

APPLICATION FOR LOW VOLTAGE DIRECTIVE
On Behalf of

UNI-TREND TECHNOLOGY (CHINA) LIMITED

Non-Contact Phase Detectors

Model No.: UT262C

Prepared for: UNI-TREND TECHNOLOGY (CHINA) LIMITED
No.6 Gong Ye Bei 1 st Road, Songshan Lake National High-Tech
industrial Development Zone, Dongguan City, Guangdong Province
China

Prepared By: Shenzhen AOV Testing Technology Co., Ltd.
2-6/F, No.5, Yuantou lane, Tanglang, Taoyuan Street, Nanshan District,
Shenzhen, Guangdong, China

Date of Test: August 22-September 05, 2014

Date of Report: September 05, 2014

Report Number: A001E140822011S

| EN 61010-1 | | | |
|------------|-------------------|---------------|---------|
| Clause | Requirement +Test | Result-Remark | Verdict |

TEST REPORT

EN 61010-1

**Safety requirements for electrical equipment for measurement, control, and laboratory use
Part 1: General requirements**

Report Reference No.....: A001E140822011S
Compiled by.....: Raymond Wang *Raymond*
Approved by.....: Barry Yan *Barry*
Date of issue.....: September 05, 2014

Testing Laboratory name: ShenZhen AOV Testing Technology Co., Ltd.
Address.....: 2-6/F, No.5, Yuantou Lane, Tanglang, Taoyuan Street, Nanshan District, Shenzhen, Guangdong, China
Testing location: Same as above

Applicant's name.....: UNI-TREND TECHNOLOGY (CHINA) LIMITED
Address.....: No.6 Gong Ye Bei 1 st Road, Songshan Lake National High-Tech industrial Development Zone, Dongguan City, Guangdong Province China

Test specification:
Standard.....: EN 61010 -1:2010 EN 61010-2-032:2012
Test procedure: LVD Approval
Non-standard test method: N.A.

Test item description.....: Non-Contact Phase Detectors
Trademark.....: N.A.
Model/Type reference.....: UT262C
Manufacturer: N.A.
Address: N.A.

Rating(s).....: Max. measuring voltage: AC1000V
Frequency: 40~70Hz;
Measurement category: CAT III 600V
Power supply: DC3V(2×R6P)

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| Test item particulars | | | |
| Type of item tested..... | Measurement | | |
| Description of equipment function | UT262C | | |
| | 1. Phase detect | | |
| | 2. Live circuit | | |
| | 3. Off position | | |
| | 4. Line maintenance | | |
| Installation/overvoltage category | CAT III 600V | | |
| Pollution degree | 2 | | |
| Environmental rating | Operation temperature: 0°C~55°C | | |
| | Storage temperature: -20°C~60°C | | |
| Equipment mobility..... | Portable | | |
| Connection to mains supply | N.A | | |
| Operating conditions | Continuous | | |
| Protection against ingress of water | No marking(IP2X) | | |
| Accessories and detachable parts included in the evaluation | N.A | | |
| Options | N.A. | | |
| Test case verdicts | | | |
| Test case does not apply to the test object..... | : N(N/A) | | |
| Test item does meet the requirement..... | : P(Pass) | | |
| Test item does not meet the requirement | : F(Fail) | | |
| Testing | | | |
| Date of receipt of test item | : August 22, 2014 | | |
| Date(s) of performance of test..... | : August 22- September 05, 2014 | | |
| General remarks | | | |
| This test report shall not be reproduced except in full without the written approval of the testing laboratory. | | | |
| The test results presented in this report relate only to the item tested. | | | |
| "(see remark #)" refers to a remark appended to the report. | | | |
| "(see appended table)" refers to a table appended to the report. | | | |
| Throughout this report a comma is used as the decimal separator. | | | |
| Summary of test results(information/comments): | | | |
| All tests applied on the model UT262C, unless specified otherwise. | | | |
| EUT comply with EN 61010 -1:2010 & EN 61010-2-032:2012 | | | |

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| | TABLE: 1 – Documents attached to this report | P |
| Document No. | Document description | Page Numbers |
| Appendix | Photo documentation | 45-47 |

| Component | Manufacturer | Component's Model | Technical Data | UL Yellow Card No. |
|------------|---|-------------------|----------------------------|---------------------|
| PCB | GUANGZHOU TAIHE PRINTED CIRCUIT BOARD LIMITED | THD1 | 130°C, flammability of V-0 | E221000 |
| Enclosure | (Various) | (Various) | (Various) | Test with appliance |
| Inner wire | (Various) | (Various) | (Various) | Test with appliance |

| | | | |
|----------|---|-------------------------------------|---|
| 5 | MARKING AND DOCUMENTATION | | — |
| 5.1.1 | General | | P |
| | Required equipment marking are: | | P |
| | Visible: | | P |
| | From the exterior; or | CE are marked on apparatus surface. | P |
| | After removing a cover; or | | N |
| | Opening a door | | N |
| | After removal from a rack or panel | | N |
| | Not put on parts which can be removed by a OPERATOR | | P |
| | Letter symbols (IEC 60027) used | | P |
| | Graphic symbols (IEC 61010-1: Table 1) used | Refer to copy of marking plate | P |
| 5.1.2 | Identification | | P |
| | Equipment is identified by: | | P |
| 5.1.2 a) | Manufacturer' or supplier's name or trade mark | UNI-T | P |
| 5.1.2 b) | Model number, name or other means | UT262C | P |
| | Manufacturing location identified | Single manufacturing location | N |
| 5.1.3 | Mains supply | Battery | P |
| | Equipment is marked as follows: | | — |

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| 5.1.3 a) | Nature of supply: | | P |
| | 1) a.c. RATED mains frequency or range of frequencies | | N |
| | 2) d.c. with symbol 1 | | P |
| 5.1.3 b) | RATED supply voltage(s) or range | DC3V | P |
| 5.1.3 c) | Max. RATED power (W or VA) or input current: | | N |
| | The measured value not more than 110% | | N |
| | If more than one voltage range: | | N |
| | Separate values marked; or | | N |
| | Values differ by less than 20% | | N |
| 5.1.3 d) | OPERATOR-set for different RATED supply voltages: | | N |
| | Indicates the equipment set voltage | | N |
| | PORTABLE EQUIPMENT indication is visible from the exterior | | N |
| | Changing the setting changes the indication | | N |
| 5.1.3 e) | Accessory mains socket-outlets accepting standard mains plugs are marked: | No socket-outlets part | N |
| | With the voltage if it is different from the mains supply voltage: | | N |
| | For use only with specific equipment | | N |
| | If not marked for specific equipment it is marked with: | | N |
| | The maximum RATED current or power; or | | N |
| | Symbol 14 with full details in the documentation | Symbol  used. | N |
| 5.1.4 | Fuses | No such component | N |
| | OPERATOR replaceable fuse marking (see also 5.4.5): | | N |
| 5.1.5 | TERMINALS, connections and operating devices | | P |
| | Where necessary for safety, indication of purpose of TERMINALS, connectors, controls and indicators marked | | P |
| | If insufficient space, symbol 14 used | Symbol 14 marked. | P |
| 5.1.5.1 | TERMINALS | | N |
| | Mains supply TERMINAL identified | | N |
| 5.1.5.1 a) | FUNCTIONAL EARTH TERMINALS(symbol 5 used) | | N |
| 5.1.5.1 b) | PROTECTIVE CONDUCTOR TERMINALS: | | N |

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| Clause | Requirement +Test | Result-Remark | Verdict |
| | Symbol 6 is placed close to or on the TERMINAL; OR | | N |
| | Part of appliance inlet | | N |
| 5.1.5.1 c) | TERMINALS of measuring and control circuits (symbol 7 used) | | N |
| 5.1.5.1 d) | HAZARDOUS LIVE TERMINALS supplied from the interior | | N |
| | Standard MAINS socket outlet; or | | N |
| | RATINGS marked; or | | N |
| | Symbol 14 used | | N |
| 5.1.5.1 e) | ACCESSIBLE FUNCTIONAL EARTH TERMINALS; | | N |
| | Self-evident; or | | N |
| | Indication (symbol 8 acceptable) | | N |
| 5.1.5.2 | Measuring circuit TERMINALS | | P |
| | For TERMINALS other than those permanently connected and not ACCESSIBLE: | | P |
| | RATED voltage or current marked | | P |
| | Unless clear indication that below limits: | | P |
| | Maximum RATED voltage to earth is marked; or | | P |
| | For specific connection to other equipment TERMINALS only, and means for identifying provided | | N |
| | Appropriate measurement category marked (CAT II, CAT III or CAT IV); or | | P |
| | No measurement category marked (CAT I) | | N |
| | Required markings are adjacent to TERMINALS; OR | | P |
| | If insufficient space: | | N |
| | On the RATING plate or scale plate; or | | P |
| | TERMINAL is marked with symbol 14 | | P |
| 5.1.6 | Switch and circuit-breakers | Not power supply switch | N |
| | If disconnecting device, on or off position marked | | N |
| 5.1.7 | Equipment protected by DOUBLE INSULATION or REINFORCED INSULATION | | P |
| | Protected throughout (symbol 11) | | P |
| | Only partially protected (symbol 11 not used) | | N |
| 5.1.8 | Field-wiring TERMINAL boxes | No such construction | N |
| | If TERMINAL or ENCLOSURE exceeds 60°C: | | N |

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|------------|--|----------------------------|---------|
| Clause | Requirement +Test | Result-Remark | Verdict |
| | Cable temperature RATING marked | | N |
| | Marking visible or beside TERMINAL | | N |
| 5.2 | Warning markings | | P |
| | Visible when ready for NORMAL USE | Caution symbol are visible | P |
| | Are near or on applicable parts | On surface of apparatus | P |
| | Symbols and text correct dimensions and colour | | P |
| | If necessary marked with symbol 14 | | P |
| | Statement to isolate or disconnect | | N |
| 5.3 | Durability of markings | | P |
| | The required markings remain clear and legible NORMAL USE | (see appended table) | P |
| 5.4 | Documentation | | P |
| 5.4.1 | General | | P |
| | Equipment is accompanied by documentation which includes: | Refer to users' manual. | P |
| 5.4.1 a) | Intended use | | P |
| 5.4.1 b) | Technical specification | | P |
| 5.4.1 c) | Instructions for use | | P |
| 5.4.1 d) | Name and address of manufacturer or supplier | | P |
| 5.4.1 e) | Information specified in 5.4.2 to 5.4.5 | See 5.4.2 to 5.4.5 | P |
| 5.4.1 f) | If marking of TERMINALS required, definition of measurement category | | N |
| 5.4.1 g) | If CAT 1: | | N |
| | Warning | | N |
| | RATINGS | | N |
| | Warning statements and a clear explanation of warning symbols: | | N |
| | Provided in the documentation; or | | N |
| | Information is marked on the equipment | | N |
| 5.4.2 | Equipment RATINGS | | P |
| | Documentation includes: | | P |
| 5.4.2 a) | Supply voltage or voltage range | | P |
| | Frequency or frequency range | | N |
| | Power or current RATING | | N |
| 5.4.2 b) | Description of all input and output connections | | N |

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| Clause | Requirement +Test | Result-Remark | Verdict |
| 5.4.2 c) | RATING of insulation of external circuits, when such circuits are nowhere ACCESSIBLE | No external circuit | N |
| 5.4.2 d) | Statement of the range of environmental conditions | Environmental indicated | P |
| 5.4.2 e) | Degree of protection (IEC 60529) | IP20 | P |
| 5.4.3 | Equipment installation | | N |
| | Documentation includes instruction for: | | N |
| 5.4.3 a) | Assembly, location and mounting | | N |
| 5.4.3 b) | Protective earthing | | N |
| 5.4.3 c) | Connections to the supply | Battery compartment | N |
| 5.4.3 d) | Permanently connected equipment | | N |
| | 1) Supply wiring requirements | | N |
| | 2) If external switch or circuit-breaker, requirements and location recommendation | | N |
| 5.4.3 e) | Ventilation requirements | | N |
| 5.4.3 f) | Special services (e.g. air, cooling liquid) | | N |
| 5.4.3 g) | Maximal sound power level | No sound produced | N |
| 5.4.3 h) | Instructions about sound pressure | | N |
| 5.4.3 i) | Permanently connected measuring terminals: | | N |
| | Measurement category | | N |
| | Rated maximum working voltage or current | | N |
| 5.4.4 | Equipment operation | | P |
| | Instructions for use include: | | P |
| 5.4.4 a) | Identification of operating controls | | P |
| 5.4.4 b) | Positioning for disconnection | | N |
| 5.4.4 c) | Interconnection | | N |
| 5.4.4 d) | Specification of intermittent operation limits | See user's manual. | P |
| 5.4.4 e) | Explanation of symbols used | Symbols have explanation in user manual | P |
| 5.4.4 f) | Replacement of consumable materials | R6P batteries. | P |
| 5.4.4 g) | Cleaning and decontamination (see 11.2) | See user manual | P |
| 5.4.4 h) | Listing of any poisonous or injurious gases and quantities | | N |
| 5.4.4 i) | Risk-reduction procedures relating to flammable liquids | No flammable liquids. | N |
| | A statement about protection impairment if used in a manner not specified by the manufacturer | | N |
| 5.4.5 | Equipment maintenance | | P |

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| Clause | Requirement +Test | Result-Remark | Verdict |
| | instructions include: | | P |
| | Sufficient preventive maintenance and inspection information | | P |
| | Replacement of hoses, etc. | | N |
| | Specific battery type | | P |
| | Any manufacturer specified parts | | N |
| | RATING and characteristics of fuses | | N |

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| 6 | PROTECTION AGAINST ELECTRIC SHOCK | | — |
| 6.1 | General | | P |
| 6.1.1 | Requirements | | P |
| | ACCESSIBLE parts not HAZARDOUS LIVE in NORMAL CONDITION and SINGLE FAULT CONDITION | All accessible parts are not hazards live | P |
| | Conformity is checked by the determination of 6.2 and 6.3 followed by the tests of 6.4 to 6.11 | | P |
| 6.1.2 | Exceptions | | N |
| | Capacitance test | Internal capacitor no risk of charge | N |
| | Parts not HAZARDOUS LIVE 10s after interruption of supply | (see Forms A.6 and A.7) | N |
| 6.2 | Determination of ACCESSIBLE parts | (See Form A.6) | P |
| 6.2.1 | General examination | (See Form A.6) | P |
| 6.2.2 | Opening above parts that are HAZARDOUS LIVE | No such openings. | N |
| 6.2.3 | Opening for pre-set controls | | N |
| 6.3 | Permissible limits for ACCESSIBLE parts | | P |
| 6.3.1 | Values in NORMAL CONDITION | (See Form A.7) | P |
| 6.3.2 | Values in SINGLE FAULT CONDITION | (See Form A.8) | P |
| 6.4 | Protection in NORMAL CONDITION (see 6.2, 6.3.1, 6.7, 6.8 and 8.1) | All circuit inside the apparatus are enclosed by the enclosure by reinforced insulation. See clause 6.8 and 8.1 | P |
| 6.5 | Protection in SINGLE FAULT CONDITION | (See Form A.2) | P |
| | Additional protection is provided by: | | N |
| | One or more of 6.5.1 to 6.5.3, or | | N |
| | Automatic disconnection of the supply(6.5.4) | | N |
| 6.5.1 | Protective BONDING | | N |

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| Clause | Requirement +Test | Result-Remark | Verdict |
| | ACCESSIBLE conductive parts: | | N |
| | Separated by DOUBLE INSULATION or REINFORCED INSULATION; or | | N |
| | Bonded to the PROTECTIVE CONDUCTOR TERMINAL; or | | N |
| | Separated by screen or BARRIER bonded to PROTECTIV CONDUCTOR TERMINAL from parts which are HAZARDOUS LIVE | | N |
| 6.5.1.1 | Integrity of PROTECTIVE BONDING | | N |
| 6.5.1.1 a) | PROTECTIVE BONDING consists of directly connected structural parts or discrete conductors or both; and withstands thermal and dynamic stresses | | N |
| 6.5.1.1 b) | Soldered connections: | No subject to mechanical stress. | N |
| | Independently secured | | N |
| | Not used for other purposes | | N |
| | Screw connections are secured | | N |
| 6.5.1.1 c) | PROTECTIVE BONDING not interrupted | | N |
| 6.5.1.1 d) | Any moveable connectionspecifically designed, and meets 6.5.1.3 | | N |
| 6.5.1.1 e) | No external metal braid of cables used | | N |
| 6.5.1.1 f) | If MAINS supply passes through: | | N |
| | Means provided for passing protective conductor; | | N |
| | Impedance meets 6.5.1.3 | | N |
| 6.5.1.1g) | Protective conductors bare or insulated, if insulated, green/yellow | | N |
| | Exceptions: | | N |
| | 1) earthing braids; | | N |
| | 2) internal protective conductors etc.; | | N |
| | Green/yellow not used for other purposes | | N |
| 6.5.1 h) | TERMINAL suitable, and meets 6.5.1.2 | | N |
| 6.5.1.2 | PROTECTIVE CONDUCTOR TERMINAL | | N |
| 6.5.1.2 a) | Contact surfaces are metal | | N |
| 6.5.1.2 b) | Appliance inlet used | | N |
| 6.5.1.2 c) | For rewirable cords and PERMANENTLY CONNECTED EQUIPMENT, PROTECTIVE CONDUCTOR TERMINAL is close to MAINS supply TERMINALS | | N |

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| Clause | Requirement +Test | Result-Remark | Verdict |
| 6.5.1.2 d) | If no MAINS supply is required, any PROTECTIVE CONDUCTOR TERMINAL: | | N |
| | Is near TERMINALS of circuit for which protective earthing is necessary | | N |
| | External if other TERMINALS external | | N |
| 6.5.1.2 e) | Equivalent current-carrying capacity to MAINS supply TERMINALS | | N |
| 6.5.1.2 f) | If plug-in, makes first and breaks last | | N |
| 6.5.1.2 g) | If also used for other bonding purposes, protective conductor: | | N |
| | Applied first; | | N |
| | Secured independently; | | N |
| | Unlikely to be removed by servicing; or | | N |
| | Warning marking requires replacement of protective conductor | | N |
| 6.5.1.2h) | Protective conductor of measuring circuit: | | N |
| | 1) Current RATING; | | N |
| | 2) PROTECTIVE BONDING: | | N |
| | Not interrupted; or | | N |
| | Indirect bonding used (see 6.5.1.5) | | N |
| 6.5.1.2 i) | FUNCTIONAL EARTH TERMINALS allow independent connection | | N |
| 6.5.1.2j) | If a binding screw: | No such screw used. | N |
| | Suitable size for bond wire | | N |
| | Not smaller than M 4 (No. 6) | | N |
| | At least 3 turns of screw engaged | | N |
| | Contact pressure not capable of reduction by deformation of materials | | N |
| | Passes tightening torque test | | N |
| 6.5.1.3 | Impedance of plug-connected equipment | | N |
| 6.5.1.4 | Bonding impedance of PERMANENTLY CONNECTED EQUIPMENT | | N |
| 6.5.1.5 | Indirect bonding for measurement and test equipment | | N |
| 6.5.2 | DOUBLE INSULATION and REINFORCED INSULATION (see 6.7, 6.8 and 6.9.2) | Enclosure is reinforced insulation. | P |
| 6.5.3 | PROTECTIVE IMPEDANCE | No such components | N |
| 6.5.3 a) | HIGH INTEGRITY single component (see 14.6); or | | N |

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| Clause | Requirement +Test | Result-Remark | Verdict |
| 6.5.3 b) | A combination of components used; or | | N |
| 6.5.3 c) | A combination of BASIC INSULATION and current- or voltage-limiting device used | | N |
| | Components, wires and connections are RATED as required | | N |
| 6.5.4 | Automatic disconnection of the supply | | N |
| | If used, it meets: | | N |
| 6.5.4 a) | Supplied with the equipment; or | | N |
| | Specified by installation instruction | | N |
| 6.5.4 b) | RATED disconnecting time within limit specified | | N |
| 6.5.4 c) | RATED for maximum RATED LOAD | | N |
| 6.6 | Connections to external circuits | Not need connected to external circuits | N |
| 6.6.1 | General | | N |
| 6.6.1 a) | The external circuits | | N |
| 6.6.1 b) | The equipment | | N |
| | Separation of circuits provided; or | | N |
| | Short circuit of separation does not cause a Hazard | | N |
| | Instructions or markings include: | | N |
| | 1) RATED conditions for TERMINAL | | N |
| | 2) Required RATING of external circuit insulation | | N |
| 6.6.2 | TERMINALS for external circuits | | N |
| | TERMINALS which receive a charge from an internal capacitor; measured voltage (V); charge ... : | | N |
| | High voltage TERMINALS energized from the interior are: | | N |
| | Not ACCESSIBLE if connected; or | | N |
| | Unmated HAZARDOUS LIVE TERMINALS not ACCESSIBLE ; or | | N |
| | marked with symbol 12 | | N |
| 6.6.3 | Circuits with TERMINALS which are HAZARDOUS LIVE | | N |
| | Not connected to ACCESSIBLE conductive parts; or | | N |
| | Connected to ACCESSIBLE conductive parts, but are not MAINS CIRCUITS and have one TERMINAL contact at earth potential | | N |
| | No ACCESSIBLE conductive parts are HAZARDOUS LIVE | | N |

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| Clause | Requirement +Test | Result-Remark | Verdict |
| 6.6.4 | Accessible terminals for stranded conductors | No terminals for stranded conductors connection. | N |
| 6.6.4 a) | No risk of accidental contact because: | | N |
| | Located or shielded | | N |
| | Self-evident or marked whether connected to ACCESSIBLE conductive parts | | N |
| 6.6.4 b) | ACCESSIBLE TERMINALS will not work loose | | N |
| 6.7 | CLEARANCES and CREEPAGE DISTANCES | (See Form A.5 and A.13) | P |
| 6.8 | Procedure for dielectric strength tests | (See Form A.5 and A.14) | P |
| 6.9 | Constructional requirements for protection against electric shock | | P |
| 6.9.1 | General; | | P |
| | If a failure could cause a HAZARD: | | P |
| 6.9.1 a) | Security of wiring connections | No hazard. | P |
| 6.9.1 b) | Screws securing removable covers | No hazard. | P |
| 6.9.1 c) | Accidental loosening | No hazard. | P |
| | Easily damaged materials not used | | P |
| | Non-impregnated hydroscopic materials not used | | P |
| 6.9.2 | ENCLOSURES of equipment with DOUBLE INSULATION or REINFORCED INSULATION | Enclosure is reinforced insulation. | P |
| | ENCLOSURE surrounds all metal parts except for small metal parts which are separated | All electronic circuits surrounded by enclosure. | P |
| | ENCLOSURES or parts made of insulating material | Enclosure is insulating | P |
| | Protection for metal ENCLOSURES or parts by: | | N |
| 6.9.2.a) | An insulating coating or BARRIER on the inside; or | | N |
| 6.9.2 b) | CLEARANCES and CREEPAGE DISTANCES cannot be reduced by loosening of parts or wires | | P |
| 6.9.3 | Over-range indication | | P |
| | Unambiguous | | P |
| 6.10 | Connection to MAINS supply source and connections between parts of equipment | | N |
| 6.10.1 | MAINS supply cords | Not a mains supply equipment | N |
| 6.10.1 a) | RATED for maximum equipment current (see 5.1.3c) | | N |
| | Cable complies with IEC60227 or IEC 60245 | | N |
| 6.10.1 b) | Heat-resistant if likely to contact hot parts | | N |
| 6.10.1 c) | Temperature RATING (cord and inlet) | | N |

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| Clause | Requirement +Test | Result-Remark | Verdict |
| 6.10.1 d) | Green/yellow used only for connection to PROTECTIVE CONDUCTOR TERMINALS | | N |
| | Detachable cords with IEC 60320 MAINS connectors: | | N |
| | Conform to IEC 60799; or | | N |
| | Have the current RATING of the MAINS connector | | N |
| 6.10.2 | Fitting of non-detachable MAINS supply cords | | N |
| | Non-detachable cord protection: | | N |
| 6.10.2 a) | Inlet or bushing smoothly rounded; or | | N |
| 6.10.2 b) | Insulated cord guard projection $\geq 5 D$ | | N |
| | The protective earth conductor is the last to take the strain | | N |
| 6.10.2 c) | Cord anchorage: | | N |
| | -cord is not clamped by direct pressure from a screw | No anchorage. | N |
| | - knots are not be used | | N |
| | - cannot push the cord into the equipment to cause a hazard | | N |
| | - no failure of the cord insulation in anchorage with metal parts | | N |
| | -compression bushing, clamps all types and sizes of MAINS cords is suitable | | N |
| | -for connection to TERMINALS provided or for screened MAINS cord | | N |
| | -cord replacement does not cause a HAZARD; push-pull test | (see Form A.15) | N |
| 6.10.3 | Plugs and connectors | | N |
| 6.10.3 a) | MAINS supply plugs, connectors etc., conform with relevant specifications | | N |
| 6.10.3 b) | If equipment supplied at voltages below 6.3.2.a) or from a sole source: | | N |
| | Plugs of supply cords do not fit MAINS sockets above RATED supply voltage | | N |
| | MAINS-type plugs used only for connection to MAINS supply | | N |
| 6.10.3 c) | Plug pins which receive a charge from an internal capacitor | No such capacitor | N |
| 6.10.3 d) | Accessory MAINS socket-outlets: | | N |
| | 1) Marking if accepts a standard MAINS plug(see 5.1.3 e) | No mains socket-outlets | N |

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|-------------|---|---------------------|---------|
| Clause | Requirement +Test | Result-Remark | Verdict |
| | 2) Input has a protective earth conductor if outlet has earth TERMINAL contact | | N |
| 6.11 | Disconnection from supply source | | N |
| 6.11.1 | General | See § 6.11.1.1 | N |
| | Disconnecting all current carrying conductors | | N |
| 6.11.1.1 | Exceptions | | N |
| 6.11.1.1 a) | Equipment supplied by low energy source; or | Powered by battery. | N |
| 6.11.1.1 b) | Equipment connected to impedance protected supply; or | | N |
| 6.11.1.1 c) | Equipment constitutes an impedance protected load | | N |
| 6.11.2 | Requirements according to type of equipment | | N |
| 6.11.2.1 | PERMANENTLY CONNECTED EQUIPMENT and multi-phase equipment | Portable | N |
| | Employs switch or circuit-break | | N |
| | If switch or circuit-breaker is not part of the equipment, documentation specifies: | | N |
| 6.11.2.1 a) | A switch or circuit-breaker shall be included in the building installation | | N |
| 6.11.2.1 b) | It shall be in close proximity to the equipment and within easy reach of the OPERATOR | | N |
| 6.11.2.1 c) | It shall be marked as the disconnecting device for the equipment | | N |
| 6.11.2.2 | Single-phase cord-connected equipment | | N |
| | Equipment is provided with: | | N |
| 6.11.2.2 a) | Switch or circuit-breaker; or | | N |
| 6.11.2.2 b) | Appliance coupler (disconnectable without TOOL); or | | N |
| 6.11.2.2 c) | Separable plug (without locking device) | | N |
| 6.11.2.3 | Hazards arising from function | | N |
| | Emergency switch | | N |
| | Emergency switch ≤ 1 m from the moving part | | N |
| 6.11.3 | Disconnecting devices | | N |
| | Electrically close to the supply | | N |
| 6.11.3.1 | Switches and circuit-breakers | | N |
| 6.11.3.2 | Appliance couplers and plugs | | N |

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|------------|--|-------------------------------------|---------|
| Clause | Requirement +Test | Result-Remark | Verdict |
| 7 | PROTECTION AGAINST MECHANICAL HAZARDS | | — |
| 7.1 | General | | P |
| | Conformity is checked by 7.2 to 7.6 | | P |
| 7.2 | Moving parts | No moving part | N |
| | Moving parts not able to crush, etc. (see also 6.12.32.3) | | N |
| | If OPERATOR access permitted: | | N |
| 7.2a) | Access requires TOOL | | N |
| 7.2b) | Statement about training | | N |
| 7.2c) | Warning markings or symbol 14 | | N |
| 7.3 | Stability | Hand-hold equipment | N |
| | Marking of non-automatic means | | N |
| | Conformity tests: | | — |
| 7.3a) | 10° tilt test | | N |
| 7.3b) | multi-directional force test | | N |
| 7.3c) | downward force test | Not floor-standing unit. | N |
| 7.4 | Provisions for lifting and carrying. | | N |
| | Handles or grips withstand four times weight | No handle. | N |
| | Equipment > 18 kg | <18 kg | N |
| | Has means for lifting or carrying;or | | N |
| | Directions in documentation | | N |
| 7.5 | Wall mounting | | N |
| | Mounting bracket withstand a force of four times the weight of the equipment | | N |
| 7.6 | Expelled parts | | P |
| | Equipment contains or limits the energy | See 16.2 | P |
| | Protection not removable without the aid of a TOOL | Enclosure contains energy | P |
| 8 | MECHANICAL RESISTANCE TO SHOCK AND IMPACT | | — |
| | After the tests of 8.1 to 8.2: | | P |
| | Voltage tests | See Form A.14 | P |
| | Inspections | | P |
| 8a) | HAZARDOUS LIVE parts not accessible | No hazardous live parts accessible. | P |
| 8b) | ENCLOSURE shows no cracks (hazard) | | P |

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|------------|---|-----------------------------|---------|
| Clause | Requirement +Test | Result-Remark | Verdict |
| 8c) | CLEARANCES not less than their permitted value | (see Form A.13) | P |
| 8d) | BARRIERS not damaged or loosened | | P |
| 8e) | No moving parts exposed, except permitted by 7.2 | | N |
| 8f) | No damage which could cause spread of fire | | P |
| 9 | PROTECTION AGAINST THE SPREAD OF FIRE | | — |
| | Conformity for each source of HAZARD or area of the equipment is checked by one of the following: | (See Form A.16) | P |
| 9a) | Fault test of 4.4; or | (See Forms A.1 and A.2) | P |
| 9b) | Application of 9.1 (eliminating or reducing the sources of ignition); or | | N |
| 9c) | Application of 9.2 (containment of fire within the equipment) | | P |
| 9.1 | Eliminating or reducing the sources of ignition within the equipment | | N |
| 9.1a) | 1) Limited-energy circuit (see 9.3); or | | N |
| | 2) Insulation meets the requirements for BASIC INSULATION; OR | (see Form A.5 and A.14) | N |
| | Bridging the insulation does not cause ignition | (see Form A.2) | N |
| 9.1b) | Surface temperature of liquids and parts (see 9.4.a) | No flammable liquid inside. | N |
| 9.1c) | No ignition in circuits designed to produce heat | | N |
| 9.2 | Containment of the fire within the equipment, should it occur | | P |
| 9.2a) | Energizing of the equipment is controlled by an OPERATOR held switch | | N |
| 9.2b) | Enclosure is conform with constructional requirements of 9.2.1; and | | P |
| | Requirements of 9.4b) or c) are met | | P |
| 9.2.1 | Constructional requirements | | P |
| 9.2.1a) | Insulated wire shall have a flammability classification FV-1 or better | | P |
| | Connectors and insulating material have flammability classification FV2 or better | | P |
| 9.2.1b) | The enclosure is constructed as follows : | | P |
| | 1) Bottom constructed with: | | P |
| | No openings; or | | P |


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|------------|---|-----------------------------|---------|
| Clause | Requirement +Test | Result-Remark | Verdict |
| | Extent as specified in figure 7; or | | N |
| | Baffles as specified in figure 6; or | | N |
| | Perforated as specified in Table 12; or | | N |
| | Metal screen with a mesh | | N |
| | 2) Sides have no openings as specified in figure 7 | | N |
| | 3) Material of ENCLOSURE and any baffle or flame barrier is made of: | | N |
| | Metal (except magnesium); or | | N |
| | Non metallic materials have flammability classification FV1 or better | | N |
| | 4) ENCLOSURE and any baffle or flame barrier have adequate rigidit | | N |
| 9.3 | Limited-energy circuit | | N |
| 9.3a) | Potential not more than 30 r.m.s. and 42.4 V peak,or 60 V dc | | N |
| 9.3b) | Current limited by one of following means: | | N |
| | 1) Inherently or by impedance; or | | N |
| | 2) Overcurrent protective device; or | | N |
| | 3) A regulating network limits also in SINGLE FAULT CONDITION | | N |
| 9.3c) | Is separated by at least BASIC INSULATION | | N |
| | If overcurrent protective device used: | | N |
| | Fuse or a non adjustable electromechanical device | | N |
| 9.4 | Requirements for equipment containing or using flammable liquids | No flammable liquid inside. | N |
| | Flammable liquids contained in or specified for use with equipment do not cause spread of fire | | N |
| | Risk is reduced to a tolerable level: | | N |
| 9.4a) | The temperature of surface or parts in contact with flammable liquids is 25 °C below fire point | | N |
| 9.4b) | The quantity of liquid is limited | | N |
| 9.4c) | Flames are contained within the equipment | | N |
| | Detailed instructions for risk-reduction provided | | N |
| 9.5 | Overcurrent protection | | N |
| | Devices not in the protective conductor | | N |

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|------------|--|------------------|---------|
| Clause | Requirement +Test | Result-Remark | Verdict |
| | Fuses or single-pole circuit-breakers not fitted in neutral (multi-phase) | | N |
| 9.5.1 | PERMANENTLY CONNECTED EQUIPMENT | | N |
| | Overcurrent device: | | N |
| | Fitted within the equipment; or | | N |
| | Specified in manufacturer's instructions | | N |
| 9.5.2 | Other equipment | | N |
| | Protection within the equipment | | N |
| 10 | EQUIPMENT TEMPERATURE LIMITS AND RESISTANCE TO HEAT | | — |
| 10 | EQUIPMENT TEMPERATURE LIMITS AND RESISTANCE TO HEAT | | P |
| 10.1 | Surface temperature limits for protection against burns | | P |
| | Easily touched surfaces within the limits | (see Form A.20A) | P |
| | Heated surfaces necessary for functional reasons exceeding specified values: | | N |
| | Are recognizable as such by appearance or function; or | | N |
| | Are marked with symbol 13 | | N |
| | Guards are not removable without TOOL | No guards. | N |
| 10.2 | Temperatures of windings | (see Form A.20B) | N |
| | Limits not exceeded in: | | N |
| | NORMAL CONDITION | | N |
| | SINGLE FAULT CONDITION | | N |
| 10.3 | Other temperature measurements | (see Form A.20B) | P |
| | Following measurements conducted if applicable: | | P |
| 10.3a) | Value of 60 °C of field-wiring TERMINAL box not exceeded | | N |
| 10.3b) | Surface of flammable liquids and parts in contact with this liquids | | N |
| 10.3c) | Surface of non-metallic ENCLOSURES | | P |
| 10.3d) | Parts made of insulating material supporting parts connected to MAINS supply | | N |
| 10.3e) | TERMINALS carrying a current more than 0.5 A | | N |
| 10.4 | Conduct of temperature tests | (See Form A20) | P |
| 10.5 | Resistance to heat | | P |

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|------------|---|---|---------|
| Clause | Requirement +Test | Result-Remark | Verdict |
| 10.5.1 | Integrity of CLEARANCES and CREEPAGE DISTANCES | | P |
| 10.5.2 | Non-metallic ENCLOSURES | Checked by non-operative treatment: 7hours at temperature of 70 °C (See Forms A.21) | P |
| | After treatment: | The equipment is no hazard and pass the test of 8.1.1 and 8.1.2 | P |
| | No HAZARDOUS LIVE parts ACCESSIBLE; | No hazardous live part accessible, except test probe (refer to clause 6.1.2) | P |
| | Tests of 8.1 and 8.2 | (See Form A.13) | P |
| | In case of doubt, tests of 6.8 (without humidity preconditioning) | | P |
| 10.5.3 | Insulating material | Plastic for enclosure. | P |
| 10.5.3a) | Parts supporting parts connected to MAINS supply | | N |
| 10.5.3b) | TERMINALS carrying a current more than 0.5 A | | N |
| | Examination of material data; or | | P |
| | in case of doubt: | | N |
| | 1) Ball pressure test; or | | N |
| | 2) Vicat softening testof ISO 306 | | N |
| 11 | PROTECTION AGAINST HAZARDS FROM FLUIDS | | — |
| 11.1 | General | | N |
| 11.2 | Cleaning | | N |
| 11.3 | Spillage | | N |
| 11.4 | Overflow | | N |
| 11.5 | Battery electrolyte | Batteries mouted on battery compartment,and enclosed by cover fixed by screws. | P |
| | Battery electrolyte leakage presents no hazard | | P |
| 11.6 | Specially protected equipment | No specially protected equipment. (See Form A.23) | N |
| 11.7 | Fluid pressure and leakage | No fluids inside the appliance | N |
| 11.7.1 | Maximum pressure | | N |

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|------------|---|---|---------|
| Clause | Requirement +Test | Result-Remark | Verdict |
| | Maximum pressure of any part does not exceed P_{RATED} | | N |
| 11.7.2 | Leakage and rupture at high pressure | No fluids inside the appliance. (See Form A.24) | N |
| | Test to IEC 60335 (refrigeration only) | | N |
| 11.7.3 | Leakage from low-pressure parts | | N |
| 11.7.4 | Overpressure safety device: | | N |
| | Does not operate in NORMAL USE | | N |
| | Meets ISO 4126-1; and | | N |
| | It is conform with: | | N |
| 11.7.4a) | Connected as close as possible to parts intended to be protected | | N |
| 11.7.4b) | Easy access for inspection, maintenance and repair | | N |
| 11.7.4c) | Adjustment only with TOOL | | N |
| 11.7.4d) | No discharge towards person | | N |
| 11.7.4e) | No HAZARD from deposit of discharged material | | N |
| 11.7.4f) | Adequate discharge capacity | | N |
| 11.7.4g) | No shut-off valve between overpressure safety device and protected parts | | N |
| 12 | PROTECTION AGAINST RADIATION, INCLUDING LASER SOURCES, AND AGAINST SONIC AND ULTRASONIC PRESSURE | | — |
| 12.1 | General | No any radiation will emit from appliance. | N |
| | Equipment provides protection | | N |
| 12.2 | Equipment producing ionizing radiation | | N |
| 12.2.1 | Ionizing radiation | | N |
| 12.2.2 | Accelerated electrons | | N |
| 12.3 | Ultra-violet (UV) radiation | | N |
| | No unintentional and HAZARDOUS escape of UV radiation | | N |
| 12.4 | Micro-wave radiation | | N |
| | Power density does not exceed 10 W/m ² . | | N |
| 12.5 | Sonic and ultrasonic pressure | | N |
| 12.5.1 | Sound level | | N |
| 12.5.2 | Ultrasonic pressure | | N |
| 12.6 | Laser sources (IEC 60825-1) | | N |

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

| | | | |
|-----------|--|---|---|
| 13 | PROTECTION AGAINST LIBERATED GASES, EXPLOSION AND IMPLOSION | | P |
| 13.1 | Poisonous and injurious gases | | N |
| | Attached data/test reports demonstrate conformity | | N |
| 13.2 | Explosion and implosion | | N |
| 13.2.1 | Components I | | N |
| | Components liable to explode: | | N |
| | Pressure release device provided; or | | N |
| | Apparatus incorporates protection (see also 7.6) | | N |
| | Pressure release device: | | N |
| | Discharge without danger | | N |
| | Cannot be obstructed | | N |
| 13.2.2 | Batteries and battery charging | | P |
| | If explosion or fire hazard could occur: | | P |
| | Protection incorporated in the equipment; or | | N |
| | Instructions specify batteries with built-in protection: | Specific type R6P declared in instructions. | N |
| | In case of wrong type of battery used | | P |
| | No HAZARD; or | | N |
| | Warning by marking and within instructions | | P |
| | Equipment with means to charge rechargeable batteries: | No rechargeable batteries. | N |
| | Warning against the charging of non-rechargeable batteries; and | | P |
| | Type of rechargeable battery indicated; or | | N |
| | Symbol 14 used |  | P |
| | Battery compartment design | | P |
| | Single component failure | | N |
| | Polarity reversal test | | P |
| 13.2.3 | Implosion of cathode ray tubes | No such item in appliance | N |
| | If maximum face dimensions > 160 mm.....: | | N |
| | Intrinsically protected and correctly mounted; or | | N |
| | ENCLOSURE provides protection: | | N |
| | If non-intrinsically protected: | | N |
| | Screen not removable without TOOL | | N |

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|------------|---|---------------------------|---------|
| Clause | Requirement +Test | Result-Remark | Verdict |
| | If glass screen, not in contact with surface of tube | | N |
| 13.2.4 | Equipment RATED for high pressure (See 11.7) | | N |
| 14 | COMPONENTS | | — |
| 14.1 | General | see appended table 14.1 | P |
| | Where safety is involved, components meet relevant requirements | | P |
| 14.2 | Motors | | N |
| 14.2.1 | Motor temperatures | (See appended form A.20B) | N |
| | Does not present a HAZARD when stopped or prevented from starting; or | | N |
| | Protected by overtemperature or thermal protection device conform with 14.3 | | N |
| 14.2.2 | Series excitation motors | | N |
| | Connected direct to device, if overspeeding causes a HAZARD | | N |
| 14.3 | Overtemperature protection devices | | N |
| | Devices operating in a SINGLE FAULT CONDITION | | N |
| 14.3a) | Reliable function is ensured | | N |
| 14.3b) | RATED to interrupt maximum current and voltage | | N |
| 14.3c) | Does not operate in NORMAL USE | | N |
| 14.4 | Fuse holders | | N |
| | No access to HAZARDOUS LIVE parts | | N |
| 14.5 | Mains voltage selecting devices | | N |
| | Accidental change not possible | | N |
| 14.6 | HIGH INTEGRITY components | No such components | N |
| | Used in applicable positions (see Table 3) | | N |
| | Conforms with IEC publications | No such hazard generated | N |
| | Single electronic device not used | | N |
| 14.7 | Mains transformers tested outside equipment | | N |
| 14.8 | Printed circuit boards | | P |
| | Data shows conformity with FV-1 of IEC 60707 or better; or | PCB is V-0, UL approved. | P |

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| Clause | Requirement +Test | Result-Remark | Verdict |
| | Test shows conformity with FV-1 of IEC 60707 or better; or | | N |
| | Thin film flexible PCB with limited-energy circuit used | | N |
| 14.9 | Circuit or component used as transient overvoltage limiting devices | | N |
| | After test, no sign of overload or degradation | | N |
| 15 | PROTECTION BY INTERLOCKS | | — |
| 15.1 | General | No interlocks | N |
| | Interlocks are designed to remove a hazard before OPERATOR exposed | | N |
| 15.2 | Prevention of reactivation | | N |
| 15.3 | Reliability | | N |
| | Single fault unlikely to occur; or | | N |
| | Cannot cause a HAZARD | | N |
| 16 | TESTS AND MEASUREMENT EQUIPMENT | | — |
| 16.1 | Current measuring circuits | Not intended to current measurment | N |
| 16.2 | Multifunction meters and similar equipment | | N |
| | No HAZARD from: | | N |
| | RATED input voltage combinations | | N |
| | Settings of functions | See also clause 16.1 | N |
| | Settings of range controls | | N |
| ANNEX F | ROUTINE TESTS | | — |
| | Manufacturer's declaration | | N |

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

| 4.4.2 | TABLE: Summary of SINGLE FAULT CONDITIONS | Form A.1 | | P |
|--|---|----------------|-------------|----------|
| Subclause | Title | Does not apply | Carried out | Comments |
| 4.4.2.1 | PROTECTIVE IMPEDANCE | X | | |
| 4.4.2.2 | Protective conductor | X | | |
| 4.4.2.3 | Equipment or parts for short-term or intermittent operation | X | | |
| 4.4.2.4 | Motors | X | | |
| 4.4.2.5 | Capacitors | X | | |
| 4.4.2.6 | Mains transformers Attach drawing of MAINS TxS showing all protective devices (see Forms A.29 and A.30) | X | | |
| 4.4.2.7 | Outputs | X | | |
| 4.4.2.8 | Equipment for more than one supply | X | | |
| 4.4.2.9 | Cooling – air holes closed – fans stopped – coolant stopped | X | | |
| 4.4.2.10 | Heating devices – timer overridden – temperature controller overridden – loss of cooling liquid – overfilled or empty or both | X | | |
| 4.4.2.11 | Insulation between circuits and parts | X | | |
| 4.4.2.12 | Interlocks | X | | |
| List below all SINGLE FAULT CONDITIONS not covered by 4.4.2.1 to 4.4.2.12: | | | | |
| Supplementary information: (see Form A.2 for details of tests) | | | | |

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|---|--|-------------------|-----------------|----------------------------------|-------------|
| Clause | Requirement +Test | | | Result-Remark | Verdict |
| 4.4 | TABLE: Testing in single FAULT CONDITION – Results | | | FormA.2 | N |
| Test subclause | Fault No. | Fault description | Td 4.4.3 (NOTE) | How was test terminated comments | Meets 4.4.4 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| NOTE Td = Test duration in h:min:s Record dielectric strength test on Form A.14 and temperature tests on Form A.20. Record in the comments column for each test whether carried out during or after | | | | | |

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|---|-------------------------------|-------------------------|----------------------------|----------------------|----------|
| Clause | Requirement +Test | | | Result-Remark | Verdict |
| 5.3 | TABLE: Durability of markings | | | Form A.4 | P |
| Marking method (see NOTE) | | | Agent | | |
| 1) print method | | | A Water | | |
| 2) label material | | | B Isopropyl alcohol | | |
| 3) engraved on enclosure | | | C (specify cleanser) | | |
| NOTE – Where applicable include print method, label material, ink or paint type, fixing method, adhesive and surface to which marking is fixed. | | | | | |
| Marking location | | | Marking method (see above) | | |
| Identification (5.1.2) | | | 1) | | |
| Mains supply (5.1.3) | | | N/A | | |
| Fuses (5.1.4) | | | 2) | | |
| TERMINALS and operating devices (5.1.5.1) | | | N/A | | |
| Measuring circuit TERMINALS (5.1.5.2) | | | 1) | | |
| Switches and cricuit breakers (5.1.6) | | | N/A | | |
| DOUBLE/REINFORCED equipment (5.1.7) | | | 2) | | |
| Field wiring TERMINAL boxes (5.1.8) | | | N/A | | |
| Warning marking (5.2) | | | 2) | | |
| Battery charging (13.2.2) | | | N/A | | |
| | | | | | |
| Method | Test agent | Remains legible Verdict | Label loose Verdict | Curled edges Verdict | Comments |
| 1 | A | YES | NO | NO | PASS |
| 2 | B | YES | NO | NO | PASS |
| | | | | | |
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| Clause | Requirement +Test | Result-Remark | Verdict |

| 6 | TABLE: Protection against electric shock - Block diagram of system Form A.5 | | | | | | N | | | |
|---|--|---|--|-----|--|-----|-----------------------|------------------------|----------|--|
| Pollution degree.....: 2 | | | Installation category (overvoltage category).....: III | | | | | | | |
| Location or description | Insulation type (NOTE 1) | Maximum working Voltage (NOTE 2) | CREEPAGE DISTANCE (NOTE 3) | | | | Clearance (NOTE 3) mm | Test voltage (NOTE2) V | Comments | |
| | | | PWB mm | CTI | Other mm | CTI | | | | |
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| NOTE 1 – Type of insulation: BI = BASIC INSULATION DI = DOUBLE INSULATION PI = PROTECTIVE IMPEDANCE RI = Reinforced INSULATION SI = Supplementary INSULATION | | NOTE 2 - Types of voltage Peak impulse test voltage (pulse) r.m.s. d.c. peak | | | NOTE 3 - INSTALLATION CATEGORIES (OVERVOLTAGE CATEGORIES) or POLLUTION DEGREES which differ from these should be shown under "Comments". | | | | | |
| Supplementary Information: the insulation outside stand-by switch and holding button provided supplementary insulation | | | | | | | | | | |

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

| 6.2 | TABLE: List of ACCESSIBLE parts | Form A.6 | P |
|-------|-----------------------------------|----------------------------------|-----------------------------------|
| 6.1.2 | Exceptions | | — |
| 6.2 | Determination of accessible parts | | — |
| Item | Description | Determination method (NOTE 5) | Exception under 6.1.2 (NOTE 4) |
| 1 | Enclosure | By test finger | --- |
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NOTE 1 – Test fingers and pins are to be applied without force unless a force is specified (see 6.2.1)
 NOTE 2 – Special consideration should be given to inadequate insulation and high voltage parts (see 6.2)
 NOTE 3 – Parts are considered to be ACCESSIBLE if they could be touched in the absence of any covering which is not considered to provide suitable insulation (see note to paragraph 1 of 6.4).
 NOTE 4 – Capacitor test may be required (see Form A.7).
 NOTE 5 – The determination methods are: visual; rigid test finger; jointed test finger; pin 3 mm diameter; pin 4 mm diameter.

Supplementary information: for probe see separate report pls.

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| Clause | Requirement +Test | Result-Remark | Verdict | | | | | | | | | | |
|--|--|-----------------------------------|-----------|-----------------------------|--------------|------------|------------|-------------|----|--------------------|----|----|-----------------|
| 6 | TABLE: Values in NORMAL CONDITION | Form A.7 | P | | | | | | | | | | |
| 6.1.1 | Exceptions | 11.2 Cleaning and decontamination | — | | | | | | | | | | |
| 6.3.1 | In NORMAL CONDITION(see NOTE 1) | 11.3 Spillage | — | | | | | | | | | | |
| 6.6.2 | Terminals for external circuit | 11.4 Overflow | — | | | | | | | | | | |
| 6.10.3 | Plugs and connections | | — | | | | | | | | | | |
| Item (see Form A.6) | Voltage | | | Current | | | | Capacitance | | 10 s test (NOTE 2) | | | Comments |
| | V r.m.s | V peak | V d.c. | Test circuit A1/A2/A3 | mA r.m.s. | mA peak | mA d.c. | μC | mJ | V | μC | mJ | |
| 1 | - | - | - | -- | - | - | - | - | - | - | - | - | Limit:46.7Vpeak |
| | | | | | | | | | | | | | |
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| NOTE 1 – The requirements of 6.3.1 include drying out (if specified). For permanently connected equipment, the current values are 1,5 times the specified values. NOTE 2 – A 5 s test is specified in 6.10.3c). | | | | | | | | | | | | | |

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| Clause | Requirement +Test | Result-Remark | Verdict |
|--------|-------------------|---------------|---------|
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| 6.3.2 | TABLE: Values in SINGLE FAULT CONDITION | | | | | | | | | | Form A.8 | P |
|--------------------------|--|------------|-----------|-----------|-------------------------|---|-----------------------------|--------------|------------|----------------------------------|----------|---------------|
| Item (SeeForm A.6) | Subclause and fault No. (see FormA.2) | Voltage | | | Transient (see NOTE) | | Current | | | Capacitance μ F (NOTE) | Comments | |
| | | V r.m.s | V peak | V d.c. | V | S | Test circuit A1/A2/A3 | mA r.m.s. | mA peak | | | mA d.c. |
| 1 | 4.4 | - | - | - | - | - | - | - | - | - | - | Limit:78Vpeak |
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NOTE – Transient voltages must be below the limits given from Figure 1 and the capacitance below the limits from figure 2 of IEC 61010-1.

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| Clause | Requirement +Test | Result-Remark | Verdict |
|--------|-------------------|---------------|---------|
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| 6.7 | TABLE: CLEARANCES and CREEPAGE DISTANCES | | | | | | | | | | Form A.13 | P | |
|---|--|-----------------|---------|----------------------------|-------------------|-------------|------------------------|---------------------------|---|--------------------------------------|-----------------|---------|---|
| 8 | Mechanical resistance to shock and impact | | | | | | | | | | | | P |
| 10.5.1 | Integrity of CLEARANCES and CREEPAGE DISTANCES | | | | | | | | | | | | P |
| Location (see Form A.5) | Measured (initial – 6.7) | | Verdict | Mechanical tests (note) | | | | | Test at max. RATED ambient (10.5.1) | Measured after test (if required) | | Verdict | Comments |
| | Creepage Distance mm | Clearance mm | | Applied force (6.7)N | Rigidity (8.1) | | Drop | | | Creepage Distance mm | Clearance mm | | |
| | | | | | Static | Dynami c | Normal | Hand- held/plug- in | | | | | |
| Between live and accessi- ble enclosure [Fu] | >0.1mm | >0.1mm | Pass | 30N | x | x | Corner drop test | --- | 40°C | >0.1mm | >0.1mm | Pass | Cl:0.1mm; Cr:0.04 mm required (material group III _b assumed) |
| | | | | | | | | | | | | | |
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NOTE-Refer to Form A.12 for dielectric strength tests following the above tests.

| EN 61010-1 | | | | | | |
|---|---|-----------------|-------------------|--------------------------------|-------------------------|---------|
| Clause | Requirement +Test | | | Result-Remark | Verdict | |
| 6.8 | TABLE: Dielectric strength tests | | | Form A.14 | P | |
| 4.4.4.1 b) | Conformity after application of fault conditions | | | | P | |
| 6.4 | Protection in NORMAL CONDITION | | | | P | |
| 6.5.2 | DOUBLE INSULATION and REINFORCED INSULATION | | | | P | |
| 6.6.1 | Connections to external circuits | | | | P | |
| 6.7.3.1 c) | CLEARANCE values – General: reduced CLEARANCES for homogeneous construction | | | | N | |
| 6.10.2.5 | Fitting of non-detachable MAINS SUPPLY cords' | | | | N | |
| 8 | Mechanical resistance to shock and impact | | | | P | |
| 9.1 a) 2) | Eliminating or reducing the sources of ignition within the equipment | | | | N | |
| 9.3 c) | Limited-energy circuit | | | | N | |
| 11.2 | Cleaning | | | | N | |
| 11.3 | Spillage | | | | N | |
| 11.4 | Overflow | | | | N | |
| 11.6 | Specially protected equipment' | | | | N | |
| 1 Record the fault, test or treatment applied before the dielectric strength test | | | | | | |
| | Test site altitude | | | 1-500 m | --- | |
| | Test voltage correction factor (see Table 10).....: | | | N/A | --- | |
| Location or references from Forms A.2 and A.5 | Clause or sub-clause | Humidity Yes/No | Working voltage V | Test voltage r.m.s./peak/d.c V | Comments | Verdict |
| Between live and accessible enclosure with metal foil | 6.8 | Yes | 3VDC | 300V r.m.s. | No insulation breakdown | P |
| Between live and accessible enclosure with metal foil | 8 | No | 3VDC | 300V r.m.s. | No insulation breakdown | P |
| Between live and accessible enclosure with metal foil | 4.4.4.1 b) | No | 3VDC | 300V r.m.s. | No insulation breakdown | P |
| Supplementary information: | | | | | | |

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| Clause | Requirement +Test | Result-Remark | | Verdict |
|----------------------------|--|----------------------------------|---|--------------------|
| 9 | TABLE: Protection against the spread of fire | | | Form A.16 P |
| Item | Source of HAZARD or area of the equipment considered (circuit, component, liquid etc.) | Protection Method (9a, 9b or 9c) | Protection details | Verdict |
| 1. | Internal circuits | 9a and 9c | Fault condition tested. Enclosure and PCB are min. V-0 and UL approved. | Pass |
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| Supplementary information: | | | | |

| EN 61010-1 | | | | |
|---|---|------------------|----------|----------|
| Clause | Requirement +Test | Result-Remark | | Verdict |
| 9.2.1 | TABLE: Constructional requirements | Form A.17 | | N |
| 14.8 | Printed circuit boards | | | N |
| UL approved min. V-0 PCB and enclosure provided. | | | | |
| Material tested | | | | — |
| Generic name | | | | — |
| Material manufacturer | | | | — |
| | | | | |
| Type | | | | — |
| Colour..... | | | | — |
| Conditioning details..... | | | | — |
| | | | | |
| | | Sample 1 | Sample 2 | Sample 3 |
| Thickness of specimen | mm | | | |
| Duration of flaming after first Application | S | | | |
| Duration of flaming plus glowing After second application | S | | | |
| Specimen burns to holding clamp | Yes/No | | | |
| Cotton ignited | Yes/No | | | |
| Sample result | Pass/Fail | | | |
| Supplementary information: | | | | |
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| Clause | Requirement +Test | Result-Remark | Verdict |
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| 9.3 | TABLE: Limited-energy circuit | Form A.18 | N |
|------------|--------------------------------------|------------------|----------|

| Item | 9.3 a) | 9.3 b) Current and power limitation | | | 9.3 c) | Decision | Comments |
|-----------------------------------|--|-------------------------------------|----------------------------------|---|-----------------------|----------|----------|
| or Location (see Form A.16) | Maximum potential in circuit voltage r.m.s./d.c. V | Maximum available current A | Maximum available power VA | Overload protection after 120s A | Circuit separation | Yes/No | |
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Supplementary information:

| EN 61010-1 | | | | | |
|---|---|--|------------|---------------------|---|
| Clause | Requirement +Test | | | Result-Remark | Verdict |
| 10 | TABLE: Temperature Measurements A.20A | | | Form | P |
| 10.1 | Surface temperature limits - NORMAL CONDITION | | | | P |
| 10.2 | Temperature of windings- NORMAL CONDITION | | | | N |
| 10.3 | Other temperature measurements | | | | P |
| Operating conditions: | | See below comments. | | | |
| Frequency | -- | Test room ambient temperature (t_a): | | 25.0 °C | |
| Voltage | -- | Test duration | | See below comments. | |
| Part/Location | t_m | t_c | Tmax °C | Verdict | Comments |
| Battery compartment | 28.1 | 42.6 | 85 | P | Operating mode: checking mains outlet with 300V for 2h. |
| Enclosure | 28.8 | 43.3 | 85 | P | |
| Inner wire | 30.2 | 44.7 | 80 | P | |
| PCB | 29.5 | 44.0 | 130 | P | |
| NOTE 1 - t_c = measured temperature $t_c = t_m$ corrected ($t_m - t_a + 40$ °C or max. RATED ambient) t_{max} = maximum permitted temperature NOTE 2 - See also 14.1 with reference to component operating conditions NOTE 3 - Record values for NORMAL CONDITION and / or SINGLE FAULT CONDITION in this Form use additional form if necessary NOTE 4 - See Form A.20B for details of winding temperature measurements | | | | | |

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| EN 61010-1 | | | |
| Clause | Requirement +Test | Result-Remark | Verdict |

| | | | |
|-------------|---|-------------------|----------|
| 10.2 | TABLE: Temperature of windings | Form A.20B | N |
| | Resistance method Temperature Measurements | | |
| 4.4.2.6 | MAINS Transformers | | N |
| 14.2.1 | Motor temperatures | | N |

| Operating conditions: | | -- | | | | | | |
|-----------------------|------------|--|--------------|---------|----------|------------|-------------------|----------|
| Frequency | : -- | Test room ambient temperature (t_a)..: | | | | | (initial / final) | |
| Voltage | : -- | Test duration | | | | | h min | |
| Part/Location | Rcold Ω | RmaxΩ | Current A | Tr K | Tc °C | Tmax °C | Verdict | Comments |
| -- | -- | -- | -- | -- | -- | -- | -- | -- |
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NOTE 1 - R_{cold} = initial resistance
 t_r = temperature rise
 t_{max} = maximum permitted temperature

R_{warm} = final resistance
 $t_c = t_{corrected} (t_c = t_r - \{t_{a2} - t_{a1}\} + [40\text{ °C or max RATED ambient}])$

NOTE 2 - Indicate insulation class (IEC 85) under comments (optional)

NOTE 3 - - Record values for NORMAL CONDITION and / OF SINGLE FAULT CONDITION in this Form use additional form if necessary

Supplementary information:
 The equipment powered by battery, transformer is not mains transformer.

| EN 61010-1 | | | |
|------------|-------------------|---------------|---------|
| Clause | Requirement +Test | Result-Remark | Verdict |

| 10.5.2 | TABLE: Resistance to heat of non-metallic enclosures | Form A.21 | P |
|----------------------------|--|----------------------|---------|
| | Test method used: | | -- |
| | Non operative treatment.....: | [x] | P |
| | Empty ENCLOSURE | [x] | P |
| | Operative treatment.....: | [] | N |
| | Temperature during tests | 70°C | -- |
| | ENCLOSURE samples tested were.....: | Comply with standard | -- |
| Description | Material | Comments | Verdict |
| Enclosure | See part list | 70°C | P |
| | | | |
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| | Dielectric strength test (6.8) | 300V r.m.s. | P |
| Supplementary information: | | | |

| EN 61010-1 | | | |
|------------|-------------------|---------------|---------|
| Clause | Requirement +Test | Result-Remark | Verdict |

| | | | | |
|----------------------------|--|------------------------|-----------------------------|----------|
| 10.5.3 | TABLE: Insulating Materials | | Form | P |
| | A.22 | | | |
| 10.5.3 a) | Ball pressure test | | | P |
| | Max. allowed impression diameter.....: | 2mm | | -- |
| | Part | Test temperature °C | Impression Diameter (mm) | Verdict |
| | Enclosure | 125 | 1.1 | P |
| | | | | |
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| Supplementary information: | | | | |
| 10.5.3 b) | Vicat softening test (ISO 306) | | | -- |
| | Part | Test temperature °C | Impression Diameter (mm) | Verdict |
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| Supplementary information: | | | | |

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

| | | | |
|----|--|-----------|---|
| 8 | TABLE: Mechanical resistance to shock and impact | Form A.23 | P |
| 11 | Protection against hazards from fluids | | P |

Voltage tests can be carried out once after performing the tests of clause 8 and clause 11. However, if voltage tests are carried out separately after each set of tests, two forms can be used.

| Location (see form A.5) | Clause 8 tests | | | | Clause 11 tests | | | | Working voltage V | Test voltage V | Verdict | Comments |
|----------------------------|----------------|-------------|--------|---------------------|--------------------|--------------------|--------------------|---------------------|-------------------------|----------------------|---------|----------|
| | Static | Dynami c | Normal | Handheld Plug-in | Cleaning (11.2) | Spillage (11.3) | Overflow (11.4) | IEC 60529 (11.6) | | | | |
| Enclosure | Tested | Tested | -- | Tested | -- | -- | -- | -- | 3V | 300V r.m.s. | Pass | |
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NOTE – Use r.m.s., d.c. or peak to indicate the used test voltage.

| EN 61010-1 | | | |
|------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 13.2.2 | TABLE: Batteries | Form A.27 | N |
|--------|---|--------------------------|-----|
| | Battery load and charging circuit diagram: | Non-rechargeable battery | N |
| | Battery type | | -- |
| | Battery manufacturer/model/catalogue No.....: | | --- |
| | Battery ratings | | --- |
| | Reverse polarity instalment test | | N |

| Single component failures | Verdict | |
|---------------------------|--------------|---------------|
| Component | Open circuit | Short circuit |
| | --- | |
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Supplementary information:

| EN 61010-1 | | | |
|------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 16.1 | TABLE: Current measuring circuits | Form A.31 | N | | |
|---|-----------------------------------|-------------------|-----------------------|---------|----------|
| These tests are performed with all types and models of current transformers without internal protection, and which are specified by the manufacturer for use with the equipment | | | | | |
| a) Current transformers No current transformers. | | | | | |
| | RATED current A | Test current A | Interrupt Yes / No | Verdict | Comments |
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| Supplementary information: | | | | | |
| b) Range changing switches Tested. | | | | | |
| Type/Model | RATED current A | Test current A | Interrupt Yes / No | Verdict | Comments |
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| Supplementary information: | | | | | |

Appendix
Photo documentation

FIGURE 1
Appearance of the EUT (M/N: UT262C)



FIGURE 2
Appearance of the EUT (M/N: UT262C)



FIGURE 3
Appearance of the EUT (M/N: UT262C)

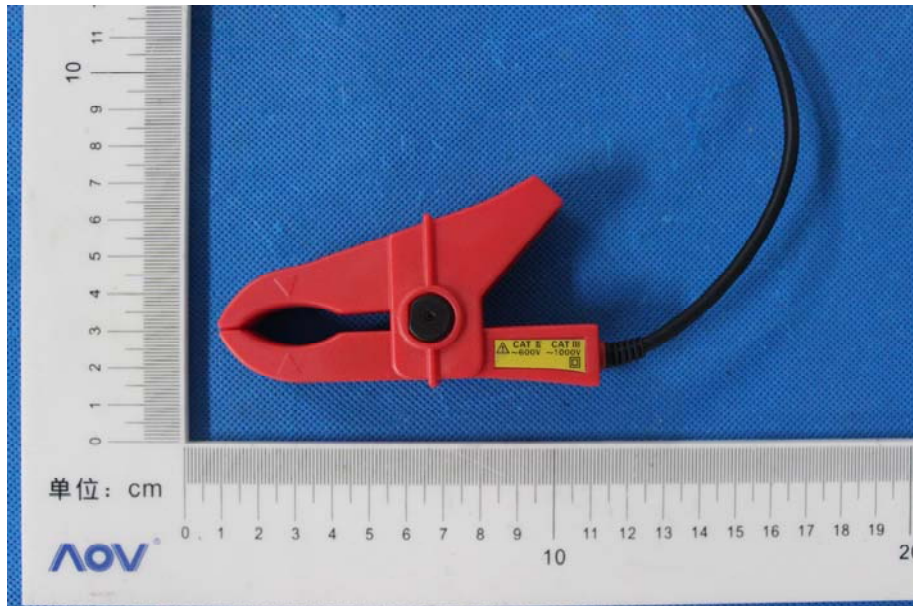


FIGURE 4
Internal construction of the EUT (M/N: UT262C)

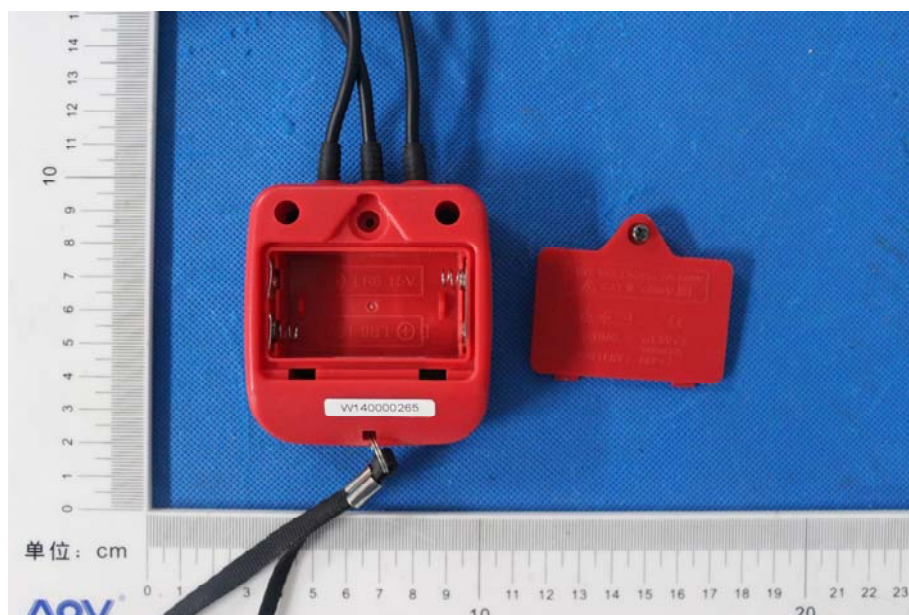


FIGURE 5
Internal construction of the EUT (M/N: UT262C)

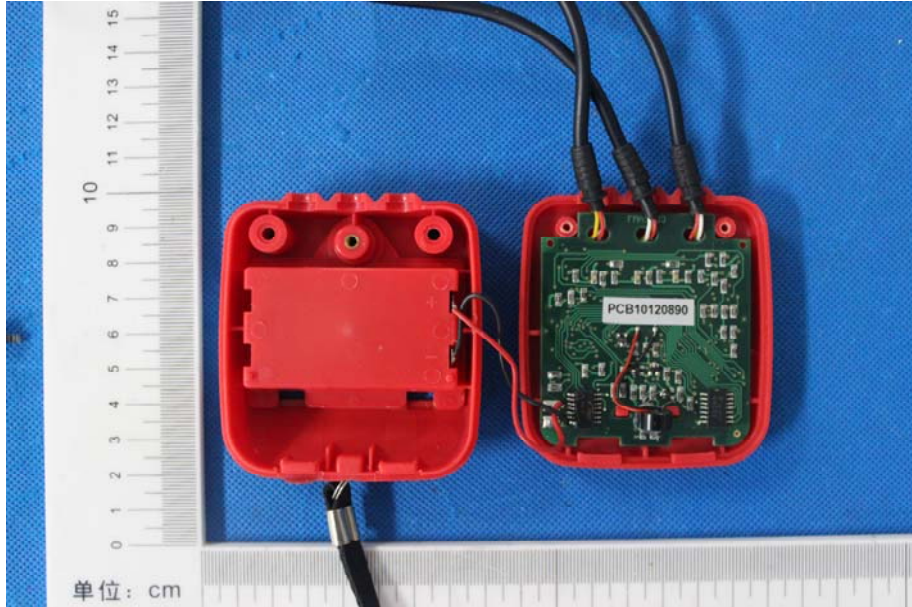
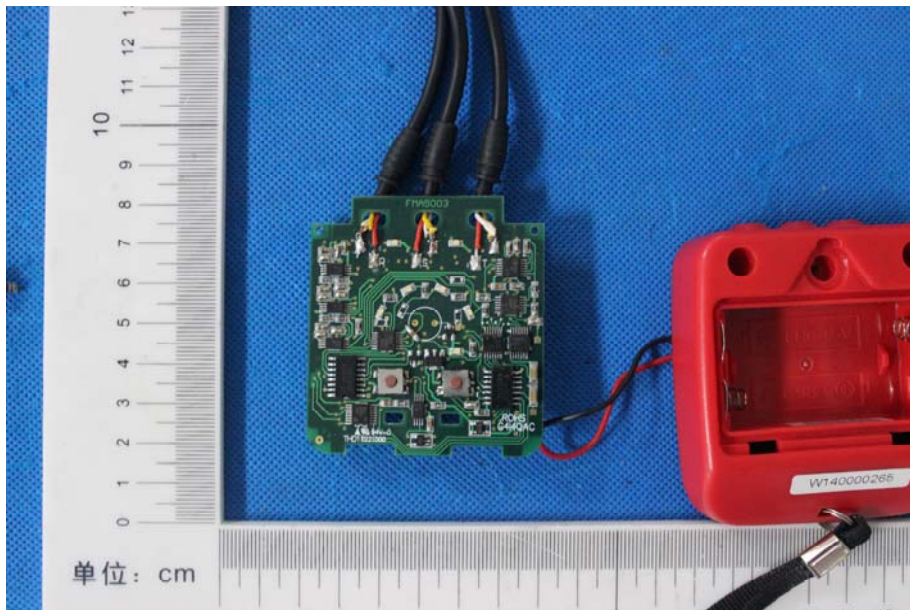


FIGURE 6
Internal construction of the EUT (M/N: UT262C)



*****END OF THIS REPORT*****