single fau | ult –SC/OC | | | | | |
| Norma | | | ormal | | | | | |
| | | Abnorma | l | | | | | |
| | | Single fau | ult – SC/OC | | | | | |
| Supplementa | ary Informa | ation: | | | | | | |
| Battery identificationCharging at Tlowest (C)Observ | | | ition | Charging at T _{highest} (C) | Obse | ervat | ion | |
| | | | | | | | | |
| | | | | | | | | |
| Supplementa | ary Informa | ation: | | | | | | |

| Annex Q.1 | TABLE: Circuits intended for interconnection with building wiring (LPS) | | | | | | | | |
|-------------------------|---|---------------------|-------------------|-------|-------|-------|--|--|--|
| Note: Meas | sured UOC (V) with all Ic | ad circuits disco | onnected: | | | | | | |
| Output | Components | U _{oc} (V) | I _{sc} (| (A) | S (| VA) | | | |
| Circuit | | | Meas. | Limit | Meas. | Limit | | | |
| RS485-1 A+ to B- | Normal | 4.90 | 0.0032 | 8 | 0.016 | 100 | | | |
| RS485-1 A+ to GND | Normal | 4.90 | 0.0028 | 8 | 0.014 | 100 | | | |
| USB | Normal | 4.99 | 0.92 | 8 | 4.28 | 100 | | | |
| TYPE-C | Normal | 5.02 | 0.93 | 8 | 4.56 | 100 | | | |
| POE(45,t o 78) | Normal | 0 | 0 | 8 | 0 | 100 | | | |
| Suppleme | entary Information: | 1 | I | | 1 | 1 | | | |
| SC=Short | circuit, OC=Open circ | uit | | | | | | | |



| | | | IEC | 62368-1 | | | | | | |
|--|------------------------|------------|-------------------|-------------|---|------------------------|--------|---------|--|--|
| Clause | | Requirer | nent + Test | | | Result - Rema | rk | Verdict | | |
| T.2, T.3, T.4, T.5TABLE: Steady force testP | | | | | | | | | | |
| Part/Locat | Part/Location Material | | Thickness (mm) | Forc (N) | - | Test Duration (sec) | Obser | vation | | |
| Top/Side/E m | Botto | Metal | Min.1.5 | 250 |) | 5s | No dai | maged | | |
| Supplemen | tary in | formation: | | | | | | | | |

| T.6, T.9 | TAB | ABLE: Impact tests | | | | | | | | |
|------------|---------|--------------------|-------------------|---------------------------|-------------|--|--|--|--|--|
| Part/Locat | ion | Material | Thickness (mm) | Vertical distance (mm) | Observation | | | | | |
| | | | | | | | | | | |
| Supplement | tary ir | nformation: | | | | | | | | |

| T.7 | TABLE: Drop tests | | | | Р |
|------------------|-------------------|-------------------|---------------------|---------------------|-------|
| Part/Locatio | on Material | Thickness (mm) | Drop Height (mm) | Observation | |
| Top/Side/Bo m | Metal | Min. 1.5mm | 1000 | No damaged, no haza | ards. |
| Supplementa | ary information: | | | | |

| Т.8 | TAB | LE: Stress relie | f test | | | | N/A |
|------------|--------|------------------|-------------------|----------------------------|-----------------|--------|--------|
| Part/Locat | ion | Material | Thickness (mm) | Oven Temperature (C) | Duration (h) | Observ | ration |
| | | | | | | | |
| Supplemen | tary i | nformation: | | | | | |



| IEC62368_1B - ATTACHMENT | | | | | |
|---|--|--|------------|--|--|
| Clause | Requirement + Test | Result - Remark | Verdict | | |
| (Audio/vide | ATTACHMENT TO TEST REP IEC 62368-1 (JAPAN) NATIONAL DIFFERE eo, information and communication technology equ | NCES | rements) | | |
| Differences ac | ccording to: J62368-1 (H30) | | | | |
| Attachment F | orm No JP_ND_IEC62368_1B | | | | |
| Attachment O | riginator: UL (JP) | | | | |
| Master Attach | ment Date 2018-11-22 | | | | |
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| | National Differences | | | | |
| 4.1.2 | Where the component, or a characteristic of a component, is a safeguard or a part of a safeguard, components shall comply with the requirements of this standard or, where specified in a requirements clause, with the safety aspects of the relevant JIS component standards or IEC component standards, or components shall have properties equivalent to or better than these. | | Ρ | | |
| 5.6.1 | Mains socket-outlet and appliance outlet shall comply with Clause G.4.2A if they are incorporated as part of the equipment. | No mains socket-outlet and appliance outlet. | N/A | | |
| 5.6.2.1 | Mains connection of class 0I equipment: Instructional safeguard in accordance with Clause F.3.6.1A; Mains plug having a lead wire for protective earthing connection of class 0I equipment; Independent main protective earthing terminal installed by ordinary person. | | N/A | | |
| 5.6.2.2 | This requirement does not apply to internal conductor of the cord set that is covered by the sheath of mains cord and is formed together with mains plug and appliance connector. | | N/A | | |
| 5.6.3 | In case of class 0I equipment using power supply cord having two conductors (no earthing conductor), the conductor of protective earthing lead wire shall comply with either of the following: – use of annealed copper wire with 1.6 mm diameter or corrosion-inhibiting metal wire having size and strength that are equivalent to or more than the above copper wire – single core cord or single core cab tire cable with 1.25 mm ² or more cross-sectional area | | N/A | | |



| IEC62368_1B - ATTACHMENT | | | | |
|--------------------------|---|-----------------|---------|--|
| Clause | Requirement + Test | Result - Remark | Verdict | |
| 5.7.3 | For class 0I equipment that is provided with mains socket-outlet in the configuration as specified in JIS C 8282 series or JIS C 8303, or otherwise being considered to comply with relevant regulations, or that is provided with mains appliance outlet as specified in JIS C 8283-2-2 for the purpose of interconnection, the measurement is conducted on the system of the interconnected equipment having a single connection to the mains. | | N/A | |
| 5.7.4 | In case of class 0I equipment, touch current shall not exceed 1.41 mA peak or for sinusoidal wave, 1.0 mA r.m.s. when measured using the network specified in Figure 4 of IEC 60990. | | N/A | |
| 6.4.3.3 | A fuse complying with JIC C 6575 series or a fuse having equivalent characteristics shall open within 1 s. For Class A fuse of JIS C 6575, replace "2.1 times" by "1.35 times" and in case of Class B fuse of JIS C 6575, replace "2.1 times" by "1.6 times". A fuse not complying with JIS C 6575 series shall be tested with the breaking capacity taken into account. | | N/A | |
| 8.5.4.2.1 | Only three-phase stationary equipment rated more than 200 V ac can be considered as being for use in locations where children are not likely to be present, when complying with Clause F.4. | | N/A | |
| 8.5.4.2.2 | For equipment installed where children may be present, an instructional safeguard shall be provided by easily understandable wording in accordance with Clause F.5, except that element 3 is optional. | | N/A | |
| 8.5.4.2.4 | The media destruction device is tested according to Clause V.1.2 with applicable jointed test probes to the opening. And then the wedge probe per Figure V.4 shall not contact any moving part. | | N/A | |
| 8.5.4.2.5 | The wedge probe of Figure V.4 and applicable jointed test probes specified in Clause V.1.2 shall not contact any moving part. Instructional safeguard shall not be used instead of equipment safeguard for preventing access to hazardous moving parts. | | N/A | |
| 9.2.6, Table 38 | Handles, Knobs, grips, etc. and external surfaces either held, touched or worn against the body in normal use (> 1 min) ^{b,c} | | Р | |



| IEC62368_1B - ATTACHMENT | | | |
|--------------------------|--|---------------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| F.3.5.1 | Instructional safeguard of class 0I equipment in accordance with Clause F.5 when a mains socket- outlet as specified in JIS C 8282 series, JIS C 8303 or relevant regulation to which class I equipment can be connected is provided in accordance with Clause G.4.2A except for the cases where the socket-outlet is accessible only to skilled persons. | | N/A |
| F.3.5.3 | If the fuse is necessary for the safeguard function, the symbols indicating pre-arcing time-current characteristic. | | N/A |
| F.3.6.1A | Marking for class 0I equipment The requirements of Clauses F.3.6.1.1 and F.3.6.1.3 shall be applied to class 0I equipment. For class 0I equipment, a marking of instructions and instructional safeguard shall be provided regarding the earthing connection. | | N/A |
| F.3.6.2.1 | Symbols, IEC 60417-5172 (2003-02) or IEC 60417-6092 (2011-10), shall not be used for class I equipment or class 0I equipment. | Class III equipment | N/A |
| F.4 | Instruction for audio equipment with terminals classified as ES3 in accordance with Table E.1, and for other equipment with terminals marked in accordance with F.3.6.1 and F.3.6.1A. Installation instruction for the protective earthing connection for class 0I equipment provided with independent main protective earthing terminal, where the cord for the protective earthing connection is not provided within the package for the equipment. | | N/A |
| G.3.2.1 | The thermal link when tested as a separate component, shall comply with the requirements of JIS C 6691 or have properties equivalent to or better than that. | | N/A |
| G.3.4 | Except for devices covered by Clause G.3.5, overcurrent protective devices used as a safeguard shall comply with the relevant part of JIS C 6575 (corresponding to IEC60127) or shall have equivalent characteristics. If there are no applicable IEC standards, overcurrent protective devices used as a safeguard shall comply with their applicable IEC standards. | | N/A |
| G.4.1 | This requirement is not applicable to Clauses G.4.2 and G.4.2A. | | N/A |



| IEC62368_1B - ATTACHMENT | | | |
|--------------------------|---|-----------------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| G.4.2 | Mains connector shall comply with JIS C 8282 series, JIS C 8283 series, JIS C 8285, JIS C 8303 or IEC 60309 series. Mains plugs and socket-outlets shall comply with JIS C 8282 series, JIS C 8303, IEC 60309 series, or have equivalent or better performance. A power supply cord set provided with appliance connector that can fit appliance inlet complying with JIS C 8283-1 shall comply with JIS C 8286. Construction preventing mechanical stress not to transmit to the soldering part of inlet terminal. Consideration for an equipment rated not more than 125 V provided with Type C14 and C18 appliance coupler complying with JIS C 8283 series. | Approved adapter used | N/A |
| G.4.2A | Mains socket-outlet and interconnection coupler provided with the class II, class I and class 0I equipment respectively. | | N/A |
| G.7.1 | A mains supply cord need not include the protective earthing conductor for class 0I equipment provided with independent protective earthing conductor. | | N/A |
| G.8.3.3 | Withstand 1,71 \times 1.1 \times U ₀ for 5 s. | | N/A |





Figure 1. Over View 1



Figure 2. Over View 2





Figure 3. Rear View



Figure 4. Side View





Figure 5. Internal View



Figure 6. PCB over View



Figure 7. Waste container



Figure 8. Adapter view





Figure 9. Adapter label view

-----End-----



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