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Report No: TWN2511831S
File reference No: 2025-12-03
Applicant: Eastern Times Technology Co., Ltd
Product: DUAL-MODE CONNECTION RGB SOUNDBARS
Model No: GS516, ET-3903, GS516W, GS516G
Trade mark: REDRAGON
Test Standards: IEC 62368-1:2018, AS/NZS 62368.1:2022
Test result: The safety testing has been performed on the submitted samples and found in compliance with the above standard version with Australia and New Zealand deviation.

Approved By

A handwritten signature in black ink, appearing to read "White Liu".

White Liu
Manager

Dated: 2025-12-03

**Results appearing herein relate only to the sample tested
The technical reports is issued errors and omissions exempt
and is subject to withdrawal at**

SHENZHEN TIMEWAY TESTING LABORATORIES

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

| | |
|--|---|
| Report Number | : TWN2511831S |
| Date of issue | : 2025-12-03 |
| Total number of pages..... | : 46 (Not including attachments) |
| Applicant's name | : Eastern Times Technology Co., Ltd |
| Address..... | : Building D, Nan An Industrial Area, Youganpu Village, Fenggang Town, Dongguan City, Guangdong, China. |
| Test specification: | |
| Standard | : IEC 62368-1:2018 |
| Test procedure..... | : Type tests |
| 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 |
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| This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02. | |
| Test Item description | : DUAL-MODE CONNECTION RGB SOUNDBARS |
| Trade Mark | : REDRAGON |
| Manufacturer..... | : Same as applicant |
| Model No | : GS516, ET-3903, GS516W, GS516G |
| Ratings | : Input: 5V---2A |



Testing procedure and testing location:

| | | |
|--|--|--------------------|
| <input checked="" type="checkbox"/> Testing Laboratory: | Shenzhen Timeway Testing Laboratories. | |
| Testing location/ address | Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China. | |
| Tested by (name + signature) | Joson Dong (Handler) | <i>Joson Dong</i> |
| Checked by (name + signature) | Thomas Song (Reviewer) | <i>Thomas Song</i> |

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

Attachment No. 1: 32 pages of ATTACHMENT TO TEST REPORT IEC 62368-1: 2018 and AUSTRALIA / NEW ZEALAND NATIONAL DIFFERENCES.

Attachment No. 2: 6 pages of photos.

Summary of testing:

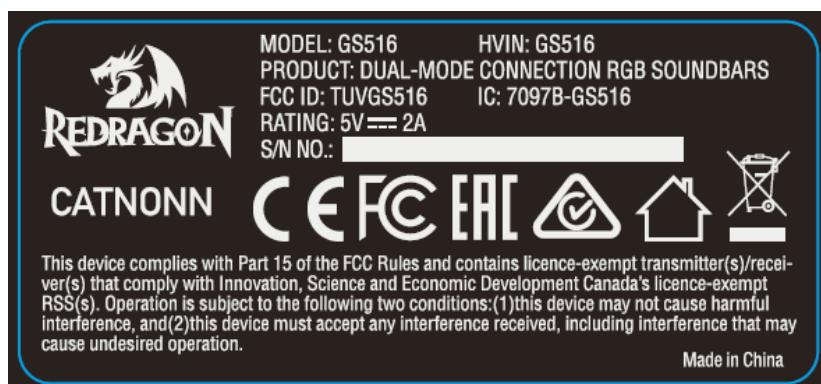
| | |
|---|--|
| Tests performed (name of test and test clause): The submitted samples were tested and found to comply with the requirements of: - IEC 62368-1:2018, - AS/NZS 62368.1:2022 | Testing location: Shenzhen Timeway Testing Laboratories. Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China. |
|---|--|

Summary of compliance with National Differences:

AUSTRALIA and NEW ZEALAND

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 Certification Bodies that own these marks.



The height of the CE symbol is not less than 5mm, the height of the WEEE symbol is not less than 7mm.

All models are identical except model name.



| Test item particulars: | |
|---|---|
| Product group | <input checked="" type="checkbox"/> end product <input type="checkbox"/> built-in component |
| Classification of use by | <input checked="" type="checkbox"/> Ordinary person <input type="checkbox"/> Children likely present <input checked="" type="checkbox"/> Instructed person <input checked="" type="checkbox"/> Skilled person |
| Supply connection..... | <input type="checkbox"/> AC mains <input type="checkbox"/> DC mains <input checked="" type="checkbox"/> not mains connected - <input checked="" type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input type="checkbox"/> ES3 |
| Supply tolerance | <input type="checkbox"/> +10%/-10% <input type="checkbox"/> +20%/-15% <input type="checkbox"/> +____%/-____% <input checked="" type="checkbox"/> None: <u>not directly connected to the mains</u> |
| Supply connection – type | <input type="checkbox"/> pluggable equipment type A - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> direct plug-in <input type="checkbox"/> pluggable equipment type B - <input type="checkbox"/> non-detachable supply cord <input type="checkbox"/> appliance coupler <input type="checkbox"/> permanent connection <input type="checkbox"/> mating connector <input checked="" type="checkbox"/> other: <u>not directly connected to the mains</u> |
| Considered current rating of protective device ...: | N/A (<u>not directly connected to the mains</u>) Location: <input type="checkbox"/> building; <input type="checkbox"/> equipment; <input type="checkbox"/> N/A |
| Equipment mobility | <input checked="" type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> direct plug-in <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input type="checkbox"/> wall/ceiling-mounted <input type="checkbox"/> SRME/rack-mounted <input type="checkbox"/> other: |
| Over voltage category (OVC) | <input type="checkbox"/> OVC I <input type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input checked="" type="checkbox"/> other: <u>not directly connected to the mains</u> |
| Class of equipment | <input type="checkbox"/> Class I <input type="checkbox"/> Class II <input checked="" type="checkbox"/> Class III <input type="checkbox"/> Not classified <input type="checkbox"/> |
| Special installation location | <input checked="" type="checkbox"/> N/A <input type="checkbox"/> restricted access area <input type="checkbox"/> outdoor location <input type="checkbox"/> |
| Pollution degree (PD) | <input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3 |
| Manufacturer's specified T_{ma} | 40°C <input type="checkbox"/> Outdoor: minimum °C |
| IP protection class | <input checked="" type="checkbox"/> IP20 <input type="checkbox"/> IP_____ |
| Power systems | <input type="checkbox"/> TN <input type="checkbox"/> TT <input type="checkbox"/> IT - V _{L-L} <input checked="" type="checkbox"/> not AC mains |
| Altitude during operation (m) | <input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> _____ m |
| Altitude of test laboratory (m) | <input checked="" type="checkbox"/> 2000 m or less <input type="checkbox"/> _____ m |
| Mass of equipment (kg) | <input checked="" type="checkbox"/> Approx.: 0.793kg |



| | |
|--|--|
| 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.....: | 2025-11-26 |
| Date (s) of performance of tests.....: | 2025-11-26 to 2025-12-03 |
| 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 <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator. | |
| According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market. | |
| 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 | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable |
| When differences exist; they shall be identified in the General product information section. | |
| Name and address of factory (ies) | Same as applicant |
| General product information and other remarks: | |
| 1. DUAL-MODE CONNECTION RGB SOUNDBARS, It is mainly used for Audio/video, information and communication technology equipment. 2. The unit is supplied by external power supply, the output of Power supply is complied with ES1, PS2 circuit. 3. Specified maximum ambient temperature is 40°C, this apparatus applied for 2000m altitude max. | |
| Model Differences: | |
| All models are identical except model name. | |


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 |
| ES1: All internal circuit | Ordinary, Instructed, Skilled | N/A | N/A | N/A |
| 6 | Electrically-caused fire | | | |
| Class and Energy Source (e.g. PS2: 100 Watt circuit) | Material part (e.g. Printed board) | Safeguards | | |
| | | B | 1 st S | 2 nd S |
| PS2: DC input, PS2: Internal circuits | Enclosure, PCB, Internal wire, Other combustible components / materials, | See 6.3 | See 6.4.5 | N/A |
| 7 | Injury caused by hazardous substances | | | |
| Class and Energy Source (e.g. Ozone) | Body Part (e.g., Skilled) | Safeguards | | |
| | | B | S | R |
| N/A | N/A | N/A | N/A | 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 |
| MS1: Equipment mass | Ordinary, Instructed, Skilled | N/A | N/A | N/A |
| 9 | Thermal Burn | | | |
| Class and Energy Source (e.g. TS1: Keyboard caps) | Body Part (e.g., Ordinary) | Safeguards | | |
| | | B | S | R |
| TS3: Internal circuits | Ordinary, Instructed, Skilled | N/A | N/A | Enclosure |
| TS1: All accessible parts | Ordinary, Instructed, Skilled | N/A | N/A | N/A |
| 10 | Radiation | | | |
| Class and Energy Source (e.g. RS1: PMP sound output) | Body Part (e.g., Ordinary) | Safeguards | | |
| | | B | S | R |
| RS1: Indicating light (LED) | Ordinary, Instructed, Skilled | N/A | N/A | N/A |
| Supplementary Information: | | | | |
| "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.

Insert diagram below. Example diagram designs are; Block diagrams; image(s) with layered data; mechanical drawings

ES **PS** **MS** **TS** **RS**

Remark: see above table “OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS” for details.



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| Clause | Requirement + Test | Result - Remark | Verdict |
|---------------------------------|--|--|---------|
| 4 GENERAL REQUIREMENTS | | | — |
| 4.1.1 | Acceptance of materials, components and subassemblies | | P |
| 4.1.2 | Use of components | (See appended table 4.1.2) | P |
| 4.1.3 | Equipment design and construction | | P |
| 4.1.4 | Specified ambient temperature for outdoor use (°C).....: | | N/A |
| 4.1.5 | Constructions and components not specifically covered | | N/A |
| 4.1.8 | Liquids and liquid filled components (LFC) | No such component used. | N/A |
| 4.1.15 | Markings and instructions | (See Annex F) | P |
| 4.4.3 | Safeguard robustness | See below. | 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 | (See Clause T.7) | P |
| 4.4.3.4 | Impact tests | (See Clause T.6) | N/A |
| 4.4.3.5 | Internal accessible safeguard enclosure tests | | N/A |
| 4.4.3.6 | Glass impact tests | No glass used | N/A |
| 4.4.3.7 | Glass fixation tests | | N/A |
| | Glass impact test (1J) | | N/A |
| | Push/pull test (10 N) | | N/A |
| 4.4.3.8 | Thermoplastic material tests | (See Clause T.8) | P |
| 4.4.3.9 | Air comprising a safeguard | (See Annex T) | N/A |
| 4.4.3.10 | Accessibility, glass, safeguard effectiveness | During and after the tests, the safeguard remained effective. | P |
| 4.4.4 | Displacement of a safeguard by an insulating liquid | | N/A |
| 4.4.5 | Safety interlocks | No such component used. | N/A |
| 4.5 Explosion | | | P |
| 4.5.1 | General | No explosion occurs during normal/abnormal operation and single fault conditions | 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 | (See Clause B.4) | P |
| 4.6 Fixing of conductors | | | N/A |
| 4.6.1 | Fix conductors not to defeat a safeguard | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|-------------|--|------------------------------|---------|
| 4.6.2 | Compliance is checked by test | (See Clause T.2) | 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 | Not direct plug-in equipment | N/A |
| 4.7.3 | Torque (Nm)..... | | N/A |
| 4.8 | Equipment containing coin/button cell batteries | | N/A |
| 4.8.1 | General | No such battery | N/A |
| 4.8.2 | Instructional safeguard..... | | 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 | | N/A |
| 4.10.1 | Disconnect Device | (See Annex L) | N/A |
| 4.10.2 | Switches and relays | (See Annex G) | N/A |

| | | |
|------------|---|---|
| 5 | ELECTRICALLY-CAUSED INJURY | -- |
| 5.2 | Classification and limits of electrical energy sources | P |
| 5.2.2 | ES1, ES2 and ES3 limits | This product is supplied by external power supply is classified as ES1 circuit and no voltage converter to higher voltage within the equipment, all circuits are considered ES1 |
| 5.2.2.2 | Steady-state voltage and current | (See appended table 5.2) |
| 5.2.2.3 | Capacitance limits | (See appended table 5.2) |
| 5.2.2.4 | Single pulse limits | (See appended table 5.2) |
| 5.2.2.5 | Limits for repetitive pulses | (See appended table 5.2) |
| 5.2.2.6 | Ringing signals | (See Annex H) |
| 5.2.2.7 | Audio signals | (See Clause E.1) |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|---|--|---------|
| 5.3 | Protection against electrical energy sources | | P |
| 5.3.1 | General Requirements for accessible parts to ordinary, instructed and skilled persons | Only ES1 circuit can be accessed for this product. | P |
| 5.3.1 a) | Accessible ES1/ES2 derived from ES2/ES3 circuits | | P |
| 5.3.1 b) | Skilled persons not unintentional contact ES3 bare conductors | | N/A |
| 5.3.2.1 | Accessibility to electrical energy sources and safeguards | | N/A |
| | Accessibility to outdoor equipment bare parts | | N/A |
| 5.3.2.2 | Contact requirements | All the circuit in the product is ES1 circuit. | N/A |
| | Test with test probe from Annex V | | --- |
| 5.3.2.2 a) | Air gap – electric strength test potential (V) : | (See appended table 5.4.9) | N/A |
| 5.3.2.2 b) | Air gap – distance (mm) : | | N/A |
| 5.3.2.3 | Compliance | | N/A |
| 5.3.2.4 | Terminals for connecting stripped wire | | N/A |
| 5.4 | Insulation materials and requirements | | N/A |
| 5.4.1.2 | Properties of insulating material | | N/A |
| 5.4.1.3 | Material is non-hygroscopic | | N/A |
| 5.4.1.4 | Maximum operating temperature for insulating materials : | (See appended table 5.4.1.4, 6.3.2, 9.0, B.2.6) | N/A |
| 5.4.1.5 | Pollution degree : | | N/A |
| 5.4.1.5.2 | Test for pollution degree 1 environment and for an insulating compound | | N/A |
| 5.4.1.5.3 | Thermal cycling test | | 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 test..... : | | N/A |
| 5.4.1.10.3 | Ball pressure test : | | N/A |
| 5.4.2 | Clearances | | 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 |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|-------------|---|----------------------------|---------|
| | Temporary overvoltage | | — |
| 5.4.2.3 | Procedure 2 for determining clearance | | N/A |
| 5.4.2.3.2.2 | a.c. mains transient voltage | | — |
| 5.4.2.3.2.3 | d.c. mains transient voltage | | — |
| 5.4.2.3.2.4 | External circuit transient voltage..... | | — |
| 5.4.2.3.2.5 | 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 |
| 5.4.2.6 | Clearance measurement..... | | N/A |
| 5.4.3 | Creepage distances..... | | N/A |
| 5.4.3.1 | General | | N/A |
| 5.4.3.3 | Material Group | | --- |
| 5.4.3.4 | Creepage distances measurement | | N/A |
| 5.4.4 | Solid insulation | | N/A |
| 5.4.4.2 | Minimum distance through insulation | | N/A |
| 5.4.4.3 | Insulation compound forming solid insulation | | N/A |
| 5.4.4.4 | Solid insulation in semiconductor devices | | N/A |
| 5.4.4.5 | Insulating compound forming cemented joints | | N/A |
| 5.4.4.6 | Thin sheet material | | N/A |
| 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 |
| | Number of layers (pcs) | | N/A |
| 5.4.4.6.4 | Standard test procedure for non-separable thin sheet material | (See appended table 5.4.9) | 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, EP, KR, d, VPW (V)..... | | N/A |
| | Alternative by electric strength test, tested voltage (V), KR | | N/A |
| 5.4.5 | Antenna terminal insulation | | N/A |
| 5.4.5.1 | General | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|--|----------------------------|---------|
| 5.4.5.2 | Voltage surge test | | N/A |
| 5.4.5.3 | Insulation resistance ($M\Omega$).....: Electric strength test.....: | (See appended table 5.4.9) | 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 ($^{\circ}\text{C}$), duration (h) | — | |
| 5.4.9 | Electric strength test | | N/A |
| 5.4.9.1 | Test procedure for type test of solid insulation..: Test procedure for routine tests | | N/A |
| 5.4.10 | Safeguards against transient voltages from external circuits | | N/A |
| 5.4.10.1 | Parts and circuits separated from external circuits | | N/A |
| 5.4.10.2 | Test methods | | N/A |
| 5.4.10.2.1 | General | | N/A |
| 5.4.10.2.2 | Impulse test | | N/A |
| 5.4.10.2.3 | Steady-state test.....: | | N/A |
| 5.4.10.3 | Verification for insulation breakdown for impulse test | | N/A |
| 5.4.11 | Separation between external circuits and earth | | N/A |
| 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).....: | — | |
| | Nominal voltage U_{peak} (V) | — | |
| | Max increase due to variation ΔU_{sp} | — | |
| | Max increase due to ageing ΔU_{sa} | — | |
| 5.4.11.3 | Test method and compliance | | N/A |
| 5.4.12 | Insulating liquid | | N/A |
| 5.4.12.1 | General requirements | | N/A |
| 5.4.12.2 | Electric strength of an insulating liquid | | N/A |
| 5.4.12.3 | Compatibility of an insulating liquid | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|--|---------------------|---------|
| 5.4.12.4 | Container for insulating liquid | | N/A |
| 5.5 | Components as safeguards | | N/A |
| 5.5.1 | General | | N/A |
| 5.5.2 | Capacitors and RC units | | 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 | | N/A |
| 5.5.4 | Optocouplers | | N/A |
| 5.5.5 | Relays | | N/A |
| 5.5.6 | Resistors | | N/A |
| 5.5.7 | SPD's | | N/A |
| 5.5.8 | Insulation between the mains and external circuit consisting of a coaxial cable..... | | N/A |
| 5.5.9 | Safeguards for socket-outlets in outdoor equipment | | N/A |
| | RCD rated residual operating current (mA)..... | | — |
| 5.6 | Protective conductor | | N/A |
| 5.6.2 | Requirement for protective conductors | Class III equipment | N/A |
| 5.6.2.1 | General requirements | | N/A |
| 5.6.2.2 | Colour of insulation | | N/A |
| 5.6.3 | Requirement for protective earthing conductors | | N/A |
| | Protective earthing conductor size (mm ²) | | — |
| | Protective earthing conductor serving as a reinforced safeguard | | N/A |
| | Protective earthing conductor serving as a double safeguard | | N/A |
| 5.6.4 | Requirement for protective bonding conductors | | N/A |
| 5.6.4.1 | Protective bonding conductors | | N/A |
| | Protective bonding conductor size (mm ²). | | — |
| 5.6.4.2 | Protective current rating (A)..... | | N/A |
| 5.6.5 | Terminals for protective conductors | | N/A |
| 5.6.5.1 | Terminal size for connecting protective earthing conductors (mm) | | N/A |
| | Terminal size for connecting protective bonding conductors (mm) | | N/A |
| 5.6.5.2 | Corrosion | | N/A |



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|-------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 5.6.6 | Resistance of the protective system | | N/A |
| 5.6.6.1 | Requirements | | N/A |
| 5.6.6.2 | Test Method | | N/A |
| 5.6.6.3 | Resistance (Ω) or voltage drop.....: | | N/A |
| 5.6.7 | Reliable connection of a protective earthing conductor | | N/A |
| 5.6.8 | Functional earthing | | N/A |
| | Conductor size (mm^2) | | N/A |
| | Class II with functional earthing marking | | N/A |
| | Appliance inlet cl & cr (mm).....: | | N/A |
| 5.7 | Prospective touch voltage, touch current and protective conductor current | | N/A |
| 5.7.2 | Measuring devices and networks | | N/A |
| 5.7.2.1 | Measurement of touch current | | N/A |
| 5.7.2.2 | Measurement of voltage | | N/A |
| 5.7.3 | Equipment set-up, supply connections and earth connections | | N/A |
| 5.7.4 | Unearthed accessible parts.....: | | N/A |
| 5.7.5 | Earthed accessible conductive parts.....: | | N/A |
| 5.7.6 | Requirements when touch current exceeds ES2 limits | | N/A |
| | Protective conductor current (mA).....: | | N/A |
| | Instructional Safeguard.....: | | N/A |
| 5.7.7 | Prospective touch voltage and touch current associated with external circuits | | N/A |
| 5.7.7.1 | Touch current from coaxial cables | | N/A |
| 5.7.7.2 | 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 |
| | b) Equipment connected to unearthed external circuits, current (mA) | | N/A |
| 5.8 | Backfeed safeguard in battery backed up supplies | | N/A |
| | Mains terminal ES | | N/A |
| | Air gap (mm).....: | | N/A |

| | | |
|---|----------------------------------|----|
| 6 | ELECTRICALLY- CAUSED FIRE | -- |
|---|----------------------------------|----|



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| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|--|--|---------|
| 6.2 | Classification of PS and PIS | | P |
| 6.2.2 | Power source circuit classifications.....: (See appended table 6.2.2) | | P |
| 6.2.3 | Classification of potential ignition sources | | P |
| 6.2.3.1 | Arcing PIS : (See appended table 6.2.3.1) | | N/A |
| 6.2.3.2 | Resistive PIS : (See appended table 6.2.3.2) | | P |
| 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 : | No ignition and no such temperature attained within the equipment. (See appended table 5.4.1.4, 9.3, B.1.5, B.2.6) | P |
| | Combustible materials outside fire enclosure..... : | | N/A |
| 6.4 | Safeguards against fire under single fault conditions | | P |
| 6.4.1 | Safeguard Method | Method by control of fire spread applied, detail see sub-clauses 6.4.4, 6.4.5. | P |
| 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 | Supplementary safeguards | | N/A |
| 6.4.3.2 | Single Fault Conditions : | | N/A |
| | Special conditions for temperature limited by fuse | | N/A |
| 6.4.4 | Control of fire spread in PS1 circuits | | P |
| 6.4.5 | Control of fire spread in PS2 circuits | | P |
| 6.4.5.2 | Supplementary safeguards | Enclosure material : min. V-1 Printed board: rated V-1 or better. All other components: at least V-2 except for mounted on min. V-1 material or small parts of combustible material. | P |
| 6.4.6 | Control of fire spread in PS3 circuit | | N/A |
| 6.4.7 | Separation of combustible materials from a PIS | | N/A |
| 6.4.7.2 | Separation by distance | | N/A |
| 6.4.7.3 | Separation by a fire barrier | | N/A |
| 6.4.8 | Fire enclosures and fire barriers | | N/A |
| 6.4.8.2 | Fire enclosure and fire barrier material properties | | N/A |
| 6.4.8.2.1 | Requirements for a fire barrier | | N/A |
| 6.4.8.2.2 | Requirements for a fire enclosure | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|---|---|---------|
| 6.4.8.3 | Constructional requirements for a fire enclosure and a fire barrier | | N/A |
| 6.4.8.3.1 | Fire enclosure and fire barrier openings | No opening | N/A |
| 6.4.8.3.2 | Fire barrier dimensions | | N/A |
| 6.4.8.3.3 | Top openings and properties | | N/A |
| | Openings dimensions (mm): No opening | | N/A |
| 6.4.8.3.4 | Bottom openings and properties | | N/A |
| | Openings dimensions (mm): No opening | | N/A |
| | Flammability tests for the bottom of a fire enclosure (See Clause S.3) | | N/A |
| | Instructional Safeguard.....: N/A | | N/A |
| 6.4.8.3.5 | Side openings and properties | | N/A |
| | Openings dimensions (mm): N/A | | N/A |
| 6.4.8.3.6 | Integrity of a fire enclosure, condition met: a), b) or c).....: N/A | | N/A |
| 6.4.8.4 | Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....: N/A | | N/A |
| 6.4.9 | Flammability of insulating liquid.....: N/A | | N/A |
| 6.5 | Internal and external wiring | | P |
| 6.5.1 | General requirements | VW-1 wires used, Which considered to equivalent to IEC/TS 60695-11-21 | P |
| 6.5.2 | Requirements for interconnection to building wiring: N/A | | N/A |
| 6.5.3 | Internal wiring size (mm ²) for socket-outlets: N/A | | N/A |
| 6.6 | Safeguards against fire due to connection to additional equipment | | P |

| | | |
|------------|--|-----|
| 7 | INJURY CAUSED BY HAZARDOUS SUBSTANCES | — |
| 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: --- | --- |
| 7.5 | Use of instructional safeguards and instructions | N/A |
| | Instructional safeguard (ISO 7010): --- | --- |
| 7.6 | Batteries and their protection circuits | N/A |

| | | |
|----------|---|----|
| 8 | MECHANICALLY-CAUSED INJURY | -- |
| 8.2 | Mechanical energy source classifications | P |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|-------------|---|--------------------|---------|
| 8.3 | Safeguards against mechanical energy sources | | P |
| 8.4 | Safeguards against parts with sharp edges and corners | | P |
| 8.4.1 | Safeguards | MS1 classification | P |
| | Instructional Safeguard..... : | | N/A |
| 8.4.2 | Sharp edges or corners | MS1 classification | P |
| 8.5 | Safeguards against moving parts | | N/A |
| 8.5.1 | Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts | | N/A |
| | MS2 or MS3 part required to be accessible for the function of the equipment | | N/A |
| | Moving MS3 parts only accessible to skilled person | | N/A |
| 8.5.2 | Instructional Safeguard..... : | | N/A |
| 8.5.4 | Special categories of equipment containing moving parts | | 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 : | | 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 ... : | | N/A |
| 8.5.4.3.3 | Disconnection from the supply | | N/A |
| 8.5.4.3.4 | Cut type and test force (N) : | | N/A |
| 8.5.4.3.5 | Compliance | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|-------------|---|--------------------------------------|---------|
| 8.5.5 | High pressure lamps | | N/A |
| | Explosion test..... : | | N/A |
| 8.5.5.3 | Glass particles dimensions (mm)..... : | | N/A |
| 8.6 | Stability of equipment | | N/A |
| 8.6.1 | General | MS1 | N/A |
| | Instructional safeguard : | | N/A |
| 8.6.2 | Static stability | | N/A |
| 8.6.2.2 | Static stability test : | | N/A |
| 8.6.2.3 | Downward force test | | N/A |
| 8.6.3 | Relocation stability | | N/A |
| | Wheels diameter (mm) : | | --- |
| | Tilt test | | N/A |
| 8.6.4 | Glass slide test | | N/A |
| 8.6.5 | Horizontal force test..... : | | N/A |
| 8.7 | Equipment mounted to wall, ceiling or other structure | | N/A |
| 8.7.1 | Mount means type : | | N/A |
| 8.7.2 | Test methods | | N/A |
| | Test 1, additional downwards force (N) : | | N/A |
| | Test 2, number of attachment points and test force (N)..... : | | N/A |
| | Test 3 Nominal diameter (mm) and applied torque (Nm)..... : | | N/A |
| 8.8 | Handles strength | | N/A |
| 8.8.1 | General | No handle | N/A |
| 8.8.2 | Handle strength test | | N/A |
| | Number of handles : | | — |
| | Force applied (N) : | | — |
| 8.9 | Wheels or casters attachment requirements | | N/A |
| 8.9.2 | Pull test | No wheels. | 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..... : | | N/A |
| 8.10.3 | Cart, stand or carrier loading test | | N/A |
| | Loading force applied (N) : | | 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) : | | --- |
| 8.10.6 | Thermoplastic temperature stability | | N/A |
| 8.11 | Mounting means for slide-rail mounted equipment (SRME) | | N/A |
| 8.11.1 | General | Not such equipment | N/A |
| 8.11.2 | Requirements for slide rails | | N/A |
| | Instructional Safeguard..... : | | N/A |
| 8.11.3 | Mechanical strength test | | N/A |
| 8.11.3.1 | Downward force test, force (N) applied..... : | | 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)..... : | | — |

| | | | |
|------------|--|--|-----|
| 9 | THERMAL BURN INJURY | | -- |
| 9.2 | Thermal energy source classifications | | P |
| 9.3 | Touch temperature limits | | P |
| 9.3.1 | Touch temperatures of accessible parts : | The accessible surfaces are classified as TS1. | P |
| 9.3.2 | Test method and compliance | See appended table 5.4.1.4, 9.3, B.1.5, B.2.6 | P |
| 9.4 | Safeguards against thermal energy sources | | P |
| 9.5 | Requirements for safeguards | | P |
| 9.5.1 | Equipment safeguard | Enclosure is a safeguard | P |
| 9.5.2 | Instructional safeguard : | | N/A |
| 9.6 | Requirements for wireless power transmitters | | N/A |
| 9.6.1 | General | No wireless power transmitter. | N/A |
| 9.6.2 | Specification of the foreign objects | | N/A |
| 9.6.3 | Test method and compliance : | (See appended table 9.6) | N/A |

| | | | |
|-------------|---|----------------------------|-----|
| 10 | RADIATION | | -- |
| 10.2 | Radiation energy source classification | | P |
| 10.2.1 | General classification | LED indication light: RS1. | P |
| | Lasers : | No lasers used. | --- |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|-------------|---|--|---------|
| | Lamps and lamp systems.....: Image projectors.....: X-Ray.....: Personal music player | No Lamps and lamp systems used. No Image projectors used. No X-Ray used. Not Personal music player. | --- |
| 10.3 | Safeguards against laser radiation | | N/A |
| | The standard(s) equipment containing laser(s) comply | | N/A |
| 10.4 | Safeguards against optical radiation from lamps and lamp systems (including LED types) | | P |
| 10.4.1 | General requirements | The LED only used for indicating, which is considered as low power & inherently exempt group according to IEC 62471. | P |
| | Instructional safeguard provided for accessible radiation level needs to exceed | | N/A |
| | Risk group marking and location | | N/A |
| | Information for safe operation and installation | | N/A |
| 10.4.2 | Requirements for enclosures | | N/A |
| | UV radiation exposure | (See Annex C) | N/A |
| 10.4.3 | Instructional safeguard | | N/A |
| 10.5 | Safeguards against X-radiation | | N/A |
| 10.5.1 | Requirements | | N/A |
| | Instructional safeguard for skilled persons | | --- |
| 10.5.3 | Maximum radiation (pA/kg) | (See appended tables B.3 & B.4) | --- |
| 10.6 | Safeguards against acoustic energy sources | | N/A |
| 10.6.1 | General | | N/A |
| 10.6.2 | Classification | | N/A |
| | Acoustic output LAeq,T, dB(A).....: | | N/A |
| | Unweighted RMS output voltage (mV) | | N/A |
| | Digital output signal (dBFS).....: | | 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 |
| | Warning for MEL \geq 100 dB(A) | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|----------|--|-----------------|---------|
| 10.6.4 | Measurement methods | | N/A |
| 10.6.5 | Protection of persons | | N/A |
| | Instructional safeguards | | 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 |
| 10.6.6.2 | Corded listening devices with digital input | | N/A |
| | Max. acoustic output LAeq,T, dB(A)..... | | N/A |
| 10.6.6.3 | Cordless listening devices | | N/A |
| | Max. acoustic output LAeq,T, dB(A)..... | | N/A |

| | | | |
|------------|--|--|-----|
| B | NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS | | — |
| 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 | (See Annex E) | P |
| B.2.3 | Supply voltage and tolerances | | N/A |
| B.2.5 | Input test..... | (See appended table B.2.5) | P |
| B.3 | Simulated abnormal operating conditions | | P |
| B.3.1 | General | (See appended table B.3, B.4) | P |
| B.3.2 | Covering of ventilation openings | (See appended table B.3, B.4) | N/A |
| | Instructional safeguard | (See appended table B.3, B.4) | N/A |
| B.3.3 | D.C. mains polarity test | The EUT is not connected to a D.C. mains | N/A |
| B.3.4 | Setting of voltage selector | No such voltage selector | N/A |
| B.3.5 | Maximum load at output terminals | (See appended table B.3, B.4) | P |
| B.3.6 | Reverse battery polarity | | N/A |
| B.3.7 | Audio amplifier abnormal operating conditions | | P |
| B.3.8 | Safeguards functional during and after abnormal operating conditions | (See appended table B.3) | P |
| B.4 | Simulated single fault conditions | | P |



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|-------------|--|-------------------------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| B.4.1 | General | | P |
| B.4.2 | Temperature controlling device | | N/A |
| B.4.3 | Blocked motor test | | N/A |
| B.4.4 | Functional insulation | | P |
| B.4.4.1 | Short circuit of clearances for functional insulation | (See appended table B.3, B.4) | P |
| B.4.4.2 | Short circuit of creepage distances for functional insulation | (See appended table B.3, B.4) | 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 | (See appended table B.3, B.4) | P |
| B.4.7 | Continuous operation of components | | N/A |
| B.4.8 | Compliance during and after single fault conditions.....: | (See appended table B.3, B.4) | P |
| B.4.9 | Battery charging and discharging under single fault conditions | (See Annex M) | N/A |
| C | UV RADIATION | | — |
| C.1 | Protection of materials in equipment from UV radiation | | N/A |
| C.1.2 | Requirements | No UV. | N/A |
| C.1.3 | Test method | | N/A |
| C.2 | UV light conditioning test | | N/A |
| C.2.1 | Test apparatus.....: | | N/A |
| C.2.2 | Mounting of test samples | | N/A |
| C.2.3 | Carbon-arc light-exposure apparatus | | N/A |
| C.2.4 | Xenon-arc light exposure apparatus | | N/A |
| D | TEST GENERATORS | | — |
| D.1 | Impulse test generators | | N/A |
| D.2 | Antenna interface test generator | | N/A |
| D.3 | Electronic pulse generator | | N/A |
| E | TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS | | — |
| E.1 | Electrical energy source classification for audio signals | | P |
| | Maximum non-clipped output power (W).....: | Refer to table 4.1.2 | --- |
| | Rated load impedance (Ω) | Refer to table 4.1.2 | --- |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|----------------|---|---|------------|
| | Open-circuit output voltage (V).....:..... | The signal voltage for this kind of speaker are considered to be within ES1 limit according to Table E.1. | — |
| | Instructional safeguard | See Clause F.5 | --- |
| E.2 | Audio amplifier normal operating conditions | | P |
| | Audio signal source type | The speaker operated at 1/8 of max output with 1KHz sine wave | --- |
| | Audio output power (W).....:..... | Only internal speakers used. | --- |
| | Audio output voltage (V) | Only internal speakers used. | --- |
| | Rated load impedance (Ω) | Refer to table 4.1.2 | --- |
| | Requirements for temperature measurement | (See Table B.1.5) | P |
| E.3 | Audio amplifier abnormal operating conditions | | P |
| F | EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS | | — |
| F.1 | General requirements | | P |
| | Instructions – Language | English | — |
| 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 | Located on the external enclosure surface | P |
| F.3.2 | Equipment identification markings | | P |
| F.3.2.1 | Manufacturer identification | See copy of marking plate | P |
| F.3.2.2 | Model identification | See copy of marking plate | P |
| F.3.3 | Equipment rating markings | | P |
| F.3.3.1 | Equipment with direct connection to mains | | N/A |
| F.3.3.2 | Equipment without direct connection to mains | | P |
| F.3.3.3 | Nature of supply voltage.....:..... | See copy of marking plate | P |
| F.3.3.4 | Rated voltage | See copy of marking plate | P |
| F.3.3.4 | Rated frequency | DC | N/A |
| F.3.3.6 | Rated current or rated power | See copy of marking plate | P |
| F.3.3.7 | Equipment with multiple supply connections | No multiple supply connection | N/A |
| F.3.4 | Voltage setting device | No such device | N/A |
| F.3.5 | Terminals and operating devices | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|--|---|---------|
| 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 |
| | Instructional safeguards for neutral fuse | | N/A |
| F.3.5.4 | Replacement battery identification marking | | N/A |
| F.3.5.5 | Neutral conductor terminal | | N/A |
| F.3.5.6 | Terminal marking location | | N/A |
| F.3.6 | Equipment markings related to equipment classification | Class III equipment | N/A |
| F.3.6.1 | Class I Equipment | | N/A |
| F.3.6.1.1 | Protective earthing conductor terminal..... | | N/A |
| F.3.6.1.2 | Protective bonding conductor terminals | | N/A |
| F.3.6.2 | Equipment class marking | | N/A |
| F.3.6.3 | Functional earthing terminal marking | | N/A |
| F.3.7 | Equipment IP rating marking | IP20 | N/A |
| F.3.8 | External power supply output marking | | N/A |
| F.3.9 | Durability, legibility and permanence of marking | | P |
| F.3.10 | Test for permanence of markings | | P |
| F.4 | Instructions | | P |
| | a) Information prior to installation and initial use | Provided in user's manual. | P |
| | b) Equipment for use in locations where children not likely to be present | | N/A |
| | c) Instructions for installation and interconnection | See user manual | 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 | | P |
| | g) Protective earthing used as a safeguard | | N/A |
| | h) Protective conductor current exceeding ES2 limits | | N/A |
| | i) Graphic symbols used on equipment | No such symbols used as a safeguard considered. | N/A |
| | j) Permanently connected equipment not provided with all-pole mains switch | Not permanently connected equipment. | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|--|---------------------------------------|---------|
| | k) Replaceable components or modules providing safeguard function | No replaceable components or modules. | N/A |
| | l) Equipment containing insulating liquid | No insulating liquid. | N/A |
| | m) Installation instructions for outdoor equipment | Not outdoor equipment. | N/A |
| F.5 | Instructional safeguards | | P |
| G | COMPONENTS | | — |
| G.1 | Switches | | N/A |
| G.1.1 | General | No main switch used | 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 | | 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 | Protection Devices | | N/A |
| G.3.1 | 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 | | N/A |
| G.3.2.1 | a) Thermal links tested separately according to IEC 60691 with specifics | No thermal link used | 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 | | N/A |
| G.3.4 | Overcurrent protection devices | | N/A |
| 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 | | N/A |
| G.3.5.2 | Single faults conditions..... : (See appended table B.4) | | N/A |
| G.4 | Connectors | | N/A |
| G.4.1 | Spacings | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|--|-----------------|---------|
| G.4.2 | Mains connector configuration | | N/A |
| G.4.3 | Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely | | N/A |
| G.5 | Wound Components | | N/A |
| G.5.1 | Wire insulation in wound components | | 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) | | --- |
| | Test temperature (°C)..... | | --- |
| G.5.2.3 | Wound Components supplied by mains | | N/A |
| G.5.2.4 | No insulation breakdown | | N/A |
| G.5.3 | Transformers | | N/A |
| G.5.3.1 | Compliance method..... | | N/A |
| | Position..... | | N/A |
| | Method of protection | | N/A |
| G.5.3.2 | Insulation | | N/A |
| | Protection from displacement of windings..... | | --- |
| 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 - aternative 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..... | | N/A |
| G.5.3.4.2 | Transformers with basic insulation only | | N/A |
| G.5.3.4.3 | Transformers with double insulation or reinforced insulation..... | | 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 |
| G.5.4.1 | General requirements | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|--|-----------------|---------|
| 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 | | N/A |
| G.5.4.6 | Locked-rotor overload test for d.c. motors in secondary circuits | | N/A |
| G.5.4.6.2 | Tested in the unit | | N/A |
| | Maximum Temperature | | N/A |
| 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 | | — |
| G.6 | Wire Insulation | | N/A |
| G.6.1 | General | | N/A |
| G.6.2 | Enamelled winding wire insulation | | N/A |
| G.7 | Mains supply cords | | N/A |
| G.7.1 | General requirements | | N/A |
| | Type..... : | | — |
| G.7.2 | Cross sectional area (mm ² or AWG) | | N/A |
| G.7.3 | Cord anchorages and strain relief for non-detachable AC/DC adaptor cords | | N/A |
| G.7.3.2 | Cord strain relief | | N/A |
| G.7.3.2.1 | Requirements | | N/A |
| | Strain relief test force (N).....: | | N/A |
| G.7.3.2.2 | Strain relief mechanism failure | | N/A |
| G.7.3.2.3 | Cord sheath or jacket position, distance (mm) | | N/A |
| G.7.3.2.4 | Strain relief comprised of polymeric material | | N/A |
| G.7.4 | Cord Entry | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|-------------|---|-----------------|---------|
| G.7.5 | Non-detachable cord bend protection | | N/A |
| 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) : | | — |
| | Radius of curvature after test (mm) : | | — |
| 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 | | N/A |
| G.8.2 | Safeguard 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 | | N/A |
| | IC limiter output current (max. 5A) : | | — |
| | Manufacturers' defined drift : | | — |
| G.9.2 | Test Program | | N/A |
| G.9.3 | Compliance | | N/A |
| G.10 | Resistors | | N/A |
| G.10.1 | General | | N/A |
| G.10.2 | Conditioning | | N/A |
| G.10.3 | Resistor test | | N/A |
| G.10.4 | Voltage surge test | | N/A |
| G.10.5 | Impulse test | | N/A |
| G.10.6 | Overload test | | N/A |
| G.11 | Capacitor and RC units | | 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 |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|-------------|---|-------------------|---------|
| | Optocouplers comply with IEC 60747-5-5 with specifics | | N/A |
| | Type test voltage $V_{ini,a}$ | | — |
| | Routine test voltage, $V_{ini, b}$ | | — |
| G.13 | Printed boards | | P |
| G.13.1 | General requirements | | P |
| G.13.2 | Uncoated printed boards | | P |
| G.13.3 | Coated printed boards | | 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 |
| | 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.13.6.2 | Test method and compliance | | N/A |
| G.14 | Coating on components terminals | | N/A |
| G.14.1 | Requirements | (See Clause G.13) | N/A |
| G.15 | Pressurized liquid filled components | | N/A |
| G.15.1 | Requirements | | 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 | | N/A |
| | ICX with associated circuitry tested in equipment | | N/A |
| | ICX tested separately | | N/A |
| G.16.2 | Tests | | N/A |
| | Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test.. | | — |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|----------------|---|----------------------------|---------|
| | Mains voltage that impulses to be superimposed on | | — |
| | Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test | | — |
| G.16.3 | Capacitor discharge test..... | | N/A |
| H | CRITERIA FOR TELEPHONE RINGING SIGNALS | | -- |
| H.1 | General | | N/A |
| H.2 | Method A | | N/A |
| H.3 | Method B | | N/A |
| H.3.1 | Ringing signal | | N/A |
| H.3.1.1 | Frequency (Hz) | | — |
| 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 | | N/A |
| H.3.2.2 | Tripping device | | N/A |
| H.3.2.3 | Monitoring voltage (V) | | N/A |
| J | INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION | | — |
| J.1 | General | | N/A |
| | Winding wire insulation..... | | — |
| | 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 | (See separate test report) | — |
| K | SAFETY INTERLOCKS | | — |
| K.1 | General requirements | | N/A |
| | Instructional safeguard | No safety interlock. | 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 |
| K.5.1 | Under single fault condition | | N/A |
| K.6 | Mechanically operated safety interlocks | | N/A |
| K.6.1 | Endurance requirement | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|---|-------------------------------------|---------|
| K.6.2 | Test method and compliance | | 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) | | N/A |
| | In circuit isolated from mains, separation distance for contact gaps (mm) | | N/A |
| | Electric strength test before and after the test of K.7.2 | (See appended table 5.4.9) | N/A |
| K.7.2 | Overload test, Current (A) | | N/A |
| K.7.3 | Endurance test | | N/A |
| K.7.4 | Electric strength test | | N/A |
| L | DISCONNECT DEVICES | | — |
| L.1 | General requirements | Not directly connected to the mains | 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 |
| | Instructional safeguard | | N/A |
| M | EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS | | — |
| 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 | | N/A |
| M.3 | Protection circuits for batteries provided within the equipment | | N/A |
| 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 |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|--|----------------------------|---------|
| M.3.3 | Compliance | (See appended table M.3) | 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 appended table M.4.2) | N/A |
| M.4.3 | Fire enclosure..... | (See appended table M.4.2) | 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 (%): | | 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 | | N/A |
| M.7.2 | Test method and compliance | | N/A |
| | Minimum air flow rate, Q (m ³ /h)..... | | N/A |
| M.7.3 | Ventilation tests | | N/A |
| M.7.3.1 | General | | N/A |
| M.7.3.2 | Ventilation test – alternative 1 | | N/A |
| | Hydrogen gas concentration (%). | | N/A |
| M.7.3.3 | Ventilation test – alternative 2 | | N/A |
| | Obtained hydrogen generation rate | | N/A |
| M.7.3.4 | Ventilation test – alternative 3 | | N/A |
| | Hydrogen gas concentration (%). | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|-------------|---|-----------------|---------|
| M.7.4 | Marking.....:..... | | 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 VZ (m ³ /s):..... | | — |
| M.8.2.3 | Correction factors:..... | | — |
| M.8.2.4 | Calculation of distance d (mm):..... | | — |
| 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:..... | | N/A |
| N | ELECTROCHEMICAL POTENTIALS | | — |
| | Metal(s) used.....:..... | | — |
| O | MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES | | — |
| | Value of X (mm):..... | | — |
| P | SAFEGUARDS AGAINST CONDUCTIVE OBJECTS | | — |
| P.1 | General | | P |
| P.2 | Safeguards against entry or consequences of entry of a foreign object | | -- |
| P.2.1 | General | | P |
| P.2.2 | Safeguards against entry of a foreign object | | P |
| | Location and Dimensions (mm):..... | No opening | — |
| P.2.3 | Safeguards against the consequences of entry of a foreign object | | N/A |
| P.2.3.1 | Safeguard requirements | | N/A |
| | The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment | | N/A |
| | Transportable equipment with metalized plastic parts.....:..... | | N/A |
| P.2.3.2 | Consequence of entry test:..... | | N/A |
| P.3 | Safeguards against spillage of internal liquids | | N/A |
| P.3.1 | General | | N/A |
| P.3.2 | Determination of spillage consequences | | N/A |
| P.3.3 | Spillage safeguards | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|------------|---|-----------------|--------------------------|
| P.3.4 | Compliance | | N/A |
| P.4 | Metallized coatings and adhesive securing parts | | N/A |
| P.4.1 | General | | N/A |
| P.4.2 | Tests | | N/A |
| | Conditioning, TC (°C) | : | — |
| | Duration (weeks) | : | — |
| Q | CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING | | -- |
| Q.1 | Limited power sources | | 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 appended table Q.1) |
| | Current rating of overcurrent protective device (A) | : | N/A |
| Q.2 | Test for external circuits – paired conductor cable | | N/A |
| | Maximum output current (A) | : | N/A |
| | Current limiting method | : | — |
| R | LIMITED SHORT CIRCUIT TEST | | -- |
| R.1 | General | | N/A |
| R.2 | Test setup | | N/A |
| | Overcurrent protective device for test | : | — |
| R.3 | Test method | | N/A |
| | Cord/cable used for test | : | — |
| R.4 | Compliance | | N/A |
| S | TESTS FOR RESISTANCE TO HEAT AND FIRE | | -- |
| S.1 | Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W | | N/A |
| | Samples, material.....: | | — |
| | Wall thickness (mm) | : | — |
| | Conditioning (°C) | : | — |
| | Test flame according to IEC 60695-11-5 with conditions as set out | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|-------------|--|--------------------------|---------|
| | - 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).....: | | — |
| 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 | | — |
| | Wall thickness (mm).....: | | — |
| 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.....: | | — |
| | Wall thickness (mm).....: | | — |
| | Conditioning (°C).....: | | — |
| T | MECHANICAL STRENGTH TESTS | | -- |
| T.1 | General | | P |
| T.2 | Steady force test, 10 N : | (See appended table T.2) | P |
| T.3 | Steady force test, 30 N : | (See appended table T.3) | N/A |
| T.4 | Steady force test, 100 N : | (See appended table T.4) | P |
| T.5 | Steady force test, 250 N : | (See appended table T.5) | N/A |
| T.6 | Enclosure impact test | (See appended table T.6) | N/A |
| | Fall test | | N/A |
| | Swing test | | N/A |
| T.7 | Drop test : | (See appended table T.7) | P |
| T.8 | Stress relief test : | (See appended table T.8) | P |
| T.9 | Glass Impact Test.....: | (See appended table T.9) | N/A |
| T.10 | Glass fragmentation test | | N/A |
| | Number of particles counted | | N/A |
| T.11 | Test for telescoping or rod antennas | | N/A |
| | Torque value (Nm) | | N/A |



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| Clause | Requirement + Test | Result - Remark | Verdict |
|--------------|---|------------------------|---------|
| U | MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION | | -- |
| U.1 | General | | N/A |
| | Instructional safeguard : | | 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 | | -- |
| V.1 | Accessible parts of equipment | | P |
| V.1.1 | General | | P |
| V.1.2 | Surfaces and openings tested with jointed test probes | | P |
| V.1.3 | Openings tested with straight unjointed test probes | | N/A |
| 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) | | -- |
| | Clearance : | (See appended table X) | N/A |
| Y | CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES | | -- |
| Y.1 | General | | N/A |
| Y.2 | Resistance to UV radiation | | N/A |
| Y.3 | Resistance to corrosion | | 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 |
| Y.3.2 | Test apparatus | | N/A |
| Y.3.3 | Water – saturated sulphur dioxide atmosphere | | N/A |
| Y.3.4 | Test procedure..... : | | 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 : | | N/A |



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|-------------|--|-----------------|-----------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Y.4.4 | Compression test | | N/A |
| Y.4.5 | Oil resistance | | N/A |
| Y.4.6 | Securing means | (See Annex P.4) | 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 | : | 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 Table T.6) |



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|---|---|-----------------|------------|-----------------|--------------------|-------------------------------|----------|--|--|--|
| 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 (mA) | Type ¹⁾ | Additional Info ²⁾ | | | | |
| 5.0V DC | Internal circuit | Normal | 5.0 | -- | SS | -- | ES1 | | | |
| 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) | -- | | | — | |
| 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 <i>d</i> (mm) | | Insulation | V _{PW} (Vpk) | | | | | |
| -- | -- | -- | -- | -- | | -- | -- | | | | | |
| Supplementary information: | | | | | | | | | | | | |
| | | | | | | | | | | | | |

| 5.4.9 | TABLE: Electric strength tests | | | | | | | N/A | | | | | |
|---|--------------------------------|--|--|--|--|------------------|--|--------------------|--|--|--|--|--|
| Test voltage applied between: | | | Voltage shape (Surge, Impulse, AC, DC, etc.) | | | Test voltage (V) | | Breakdown Yes / No | | | | | |
| -- | | | -- | | | -- | | -- | | | | | |
| Supplementary information: | | | | | | | | | | | | | |
| B- Basic insulation; R-Reinforced insulation. | | | | | | | | | | | | | |

| 5.5.2.2 | TABLE: Stored discharge on capacitors | | | | | | N/A |
|----------------------------|---------------------------------------|--------------------|--|---|--|-----------------|------------------------|
| Location | | Supply voltage (V) | | Operating and fault condition ¹⁾ | | Switch position | Measured voltage (Vpk) |
| -- | | -- | | -- | | -- | -- |
| Supplementary information: | | | | | | | |



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

X-capacitors installed for testing:

bleeding resistor rating:

ICX:

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 | | | | N/A |
|----------------------------|---|----------------|------------------|-------------------------|-----|
| Location | Test current (A) | Duration (min) | Voltage drop (V) | Resistance (Ω) | |
| -- | -- | -- | -- | -- | -- |
| 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 | | | | | | |

| 5.7.5 | TABLE: Earthed accessible conductive part | | | Comment | | N/A | | | | | |
|---------------------------------|--|--|--|--------------------|---------|-----|--|--|--|--|--|
| Supply voltage (V)..... | -- | | | -- | | — | | | | | |
| Phase(s) | [] Single Phase; [] Three Phase: [] Delta [] Wye | | | -- | | -- | | | | | |
| Power Distribution System | [] TN [] TT [] IT | | | -- | | -- | | | | | |
| Location | Fault Condition No in IEC 60990 clause 6.2.2 | | | Touch current (mA) | Comment | | | | | | |
| -- | -- | | | -- | -- | | | | | | |
| Supplementary Information: | | | | | | | | | | | |
| | | | | | | | | | | | |

| 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: | | | | | | |



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

Abbreviation: SC= short circuit, OC= open circuit

| 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 | |
| DC input | Normal condition | 5 | -- | -- | -- | PS2 (declared) | |
| Supplementary information: | | | | | | | |
| Abbreviation: SC= short circuit; OC= open circuit | | | | | | | |
| 1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3. | | | | | | | |
| 2) * The unit is supplied by external power supply, the output of power supply is classified as PS2 circuit and all circuits inside are considered PS2. | | | | | | | |

| 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 | | | | P |
|---|--|---------------------|-------------|----------|---|
| Location | Operating and fault condition | Dissipate power (W) | Arcing PIS? | Yes / No | |
| All internal circuits /components | -- | -- | -- | Yes | |
| 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)..... : | -- | | | | | | | — | | | |
| Foreign objects | 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 | | | | |
| | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) | Object (°C) | Ambient (°C) | | | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | | | |
| Supplementary information: | | | | | | | | | | | |

| 5.4.1.4, 6.3.2, 9.0, B.2.6 | TABLE: Temperature measurements | | | | | | P |
|--|--|--------------------|------------|--------------------|--------|------------------------|------------------------|
| Supply voltage (V).....: | 5.0VDC | | | -- | | — | |
| Ambient temperature during test T_{amb} (°C).....: | See below | | | -- | | — | |
| Maximum measured temperature T of part/at: | T (°C) | | | | | | Allowed T_{max} (°C) |
| U2 body (considered as PCB) | -- | | 46.3 | | -- | | 130 |
| E-cap body | -- | | 63.9 | | -- | | 105 |
| Enclosure (knob) | 28.9 | | -- | | -- | | 77 |
| Enclosure outside (top) | 25.9 | | -- | | -- | | 77 |
| Enclosure outside (bottom) | 28.3 | | -- | | -- | | 77 |
| DC input lead wire | 27.2 | | -- | | -- | | 77 |
| Ambient | 25.0 | | 40.0 | | -- | | -- |
| Supplementary information: | | | | | | | |
| 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: The unit is supplied by external power supply, worked at Bluetooth 1kHz Maximum non-clipped output power. | | | | | | | |

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

| B.2.5 TABLE: Input test | | | | | | | | P |
|--|-------|-------------|-------|-------------|---------|------------|------------------|----------|
| U (V) | I (A) | I rated (A) | P (W) | P rated (W) | Fuse No | I fuse (A) | Condition/status | |
| 5VDC | 0.26 | 2 | -- | -- | -- | -- | Condition 1 | |
| 5VDC | 1.13 | 2 | -- | -- | -- | -- | Condition 2 | |
| Supplementary information: | | | | | | | | |
| Equipment may be having rated current or rated power or both. Both should be measured. | | | | | | | | |
| Condition 1: The unit is supplied by external power supply, worked at Bluetooth 1kHz 1/8 Maximum non-clipped output power. | | | | | | | | |
| Condition 2: The unit is supplied by external power supply, worked at Bluetooth 1kHz Maximum non-clipped output power. | | | | | | | | |

| B.3, B.4 TABLE: Abnormal operating and fault condition tests | | | | | | | P | | |
|---|-----------|---------------------|-----------|----------|------------------------|--|---|--|--|
| Ambient temperature (°C) | | | | | 25°C, if not specified | | — | | |
| Power source for EUT: Manufacturer, model/type, output rating .. | | | | | -- | | — | | |
| Component No. | Condition | Supply voltage, (V) | Test time | Fuse no. | Fuse current, (A) | | Observation | | |
| One Speaker | SC | 5VDC | 10 min | -- | -- | | After short circuit, the speaker shut down, input current is 0.65A, no damage, no hazard. | | |
| Supplementary information: | | | | | | | | | |
| SC: Short circuit; OC: Open circuit; OL: Overloaded. | | | | | | | | | |



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| Clause | Requirement + Test | | | Result - Remark | | | Verdict | | | |
|--|---|----------------------------|------------------------------------|------------------------|-------------|-------------------------|------------------------------|--|--|--|
| 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. | | | | | | | | | | |
| Specified battery temperature (°C) | | | | | | 25.0 | | | | |
| 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 | | 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 | | | | | | |



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

| T.2, T.3, T.4, T.5 | | TABLE: Steady force test | | | | | | P |
|----------------------------|----------|---------------------------------|-------|-----------|-------------------|----------------------|--|---|
| Part/Location | Material | Thickness (mm) | Probe | Force (N) | Test Duration (s) | Observation | | |
| Enclosure | Plastic | 1.2 | -- | 100 | 5 | No damage, No hazard | | |
| Supplementary information: | | | | | | | | |

| T.6, T.9 | | TABLE: Impact tests | | | | | N/A |
|----------------------------|----------|----------------------------|-------------|-------------|--|--|-----|
| Location/part | Material | Thickness (mm) | Height (mm) | Observation | | | |
| -- | -- | -- | -- | -- | | | |
| Supplementary information: | | | | | | | |

| T.7 | | TABLE: Drop tests | | | | | P |
|----------------------------|----------|--------------------------|-------------|----------------------|--|--|---|
| Location/part | Material | Thickness (mm) | Height (mm) | Observation | | | |
| Enclosure | Plastic | 1.2 | 1000 | No damage, no hazard | | | |
| Supplementary information: | | | | | | | |

| T.8 | | TABLE: Stress relief test | | | | | P |
|----------------------------|----------|----------------------------------|-----------------------|--------------|----------------------|--|---|
| Location/part | Material | Thickness (mm) | Oven Temperature (°C) | Duration (h) | Observation | | |
| Enclosure | Plastic | 1.2 | 70 | 7 | No damage, no hazard | | |
| 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: | | | | | | |

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| Clause | Requirement + Test | | | Result - Remark | | Verdict |
|---|---|-----------------|----------------------|-----------------|---------------------------------------|---------|
| 4.1.2 | TABLE: List of critical components | | | | | |
| Object / part No. | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹ | |
| Plastic enclosure | Interchangeable | Interchangeable | V-0, 80°C | UL 94 | UL | |
| PCB | Interchangeable | Interchangeable | V-0, 130°C | UL 796 | UL | |
| Lead wire | Interchangeable | Interchangeable | VW-1, 24AWG, 80°C | UL 758 | UL | |
| Speaker | Interchangeable | Interchangeable | 4Ω, 3W | EN IEC 62368-1 | Test with appliance | |
| Supplementary information: | | | | | | |
| 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. | | | | | | |



| IEC 62368_1E ATTACHMENT | | | |
|--|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| ATTACHMENT TO TEST REPORT | | | |
| IEC 62368-1 (AUSTRALIA / NEW ZEALAND) NATIONAL DIFFERENCES (Audio/video, information and communication technology equipment) | | | |
| Differences according to : AS/NZS 62368.1:2022 | | | |
| TRF template used: : IECEE OD-2020-F3, Ed. 1.1 | | | |
| Attachment Form No. : AU_NZ_ND_IEC62368_1E | | | |
| Attachment Originator : JAS-ANZ | | | |
| Master Attachment : 2022-07-01 | | | |
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| | National Differences | | -- |
| Appendix ZZ | Variations to IEC 62368-1:2018 (ED. 3.0) for Australia and New Zealand | | -- |
| ZZ1 Scope | This Appendix lists the normative variations to IEC 62368-1:2018 (ED. 3.0) | | -- |
| ZZ2 Variations | The following modifications are required for Australian/New Zealand conditions: | | -- |
| 2 | <p>After the first paragraph, add the following:</p> <p>The Australian or Australian/New Zealand Standards listed below are modified adoptions of, or not equivalent to, the IEC normative references and are required for the application of this Standard. All references in the source text to those IEC normative references shall be replaced by references to the corresponding Australian or Australian/New Zealand Standards. Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably</p> <p>-AS/NZS 3112, <i>Approval and test specification—Plugs and socket-outlets</i></p> <p>-AS/NZS 3123, <i>Approval and test specification—Plugs, socket-outlets and couplers for general industrial application</i></p> <p>-AS/NZS 3191, <i>Electric flexible cords</i></p> <p>-AS/NZS 60884.1. <i>Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i></p> <p>-IEC 60086-2 <i>Primary batteries — Part 2: Physical and electrical specifications</i></p> <p>-AS/NZS 60065, <i>Audio, video and similar electronic apparatus—Safety requirements (IEC 60065:2015 (ED.8.0) MOD)</i></p> <p>-AS/NZS 60320.1, <i>Appliance couplers for household and similar general purposes,</i></p> | | P |



| IEC 62368_1E ATTACHMENT | | | |
|-------------------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| | <p><i>Part 1: General requirements (IEC 60320-1, Ed.2.1 (2007) MOD)</i></p> <p><i>-AS/NZS 60320.2.2, Appliance couplers for household and similar general purposes</i></p> <p><i>Part 2.2: Interconnection couplers for household and similar equipment (IEC 60320-2-2, Ed.2.0 (1998) MOD)</i></p> <p><i>-AS/NZS 60695.2.11, Fire hazard testing, Part 2.11: Glowing/hot wire based test methods—Glow-wire flammability test method for end-products</i></p> <p><i>-AS/NZS 60695.11.5, Fire hazard testing, Part 11.5: Test flames—Needle-flame test method—Apparatus, confirmatory test arrangement and guidance</i></p> <p><i>-AS/NZS 60695.11.10, Fire hazard testing, Part 11.10: Test flames—50 W horizontal and vertical flame test methods</i></p> <p><i>-AS/NZS 60884.1, Plugs and socket-outlets for household and similar purposes, Part 1: General requirements</i></p> <p><i>-AS/NZS 60950.1, Information technology equipment—Safety, Part 1: General requirements (IEC 60950-1, Ed.2.2 (2013), MOD)</i></p> <p><i>IEC 61032:1997, Protection of persons and equipment by enclosures—Probes for verification</i></p> <p><i>-AS/NZS 61558.1, Safety of Power Transformers, Power Supplies, Reactors and Similar Products, Part 1: General requirements and tests (IEC 61558-1 Ed 3, MOD)</i></p> <p><i>-AS/NZS 61558.2.16, Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V, Part 2.16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units.</i></p> | | |
| 4.7.2 | <p>Requirements</p> <p><i>Delete the text of the second paragraph and replace with the following:</i></p> <p>Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet conforming to AS/NZS 3112, shall conform to the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.</p> <p>Conformity is checked by inspection and, if necessary, by the tests in AS/NZS 3112.</p> <p>NOTE: Equipment with plug portions for use in countries other than Australia and New Zealand will need to conform to other countries' requirements</p> <p>Note Additional AS/NZS 3112 Appendix J,TRF is appended to end of this TRF.</p> | | N/A |
| 4.7.3 | <p>Compliance Criteria</p> <p><i>Delete this clause</i></p> | | -- |



IEC 62368_1E ATTACHMENT

| Clause | Requirement + Test | Result - Remark | | Verdict |
|---|--|---------------------|---|-------------------|
| 4.8.1 | General After second list, <i>add</i> the following: NOTE: Refer to the Consumer Goods (Products Containing Button/Coin Batteries) Safety Standard 2020 and Consumer Goods (Products Containing Button/Coin Batteries) Information Standard 2020 for more information on button cell batteries in Australia.. | | | N/A |
| 5.4.10.2.1 | General <i>Delete</i> the first paragraph and <i>replace</i> with the following: In Australia, the separation is checked by the test given in both Clause 5.4.10.2.2 and Clause 5.4.10.2.3. In New Zealand, the separation is checked by the test given in either 5.4.10.2.2 or 5.4.10.2.3.. | | | N/A |
| Table 28 | <i>Delete</i> Table 28 and <i>replace</i> with the following: | | | |
| Parts | | Impulse test | | Steady state test |
| | | New Zealand | Australia | New Zealand |
| Parts indicated in Clause 5.4.10.1 a) ^a | | 2.5 kV | 7.0 kV for hand-held telephones and headsets, 2.5 kV for other equipment. | 1.5 kV |
| Parts indicated in Clause 5.4.10.1 b) and c) ^b | | 1.5 kV ^c | 1.0 kV | |
| <p>^a Surge suppressors shall not be removed.</p> <p>^b Surge suppressors may be removed, provided that such devices pass the impulse test of Clause 5.4.10.2.2 when tested as components outside the equipment.</p> <p>^c During this test, it is allowed for a surge suppressor to operate and for a sparkover to occur in a GDT.</p> | | | | |
| 5.4.10.2.2 | <i>Delete</i> “NOTE” and <i>replace</i> with “NOTE 1”. After NOTE 1, <i>add</i> the following: NOTE 2: For Australia, the 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 3: For Australia, the value of 2.5 kV for Clause 5.4.10.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages. | | | N/A |
| 5.4.10.2.3 | <i>Delete</i> “NOTE” and <i>replace</i> with “NOTE 1”. After NOTE 1, <i>add</i> the following: NOTE 2: For Australia, where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 3: The 3 kV and 1.5 kV values for Australia have been determined considering the low frequency induced voltages from the power supply distribution system. | | | N/A |
| 6 | Electrically-caused fire | | | -- |



| IEC 62368_1E ATTACHMENT | | | |
|----------------------------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.6 | After Clause 6.6, add the new Clauses 6.201 as follows: 6.201 External power supplies, docking stations and other similar devices (see special national conditions) | | |
| 8.6 | Stability of equipment | | -- |
| Table 36 | Footnote ^a , after first sentence, add the following: Equipment having displays with moving images shall include “television sets and display devices”. | | |
| 8.6.1 | After Clause 8.6.1 add the following new clauses: 8.6.201 Restraining Device fixing point (see special national conditions) 8.6.202 Restraining device (see special national conditions) | | |
| Annex F Paragraph F.3.3.4 | <p>Rated Voltage Delete “NOTE” and replace with NOTE1” After NOTE 1, add the following Equipment that is intended for connection to the supply mains in Australia and New Zealand shall be marked with:</p> <p>(a) A rated voltage of: <ul style="list-style-type: none"> • 230 V for single phase equipment • 400 V for poly phase equipment Or</p> <p>(b) A rated voltage range that includes: <ul style="list-style-type: none"> • 230 V for single phase equipment • 400 V for poly phase equipment </p> <p>NOTE 2: equipment that is not rated as above is not suitable for direct connection to the supply mains in Australia or New Zealand.</p> | | |
| Annex F.3.3.5 | After the list, add the following Equipment that is intended for connection to supply mains in Australia or New Zealand shall be marked with a rated frequency of 50 Hz or a rated frequency range or nominal value which includes 50Hz | | |
| Annex F.3.8 | After “The DC output of an external power supply”, insert “or docking stations and other similar external devices” | | |
| Annex G Paragraph G.4.2 | <p>Mains connectors</p> <p>1 After “IEC 60320”, insert “or AS/NZS 60320 series”.</p> <p>2 After “IEC 60906-1”, insert “or AS/NZS 3123”</p> <p>3 After first paragraph add the following: 10 A or 15 A 250 V flat pin plugs for the connection of equipment to mains-powered socket-outlets for household or similar general use shall comply with AS/NZS 3112 or AS/NZS 60884.1.</p> | | |



| IEC 62368_1E ATTACHMENT | | | |
|--------------------------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| Paragraph G.5.3.1 | <p>Transformers, General</p> <p>1 Third dashed point <i>replace</i> 'IEC 61558-1 and the relevant parts of IEC 61558-2' with 'AS/NZS 61558-1 and the relevant parts of AS/NZS 61558.2'</p> <p>2 Fourth dashed point <i>replace</i> 'IEC 61558-2-16' with 'AS/NZS 61558.2.16'.</p> | | N/A |
| Annex G.7.1 | <p>Mains supply cords, General</p> <p>Fourth dashed paragraph, <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'</p> | | N/A |
| Table G.7 | <p>Sizes of conductors</p> <p>1 First column, second row, <i>delete</i> "6" and <i>replace</i> with "7.5"</p> <p>2 Second column, second row, <i>delete</i> '0,75' and <i>replace</i> with '0.75^b</p> <p>3 <i>Delete</i> NOTE 1.</p> <p>4 <i>Replace</i> 'NOTE 2' with 'NOTE:'.</p> <p>5 <i>Delete</i> 'Footnote b' and <i>replace</i> with the following: ^b This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm² three-core supply flexible cords are not permitted; see AS/NZS 3191).</p> <p>6 Footnote c <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'</p> <p>7 Footnote d <i>replace</i> 'IEC 60320-1' with 'AS/NZS 60320.1'</p> | | N/A |
| Annex M M 2.1 | Add "IEC 60086-2" to the list | | N/A |
| Annex M Paragraph M.3.2 | <p>Test method</p> <p><i>Delete</i>"NOTE" and <i>replace</i> with "NOTE 1"</p> <p>After NOTE 1 <i>add</i> the following:</p> <p>NOTE 2: In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of ES1 may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test.</p> | | N/A |
| | | | |
| | Special national conditions (if any) | | -- |



IEC 62368_1E ATTACHMENT

| Clause | Requirement + Test | Result - Remark | Verdict |
|---------|---|-----------------|---------|
| 6.201 | <p>External power supplies, docking stations and other similar devices</p> <p>For external power supplies, docking stations and other similar devices, during and after abnormal operating conditions and during single fault conditions the output voltage—</p> <ul style="list-style-type: none"> (a) at all ES1 outlets or connectors shall not increase by more than 10 % of the output rated voltage under normal operating conditions, measured after 3 s of introducing a single fault condition and after 3 s of introducing abnormal operating conditions; and (b) of a USB outlet or connector shall not increase by more than 3 V or 10 % of the output rated voltage under normal operating conditions, whichever is higher, measured after 3 seconds of introducing a single fault condition and after 3 s of introducing abnormal operating conditions <p>For equipment with multiple rated voltages at the output, the requirements apply with the equipment configured for each output rated voltage in turn</p> <p>NOTE: This is intended to reduce the possibility of battery fire or explosion in attached equipment or accessories when charging secondary lithium batteries. The 3 s measurement delay is based on IEC document 108/742/INF, <i>TC 108, Standards Interpretation Panel Question 15 — Output voltage</i>, in relation to similar requirements in IEC 62368-3:2017.</p> <p>Conformity shall be checked by measurement, taking into account the abnormal operating conditions of Annex B.3 and the simulated single fault conditions of Annex B.4.</p> | | N/A |
| 8.6.201 | <p>Restraining device fixing point</p> <p>Freestanding-capable MS2 and MS3 television sets and display devices shall be provided with a fixing point to facilitate the anchoring of the equipment from toppling</p> <p>The fixing point shall conform to Clause 8.7 where the fixing point uses a wall, ceiling or other structure mount. Alternatively, the fixing point shall be capable of withstanding a pull equal to the mass of the equipment in all directions without damage</p> <p>Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point</p> | | N/A |



| IEC 62368_1E ATTACHMENT | | | |
|-------------------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.6.202 | <p>Restraining device</p> <p>MS2 and MS3 television sets and display devices shall be provided with a restraining device and associated hardware to attach to the television set or display device.</p> <p>The restraining device shall be capable of withstanding a pull equal to the mass of the equipment in all directions.</p> <p>Instructions for installation or instructions for use shall be provided to specify correct use of the fixing point</p> <p>.</p> | | N/A |



AS/NZS 3112:2017 Appendix J

| Clause | Requirement + Test | Result - Remark | Verdict |
|--|---|-----------------|---------|
| ATTACHMENT TO TEST REPORT AS_NZS_3112:2017_+A1:2021 Appendix J AUSTRALIAN / NEW ZEALAND NATIONAL DIFFERENCES (Approval and test specification—Plugs and socket-outlets) | | | |
| Differences according to : AS_NZS_3112:2017_Amendment 1:2021_Appendix J | | | |
| TRF template used: : IECEE OD-2020-F3, Ed. 1.1 | | | |
| Attachment Form No. : AS_NZS_3112:2017_Appendix J | | | |
| Attachment Originator : JAS-ANZ | | | |
| Master Attachment : 2022-06 | | | |
| Copyright © 2020 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved. | | | |
| | <p>Note: AS/NZS 3112 is NOT covered by IECEE Accreditation for Testing / Reporting Please State Laboratory Accreditation for this Standard</p> | | |
| | Accreditation | | |
| | Accreditation Stamp | | |

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| J1 SCOPE | <p>General: This Appendix specifies additional dimensional and constructional requirements for detachable plug portions, or equipment incorporating integral supply pins or equipment incorporating detachable plug portions.</p> <p>This Appendix shall be read in conjunction with Section 2 of this Standard.</p> <p>For the purposes of this Appendix, where the term 'plug' is used in Section 2 it shall be taken to mean the plug portion of equipment or the detachable plug portion.</p> <p>The equipment shall comply with the relevant product Standard. The tests and requirements specified in this Appendix are in addition to any test and requirements of the relevant product Standard for the equipment.</p> <p>(AS/NZS 3112:2017/A1:2021)</p> | -- |
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| J2 | DEFINITION | -- |
| J2.1 | <p>Detachable plug portion</p> <p>A plug portion that is detachable from the equipment and with connections including the following standardized outputs and other contacts</p> <p>(a) Type A (see Figure J1):</p> <p>A detachable plug portion with a connection intended for plugging directly into equipment. The connection being via the equipment group 1 appliance inlet within the scope of AS/NZS 60320.1.</p> | N/A |



| | | |
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| | <p>(b) Type B (see Figure J2):</p> <p>A detachable plug portion with a non-standardized connection intended for plugging directly into equipment</p> <p>(c) Type C (see Figure J3):</p> <p>A detachable plug portion with a connection intended for use with an adaptor connected to a flexible cord so as to replicate a supply plug and flexible cord configuration. The connection being via a group 1 appliance outlet within scope of AS/NZS 60320.2.2, which is integral with the plug portion (AS/NZS 3112:2017)</p> | |
| J2.2 | <p>Integral plug portion</p> <p>A plug portion that is integral to the equipment enclosure and is not detachable</p> <p>(AS/NZS 3112:2017)</p> | N/A |
| J2.3 | <p>Plug portion</p> <p>A plug portion is that portion of equipment with pins for insertion into a socket-outlet, including the plug pins, terminals of the plug pins, external dimensions of the 'maximum projection' and any connections of a detachable plug portion.</p> <p>(AS/NZS 3112:2017/A1:2021)</p> | N/A |

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| J3 | REQUIREMENTS FOR THE PLUG PORTION | -- |
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| J3.1 | <p>General</p> <p>The following provisions apply to the dimensional and constructional requirements of plug portions of equipment and any detachable connection between the plug portion and the equipment:</p> | N/A |
| (a) | For detachable plug portions intended for connection to the equipment in multiple orientations, the relevant tests are performed in the most onerous orientation. | N/A |
| (b) | For Type A detachable plug portion, the relevant requirements of AS/NZS 3105:2014 are applicable, in addition to conformance with relevant clauses of this Appendix | <p>See</p> <p>Test Report xxx to AS/NZS 3105:2014</p> <p>Test Report xxx to AS/NZS 60320.1 for the Group 1 appliance inlet portion.</p> |
| (c) | For Type B detachable plug portions, the conformance is shown by the relevant clauses of this Appendix. | N/A |
| (d) | For Type C detachable plug portions, conformance is shown by assessment to Section 2 of this Standard (plugs) and relevant clauses of this | <p>See also Test Report xxx to AS/NZS 60320.2.2 for the Group 1 appliance outlet portion.</p> |



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| Appendix (AS/NZS 3112:2017) | | |
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| J3.2 | Plug pins of plug portions The requirements of Clause 2.2 are applicable for plug pins. | N/A |
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| 2.2 | PLUG PINS | -- |
| 2.2.1 | Current carrying parts of plug pins of metal having sufficient mechanical strength, electrical conductivity and resistance to corrosion adequate for the intended use | N/A |
| | Plug pin material? | -- |

| | | | |
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| 2.2.3 | Plug pins adequately proportioned throughout and portion adjacent to the connection designed to not introduce a stress concentration which may lead to a fracture of the pin, and suitably shaped to prevent abrasion or cutting of conductor strands due to flexure in normal use | | N/A |
| | Exposed ends of plug pins have a lead-in, bevel or radius to facilitate entry into socket-outlets and to operate shutters | | N/A |
| | Flat-pins with the following profile are deemed to comply: | | -- |
| (a) | Flat-pins with a radius on the end with side bevels may have a width and thickness profile as specified in Figure 2.1(h) | | N/A |
| (b) | Flat-pins square on the end with corner and side bevels may have a width and thickness profile as specified in Figure 2.1(i) | | N/A |
| (c) | Flat-pins square on the end with corner bevels and a radius on the sides may have a width and thickness profile as specified in Figure 2.1(j) | | N/A |
| | Contact portion of the pins smooth and free from openings or indentations | | N/A |
| | Flat pin plugs having a longitudinal seam or opening in the contact portion of one face; width not exceeding 0.3 mm and | | N/A |
| | Thickness not exceeding 1.58 mm | | N/A |
| | Exposed portion of earthing pins and pins other than insulated pins free from any non-metallic coverings or coatings (AS/NZS 3112:2017) | | N/A |
| 2.2.4 | Live parts of insulated pin plugs not exposed when | | N/A |



| | | | |
|--|---|----------------------|-----|
| | plug is partially or fully engaged with associated socket | | |
| | Compliance by measurement to Figure 2.4 | (see appended table) | N/A |
| | Lacquer, enamel or sprayed insulating coating not considered to be insulation material | | N/A |
| | All live pins on low voltage plugs except for those shown in Figure 2.1 (a2), (b) and (g) of the insulated pin type | | N/A |
| | Colour green or green / yellow not used for insulation of insulated pins (AS/NZS 3112:2017) | | N/A |

| | | |
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| J3.3 | Ratings and dimensions for low-voltage plug portions Requirements of clauses 2.8.1 and 2.8.4 apply for rating and dimensions | N/A |
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| 2.8 | Ratings and Dimensions of Low Voltage Plugs | -- |
| 2.8.1 | Plugs with ratings up to and including 20A; shall conform to the appropriate dimensions shown in Figure 2.1 | (see appended results) |
| | Rating of plug | ___A |
| | Nominal dimensions covering disposition of pins checked by gauge of Appendix A | N/A |
| | Distance between live pin and edge of moulding to not less than 9 mm | N/A |
| | Measured distance | ___ mm |
| | No point on plug face protrudes more than 0.5 mm | N/A |
| | Measured protrusion | ___ mm |
| | Dimensional requirements of Figure 2.1(e2) did not applied to plugs with greater than three pins (AS/NZS 3112:2017) | N/A |
| 2.8.4 | Low voltage plugs comply with dimensions of Figure 2.1 | (see appended table 2.8.1) |
| | Disposition of pins checked by gauge complying with Appendix A, B or F as appropriate | N/A |
| | Low voltage plug having rating up to 15A and of the Figure 2.1 (a1), (c), (d), (f) or (g) type; comply with dimensional requirements of Figure 2.1 (e1 and e2) | N/A |
| | 20A plug of Figure 2.1 (a2) type complies with dimensional requirements of Figure 2.1 (e2) | N/A |
| | Plugs with insulated pins need not comply with | N/A |



| | | |
|--|--|--|
| dimension R20.0 ± 1 mm requirement of Figure 2.1 (e3) provided there is at least 9mm from the edge of the live pins to the edge of the plug face Figure 2.1(e3). (AS/NZS 3112:2017) | | |
|--|--|--|

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| J3.4 | Internal connections for plug portions Requirements of clause 2.9 apply for internal connections, unless requirements contained in the relevant product standard (AS/NZS 3112:2017) | N/A |
|------|--|-----|

| | | |
|-----|--|-----|
| 2.9 | INTERNAL CONNECTIONS | -- |
| | Plug provided with earthing connections designed and constructed so that when plug is correctly wired and assembled: | N/A |
| (a) | Loose terminal screw or conductive material cannot bridge any live or earthed parts | N/A |
| (b) | Earthing parts effectively isolated from contact with live conductor which may become detached | N/A |
| (c) | Live parts effectively isolated from contact with any earthing conductor which may become detached | N/A |
| | Any connections for auxiliary devices comply with above requirements (AS/NZS 3112:2017) | N/A |

| | | |
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| J3.5 | Arrangement of earthing connections for plug portions Requirements of clause 2.10 apply for arrangement of earthing connections | -- |
|------|--|----|

| | | |
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| 2.10 | Arrangement of earthing connections | -- |
| | Earthing pin radial to the circle embracing the pins (AS/NZS 3112:2017) | N/A |

| | | |
|------|--|-----|
| J3.6 | Configuration of plug portions Requirements of clause 2.12.6 apply for configuration of the plug portion (AS/NZS 3112:2017) | N/A |
|------|--|-----|

| | | |
|--------|---|-----|
| 2.12 | Marking | -- |
| 2.12.6 | Configuration of plugs | N/A |
| | Pins disposed so that configuration, as viewed from the pins, is earth, neutral and active in a clockwise | N/A |



| | | | |
|--|---|--|-----|
| | direction | | |
| | Where there is no earthing pin; live pins conform to this configuration (AS/NZS 3112:2017) | | N/A |

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| J4 | Tests | -- |
|----|--------------|----|

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| J4.1 | <p>General</p> <p>Plug portions of equipment shall be subjected to the following tests and unless stated otherwise, shall comply with the requirements specified in Section 2 for each test. The number of test samples shall be in accordance with Table J1</p> <p>For equipment with a detachable plug portion, the assessment(s) of Table J1 tests 2, 3, 5, 10 and 11 shall be conducted on the—</p> <ul style="list-style-type: none"> (a) assembled equipment with the detachable plug portion connected; and (b) the detachable plug portion after it has been separated from the equipment <p>(AS/NZS 3112:2017/A1:2021)</p> | N/A |
|------|--|-----|

| | | |
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| J4.2 | <p>High voltage test</p> <p>The requirements of Clause 2.13.3 are applicable unless requirements are contained in the relevant product standard</p> <p>(AS/NZS 3112:2017)</p> | N/A |
|------|--|-----|

| | | |
|--------|---|----------------------|
| 2.13.3 | Test No.1 - High voltage test | -- |
| | Plug withstands without failure electric strength test as specified (AS/NZS 3112:2017) | (see appended table) |

| | | |
|--------|---|-----|
| J4.3 | Mechanical strength | -- |
| J4.3.1 | <p>Tumbling barrel test</p> <p>The tumbling barrel test is applied to determine the mechanical strength of the plug portions and equipment having integral or detachable plug portions.</p> <p>For equipment with a detachable plug portion, the detachable plug portion may become detached during the test. If this occurs the detachable plug portion shall be reassembled with the equipment when the pins are straightened as per (a) and (b) below.</p> <p>Three samples (Samples BCD in Table J1) that have not been subjected to any previous test are tested as specified in Clause 2.13.7.1, however the test is</p> | N/A |



| | | |
|--|---|----------------------|
| | modified as follows: | |
| | <p>They are tested in a tumbling barrel as described in AS 60068.2.32 or test Free fall repeated – Procedure 2 in IEC 60068-2.31.</p> <p>The samples shall be dropped from a height of 500 mm onto a steel plate, 3 mm thick.</p> <p>The barrel shall be turned at a rate of 5 r/min, to yield 10 falls per minute. Only one sample shall be tested at a time.</p> <p>A sample is dropped—</p> <p>(a) 500 times if the mass of the specimen does not exceed 250 g.</p> <p>The pins being straightened after each 100 drops and at the completion of the test to pass through the appropriate gauge of Figure A1, Figure B1 or Figure F1; and</p> <p>(b) 250 times if the mass of the specimen exceeds 250 g. The pins being straightened after each 25 drops and at the completion of the test to pass through the appropriate gauge of Figures A1, Figure B1 or Figure F1.</p> <p>(AS/NZS 3112:2017/A1:2021)</p> | N/A |
| | Mass of sample | _____ Grams |
| | Number of drops | 500 / 250 |
| | Compliance shall be checked by Paragraph J4.3.3 | (See appended table) |

| | | |
|--------|--|-----|
| J4.3.2 | <p>Test No.3 Impact test.</p> <p>Plug portions and equipment having integral plug portions or detachable plug portions shall withstand lateral impact forces.</p> <p>All samples that were subjected to the tests in Paragraph J4.3.1 (Samples BCD in Table J1) shall be tested as follows:</p> | N/A |
| | (a) The sample shall be positioned at the centre of a steel plate with a thickness of at least 6 mm. Apertures in the steel plate for the plug pins to pass through shall conform to the corresponding socket Standard. The sample shall be held against the steel plate by clamping all the pins. | N/A |
| | (b) Samples shall be subjected to blows, with an impact energy of 1.0 ± 0.05 J by any means having the same performance as the spring-operated impact-test apparatus of AS/NZS 3100. | N/A |
| | (c) Three blows shall be applied to every point that is most likely to directly or indirectly stress the enclosure joints of the sample | N/A |
| | Compliance shall be checked by Paragraph J4.3.3 | N/A |



| | | |
|--------|--|-----|
| J4.3.3 | Specific compliance criteria This Paragraph provides the common compliance assessment criteria for tests specified in Paragraphs J4.3.1 and J4.3.2 . | N/A |
| | Following each test, the samples shall comply with Clause 2.13.7.1 | N/A |
| (a) | assembled equipment with the detachable plug portion connected; | N/A |
| | After the test, samples show no damage (See appended table) | N/A |
| (b) | the detachable plug portion after it has been separated from the equipment. | N/A |
| | After the test, samples show no damage (See appended table) | N/A |

| | | |
|-------|--|-----|
| 4.3.4 | Pin bending test The pins of the plug portion of three samples (Samples EFG in Table J1) not subjected to any previous tests shall be tested for compliance with the pin bending test of Clause 2.13.7.2 (AS/NZS 3112:2017/A1:2021) | N/A |
|-------|--|-----|

| | | |
|----------|---|-----|
| 2.13.7.2 | Test No.4 – Pin bending test | N/A |
| | All flat-pin plugs rated up to and including 15 A shall be subjected to the pin bending test | N/A |
| | Three samples are subjected by clamping the plug in a rigid holding block and applying the bending force as specified | N/A |
| | After the test the pins shall not be broken off. (AS/NZS 3112:2017) | N/A |

| | | |
|--------|---|-----|
| J4.8.3 | Test No.5 Plug portion detachment requirements | N/A |
| | For all Type B or C devices and for Type A devices where the outlet of the detachable plug portion is parallel to the plug supply pins, disengagement of the detachable plug portion from the equipment shall require at least two simultaneous independent actions or the use of a tool. | N/A |
| | The plug portion and the equipment/adaptor shall be connected and disconnected 50 times (100 strokes). | N/A |
| | Compliance is verified by the plugging test, a force which, over a period of 10 s, shall be increased steadily to 60 ± 0.6 N and held at this value for a further 10 s, shall be applied evenly at the connecting equipment in a direction parallel to the | N/A |



| | | | |
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| | pins. This procedure shall be conducted three times on the same plug portion, at intervals of 5 min, without disturbing the plug portions between tests | | |
| | During the test the plug portion shall not separate | | N/A |
| | The test of AS/NZS 3112 'temperature rise test' for plugs shall be conducted immediately after the above test without disturbing the sample. Test No 6 Temperature Rise test J4.4 (AS/NZS 3112:2017/A1:2021) | | N/A |

| | | | |
|------|--|--|-----|
| J4.4 | Temperature rise test The relevant requirements of Clause 2.13.8 are applicable for the temperature rise test, except that the test current shall be that specified in the relevant product standard | | N/A |
| | The temperature rise of the pins shall not exceed 45 K irrespective of the temperature rise of parts specified in end-product standards. | | N/A |
| | For detachable plug portions the temperature rise of terminals and contacts shall not exceed 45 K. (AS/NZS 3112:2017) | | N/A |

| | | | |
|--------|---|-------------------------------|-----|
| 2.13.8 | Test No.6 – Temperature rise test | | -- |
| | Plug tested in draught free environment as specified using clamping units as specified in Figure 2.10 | | N/A |
| | Test Current Relevant Product Standard | ____ Amps ____ (Standard?) | N/A |
| | Temperature of terminals and contacts of detachable plug portion not exceeding 45 K (AS/NZS 3112:2017) | (see appended table) | N/A |

| | | | |
|------|---|--|-----|
| J4.5 | Securement of pins of the plug portion The requirements of Clause 2.13.9 are applicable for the securement of pins. (AS/NZS 3112:2017) | | N/A |
|------|---|--|-----|

| | | | |
|----------|--|--|-----|
| 2.13.9 | Test No.7. Securement of pins | | -- |
| 2.13.9.1 | Movement of pins | | N/A |
| | Plug pins clamped 5 ± 0.5 mm from pin face; test | | N/A |



| | | | |
|----------|--|------------------------|-----|
| | equipment and sample pre-conditioning for 1 h at $40 \pm 1^\circ\text{C}$ | | |
| | Force of 18 ± 1 N applied to pin 14 ± 0.5 mm from plug face; applied gradually over 10 s and maintained for 10 s; applied in four directions | | N/A |
| | Maximum deflection during test not exceeding 2.0 mm | (see appended results) | N/A |
| | Any distortion 5 minutes after test does not prevent insertion of plug into standard gauge(s) (AS/NZS 3112:2017 + A1:2021) | | N/A |
| 2.13.9.2 | Fixing of pins | | N/A |
| | Plug heated to $50 \pm 2^\circ\text{C}$ for 1h | | N/A |
| | Force of 60 ± 0.6 N applied to each pin over 10 s and maintained for 10 minutes; applied in two directions along length of pin | | N/A |
| | Maximum displacement during test not exceeding 2.4 mm | | N/A |
| | Maximum measured displacement | | -- |
| | Pin returns to within 0.8 mm of nominal length within 5 minutes of removal of test force (AS/NZS 3112:2017) | | N/A |

| | | |
|------|---|-----|
| J4.6 | Tests on the insulation material of insulated pin-plug portions The requirements of Clause 2.13.13 are applicable for insulating material of insulated plug pins. (AS/NZS 3112:2017) | N/A |
|------|---|-----|

| | | |
|-----------|--|-----|
| 2.13.13 | Test No.8 Tests for insulation material of insulated pin plugs | -- |
| 2.13.13.1 | Material of pin-insulation resistant to stresses at temperature likely to occur | N/A |
| 2.13.13.2 | Pressure test at high temperature | N/A |
| | Specimen tested as per Figure 2.5 with force of 2.5 N applied as specified; maintained for 2 h at $160 \pm 5^\circ\text{C}$; removed and cooled by immersion in water within 10 s | N/A |
| | Thickness of insulation at point of impression not reduced by more than 50% | N/A |
| | Initial thickness | mm |
| | Thickness after test | mm |
| | No visible cracks on insulation material | N/A |
| | Dimension of insulating material not below minimum | N/A |



| | | | |
|--|--|--|--|
| | size in Figure 2.4 (AS/NZS 3112:2017) | | |
|--|--|--|--|

| | | | |
|-----------|---|----------------------|-----|
| 2.13.13.3 | Static damp heat test | | -- |
| | Specimen subjected to two damp heat cycles in accordance with IEC 60068-2-30; Db (12 + 12h), 95% RH, 25 ± 3°C; 40°C | | N/A |
| | After this treatment and recovery to room temperature; specimen subjected to: | | N/A |
| (a) | Insulation resistance test in accordance with clause 2.13.2 (e) | (see appended table) | N/A |
| (b) | High voltage test in accordance with clause 2.13.3 | (see appended table) | N/A |
| (c) | Abrasion test in accordance with clause 2.13.13.6 | | N/A |
| 2.13.13.4 | Low temperature test | | N/A |
| | Plug maintained at -15 ± 2°C for minimum of 24 h and returned to room temperature; after which specimen subjected to: | | N/A |
| (a) | Insulation resistance test in accordance with clause 2.13.2 (e) | (see appended table) | N/A |
| (b) | High voltage test in accordance with clause 2.13.3 | (see appended table) | N/A |
| (c) | Abrasion test in accordance with clause 2.13.13.6 | | N/A |
| 2.13.13.5 | Impact test at low temperature | | -- |
| | Specimen maintained at -15 ± 2°C for 24 h | | N/A |
| | Specimen placed in position and subjected to impact test as per Figure 2.6; mass of 100 ± 1 g falling through 100 mm | | N/A |
| | Four impacts applied; specimen rotated through 90° between impacts | | N/A |
| | After return to room temperature; no visible cracks of insulating material | | N/A |
| 2.13.13.6 | Abrasion test | | -- |
| | Plug held in clamp and tested as per Figure 2.7; pin loaded at 4 N; 20 000 movements | | N/A |
| | After test; pins show no damage affecting safety or impairing further use of the plug | | N/A |
| | Insulating sleeve not punctured or rucked up (AS/NZS 3112:2017) | | N/A |

| | | |
|------|---|----|
| J4.7 | Test no.9 Equipment with a plug portion intended to be supported by the contacts of a socket-outlet | -- |
|------|---|----|



| | | |
|--|--|-------------|
| | Equipment with pins intended to be introduced into fixed socket-outlets not imposing undue strain on socket-outlet | N/A |
| | Applied torque not exceeding 0.25 Nm | N/A |
| | Measured torque (AS/NZS 3112:2017) | ___Nm -- |

| | | |
|--------|--|-----|
| J4.8 | Additional requirements for detachable plug portions | -- |
| J4.8.1 | Test no.10 Access to live parts | N/A |
| | Small test finger of Figure 13 of IEC 61032 was not possible to contact live parts with the force of 20N | N/A |
| | incorrectly assemble the plug portion was not possible (AS/NZS 3112:2017) | N/A |

| | | |
|--------|---|-----|
| J4.8.2 | Test No.11 Construction of detachable contacts where the input current of the equipment exceeds 0.2 A | -- |
| | Contacts of the equipment shall be such that they make and maintain, under normal service conditions, satisfactory electrical and mechanical contact with the corresponding contact of the detachable plug portion. | N/A |
| | For connections intended to accommodate pins, contact shall be made on two surfaces diametrically opposite, except if a single spring-assisted contact is used. (AS/NZS 3112:2017/A1:2021) | N/A |
| | Contacts shall not rely exclusively on the resilience of the contact material and shall have an opposite face of material other than thermoplastic or resilient insulating material. (AS/NZS 3112:2017/ A1:2021) | N/A |
| | The alignment and contact-making properties of contacts shall be independent of terminal screws | N/A |
| | The effectiveness of the contacts shall be independent of pressure from any thermoplastic or resilient moulding. | N/A |
| | A visual inspection is conducted to determine the existence of interference between the metal contacts and the thermoplastic or resilient moulding to provide supplementary contact pressure to the metal contacts. | N/A |
| | Conformance of the effectiveness of the contacts is checked by inspection and by the inspection and tests in J4.8.3 (AS/NZS 3112:2017) | N/A |



| | | | |
|----------|---|--|-----|
| J4.8.4 | Resistance of insulating material to heat and fire | | -- |
| J4.8.4.1 | <p>Test no.12 Resistance to heat For Type B detachable plug portions parts of non-metallic material, parts of insulating material supporting live parts including connections, and parts of thermoplastic material providing supplementary insulation or reinforced insulation, shall be sufficiently resistant to heat if their deterioration could cause the appliance to fail to comply with this Standard.</p> | | N/A |
| | Ball pressure test conducted in accordance with IEC 60695-10-2 | | N/A |
| (a) | 75°C ± 2°C, for external parts; | | N/A |
| (b) | 125°C ± 2°C, for parts supporting live parts. | | N/A |

| | | | |
|----------|--|--|-----|
| J4.8.4.2 | Test no.13 Resistance to fire | | -- |
| | Plug portions comply with resistance to fire requirements of AS/NZS 3100 Annex A as follows: | | N/A |
| | The glow wire test temperature 'T' for 'retaining parts' of fixed socket outlets shall be 750 C (AS/NZS 3112:2017) | | N/A |

TABLES OF RESULTS

| | | | |
|------------------------------------|--|--------------|-----|
| 2.2.4 | TABLE: Dimensions of insulation on insulated pin plugs | | N/A |
| Dimension (Figure 2.1 designation) | Measured (mm) | Allowed (mm) | |
| Phase pin | | 8.7 ± 0.5 | |
| Neutral pin | | 8.7 ± 0.5 | |

| | | | |
|------------------------------------|--------------------------------------|-----------------------|-----|
| 2.8.1 | TABLE: Dimensions of plugs- 10A (a1) | | N/A |
| Dimension (Figure 2.1 designation) | Measured (mm) | Allowed (mm) | |
| Phase and neutral pin width (A) | | 6.35 ± 0.15 | |
| Earth pin width (B) | | 6.35 ± 0.15 | |
| Pin thickness (C) | | 1.63 + 0.15, -0.05 | |
| Pin disposition (D) | | checked by test gauge | |
| Pin disposition (E) | | checked by test gauge | |
| Phase and neutral pin length (F) | | 17.06 ± 0.4 | |
| Earth pin length (G) | | 19.94 ± 0.8 | |
| Pin boss radius - maximum | | 21.0 max | |
| Pin boss height | | 8.6 min | |



| | | |
|------------------------------------|--------------------------------------|-----------------------|
| 2.8.1 | TABLE: Dimensions of plugs- 15A (a1) | N/A |
| Dimension (Figure 2.1 designation) | Measured (mm) | Allowed (mm) |
| Phase and neutral pin width (A) | | 6.35 ± 0.15 |
| Earth pin width (B) | | 9.08 ± 0.15 |
| Pin thickness (C) | | 1.63 + 0.15, -0.05 |
| Pin disposition (D) | | checked by test gauge |
| Pin disposition (E) | | checked by test gauge |
| Phase and neutral pin length (F) | | 17.06 ± 0.4 |
| Earth pin length (G) | | 19.94 ± 0.8 |
| Pin boss radius - maximum | | 21.0 max |
| Pin boss height | | 8.6 min |

| | | |
|------------------------------------|-------------------------------------|-----------------------|
| 2.8.1 | TABLE: Dimensions of plugs-20A (a2) | N/A |
| Dimension (Figure 2.1 designation) | Measured (mm) | Allowed (mm) |
| Phase and neutral pin width (A) | | 9.08 ± 0.15 |
| Earth pin width (B) | | 9.08 ± 0.15 |
| Pin thickness (C) | | 1.63 + 0.15, -0.05 |
| Pin disposition (D) | | checked by test gauge |
| Pin disposition (E) | | checked by test gauge |
| Phase and neutral pin length (F) | | 17.06 ± 0.4 |
| Earth pin length (G) | | 19.94 ± 0.8 |
| Pin boss radius - maximum | | 21.0 max |
| Pin boss height | | 8.6 min |

| | | |
|-------------------------|---|------------------|
| 2.8.1 | TABLE: Projection from plug face centroid | N/A |
| Direction of projection | Measured (mm) | Allowed (mm) |
| Left | | ≤ 21.9 or ≥ 27.0 |
| Right | | ≤ 21.9 or ≥ 27.0 |
| Up | | ≤ 21.9 or ≥ 27.0 |
| Down | | ≤ 21.9 or ≥ 27.0 |

| | | |
|---|---------------------------------------|-----------|
| 2.13.3 | TABLE: Test No. 1 – High voltage test | N/A |
| Test voltage applied between: | Test voltage (V) | Breakdown |
| All poles of the plug; taken in pairs | 1000 | Yes / No |
| Live poles of the plug and any external metal | 3500 | Yes / No |



| | | |
|---|------|----------|
| Live poles of the plug and the earthing terminal | 1000 | Yes / No |
| Live poles of the plug and a flexible electrode | 3500 | Yes / No |
| Live poles and metal foil applied around insulation on pins | 1250 | Yes / No |

| | | | |
|----------|---|------|-----|
| 2.13.7.1 | Test No.2 – Tumbling barrel test | N/A | |
| | Following the test, the samples shall comply with Clause 2.13.7.1(a..e) | N/A | |
| | (a) Live parts shall not have become exposed to the standard test finger | | N/A |
| | (b) For earth pins, the resistance of the plug/socket-outlet circuit shall be such that conformance with Clause 3.14.7 is maintained. AS/NZS 3100 Cl 8.5 The resistance shall not exceed 0.1 Ω | — Ω. | N/A |
| | (c) Any other function affecting safety shall not be impaired | | N/A |
| | (d) No live part shall have become detached or loosened, to the extent that a hazardous situation is created (see Clause 2.9) | | N/A |
| | (e) The pins shall be inspected with normal, or corrected to normal, vision. Insulation may be removed if necessary. Pins shall not be broken or show cracking | | N/A |

| | | | |
|--|--|------|-----|
| | Test No.3 Impact test for assembled equipment with the detachable plug portion connected and for equipment with an integral plug portion. | -- | |
| | Following the test, the samples shall comply with Clause 2.13.7.1 (a..e) as follows: | N/A | |
| | (a) Live parts shall not have become exposed to the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032) | | N/A |
| | (b) For earth pins, the resistance of the plug/socket-outlet circuit shall be such that conformance with Clause 3.14.7 is maintained so that the resistance between the earthing terminal of any socket-outlet provided with an earthing contact and the earthing terminal of the plug used for testing shall be of a low resistance. Compliance is by the test of earthing connection in AS/NZS 3100 Clause 8.5. The resistance shall not exceed 0.1 Ω | — Ω. | N/A |



| | | | |
|--|---|--|-----|
| | (c) Any other function affecting safety shall not be impaired | | N/A |
| | (d) No live part shall have become detached or loosened, to the extent that a hazardous situation is created | | N/A |
| | (e) The pins shall be inspected with normal, or corrected to normal, vision. Insulation may be removed if necessary. Pins shall not be broken or show cracking. | | N/A |
| | Following the test, the samples shall conform to the 'Guarding of live parts' requirements of AS/NZS 3100:2015 cl 5.1 as follows: | | N/A |
| | Except for equipment intended for use only in a position not accessible to unauthorized persons, all equipment shall be so designed and constructed that, when the equipment is standing, supported, or fixed, in a normal manner, no person can inadvertently come into contact with any live part | | N/A |
| | If a hole giving access to preset controls is marked as such on the enclosure or reference made to it in the instructions and the setting of this control requires a screwdriver or other tool, the adjustment of the control shall not allow contact with any live parts. A metal test pin having a diameter of 2 mm and a length of 100 mm shall not become live when it is inserted through the hole in every position with a force of 10 N. | | N/A |
| | In addition, the opening or removal of any cover or component, with or without tools, where such opening or removal is necessary as a normal operation of the equipment as distinct from maintenance, repairs, or adjustment, shall not expose live parts to inadvertent personal contact. | | N/A |
| | Any metal cover or casing enclosing live parts shall be of a strength sufficient to ensure that it cannot be deformed readily so as to come into contact with live parts. | | N/A |
| | Compliance is checked by inspection, test and checking that live parts shall not have become exposed to the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032) | | N/A |
| | Class II equipment and class II constructions shall be constructed and enclosed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only. | | N/A |
| | It shall only be possible to touch parts which are separated from live parts by double insulation or reinforced insulation. | | N/A |
| | Compliance is checked by application of the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032) | | N/A |



| | | | |
|--|--|--|-----|
| | Following the test, the samples shall conform to the 'Separation of live parts from non-current-carrying conductive parts' requirements of AS/NZS 3100.Cl 5.2.2 as follows: | | N/A |
| | The support and insulation of every live part shall be such as will ensure that no live part can make contact with any non-current-carrying conductive part exposed to personal contact. | | N/A |
| | In respect of terminals of components such as switches, adequate clearances shall be maintained or insulation shall be provided to prevent contact of the terminals, or loose strands of flexible cords intended to be terminated therein, with exposed conductive parts. Where necessary, provision shall be made to ensure that conductors protruding through terminals, when normally connected, will not contact exposed conductive parts. | | N/A |
| | Compliance is checked by inspection. | | N/A |

| | | |
|--|--|---------------|
| | Test No.3 Impact test for the detachable plug portion after it has been separated from the equipment | -- |
| | Following the test, the samples shall comply with Clause 2.13.7.1 (a..e) | N/A |
| | (a) Live parts shall not have become exposed to the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032) | N/A |
| | (b) For earth pins, the resistance of the plug/socket-outlet circuit shall be such that conformance with Clause 3.14.7 is maintained so that the resistance between the earthing terminal of any socket-outlet provided with an earthing contact and the earthing terminal of the plug used for testing shall be of a low resistance. Compliance is by the test of earthing connection in AS/NZS 3100 Clause 8.5. The resistance shall not exceed 0.1 Ω | ___ Ω. N/A |
| | (c) Any other function affecting safety shall not be impaired | N/A |
| | (d) No live part shall have become detached or loosened, to the extent that a hazardous situation is created | N/A |
| | (e) The pins shall be inspected with normal, or corrected to normal, vision. Insulation may be removed if necessary. Pins shall not be broken or show cracking. | N/A |



| | | | |
|--|---|--|-----|
| | Following the test, the samples shall conform to the 'Guarding of live parts' requirements of AS/NZS 3100:2015 cl 5.1 as follows: | | N/A |
| | Except for equipment intended for use only in a position not accessible to unauthorized persons, all equipment shall be so designed and constructed that, when the equipment is standing, supported, or fixed, in a normal manner, no person can inadvertently come into contact with any live part | | N/A |
| | If a hole giving access to preset controls is marked as such on the enclosure or reference made to it in the instructions and the setting of this control requires a screwdriver or other tool, the adjustment of the control shall not allow contact with any live parts. A metal test pin having a diameter of 2 mm and a length of 100 mm shall not become live when it is inserted through the hole in every position with a force of 10 N. | | N/A |
| | In addition, the opening or removal of any cover or component, with or without tools, where such opening or removal is necessary as a normal operation of the equipment as distinct from maintenance, repairs, or adjustment, shall not expose live parts to inadvertent personal contact. | | N/A |
| | Any metal cover or casing enclosing live parts shall be of a strength sufficient to ensure that it cannot be deformed readily so as to come into contact with live parts. | | N/A |
| | Compliance is checked by inspection, test and checking that live parts shall not have become exposed to the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032) | | N/A |
| | Class II equipment and class II constructions shall be constructed and enclosed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only. | | N/A |
| | It shall only be possible to touch parts which are separated from live parts by double insulation or reinforced insulation. | | N/A |
| | Compliance is checked by application of the standard test finger (Figure 8.10 in AS/NZS 3100 or Test Probe B in IEC 61032) | | N/A |



| | | | |
|--|--|--|-----|
| | Following the test, the samples shall conform to the 'Separation of live parts from non-current-carrying conductive parts' requirements of AS/NZS 3100.Cl 5.2.2 as follows: | | N/A |
| | The support and insulation of every live part shall be such as will ensure that no live part can make contact with any non-current-carrying conductive part exposed to personal contact. | | N/A |
| | In respect of terminals of components such as switches, adequate clearances shall be maintained or insulation shall be provided to prevent contact of the terminals, or loose strands of flexible cords intended to be terminated therein, with exposed conductive parts. Where necessary, provision shall be made to ensure that conductors protruding through terminals, when normally connected, will not contact exposed conductive parts. | | N/A |
| | Compliance is checked by inspection. | | N/A |

| | | | |
|-------------------------|---|-----------------|----------------|
| 2.13.8 | TABLE: Test No. 6 - Temperature rise test | | -- |
| | Ambient temperature | °C | -- |
| | Test current | A | -- |
| Measured part | | dT measured (K) | dT allowed (K) |
| Active (phase) terminal | | | 45 |
| Neutral terminal | | | 45 |
| Earthing terminal | | | 45 |

| | | | |
|---|---|-------------------------|-----|
| 2.13.9.1 | TABLE: Movement of pins | | N/A |
| | Earth and neutral pins clamped – phase pin loaded | | -- |
| Force direction | Measured deflection (mm) | Allowed deflection (mm) | |
| Force towards neutral plane parallel to pin plane | | | 2.0 |
| Force from neutral plane parallel to pin plane | | | 2.0 |
| Force outwards at 90° to pin plane | | | 2.0 |
| Force inwards at 90° to pin plane | | | 2.0 |

| | | | |
|----------|---|--|-----|
| 2.13.9.1 | TABLE: Movement of pins | | N/A |
| | Phase and neutral pins clamped – earth pin loaded | | -- |



| Force direction | Measured deflection (mm) | Allowed deflection (mm) |
|--------------------------------------|--------------------------|-------------------------|
| Force inwards parallel to pin plane | | 2.0 |
| Force outwards parallel to pin plane | | 2.0 |
| Force towards neutral | | 2.0 |
| Force towards phase | | 2.0 |

| 2.13.9.1 | TABLE: Movement of pins | N/A |
|---|---|-------------------------|
| | Phase and earth pins clamped – neutral pin loaded | -- |
| Force direction | Measured deflection (mm) | Allowed deflection (mm) |
| Force towards phase plane parallel to pin plane | | 2.0 |
| Force from phase plane parallel to pin plane | | 2.0 |
| Force outwards at 90° to pin plane | | 2.0 |
| Force inwards at 90° to pin plane | | 2.0 |

| | | |
|---|---|-----------------------|
| 2.13.13.3 | TABLE: Test No.13(b) – Insulation resistance test after static damp heat test | N/A |
| Applied between: | Insulation resistance (MΩ) | Minimum required (MΩ) |
| Live poles and metal foil applied around insulation on pins | | 5 |

| | | |
|---|--|-----------|
| 2.13.13.3 | TABLE: Test No.1 – High voltage test after static damp heat test | N/A |
| Test voltage applied between: | Test voltage (V) | Breakdown |
| Live poles and metal foil applied around insulation on pins | 1250 | Yes / No |

| | | |
|---|--|-----------------------|
| 2.13.13.4 | TABLE: Test No.1 – Insulation resistance test after low temperature test | N/A |
| Applied between: | Insulation resistance (MΩ) | Minimum required (MΩ) |
| Live poles and metal foil applied around insulation on pins | | 5 |

| | | |
|---|---|-----------|
| 2.13.13.4 | TABLE: Test No.1 – High voltage test after low temperature test | N/A |
| Test voltage applied between: | Test voltage (V) | Breakdown |
| Live poles and metal foil applied around insulation on pins | 1250 | Yes / No |

| | | |
|------------------|--------------------------------------|-----------------------------|
| J4.8.4.1 | TABLE: Test no.12 Resistance to heat | N/A |
| Component tested | Temperature (°C) | Diameter of impression (mm) |



Conformance is checked by subjecting the relevant part to the ball pressure test of IEC 60695-10-2.

| | | |
|----------|--|-----|
| J4.8.4.2 | TABLE: Test no.13 Resistance to Fire | N/A |
| | Plug portions shall comply with the requirements for resistance to fire in accordance with AS/NZS 3100:2017 Annex A. The glow-wire test temperature 'T' shall be 750°C. | N/A |

Glow-wire testing was conducted in accordance with IEC 60695-2-11.

Test specimens arranged so that the surface in contact with the tip of the glow-wire was vertical and glow wire tip applied to surface of the specimen likely to be subjected to thermal stresses in normal use.

A layer of white pine board and wrapping tissue was placed beneath the sample at 200mm ± 5mm distance.



| SPECIMEN NUMBER | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|-----|-----|-----|-----|-----|-----|-----|-----|
| SPECIMEN DESCRIPTION | | | | | | | | |
| Material | | | | | | | | |
| Colour | | | | | | | | |
| Test specimen | | | | | | | | |
| Glow wire tip temperature (°C) | 750 | 750 | 750 | 750 | 750 | 750 | 750 | 750 |
| Duration of glow wire application (t _a) (s) | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| OBSERVATIONS | | | | | | | | |
| Duration from beginning of glow-wire tip application to ignition of specimen or layer (t _i) (s) | | | | | | | | |
| Duration from beginning of glow-wire tip application to when flames extinguish (t _e) (s) | | | | | | | | |
| Maximum height of flames after initial 1s (to nearest 5 mm) (mm) | | | | | | | | |
| Flame impingement on other parts | | | | | | | | |
| Degree of tip penetration | | | | | | | | |
| Degree of specimen distortion | | | | | | | | |
| Scorching of pinewood board | | | | | | | | |
| EVALUATION CRITERIA | | | | | | | | |
| Visible flame or sustained glowing | | | | | | | | |



| | | | | | | | | |
|--|--|--|--|--|--|--|--|--|
| Visible Flame Duration in Seconds during test. | | | | | | | | |
| Duration of flaming or glowing after tip removal (max. allowable 30 s) (s) | | | | | | | | |
| Surrounding parts burned away completely (not permitted) | | | | | | | | |
| Ignition of wrapping tissue layer (not permitted) | | | | | | | | |
| RESULTS If parts tested withstand the glow-wire test, but during the test produce a flame that persists for longer than 2 s, then the consequential needle flame test of AS/NZS 3100:2017 Annex A 6.1.5 applies. | | | | | | | | |

LEGEND: CE Complete Equipment SA Sub Assembly SE Self Extinguished
EBD Emitted Burning Droplets SBD Specimen Burned and Distorted SMD Specimen Melted and Distorted
ME Manually Extinguished SC Separate Component SS Specimen Scorched
NA Not Applicable SCC Specimen Completely Consumed WPNI Wall Penetrated but no Ignition
NI No Ignition X Flame Appeared for an Instant



| TABLE: Needle- flame test (NFT) | | | | | N/A |
|--|----------------------------|--|---|---------------------------------------|---------|
| Object/ Part No./ Material | Manufacturer/ trademark | Duration of application of test flame (ta); (s) | Ignition of specified layer Yes/No | Duration of burning (tb) (s) | Verdict |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| Supplementary information: | | | | | |
| <ul style="list-style-type: none"> - NFT not relevant (or applicable) for Parts of material classified as V-0 or V-1 - NFT not relevant (or applicable) for Base material of PCBs classified as V-0 or if relevant VTM-0 | | | | | |



| | | |
|--|--------------------|-----|
| | PHOTOGRAPHS | N/A |
|--|--------------------|-----|



Details of: Outside View 1



Details of: Outside View 2





Details of: Outside View 3



Details of: Outside View 4





Details of: Inside View 1



Details of: Inside View 2





Details of: **Inside View 3**



Details of: **Inside View 4**





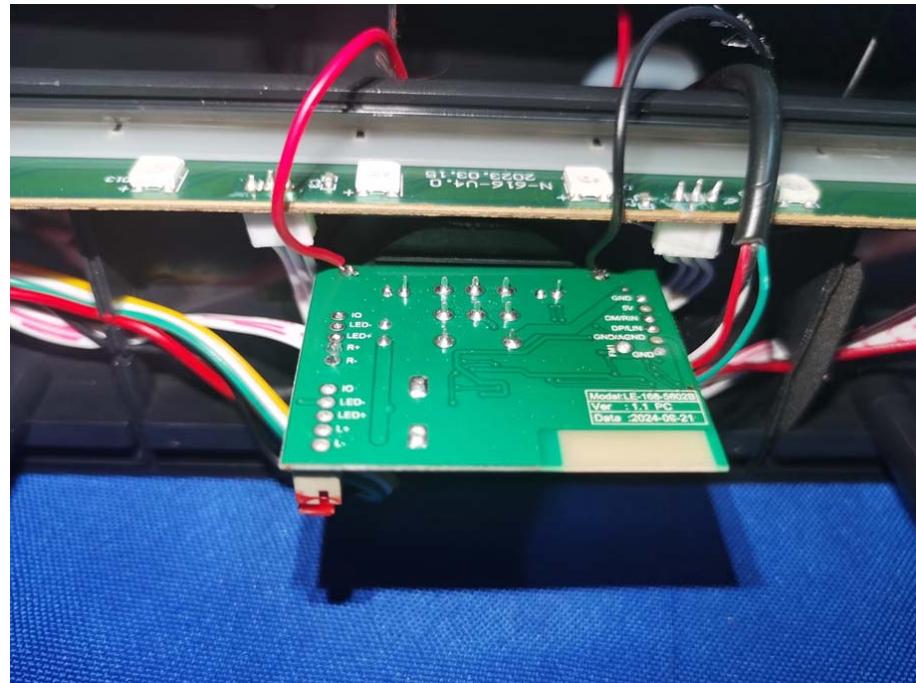
Details of: **Inside View 5**



Details of: **Inside View 6**



Details of: Inside View 7



Details of: Inside View 8

