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ANALYTICAL LABS LIMITED

S A L
EXCELLENCE IN TESTING

S-1, GNEPIP, SURAJPUR
Industrial Area, Phase-V, Kasna,
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care@spectro.in, www.spectro.in
CIN : U74220DL1998PLC092698
GSTIN: 09AACCS2840R1ZT

**SUMMARY OF TEST REPORT**
**TEST REPORT NO... D210325028/D210325028-1...DATED 28.04.2021**
**(Number of pages in test report: page no. 1 to 100)**
**ULR: TC631421000003691F**

**TEST FORMAT AS PER IS 13252 (Part 1): 2010 + A1: 2013+ A2:2015 / IEC 60950-1: 2005 + A1: 2009 +A2:2013**

1. Name of Manufacturer: **GlobTek (Suzhou) Co., Ltd**
   No. 76, Jinling East Road, Suzhou Industrial Park, China

2. Product: ITE POWER SUPPLY (Power Adaptor for IT Equipment)

3. Models: Lead Model: GT-46401-4015 with Trademark: GlobTek, Inc.
   Series Models: GT-46401-4019-3.0, GT-46401-4024, GT-46401-3612, GT-46401-3615-1.5, GT-46401-3012, GT-46401-3015, GT-46401-3019-3.0, GT-46401-3024, GT-46401-2412 with Trademark: GlobTek, Inc.

4. Model differences provided (if applicable) : Yes
5. Model differences verified as per MEITY Guidelines for series formulation: Yes
6. Test Results :

**PART A : GENERAL**

| SL. NO. | TEST REQUIREMENT | CLAUSE | VERDICT |
|---|---|---|---|
| 1. | Components | 1.5 | P |
| 2. | Power Interface | 1.6 | P |
| 3. | Markings and Instructions | 1.7 | P |

**PART B : PROTECTION FROM HAZARDS**

| SL. NO. | TEST REQUIREMENT | CLAUSE | VERDICT |
|---|---|---|---|
| 1. | Protection from electric shock and energy hazards | 2.1 | P |
| 2. | SELV circuits | 2.2 | P |
| 3. | TNV circuits | 2.3 | N/A |
| 4. | Limited current circuits | 2.4 | P |
| 5. | Limited power sources | 2.5 | P |
| 6. | Provisions for earthing and bonding | 2.6 | N/A |
| 7. | Over current for earth fault protection in primary circuits | 2.7 | P |
| 8. | Safety interlocks | 2.8 | N/A |
| 9. | Electrical insulation | 2.9 | P |
| 10. | Clearances, creepage distances and distances through insulation | 2.10 | P |

**PART C : WIRING, CONNECTIONS AND PHYSICAL REQUIREMENTS**

| SL. NO. | TEST REQUIREMENT | CLAUSE | VERDICT |
|---|---|---|---|
| 1 | General | 3.1 | P |
| 2 | Connection to a mains supply | 3.2 | P |
| 3 | Wiring terminals for connection of external conductors | 3.3 | N/A |

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CIN : U74220DL1998PLC092698
GSTIN: 09AACCS2840R1ZT

| | | | |
|---|---|---|---|
| 4 | Disconnection from the mains supply | 3.4 | P |
| 5 | Interconnection of equipment | 3.5 | P |
| 6. | Stability | 4.1 | N/A |
| 7 | Mechanical strength | 4.2 | P |
| 8 | Design and construction | 4.3 | P |
| 9 | Protection against hazardous moving parts | 4.4 | N/A |
| 10 | Thermal requirements | 4.5 | P |
| 11 | Openings in enclosures | 4.6 | N/A |
| 12 | Resistance to fire | 4.7 | P |

**PART D : ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS**

| SL. NO. | TEST REQUIREMENT | CLAUSE | VERDICT |
|---|---|---|---|
| 1 | Touch current and protective conductor current | 5.1 | P |
| 2 | Electric strength | 5.2 | P |
| 3 | Abnormal operating and fault conditions | 5.3 | P |

**PART E: CONNECTION TO TELECOM AND CABLED DISTRIBUTION SYSTEM**

| SL. NO. | TEST REQUIREMENT | CLAUSE | VERDICT |
|---|---|---|---|
| 1 | Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment | 6.1 | N/A |
| 2 | Protection of equipment users from over voltages on telecommunication networks | 6.2 | N/A |
| 3 | Protection of the telecommunication wiring system from overheating | 6.3 | N/A |
| 4 | Connection to cable distribution systems - General | 7.1 | N/A |
| 5 | Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment | 7.2 | N/A |
| 6 | Protection of equipment users from over voltages on the cable distribution system | 7.3 | N/A |
| 7 | Insulation between primary circuits and cable distribution systems | 7.4 | N/A |

**General Information:**

1.The conformity certificates of critical components are verified to ensure complete testing of apparatus under test and details regarding harmonized IEC standards (where IEC standards are not available) are also provided in the list of critical component.

**CONCLUSION :**

1) **Sample meets all relevant requirements of IS 13252 (Part 1): 2010 + A1: 2013+ A2:2015 / IEC 60950-1: 2005 + A1: 2009 +A2:2013 √**

*I, hereby, undertake that the verdict stated in the test reports for all the tests matches with the test results. The sample meets all relevant requirements of IS 13252 (Part 1): 2010 + A1: 2013+ A2:2015 / IEC 60950-1: 2005 + A1: 2009 +A2:2013. If any deviation is found, suitable punitive action may be taken by BIS.*

(Signature of Authorized person with Stamp)

SPECTRO ANALYTICAL LABS LTD. GREATER NOIDA

| | | | |
|---|---|---|---|
| *Test Report No.:* | D210325028/D210325028-1 | | Page 1 of 100 |
| ULR No.: | TC631421000003691F | Issue Date: | 28/04/2021 |

| | | | |
|---|---|---|---|
| *Manufacturer:* | **GlobTek (Suzhou) Co., Ltd**<br>No. 76, Jinling East Road, Suzhou Industrial Park, China | | |
| *Test item:* | ITE POWER SUPPLY (Power Adaptor for IT Equipment) | | |
| *Identification:* | Lead Model: GT-46401-4015<br>Series Models: GT-46401-4019-3.0, GT-46401-4024, GT-46401-3612, GT-46401-3615-1.5, GT-46401-3012, GT-46401-3015, GT-46401-3019-3.0, GT-46401-3024, GT-46401-2412 | *Serial No.:* | Nil |
| *Receipt No.:* | D210325028 | *Date of receipt:* | 25/03/2021 |
| *Testing laboratory and its address:* | **SPECTRO ANALYTICAL LABS LIMITED**<br>S-1,GNEPIP,SURAJPUR INDUSTRIAL AREA<br>PHASE-5,KASNA,GREATER NOIDA-201308 | | |
| *Test specification:* | **IS 13252 (Part 1): 2010 + A1: 2013 + A2 : 2015 /**<br>**IEC 60950-1: 2005 + A1: 2009 + A2 : 2013** | | |
| *Test Result:* | *The test item passed the test specification(s).* | | |

*Other Aspects:*

1. P = Pass, F = Fail, N/A = Not Applicable
2. Models: GT-46401-4019-3.0, GT-46401-4024, GT-46401-3612, GT-46401-3615-1.5, GT-46401-3012, GT-46401-3015, GT-46401-3019-3.0, GT-46401-3024, GT-46401-2412 with trademark GlobTek, Inc. are in the same product family and can be undertaken in series with model **GT-46401-4015** with trademark: GlobTek, Inc. . All the tests have been Performed on **GT-46401-4015** (worst case) with trademark: GlobTek, Inc. .

*This test report relates to the test sample submitted and list of documents attached.*

| Tested by: | Approved by / Authorized Signatory: | Issued by: |
|---|---|---|
| (Renu/Engineer) | (Aditya Pratap Singh/Technical Manager) | (Aditya Pratap Singh/Technical Manager) |
| Date: 28/04/2021 | Date: 28/04/2021 | Date: 28/04/2021 |



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| | |
|---|---|
| **TEST REPORT**<br>**IS 13252 (Part 1): 2010 + A1: 2013+ A2: 2015 / IEC 60950-1: 2005 + A1: 2009 + A2: 2013**<br>**Information technology equipment – Safety –**<br>**Part 1: General requirements**<br>**"Power Adaptor for IT Equipment"** | |
| **Report Reference No.** ..... : | D210325028/D210325028-1 |
| ULR No..... : | TC631421000003691F |
| Date of issue ..... : | 28/04/2021 |
| Total number of pages..... | 100 |
| **Testing Laboratory** ..... : | **SPECTRO ANALYTICAL LABS LIMITED** |
| Address ..... : | S-1,GNEPIP,SURAJPUR INDUSTRIAL AREA<br>PHASE-5,KASNA,GREATER NOIDA-201308 |
| **Manufacturer's name** ..... : | **GlobTek (Suzhou) Co., Ltd** |
| Address ..... : | No. 76, Jinling East Road, Suzhou Industrial Park, China |
| **Test specification:** | |
| Standard ..... : | **IS 13252 (Part 1): 2010 + A1: 2013+ A2:2015 / IEC 60950-1: 2005 + A1: 2009 +A2:2013** |
| Test procedure..... : | Compliance Report |
| Non-standard test method.....: | N/A |
| **Test Report Form No.** ..... : | BIS_IT/PA_IS13252_V1.3 |
| Test Report Form(s) Originator..... : | Bureau of Indian Standards |
| Master TRF..... : | 03/06/2016 |
| **Test item description** ..... : | ITE POWER SUPPLY (Power Adaptor for IT Equipment) |
| Trade Mark ..... : | GlobTek, Inc. |
| Model/Type reference..... : | Lead Model: GT-46401-4015<br>Series Models: GT-46401-4019-3.0, GT-46401-4024, GT-46401-3612, GT-46401-3615-1.5, GT-46401-3012, GT-46401-3015, GT-46401-3019-3.0, GT-46401-3024, GT-46401-2412 |
| Ratings ..... : | Input:100-240Vac,50/60Hz,1.0A<br>Output: 15V ⎓ 2.66A, 40W |
| Other Documents submitted ..... : | Please refer to Table – List of Attachments at Page No. 86 |

| Tested by: | Approved by / Authorized Signatory: | Issued by: |
|---|---|---|
| (Renu/Engineer) | (Aditya Pratap Singh/Technical Manager) | (Aditya Pratap Singh/Technical Manager) |
| Date: 28/04/2021 | Date: 28/04/2021 | Date: 28/04/2021 |



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| Test Code | Description | Measurement/ testing | Total No. of tests | Total no. of applicable tests/ Req. | No. of tests/ Req. passed | Page No. |
|---|---|---|---|---|---|---|
| EL 2100 | General Requirements | Components (Cl.1.5) | 18 | 07 | 07 | 11 |
| EL 2101 | General Requirements | Power interface (Cl.1.6) | 05 | 04 | 04 | 13 |
| EL 2102 | Marking Requirements | Marking & instructions(Cl.1.7) | 39 | 15 | 15 | 14 |
| EL 2103 | Electrical safety | Protection from electric shock and energy hazards (Cl.2.1) | 14 | 05 | 05 | 16 |
| EL 2104 | Electrical safety | SELV Circuits (Cl.2.2) | 04 | 04 | 04 | 17 |
| EL 2105 | Electrical safety | TNV Circuits (Cl.2.3) | 12 | 00 | N/A | 18 |
| EL 2106 | Electrical safety | Limited current circuits (Cl.2.4) | 04 | 04 | 04 | 19 |
| EL 2107 | Electrical safety | Limited Power sources (Cl.2.5) | 07 | 04 | 04 | 20 |
| EL 2108 | Electrical safety | Provisions for earthing and bonding (Cl.2.6) | 19 | 00 | N/A | 21 |
| EL 2109 | Electrical safety | Overcurrent and earth fault protection in primary circuits (Cl.2.7) | 07 | 04 | 04 | 23 |
| EL 2110 | Electrical safety | Safety Interlocks (Cl.2.8) | 13 | 00 | N/A | 24 |
| EL 2111 | Electrical safety | Electrical Insulation (Cl.2.9) | 05 | 05 | 05 | 25 |
| EL 2112 | Electrical safety | Clearances, Creepage distances and distances through insulation (Cl.2.10) | 63 | 28 | 28 | 26 |
| EL 2113 | Wiring | Wiring, connections and supply (Cl.3) | 11 | 02 | 02 | 29 |
| EL 2114 | Wiring | Connection to a main supply (Cl.3.2) | 14 | 03 | 03 | 30 |
| EL 2115 | Wiring | Wiring terminals for connection of external conductors (Cl.3.3) | 09 | 00 | N/A | 32 |
| EL 2116 | Wiring | Disconnection for the main supply (Cl.3.4) | 12 | 04 | 04 | 33 |
| EL 2117 | Wiring | Interconnection of equipment (Cl.3.5) | 05 | 03 | 03 | 34 |
| EL 2118 | Mechanical properties | Stability (Cl.4.1) | 05 | 00 | N/A | 35 |
| EL 2119 | Mechanical properties | Mechanical strength (Cl.4.2) | 13 | 06 | 06 | 36 |
| EL 2120 | Mechanical properties | Design and construction (Cl.4.3) | 25 | 07 | 07 | 37 |
| EL 2121 | Mechanical properties | Protection against hazardous moving parts (Cl.4.4) | 14 | 00 | N/A | 39 |
| EL 2122 | Thermal Properties | Thermal requirements (Cl.4.5) | 06 | 06 | 06 | 40 |
| EL 2123 | Mechanical properties | Openings in Enclosures (Cl.4.6) | 18 | 00 | N/A | 41 |
| EL 2124 | Fire Safety | Resistance to fire (Cl.4.7) | 25 | 10 | 10 | 43 |
| EL 2125 | Insulating properties | Electrical requirements and simulated abnormal conditions(Cl.5),5.1 | 20 | 11 | 11 | 47 |



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| | | | | | | |
|---|---|---|---|---|---|---|
| EL 2126 | Insulating properties | Electric Strength (Cl.5.2) | 03 | 03 | 03 | 49 |
| EL 2127 | Insulating properties | Abnormal operating and fault conditions (Cl.5.3) | 11 | 07 | 07 | 50 |
| EL 2128 | Communicating connection | Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment(Cl.6.1) | 04 | 00 | N/A | 51 |
| EL 2129 | Communicating connection | Protection of equipment users from overvoltages on telecommunication networks (Cl.6.2) | 06 | 00 | N/A | 52 |
| EL 2130 | Communicating connection | Protection of the telecommunication wiring system from overheating (Cl.6.3) | 05 | 00 | N/A | 53 |
| EL 2131 | Connection to cable distribution systems | Connection to cable distribution systems(Cl.7) | 08 | 00 | N/A | 55 |
| EL 2132 | Fire safety | Tests for resistance to heat and fire (Annex A) | 20 | 02 | 02 | 56 |
| EL 2133 | Insulating properties | Motor tests under abnormal conditions (Annex B) | 19 | 00 | N/A | 58 |
| EL 2134 | Electrical Safety | Transformers (Annex C) | 03 | 03 | 03 | 60 |
| EL 2135 | Insulating properties | Measuring Instruments For Touch-Current Tests (Annex D) | 03 | 02 | 02 | 61 |
| EL 2136 | Thermal Properties | Temperature Rise Of A Winding(Annex E) | 01 | 00 | N/A | 62 |
| EL 2137 | Electrical safety | Measurement Of Clearances And Creepage Distances(Annex F) | 01 | 01 | 01 | 63 |
| EL 2138 | Electrical safety | Alternative Method For Determining Minimum Clearances(Annex G) | 17 | 00 | N/A | 64 |
| EL 2139 | Radiation Safety | Ionizing Radiation(Annex H) | 01 | 00 | N/A | 65 |
| EL 2140 | Electrical Safety | Table of electrochemical potentials (Annex J) | 01 | 00 | N/A | 66 |
| EL 2141 | General Requirements | Thermal controls (Annex K) | 07 | 00 | N/A | 67 |
| EL 2142 | General Requirements | Normal load conditions for some types of electrical business equipment (Annex L) | 08 | 02 | 02 | 68 |
| EL 2143 | Electrical Safety | Criteria for telephone ringing signals (Annex M) | 13 | 00 | N/A | 69 |
| EL 2144 | Electrical safety | Impulse Test Generators(Annex N) | 03 | 00 | N/A | 70 |



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| | | | | | | |
|---|---|---|---|---|---|---|
| EL 2145 | General Requirements | Normative References(Annex P) | 01 | 00 | N/A | 71 |
| EL 2146 | General Requirements | Voltage dependent resistors (VDRs) (Annex Q) | 03 | 00 | N/A | 72 |
| EL 2147 | General Requirements | Examples Of Requirements For Quality Control Programmes(Annex R) | 03 | 00 | N/A | 73 |
| EL 2148 | General Requirements | Procedure For Impulse Testing (Annex S) | 04 | 00 | N/A | 74 |
| EL 2149 | Protection against Ingress of water | Guidance On Protection Against Ingress Of Water (Annex T) | 01 | 00 | N/A | 75 |
| EL 2150 | Wiring | Insulated Winding Wires For Use Without Interleaved Insulation (Annex U) | 17 | 17 | 17 | 76 |
| EL 2151 | Electrical Safety | Ac Power Distribution Systems(Annex V) | 05 | 03 | 03 | 77 |
| EL 2152 | Electrical Safety | Summation Of Touch Currents (Annex W) | 08 | 00 | N/A | 78 |
| EL 2153 | Electrical Safety | Maximum Heating Effect In Transformer Tests(Annex X) | 03 | 03 | 03 | 79 |
| EL 2154 | Radiation safety | Ultraviolet light conditioning test (Annex Y) | 05 | 00 | N/A | 80 |
| EL 2155 | Electrical Safety | Overvoltage Categories (Annex Z) | 01 | 01 | 01 | 81 |
| EL 2156 | Mechanical properties | Mandrel Test(Annex AA) | 01 | 00 | N/A | 82 |
| EL 2157 | Electrical Safety | Changes In The Second Edition(Annex BB) | 01 | -- | -- | -- |
| EL 2158 | Electrical Safety | Evaluation Of Integrated Circuit (IC) Current Limiters (Annex CC) | 06 | 00 | N/A | 83 |
| EL 2159 | Mechanical properties | Requirements For The Mounting Means Of Rack-Mounted Equipment (Annex DD) | 04 | 00 | N/A | 84 |
| EL 2160 | Electrical Safety | Household And Home/Office Document/Media Shredders (Annex EE) | 06 | 00 | N/A | 85 |

**Certificate:** It is certified that the above tests were performed and found to be passing in the requirement tested.

.....
(Approving Authority)



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**Copy of marking plate:**

**ITE Power Supply marking labels:**

**Lead Model:** GT-46401-4015



Series Model: GT-46401-4019-3.0


Series Model: GT-46401-4024


Series Model: GT-46401-3612



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Series Model: GT-46401-3615-1.5


Series Model: GT-46401-3012


Series Model: GT-46401-3015


Series Model: GT-46401-3019-3.0


Series Model: GT-46401-3024


Series Model: GT-46401-2412



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**Table – List of Attachments**

| Attachment No. | Attachment Description | No. of pages in Attachment |
|---|---|---|
| Attachment – 1 | Photo Documents | 01 |

**General remarks:**

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

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

**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 ..... : 25/03/2021

Date(s) of performance of tests ..... : 25/03/2021 to 02/04/2021

**Laboratory conditions** .....:

Ambient Temperature ..... : (25±10)°C

Ambient Humidity ..... : Upto 75% Rh

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Technical Manager



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| | |
|---|---|
| **Test item particulars**..... : | ITE POWER SUPPLY (Power Adaptor for IT Equipment) |
| Equipment mobility ..... : | ☒ movable ☐ hand-held ☒ transportable<br>☐ stationary ☐ for building-in ☒ direct plug-in |
| Connection to the mains..... : | ☒ pluggable equipment [V] type A [] type B<br>☐ permanent connection<br>☐ detachable power supply cord<br>☐ non-detachable power supply cord<br>☐ not directly connected to the mains |
| Operating condition..... : | ☒ continuous<br>☐ rated operating / resting time: |
| Access location ..... : | ☒ operator accessible<br>☐ restricted access location |
| Over voltage category (OVC) ..... : | ☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV<br>☐ other: |
| Mains supply tolerance (%) or absolute mains supply values .... : | +6%, -10% |
| Class of equipment ..... : | ☐ Class I ☒ Class II ☐ Class III<br>☐ Not classified |
| Considered current rating of protective device as a part of the building installation (A) ..... : | 16A (for India) |
| Pollution degree (PD) ..... : | ☐ PD 1 ☒ PD 2 ☐ PD 3 |
| IP protection class ..... : | IPX0 |
| Altitude during operation (m) ..... : | Up to 2000 |
| Altitude of test laboratory (m) ..... : | < 1000 |
| Mass of equipment (kg) ..... : | 0.245 |

**Abbreviations that may be used throughout this test report:**

| | | | |
|---|---|---|---|
| PE/PB .....: | protective earth/protective bonding | Pri ..... : | primary |
| CB.....: | circuit breaker | sec ..... : | secondary |
| (SW)PS .....: | (switching) power supply | gnd ..... : | ground |
| HV .....: | high voltage | I/O ..... : | input/output |
| PCB.....: | printed circuit (wiring) board | ii.....: | installation instruction |
| TIW.....: | triple insulated wire | PSU.....: | Power Supply Unit |

B/I .....: built-in application (compliance shall be guarantee in host equipment)

F/B/S/R : Functional/Basic/Supplementary/Reinforced Insulation



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**General product information:**

**1) Application details / Description of the product:**

Item: ITE POWER SUPPLY (Power Adaptor for IT Equipment)

Trademark: GlobTek, Inc.

Model: Lead Model: GT-46401-4015
Series Models: GT-46401-4019-3.0, GT-46401-4024, GT-46401-3612, GT-46401-3615-1.5, GT-46401-3012, GT-46401-3015, GT-46401-3019-3.0, GT-46401-3024, GT-46401-2412

Rating- Input:100-240Vac,50/60Hz,1.0A
Output: 15V ⎓ 2.66A, 40W

| | |
|---|---|
| Max. specified ambient temperature (°C) ....: | 40°C |
| Laser classification .....: | N/A |

2) **Differences between the models: Yes**

**Differences:** Model Number, Output voltage, Output current, Output power.

| Model Number | Output Voltage (DC) | Output Current (A) | Output Power (W) |
|---|---|---|---|
| **GT-46401-4015 (Lead Model)** | 15 | 2.66 | 40 |
| GT-46401-4019-3.0 (Series Model) | 16 | 2.5 | 40 |
| GT-46401-4024 (Series Model) | 24 | 1.66 | 40 |
| GT-46401-3612 (Series Model) | 12 | 3 | 36 |
| GT-46401-3615-1.5 (Series Model) | 13.5 | 2.66 | 36 |
| GT-46401-3012 (Series Model) | 12 | 2.5 | 30 |
| GT-46401-3015 (Series Model) | 15 | 2 | 30 |
| GT-46401-3019-3.0 (Series Model) | 16 | 1.875 | 30 |
| GT-46401-3024 (Series Model) | 24 | 1.25 | 30 |
| GT-46401-2412 (Series Model) | 12 | 2 | 24 |

**Similarities:**

1) Same rated Input Voltage (100-240Vac).

2) Same class of Construction and transformer (CLASS II).

3) Same mains PCB layout and Design.

**Series Models:** GT-46401-4019-3.0, GT-46401-4024, GT-46401-3612, GT-46401-3615-1.5, GT-46401-3012, GT-46401-3015, GT-46401-3019-3.0, GT-46401-3024, GT-46401-2412

**Model No. tested with-in the family series...:** GT-46401-4015 (worst case)

**3) Options: N/A**

The equipment was tested without any optional accessory installed. Hence, this report does not cover parameters that are influenced by the installation of optional accessory that might affect safety in the meaning of this standard.



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Tests relating to General Requirements **EL 2100 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 1.5 | Components* | EL 2100-00 | Verification of approvals with due correlation between the components used and the approval certificates submitted (Please see the table 1.5.1)<br>Components and subassemblies that comply with IEC 62368-1 are acceptable as part of an equipment covered by this standard without further evaluation other than to give consideration to the appropriate use of the component or subassembly in the end-product. | P |
| 1.5.1 | General: | EL 2100-01 | Satisfactory<br>(see table 1.5.1) | P |
| | Components shall be complying with IEC 60950-1 or relevant component standard. | | Verification of approvals with due correlation between the components used and the approval certificates submitted.<br>(Please see the table 1.5.1) | P |
| | Components and subassemblies approved for IEC 62368-1 can be considered as complying with this standard | | Complies<br>(See table 1.5.1) | P |
| 1.5.2 | Evaluation and testing of components | EL 2100-02 | Component that has been demonstrated to comply with a standard harmonized with the relevant IEC component standard shall be subjected to the applicable tests of this standard, as part of the equipment, with the exception of those tests that are part of the relevant IEC component standard<br>Component that has not been demonstrated to comply with a relevant standard as above shall be subjected to the applicable tests of this standard, as part of the equipment, and to the applicable tests of the component standard, under the conditions occurring in the equipment | P |
| 1.5.3 | Thermal controls | EL 2100-03 | No thermal control | N/A |
| 1.5.4 | Transformers | EL 2100-04 | Transformer (T1) Tested with in appliance<br>(See Annex C and table C.2) | P |
| 1.5.5 | Interconnecting cables* | EL 2100-05 | No Interconnecting cables | N/A |
| 1.5.6 | Capacitors bridging insulation * | EL 2100-06 | Approved Y capacitor (CY1) used<br>(see table 1.5.1) | P |
| 1.5.7 | Resistors bridging insulation | EL 2100-07 | See below | P |
| 1.5.7.1 | Resistors bridging functional, basic or supplementary insulation* | EL 2100-08 | Resistor bridging functional insulation only | P |
| 1.5.7.2 | Resistors bridging double or reinforced insulation between a.c. mains and other circuits | EL 2100-09 | | N/A |



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| | | | | |
|---|---|---|---|---|
| 1.5.7.3 | Resistors bridging double insulation or reinforced insulation between the a.c. mains supply and circuits connected to an antenna or coaxial cable | EL 2100-10 | | N/A |
| 1.5.8 | Components in equipment for IT power distribution systems* | EL 2100-11 | | N/A |
| 1.5.9 | Surge suppressors | EL 2100-12 | See table 1.5.1 | N/A |
| 1.5.9.1 | General* | EL 2100-13 | See table 1.5.1 | N/A |
| 1.5.9.2 | Protection of VDRs* | EL 2100-14 | See table 1.5.1 | N/A |
| 1.5.9.3 | Bridging of functional insulation by a VDR* | EL 2100-15 | See table 1.5.1 | N/A |
| 1.5.9.4 | Bridging of basic insulation by a VDR* | EL 2100-16 | See table 1.5.1 | N/A |
| 1.5.9.5 | Bridging of supplementary, double or reinforced insulation by a VDR* | EL 2100-17 | Not permitted to bridge Supplementary insulation,<br>Double insulation or Reinforced insulation by a VDR | N/A |

*- Total number of Requirements to be observed / inspected = 10
Total No of applicable Requirement = 03
No of Requirements for which the sample passed= 03

Total number of tests to be conducted = 08
Total No of applicable Tests = 04
No. of tests for which the sample passed= 04

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

.....
(Approving Authority)

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Tests relating to Electrical Safety **EL 2101 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 1.6 | Power Interface* | EL 2101-00 | See below | P |
| 1.6.1 | AC power distribution systems* | EL 2101-01 | Satisfactory | P |
| 1.6.2 | Input current | EL 2101-02 | Satisfactory (See table 1.6.2) | P |
| 1.6.3 | Voltage limit of hand-held equipment* | EL 2101-03 | The equipment is not hand-held | N/A |
| 1.6.4 | Neutral conductor * | EL 2101-04 | Satisfactory | P |

*- Total number of Requirements to be observed / inspected = 04
Total No of applicable Requirement = 03
No of Requirements for which the sample passed= 03

Total number of tests to be conducted = 01
Total No of applicable Tests = 01
No. of tests for which the sample passed= 01

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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(Approving Authority)

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Tests relating to Marking Requirements **EL 2102 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 1.7 | Marking and instructions* | EL 2102-00 | Satisfactory | P |
| 1.7.1 | Power rating and identification markings | | See below | P |
| 1.7.1.1 | Power rating marking* | EL 2102-01 | Satisfactory | P |
| | Rated voltage(s) or voltage ranges(s) (V)*. | EL 2102-02 | 100-240Vac | P |
| | Multiple mains supply connections*. | EL 2102-03 | Single mains supply provided | N/A |
| | Symbol for nature of supply, for d.c. only*: | EL 2102-04 | Mains from AC source | N/A |
| | Rated frequency or rated frequency range (Hz) *: | EL 2102-05 | 50/60Hz | P |
| | Rated current (mA or A)*: | EL 2102-06 | 1.0A | P |
| 1.7.1.2 | Identification markings* | EL 2102-07 | See below | P |
| | Manufacturer's name or trade-mark or identification mark *: | EL 2102-08 | GlobTek, Inc. | P |
| | Model identification or type reference *: | EL 2102-09 | Lead Model: GT-46401-4015<br>Series Models: GT-46401-4019-3.0, GT-46401-4024, GT-46401-3612, GT-46401-3615-1.5, GT-46401-3012, GT-46401-3015, GT-46401-3019-3.0, GT-46401-3024, GT-46401-2412 | P |
| | Symbol for Class II equipment only* : | EL 2102-10 | Proper symbol marked on the EUT ⧈ | p |
| | Other markings and symbols*: | EL 2102-11 | Other Markings or symbol do not give rise to misunderstanding | P |
| 1.7.1.3 | Use of graphical symbols* | EL 2102-12 | IEC 60417:5957[for indoor use only] symbol is used and conform to IEC 60417. | P |
| 1.7.2 | Safety instructions and marking* | EL 2102-13 | No such user manual provided | N/A |
| 1.7.2.1 | General | EL 2102-14 | See Below | P |
| 1.7.2.2 | Disconnect devices* | EL 2102-15 | Direct plug is used as disconnect device | P |
| 1.7.2.3 | Overcurrent protective devices* | EL 2102-16 | Plug-gable equipment type A | N/A |
| 1.7.2.4 | IT power distribution systems* | EL 2102-17 | No such system available | N/A |
| 1.7.2.5 | Operator access with a tool* | EL 2102-18 | No such area | N/A |
| 1.7.2.6 | Ozone* | EL 2102-19 | Device does not produce ozone | N/A |
| 1.7.3 | Short duty cycles* | EL 2102-20 | The EUT is continuous operating type | N/A |
| 1.7.4 | Supply voltage adjustment* | EL 2102-21 | No voltage adjustment | N/A |
| 1.7.5 | Power outlets on the equipment* | EL 2102-22 | No such power outlet found within EUT | N/A |



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Tests relating to Marking Requirements **EL 2102 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 1.7.6 | Fuse identification (marking, special fusing characteristics, cross-reference)<br>Fuse(s) shall clearly and adequately marked with fuse number and rating*. | EL 2102-23 | Fusible resistor is provided FS1 (2.0A /250V) | P |
| 1.7.7 | Wiring terminals | EL 2102-24 | | N/A |
| 1.7.7.1 | Protective earthing and bonding terminals* | EL 2102-25 | Class II equipment hence no earthing terminal available | N/A |
| 1.7.7.2 | Terminals for a.c. mains supply conductors* | EL 2102-26 | | N/A |
| 1.7.7.3 | Terminals for d.c. mains supply conductors* | EL 2102-27 | Not Connected to DC Mains Supply | N/A |
| 1.7.8 | Controls and indicators | EL 2102-28 | No controls or indicators used | N/A |
| 1.7.8.1 | Identification, location and marking *: | EL 2102-29 | No controls and switches within the EUT | N/A |
| 1.7.8.2 | Colours* | EL 2102-30 | | N/A |
| 1.7.8.3 | Symbols according to IEC 60417*: | EL 2102-31 | No such symbol | N/A |
| 1.7.8.4 | Markings using figures* : | EL 2102-32 | No such controls used | N/A |
| 1.7.9 | Isolation of multiple power sources* | EL 2102-33 | No multiple power sources | N/A |
| 1.7.10 | Thermostats and other regulating devices* | EL 2102-34 | No such device within the EUT | N/A |
| 1.7.11 | Durability | EL 2102-35 | Marking is durable and legible after the test | P |
| 1.7.12 | Removable parts* | EL 2102-36 | No removable parts | N/A |
| 1.7.13 | Replaceable batteries* | EL 2102-37 | No batteries used | N/A |
| | Language(s) | | | N/A |
| 1.7.14 | Equipment for restricted access locations* | EL 2102-38 | Not intended to be installed in restricted access location | N/A |

*- Total number of Requirements to be observed / inspected = 35
Total No of applicable Requirement = 13
No of Requirements for which the sample passed=13

Total number of tests to be conducted = 04
Total No of applicable Tests = 02
No. of tests for which the sample passed= 02

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical Safety **EL 2103 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 2.1 | Protection from electric shock and energy hazards* | EL 2103-00 | See below | P |
| 2.1.1 | Protection in operator access areas* | EL 2103-01 | Satisfactory | P |
| 2.1.1.1 | Access to energized parts | EL 2103-02 | There is a adequate protection against operator to contact with hazardous parts | P |
| | Test by inspection : | | No access to hazardous parts | P |
| | Test with test finger (Figure 2A) | | The hazardous parts are not accessible | P |
| | Test with test pin (Figure 2B): | | | P |
| | Test with test probe (Figure 2C) | | No connection to TNV circuit | N/A |
| 2.1.1.2 | Battery compartments * | EL 2103-03 | No battery compartments | N/A |
| 2.1.1.3 | Access to ELV wiring | EL 2103-04 | No ELV wiring in operator access area | N/A |
| | Working voltage (Vpeak or Vrms); minimum distance through insulation (mm) | | | N/A |
| 2.1.1.4 | Access to hazardous voltage circuit wiring | EL 2103-05 | No hazardous voltage circuit in operator access area | N/A |
| 2.1.1.5 | Energy hazards : | EL 2103-06 | Energy does not exceed 240VA between any two points (See table 2.1.1.5) | P |
| 2.1.1.6 | Manual controls | EL 2103-07 | No manual controls used | N/A |
| 2.1.1.7 | Discharge of capacitors in equipment | | (CX1) X-Capacitors used | P |
| | Measured voltage (V); time-constant (s): | EL 2103-08 | (See table 1.5.1) | P |
| 2.1.1.8 | Energy hazards – d.c. mains supply | | Not connected to DC mains supply | N/A |
| | a) Capacitor connected to the d.c. mains supply : | EL 2103-09 | | N/A |
| | b) Internal battery connected to the d.c. mains supply : | EL 2103-10 | | N/A |
| 2.1.1.9 | Audio amplifiers to be tested according to IEC 60065, cl. 9.1.1.: | EL 2103-11 | No audio Amplifier | N/A |
| 2.1.2 | Protection in service access areas | EL 2103-12 | No serviceable part inside the equipment | N/A |
| 2.1.3 | Protection in restricted access locations | EL 2103-13 | Not intended to be installed in restricted access location | N/A |

*- Total number of Requirements to be observed / inspected = 03
Total No of applicable Requirement = 02
No of Requirements for which the sample passed=02

Total number of tests to be conducted = 11
Total No of applicable Tests = 03
No. of tests for which the sample passed=03
Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

Aditya Singh
(Approving Authority)



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Tests relating to Electrical Safety **EL 2104 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 2.2 | SELV circuits* | EL 2104-00 | Satisfactory | P |
| 2.2.2 | Voltages under normal conditions | EL 2104-01 | Between any SELV circuit 42.4V peak or 60V DC are not exceeded (See table 2.2.2) | P |
| 2.2.3 | Voltages under fault conditions | EL 2104-02 | Between any SELV circuit; 71V peak not exceeded for multiple pulse and 120 V peak not exceeded for single pulse (See table 2.2.3) | P |
| 2.2.4 | Connection of SELV circuits to other circuits* : | EL 2104-03 | SELV circuits are connected to SELV circuit only | P |

*- Total number of Requirements to be observed / inspected = 02
Total No of applicable Requirement = 02
No of Requirements for which the sample passed=02

Total number of tests to be conducted = 02
Total No of applicable Tests = 02
No. of tests for which the sample passed=02

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

.....
(Approving Authority)

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Tests relating to Electrical Safety **EL 2105 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 2.3 | TNV circuits* | EL 2105-00 | No TNV circuits within the equipment | N/A |
| 2.3.1 | Type of TNV circuits:<br>TNV-1 / TNV-2 / TNV-3 | EL 2105-01 | | N/A |
| | a) Limits of TNV-1: | EL 2105-02 | | N/A |
| | b) Limits of TNV-2 or TNV-3: Continuous voltages, combination of AC and DC values, are such that : $\frac{U_{ac}}{71} + \frac{U_{dc}}{120} \leq 1$ | EL 2105-03 | | N/A |
| 2.3.2 | Separation from other circuits and from accessible parts* | EL 2105-04 | | N/A |
| 2.3.2.1 | General Requirements | EL 2105-05 | | N/A |
| 2.3.2.2 | Protection by basic insulation | EL 2105-06 | | N/A |
| 2.3.2.3 | Protection by earthing | EL 2105-07 | | N/A |
| 2.3.2.4 | Protection by other constructions : | EL 2105-08 | | N/A |
| 2.3.3 | Separation from hazardous voltages | EL 2105-09 | | N/A |
| 2.3.4 | Connection of TNV circuits to other circuits | EL 2105-10 | | N/A |
| 2.3.5 | Test for operating voltages generated externally | EL 2105-11 | | N/A |

*- Total number of Requirements to be observed / inspected = 02
Total No of applicable Requirement = 00
No of Requirements for which the sample passed=N/A

Total number of tests to be conducted = 10
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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(Approving Authority)

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Tests relating to Electrical Safety **EL 2106 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 2.4 | Limited current circuits * | EL 2106-00 | See below | P |
| 2.4.1 | General requirements * | EL 2106-01 | The limit of 2.4.2 were not exceeding under normal operating condition | P |
| 2.4.2 | Limit values | EL 2106-02 | Satisfactory (see table 2.4.2) | P |
| 2.4.3 | Connection of limited current circuits to other circuits* | EL 2106-03 | The limit of 2.4.2 were not exceeding under normal operating condition | P |

*- Total number of Requirements to be observed / inspected = 03
Total No of applicable Requirement = 03
No of Requirements for which the sample passed=03

Total number of tests to be conducted = 01
Total No of applicable Tests = 01
No. of tests for which the sample passed= 01

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

.....
(Approving Authority)

SPECTRO ANALYTICAL LABS LTD. Ashish Pratap Singh Technical Manager GREATER NOIDA



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Tests relating to Electrical Safety **EL 2107 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 2.5 | Limited power sources * | EL 2107-00 | See below | P |
| | a) Inherently limited output | EL 2107-01 | | N/A |
| | b) Impedance limited output | EL 2107-02 | | N/A |
| | c) Regulating network limited output under normal operating and single fault condition<br>Use of integrated circuit (IC) current limiters | EL 2107-03 | Satisfactory<br>(see table 2.5) | P |
| | d) Overcurrent protective device limited output | EL 2107-04 | Fuse is used as a current protection device | P |
| | Max. output voltage (V),<br>Max. output current (A),<br>Max. apparent power (VA) | EL 2107-05 | See table 2.1.1.5 | P |
| | Current rating of over-current protective device (A) | EL 2107-06 | | N/A |

*- Total number of Requirements to be observed / inspected = 01
Total No of applicable Requirement = 01
No of Requirements for which the sample passed=01

Total number of tests to be conducted = 06
Total No of applicable Tests = 03
No. of tests for which the sample passed=03

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical Safety **EL 2108 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 2.6 | Provisions for earthing and bonding* | EL 2108-00 | Class II equipment, No provision of earthing and bonding | N/A |
| 2.6.1 | Protective earthing | EL 2108-01 | Class II equipment | N/A |
| 2.6.2 | Functional earthing :<br>The Functional earthing either separated from hazardous voltages by double- or reinforced insulation or safely connected to Protective Bonding Conductor.* | EL 2108-02 | | N/A |
| | Use of symbol for functional earthing:* | EL 2108-03 | | N/A |
| 2.6.3 | Protective earthing and protective bonding conductors* | EL 2108-04 | | N/A |
| 2.6.3.2 | Size of protective earthing conductors | EL 2108-05 | | N/A |
| | Rated current (A), cross-sectional area (mm2), AWG | | | N/A |
| 2.6.3.3 | Size of protective bonding conductors | EL 2108-06 | | N/A |
| | Rated current (A), cross-sectional area (mm2), AWG | | | N/A |
| 2.6.3.4 | Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min): | EL 2108-07 | | N/A |
| 2.6.3.5 | Colour of insulation*: | EL 2108-08 | | N/A |
| 2.6.4 | Terminals | | No such terminals | N/A |
| 2.6.4.2 | Protective earthing and bonding terminals : Rated current(A), Type, Nominal thread diameter (mm) | EL 2108-09 | | N/A |
| 2.6.4.3 | Separation of the protective earthing conductor from protective bonding conductors* | EL 2108-10 | | N/A |
| 2.6.5 | Integrity of protective earthing* | | | N/A |
| 2.6.5.1 | Interconnection of equipment* | EL 2108-11 | | N/A |
| 2.6.5.2 | Components in protective earthing conductors and protective bonding conductors* | EL 2108-12 | | N/A |
| 2.6.5.3 | Disconnection of protective earth* | EL 2108-13 | | N/A |
| 2.6.5.4 | Parts that can be removed by an operator* | EL 2108-14 | | N/A |
| 2.6.5.5 | Parts removed during servicing* | EL 2108-15 | | N/A |
| 2.6.5.6 | Corrosion resistance* | EL 2108-16 | No such part | N/A |
| 2.6.5.7 | Screws for protective bonding* | EL 2108-17 | No Screws | N/A |
| 2.6.5.8 | Reliance on telecommunication network or cable distribution system* | EL 2108-18 | No TNV circuit | N/A |



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*- Total number of Requirements to be observed / inspected = 14
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 05
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical Safety **EL 2109 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 2.7 | Overcurrent and earth fault protection in primary circuits* | EL 2109-00 | Satisfactory | P |
| 2.7.1 | Basic requirements:<br>Protection in primary circuits against overcurrents, short-circuits and earth faults shall be provided, either as an integral part of the equipment or as part of building installation. | EL 2109-01 | Integral part of equipment provides over current protection | P |
| | If pluggable equipment Type B or permanently connected equipment relies on protective device external to the equipment for protection, the equipment installation Instructions shall so state and shall also specify the requirements for short-circuit protection or overcurrent protection or, where necessary, for both. | | Neither Pluggable equipment type B nor Permanently connected equipment | N/A |
| 2.7.2 | Faults not simulated in 5.3.7* need not be fitted as an integral part of the equipment | EL 2109-02 | | N/A |
| 2.7.3 | Short-circuit backup protection | EL 2109-03 | The Building installation is considered as short circuit backup protection | P |
| 2.7.4 | Number and location of protective devices : | EL 2109-04 | Over current protection by one built in Fuse (FS1) | P |
| 2.7.5 | Protection by several devices* | EL 2109-05 | Over current protection by one built in Fuse (FS1) | N/A |
| 2.7.6 | Warning to service personnel* : | EL 2109-06 | No protection used for neutral conductor | N/A |

*- Total number of Requirements to be observed / inspected = 05
Total No of applicable Requirement = 01
No of Requirements for which the sample passed= 01

Total number of tests to be conducted = 03
Total No of applicable Tests = 03
No. of tests for which the sample passed=03

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical Safety **EL 2110 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 2.8 | Safety Interlocks* | EL 2110-00 | No safety interlock | N/A |
| 2.8.1 | General principles* | EL 2110-01 | | N/A |
| 2.8.2 | Protection requirements | EL 2110-02 | | N/A |
| 2.8.3 | Inadvertent reactivation | EL 2110-03 | | N/A |
| 2.8.4 | Fail-safe operation | EL 2110-04 | | N/A |
| 2.8.5 | Moving parts | EL 2110-05 | | N/A |
| 2.8.6 | Overriding* | EL 2110-06 | | N/A |
| 2.8.7 | Switches, relays and their related circuits | EL 2110-07 | | N/A |
| 2.8.7.1 | Separation distances for contact gaps and their related circuits` | EL 2110-08 | | N/A |
| 2.8.7.2 | Overload test | EL 2110-09 | | N/A |
| 2.8.7.3 | Endurance test | EL 2110-10 | | N/A |
| 2.8.7.4 | Electric strength test | EL 2110-11 | | N/A |
| 2.8.8 | Mechanical actuators | EL 2110-12 | | N/A |

*- Total number of Requirements to be observed / inspected = 03
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 10
Total No of applicable Tests = 00
No. of tests for which the sample passed=N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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|---|---|---|
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Tests relating to Electrical Safety **EL 2111 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 2.9 | Electrical insulation* | EL 2111-00 | Satisfactory | P |
| 2.9.1 | Properties of insulating materials* | EL 2111-01 | Natural rubber, Hygroscopic materials are not used as insulation | P |
| 2.9.2 | Humidity conditioning | EL 2111-02 | Satisfactory | P |
| | Relative Humidity : 93 ±3 %,<br>Temperature: t at 40 ± 2°C<br>Duration : 120 hours | | 93%<br>40°C<br>120 hours | P |
| 2.9.3 | Grade of insulation* | EL 2111-03 | Insulation considered is to be functional, basic, supplementary, reinforced or double insulation | P |
| 2.9.4 | Separation from hazardous voltages* | EL 2111-04 | See below | P |
| | Method(s) used | | Method 1 used | P |

*- Total number of Requirements to be observed / inspected = 04
Total No of applicable Requirement = 04
No of Requirements for which the sample passed= 04

Total number of tests to be conducted = 01
Total No of applicable Tests = 01
No. of tests for which the sample passed= 01

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical Safety **EL 2112 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 2.10 | Clearances, creepage distances and distances through insulation* | EL 2112-00 | See below | P |
| 2.10.1.1 | Frequency * | EL 2112-01 | Frequency not exceeding 30kHz | P |
| 2.10.1.2 | Pollution degrees* | EL 2112-02 | Pollution Degree 2 | P |
| 2.10.1.3 | Reduced values for functional insulation | EL 2112-03 | Functional insulation complies with 5.3.4 (c) | P |
| 2.10.1.4 | Intervening unconnected conductive parts | EL 2112-04 | contacts of a connector provided | P |
| 2.10.1.5 | Insulation with varying dimensions | EL 2112-05 | Insulation with varying dimension is not used | N/A |
| 2.10.1.6 | Special separation requirements | EL 2112-06 | Special Separation is not used | N/A |
| 2.10.1.7 | Insulation in circuits generating starting pulses | EL 2112-07 | No circuit generating starting pulses | N/A |
| 2.10.2 | Determination of working voltage | EL 2112-08 | See below | P |
| 2.10.2.2 | RMS working voltage | EL 2112-09 | See table 2.10.2 | P |
| 2.10.2.3 | Peak working voltage | EL 2112-10 | See table 2.10.2 | P |
| 2.10.3 | Clearances | EL 2112-11 | See below | P |
| 2.10.3.1 | General | EL 2112-12 | Satisfactory | P |
| 2.10.3.2 | Mains transient voltages* | | Over Voltage Category II<br>2500 V peak | P |
| | a) AC mains supply * : | EL 2112-13 | 100-240Vac between supply terminals | P |
| | b) Earthed d.c. mains supplies* ..... | EL 2112-14 | The Equipment is not intended to be supplied by DC Mains | N/A |
| | c) Unearthed d.c. mains supplies* : | EL 2112-15 | The Equipment is not intended to be supplied by DC Mains | N/A |
| | d) Battery operation* : | EL 2112-16 | The Equipment is not intended to be supplied by Battery | N/A |
| 2.10.3.3 | Clearances in primary circuits | EL 2112-17 | See appended table 2.10.3 and 2.10.4 | P |
| 2.10.3.4 | Clearances in secondary circuits | EL 2112-18 | | P |
| 2.10.3.5 | Clearances in circuits having starting pulses | EL 2112-19 | | N/A |
| 2.10.3.6 | Transients from a.c. mains supply : | EL 2112-20 | Satisfactory | P |
| 2.10.3.7 | Transients from d.c. mains supply : | EL 2112-21 | The Equipment is not connected to DC Mains | N/A |
| 2.10.3.8 | Transients from telecommunication networks and cable distribution systems ..... | EL 2112-22 | Not Connected to telecommunication network & cable distribution system | N/A |
| 2.10.3.9 | Measurement of transient voltage levels | | | N/A |
| | a) Transients from a mains supply | EL 2112-23 | | N/A |
| | For an a.c. mains supply | | | N/A |
| | For a d.c. mains supply | | Not connected to DC Main Supply | N/A |
| | b) Transients from a telecommunication network | EL 2112-24 | Not Connected to Telecommunication Network | N/A |



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| | | | | |
|---|---|---|---|---|
| 2.10.4 | Creepage distances* | EL 2112-25 | See Below | P |
| 2.10.4.1 | General | EL 2112-26 | Satisfactory (See appended table 2.10.3 & 2.10.4) | P |
| 2.10.4.2 | Material group and comparative tracking index : CTI tests* | EL 2112-27 | Material Group IIIb assumed to be used | P |
| 2.10.4.3 | Minimum creepage distances | EL 2112-28 | (See appended table 2.10.3 & 2.10.4) | P |
| 2.10.5 | Solid insulation | EL 2112-29 | See Below | P |
| 2.10.5.1 | General | EL 2112-30 | Satisfactory | P |
| 2.10.5.2 | Distances through insulation | EL 2112-31 | (See table 2.10.5 ) | P |
| 2.10.5.3 | Insulating compound as solid insulation | EL 2112-32 | (See table 2.10.5 ) | P |
| 2.10.5.4 | Semiconductor devices | EL 2112-33 | No such construction used | N/A |
| 2.10.5.5. | Cemented joints | EL 2112-34 | No cemented joints | N/A |
| 2.10.5.6 | Thin sheet material – General | EL 2112-35 | Satisfactory | P |
| 2.10.5.7 | Separable thin sheet material | EL 2112-36 | Six layers insulating tape wrapped around T1 body as reinforced insulation | P |
| 2.10.5.8 | Non-separable thin sheet material | EL 2112-37 | | N/A |
| 2.10.5.9 | Thin sheet material – standard test procedure | EL 2112-38 | | N/A |
| | Electric strength test as per Cl.5.2.2 | | | N/A |
| 2.10.5.10 | Thin sheet material – alternative test procedure | EL 2112-39 | See below | P |
| | Electric strength test as per Cl.5.2.2 | | See table 5.2 | P |
| 2.10.5.11 | Insulation in wound components | EL 2112-40 | | P |
| 2.10.5.12 | Wire in wound components | | Approved triple insulation wire | P |
| | If Peak Working voltage >71 V | | See table 2.10.3 and 2.10.4 | P |
| | a) Basic insulation not under stress | EL 2112-41 | No such construction | N/A |
| | b) Basic, supplementary, reinforced insulation | EL 2112-42 | Reinforced insulation | P |
| | c) Compliance with Annex U | EL 2112-43 | Approved triple insulation wire | P |
| | d) Where two winding wires in contact inside wound component; angle between 45° and 90° | EL 2112-44 | The insulation tape and bobbin are provide to protect against mechanical stress | P |
| 2.10.5.13 | Wire with solvent-based enamel in wound components | | | N/A |
| | a) Electric strength test (Type test as per Cl.5.2.2) | EL 2112-45 | | N/A |
| | b) Electric Strength test (Routine test as per Cl.5.2.2) | EL 2112-46 | | N/A |
| 2.10.5.14 | Additional insulation in wound components | | | N/A |
| | If Peak Working Voltage >71V | | | N/A |
| | a) Basic insulation not under stress | EL 2112-47 | | N/A |
| | b) Supplementary, reinforced insulation | EL 2112-48 | | N/A |



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| | | | | |
|---|---|---|---|---|
| 2.10.6 | Construction of printed boards* | | See below | P |
| 2.10.6.1 | Uncoated printed boards | EL 2112-49 | Satisfactory | P |
| 2.10.6.2 | Coated printed boards | EL 2112-50 | No coated printed wiring boards | N/A |
| 2.10.6.3 | Insulation between conductors on the same inner surface of a printed board | EL 2112-51 | No such construction | N/A |
| 2.10.6.4 | Insulation between conductors on different layers of a printed board* | | Not used to provide supplementary or double reinforced insulation | N/A |
| | a) Minimum Thickness of insulation: 0.4mm or | EL 2112-52 | | N/A |
| | b) Confirm with one of the specification and pass the relevant tests as per Table 2R | EL 2112-53 | | N/A |
| 2.10.7 | Component external terminations | EL 2112-54 | | N/A |
| 2.10.8 | Tests on coated printed boards and coated components | | | N/A |
| 2.10.8.1 | Sample preparation and preliminary inspection* | EL 2112-55 | | N/A |
| 2.10.8.2 | Thermal conditioning | EL 2112-56 | | N/A |
| 2.10.8.3 | Electric strength test | EL 2112-57 | | N/A |
| 2.10.8.4 | Abrasion resistance test | EL 2112-58 | | N/A |
| 2.10.9 | Thermal cycling | EL 2112-59 | No such component | N/A |
| 2.10.10 | Test for Pollution Degree 1 environment and for insulating compound | EL 2112-60 | Pollution degree II | N/A |
| 2.10.11 | Tests for semiconductor devices and for cemented joints | EL 2112-61 | | N/A |
| 2.10.12 | Enclosed and sealed parts | EL 2112-62 | | N/A |

*- Total number of Requirements to be observed / inspected = 10
Total No of applicable Requirement = 06
No of Requirements for which the sample passed= 06

Total number of tests to be conducted : 53
Total No of applicable Tests = 22
No. of tests for which the sample passed=22

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Wiring

**EL 2113 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 3.0 | Wiring, connections and supply* | EL 2113-00 | See below | P |
| 3.1.1 | Current rating and overcurrent protection | EL 2113-01 | | N/A |
| 3.1.2 | Protection against mechanical damage* | EL 2113-02 | | N/A |
| 3.1.3 | Securing of internal wiring* | EL 2113-03 | | N/A |
| 3.1.4 | Insulation of conductors | EL 2113-04 | No such conductor | N/A |
| 3.1.5 | Beads and ceramic insulators | EL 2113-05 | No such insulators | N/A |
| 3.1.6 | Screws for electrical contact pressure* | EL 2113-06 | No screws used for electrical contact pressure | N/A |
| 3.1.7 | Insulating materials in electrical connections* | EL 2113-07 | No contact pressure through insulating material | N/A |
| 3.1.8 | Self-tapping and spaced thread screws* | EL 2113-08 | No Self-tapping and spaced thread screws used | N/A |
| 3.1.9 | Termination of conductors :<br>10 N pull test | EL 2113-09 | No such conductor | N/A |
| 3.1.10 | Sleeving on wiring* | EL 2113-10 | Proper sleeving on wiring | P |

*- Total number of Requirements to be observed / inspected = 07
Total No of applicable Requirement = 02
No of Requirements for which the sample passed=02

Total number of tests to be conducted = 04
Total No of applicable Tests =00
No. of tests for which the sample passed=N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Wiring **EL 2114 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 3.2 | Connection to a mains supply* | EL 2114-00 | See below | P |
| 3.2.1 | Means of connection | | Satisfactory | P |
| 3.2.1.1 | Connection to an a.c. mains supply* | EL 2114-01 | Direct plug in equipment | P |
| 3.2.1.2 | Connection to a d.c. mains supply* | EL 2114-02 | The Equipment is not intended to be connected to DC mains | N/A |
| 3.2.2 | Multiple supply connections | EL 2114-03 | Single supply connections | N/A |
| 3.2.3 | Permanently connected equipment | EL 2114-04 | Not permanently connected equipment | N/A |
| 3.2.4 | Appliance inlets:<br>Are so Located that parts at hazardous voltage are not accessible during insertion or removal of the connector, connector can be inserted without difficulty and after insertion of the connector, the equipment is not supported by the connector for any position of normal use on a flat surface<br>( appliance inlets complying with IEC 60309 or IEC 60320 considered to comply with this requirement. | EL 2114-05 | Direct plug in equipment | N/A |
| 3.2.5 | Power supply cords | | Direct plug in equipment | N/A |
| 3.2.5.1 | AC power supply cords* | EL 2114-06 | No AC power supply cord | N/A |
| | Rated current (A), cross-sectional area ($mm^2$), AWG | | As above | N/A |
| 3.2.5.2 | DC power supply cords* | EL 2114-07 | The EUT is not intended to be connected to be DC mains | N/A |
| 3.2.6 | Cord anchorages and strain relief | | | N/A |
| | Mass of the equipment:<br>Pull Force (N): | EL 2114-08 | | N/A |
| | b) Longitudinal displacement: 2 mm (Max) | EL 2114-09 | | N/A |
| 3.2.7 | Protection against mechanical damage | EL 2114-10 | No such sharp points or cutting edges | P |
| 3.2.8 | Cord guards | | No cord guards | N/A |
| | a) Diameter or minor dimension D (mm) :<br>Test mass (g) : | EL 2114-11 | | N/A |
| | b) Radius of curvature of cord :<br>1.5 D (Min) | EL 2114-12 | | N/A |
| 3.2.9 | Supply wiring space | EL 2114-13 | | N/A |



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*- Total number of Requirements to be observed / Inspected = 05
Total No of applicable Requirement = 02
No of Requirements for which the sample passed=02

Total number of tests to be conducted = 09
Total No of applicable Tests = 01
No. of tests for which the sample passed= 01

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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SPECTRO ANALYTICAL LABS LTD. GREATER NOIDA
Aditya Pratap Singh
Technical Manager



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Tests relating to Wiring

**EL 2115 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 3.3 | Wiring terminals for connection of external conductors* | EL 2115-00 | No such wiring terminal used | N/A |
| 3.3.1 | Wiring terminals* | EL 2115-01 | | N/A |
| 3.3.2 | Connection of non-detachable power supply cords | EL 2115-02 | | N/A |
| 3.3.3 | Screw terminals* | EL 2115-03 | No such screw terminal | N/A |
| 3.3.4 | Conductor sizes to be connected | EL 2115-04 | | N/A |
| | Rated current (A), cord/cable type, cross-sectional area (mm2) | | | N/A |
| 3.3.5 | Wiring terminal sizes | EL 2115-05 | | N/A |
| | Rated current (A), type, nominal thread diameter (mm) | | | N/A |
| 3.3.6 | Wiring terminal design | EL 2115-06 | | N/A |
| 3.3.7 | Grouping of wiring terminals* | EL 2115-07 | | N/A |
| 3.3.8 | Stranded wire | EL 2115-08 | | N/A |

*- Total number of Requirements to be observed / inspected = 04
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 05
Total No of applicable Tests = 00
No. of tests for which the sample passed=N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Wiring

**EL 2116 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 3.4 | Disconnection from the mains supply* | EL 2116-00 | See below | P |
| 3.4.1 | General Requirement<br>A disconnect device or devices shall be provided to disconnect the equipment from the mains supply for servicing. | EL 2116-01 | Satisfactory | P |
| 3.4.2 | Disconnect devices* | EL 2116-02 | Plug is used as disconnect device<br>(Direct plug-in equipment ) | P |
| 3.4.3 | Permanently connected equipment* | EL 2116-03 | Not permanently connected equipment | N/A |
| 3.4.4 | Parts which remain energized* | EL 2116-04 | No such parts remain energized | N/A |
| 3.4.5 | Switches in flexible cords* | EL 2116-05 | No such flexible cords used | N/A |
| 3.4.6 | Number of poles - single-phase and d.c. equipment* | EL 2116-06 | Plug is used as disconnect device which disconnected both poles simultaneously | P |
| 3.4.7 | Number of poles - three-phase equipment* | EL 2116-07 | Single phase equipment | N/A |
| 3.4.8 | Switches as disconnect devices* | EL 2116-08 | Plug is used as disconnect device | N/A |
| 3.4.9 | Plugs as disconnect devices* | EL 2116-09 | As above | N/A |
| 3.4.10 | Interconnected equipment* | EL 2116-10 | No interconnection to circuit with hazardous voltage and hazardous energy level | N/A |
| 3.4.11 | Multiple power sources* | EL 2116-11 | No multiple power sources | N/A |

*- Total number of Requirements to be observed / inspected = 11
Total No of applicable Requirement = 03
No of Requirements for which the sample passed= 03

Total number of tests to be conducted = 01
Total No of applicable Tests = 01
No. of tests for which the sample passed= 01

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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|---|---|---|
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| Dated: 28/04/2021 | IEC 60950-1: 2005 + A1:2009 + A2 : 2013 | ULR No.: TC631421000003691F |

Tests relating to Wiring **EL 2117 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 3.5 | Interconnection of equipment* | EL 2117-00 | See below | P |
| 3.5.1 | General requirements* | EL 2117-01 | Interconnection of SELV circuit complies with 2.2 | P |
| 3.5.2 | Types of interconnection circuits* | EL 2117-02 | SELV interconnection circuit | P |
| 3.5.3 | ELV circuits as interconnection circuits * | EL 2117-03 | No ELV interconnection circuit in EUT | N/A |
| 3.5.4 | Data ports for additional equipment | EL 2117-04 | No data ports | N/A |

*- Total number of Requirements to be observed / inspected = 04
Total No of applicable Requirement = 02
No of Requirements for which the sample passed= 02

Total number of tests to be conducted = 01
Total No of applicable Tests = 01
No. of tests for which the sample passed= 01

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Mechanical Properties **EL 2118 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 4 | PHYSICAL REQUIREMENTS* | EL 2118-00 | See below | N/A |
| 4.1 | Stability | EL 2118-01 | | N/A |
| | a) A unit having a mass of 7 kg or more shall not fall over when tilted to an angle of 10° from its normal upright position.<br>Alternatively, the unit is placed in its intended position of use on a plane, inclined at an angle of 10° to the horizontal, and then rotated slowly through an angle of 360° about its normal vertical axis. | EL 2118-02 | Mass less than 7 kg | N/A |
| | b) A floor-standing unit having a mass of 25 kg or more shall not fall over when a force equal<br>to 20 % of the weight of the unit, but not more than 250 N, is applied in any direction except upwards, at a height not exceeding 2 m from the floor. | EL 2118-03 | No floor standing equipment | N/A |
| | c) A floor-standing unit shall not fall over when a constant downward force of 800 N is<br>applied at the point of maximum moment to any horizontal surface of at least 125 mm by at<br>least 200 mm, at a height up to 1 m from the floor. | EL 2118-04 | No floor standing equipment | N/A |

*- Total number of Requirements to be observed / inspected = 01
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 04
Total No of applicable Tests = 00
No. of tests for which the sample passed=N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Mechanical Properties **EL 2119 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 4.2 | Mechanical Strength | EL 2119-00 | See below | P |
| 4.2.1 | General | EL 2119-01 | Considered | P |
| 4.2.2 | Steady force test, 10 N | EL 2119-02 | 10N Applied to parts other than serving enclosure | P |
| 4.2.3 | Steady force test, 30 N | EL 2119-03 | No such door and cover | N/A |
| 4.2.4 | Steady force test, 250 N | EL 2119-04 | Enclosure withstood the steady force test of 250N | P |
| 4.2.5 | Impact testish | EL 2119-05 | Transportable equipment | N/A |
| | a) Fall test as per Fig. 4A | EL 2119-06 | As above | N/A |
| | b) Swing test as per Fig. 4A | EL 2119-07 | As above | N/A |
| 4.2.6 | Drop test;<br>height (mm) : | EL 2119-08 | Equipment is dropped from the height 1000mm. No damage or breakage observed after the test. | P |
| 4.2.7 | Stress relief test | EL 2119-09 | No shrinkage or distortion observed in external enclosure | P |
| 4.2.8 | Cathode Ray Tubes | EL 2119-10 | No cathode ray tube | N/A |
| 4.2.9 | High Pressure Lamps* | EL 2119-11 | No high pressure lamps | N/A |
| 4.2.10 | Wall or ceiling mounted equipment; force(N) | EL 2119-12 | No such equipment | N/A |

*- Total number of Requirements to be observed / inspected = 01
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 12
Total No of applicable Tests = 06
No. of tests for which the sample passed= 06

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Mechanical Properties **EL 2120 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 4.3 | Design and Construction* | EL 2120-00 | See below | P |
| 4.3.1 | Edges and corners* | EL 2120-01 | Edges and corners of the enclosure are well rounded | P |
| 4.3.2 | Handles and manual controls; force (N)..... | EL 2120-02 | No handles and manual controls used | N/A |
| 4.3.3 | Adjustable controls | EL 2120-03 | No safety relevant adjustable controls provided | N/A |
| 4.3.4 | Securing of parts | EL 2120-04 | All parts are secured | P |
| 4.3.5 | Connections by Plugs and Sockets* | EL 2120-05 | No mismatch connection by plugs and sockets | P |
| 4.3.6 | Direct plug-in equipment | EL 2120-06 | See below | P |
| | Torque | EL 2120-07 | Torque shall not exceed 0.25Nm | P |
| | Compliance with the relevant mains plug standard | EL 2120-08 | Satisfactory | P |
| 4.3.7 | Heating elements in earthed equipment* | EL 2120-09 | No heating elements | N/A |
| 4.3.8 | Batteries:<br>Portable secondary sealed cells and batteries (Other than button) containing alkaline or other non-acid electrolyte Comply with IEC 62133. | | No battery in the equipment | N/A |
| | a) Overcharging of a rechargeable battery | EL 2120-10 | | N/A |
| | b) Unintentional charging of a non-rechargeable battery | EL 2120-11 | | N/A |
| | c) Reverse charging of a rechargeable battery | EL 2120-12 | | N/A |
| | d) Excessive discharging rate for any battery | EL 2120-13 | | N/A |
| | e) Electric strength as per Cl.5.3.9.2 | EL 2120-14 | | N/A |
| 4.3.9 | Oil & grease* | EL 2120-15 | No Oil & Grease | N/A |
| 4.3.10 | Dust, powders, liquids and gases | EL 2120-16 | Equipment does not produce dust, powder, liquids and gases | N/A |
| 4.3.11 | Containers for liquids or gases | EL 2120-17 | No such containers | N/A |
| 4.3.12 | Flammable liquids | EL 2120-18 | No flammable liquid | N/A |
| 4.3.13 | Radiation | | See below | N/A |
| 4.3.13.2 | Ionizing radiation | EL 2120-19 | No ionizing radiation | N/A |
| 4.3.13.3 | Effect of ultraviolet (UV) radiation on materials | EL 2120-20 | No UV radiation | N/A |
| 4.3.13.4 | Human exposure to ultraviolet (UV) radiation | EL 2120-21 | | N/A |
| 4.3.13.5 | Lasers (including laser diodes) and LED's: | | No LED indicator used | N/A |
| 4.3.13.5.1 | Lasers (including laser diodes)<br>For laser see IEC 60825-1,<br>respective part as applicable. | EL 2120-22 | No laser used | N/A |
| | Laser class ..... | | | N/A |
| 4.3.13.5.2 | Light emitting diodes (LED's) | EL 2120-23 | No such LED | N/A |



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| | | | | |
|---|---|---|---|---|
| 4.3.13.6 | Other types* | EL 2120-24 | | N/A |

*- Total number of Requirements to be observed / inspected = 06
Total No of applicable Requirement = 03
No of Requirements for which the sample passed= 03

Total number of tests to be conducted = 19
Total No of applicable Tests = 04
No. of tests for which the sample passed= 04

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Mechanical Properties **EL 2121 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 4.4 | Protection against hazardous moving parts | EL 2121-00 | See below | N/A |
| 4.4.1 | General | EL 2121-01 | No hazardous moving part | N/A |
| 4.4.2 | Protection in operator access areas | EL 2121-02 | | N/A |
| 4.4.3 | Protection in restricted access locations * | EL 2121-03 | Not intended to be installed in restricted access location | N/A |
| 4.4.4 | Protection in service access areas* | EL 2121-04 | No service access areas | N/A |
| 4.4.5 | Protection against moving fan blades | EL 2121-05 | | N/A |
| 4.4.5.1 | General* | EL 2121-06 | m =<br>r =<br>N =<br>K = | N/A |
| | Not considered likely to cause pain or injury. a).....: | EL 2121-07 | $\frac{r/\min}{15000} + \frac{K\ \text{factor}}{2400}$ | N/A |
| | Is considered likely to cause pain, not injury. b) | EL 2121-08 | $\frac{r/\min}{22000} + \frac{K\ \text{factor}}{3600}$ | N/A |
| | Considered likely to cause injury. c).....: | EL 2121-09 | | N/A |
| 4.4.5.2 | Protection for users* | EL 2121-10 | | N/A |
| | Use of symbol or warning* | EL 2121-11 | | N/A |
| 4.4.5.3 | Protection for service persons* | EL 2121-12 | | N/A |
| | Use of symbol or warning * | EL 2121-13 | | N/A |

*- Total number of Requirements to be observed / inspected = 07
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 06
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Thermal Properties

**EL 2122 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 4.5 | Thermal Requirements* | EL 2122-00 | See below | P |
| 4.5.1 | General | EL 2122-01 | Satisfactory (See table 4.5) | P |
| 4.5.2 | Temperature tests under normal load condition as per Cl.1.4.5 | EL 2122-02 | Operating the EUT under normal load condition until obtaining the steady state condition (See table 4.5) | P |
| 4.5.3 | Temperature limits for materials* | EL 2122-03 | Temperature rise of different parts is still complying the relevant requirement of this standard (See table 4.5) | P |
| 4.5.4 | Touch temperature limits* | EL 2122-04 | Touch temperature limits is still complying the relevant requirement of this standard (See table 4.5) | P |
| 4.5.5 | Resistance to abnormal heat | EL 2122-05 | Satisfactory (See table 4.5.5) | P |

*- Total number of Requirements to be observed / inspected = 03
Total No of applicable Requirement = 03
No of Requirements for which the sample passed= 03

Total number of tests to be conducted = 03
Total No of applicable Tests = 03
No. of tests for which the sample passed= 03

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Mechanical Properties **EL 2123 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 4.6 | Openings in enclosures* | EL 2123-00 | See below | N/A |
| 4.6.1 | Top and side openings | EL 2123-01 | No opening enclosure are available in this Equipment | N/A |
| | Dimensions (mm) : | | | N/A |
| 4.6.2 | Bottoms of fire enclosures : | EL 2123-02 | | N/A |
| | Construction of the bottom, dimensions (mm) : | | | N/A |
| 4.6.3 | Doors or covers in fire enclosures* | EL 2123-03 | | N/A |
| 4.6.4 | Openings in transportable equipment | EL 2123-04 | | N/A |
| 4.6.4.1 | Constructional design measures | EL 2123-05 | | N/A |
| | Dimensions (mm) | | | N/A |
| 4.6.4.2 | Evaluation measures for larger openings | EL 2123-06 | | N/A |
| 4.6.4.3 | Use of metallized parts | EL 2123-07 | | N/A |
| 4.6.5 | Adhesives for constructional purposes: Compliance is checked by examination of the construction and of the available data. If such data is not available, compliance is checked by the following tests. | EL 2123-08 | | N/A |
| | a)Temperature Conditioning at :<br>100 °C ± 2 °C for one week; or<br>90 °C ± 2 °C for three weeks; or<br>82 °C ± 2 °C for eight weeks. | EL 2123-09 | | N/A |
| | After temperature conditioning<br>b) Leave the sample between 20°C to 30°C for 1 hour | EL 2123-10 | | N/A |
| | c) Place the sample at - 40°C±2°C for 4 hours | EL 2123-11 | | N/A |
| | d) Remove and allow the sample to come to any convenient temperature between 20 °C and<br>30 °C for 8 h; | EL 2123-12 | | N/A |
| | e) Place the sample in a cabinet at 91 % to 95 % relative humidity for 72 h; | EL 2123-13 | | N/A |
| | f) Remove the sample and leave it at any convenient temperature between 20 °C and 30 °C for 1 h; | EL 2123-14 | | N/A |
| | g) Place the sample in an oven at the temperature used for the temperature conditioning for 4 h; | EL 2123-15 | | N/A |
| | h) Remove the sample and allow it to reach any convenient temperature between 20 °C; and<br>30 °C for 8 h. | EL 2123-16 | | N/A |



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| | | | | |
|---|---|---|---|---|
| | l) The sample is then immediately subjected to the tests of Cl.4.2 as applicable. | EL 2123-17 | | N/A |

*- Total number of Requirements to be observed / Inspected = 02
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 16
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Fire Safety **EL 2124 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 4.7 | Resistance to fire* | EL 2124-00 | Satisfactory | P |
| 4.7.1 | Reducing the risk of ignition and spread of flame | | See below | P |
| | Method 1, selection and application of components wiring and materials OR | EL 2124-01 | Material with suitable flammability classes are used | P |
| | Method 2, application of all of simulated fault condition tests | EL 2124-02 | Method 1 used | N/A |
| 4.7.2 | Conditions for a fire enclosure* | | See below | P |
| 4.7.2.1 | Parts requiring a fire enclosure* | EL 2124-03 | Fire enclosure is required to cover all parts | P |
| 4.7.2.2 | Parts not requiring a fire enclosure | EL 2124-04 | Fire enclosure is required to cover all parts | N/A |
| 4.7.3 | Materials* | EL 2124-05 | See below | P |
| 4.7.3.1 | General* | EL 2124-06 | Propagation of fire is minimized through the fire enclosure construction | P |
| | a)Class of material used* | EL 2124-07 | See table 1.5.1 | P |
| | b) Where HB40 CLASS MATERIAL, HB75 CLASS MATERIAL or HBF CLASS FOAMED MATERIAL, is required,<br>material passing the glow-wire test at 550 °C according to IEC 60695-2-11 is acceptable as an alternative. | EL 2124-08 | | N/A |
| | c) Where it is not practical to protect components against overheating under fault conditions, the components shall be mounted on V-1 CLASS MATERIAL. Additionally, such components shall be separated from material of a class lower than V-1 CLASS MATERIAL by at least 13 mm of air, or by a solid barrier of V-1 CLASS MATERIAL. | EL 2124-09 | Components are mounted approved class of material<br>(see table 1.5.1) | P |
| 4.7.3.2 | Materials for fire enclosures | | See appended table 1.5.1 | P |
| | a) For MOVABLE EQUIPMENT having a total mass not exceeding 18 kg, the material of a FIRE ENCLOSURE, in the thinnest significant wall thickness used, shall be of V-1 CLASS MATERIAL or shall pass the test of Clause A.2. | EL 2124-10 | Approved Plastic material used<br>(see table 1.5.1) | P |
| | b) For MOVABLE EQUIPMENT having a total mass exceeding 18 kg and for all STATIONARY EQUIPMENT, the material of a FIRE ENCLOSURE, in the thinnest significant wall thickness used, shall be of 5VB CLASS MATERIAL or shall pass the test of Clause A.1. | EL 2124-11 | Equipment is less than 18 kg | N/A |

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| | | | | |
|---|---|---|---|---|
| | c) Materials for components that fill an opening in a FIRE ENCLOSURE, and that are intended to be mounted in this opening shall :<br>be of V-1 CLASS MATERIAL; or<br>pass the tests of Clause A.2; or<br>comply with the flammability requirements of the relevant IEC component standard | EL 2124-12 | | N/A |
| | d) Plastic materials of a FIRE ENCLOSURE shall be located more than 13 mm through air from arcing parts such as unenclosed commutators and unenclosed switch contacts. | EL 2124-13 | No such arcing parts | N/A |
| | e)Plastic materials of a FIRE ENCLOSURE located less than 13mm through air from non-arcing parts which, under any condition of normal or abnormal operation, could attain a temperature sufficient to ignite the material, shall be capable of passing the test of IEC 60695-2-20 | EL 2124-14 | | N/A |
| 4.7.3.3 | Materials for components and other parts outside fire enclosures * | | No parts outside of fire enclosure | N/A |
| | a) Materials shall be of :<br>– HB75 CLASS MATERIAL if the thinnest significant thickness of this material is < 3 mm, or<br>– HB40 CLASS MATERIAL if the thinnest significant thickness of this material is ≥ 3 mm, or<br>– HBF CLASS FOAMED MATERIAL.* | EL 2124-15 | | N/A |
| | b) Connectors shall comply with one of the following:<br>– be made of V-2 CLASS MATERIAL; or<br>– pass the tests of Clause A.2; or<br>– comply with the flammability requirements of the relevant IEC component standard; or<br>– be mounted on V-1 CLASS MATERIAL and be of a small size; or<br>– be located in a SECONDARY CIRCUIT supplied by a power source that is limited to a<br>maximum of 15 VA (see 1.4.11) under normal operating conditions and after a single fault<br>in the equipment (see 1.4.14). | EL 2124-16 | | N/A |
| 4.7.3.4 | Materials for components and other parts inside fire enclosures | | Satisfactory | P |



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| | | | | |
|---|---|---|---|---|
| | a) Inside FIRE ENCLOSURES, materials for components and other parts shall comply with one of the following:<br>– be of V-2 CLASS MATERIAL or<br>HF-2 CLASS FOAMED MATERIAL; or<br>– pass the flammability test described in Clause A.2; or<br>– meet the flammability requirements of a relevant IEC component standard that includes such requirements. | EL 2124-17 | All components are mounted on approved class of material<br>(See table 1.5.1) | P |
| | Requirements for voltage dependent resistors (VDR's) are in Annex Q.* | EL 2124-18 | No such component | N/A |
| 4.7.3.5 | Materials for air filter assemblies :<br>Air filter assemblies shall be constructed of V-2 CLASS MATERIAL, or HF-2 CLASS FOAMED MATERIAL. | EL 2124-19 | No air filter assemblies | N/A |
| 4.7.3.6 | Materials used in high-voltage components | | No high voltage components | N/A |
| | a) High-voltage components operating at peak-to-peak voltages exceeding 4 kV shall either be of V-2 CLASS MATERIAL, or<br>HF-2 CLASS FOAMED MATERIAL, or comply with 14.4 of IEC 60065 or<br>pass the needle flame test according to IEC 60695-11-5. | EL 2124-20 | Voltage not exceeding 4kV | N/A |
| | b) Compliance is checked by inspection of the equipment and material data sheets and, if necessary, by<br>– the tests for V-2 CLASS MATERIAL or HF-2 CLASS FOAMED MATERIAL; or<br>– the test described in 14.4 of IEC 60065; or<br>– the needle flame test according to IEC 60695-11-5. | EL 2124-21 | | N/A |
| | c) In addition to above, the following details apply, referring to clauses of IEC 60695-11-5:<br>Clause 7 - Severities | EL 2124-22 | | N/A |
| | Clause 8 - Conditioning | EL 2124-23 | | N/A |
| | Clause 11 - Evaluation of test results | EL 2124-24 | | N/A |



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*- Total number of Requirements to be observed / inspected = 07
Total No of applicable Requirement = 05
No of Requirements for which the sample passed= 05

Total number of tests to be conducted = 18
Total No of applicable Tests = 05
No. of tests for which the sample passed= 05

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Insulating Properties **EL 2125 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 5.0 | ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS* | EL 2125-00 | See below | P |
| 5.1 | Touch current and protective conductor current* | EL 2125-01 | Satisfactory | P |
| 5.1.2 | Configuration of equipment under test (EUT)* | EL 2125-02 | See below | P |
| 5.1.2.1 | Single connection to an a.c. mains supply* | EL 2125-03 | Equipment has only single a.c. mains connection | P |
| 5.1.2.2 | Redundant multiple connections to an a.c. mains supply* | EL 2125-04 | No multiple power sources | N/A |
| 5.1.2.3 | Simultaneous multiple connections to an a.c. mains supply | EL 2125-05 | No multiple power sources | N/A |
| 5.1.3 | Test circuit | EL 2125-06 | See below | P |
| 5.1.4 | Application of measuring instrument | EL 2125-07 | Testing using D-1 measuring instrument | P |
| 5.1.5 | Test procedure | EL 2125-08 | Applied | P |
| 5.1.6 | Test measurements | | See table 5.1.6 | P |
| | a) Value of voltage, U2 measured using the instrument as per Fig. D.1 | EL 2125-09 | See table 5.1.6 | P |
| | b) Measured touch current (mA): | EL 2125-10 | See table 5.1.6 | P |
| | c) Calculated value of TOUCH CURRENT (A) = U2 / 500 | EL 2125-11 | See table 5.1.6 | P |
| | d)Measured protective conductor current(mA) | EL 2125-12 | See table 5.1.6 | P |
| | e) Max. protective conductor current =5% of Input current | EL 2125-13 | | N/A |
| 5.1.7 | Equipment with touch current exceeding 3.5 mA | EL 2125-14 | See below | N/A |
| 5.1.7.1 | General | EL 2125-15 | The touch current not exceeded 3.5 mA | N/A |
| 5.1.7.2 | Simultaneous multiple connections to the supply | EL 2125-16 | | N/A |
| 5.1.8 | Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks | EL 2125-17 | No connection to the telecommunication network or cable distribution system | N/A |
| 5.1.8.1 | Limitation of the touch current to a telecommunication network or to a cable distribution system | EL 2125-18 | | N/A |
| | Supply voltage (V) | | | N/A |
| | Measured touch current (mA) | | | N/A |
| | Max. allowed touch current (mA) | | | N/A |
| 5.1.8.2 | Summation of touch currents from telecommunication networks | EL 2125-19 | No connection to the telecommunication network or cable distribution | N/A |
| | a) EUT with earthed telecommunication ports : | | | N/A |



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|---|---|---|---|---|
| | b) EUT whose telecommunication ports have no reference to protective earth | | | N/A |

*- Total number of Requirements to be observed / inspected = 05
Total No of applicable Requirement = 04
No of Requirements for which the sample passed= 04

Total number of tests to be conducted = 15
Total No of applicable Tests = 07
No. of tests for which the sample passed= 07

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Insulating Properties **EL 2126 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 5.2 | Electric strength* | EL 2126-00 | See below | P |
| 5.2.1 | General* | EL 2126-01 | See appended table 5.2 | P |
| 5.2.2 | Test procedure | | Table 5B Used | P |
| | a) The test voltages for electric strength for the appropriate grade of insulation [FUNCTIONAL INSULATION if required by 5.3.4 b), BASIC INSULATION, SUPPLEMENTARY INSULATION or REINFORCED INSULATION] are as specified in either:<br>– Table 5B using the PEAK WORKING VOLTAGE (U), as determined in 2.10.2; or<br>– Table 5C using the REQUIRED WITHSTAND VOLTAGE, as determined in G.4. | EL 2126-02 | No breakdown observed during the test, performance found satisfactory after the test. | P |

*- Total number of Requirements to be observed / inspected = 02
Total No of applicable Requirement = 02
No of Requirements for which the sample passed= 02

Total number of tests to be conducted = 01
Total No of applicable Tests = 01
No. of tests for which the sample passed= 01

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Insulating Properties **EL 2127 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 5.3 | Abnormal operating and fault conditions | EL 2127-00 | See below | P |
| 5.3.1 | Protection against overload and abnormal operation | EL 2127-01 | See appended table 5.3 | P |
| 5.3.2 | Motors | EL 2127-02 | No such motor used | N/A |
| 5.3.3 | Transformers | EL 2127-03 | Tested within Appliance (See appended Annex C & table C.2) | P |
| 5.3.4 | Functional insulation: | EL 2127-04 | Functional insulation complied with 5.3.4 (C) | P |
| 5.3.5 | Electromechanical components | EL 2127-05 | No such components | N/A |
| 5.3.6 | Audio amplifiers in ITE : | EL 2127-06 | No audio amplifier | N/A |
| 5.3.7 | Simulation of faults | EL 2127-07 | See appended table 5.3 | P |
| 5.3.8 | Unattended equipment | EL 2127-08 | No such unattended equipment | N/A |
| 5.3.9 | Compliance criteria for abnormal operating and fault conditions* | | See below | P |
| 5.3.9.1 | During the tests | EL 2127-09 | No flame in the equipment, No molten metal was emitted | P |
| 5.3.9.2 | After the tests | EL 2127-10 | Electric strength test made | P |

*- Total number of Requirements to be observed / inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 11
Total No of applicable Tests = 07
No. of tests for which the sample passed= 07

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Communicating Connection **EL 2128 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 6.1 | Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment | EL 2128-00 | No connection to telecommunication networks | N/A |
| 6.1.1 | Protection from hazardous voltages | EL 2128-01 | | N/A |
| 6.1.2 | Separation of the telecommunication network from earth* | | | N/A |
| 6.1.2.1 | Requirements:<br>Surge suppressors that bridge the insulation shall have a minimum rated operating voltage $U_{op}$ of<br>$U_{op}=U_{peak}+\Delta U_{sp}+\Delta U_{sa}$<br>Where $U_{peak}$ is 360V or 180V<br>$\Delta U_{sp}$ is the maximum increase of the rated operating voltage due to variations in component production(If not specified by the manufacturer, shall be taken as 10% of the rated operating voltage of the component)<br>$\Delta U_{sa}$ is the maximum increase of the rated operating voltage due to the component ageing over the expected life of the equipment(If not specified by the manufacturer, shall be taken as 10% of the rated operating voltage of the component)<br>-Insulation is subjected to electric strength test according to 5.2.2. The a.c test voltage is 1.5kV or 1.0kV<br>- Components bridging the insulation that are left in place during electric strength testing shall not be damaged. There shall be no breakdown of insulation during electric strength testing. | EL 2128-02 | | N/A |
| 6.1.2.2 | Exclusions | EL 2128-03 | | N/A |

*- Total number of Requirements to be observed / inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 04
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Communicating Connection **EL 2129 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 6.2 | Protection of equipment users from overvoltages on telecommunication networks* | EL 2129-00 | No connection to telecommunication networks | N/A |
| 6.2.1 | Separation requirements | EL 2129-01 | | N/A |
| 6.2.2 | Electric strength test procedure | EL 2129-02 | | N/A |
| 6.2.2.1 | Impulse test | EL 2129-03 | | N/A |
| 6.2.2.2 | Steady-state test | EL 2129-04 | | N/A |
| 6.2.2.3 | Compliance criteria | EL 2129-05 | | N/A |

*- Total number of Requirements to be observed / inspected = 01
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 05
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Communicating Connection **EL 2130 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 6.3 | Protection of the telecommunication wiring system from overheating | EL 2130-00 | No connection to telecommunication networks | N/A |
| | a)If current limiting is due to the inherent impedance of the power source, the output current into any resistive load, including a short-circuit, is measured. The current limit shall not be exceeded after 60 s of test.<br>Max. output current (A) : | EL 2130-01 | | N/A |
| | b) If current limiting is provided by an overcurrent protective device having a specified time/current characteristic:<br>– the time/current characteristic shall show that a current equal to 110 % of the current limit will be interrupted within 60 min; and | EL 2130-02 | | N/A |
| | c) the output current into any resistive load, including a short-circuit, with the overcurrent protective device bypassed, measured after 60 s of test, shall not exceed 1 000/U,<br>where U is the output voltage measured in accordance with 1.4.5 with all load circuits disconnected. | EL 2130-03 | | N/A |
| | d) If current limiting is provided by an overcurrent protective device that does not have a specified time/current characteristic:<br>– the output current into any resistive load, including a short-circuit, shall not exceed the current limit after 60 s of test; and<br>– the output current into any resistive load, including a short-circuit, with the overcurrent protective device bypassed, measured after 60 s of test, shall not exceed 1 000/U, where U is the output voltage measured in accordance with 1.4.5 with all load circuits Disconnected. | EL 2130-04 | | N/A |



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*- Total number of Requirements to be observed / inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 05
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Aditya Pratap Singh
Technical Manager



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Tests relating to Connection to cable distribution system **EL 2131 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| 7 | Connection to cable distribution systems* | EL 2131-00 | No connection to cable distribution system | N/A |
| 7.1 | General requirements* | EL 2131-01 | | N/A |
| 7.2 | Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment | EL 2131-02 | | N/A |
| 7.3 | Protection of equipment users from overvoltages on the cable distribution system | EL 2131-03 | | N/A |
| 7.4 | Insulation between primary circuits and cable distribution systems | EL 2131-04 | | N/A |
| 7.4.1 | General | EL 2131-05 | | N/A |
| 7.4.2 | Voltage surge test | EL 2131-06 | | N/A |
| 7.4.3 | Impulse test | EL 2131-07 | | N/A |

*- Total number of Requirements to be observed / inspected = 02
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 06
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Fire Safety

**EL 2132 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| A | ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE | EL 2132-00 | See below | P |
| A.1 | Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2) | EL 2132-01 | Mass is less than 18 Kg | N/A |
| A.1.1 | Samples: | EL 2132-02 | | N/A |
| | Wall thickness (mm): | | | N/A |
| A.1.2 | Conditioning of samples; temperature (°C) : | EL 2132-03 | | N/A |
| A.1.3 | Mounting of samples : | EL 2132-04 | | N/A |
| A.1.4 | Test flame (see IEC 60695-11-3) | EL 2132-05 | | N/A |
| | Flame A, B, C or D : | | | N/A |
| A.1.5 | Test procedure | EL 2132-06 | | N/A |
| A.1.6 | Compliance criteria | EL 2132-07 | | N/A |
| | Sample 1 burning time (s): | | | N/A |
| | Sample 2 burning time (s): | | | N/A |
| | Sample 3 burning time (s): | | | N/A |
| A.2 | Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4) | EL 2132-08 | Certified materials used (See table 1.5.1) | P |
| A.2.1 | Samples, material: | EL 2132-09 | | N/A |
| | Wall thickness (mm): | | | N/A |
| A.2.2 | Conditioning of samples; temperature (°C) : | EL 2132-10 | | N/A |
| A.2.3 | Mounting of samples : | EL 2132-11 | | N/A |
| A.2.4 | Test flame (see IEC 60695-11-4) | EL 2132-12 | | N/A |
| | Flame A, B or C : | | | N/A |
| A.2.5 | Test procedure | EL 2132-13 | | N/A |
| A.2.6 | Compliance criteria | EL 2132-14 | | N/A |
| | Sample 1 burning time (s): | | | N/A |
| | Sample 2 burning time (s): | | | N/A |
| | Sample 3 burning time (s): | | | N/A |
| A.2.7 | Alternative test acc. to IEC 60695-11-5, cl. 5 and 9 | EL 2132-15 | | N/A |
| | Sample 1 burning time (s): | | | N/A |
| | Sample 2 burning time (s): | | | N/A |



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Tests relating to Fire Safety **EL 2132 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| | Sample 3 burning time (s): | | | N/A |
| A.3 | Hot flaming oil test (see 4.6.2) | EL 2132-16 | No such openings | N/A |
| A.3.1 | Mounting of samples | EL 2132-17 | | N/A |
| A.3.2 | Test procedure | EL 2132-18 | | N/A |
| A.3.3 | Compliance criterion | EL 2132-19 | | N/A |

*- Total number of Requirements to be observed / Inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 20
Total No of applicable Tests = 02
No. of tests for which the sample passed= 02

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Insulating Properties **EL 2133 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| B | ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2) | EL 2133-00 | See below | N/A |
| B.1 | General requirements | EL 2133-01 | No such motor used | N/A |
| | Position : | | | N/A |
| | Manufacturer : | | | N/A |
| | Type : | | | N/A |
| | Rated values : | | | N/A |
| B.2 | Test conditions | EL 2133-02 | | N/A |
| B.3 | Maximum temperatures | EL 2133-03 | | N/A |
| B.4 | Running overload test | EL 2133-04 | | N/A |
| B.5 | Locked-rotor overload test | EL 2133-05 | | N/A |
| | Test duration (days): | | | N/A |
| | Electric strength test: test voltage (V) : | | | N/A |
| B.6 | Running overload test for d.c. motors in secondary circuits | EL 2133-06 | | N/A |
| B.6.1 | General | EL 2133-07 | | N/A |
| B.6.2 | Test procedure | EL 2133-08 | | N/A |
| B.6.3 | Alternative test procedure | EL 2133-09 | | N/A |
| B.6.4 | Electric strength test; test voltage (V): | EL 2133-10 | | N/A |
| B.7 | Locked-rotor overload test for d.c. motors in secondary circuits | EL 2133-11 | | N/A |
| B.7.1 | General | EL 2133-12 | | N/A |
| B.7.2 | Test procedure | EL 2133-13 | | N/A |
| B.7.3 | Alternative test procedure | EL 2133-14 | | N/A |
| B.7.4 | Electric strength test; test voltage (V) : | EL 2133-15 | | N/A |
| B.8 | Test for motors with capacitors | EL 2133-16 | | N/A |
| B.9 | Test for three-phase motors | EL 2133-17 | | N/A |
| B.10 | Test for series motors | EL 2133-18 | | N/A |
| | Operating voltage (V) : | | | N/A |



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*- Total number of Requirements to be observed / inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 19
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical Safety **EL 2134 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| C | ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)* | EL 2134-00 | Satisfactory | P |
| | Position : | | See table 1.5.1 | P |
| | Manufacturer : | | See table 1.5.1 | P |
| | Type : | | See table 1.5.1 | P |
| | Rated values : | | See table 1.5.1 | P |
| | Method of protection: | | Protection by electronic drive circuit | P |
| C.1 | Overload test | EL 2134-01 | See table 5.3 | P |
| C.2 | Insulation | EL 2134-02 | Insulation fulfill the requirement for Cl 2.10 and 5.2<br>(See table 2.10.2 & table 5.2) | P |
| | Protection from displacement of windings: | | Windings are twisted and soldered on pins<br>Triple insulated wire used | P |

*- Total number of Requirements to be observed / inspected = 01
Total No of applicable Requirement = 01
No of Requirements for which the sample passed= 01

Total number of tests to be conducted = 02
Total No of applicable Tests = 02
No. of tests for which the sample passed= 02

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Insulating Properties **EL 2135 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| D | ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4) | EL 2135-00 | Satisfactory (See Clause 5.1.4) | P |
| D.1 | Measuring instrument | EL 2135-01 | Satisfactory | P |
| D.2 | Alternative measuring instrument | EL 2135-02 | | N/A |

*- Total number of Requirements to be observed / inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 03
Total No of applicable Tests = 02
No. of tests for which the sample passed= 02

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Thermal Properties **EL 2136– V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| E | ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13) | EL2136-00 | | N/A |

*- Total number of Requirements to be observed / inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 01
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical Safety **EL 2137 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| F | ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G) | EL2137-00 | Satisfactory (See clause 2.10) | P |

*- Total number of Requirements to be observed / Inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 01
Total No of applicable Tests = 01
No. of tests for which the sample passed= 01

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical safety **EL 2138 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| G | ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES | EL 2138-00 | | N/A |
| G.1 | Clearances | EL 2138-01 | | N/A |
| G.1.1 | General | EL 2138-02 | | N/A |
| G.1.2 | Summary of the procedure for determining minimum clearances | EL 2138-03 | | N/A |
| G.2 | Determination of mains transient voltage (V) | EL 2138-04 | | N/A |
| G.2.1 | AC Mains supply | EL 2138-05 | | N/A |
| G.2.2 | Earthed d.c. mains supplies | EL 2138-06 | | N/A |
| G.2.3 | Unearthed d.c. mains supplies | EL 2138-07 | | N/A |
| G.2.4 | Battery operation | EL 2138-08 | | N/A |
| G.3 | Determination of telecommunication network transient voltage (V) | EL 2138-09 | | N/A |
| G.4 | Determination of required withstand voltage (V) | EL 2138-10 | | N/A |
| G.4.1 | Mains transients and internal repetitive peaks | EL 2138-11 | | N/A |
| G.4.2 | Transients from telecommunication networks: | EL 2138-12 | | N/A |
| G.4.3 | Combination of transients | EL 2138-13 | | N/A |
| G.4.4 | Transients from cable distribution systems | EL 2138-14 | | N/A |
| G.5 | Measurement of transient voltages (V) | EL 2138-15 | | N/A |
| | a) Transients from a mains supply | | | N/A |
| | For an a.c. mains supply | | | N/A |
| | For a d.c. mains supply | | | N/A |
| | b) Transients from a telecommunication network | | | N/A |
| G.6 | Determination of minimum clearances | EL 2138-16 | | N/A |

*- Total number of Requirements to be observed / inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A
Total number of tests to be conducted = 17
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A
Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Radiation Safety **EL 2139 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| H | ANNEX H, IONIZING RADIATION (see 4.3.13) | EL 2139-00 | Equipment does not produce Ionizing radiation | N/A |

*- Total number of Requirements to be observed / Inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 01
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical Safety **EL 2140 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| J | ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)* | EL 2140-00 | No Such parts | N/A |
| | Metal(s) used : | | | N/A |

*- Total number of Requirements to be observed / Inspected = 01
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 00
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to General Requirement **EL 2141 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| K | ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)* | EL 2141-00 | See below | N/A |
| K.1 | Making and breaking capacity | EL 2141-01 | No thermal control inside the equipment | N/A |
| K.2 | Thermostat reliability; operating voltage (V) : | EL 2141-02 | | N/A |
| K.3 | Thermostat endurance test; operating voltage (V) : | EL 2141-03 | | N/A |
| K.4 | Temperature limiter endurance; operating voltage (V) : | EL 2141-04 | | N/A |
| K.5 | Thermal cut-out reliability | EL 2141-05 | | N/A |
| K.6 | Stability of operation | EL 2141-06 | | N/A |

*- Total number of Requirements to be observed / inspected = 01
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 06
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to General Requirement **EL 2142 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| L | ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)* | EL 2142-00 | Satisfactory | P |
| L.1 | Typewriters* | EL 2142-01 | No typewriters used | N/A |
| L.2 | Adding machines and cash registers* | EL 2142-02 | No adding machines and cash registers used | N/A |
| L.3 | Erasers* | EL 2142-03 | No erasers used | N/A |
| L.4 | Pencil sharpeners* | EL 2142-04 | No pencil sharpeners used | N/A |
| L.5 | Duplicators and copy machines* | EL 2142-05 | No duplicators and copy machines used | N/A |
| L.6 | Motor-operated files* | EL 2142-06 | No motor operated files used | N/A |
| L.7 | Other business equipment* | EL 2142-07 | Operated at most unfavorable operating instructions | P |

*- Total number of Requirements to be observed / inspected = 08
Total No of applicable Requirement = 02
No of Requirements for which the sample passed= 02

Total number of tests to be conducted = 00
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical Safety

**EL 2143 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| M | ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1) | EL 2143-00 | See below | N/A |
| M.1 | Introduction* | EL 2143-01 | No telephone ringing signals | N/A |
| M.2 | Method A | EL 2143-02 | | N/A |
| M.3 | Method B | EL 2143-03 | | N/A |
| M.3.1 | Ringing signal | EL 2143-04 | | N/A |
| M.3.1.1 | Frequency (Hz) ..... | EL 2143-05 | | N/A |
| M.3.1.2 | Voltage (V) ..... | EL 2143-06 | | N/A |
| M.3.1.3 | Cadence; time (s), voltage (V) ..... | EL 2143-07 | | N/A |
| M.3.1.4 | Single fault current (mA) ..... | EL 2143-08 | | N/A |
| M.3.2 | Tripping device and monitoring voltage ..... | EL 2143-09 | | N/A |
| M.3.2.1 | Conditions for use of a tripping device or a monitoring voltage | EL 2143-10 | | N/A |
| M.3.2.2 | Tripping device | EL 2143-11 | | N/A |
| M.3.2.3 | Monitoring voltage (V) ..... | EL 2143-12 | | N/A |

*- Total number of Requirements to be observed / inspected = 01
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted =12
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical safety

**EL 2144 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| N | ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5) | EL 2144-00 | No such equipment | N/A |
| N.1 | ITU-T impulse test generators | EL 2144-01 | | N/A |
| N.2 | IEC 60065 Impulse test generator | EL 2144-02 | | N/A |

*- Total number of Requirements to be observed / Inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 03
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

.....
(Approving Authority)

Aditya Pratap Singh
Technical Manager
GREATER NOIDA



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Tests relating to General Requirements **EL 2145– V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| P | ANNEX P, NORMATIVE REFERENCES | EL 2145-00 | | N/A |

*- Total number of Requirements to be observed / Inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 01
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to General Requirements **EL 2146 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| Q | ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1) | EL 2146-00 | See table 1.5.1 | N/A |
| | A VDR shall comply with iec 61051-2, whether a fire enclosure is provided or not, taking into account all of the following: | | See table 1.5.1 | N/A |
| | a) Preferred climatic categories<br>Lower category temperature:<br>-10˚C<br>Upper category temperature: +85˚C<br>Duration of damp Test, steady state test: 21 days | | See table 1.5.1 | N/A |
| | b) Maximum continuous voltage:<br>Atleast 1,25 times the rated voltage of the equipment or<br>Atleast 1,25 times the upper voltage of the rated voltage range | | See table 1.5.1 | N/A |
| | c) Combined pulse : | EL 2146-01 | See table 1.5.1 | N/A |
| | d) Body of the VDR shall comply with Needle flame test according to IEC 60695-11-5 with the following test severities:<br>duration of application of the test flame: 10 s<br>after flame time: 5s<br>[This test is not required if VDR complies with V-1 CLASS MATERIAL] | EL 2146-02 | See table 1.5.1 | N/A |

*- Total number of Requirements to be observed / inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 03
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to General Requirement **EL 2147– V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| R | ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES* | EL 2147-00 | See below | N/A |
| R.1 | Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)* | EL 2147-01 | No coated printed wiring boards | N/A |
| R.2 | Reduced clearances (see 2.10.3)* | EL 2147-02 | | N/A |

*- Total number of Requirements to be observed / inspected = 03
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 00
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

.....
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Tests relating to General Requirement

**EL 2148 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| S | ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)* | EL 2148-00 | No such equipment | N/A |
| S.1 | Test equipment* | EL 2148-01 | | N/A |
| S.2 | Test procedure* | EL 2148-02 | | N/A |
| S.3 | Examples of waveforms during Impulse testing* | EL 2148-03 | | N/A |

*- Total number of Requirements to be observed / inspected = 04
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 00
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Protection against Ingress of water **EL 2149 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| T | ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)* | EL 2149-00 | IP protection class is IPX0 | N/A |

*- Total number of Requirements to be observed / inspected = 01
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 00
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Wiring **EL 2150 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| U | ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4) | EL2150-00 | See below | P |
| U.1 | GENERAL | EL2150-01 | Approved insulated wire is used (see table 1.5.1) | P |
| U.2 | TYPE TESTS | EL2150-02 | See above | P |
| U.2.1 | GENERAL | EL2150-03 | See above | P |
| U.2.2 | ELECTRIC STRENGTH | EL2150-04 | See above | P |
| U.2.2.1 | SOLID ROUND WINDING WIRE AND STRANDED WINDING WIRES | EL2150-05 | See above | P |
| U.2.2.1.1 | WIRES WITH NOMINAL CONDUCTOR DIAMETER UPTO AND INCLUDING 0.100MM | EL2150-06 | See above | P |
| U.2.2.1.2 | WIRES WITH NOMINAL CONDUCTOR DIAMETER OVER 0.100MM AND INCLUDING 2.500MM | EL2150-07 | See above | P |
| U.2.2.1.3 | WIRES WITH NOMINAL CONDUCTOR DIAMETER OVER 2.500MM | EL2150-08 | See above | P |
| U.2.2.2 | SQUARE OR RECTANGULAR WIRES | EL2150-09 | See above | P |
| U.2.3 | FLEXIBILITY AND ADHERENCE | EL2150-10 | See above | P |
| U.2.4 | HEAT SHOCK | EL2150-11 | See above | P |
| U.2.5 | RETENTION OF ELECTRIC STRENGTH AFTER BENDING | EL2150-12 | See above | P |
| U.3 | TESTING DURING MANUFACTURING | EL2150-13 | See above | P |
| U.3.1 | GENERAL | EL2150-14 | See above | P |
| U.3.2 | ROUTINE TESTS | EL2150-15 | See above | P |
| U.3.3 | SAMPLING TEST | EL2150-16 | See above | P |

*- Total number of Requirements to be observed / inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 17
Total No of applicable Tests = 17
No. of tests for which the sample passed= 17

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical Safety **EL 2151 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| V | ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1) * | EL 2151-00 | See below | P |
| V.1 | Introduction* | EL 2151-01 | Satisfactory | P |
| V.2 | TN power distribution systems | EL 2151-02 | No TN Power Distribution systems | N/A |
| V.3 | TT Power Distribution systems | EL 2151-03 | Single-phase TT power system considered and used for testing. | P |
| V.4 | IT Power Distribution systems | EL 2151-04 | No IT Power Distribution systems | N/A |

*- Total number of Requirements to be observed / Inspected = 02
Total No of applicable Requirement = 02
No of Requirements for which the sample passed= 02

Total number of tests to be conducted = 03
Total No of applicable Tests = 01
No. of tests for which the sample passed= 01

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

.....
(Approving Authority)

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Tests relating to Electrical Safety

**EL 2152 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| W | ANNEX W, SUMMATION OF TOUCH CURRENTS * | EL 2152-00 | No connection to the telecommunication network or cable distribution | N/A |
| W.1 | Touch current from electronic circuits* | EL 2152-01 | | N/A |
| W.1.1 | Floating circuits* | EL 2152-02 | | N/A |
| W.1.2 | Earthed circuits* | EL 2152-03 | | N/A |
| W.2 | Interconnection of several equipments* | EL 2152-04 | | N/A |
| W.2.1 | Isolation* | EL 2152-05 | | N/A |
| W.2.2 | Common return, isolated from earth* | EL 2152-06 | | N/A |
| W.2.3 | Common return, connected to protective earth* | EL 2152-07 | | N/A |

*- Total number of Requirements to be observed / inspected = 08
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 00
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical Safety **EL 2153– V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| X | ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)* | EL 2153-00 | Complies | P |
| X.1 | Determination of maximum input current* | EL 2153-01 | See Table 5.3 | P |
| X.2 | Overload test procedure* | EL 2153-02 | Electronic Protection | P |

*- Total number of Requirements to be observed / Inspected = 03
Total No of applicable Requirement = 03
No of Requirements for which the sample passed= 03

Total number of tests to be conducted = 00
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Radiation Safety **EL 2154– V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| Y | ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3) | EL 2154-00 | No ultraviolet light | N/A |
| Y.1 | Test apparatus ..... | EL 2154-01 | | N/A |
| Y.2 | Mounting of test samples ..... | EL 2154-02 | | N/A |
| Y.3 | Carbon-arc light-exposure apparatus ..... | EL 2154-03 | | N/A |
| Y.4 | Xenon-arc light exposure apparatus ..... | EL 2154-04 | | N/A |

*- Total number of Requirements to be observed / inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 05
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Electrical Safety **EL 2155– V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| Z | ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)* | EL 2155-00 | Complies with Cl. 2.10.3.2 | P |

*- Total number of Requirements to be observed / inspected = 01
Total No of applicable Requirement = 01
No of Requirements for which the sample passed= 01

Total number of tests to be conducted = 00
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

.....
(Approving Authority)

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Technical Manager
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Tests relating to Mechanical Properties **EL 2156 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| AA | ANNEX AA, MANDREL TEST (see 2.10.5.8) | EL 2156-00 | No such construction | N/A |

*- Total number of Requirements to be observed / Inspected = 00
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 01
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

.....
(Approving Authority)

SPECTRO ANALYTICAL LABS LTD. Aditya Pratap Singh Technical Manager GREATER NOIDA



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Tests relating to Electrical Safety **EL 2158 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| CC | Evaluation of integrated circuit (IC) current limiters* | EL 2158-00 | Integrated circuit current limiters is not used | N/A |
| CC.1 | Integrated circuit (IC) current limiters* | EL 2158-01 | | N/A |
| CC.2 | Test program 1 | EL 2158-02 | | N/A |
| CC.3 | Test program 2 | EL 2158-03 | | N/A |
| CC.4 | Test program 3 | EL 2158-04 | | N/A |
| CC.5 | Compliance | EL 2158-05 | | N/A |

*- Total number of Requirements to be observed / inspected = 02
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 04
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Mechanical Properties **EL 2159 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| DD | Requirements for the mounting means of rack-mounted equipment* | EL 2159-00 | No rack-mounted equipment | N/A |
| DD.1 | General | | | N/A |
| DD.2 | Mechanical strength test, variable N.....: | EL 2159-01 | | N/A |
| DD.3 | Mechanical strength test, 250N, including end stops.....: | EL 2159-02 | | N/A |
| DD.4 | Compliance*.....: | EL 2159-03 | | N/A |

*- Total number of Requirements to be observed / inspected = 02
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 02
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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Tests relating to Mechanical Properties **EL 2160 – V1.4**

| Cl. No. | Test / Requirement name | Test Code | Test result/ observation | Verdict |
|---|---|---|---|---|
| EE | ANNEX EE, Household and home/office document/media shredders | EL 2160-00 | The equipment is not a household and home/office document/media shredders. | N/A |
| EE.1 | General | | | N/A |
| EE.2 | Markings and instructions* | EL 2160-01 | | N/A |
| | Use of markings or symbols*.....: | | | N/A |
| | Information of user instructions, maintenance and/or servicing instructions*.....: | | | N/A |
| EE.3 | Inadvertent reactivation test.....: | EL 2160-02 | | N/A |
| EE.4 | Disconnection of power to hazardous moving parts* | EL 2160-03 | | N/A |
| | Use of markings or symbols*.....: | | | N/A |
| EE.5 | Protection against hazardous moving parts | | | N/A |
| | Test with test finger (Figure 2A) .....: | EL 2160-04 | | N/A |
| | Test with wedge probe (Figure EE1 and EE2) .....: | EL 2160-05 | | N/A |

*- Total number of Requirements to be observed / inspected = 02
Total No of applicable Requirement = 00
No of Requirements for which the sample passed= N/A

Total number of tests to be conducted = 04
Total No of applicable Tests = 00
No. of tests for which the sample passed= N/A

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

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| 1.5.1 | TABLE: List of components | | | | P |
|---|---|---|---|---|---|
| Object/part no. | Manufacturer/ trademark | Type/model | Technical data | Standard | Mark(s) of conformity [1] |
| Plastic enclosure and Plug holder | SABIC INNOVATIVE PLASTICS B V | SE1X(GG)(f1) | Min.V-1, min. 2.0mm thickness, 105°C | UL 94 (Flammability test equivalent to IEC 60695-11-10) | UL E45329 |
| Alternate | SABIC JAPAN L L C | SE1X(GG)(C)(f1) | Min.V-1, min. 2.0mm thickness, 105°C | UL 94 (Flammability test equivalent to IEC 60695-11-10) | UL E207780 |
| Alternate | SABIC JAPAN L L C | 945(GG) | Min.V-0, min. 2.0mm thickness, 130°C | UL 94 (Flammability test equivalent to IEC 60695-11-10) | UL E207780 |
| Alternate | SABIC INNOVATIVE PLASTICS US L L C | 915R(GG) | Min. V-0, min. 2.0 mm thickness, 120°C | UL 94 (Flammability test equivalent to IEC 60695-11-10) | UL E121562 |
| Alternate | TEIJIN CHEMICALS LTD | LN-1250P(#)(f1), LN-1250G(#)(*) | Min. V-0 at 1.5 mm thickness, 115°C | UL 94 (Flammability test equivalent to IEC 60695-11-10) | UL E50075 |
| Alternate | LG CHEM (GUANGZHOU) ENGINEERING PLASTICS CO LTD | LUPOY EF- 1006F(m) | Min. V-0, min. 2.5 mm thickness, 125°C | UL 94 (Flammability test equivalent to IEC 60695-11-10) | UL E248280 |
| Alternate | COVESTRO DEUTSCHLAN D AG [PC RESINS] | FR6005 + (z) | Min. V-0, min. 2.0 mm thickness, 105°C | UL 94 (Flammability test equivalent to IEC 60695-11-10) | UL E41613 |
| Alternate | SILVER AGE ENGINEERING PLASTICS (DONGGUAN) CO LTD | PC2330 | Min. V-0, min. 2.0 mm thickness, 115°C | UL 94 (Flammability test equivalent to IEC 60695-11-10) | UL E225348 |
| PCB | CHEERFUL PLASTIC ELECTRONIC PRODUCTS | 02 | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E199724 |
| Alternate | WALEX ELECTRONIC (WUXI) CO LTD | T2, T2A, T2B, T4 | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E154355 |
| Alternate | YUANMAN PRINTED CIRCUIT CO LTD | 1V0 | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E74757 |
| Alternate | GUANGDE XINKE ELECTRONICS CO LTD | XK-2,XK1 | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E231590 |
| Alternate | GUANGDONG HETONG TECHNOLOGY CO LTD | CEM1, 2V0, FR4 | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E243157 |
| Alternate | CHEERFUL PLASTIC ELECTRONIC PRODUCTS | 03, 03A | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E199724 |
| Alternate | JIANGSU DIFEIDA ELECTRONICS CO LTD | DFD-1 | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E213009 |



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| Alternate | DONGGUAN DAYSUN ELECTRONIC CO LTD | DS2 | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E251754 |
| Alternate | SUZHOU CITY YILIHUA ELECTRONICS CO LTD | YLH-1 | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E251781 |
| Alternate | DAFENG AREX ELECTRONICS TECHNOLOGY CO LTD | 02V0, 03V0, 04V0 | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E186016 |
| Alternate | BRITE PLUS ELECTRONICS (SUZHOU) CO LTD | DKV0-3A, DGV0-3A | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E177671 |
| Alternate | KUOTIANG ENT LTD | C-2, C-2A | Min. V-0, min 1.6 mm thickness, 130°C | UL 796 (No such equivalent IEC available) | UL E227299 |
| Alternate | PACIFIC WIN INDUSTRIAL LTD | PW-02 PW-03 | Min. V-0, min 1.6 mm thickness, 130°C | UL 796 (No such equivalent IEC available) | UL E228070 |
| Alternate | SHENZHEN TONGCHUANGXIN ELECTRONICS CO LTD | TCX | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E250336 |
| Alternate | SHANGHAI H-FAST ELECTRONICS CO LTD | 211001 | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E337862 |
| Alternate | JIANGXI ZHONG XIN HUA ELECTRONICS INDUSTRY CO LTD | ZXH-2 | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E331298 |
| Alternate | SHUANG MING INDUSTRY CO LTD | T005V0 | Min. 1,6 mm thickness, min. V-0, 130°C | UL 796 (No such equivalent IEC available) | UL E78017 |
| Fuse (FS1) | Conquer Electronics Co., Ltd. | MST | T2A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1, UL 248-14<br>(No such equivalent IEC available) | VDE 40017118<br>UL E82636 |
| Alternate | Suzhou Walter Electronic Co. Ltd. | 2010 Serie(s) | T2A, 250V | IEC 60127-1<br>IEC 60127-3 | VDE 40018781 |
| Alternate | Ever Island Electric Co., Ltd. & Walter Electric | 2010 | T2A, 250V | UL 248-1, UL 248-14 (No such equivalent IEC available) | UL E220181 |
| Alternate | Bel Fuse Ltd. | RST | T2A, 250V | IEC 60127-1<br>IEC 60127-3 | VDE 40011144 |
| Alternate | BEL FUSE LTD | RSTA | T2A, 277V | UL 248-1, UL 248-14 (No such equivalent IEC available) | UL E506667 |
| Alternate | Cooper Bussmann LLC | SS-5 | T2A, 250V | IEC 60127-1<br>IEC 60127-3 | VDE 40015513 |
| Alternate | Cooper Bussmann LLC | SS-5F | T2A, 250V | UL 248-1, UL 248-14 (No such equivalent IEC available) | UL E19180 |



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| Alternate | LITTELFUSE INC | 392<br><br>392 + | T2AL, 250 Vac | IEC 60127-1<br>IEC 60127-3<br>UL 248-1, UL 248-14<br>(No such equivalent IEC available) | VDE 126983<br><br>UL E67006 |
| Alternate | Dongguan Better Electronics Technology Co., Ltd. | 932 | T2A, 250V | IEC 60127-1<br>IEC 60127-3<br>UL 248-1, UL 248-14<br>(No such equivalent IEC available) | VDE 40033369<br>UL E300003 |
| Alternate | Hollyland Company Limited | 5ET | T2A, 250V | IEC 60127-1<br>IEC 60127-3 | VDE 40015669 |
| X capacitor (CX1) (optional) | Cheng Tung Industrial Co., Ltd. | CTX series | Max 0.33µF, Min.250V,100°C X1 or X2 | IEC/EN 60384-14 | ENEC-01396-M1 |
| Alternate | Cheng Tung Industrial Co., Ltd. | CTX | Max 0.33µF, Min.250V,100°C X1 or X2 | UL 60384-14<br>(No such equivalent IEC available) | UL E193049 |
| Alternate | Tenta Electric Industrial Co. Ltd. | MEX | Max 0.33µF, Min.250V,100°C X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>(No such equivalent IEC available) | VDE 119119<br>UL E222911 |
| Alternate | Joey Electronics (Dong Guan) Co., Ltd. | MPX | Max 0.33µF, Min.250V,100°C X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>(No such equivalent IEC available) | VDE 40032481<br>UL E216807 |
| Alternate | Ultra Tech Xiphi Enterprise Co. Ltd. | HQX | Max 0.33µF, Min.250V,100°C X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>(No such equivalent IEC available) | VDE 40015608<br>UL E183780 |
| Alternate | Xiangtai Electronic (Shenzhen) Co., Ltd. | MKP/MPX | Max 0.33µF, Min.250V,100°C X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>(No such equivalent IEC available) | VDE 40036065<br>UL E357475 |
| Alternate | Carli Electronics Co., Ltd. | MPX | Max 0.33µF, Min.250V,100°C X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>(No such equivalent IEC available) | VDE 40008520<br>UL E120045 |
| Alternate | Dain Electronics Co., Ltd. | MEX, MPX, NPX | Max 0.33µF, Min.250V,100°C X1 or X2 | IEC/EN 60384-14<br>UL 60384-14<br>(No such equivalent IEC available) | VDE 40018798<br>UL E147776 |
| Y capacitor (CY1) (optional) | TDK Corporation | CD | Min.250V, Min.125°C Y1 | IEC/EN 60384-14<br>UL 60384-14<br>(No such equivalent IEC available) | VDE 40029780<br>UL E37861 |
| Alternate | Success Electronics Co., Ltd. | SB | Min.250V, Min.125°C, Y1 | IEC/EN 60384 14 | VDE 40037221 |
| | | SE | | IEC/EN 60384-14 | VDE 40037211 |
| | | SE, SB, SF | | UL 60384-14<br>(No such equivalent IEC available) | UL E114280 |



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| Alternate | Walsin Technology Corp. | AH<br>AH Series (#)(&) | Min.250V, Min.125°C Y1 | IEC/EN 60384-14<br>UL 60384-14 (No such equivalent IEC available) | VDE 40001804<br>UL E146544 |
| Alternate | Haohua Electronic Co. | CT7 | Min.250V, Min.125°C Y1 | IEC/EN 60384-14<br>UL 60384-14 (No such equivalent IEC available) | VDE 40003902<br>UL E233106 |
| Alternate | Xiangtai Electronic (Shenzhen) Co., Ltd. | YO-series<br>YOB | Min.250V, Min.125°C Y1 | IEC/EN 60384-14<br>UL 60384-14 (No such equivalent IEC available) | VDE 40036880<br>UL E319473 |
| Alternate | JUHONG ELECTRONICS LTD | JB- series | Min.250V, Min.125°C Y1 | IEC/EN 60384-14 | VDE 40035339 |
| Alternate | JUHONG ELE COMPANY | JB | Min.250V, Min.125°C Y1 | UL 60384-14 (No such equivalent IEC available) | UL E253194 |
| Alternate | Murata Mfg. Co., Ltd. | KX, 2nd reduced version<br>KX $$ | Y1, min. 250VAC, max 4700pF | IEC/EN 60384-14<br>UL 60384-14 (No such equivalent IEC available) | VDE 40002831<br>UL E37921 |
| Photo Coupler (U1) | Everlight Electronics Co., Ltd. | EL817 | Dti=0.5mm Int. dcr=6.0mm EXT.dcr=7.7mm,thermal cycling test,110°C | IEC/EN 60747-5-5 | VDE 132249 |
| Alternate | COSMO Electronics Corporation | K1010 / KP1010 | Dti=0.6mm Int. dcr=4.0mm, Ext.dcr=5.0mm,thermal cycling test,115°C | IEC/EN 60747-5-5 | VDE 101347 |
| Alternate | Lite-On Technology Corporation | LTV-817 | Dti=0.8mm EXT. dcr=7.8mm, thermal cycling test,100°C | IEC/EN 60747-5-5 | VDE 40015248 |
| Alternate | Fairchild Semiconductor Pte Ltd | H11A817B / FOD817B | Insulation voltage: 850V; Transient overvoltage: 6000V; CTI175; Int. Cr/ Ext. Cr: ≥7,0/ 7,0 mm; 30/110/21 | IEC/EN 60747-5-5 | VDE 40026857 |
| Alternate | Sharp Corporation Electronic | PC817 Option Y | Insulation voltage: 890V; Transient overvoltage: 9000V Int. Cr/ Ext. Cr: 7,62/ 7,62 mm; 30/100/21 | IEC/EN 60747-5-5 | VDE 40008087 |
| Alternate | Bright Led Electronics Corp. | BPC-817 (A/B/C/D/L), BPC-817 M, BPC-817 S | Dti=0.4mm EXT. dcr=7.0mm, thermal cycling test,100°C | IEC/EN 60747-5-5 | VDE 40007240 |



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| Alternate | Renesas Electronics Corporation | PS2561-1 | Dti=0.4mm Ext.dcr=7.0mm,thermal cycling test,100°C | IEC/EN 60747-5-5 | VDE 40008862 |
| Alternate | SHENZHEN ORIENT COMPONENTS CO LTD | ORPC-817Mx, ORPC-817Sx, ORPC-817x | Dti=0.4 mm Ext. dcr= 7.6 mm, thermal cycling test, 110°C, | IEC/EN 60747-5-5<br>UL 1577<br>(No such equivalent IEC available) | VDE 40029733<br>UL E323844 |
| Transformer (T1) | GlobTek | XF00936 | Class B | IS 13252 (Part 1): 2010 + A1: 2013 + A2 : 2015 / IEC 60950-1: 2005 + A1:2009 + A2 : 2013 | Tested within appliance |
| Alternate | ENG | XF00936 | Class B | IS 13252 (Part 1): 2010 + A1: 2013 + A2 : 2015 / IEC 60950-1: 2005 + A1:2009 + A2 : 2013 | Tested within appliance |
| Alternate | Haopuwei | XF00936 | Class B | IS 13252 (Part 1): 2010 + A1: 2013 + A2 : 2015 / IEC 60950-1: 2005 + A1:2009 + A2 : 2013 | Tested within appliance |
| Alternate | GlobTek | XF00946 | Class B | IS 13252 (Part 1): 2010 + A1: 2013 + A2 : 2015 / IEC 60950-1: 2005 + A1:2009 + A2 : 2013 | Tested within appliance |
| Triple insulated wire (Secondary) | Great Leoflon Industrial Co., Ltd. | TRW (B) Serie(s) | Class B, reinforced insulation | IEC/EN 62368-1 | VDE 136581 |
| | | TRW(B)-1 | | UL 2353<br>(No such equivalent IEC available) | UL E211989 |
| Alternate | KBI COSMOLINK CO., LTD. | TIW-M | Class B, reinforced insulation | IEC/EN 62368-1<br>UL 2353<br>(No such equivalent IEC available) | VDE 138053<br>UL E213764 |
| Alternate | Furukawa Electric Co., Ltd. | TEX-E | Class B, reinforced insulation | IEC/EN 62368-1<br>UL 2353<br>(No such equivalent IEC available) | VDE 006735<br>UL E206440 |
| Alternate | TOTOKU ELECTRIC CO LTD | TIW-2S | 130 °C | IEC/EN 62368-1<br>UL 2353<br>(No such equivalent IEC available) | VDE 40005152 |
| | | TIW-2X$+ | | | UL E166483 |
| Alternate | E&B TECHNOLOGY CO LTD | E&B-XXXB* , E&B-XXXB-1* | 130 °C | IEC/EN 62368-1 | VDE 40023473 |
| | | E&B-XXXB, E&B-XXXB-1 | | UL 2353<br>(No such equivalent IEC available) | UL E315265 |
| Alternate | SHENZHEN JIUDING NEW MATERIAL CO LTD | DTFW-B | Class B | IEC/EN 62368-1<br>UL 2353<br>(No such equivalent IEC available) | VDE 40037495<br>UL E357999 |
| Bobbin | CHANG CHUN PLASTICS CO LTD | T375J<br>T375HF | V-0, 150°C, thickness 0,45 mm min. | UL 94<br>(Flammability test equivalent to IEC 60695-11-10) | UL E59481 |
| Alternate | SUMITOMO BAKELITE CO LTD | PM-9820 | V-0, 150°C, thickness 0,45 mm min. | UL 94<br>(Flammability test equivalent to IEC 60695-11-10) | UL E41429 |
| Alternate | CHANG CHUN PLASTICS CO LTD | 4130 | V-0, 140°C, thickness 0,74 mm min. | UL 94<br>(Flammability test equivalent to IEC 60695-11-10) | UL E59481 |



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|---|---|---|---|---|---|
| Alternate | Showa Denko Materials Techno Service Co., Ltd. | CP-J-8800 | V-0, 150°C, thickness 0,45 mm min. | UL 94 (Flammability test equivalent to IEC 60695-11-10) | UL E42956 |
| Insulating tape | 3M COMPANY ELECTRICAL MARKETS DIV (EMD) | 1350F-1(b) | Min.130°C | UL 510A (No such equivalent IEC available) | UL E17385 |
| Alternate | 3M COMPANY ELECTRICAL MARKETS DIV (EMD) | 1350T-1 (b), 44 (a) | Min.130°C | UL 510A (No such equivalent IEC available) | UL E17385 |
| Alternate | BONDTEC PACIFIC CO LTD | 370S (b) | Min.130°C | UL 510A (No such equivalent IEC available) | UL E175868 |
| Alternate | JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD | PZ* (b), CT* (c)(g), CT (b)(g) | Min.130°C | UL 510A (No such equivalent IEC available) | UL E165111 |
| Alternate | JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD | JY25-A(b) | Min.130°C | UL 510A (No such equivalent IEC available) | UL E246950 |
| Alternate | CHANG SHU LIANG YI TAPE INDUSTRY CO LTD | LY-XX* | Min.130°C | UL 510A (No such equivalent IEC available) | UL E246820 |
| Choke (LF1) | GlobTek/ ENG Electric Co Ltd | NF00124 | 130 °C | IS 13252 (Part 1): 2010 + A1: 2013 + A2 : 2015 / IEC 60950-1: 2005 + A1:2009 + A2 : 2013 | Tested within appliance |
| Choke (LF2) | GlobTek / ENG Electric Co Ltd | NF00125 | 130 °C | IS 13252 (Part 1): 2010 + A1: 2013 + A2 : 2015 / IEC 60950-1: 2005 + A1:2009 + A2 : 2013 | Tested within appliance |

Supplementary information:

1. Evidence have been evaluated and checked for the agreed level of compliance as per the referred standard.



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| 1.5.2 / 4.3.6 | Table: Plug Dimensions | | | | | | P |
|---|---|---|---|---|---|---|---|
| Type of Plug: ☐ Two pin ☒ Three pin | | | | | | | |
| Reference points | Ratings | | | | | | |
| | ☒ 2.5A | | | ☐ 6A/10A | | ☐ 16A | |
| | Limits | | Measured | Limits | Measured | Limits | Measured |
| B | 19.10 ± 0.15 | | 19.02 | 19.1 ± 0.15 | -- | 25.4 ± 0.15 | -- |
| C | -- | | -- | 7.06 +0.025 -0.050 | -- | 8.71 +0.025 -0.050 | -- |
| D | 5.08 | +0.025 -0.050 | 5.08 | 5.08 +0.025 -0.050 | -- | 7.06 +0.025 -0.050 | -- |
| E | 15.9 | +1.04 -0.13 | 16.54 | 15.9 +1.04 -0.13 | -- | 20.6 +1.04 -0.13 | -- |
| F | -- | | -- | 20.6 +1.04 -0.13 | -- | 28.6 +1.04 -0.13 | -- |
| G | 7.94 (min.) | | 8.44 | 7.94 (min.) | -- | 9.52 (min.) | -- |
| Supplementary information: Above dimensional limits are as per IS 1293:2019 in mm,Earthing Pin is used as Dummy Pin | | | | | | | |

| 1.6.2 | TABLE: Electrical data (in normal conditions) | | | | | P |
|---|---|---|---|---|---|---|
| U (V) | I (A) | I rated (A) | P (W) | Fuse# | I fusible resistor Current(A) | Condition/status |
| 90 | 0.640 | -- | 30.64 | FS1 | 0.640 | Maximum Normal load (15V⎓ 2.66A) |
| 100 | 0.599 | 1.0 | 30.54 | FS1 | 0.599 | |
| 240 | 0.350 | 1.0. | 30.07 | FS1 | 0.350 | |
| 254.4 | 0.335 | -- | 30.25 | FS1 | 0.335 | |

| 2.1.1.5 | TABLE: Energy hazard measurement | | | | P |
|---|---|---|---|---|---|
| Voltage (rated) (V) | Current (rated) (A) | Voltage (max.) (V) | Current (max.) (A) | VA (max.)(VA) | |
| 15 | 2.66 | 11.9 | 4.2 | 49.98 | |
| Supplementary information: | | | | | |

| 2.1.1.7 | TABLE: Discharge test | | | | P |
|---|---|---|---|---|---|
| Condition | τ calculated (s) | τ measured (s) | t u→ 0V (s) | Comments | |
| Line to neutral | -- | -- | -- | V0= 335V, 37% of V0=123.95V, After 1 sec V0=42V | |
| Supplementary information: Tested at 254.4V, 50Hz(Including tolerance), V0=Peak working voltage. | | | | | |



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| 2.2.2 | TABLE: SELV measurement (under normal conditions) | | | P |
|---|---|---|---|---|
| Transformer | Location | Voltage (max.) (V) | | Voltage Limitation Component |
| | | V peak | V d.c. | |
| Transformer (T1) | Capacitor (C3) | -- | 15.16 | Capacitor (C3) |
| Transformer (T1) | Capacitor (C4) | -- | 15.15 | Capacitor (C4) |
| Supplementary information: | | | | |

| 2.2.3 | TABLE: SELV measurement (under fault conditions) | P |
|---|---|---|
| Location | Voltage (max.) (V) | Comments |
| Capacitor (C3) | 0 | -- |
| Capacitor (C4) | 0 | -- |
| Supplementary information: | | |

| 2.4.2 | TABLE: Limited current circuit measurement | | | | P |
|---|---|---|---|---|---|
| Location | Voltage (V) | Current (mA) | Freq. (kHz) | Limit (mA) | Comments |
| Y- Capacitor (CY1) | 0.069 | 0.146 | 0.05 | 0.7 | -- |
| Supplementary information: | | | | | |

| 2.5 | TABLE: Limited power source measurement | | P |
|---|---|---|---|
| | Limits | Measured | Verdict |
| According to Table 2B normal condition : (normal condition (15V ⎓ 2.66A) output) | | | |
| current (in A) | ≤8 | 4.2 | P |
| apparent power (in VA) | ≤100 | 49.98 | P |
| According to Table 2B (single fault condition : output S-C) | | | |
| current (in A) | ≤8 | 0 | P |
| apparent power (in VA) | ≤100 | 0 | P |
| Supplementary information: | | | |

| 2.6.3.4 | TABLE: Resistance of earthing measurement | N/A |
|---|---|---|
| Location | Resistance measured (mΩ) | Comments |
| -- | -- | -- |
| Supplementary information: Class II equipment; No such earthing used. | | |



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<OR>

| 2.6.3.4 | TABLE: Resistance of earthing measurement | N/A |
|---|---|---|
| Location | Voltage drop (V) | Comments |
| -- | -- | -- |
| Supplementary information: Class II equipment; No such earthing used. | | |

| 2.10.2 | Table: Working voltage measurement | | P |
|---|---|---|---|
| Location | RMS voltage (V) | Peak voltage (V) | Comments |
| T1 Pin 1-Pin 7 | 211 | 325 | -- |
| T1 Pin 1-Pin 6 | 232 | 333 | -- |
| T1 Pin 2-Pin 7 | 221 | 311 | -- |
| T1 Pin 2-Pin 6 | 215 | 329 | -- |
| T1 Pin 4-Pin 7 | 195 | 328 | -- |
| T1 Pin 4-Pin 6 | 228 | 328 | -- |
| T1 Pin 3-Pin 7 | 219 | 321 | -- |
| T1 Pin 3-Pin 6 | 234 | 333 | -- |
| **Line to Neutral** | **235** | **335** | **max** |
| Supplementary information: | | | |

| 2.10.3 and 2.10.4 | TABLE: Clearance and creepage distance measurements | | | | | P |
|---|---|---|---|---|---|---|
| Clearance (cl) and creepage distance (cr) at/of/between: | U peak (V) | U r.m.s. (V) | Required cl (mm) | cl (mm) | Required cr (mm) | cr (mm) |
| Functional: | | | | | | |
| Trace under primary fusible resistor (FS1) | 335 | 235 | 1.5 | 4.5 | 2.5 | 4.5 |
| Basic / supplementary: | | | | | | |
| -- | -- | -- | -- | -- | -- | -- |
| Reinforced: | | | | | | |
| Transformer (primary pin - secondary pin) | 335 | 235 | 4.0 | 26.02 | 5.0 | 26.02 |
| Y-Capacitor(CY1) | 335 | 235 | 4.0 | 9.44 | 5.0 | 9.44 |
| Supplementary information: | | | | | | |



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| 2.10.5 | TABLE: Distance through insulation measurements | P |
|---|---|---|

| Distance through insulation (DTI) at/of: | U peak (V) | U r.m.s. (V) | Test voltage (V) | Required DTI (mm) | DTI (mm) |
|---|---|---|---|---|---|
| Basic: | | | | | |
| -- | -- | -- | -- | -- | -- |
| Supplementary: | | | | | |
| -- | -- | -- | -- | -- | -- |
| Reinforced: | | | | | |
| Enclosure | 335 | 235 | 3000 | 0.4 | 2.48 |
| Insulation Tape | 335 | 235 | 3000 | Two Layers | Six Layers |
| Supplementary information: | | | | | |

| 4.3.8 | TABLE: Batteries | N/A |
|---|---|---|
| The tests of 4.3.8 are applicable only when appropriate battery data is not available | No such battery used | N/A |
| Is it possible to install the battery in a reverse polarity position? | | N/A |

| | Non-rechargeable batteries | | | Rechargeable batteries | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Discharging | | Un-intentional charging | Charging | | Discharging | | Reversed charging | |
| | Meas. current | Manuf. Specs. | | Meas. current | Manuf. Specs. | Meas. current | Manuf. Specs. | Meas. current | Manuf. Specs. |
| Max. current during normal condition | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Max. current during fault condition | -- | -- | -- | -- | -- | -- | -- | -- | -- |

| Test results: | | Verdict |
|---|---|---|
| - Chemical leaks | -- | N/A |
| - Explosion of the battery | -- | N/A |
| - Emission of flame or expulsion of molten metal | -- | N/A |
| - Electric strength tests of equipment after completion of tests | -- | N/A |
| Supplementary information: No such battery used | | |



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| 4.5 | TABLE: Temperature rise measurements | P |
|---|---|---|

Temperatures were measured according cl. 1.4.5. Test in condition A and B at continuous normal operation as for power input measurements of table 1.6.2 resulted in highest temperature values.
Temperatures are calculated according cl. 1.4.12.3 with regard to the maximum ambient operation temperature of 40 °C($T_{ma}$), as specified by the manufacturer.

| test voltage(s) (V): | | A: V= 90, 50Hz | B: V= 254.4, 50Hz |
|---|---|---|---|
| $t_{amb1}$ (°C): | A: 27.4 B:27.8 | $t_{amb2}$ (°C): | A: 27.4 B:27.8 |

| Temperature of part/at: (measured with thermocouples) | Measured temperature rise at $T_{amb}$ | | Calculated temperature at $T_{ma}$ | | Allowed $T_{max}$ (°C) |
|---|---|---|---|---|---|
| | A dT (K) | B dT (K) | A T (°C) | B T (°C) | |
| Transformer T1 coil | 25.7 | 26.8 | 65.7 | 66.8 | 110 |
| PCB | 22.0 | 19.7 | 62.0 | 59.7 | 130 |
| Enclosure (outside) | 11.7 | 9.6 | 51.7 | 49.6 | 95 |
| Enclosure (inside) | 21.3 | 17.9 | 61.3 | 57.9 | 95 |
| Choke (LF1) | 27.1 | 18.7 | 67.1 | 58.7 | 130 |

Supplementary information: Thermocouple Method Used

Temperatures measured with winding resistance method: Not used

| temperature T of winding: (winding resistance method) | (V) | R1 (Ω) | R2(Ω) | T(°C) | allowed $T_{max}$ (°C) | insulation class |
|---|---|---|---|---|---|---|
| | | | | | | |

Supplementary information:

| 4.5.5 | TABLE: Ball pressure test of thermoplastic parts | | P |
|---|---|---|---|
| | Allowed impression diameter (mm) .....: | ≤2 mm | |

| Part | Test temperature (°C) | Impression diameter (mm) |
|---|---|---|
| Enclosure | 125 | 0.69 |

Supplementary information:

| 4.6.1, 4.6.2 | Table: Enclosure opening measurements | N/A |
|---|---|---|

| Location | Size (mm) | Comments |
|---|---|---|
| -- | -- | -- |

Supplementary information: No openings provided



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| 4.7 | Table: Resistance to fire | | | | P |
|---|---|---|---|---|---|
| **Part** | **Manufacturer of material** | **Type of material** | **Thickness (mm)** | **Flammability class** | **Evidence** |
| PCB | * | * | 1.24 | * | * |
| Enclosure | * | * | 2.48 | * | * |
| Supplementary information: * See table 1.5.1 | | | | | |

| 5.1.6 | TABLE: Touch current and protective conductor current measurement | | | | | P |
|---|---|---|---|---|---|---|
| | Test voltage (V) ..... : | AC 254.4V | | | | — |
| **Measurement location** | **Polarity (normal) [mA]** | | **Polarity (reverse) [mA]** | | **Limit (mA)** | **Comments** |
| **(Terminal A connected to...)** | **Switch: ON** | **Switch: OFF** | **Switch: ON** | **Switch: OFF** | | |
| L/N to Enclosure with metal foil | 0.0095 | -- | 0.0163 | -- | 0.25 | -- |
| Supplementary information: | | | | | | |

| 5.2 | TABLE: Electric strength tests, impulse tests and voltage surge tests | | | P |
|---|---|---|---|---|
| **Test voltage applied between:** | **Voltage shape (AC, DC, impulse, surge)** | **Test voltage (V)** | **Breakdown Yes / No** | |
| Functional: | | | | |
| Line and neutral (FS1 open) | AC | 1500 | No | |
| Basic / supplementary: | | | | |
| -- | -- | -- | -- | |
| Reinforced: | | | | |
| Primary to core and secondary T1 | AC | 3000 | No | |
| L/N and enclosure cover with metal foil | AC | 3000 | No | |
| Insulation tape | AC | 3000 | No | |
| Supplementary information: | | | | |



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| 5.3 | TABLE: Fault condition tests | | P |
|---|---|---|---|
| | Ambient temperature (°C) .....: | 27.1°C | — |
| | Power source for EUT: Manufacturer, model/type, output rating .....: | See table 1.5.1 | — |

| Component No. | Fault | Supply voltage (V) | Test time | Fusible Resistor # | Fuse current (A) | Observation |
|---|---|---|---|---|---|---|
| Capacitor (C3) | Short Circuit | 254.4 Vac | 1sec | FS1 | -- | EUT shutdown Immediately<br>No fire no hazard |
| Output | Overload | 254.4 Vac | 2 hrs | FS1 | -- | Temperature on transformer coil : 84.5°C<br>No damage, No hazards |
| Transformer (primary pin 1-Secondary pin 6) | Short Circuit | 254.4 Vac | 1sec | FS1 | -- | EUT shutdown immediately<br>No fire no hazard |
| Supplementary information: | | | | | | |



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| C.2 | TABLE: Insulation of transformers | | | | | | P |
|---|---|---|---|---|---|---|---|
| | Transformer part name ..... : | | Isolating Transformer T1 | | | | |
| | Manufacturer ..... : | | See table 1.5.1 | | | | |
| | Type..... : | | See table 1.5.1 | | | | |
| **Clearance (cl) and creepage distance (cr) at/of/between:** | **U peak (V)** | **U r.m.s. (V)** | **Required cl (mm)** | **cl (mm)** | **Required cr (mm)** | **cr (mm)** | |
| Primary /input winding and secondary/output winding (internal) | 335 | 235 | 4.0 | TIW | 5.0 | TIW | |
| Primary/input winding and core (internal) | | | 4.0 | TIW | 5.0 | TIW | |
| Secondary/output winding and core (internal) | | | 4.0 | TIW | 5.0 | TIW | |
| Primary/input part and secondary/output part (external) | | | 4.0 | 26.02 | 5.0 | 26.02 | |
| Primary/input part and core (external) | | | 4.0 | TIW | 5.0 | TIW | |
| Primary/input part and secondary/output winding (external) | | | 4.0 | TIW | 5.0 | TIW | |
| Secondary/output part and core (external) | | | 4.0 | TIW | 5.0 | TIW | |
| Secondary/output part and primary/input winding (external) | | | 4.0 | TIW | 5.0 | TIW | |
| | | | 4.0 | TIW | 5.0 | TIW | |
| **Description of design:** | | | | | | | |
| (a) Bobbin | | | | | | | |
| Primary/input pins ..... : | | | 1-5-2-4-3 | | | | |
| Secondary/output pins ..... : | | | 7-6 | | | | |
| Material (manufacturer, type, ratings) ..... : | | | See Table 1.5.1 | | | | |
| Thickness (mm) ..... : | | | 0.69 mm | | | | |
| (b) General | | | | | | | |
| Supplementary information: TIW : Triple insulated wire | | | | | | | |

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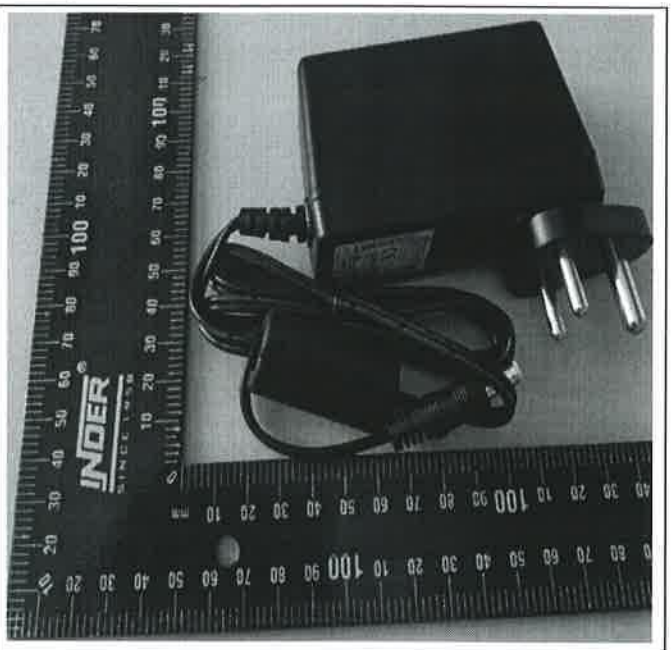
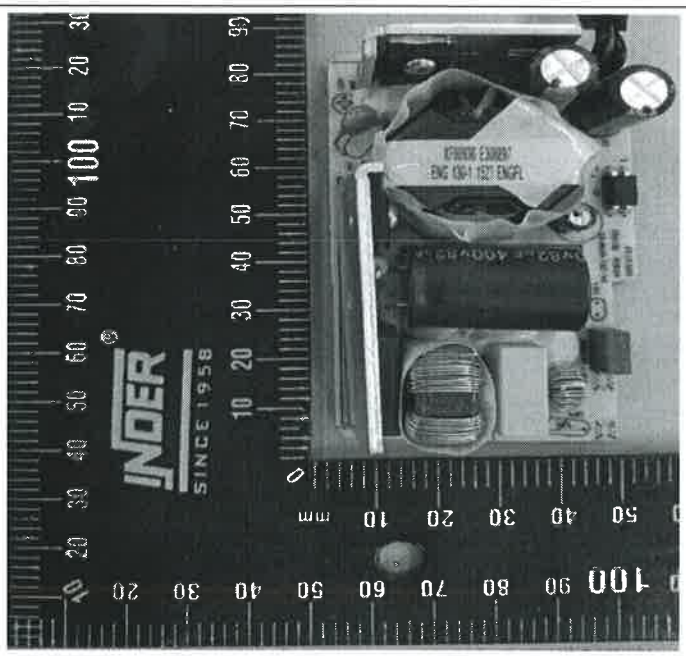
**PHOTOGRAPHS**

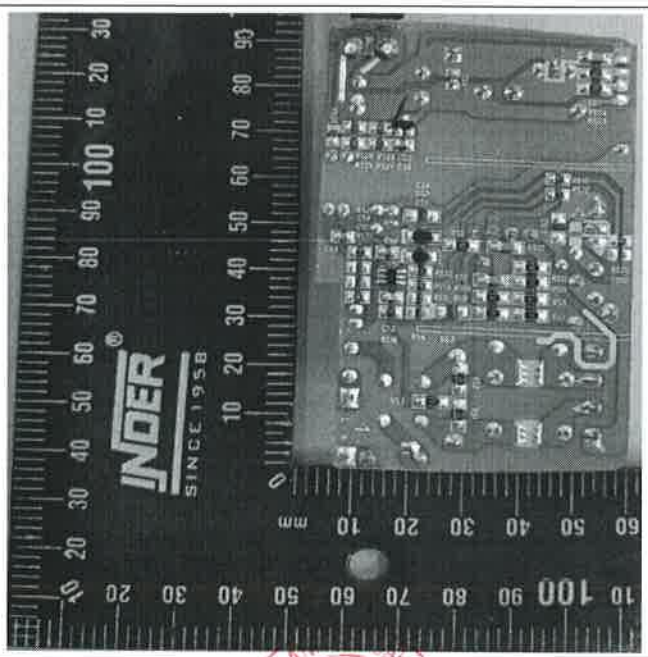
External View 1



External View 2



PCB Front View



PCB Back View

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