

**TEST REPORT
IEC 60950-1
Information technology equipment - Safety -
Part 1: General requirements**

Report Reference No: E484144-A4-IT-1

Date of issue: 2017-11-30

Total number of pages: 51

Applicant's name: TIP

Address: N/A

Test specification:

Standard: IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013

Test procedure: Informative

Non-standard test method: N/A

Test Report Form No.: IEC60950_1F

Test Report Form originator: SGS Fimko Ltd

Master TRF: Dated 2014-02

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| | |
|------------------------------|---|
| Test item description | : Base transceiver station |
| Trade Mark | : None |
| Manufacturer | : TIP |
| | |
| OPEN CELLULAR-CONNECT-1 | |
| 16-24 Vdc, 3A | |
| Model/Type reference | : 48 Vdc PoE, 1.5A |
| Ratings | : (provided from external power source) |

| Testing procedure and testing location: | | |
|--|--|---|
| | Testing location / address: UL Fremont 47173 Benicia Street, Fremont, CA, 94538, USA | |
| | Tested by (name + signature): Paul Pham/ Handler |  |
| | Approved by (+ signature): Anh Nguyen/ Reviewer |  |

List of Attachments

National Differences (46 pages)

Enclosures (77 pages)

Summary Of Testing

Unless otherwise indicated, all tests were conducted at UL Fremont 47173 Benicia Street, Fremont, CA, 94538, USA.

| Tests performed (name of test and test clause) | Testing location / Comments |
|---|------------------------------------|
| End Product Reference Page General Guidelines Input: Single-Phase (1.6.2) SELV Reliability Test Including Hazardous Voltage Measurements (2.2.2, 2.2.3, 2.2.4, Part 22 6.1) Limited Power Source Measurements (2.5) Impact (4.2.5, 4.2.1, Part 22 10.2) Battery (4.3.8) Lithium Battery Reverse Current Measurement (4.3.8) Heating (4.5.1, 1.4.12, 1.4.13) Electric Strength (5.2.2) Overload of Operator Accessible Connector (5.3.7) Water Spray (Part 22 9.1, Annex B) | |

Summary of Compliance with National Differences:

Countries outside the CB Scheme membership may also accept this report.

List of countries addressed: AR, AT, AU, BE, BG, BY, CA, CH, CN, CS, CZ, DE, DK, ES, EU, FR, GB, GR, HU, IE, IL, IN, IT, JP, KR, MY, NL, NZ, PL, PT, RO, SA, SG, SI, SK, UA, US, ZA

The product fulfills the requirements of: Refer to Technical Considerations

Copy of Marking Plate

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

Not Applicable.

The product is to be marketed by other manufacturers; the Original Equipment Manufacturer doesn't provide the marking label or installation manual for this product.

Test item particulars :

| | |
|---|--|
| Equipment mobility | stationary |
| Connection to the mains | not directly connected to the mains |
| Operating condition | continuous |
| Access location | restricted access location |
| Over voltage category (OVC) | OVC II |
| Mains supply tolerance (%) or absolute mains supply values | No direct connection |
| Tested for IT power systems | No |
| IT testing, phase-phase voltage (V) | N/A |
| Class of equipment | Class III (supplied by SELV) (powered by external Class I or Class II power supply). |
| Considered current rating of protective device as part of the building installation (A) | N/A |
| Pollution degree (PD) | PD 2 |
| IP protection class | IP 65 |
| Altitude of operation (m) | up to 2000 |
| Altitude of test laboratory (m) | 43 m |
| Mass of equipment (kg) | 8.2 kg (w/o mounting plate) |

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(s) of receipt of test item | 2017-11-06, 2017-11-15 |
| Date(s) of Performance of tests | 2017-11-14 to 2017-11-21 |

General remarks:

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

Throughout this report a point is used as the decimal separator.

Name and address of Factory(ies): NOT PROVIDED

GENERAL PRODUCT INFORMATION:**Report Summary****Product Description**

The product is an OEM GSM Base transceiver station. The product is powered by LPS 16Vdc - 24Vdc from a UL Listed/ IEC certified external Power Supply or 48Vdc nominal from PoE source of a host equipment. The product consists of electronic components mounted on PWB, housed within a fully enclosed metallic enclosure with a front plastic cover, then secured together by screws.

The product is intended to be for outdoor installation and to be mounted on a pole.

The product is to be manufactured, marketed and certified by other manufacturers; the Original Equipment Manufacturer doesn't provide the marking label or installation manual for this product.

Model Differences

N/A

Additional Information

1. The product is provided with a protective earthing terminal on the metallic chassis and has provision for a permanently connected Protective Earthing Conductor, including instructions for the installation of that conductor.
2. Provided with the IEC symbol (60417-5019) adjacent to the main protective earthing terminal.

The product is also evaluated under IEC 60950-22 - Equipment to be Installed Outdoors. Refer to Enclosure - ID# 7-02 for the Test Report.

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of: From -20°C to +55°C.
- The means of connection to the mains supply is: Permanently connected (field wired)
- The product was investigated to the following additional standards: IEC/CSA/UL60950-22 - Equipment to be Installed Outdoors., EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 (which includes all European national differences, including those specified in this test report).
- The following circuit locations (with circuit/schematic designation) were investigated as a limited power source (LPS): All output ports.
- The power supply in this equipment was: Not investigated. A test report for the power supply may be required when submitting this CB Report to a National Certification Body (NCB) to obtain a national mark.
- LEDs provided in the product are considered low power devices: Yes
- IP65 - Based on IEC 60529 Test Report Ref. No. QL-17-0834 issued by Quanta Laboratories, Santa Clara, CA 95054, U.S, dated 2017-07-26. --

Engineering Conditions of Acceptability

When installed in an end-product, consideration must be given to the following:

- The product is to be manufactured, marketed and certified by other manufacturers; the Original Equipment Manufacturer doesn't provide the marking label or installation manual for this product. , This test report is for "engineering evaluation only". Items either untested or mentioned in CofA shall be considered for re-evaluation in the end-use application. , The product was tested with a rechargeable lithium-ion battery pack which was not certified under UL 2054 or UL/ IEC 62133. A

certified rechargeable lithium-ion battery pack shall be used in the end-use application. All applicable tests which were not performed shall be considered for re-evaluation under sub-clause 4.3.8 in the end use application. , The reverse charging current protection circuitry shall be provided for non-rechargeable coin battery BT2 in the end-use product. , Either suitable gasket or other method of water protection shall be provided for RJ-45 connector screw holes in the end-use application. , --

Abbreviations used in the report:

| | | | |
|--|------|----------------------------------|-------|
| - normal condition | N.C. | - single fault condition | S.F.C |
| - operational insulation | OP | - basic insulation | BI |
| - basic insulation between parts of opposite polarity: | BOP | - supplementary insulation | SI |
| - double insulation | DI | - reinforced insulation | RI |

Indicate used abbreviations (if any)

| IEC 60950-1 | | | |
|-------------|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1 | GENERAL | | Pass |
| 1.5 | Components | | Pass |
| 1.5.1 | General | | Pass |
| | Comply with IEC 60950-1 or relevant component standard | See appended table 1.5.1. | Pass |
| 1.5.2 | Evaluation and testing of components | Components certified to IEC harmonized standard and checked for correct application. Components, for which no relevant IEC-Standard exist, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950. Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950 and the relevant component Standard. | Pass |
| 1.5.3 | Thermal controls | | N/A |
| 1.5.4 | Transformers | | N/A |
| 1.5.5 | Interconnecting cables | Recommended in installation manual as follows: The connecting cable between this outdoor device and the indoor ITE device complies with Class 3 wiring methods as listed in NEC, Table 725.154(G) for Class 3 Cable Substitutions. | N/A |
| 1.5.6 | Capacitors bridging insulation | | N/A |
| 1.5.7 | Resistors bridging insulation | Functional only. | N/A |
| 1.5.7.1 | Resistors bridging functional, basic or supplementary insulation | | N/A |
| 1.5.7.2 | Resistors bridging double or reinforced insulation between a.c. mains and other circuits | | N/A |
| 1.5.7.3 | Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable | | N/A |
| 1.5.8 | Components in equipment for IT power systems | | N/A |
| 1.5.9 | Surge suppressors | | N/A |
| 1.5.9.1 | General | | N/A |

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

| | | | |
|---------|---|--|-----|
| 1.5.9.2 | Protection of VDRs | | N/A |
| 1.5.9.3 | Bridging of functional insulation by a VDR | | N/A |
| 1.5.9.4 | Bridging of basic insulation by a VDR | | N/A |
| 1.5.9.5 | Bridging of supplementary, double or reinforced insulation by a VDR | | N/A |

| | | | |
|-------|--------------------------------------|--|------|
| 1.6 | Power interface | | Pass |
| 1.6.1 | AC power distribution systems | | N/A |
| 1.6.2 | Input current | | Pass |
| 1.6.3 | Voltage limit of hand-held equipment | | N/A |
| 1.6.4 | Neutral conductor | | N/A |

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

| | | | |
|---------|--|--|-----|
| 1.7 | Marking and instructions | | N/A |
| 1.7.1 | Power rating and identification markings | | N/A |
| 1.7.1.1 | Power rating mark | | N/A |
| | Multiple mains supply connections : | | N/A |
| | Rated voltage(s) or voltage range(s) (V) : | | N/A |
| | Symbol for nature of supply, for d.c. only : | | N/A |
| | Rated frequency or rated frequency range (Hz) : | | N/A |
| | Rated current (mA or A) : | | N/A |
| 1.7.1.2 | Identification markings | | N/A |
| | Manufacturer's name or trademark or identification mark..... : | To be provided by end-product Manufacturer | N/A |
| | Model identification or type reference : | Refer to the Model information at the beginning of this Test Report. | N/A |
| | Symbol for Class II equipment only : | | N/A |
| | Other markings and symbols..... : | | N/A |
| 1.7.1.3 | Use of graphical symbols | | N/A |
| 1.7.2 | Safety instructions and marking | | N/A |
| 1.7.2.1 | General | | N/A |
| 1.7.2.2 | Disconnect devices | | N/A |
| 1.7.2.3 | Overcurrent protective device | | N/A |
| 1.7.2.4 | IT Power distribution systems | | N/A |
| 1.7.2.5 | Operator access with a tool | No tool necessary. | N/A |
| 1.7.2.6 | Ozone | | N/A |
| 1.7.3 | Short duty cycles | | N/A |
| 1.7.4 | Supply voltage adjustment : | | N/A |
| | Method and means of adjustment; reference to installation instructions : | | N/A |
| 1.7.5 | Power outlets on the equipment..... : | | N/A |
| 1.7.6 | Fuse identification (marking, special fusing characteristics, cross-reference) : | | N/A |
| 1.7.7 | Wiring terminals | No terminals. Connectors only. | N/A |
| 1.7.7.1 | Protective earthing and bonding terminals : | | N/A |
| 1.7.7.2 | Terminals for a.c. mains supply conductors | | N/A |
| 1.7.7.3 | Terminals for d.c. mains supply conductors | | N/A |
| 1.7.8 | Controls and indicators | | N/A |

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|-------------|--|--|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.7.8.1 | Identification, location and marking | | N/A |
| 1.7.8.2 | Colours | Only functional indicators use color. | N/A |
| 1.7.8.3 | Symbols according to IEC 60417 | Provided with the IEC symbol (60417-5019) adjacent to the main protective earthing terminal. | N/A |
| 1.7.8.4 | Markings using figures..... | | N/A |
| 1.7.9 | Isolation of multiple power sources | | N/A |
| 1.7.10 | Thermostats and other regulating devices | | N/A |
| 1.7.11 | Durability | The product is to be marketed by other manufacturers; the Original Equipment Manufacturer doesn't provide the marking label or installation manual for this product. | N/A |
| 1.7.12 | Removable parts | | N/A |
| 1.7.13 | Replaceable batteries | To be provided by end-product Manufacturer | N/A |
| | Language(s) | | - |
| 1.7.14 | Equipment for restricted access locations..... | | N/A |

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|-------------|---|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2 | PROTECTION FROM HAZARDS | | Pass |
| 2.1 | Protection from electric shock and energy hazards | | Pass |
| 2.1.1 | Protection in operator access areas | | Pass |
| 2.1.1.1 | Access to energized parts | No operator access to energized parts. | Pass |
| | Test by inspection..... : | All inputs are SELV and no hazardous voltages are generated in the product. | Pass |
| | Test with test finger (Figure 2A) | | N/A |
| | Test with test pin (Figure 2B)..... : | | N/A |
| | Test with test probe (Figure 2C) | | N/A |
| 2.1.1.2 | Battery compartments | | N/A |
| 2.1.1.3 | Access to ELV wiring | No internal wiring at ELV. | N/A |
| | Working voltage (Vpeak or Vrms); minimum distance through insulation (mm) | | - |
| 2.1.1.4 | Access to hazardous voltage circuit wiring | No hazardous voltage circuits in the product. | N/A |
| 2.1.1.5 | Energy hazards | The product is powered by LPS | N/A |
| 2.1.1.6 | Manual controls | | N/A |
| 2.1.1.7 | Discharge of capacitors in equipment | | N/A |
| | Measured voltage (V); time-constant (s) | | - |
| 2.1.1.8 | Energy hazards - d.c. mains supply | | N/A |
| | a) Capacitor connected to the d.c. mains supply .. : | | N/A |
| | b) Internal battery connected to the mains supply : | | N/A |
| 2.1.1.9 | Audio amplifiers | | N/A |
| 2.1.2 | Protection in service access areas | No bare parts operating at HAZARDOUS VOLTAGES in a service access area. | Pass |
| 2.1.3 | Protection in restricted access locations | | N/A |

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

| | | | |
|-------|---|---|------|
| 2.2 | SELV circuits | | Pass |
| 2.2.1 | General requirements | Supplied by SELV and LPS source. | Pass |
| 2.2.2 | Voltages under normal conditions (V) | : Max 57Vdc, Nominal 48 Vdc from PoE source of certified power supply. | Pass |
| 2.2.3 | Voltages under fault conditions (V) | : Product is intended to be supplied by Certified SELV power supply. Fault conditions covered under the evaluation of the Certified power supply. | N/A |
| 2.2.4 | Connection of SELV circuits to other circuits | : SELV circuits are only connected to other SELV circuits. | N/A |

| | | | |
|---------|--|---|------|
| 2.3 | TNV circuits | | Pass |
| 2.3.1 | Limits | Complies by inspection based on review of circuit voltages. | Pass |
| | Type of TNV circuits | : TNV-1 (PoE circuit exposed to outdoor environment) | - |
| 2.3.2 | Separation from other circuits and from accessible parts | | N/A |
| 2.3.2.1 | General requirements | | N/A |
| 2.3.2.2 | Protection by basic insulation | | N/A |
| 2.3.2.3 | Protection by earthing | | N/A |
| 2.3.2.4 | Protection by other constructions | : | N/A |
| 2.3.3 | Separation from hazardous voltages | | N/A |
| | Insulation employed..... | : | - |
| 2.3.4 | Connection of TNV circuits to other circuits | | N/A |
| | Insulation employed..... | : | - |
| 2.3.5 | Test for operating voltages generated externally | | N/A |

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

| | | | |
|-------|--|--|-----|
| 2.4 | Limited current circuits | | N/A |
| 2.4.1 | General requirements | | N/A |
| 2.4.2 | Limit values | | N/A |
| | Frequency (Hz) : | | - |
| | Measured current (mA)..... : | | - |
| | Measured voltage (V) : | | - |
| | Measured circuit capacitance (nF or μ F)..... : | | - |
| 2.4.3 | Connection of limited current circuits to other circuits | | N/A |

| | | | |
|-----|--|-----------------------|------|
| 2.5 | Limited power sources | | Pass |
| | a) Inherently limited output | | N/A |
| | b) Impedance limited output | RJ45 POE port B (PSE) | Pass |
| | c) Regulating network limited output under normal operating and single fault condition | | N/A |
| | Use of integrated circuit (IC) current limiters : | | - |
| | d) Overcurrent protective device limited output | | N/A |
| | Max. output voltage (V), max. output current (A), max. apparent power (VA)..... : | See table 2.5 | - |
| | Current rating of overcurrent protective device (A) : | | - |

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

| | | | |
|---------|--|---|------|
| 2.6 | Provisions for earthing and bonding | | Pass |
| 2.6.1 | Protective earthing | The product is provided with a protective earthing terminal on the metallic chassis and has provision for a permanently connected Protective Earthing Conductor, including instructions for the installation of that conductor. (Relied upon to comply with sub-clauses 7.3 and 6.2.1). | Pass |
| 2.6.2 | Functional earthing | | N/A |
| | Use of symbol for functional earthing : | | N/A |
| 2.6.3 | Protective earthing and protective bonding conductors | | N/A |
| 2.6.3.1 | General | | N/A |
| 2.6.3.2 | Size of protective earthing conductors | | N/A |
| | Rated current (A), cross-sectional area (mm ²), AWG : | | - |
| 2.6.3.3 | Size of protective bonding conductors | | N/A |
| | Rated current (A), cross-sectional area (mm ²), AWG : | | - |
| | Protective current rating (A), cross-sectional area (mm ²), AWG..... : | | - |
| 2.6.3.4 | Resistance of earthing conductors and their terminations; resistance (ohm), voltage drop (V), test current (A), duration (min) | | N/A |
| 2.6.3.5 | Colour of insulation..... : | | N/A |
| 2.6.4 | Terminals | | N/A |
| 2.6.4.1 | General | | N/A |
| 2.6.4.2 | Protective earthing and bonding terminals | | N/A |
| | Rated current (A), type, nominal thread diameter (mm) | | - |
| 2.6.4.3 | Separation of the protective earthing conductor from protective bonding conductors | | N/A |
| 2.6.5 | Integrity of protective earthing | | N/A |
| 2.6.5.1 | Interconnection of equipment | | N/A |
| 2.6.5.2 | Components in protective earthing conductors and protective bonding conductors | | N/A |
| 2.6.5.3 | Disconnection of protective earth | | N/A |

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|-------------|---|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.6.5.4 | Parts that can be removed by an operator | | N/A |
| 2.6.5.5 | Parts removed during servicing | | N/A |
| 2.6.5.6 | Corrosion resistance | | N/A |
| 2.6.5.7 | Screws for protective bonding | | N/A |
| 2.6.5.8 | Reliance on telecommunication network or cable distribution system | | N/A |
| 2.7 | Overcurrent and earth fault protection in primary circuits | | N/A |
| 2.7.1 | Basic requirements | Covered under the evaluation of the Certified source. | N/A |
| | Instructions when protection relies on building installation | | N/A |
| 2.7.2 | Faults not covered in 5.3.7 | | N/A |
| 2.7.3 | Short-circuit backup protection | | N/A |
| 2.7.4 | Number and location of protective devices : | | N/A |
| 2.7.5 | Protection by several devices | | N/A |
| 2.7.6 | Warning to service personnel : | | N/A |
| 2.8 | Safety interlocks | | N/A |
| 2.8.1 | General principles | | N/A |
| 2.8.2 | Protection requirements | | N/A |
| 2.8.3 | Inadvertent reactivation | | N/A |
| 2.8.4 | Fail-safe operation | | N/A |
| | Protection against extreme hazard | | N/A |
| 2.8.5 | Moving parts | | N/A |
| 2.8.6 | Overriding | | N/A |
| 2.8.7 | Switches, relays and their related circuits | | N/A |
| 2.8.7.1 | Separation distances for contact gaps and their related circuits (mm) : | | N/A |
| 2.8.7.2 | Overload test | | N/A |
| 2.8.7.3 | Endurance test | | N/A |
| 2.8.7.4 | Electric strength test | | N/A |
| 2.8.8 | Mechanical actuators | | N/A |

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

| | | | |
|-------|--|-------------------------------------|------|
| 2.9 | Electrical insulation | | Pass |
| 2.9.1 | Properties of insulating materials | Functional insulation only. | Pass |
| 2.9.2 | Humidity conditioning | | N/A |
| | Relative humidity (%), temperature (°C)..... : | | - |
| 2.9.3 | Grade of insulation | Functional insulation only. | Pass |
| 2.9.4 | Separation from hazardous voltages | Provided in Certified Power Supply. | N/A |
| | Method(s) used..... : | | - |

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|-------------|---|---|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 2.10 | Clearances, creepage distances and distances through insulation | Pass | |
| 2.10.1 | General | Pollution degree 2 applicable. | Pass |
| 2.10.1.1 | Frequency..... : DC | | N/A |
| 2.10.1.2 | Pollution degrees : DC | Pollution degree 2 applicable. | Pass |
| 2.10.1.3 | Reduced values for functional insulation | | N/A |
| 2.10.1.4 | Intervening unconnected conductive parts | | N/A |
| 2.10.1.5 | Insulation with varying dimensions | | N/A |
| 2.10.1.6 | Special separation requirements | | N/A |
| 2.10.1.7 | Insulation in circuits generating starting pulses | | N/A |
| 2.10.2 | Determination of working voltage | Supplied by SELV. | N/A |
| 2.10.2.1 | General | | N/A |
| 2.10.2.2 | RMS working voltage | | N/A |
| 2.10.2.3 | Peak working voltage | | N/A |
| 2.10.3 | Clearances | Class III product - secondary circuits comply with Sub-clause 5.3.4. Clearance in primary circuits covered by certification of power supply. | Pass |
| 2.10.3.1 | General | | N/A |
| 2.10.3.2 | Mains transient voltages | | N/A |
| | a) AC mains supply | | N/A |
| | b) Earthed d.c. mains supplies | | N/A |
| | c) Unearthed d.c. mains supplies | | N/A |
| | d) Battery operation | | N/A |
| 2.10.3.3 | Clearances in primary circuits | | N/A |
| 2.10.3.4 | Clearances in secondary circuits | See sub-clause 5.3.4. | Pass |
| 2.10.3.5 | Clearances in circuits having starting pulses | | N/A |
| 2.10.3.6 | Transients from a.c. mains supply..... : | | N/A |
| 2.10.3.7 | Transients from d.c. mains supply..... : | | N/A |
| 2.10.3.8 | Transients from telecommunication networks and cable distribution systems | | N/A |
| 2.10.3.9 | Measurement of transient voltage levels | | 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 |

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

| | | | |
|-----------|--|--|------|
| | b) Transients from a telecommunication network | | N/A |
| 2.10.4 | Creepage distances | See sub-clause 5.3.4 for secondary circuits. | Pass |
| 2.10.4.1 | General | | N/A |
| 2.10.4.2 | Material group and comparative tracking index | | Pass |
| | CTI tests : | Material group IIIb; 100 <= CTI < 175. | - |
| 2.10.4.3 | Minimum creepage distances | See sub-clause 5.3.4 for secondary circuits. | N/A |
| 2.10.5 | Solid insulation | | N/A |
| 2.10.5.1 | General | | N/A |
| 2.10.5.2 | Distances through insulation | | N/A |
| 2.10.5.3 | Insulating compound as solid insulation | | N/A |
| 2.10.5.4 | Semiconductor devices | | N/A |
| 2.10.5.5 | Cemented joints | | N/A |
| 2.10.5.6 | Thin sheet material - General | | N/A |
| 2.10.5.7 | Separable thin sheet material | | N/A |
| | Number of layers (pcs) : | | - |
| 2.10.5.8 | Non-separable thin sheet material | | N/A |
| 2.10.5.9 | Thin sheet material - standard test procedure | | N/A |
| | Electric strength test : | | - |
| 2.10.5.10 | Thin sheet material - alternative test procedure | | N/A |
| | Electric strength test : | | - |
| 2.10.5.11 | Insulation in wound components | | N/A |
| 2.10.5.12 | Wire in wound components | | N/A |
| | Working voltage..... : | | N/A |
| | a) Basic insulation not under stress : | | N/A |
| | b) Basic, supplementary, reinforced insulation..... : | | N/A |
| | c) Compliance with Annex U : | | N/A |
| | Two wires in contact inside wound component; angle between 45° and 90° : | | N/A |
| 2.10.5.13 | Wire with solvent-based enamel in wound components | | N/A |
| | Electric strength test : | | - |
| | Routine test | | N/A |
| 2.10.5.14 | Additional insulation in wound components | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| | Working voltage : | | N/A |
| | - Basic insulation not under stress : | | N/A |
| | - Supplementary, reinforced insulation : | | N/A |
| 2.10.6 | Construction of printed boards | | N/A |
| 2.10.6.1 | Uncoated printed boards | | N/A |
| 2.10.6.2 | Coated printed boards | | N/A |
| 2.10.6.3 | Insulation between conductors on the same inner surface of a printed board | | N/A |
| 2.10.6.4 | Insulation between conductors on different layers of a printed board | | N/A |
| | Distance through insulation | | N/A |
| | Number of insulation layers (pcs) : | | N/A |
| 2.10.7 | Component external terminations | | N/A |
| 2.10.8 | Tests on coated printed boards and coated components | | N/A |
| 2.10.8.1 | Sample preparation and preliminary inspection | | N/A |
| 2.10.8.2 | Thermal conditioning | | N/A |
| 2.10.8.3 | Electric strength test | | N/A |
| 2.10.8.4 | Abrasion resistance test | | N/A |
| 2.10.9 | Thermal cycling | | N/A |
| 2.10.10 | Test for Pollution Degree 1 environment and insulating compound | | N/A |
| 2.10.11 | Tests for semiconductor devices and cemented joints | | N/A |
| 2.10.12 | Enclosed and sealed parts | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 3 | WIRING, CONNECTIONS AND SUPPLY | | Pass |
| 3.1 | General | | Pass |
| 3.1.1 | Current rating and overcurrent protection | | Pass |
| 3.1.2 | Protection against mechanical damage | The wires are routed away from sharp edges and parts which could damage insulation. | Pass |
| 3.1.3 | Securing of internal wiring | The wires are positioned in such a manner that prevents excessive strain, loosening of terminal connections and damage of conductor insulation. | Pass |
| 3.1.4 | Insulation of conductors | | Pass |
| 3.1.5 | Beads and ceramic insulators | | N/A |
| 3.1.6 | Screws for electrical contact pressure | | N/A |
| 3.1.7 | Insulating materials in electrical connections | | N/A |
| 3.1.8 | Self-tapping and spaced thread screws | | N/A |
| 3.1.9 | Termination of conductors | Based on inspection. | Pass |
| | 10 N pull test | | N/A |
| 3.1.10 | Sleeving on wiring | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 3.2 | Connection to mains supply | | N/A |
| 3.2.1 | Means of connection | | N/A |
| 3.2.1.1 | Connection to an a.c. mains supply | | N/A |
| 3.2.1.2 | Connection to a d.c. mains supply | | N/A |
| 3.2.2 | Multiple supply connections | | N/A |
| 3.2.3 | Permanently connected equipment | | N/A |
| | Number of conductors, diameter of cable and conduits (mm) | | - |
| 3.2.4 | Appliance inlets | | N/A |
| 3.2.5 | Power supply cords | | N/A |
| 3.2.5.1 | AC power supply cords | | N/A |
| | Type..... : | | - |
| | Rated current (A), cross-sectional area (mm ²), AWG | | - |
| 3.2.5.2 | DC power supply cords | | N/A |
| 3.2.6 | Cord anchorages and strain relief | | N/A |
| | Mass of equipment (kg), pull (N) | | - |
| | Longitudinal displacement (mm) | | - |
| 3.2.7 | Protection against mechanical damage | | N/A |
| 3.2.8 | Cord guards | | N/A |
| | Diameter of minor dimension D (mm); test mass (g) | | - |
| | Radius of curvature of cord (mm) | | - |
| 3.2.9 | Supply wiring space | | N/A |

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

| | | |
|-------|---|-----|
| 3.3 | Wiring terminals for connection of external conductors | N/A |
| 3.3.1 | Wiring terminals | N/A |
| 3.3.2 | Connection of non-detachable power supply cords | N/A |
| 3.3.3 | Screw terminals | N/A |
| 3.3.4 | Conductor sizes to be connected | N/A |
| | Rated current (A), cord/cable type, cross-sectional area (mm ²) : | - |
| 3.3.5 | Wiring terminal sizes | N/A |
| | Rated current (A), type and nominal thread diameter (mm) : | - |
| 3.3.6 | Wiring terminals design | N/A |
| 3.3.7 | Grouping of wiring terminals | N/A |
| 3.3.8 | Stranded wire | N/A |

| | | |
|--------|---|-----|
| 3.4 | Disconnection from the mains supply | N/A |
| 3.4.1 | General requirement | N/A |
| 3.4.2 | Disconnect devices | N/A |
| 3.4.3 | Permanently connected equipment | N/A |
| 3.4.4 | Parts which remain energized | N/A |
| 3.4.5 | Switches in flexible cords | N/A |
| 3.4.6 | Number of poles - single-phase and d.c. equipment | N/A |
| 3.4.7 | Number of poles - three-phase equipment | N/A |
| 3.4.8 | Switches as disconnect devices | N/A |
| 3.4.9 | Plugs as disconnect devices | N/A |
| 3.4.10 | Interconnected equipment | N/A |
| 3.4.11 | Multiple power sources | N/A |

| | | |
|-------|---|---|
| 3.5 | Interconnection of equipment | Pass |
| 3.5.1 | General requirements | Pass |
| 3.5.2 | Types of interconnection circuits : | Interconnection circuits are SELV CIRCUITS. |
| 3.5.3 | ELV circuits as interconnection circuits | N/A |
| 3.5.4 | Data ports for additional equipment | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 4 | PHYSICAL REQUIREMENTS | | Fail |
| 4.1 | Stability | | N/A |
| | Angle of 10° | | N/A |
| | Test force (N)..... : | | N/A |
| 4.2 | Mechanical strength | | Pass |
| 4.2.1 | General | Metal enclosure provided. Based on the construction, testing were waived | Pass |
| | Rack-mounted equipment | | N/A |
| 4.2.2 | Steady force test, 10 N | No hazardous internal parts or circuits. | N/A |
| 4.2.3 | Steady force test, 30 N | | N/A |
| 4.2.4 | Steady force test, 250 N | | N/A |
| 4.2.5 | Impact test | Conditioning -20°C | Pass |
| | Fall test | | N/A |
| | Swing test | | N/A |
| 4.2.6 | Drop test; height (mm)..... : | | N/A |
| 4.2.7 | Stress relief test | | N/A |
| 4.2.8 | Cathode ray tubes | | N/A |
| | Picture tube separately certified : | | N/A |
| 4.2.9 | High pressure lamps | | N/A |
| 4.2.10 | Wall or ceiling mounted equipment; force (N) | Test will be conducted on end product based on installation instructions | Need More Information |

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

| | | | |
|-------|--|--|------|
| 4.3 | Design and construction | | Pass |
| 4.3.1 | Edges and corners | All edges and corners are judged to be sufficiently well rounded so as not to constitute a hazard. | Pass |
| 4.3.2 | Handles and manual controls; force (N)..... : | | N/A |
| 4.3.3 | Adjustable controls | | N/A |
| 4.3.4 | Securing of parts | The equipment does not have any supplementary or reinforced insulation. | N/A |
| 4.3.5 | Connection by plugs and sockets | IEC 60083 or IEC 60320 type connectors not used for SELV circuits. | Pass |
| 4.3.6 | Direct plug-in equipment | | N/A |
| | Torque : | | N/A |
| | Compliance with the relevant mains plug standard: | | N/A |
| 4.3.7 | Heating elements in earthed equipment | | N/A |
| 4.3.8 | Batteries | The product is tested with a rechargeable lithium-ion battery pack which has not been certified under UL 2054 or UL/ IEC 62133. A suitable rechargeable lithium-ion battery pack and all required tests under sub-clause 4.3.8 shall be considered in the end-use application. | Fail |
| | - Overcharging of a rechargeable battery | | Pass |
| | - Unintentional charging of a non-rechargeable battery | | N/A |
| | - Reverse charging of a rechargeable battery | BT1: Battery reverse protection provided by 1 k ohm resistor and diode. The non-rechargeable coin battery BT2 does not have a suitable reverse charging current protection circuitry; this non-compliant issue shall be addressed in the end-use product. | Fail |
| | - Excessive discharging rate for any battery | See table 4.3.8 | Pass |
| 4.3.9 | Oil and grease | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 4.3.10 | Dust, powders, liquids and gases | | N/A |
| 4.3.11 | Containers for liquids or gases | | N/A |
| 4.3.12 | Flammable liquids..... : Quantity of liquid (l)..... : Flash point (°C)..... : | | N/A N/A N/A |
| 4.3.13 | Radiation | The equipment does not generate ionizing radiation or contain flammable liquids or gases. | Pass |
| 4.3.13.1 | General | | N/A |
| 4.3.13.2 | Ionizing radiation | | N/A |
| | Measured radiation (pA/kg) | | - |
| | Measured high-voltage (kV) | | - |
| | Measured focus voltage (kV)..... : | | - |
| | CRT markings..... : | | - |
| 4.3.13.3 | Effect of ultraviolet (UV) radiation on materials | | N/A |
| | Part, property, retention after test, flammability classification | | N/A |
| 4.3.13.4 | Human exposure to ultraviolet (UV) radiation | | N/A |
| 4.3.13.5 | Lasers (including laser diodes) and LEDs | This product contains only visible indicator LEDs (Class 1) operating in the range of 400 - 710 nm wavelength. No IEC60825-1 evaluation was deemed necessary. Additional review may be required at the discretion of the accepting NCB. | Pass |
| 4.3.13.5.1 | Lasers (including laser diodes) | | N/A |
| | Laser class | For indicator LEDs, see above statement. | - |
| 4.3.13.5.2 | Light emitting diodes (LEDs) | This product contains only visible indicator LEDs (Class 1) operating in the range of 400 - 710 nm wavelength. No IEC60825-1 evaluation was deemed necessary. Additional review may be required at the discretion of the accepting NCB. | Pass |
| 4.3.13.6 | Other types | | N/A |

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

| | | | |
|---------|---|--|-----|
| 4.4 | Protection against hazardous moving parts | | N/A |
| 4.4.1 | General | | N/A |
| 4.4.2 | Protection in operator access areas : | | N/A |
| | Household and home/office document/media shredders | | N/A |
| 4.4.3 | Protection in restricted access locations : | | N/A |
| 4.4.4 | Protection in service access areas | | N/A |
| 4.4.5 | Protection against moving fan blades | | N/A |
| 4.4.5.1 | General | | N/A |
| | Not considered to cause pain or injury. a) : | | N/A |
| | Is considered to cause pain, not injury. b) : | | N/A |
| | Considered to cause injury. c) : | | N/A |
| 4.4.5.2 | Protection for users | | N/A |
| | Use of symbol or warning : | | N/A |
| 4.4.5.3 | Protection for service persons | | N/A |
| | Use of symbol or warning : | | N/A |

| | | | |
|-------|---|--|------|
| 4.5 | Thermal requirements | | Pass |
| 4.5.1 | General | | Pass |
| 4.5.2 | Temperature tests | | Pass |
| | Normal load condition per Annex L : | Operated in the most unfavorable way of operation given in the operating instructions until steady conditions established. | - |
| 4.5.3 | Temperature limits for materials | | Pass |
| 4.5.4 | Touch temperature limits | Enclosure is designed as heat-sink | Pass |
| 4.5.5 | Resistance to abnormal heat..... : | | N/A |

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

| | | | |
|---------|---|--------------|-----|
| 4.6 | Openings in enclosures | | N/A |
| 4.6.1 | Top and side openings | No openings. | N/A |
| | Dimensions (mm) : | | - |
| 4.6.2 | Bottoms of fire enclosures | No openings | N/A |
| | Construction of the bottom, dimensions (mm)..... : | | - |
| 4.6.3 | Doors or covers in fire enclosures | | N/A |
| 4.6.4 | Openings in transportable equipment | | N/A |
| 4.6.4.1 | Constructional design measures | | N/A |
| | Dimensions (mm) : | | - |
| 4.6.4.2 | Evaluation measures for larger openings | | N/A |
| 4.6.4.3 | Use of metallized parts | | N/A |
| 4.6.5 | Adhesives for constructional purposes | | N/A |
| | Conditioning temperature (°C), time (weeks) : | | - |

| | | | |
|---------|---|---|------|
| 4.7 | Resistance to fire | | Pass |
| 4.7.1 | Reducing the risk of ignition and spread of flame | | Pass |
| | Method 1, selection and application of components wiring and materials | See appended table 4.7. | Pass |
| | Method 2, application of all of simulated fault condition tests | | N/A |
| 4.7.2 | Conditions for a fire enclosure | | Pass |
| 4.7.2.1 | Parts requiring a fire enclosure | | Pass |
| 4.7.2.2 | Parts not requiring a fire enclosure | All components are mounted on PWB rated V-1 or better. | N/A |
| 4.7.3 | Materials | | Pass |
| 4.7.3.1 | General | | Pass |
| 4.7.3.2 | Materials for fire enclosures | Metal enclosure with plastic top cover rated V-0. | Pass |
| 4.7.3.3 | Materials for components and other parts outside fire enclosures | Connectors are made of materials of Class V-2 minimum or UL Recognized ECBT2, RTRT2. | Pass |
| 4.7.3.4 | Materials for components and other parts inside fire enclosures | | N/A |
| 4.7.3.5 | Materials for air filter assemblies | | N/A |
| 4.7.3.6 | Materials used in high-voltage components | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 5 | ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS | | Pass |
| 5.1 | Touch current and protective conductor current | | N/A |
| 5.1.1 | General | | N/A |
| 5.1.2 | Configuration of equipment under test (EUT) | | N/A |
| 5.1.2.1 | Single connection to an a.c. mains supply | | N/A |
| 5.1.2.2 | Redundant multiple connections to an a.c. mains supply | | N/A |
| 5.1.2.3 | Simultaneous multiple connections to an a.c. mains supply | | N/A |
| 5.1.3 | Test circuit | | N/A |
| 5.1.4 | Application of measuring instrument | | N/A |
| 5.1.5 | Test procedure | | N/A |
| 5.1.6 | Test measurements | | N/A |
| | Supply voltage (V) | : | - |
| | Measured touch current (mA) | : | - |
| | Max. allowed touch current (mA)..... | : | - |
| | Measured protective conductor current (mA) | : | - |
| | Max. allowed protective conductor current (mA) ... | : | - |
| 5.1.7 | Equipment with touch current exceeding 3,5 mA | | N/A |
| 5.1.7.1 | General | : | N/A |
| 5.1.7.2 | Simultaneous multiple connections to the supply | | N/A |
| 5.1.8 | Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks | | N/A |
| 5.1.8.1 | Limitation of the touch current to a telecommunication network or to a cable distribution system | | N/A |
| | Supply voltage (V) | : | - |
| | Measured touch current (mA) | : | - |
| | Max. allowed touch current (mA)..... | : | - |
| 5.1.8.2 | Summation of touch currents from telecommunication networks | | N/A |
| | a) EUT with earthed telecommunication ports | : | N/A |
| | b) EUT whose telecommunication ports have no reference to protective earth | | N/A |

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

| | | | |
|-------|--------------------------|---|------|
| 5.2 | Electric strength | | Pass |
| 5.2.1 | General | The product is provided with a protective earthing terminal on the metallic chassis and has provision for a permanently connected Protective Earthing Conductor, including instructions for the installation of that conductor. All I/O ports are earthed in the product. | Pass |
| 5.2.2 | Test procedure | Test performed on DC/DC transformer. No insulation breakdown detected during the test.(see appended table 5.2) | Pass |

| | | | |
|---------|---|--|------|
| 5.3 | Abnormal operating and fault conditions | | Pass |
| 5.3.1 | Protection against overload and abnormal operation | | N/A |
| 5.3.2 | Motors | | N/A |
| 5.3.3 | Transformers | | N/A |
| 5.3.4 | Functional insulation..... : | | N/A |
| 5.3.5 | Electromechanical components | | N/A |
| 5.3.6 | Audio amplifiers in ITE..... : | | N/A |
| 5.3.7 | Simulation of faults | | N/A |
| 5.3.8 | Unattended equipment | | N/A |
| 5.3.9 | Compliance criteria for abnormal operating and fault conditions | | N/A |
| 5.3.9.1 | During the tests | | N/A |
| 5.3.9.2 | After the tests | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 6 | CONNECTION TO TELECOMMUNICATION NETWORKS | | N/A |
| 6.1 | Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment | | N/A |
| 6.1.1 | Protection from hazardous voltages | | N/A |
| 6.1.2 | Separation of the telecommunication network from earth | | N/A |
| 6.1.2.1 | Requirements | | N/A |
| | Supply voltage (V) : | | - |
| | Current in the test circuit (mA)..... : | | - |
| 6.1.2.2 | Exclusions..... : | | N/A |
| 6.2 | Protection of equipment users from overvoltages on telecommunication networks | | N/A |
| 6.2.1 | Separation requirements | The product is provided with a protective earthing terminal on the metallic chassis and has provision for a permanently connected Protective Earthing Conductor, including instructions for the installation of that conductor. All I/O ports are earthed in the product. (Relied upon to comply with sub-clauses 7.3 and 6.2.1). | N/A |
| 6.2.2 | Electric strength test procedure | | N/A |
| 6.2.2.1 | Impulse test | | N/A |
| 6.2.2.2 | Steady-state test | | N/A |
| 6.2.2.3 | Compliance criteria | | N/A |
| 6.3 | Protection of the telecommunication wiring system from overheating | | N/A |
| | Max. output current (A)..... : | | - |
| | Current limiting method : | | - |

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

| 7 | CONNECTION TO CABLE DISTRIBUTION SYSTEMS | | N/A |
|-------|---|--|-----|
| 7.1 | General | | 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 | | N/A |
| 7.3 | Protection of equipment users from overvoltages on the cable distribution system | | N/A |
| 7.4 | Insulation between primary circuits and cable distribution systems | | N/A |
| 7.4.1 | General | | N/A |
| 7.4.2 | Voltage surge test | | N/A |
| 7.4.3 | Impulse test | | N/A |

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|-------------|--|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| A | ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE | N/A | |
| 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) | N/A | |
| A.1.1 | Samples..... : Wall thickness (mm) | - | - |
| A.1.2 | Conditioning of samples; temperature (°C) | N/A | |
| A.1.3 | Mounting of samples | N/A | |
| A.1.4 | Test flame (see IEC 60695-11-3) Flame A, B, C or D | N/A | |
| A.1.5 | Test procedure | N/A | |
| A.1.6 | Compliance criteria Sample 1 burning time (s) | - | |
| | Sample 2 burning time (s) | - | |
| | Sample 3 burning time (s) | - | |
| 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) | N/A | |
| A.2.1 | Samples, material..... : Wall thickness (mm) | - | - |
| A.2.2 | Conditioning of samples; temperature (°C) | N/A | |
| A.2.3 | Mounting of samples | N/A | |
| A.2.4 | Test flame (see IEC 60695-11-4) Flame A, B or C | N/A | - |
| A.2.5 | Test procedure | N/A | |
| A.2.6 | Compliance criteria Sample 1 burning time (s) | - | |
| | Sample 2 burning time (s) | - | |
| | Sample 3 burning time (s) | - | |
| A.2.7 | Alternative test acc. to IEC 60695-11-5, cl. 5 and 9 Sample 1 burning time (s) | N/A | - |
| | Sample 2 burning time (s) | - | |
| | Sample 3 burning time (s) | - | |
| A.3 | Hot flaming oil test (see 4.6.2) | N/A | |
| A.3.1 | Mounting of samples | N/A | |
| A.3.2 | Test procedure | N/A | |

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|-------------|---|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| A.3.3 | Compliance criterion | | N/A |
| B | ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2) | | N/A |
| B.1 | General requirements | | N/A |
| | Position : | | - |
| | Manufacturer : | | - |
| | Type : | | - |
| | Rated values : | | - |
| B.2 | Test conditions | | N/A |
| B.3 | Maximum temperatures | | N/A |
| B.4 | Running overload test | | N/A |
| B.5 | Locked-rotor overload test | | N/A |
| | Test duration (days) : | | - |
| | Electric strength test; test voltage (V) : | | - |
| B.6 | Running overload test for d.c. motors in secondary circuits | | N/A |
| B.6.1 | General | | N/A |
| B.6.2 | Test procedure | | N/A |
| B.6.3 | Alternative test procedure | | N/A |
| B.6.4 | Electric strength test; test voltage (V) : | | N/A |
| B.7 | Locked-rotor overload test for d.c. motors in secondary circuits | | N/A |
| B.7.1 | General | | N/A |
| B.7.2 | Test procedure | | N/A |
| B.7.3 | Alternative test procedure | | N/A |
| B.7.4 | Electric strength test; test voltage (V) : | | N/A |
| B.8 | Test for motors with capacitors | | N/A |
| B.9 | Test for three-phase motors | | N/A |
| B.10 | Test for series motors | | N/A |
| | Operating voltage (V) : | | - |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| C | ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3) | | N/A |
| | Position | : | - |
| | Manufacturer | : | - |
| | Type..... | : | - |
| | Rated values..... | : | - |
| | Method of protection..... | : | - |
| C.1 | Overload test | | N/A |
| C.2 | Insulation | | N/A |
| | Protection from displacement of windings..... | : | N/A |
| D | ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4) | | N/A |
| D.1 | Measuring instrument | | N/A |
| D.2 | Alternative measuring instrument | | N/A |
| E | ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13) | | N/A |
| F | ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G) | | N/A |

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

| | | |
|-------|---|-----|
| G | ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES | N/A |
| G.1 | Clearances | N/A |
| G.1.1 | General | N/A |
| G.1.2 | Summary of the procedure for determining minimum clearances | N/A |
| G.2 | Determination of mains transient voltage (V) | N/A |
| G.2.1 | AC mains supply..... : | N/A |
| G.2.2 | Earthed d.c. mains supply : | N/A |
| G.2.3 | Unearthed d.c. mains supply : | N/A |
| G.2.4 | Battery operation : | N/A |
| G.3 | Determination of telecommunication network transient voltage (V) : | N/A |
| G.4 | Determination of required withstand voltage (V) | N/A |
| G.4.1 | Mains transients and internal repetitive peaks : | N/A |
| G.4.2 | Transients from telecommunication networks : | N/A |
| G.4.3 | Combination of transients | N/A |
| G.4.4 | Transients from cable distribution systems | N/A |
| G.5 | Measurement of transient voltages (V) | 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 | N/A |

| | | |
|---|---|-----|
| H | ANNEX H, IONIZING RADIATION (see 4.3.13) | N/A |
|---|---|-----|

| | | |
|---|---|-----|
| J | ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6) | N/A |
| | Metal(s) used..... : | - |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| K | ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8) | | N/A |
| K.1 | Making and breaking capacity | | N/A |
| K.2 | Thermostat reliability; operating voltage (V) | : | N/A |
| K.3 | Thermostat endurance test; operating voltage (V) : | | N/A |
| K.4 | Temperature limiter endurance; operating voltage (V) | : | N/A |
| K.5 | Thermal cut-out reliability | | N/A |
| K.6 | Stability of operation | | N/A |
| L | ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2) | | Pass |
| L.1 | Typewriters | | N/A |
| L.2 | Adding machines and cash registers | | N/A |
| L.3 | Erasers | | N/A |
| L.4 | Pencil sharpeners | | N/A |
| L.5 | Duplicators and copy machines | | N/A |
| L.6 | Motor-operated files | | N/A |
| L.7 | Other business equipment | | Pass |
| M | ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1) | | N/A |
| M.1 | Introduction | | N/A |
| M.2 | Method A | | N/A |
| M.3 | Method B | | N/A |
| M.3.1 | Ringing signal | | N/A |
| M.3.1.1 | Frequency (Hz) | : | - |
| M.3.1.2 | Voltage (V) | : | - |
| M.3.1.3 | Cadence; time (s), voltage (V) | : | - |
| M.3.1.4 | Single fault current (mA) | : | - |
| M.3.2 | Tripping device and monitoring voltage | : | N/A |
| M.3.2.1 | Conditions for use of a tripping device or a monitoring voltage | | N/A |
| M.3.2.2 | Tripping device | | N/A |
| M.3.2.3 | Monitoring voltage (V) | : | N/A |

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| Clause | Requirement + Test | Result - Remark | 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) | | N/A |
| N.1 | ITU-T impulse test generators | | N/A |
| N.2 | IEC 60065 impulse test generator | | N/A |
| P | ANNEX P, NORMATIVE REFERENCES | | Pass |
| Q | ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1) | | N/A |
| | - Preferred climatic categories..... : | | N/A |
| | - Maximum continuous voltage..... : | | N/A |
| | - Combination Pulse current..... : | | N/A |
| | Body of the VDR Test according to IEC60695-11-5 : | | N/A |
| | Body of the VDR. Flammability class of material (min V-1) : | | N/A |
| R | ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES | | N/A |
| R.1 | Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2) | | N/A |
| R.2 | Reduced clearances (see 2.10.3) | | N/A |
| S | ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3) | | N/A |
| S.1 | Test equipment | | N/A |
| S.2 | Test procedure | | N/A |
| S.3 | Examples of waveforms during impulse testing | | N/A |
| T | ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2) | | N/A |
| | : | | - |
| U | ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4) | | N/A |
| | : | | - |
| V | ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1) | | N/A |
| V.1 | Introduction | | N/A |
| V.2 | TN power distribution systems | | N/A |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| W | ANNEX W, SUMMATION OF TOUCH CURRENTS | | N/A |
| W.1 | Touch current from electronic circuits | | N/A |
| W.1.1 | Floating circuits | | N/A |
| W.1.2 | Earthed circuits | | N/A |
| W.2 | Interconnection of several equipments | | N/A |
| W.2.1 | Isolation | | N/A |
| W.2.2 | Common return, isolated from earth | | N/A |
| W.2.3 | Common return, connected to protective earth | | N/A |
| X | ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1) | | N/A |
| X.1 | Determination of maximum input current | | N/A |
| X.2 | Overload test procedure | | N/A |
| Y | ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3) | | N/A |
| Y.1 | Test apparatus..... : | | N/A |
| Y.2 | Mounting of test samples..... : | | N/A |
| Y.3 | Carbon-arc light-exposure apparatus..... : | | N/A |
| Y.4 | Xenon-arc light-exposure apparatus : | | N/A |
| Z | ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2) | | N/A |
| AA | ANNEX AA, MANDREL TEST (see 2.10.5.8) | | N/A |
| BB | ANNEX BB, CHANGES IN THE SECOND EDITION | | Pass |
| CC | ANNEX CC, EVALUATION OF INTEGRATED CIRCUIT (IC) CURRENT LIMITERS | | N/A |
| CC.1 | General | | N/A |
| CC.2 | Test program 1 | | N/A |
| CC.3 | Test program 2 | | N/A |
| CC.4 | Test program 3 | | N/A |
| CC.5 | Compliance..... : | | N/A |

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

| | | |
|------|--|-----|
| DD | ANNEX DD, REQUIREMENTS FOR THE MOUNTING MEANS OF RACK-MOUNTED EQUIPMENT | N/A |
| DD.1 | General | N/A |
| DD.2 | Mechanical strength test, variable N | N/A |
| DD.3 | Mechanical strength test, 250 N, including end stops | N/A |
| DD.4 | Compliance..... | N/A |

| | | |
|------|---|-----|
| EE | ANNEX EE, HOUSEHOLD AND HOME/OFFICE DOCUMENT/MEDIA SHREDDERS | N/A |
| EE.1 | General | N/A |
| EE.2 | Markings and instructions | 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 | N/A |
| EE.4 | Disconnection of power to hazardous moving parts | N/A |
| | Use of markings or symbols | N/A |
| EE.5 | Protection against hazardous moving parts | N/A |
| | Test with test finger (Figure 2A) | N/A |
| | Test with wedge probe (Figure EE1 and EE2) | N/A |

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

| 1.5.1 TABLE: list of critical components | | | | | |
|--|----------------------------------|-------------------|--|----------------------------|--------------------------------------|
| object/part or Description | manufacturer/ trademark | type/model | technical data | standard (Edition or year) | mark(s) of conformity ¹) |
| Main enclosed chassis | Interchangeable | Interchangeable | Aluminum; two pieces; secured together by screws (Overall dimensions 349 x 209 x 137 mm) | -- | --, -- |
| Front Cover | Sabic Innovative Plastics US LLC | FN-215X (f1) | Min. 5 mm. Rated V-0, suitable for outdoor use with respect to exposure to UV. | UL 94 UL 746C | UL, -- |
| Antenna Cover | Sabic Innovative Plastics US LLC | Lexan 945U (f2) | Min. 1.5 mm. Rated V-0, suitable for outdoor use with respect to exposure to UV. | UL 94 UL 746C | UL, -- |
| Light Pipe External Cover | Sabic Japan LLC | Lexan EXL9134(f1) | Min. 1.5 mm. Rated V-0, suitable for outdoor use with respect to exposure to UV. | UL 94 UL 746C | UL, -- |
| Gaskets of cover, main chassis and battery compartment | PARKER HANNIFIN JBL DIV | S7395-60 | Silicon. Refer to Enclosure ID #4-02 | UL 157 | UL, -- |
| Gaskets of cover, main chassis and battery compartment - Alternate | Interchangeable | Interchangeable | Silicon. Refer to Enclosure ID #4-02 | UL 157 | UL, -- |
| Bushing of input/output RJ45 connectors | Not provided | Not provided | Shall be provided in end-use product and suitable for outdoor installation | -- | --, -- |
| Marking Label | Not provided | Not provided | Shall be provided in end-use product and suitable for outdoor | -- | --, -- |

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

| | | | | | |
|--|--|---------------------|--|----------------------|--|
| Printed Wiring Boards | Interchangeable | Interchangeable | installation Rated min. 105°C, min. V-1. | UL796, IEC60603-2 | UL, -- |
| DC/DC Switching transformers (T3) | Wurth Electronics Midcom, Inc. | 750311783 | Provides functional insulation. Subjected to SEL reliability and Electric Strength tests | UL/IEC 60950-1 | --, Evaluated under this investigation |
| DC input connector | MOLEX | Brad M23 P/N 120234 | Rated 800V, 28A. Refer to Enclosure ID #4-04 | -- | --, -- |
| DC power switch | ZF ELECTRONICS CORP | KR series | Rated 6A, 28 VDC | UL1054 | UL, -- |
| RTC Lithium coin battery (BT1) | PANASONIC CORPORATION OF NORTH AMERICA | CR-1220/HFN | 3 V, Maximum 3 mA abnormal charging current. Battery reverse protection provided by 1 k ohm resistor and diode | UL1642 | UL (MH12210), Evaluated under this investigation |
| RTC Lithium coin battery (BT2) | PANASONIC CORPORATION OF NORTH AMERICA | CR-1220/HFN | 3 V, Maximum 3 mA abnormal charging current. Not provided with reverse charging current protection. To be evaluated in end-use product | UL1642 | UL (MH12210), Evaluated under this investigation |
| Backup Rechargeable Lithium-ion battery | EEMB BATTERY PACK | 3LP103090TB | Rated 11.1 Vdc, 3000 mAh (3S/1P). Refer to Enclosure ID #4-05 and CofA | -- | --, Evaluated under this investigation |
| PTC of PSE output (F5 to F8, F13 to F16) | BEL FUSE INC | 0ZCF0100AF2A | Rated 60Vdc, Ihold: 1A, Itrip: 2A | UL1434 | UL, -- |
| Protective earthing terminal | Interchangeable | Interchangeable | Provision of threaded hole for min. 3.5 mm screw on the rear of the chassis. | -- | --, -- |

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|---|--------------------|--|--|---------|
| Clause | Requirement + Test | | Result - Remark | Verdict |
| | | | Provided with IEC 60417 No. 5019 Main Protective Earth symbol on chassis | |
| <p>Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.</p> | | | | |

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

| | | | | |
|--|---------------------------------------|--|--|-----|
| 1.5.1 | TABLE: Opto Electronic Devices | | | N/A |
| Manufacturer | | | | |
| Type | | | | |
| Separately tested | | | | |
| Bridging insulation | | | | |
| External creepage distance | | | | |
| Internal creepage distance | | | | |
| Distance through insulation | | | | |
| Tested under the following conditions | | | | |
| Input | | | | |
| Output | | | | |
| supplementary information: | | | | |
| Additional types may be described in Enclosure - Miscellaneous | | | | |

| | | | | | | |
|---|--|-------------|-------|--------|------------|--|
| 1.6.2 | TABLE: Electrical data (in normal conditions) | | | | | Pass |
| U (V) | I (A) | I rated (A) | P (W) | Fuse # | I fuse (A) | condition/status |
| 16 Vdc | 2.82 | 3 | 45.16 | -- | -- | MNL - Power by external power source |
| 24 Vdc | 1.92 | 3 | 45.98 | -- | -- | MNL - Power by external power source |
| 48 Vdc POE | 0.95 | 1.5 | 46.06 | -- | -- | MNL - Power by external POE power source |
| supplementary information: | | | | | | |
| The steady state input current did not exceed the rated current at the rated voltage by more than 10 percent under maximum normal load. MNL: The EUT is powered by: 1. From 48 Vdc PoE from host equipment. 2. From 16-24 Vdc of external power supply. Running a script to start transmitting on both Antenna 1 and Antenna 2 port. Load RJ45 Ethernet port B with a POE Load. | | | | | | |

| | | | | | | |
|----------------------------|----------------------------------|--------------------|--------------------|----------------|--|-----|
| 2.1.1.5 c) 1) | TABLE: Max. V, A, VA test | | | | | N/A |
| Voltage (rated) (V) | Current (rated) (A) | Voltage (max.) (V) | Current (max.) (A) | VA (max.) (VA) | | |
| supplementary information: | | | | | | |

| | | | | | | |
|----------------------------|-----------------------------|--|--------------|--|--|-----|
| 2.1.1.5 c) 2) | TABLE: Stored energy | | | | | N/A |
| Capacitance C (μ F) | Voltage U (V) | | Energy E (J) | | | |
| supplementary information: | | | | | | |

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

| 2.2 | TABLE: Evaluation of voltage limiting components in SELV circuits | Pass |
|---|---|-----------------------------|
| Component (measured between) | max. voltage (V) (normal operation) | Voltage limiting components |
| | V peak | |
| PV18POE (SELV) | 20.8 | 19.3 |
| Fault test performed on voltage limiting components | Voltage measured (V) in SELV circuits (V peak or V d.c.) | |
| T3 (short pin 5 to pins 7, 8, 9) | 19.13Vrms / 20.8Vpk | |
| T3 (short pin 5 to pins 10, 11, 12) | 19.11Vrms / 20.8Vpk | |
| T3 (short pins 1, 2 to pins 7, 8, 9) | 22.27Vrms / 36.0Vpk | |
| T3 (short pins 1, 2 to pins 10, 11, 12) | 21.63Vrms / 36.0Vpk | |
| T3 (short pins 3, 4 to pins 7, 8, 9) | 19.23Vrms / 20.8Vpk | |
| T3 (short pins 3, 4 to pins 10, 11, 12) | 21.75Vrms / 28.0Vpk | |
| supplementary information: | | |
| -- | | |

| 2.5 | TABLE: Limited power sources | Pass | | | | |
|---|------------------------------|----------------------------|---------|-------|-------|-------|
| Circuit output tested: | | RJ45 Ethernet port B (PSE) | | | | |
| Note: Measured Uoc (V) with all load circuits disconnected: | | 46.5 Vdc | | | | |
| Components | Sample No. | Uoc (V) | Isc (A) | | VA | |
| | | | Meas. | Limit | Meas. | Limit |
| RJ45 Ethernet port B (PSE) | 1 | 46.5 | 0.61 | 2.15 | 27.49 | 100 |
| supplementary information: | | | | | | |
| PTC of PSE output (F5 to F8, F13 to F16), BEL FUSE INC., P/N 0ZCF0100AF2A; Rated 60Vdc, Ihold: 1A, Itrip: 2A. | | | | | | |

| 2.10.2 | TABLE: Working voltage measurements | N/A | | |
|----------------------------|-------------------------------------|-----------------|------------------|----------|
| Location | | RMS voltage (V) | Peak voltage (V) | Comments |
| supplementary information: | | | | |
| | | | | |

| 2.10.3 and 2.10.4 | TABLE: Clearance and creepage distance measurements | N/A | | | | |
|--|---|--------------|------------------|---------|------------------|---------|
| 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: | | | | | | |
| 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) |
| Basic/supplementary: | | | | | | |
| 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) |

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

| | | | | | | |
|--|------------|--------------|------------------|---------|------------------|---------|
| Reinforced: | | | | | | |
| 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) |
| supplementary information: | | | | | | |

| 2.10.5 | TABLE: Distance through insulation measurements | | | | | N/A |
|--|--|-----------|----------|------------------|-------------------|----------|
| Distance through insulation (DTI) at/of: | | Upeak (V) | Urms (V) | Test voltage (V) | Required DTI (mm) | DTI (mm) |
| supplementary information: | | | | | | |

| 4.3.8 | TABLE: Batteries | | | | | | | Pass |
|--|----------------------------|---------------|-------------------------|---------------|---------------|---------------|------------------------|-----------------------------|
| The tests of 4.3.8 are applicable only when appropriate battery data is not available. | | | | | | | | |
| Is it possible to install the battery in a reverse polarity position? | | | | | | | No | |
| | | | | | | | Rechargeable batteries | |
| | Non-rechargeable batteries | | Un-intentional charging | | Charging | | Discharging | Reversed charging |
| | Meas. current | Manuf. specs. | | Meas. current | Manuf. specs. | Meas. current | Manuf. specs. | Meas. current Manuf. specs. |

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|--|--------------------|-----|-----|------|-----------------|------|------|---------|-----|--|--|--|--|--|
| Clause | Requirement + Test | | | | Result - Remark | | | Verdict | | | | | | |
| Max. current during normal condition | N/A | N/A | N/A | 1.2A | 6.0A | 2.5A | N/A | N/A | N/A | | | | | |
| Max. current during fault condition #1 | N/A | N/A | N/A | 2.7A | 6.0A | N/A | N/A | N/A | N/A | | | | | |
| Max. current during fault condition #2 | N/A | N/A | N/A | N/A | N/A | 4.2A | 6.0A | N/A | N/A | | | | | |
| Test results: | | | | | Verdict | | | | | | | | | |
| - Chemical leaks | | | | | No | | | | | | | | | |
| - Explosion of the battery | | | | | No | | | | | | | | | |
| - Emission of flame or expulsion of molten metal | | | | | No | | | | | | | | | |
| - Electric strength tests of equipment after completion of tests | | | | | No | | | | | | | | | |
| supplementary information: | | | | | | | | | | | | | | |
| Fault condition Fault #1: (Overcharge): Short pin 3 of battery connector to pin 35 of U85. Fault #2: (Excessive discharging) Short and Overload output terminals of battery: Fault was changed to loading the battery with 4.2A (maximum it can be loaded with) because short circuit of the battery only delivers 0.25A max. Test lasted for 40 minutes | | | | | | | | | | | | | | |

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

| 4.3.8 | TABLE: Batteries | | | Fail |
|--|------------------------------------|------------------------------------|----|------|
| Battery category (lithium, NiMh, NiCad, lithium ion, etc.) | Lithium (BT1) | Lithium (BT2) | -- | -- |
| Manufacturer | Panasonic | Panasonic | -- | -- |
| Type / model | CR-1220/HFN | CR-1220/HFN | -- | -- |
| Voltage | 3V | 3V | -- | -- |
| Capacity (mAh) | -- | -- | -- | -- |
| Tested and Certified by (incl. Ref. No.) | MH12210 | MH12210 | -- | -- |
| Circuit protection diagram (refer to indicated supplement of Enclosure - Miscellaneous) | #7-04 | #7-04 | -- | -- |
| -- | -- | -- | -- | -- |
| MARKINGS AND INSTRUCTIONS (1.7.12, 1.7.15) | | | | |
| Location of replaceable battery | Mainboard | Mainboard | -- | -- |
| -- | To be evaluated in end-use product | To be evaluated in end-use product | -- | -- |
| Close to the battery | -- | -- | -- | -- |
| In the servicing instructions | N/A | N/A | -- | -- |
| In the operating instructions | N/A | N/A | -- | -- |
| -- | -- | -- | -- | -- |
| supplementary information: | | | | |
| For BT2: Not provided with reverse charging current protection. To be evaluated in end-use product | | | | |

| 4.5 | TABLE: Thermal requirements | | | | | | Pass |
|-----|------------------------------------|--------|------------------|------------|------------------|----|------|
| | Supply voltage (V) : | 24 Vdc | 24 Vdc | 48 Vdc POE | 48 Vdc POE | -- | --- |
| | Ambient Tmin (°C) : | -- | -- | -- | -- | -- | --- |
| | Ambient Tmax (°C) : | 22.9°C | Adjusted to 55°C | 22.8°C | Adjusted to 55°C | -- | --- |

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|---|--------------------|--------------|--------------|-----------------|--------------|-------------------|
| Clause | Requirement + Test | | | Result - Remark | | Verdict |
| Maximum measured temperature T of part/at: | T (°C) #1 | T (°C) #2 | T (°C) #3 | T (°C) #4 | T (°C) #5 | Allowed Tmax (°C) |
| Body of battery pack | 45.2 | 77.3 | 41.1 | 73.3 | -- | 100 |
| PWB near GSM chip | 51.8 | 83.9 | 47.4 | 79.6 | -- | 105 |
| PWB near J4 connector | 50.3 | 82.4 | 45.6 | 77.8 | -- | 105 |
| PWB near U2400 | 51.5 | 83.6 | 46.1 | 78.3 | -- | 105 |
| PWB near U1500 | 49.7 | 81.8 | 45.9 | 78.1 | -- | 105 |
| PWB near T3 | 59.0 | 91.1 | 68.4 | 100.6 | -- | 105 |
| PWB near D10074 | 49.6 | 81.7 | 50.9 | 83.1 | -- | 105 |
| PWB near Q96 | 51.3 | 83.4 | 51.5 | 83.7 | -- | 105 |
| PWB near Q95 | 51.9 | 84 | 52.3 | 84.5 | -- | 105 |
| PWB near J113 | 49.9 | 82 | 46.2 | 78.4 | -- | 105 |
| PWB near L34 | 52.3 | 84.4 | 48.0 | 80.2 | -- | 105 |
| PWB near D10072 | 49.5 | 81.6 | 47.7 | 79.9 | -- | 105 |
| Enclosure Hotspot (Metallic by battery) | 40.4 | 72.5 | 38.2 | 70.4 | -- | 90 (*) |
| Enclosure Hotpost (Plastic) | 23.4 | 55.5 | 22.9 | 55.1 | -- | 95 |
| Enclosure Hotspot (Metallic, side) | 44.6 | 76.7 | 39.3 | 71.5 | -- | 90 (*) |
| Ambient | 22.9 | 55 | 22.8 | 55 | -- | -- |
| Temperature T of winding: | t1 (°C) | R1 (ohm) | t2 (°C) | R2 (ohm) | T (°C) | Allowed Tmax (°C) |
| -- | -- | -- | -- | -- | -- | -- |
| supplementary information: | | | | | | |
| Tma: 55°C. MNL: The EUT is powered by: 1. 48 Vdc PoE from host equipment. 2. 24 Vdc of external power supply. Running a script to start transmitting on both Antenna 1 and Antenna 2 port. Load RJ45 Ethernet port B with a POE Load. | | | | | | |

| | | |
|----------------------------|---|---------------------------|
| 4.5.5 | TABLE: Ball pressure test of thermoplastic parts | N/A |
| | allowed impression diameter (mm) : | less than or equal to 2.0 |
| part | test temperature (°C) | impression diameter (mm) |
| supplementary information: | | |

| | | | | | |
|----------------------------|----------------------------------|------------------|----------------|--------------------|----------|
| 4.7 | TABLE: Resistance to fire | Pass | | | |
| Part | Manufacturer of material | Type of material | Thickness (mm) | Flammability class | Evidence |
| -- | -- | -- | -- | -- | -- |
| supplementary information: | | | | | |
| See table 1.5.1 | | | | | |

| | | | |
|----------------------------|---|------------|---------------------|
| 5.1 | TABLE: Touch current measurement | N/A | |
| Measured between | Measured (mA) | Limit (mA) | Comments/conditions |
| supplementary information: | | | |

| IEC 60950-1 | | | |
|-------------|--------------------|-----------------|---------|
| Clause | Requirement + Test | Result - Remark | Verdict |

| 5.2 | TABLE: Electric strength tests, impulse tests and voltage surge tests | | | Pass |
|--|--|---------------------|-----------------------|------|
| Test voltage applied between: | Voltage shape (AC, DC, impulse, surge) | Test voltage (V) | Breakdown Yes / No | |
| -- | -- | -- | -- | -- |
| Functional: | | | | |
| Test voltage applied between: | Voltage shape (AC, DC, impulse, surge) | Test voltage (V) | Breakdown Yes / No | |
| -- | -- | -- | -- | -- |
| Basic/supplementary: | | | | |
| Test voltage applied between: | Voltage shape (AC, DC, impulse, surge) | Test voltage (V) | Breakdown Yes / No | |
| DC/DC switching transformer T3 (Primary to Secondary windings) | DC | 1414 | No | |
| Reinforced: | | | | |
| Test voltage applied between: | Voltage shape (AC, DC, impulse, surge) | Test voltage (V) | Breakdown Yes / No | |
| -- | -- | -- | -- | -- |
| supplementary information: | | | | |
| -- | | | | |

| 5.3 | TABLE: Fault condition tests | | | | | | Pass | | |
|---|-------------------------------------|--------------------|-----------|--------|---|-------------|------|--|--|
| Ambient temperature (°C) : | | | | | 22.34°C | --- | | | |
| Power source for EUT: Manufacturer, model/type, output rating : | | | | | 48 Vdc POE from Mean Wells power supply P/N GST120A48-P1M; output 48 Vdc, 2.5A ; 120W max | --- | | | |
| Component No. | Fault | Supply voltage (V) | Test time | Fuse # | Fuse current (A) | Observation | | | |
| PSE output | O/L | 48 Vdc POE | 1h47 | -- | -- | NC, NT | | | |
| supplementary information: | | | | | | | | | |
| Results Key: IP = Internal protection operated (component indicated) CT = Constant temperatures were obtained TW = Transformer winding opened CD = Components damaged (damaged components indicated) NB = No indication of dielectric breakdown YB = Dielectric breakdown (time and location indicated) NC = Cheesecloth remained intact YC = Cheesecloth charred or flamed NT = Tissue paper remained intact YT = Tissue paper charred or flamed | | | | | | | | | |

| IEC 60950-1 | | | | | | |
|-------------|--------------------|--|--|-----------------|--|---------|
| Clause | Requirement + Test | | | Result - Remark | | Verdict |

| C.2 | TABLE: Transformers | | | | | | | N/A |
|----------------------------|----------------------------|--------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---|---|---|
| Loc. | Tested insulation | Working voltage peak / V (2.10.2) | Working voltage rms / V (2.10.2) | Required electric strength (5.2) | Required clearance / mm (2.10.3) | Required creepage distance / mm (2.10.4) | Required distance thr. insul. (2.10.5) | |
| Loc. | Tested insulation | | | | Test voltage / V | Measured clearance / mm | Measured creepage dist./ mm | Measured distance thr. insul. / mm; number of layers |
| Transformer type number | | Enclosure - Miscellaneous ID | | | | | | |
| supplementary information: | | | | | | | | |

Enclosure

National Differences

Argentina
Australia / New Zealand
Austria**
Belarus*
Belgium**
Bulgaria**
China
Czech Republic**
Denmark
France**
Germany
Greece**
Group
Hungary**
India*
Ireland
Israel
Italy**
Japan
Korea
Malaysia*
Netherlands**
Poland**
Portugal**
Romania**
Saudi Arabia*
Serbia**
Singapore*
Slovakia**
Slovenia**
South Africa*
Spain
Switzerland
USA / Canada
Ukraine*
United Kingdom

* No National Differences Declared
** Only Group Differences

| IEC 60950-1:2005 | | | |
|------------------|-------------------|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |

| Argentina - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | |
|--|---|--|------|
| General | Argentina has national differences declared to 60950-1:2005 + A1:2009. | | Pass |
| 1.5.2 | Certified plug according to IRAM 2063 (two prong) or IRAM 2073 (three prong) are used in accordance with their ratings | | N/A |
| 1.7.2 | Operating/safety instructions made available to the user in Spanish. Product information appears on the product. | To be provided by end-product Manufacturer | N/A |
| 3.2 | Plugs shall be in conformity with IRAM 2063 Standard for Class II and IRAM 2073 Standard for Class I appliances (Resolution 524/98) | | N/A |
| 4.3.6 | Adapters/Transformers provided with integrated plugs shall be provided with blades which shall meet the geometry of IRAM 2063 standard for Class II appliances or IRAM 2073 standard for Class I appliances (Resolution 524/98) | | N/A |
| General | Household power supply sources are 220 V a.c., 50 Hz | | N/A |

| IEC 60950-1:2005 | | | |
|------------------|-------------------|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |

| Australia / New Zealand - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | | | | | | | | | | | |
|--|--|--------------------------------|---|----------|--------|----------|------|-----------|----------------|----------|--------------|--|-----|
| General | Australia has national differences declared for 60950-1:2005 (below). | | Pass | | | | | | | | | | |
| 1.2.12.20 1 | Addition: POTENTIAL IGNITION SOURCE Possible fault which can starts a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s. current under normal operating conditions exceeds 15VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in conductive patterns on printed boards. Note 201: An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE. Note 202: This definition is from AS/NZS 60065:2003 | | N/A | | | | | | | | | | |
| 1.5.1 | Add to the end of the first paragraph and in note 1 after the word "standard"; "or the relevant Australian / New Zealand Standard". | | Pass | | | | | | | | | | |
| 1.5.2 | Add the following to the end of the first and third dash items: 'or the relevant Australian/New Zealand Standard'. | | Pass | | | | | | | | | | |
| 3.2.5.1 | <p>Replace the first four rows for Table 3B with the following: Sizes of Conductors</p> <table border="1"> <thead> <tr> <th>Rated Current of Equipment (A)</th> <th>Nominal cross-sectional area (mm²)</th> </tr> </thead> <tbody> <tr> <td>0.2 <= 3</td> <td>0.5 1)</td> </tr> <tr> <td>3 <= 7.5</td> <td>0.75</td> </tr> <tr> <td>7.5 <= 10</td> <td>(0.75) 2) 1.00</td> </tr> <tr> <td>10 <= 16</td> <td>(1,0) 3) 1.5</td> </tr> </tbody> </table> <p>Replace footnote 1) with the following: 1) This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord or cord guard, enters the appliance, and the entry to the plug, does not exceed 2 m (0.5 mm² three-core supply flexible cords are not</p> | Rated Current of Equipment (A) | Nominal cross-sectional area (mm ²) | 0.2 <= 3 | 0.5 1) | 3 <= 7.5 | 0.75 | 7.5 <= 10 | (0.75) 2) 1.00 | 10 <= 16 | (1,0) 3) 1.5 | | N/A |
| Rated Current of Equipment (A) | Nominal cross-sectional area (mm ²) | | | | | | | | | | | | |
| 0.2 <= 3 | 0.5 1) | | | | | | | | | | | | |
| 3 <= 7.5 | 0.75 | | | | | | | | | | | | |
| 7.5 <= 10 | (0.75) 2) 1.00 | | | | | | | | | | | | |
| 10 <= 16 | (1,0) 3) 1.5 | | | | | | | | | | | | |

| IEC 60950-1:2005 | | | |
|------------------|---|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | <p>permitted; see S/NZS 3191).</p> <p>Delete Note 1.</p> | | |
| 4.1.201 | <p>Addition: Display devices used for television purposes</p> <p>Display devices which may be used for television purposes, with a mass of 7 kg or more, shall comply with the requirements for stability and mechanical hazards, including the additional stability requirements for television received, specified in AS/NZS 60065.</p> | | N/A |
| 4.3.6 | Replace the third paragraph: Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flat-pin socket-outlet complying with AS/NZS 3112, shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets. | | N/A |
| 4.3.13.5 | Add the following to the end of the first paragraph: "or AS/NZS 2211.1" | | N/A |
| 4.7 | Add after the clause: For alternative resistance to fire tests, refer to Clause 4.7.201 | | N/A |
| 4.7.201.1 | <p>Addition: Resistance to fire - Alternative tests</p> <p>General</p> <p>Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames originating from inside the apparatus, or the following:</p> <p>(a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1 mm in width regardless of length.</p> <p>(b) The following parts which would contribute negligible fuel to a fire:</p> <ul style="list-style-type: none"> - small mechanical parts, the mass of which does not exceed 4 g, such as mounting parts, gears, cams, belts and bearings; - small electrical components, such as capacitors with a volume not exceeding 1,750 mm³, integrated circuits, transistors and optocoupler packages, if these components are mounted on | | N/A |

| IEC 60950-1:2005 | | | |
|------------------|---|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | <p>material of flammability category V-1, or better, according to AS/NZS 60695.11.10.</p> <p>NOTE In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating fire from one part to another.</p> <p>Compliance shall be checked by the tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5. For the base material of printed boards, compliance shall be checked by the test of 4.7.201.5.</p> <p>The tests shall be carried out on parts of non-metallic material which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use.</p> <p>These tests are not carried out on internal wiring.</p> | | |
| 4.7.201.2 | <p>Addition: Testing of non-metallic materials</p> <p>Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550°C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part.</p> | | N/A |
| 4.7.201.3 | <p>Addition: Testing of insulating materials</p> <p>Parts of insulating material supporting POTENTIAL IGNITION SOURCES shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750°C. The test shall be also carried out on other parts of insulating material which are within a distance of 3mm of the connection.</p> <p>NOTE Contacts in components such as switch contacts are considered to be connections.</p> <p>For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a</p> | | N/A |

| IEC 60950-1:2005 | | | |
|------------------|---|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | <p>diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested. The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:</p> <p>Clause of AS/NZS 60695.11.5 Change</p> <p>9 Test procedure</p> <p>9.2 Replace the first paragraph with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. Replace the second paragraph with: The duration of application of the test flame shall be 30s + 1s.</p> <p>9.3 Replace with: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall then withstand the test.</p> <p>11 Evaluation of test results Replace with: The duration of burning (tb) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.</p> <p>The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the sample tested was not thicker than the relevant part.</p> | | |
| 4.7.201.4 | <p>Addition: Testing in the event of non-extinguishing material - If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glow-wire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested. NOTE 1 - If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the</p> | | N/A |

| IEC 60950-1:2005 | | | |
|------------------|--|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | requirements of Clause 4.7.201 without the need for consequential testing. NOTE 2 - If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 3 - Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections. | | |
| 4.7.201.5 | <p>Addition: Testing of printed boards - The base material of printed boards shall be subjected to the needle-flame test of Clause 4.7.201.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a POTENTIAL IGNITION SOURCE.</p> <p>The test is not carried out if the</p> <ul style="list-style-type: none"> - Printed board does not carry any POTENTIAL IGNITION SOURCE; - Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or - Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having | | N/A |

| IEC 60950-1:2005 | | | |
|------------------|---|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | <p>openings only for connecting wires which fill the openings completely.</p> <p>Compliance shall be determined using the smallest thickness of the material.</p> <p>NOTE – Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximise the apparent power for more than 2 min when the circuit supplied is disconnected.</p> | | |
| 6.2.2 | <p>For Australia only, delete the first paragraph and Note, and replace with the following: In Australia (not in New Zealand) only, compliance with 6.2.2 is checked by the tests of both 6.2.2.1 and 6.2.2.2.</p> | | N/A |
| 6.2.2.1 | <p>For Australia only, delete the first paragraph including the note and replace with the following: In Australia only(not in New Zealand), the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator of Annex N for 10/700μs impulses. The interval between successive impulses is 60 s and the initial voltage, Uc is:</p> <p>(i) for 6.2.1a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment and</p> <p>(ii) for 6.2.1b) and 6.2.1c): 1.5 kV.</p> <p>NOTE 201 - The 7 kV impulse is to simulate lightning surges on typical rural and semi-rural network lines.</p> <p>NOTE 202 - The value of 2.5 kV for 6.2.1a) was chosen to ensure adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.</p> | | N/A |
| 6.2.2.2 | <p>For Australia only, delete the second paragraph including the Note and replace with the following: In Australia (not New Zealand), the a.c. test voltage is:</p> <p>(i) for 6.2.1a) 3 kV; and (ii) for 6.2.1b) and 6.2.1c) 1.5 kV</p> <p>NOTE 201 - Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used.</p> <p>NOTE 202 - The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.</p> | | N/A |
| 7.3 | Add the following before the first | | N/A |

| IEC 60950-1:2005 | | | |
|------------------|--|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | paragraph:Equipment providing functions that fall only within the scope of AS/NZS 60065 and that incorporate a PSTN interface, are not required to comply with this Clause where the only ports provided on the equipment, in addition to a coaxial cable connection and a PSTN interface, are audio or video ports and analogue or data ports not intended to be used for telecommunication purposes. | | |
| P | Add the following Normative References: AS/NZS 3191, Electric flexible cords AS/NZS 3112, Approval and test specification—Plugs and socket-outlets | | Pass |

| IEC 60950-1:2005 | | | |
|------------------|-------------------|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |

| China - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | |
|---|--|--|------|
| General | China has national differences declared for 60950-1:2005 (below). | | Pass |
| 1.1.2 | Revised third dashed paragraph to read: equipment intended to be used in vehicles, on board ships or aircraft, in tropical countries, or at altitudes greater than 5000m; | | N/A |
| 1.4.5 | Amend the second paragraph and the two following dash paragraphs as: If the equipment is intended for direct connection to an AC mains supply, the tolerances on RATED VOLTAGE shall be taken as +10%,-10% unless a wider tolerance is declared by the manufacturer, in which case the tolerance shall be taken as the wider value. | | N/A |
| 1.4.12.1 | Tma in clause 1.4.12.1 amended as: Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater. Add note 1: for equipment not to be operated at tropical climatic conditions, Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater. Add note 2: for equipment is to be operated at 2000m-5000m above sea level, its temperature test conditions and temperature limits are considered. | | Pass |
| 1.5.2 | Add a note behind the first dashed paragraph. Note: A component used shall comply with related requirements corresponding altitude of 5000m. | | N/A |
| 1.7 | Add a paragraph before the last paragraph: The required marking and instruction should be given in normative Chinese unless otherwise specified. | | N/A |
| 1.7.1 | Amend dashed paragraph at the fifth paragraph : The RATED VOLTAGE should be 220V (single phase) or 380V (three-phases) for single rated voltage, for RATED VOLTAGE RANGE, it should cover 220V or 380V (three-phases), for multiple RATED VOLTAGES, one of them should be 220V | | N/A |

| IEC 60950-1:2005 | | | |
|------------------|---|--|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | <p>or 380V (three-phases) and set on 220V or 380V (three-phases) when manufactured.</p> <p>And the RATED FREQUENCY or RATED FREQUENCY RANGE should be 50Hz or include 50Hz</p> | | |
| 1.7.2.1 | <p>Add requirements of warning for equipment intended to be used at altitude not exceeding 2000m or at non-tropical climate regions:</p> <p>For equipment intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place.</p> <p>"Only used at altitude not exceeding 2000m."</p> <p>For equipment intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place.</p> <p>"Only used in not-tropical climate regions."</p> <p>If only the symbol used, the explanation of the symbol shall be contained in the instruction manual.</p> <p>The above statements shall be given in a language acceptable to the regions where the apparatus is intended to be used.</p> | To be provided by end-product Manufacturer | N/A |
| 2.7.1 | Amended the first paragraph as: Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except special provisions. And the protective device shall meet the requirement of Clause 5.3. | | N/A |
| 2.9 | Humidity conditioning This section applies for equipment to be operated at tropical climatic conditions, humidity conditioning dealt with tropical climatic conditions. For equipment not to be operated at tropical climatic conditions, its humidity conditioning complies with rules of CTL 624/07. | | Pass |
| 2.9.2 | First section of Clause 2.9.2 amended as two sections: Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature 40±2°C and a relative humidity of | | N/A |

| IEC 60950-1:2005 | | | |
|------------------|--|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | <p>(93±3)%. During this conditioning the component or subassembly is not energized.</p> <p>For equipment not to be operated at tropical climatic conditions, Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of (93±3) %. The temperature of the air, at all places where samples can be located, is maintained within 2 °C of any convenient value between 20 °C and 30 °C such that condensation does not occur.</p> <p>Due to pretreatment of equipment operated at high altitude area is humidity conditioning withstand hot shock, specific requirements are to be considered.</p> <p>Add note: For equipment to be operated at 2000m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered.</p> | | |
| 2.10.3.1 | <p>Amend the third paragraph of Clause 2.10.3.1 to be:</p> <p>These requirements apply for equipment to be operated up to 2000m above sea level. For equipment to be operated at more than 2000m above sea level and up to 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of IEC 60664-1. For equipment to be operated at more than 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.</p> | | N/A |
| 2.10.3.3 | Add "(applicable for altitude up to 2000m)" in header of Table 2K, 2L and 2M. | | N/A |
| 2.10.3.4 | Add "(applicable for altitude up to 2000m)" in header of Table 2K, 2L and 2M. | | N/A |
| 2.10.3.4 | <p>Add a new section above Table 2K and in Clause 2.10.3.4:</p> <p>Minimum CLEARANCES determined by above rules apply for equipment to be operated up to 2000m above sea level. For equipment operated at 2000m - 5000m above sea level, the minimum</p> | | N/A |

| IEC 60950-1:2005 | | | |
|------------------|--|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1 (IEC 60664-1). For equipment to be operated at more than 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T16935.1. | | |
| 3.2.1.1 | Add a paragraph before the last paragraph: Plugs connected to AC mains supply shall comply with GB 1002 or GB 1003 or GB/T 11918 as applicable. | | N/A |
| 4.2.8 | Clause 4.2.8 cathode ray tubes quoted Clause 18 of GB8898-2011. Delete note of Clause 4.2.8. | | N/A |
| E | Amend last section: For comparison of winding temperatures determined by the resistance method of this annex with the temperature limits of Table 4B, 35 °C shall be added to the calculated temperature rise. Add note: for equipment not to be operated at tropical climatic conditions, 25 °C shall be added to the calculated temperature rise to compare with the temperature of Table 4B. | | N/A |
| G.6 | Change the second section of Clause G.6 to be: For equipment to be operated at 2000m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1. For equipment to be operated at more than 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment. | | N/A |
| BB | Amended as: The differences between Chinese national standards GB 4943.1-2011 and GB 4943-2001. | | N/A |
| DD | Added annex DD: Instructions for the new safety warning labels. DD.1 Altitude warning label Meaning of the label: Evaluation for apparatus only based on altitude not exceeding 2000m, therefore it's the only operating condition applied for the equipment .There may be some potential safety | | N/A |

| IEC 60950-1:2005 | | | |
|------------------|---|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |
| | <p>hazard if the equipment is used at altitude above 2000m.</p> <p>DD.2 Climate warning label Meaning of the label: Evaluation for apparatus only based on temperate climate condition, therefore it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used in tropical climate region.</p> | | |
| EE | Illustration relative to safety explanation in normative Chinese, Tibetan, Mongolian, Zhuang Language and Uighu. | | N/A |
| Other | In accordance with the relevant CTL decisions and the amendments of IEC 60950-1, the specific requirements or mistakes in IEC standard are corrected or editorially modified in this part, Including clause 1.7, 2.1.1.7, 2.9.2, Table 2H, Figure 2H, F.8, F.9, M.3 and Annex U | | Pass |
| Other | <p>The principles of quoting and referring to other standards in Annex P and reference documents of IEC 60950-1 are as follows:</p> <p>If the date of the reference document is given, only that edition applies, excluding any subsequent corrigenda and amendments. However, parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent editions of the reference documents. For undated references, the latest edition of the referenced document applies, including any corrigenda and amendments.</p> <p>For the usage of international standards in Chinese national standards and industry standards is various, in the aim of achieving easy operation and based on the requirements of GB/T 1.1 and GB/T 20000.2, when quoting an entire international standard in the normative quoting files and reference documents of Annex P of this part, the principles of quotation are as follows:</p> <ul style="list-style-type: none"> - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted; - If the date of the national standard or industry standard is not given, the latest edition of the standard applies; | | Pass |

| IEC 60950-1:2005 | | | |
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| SubClause | Difference + Test | Result - Remark | Verdict |
| | <p>- The national standard or industry standard number, corresponding international standard number and the consistency level code should be identified in parentheses behind the listed national standard or industry standard.</p> <p>When quoting several chapters or clauses of the international standard, the principles of quotation are as follows:</p> <ul style="list-style-type: none">- If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted;- If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted. <p>Meanwhile, in order to retain the relevant information on international standards, informative annex CC is increased, which gives the table about the comparison of the normative quoting files and reference documents in IEC 60950-1:2005.</p> | | |

| IEC 60950-1:2005 | | | |
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| SubClause | Difference + Test | Result - Remark | Verdict |

| Denmark - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | |
|--|--|--|-----|
| 1.2.4.1 | In Denmark, certain types of Class I appliances (see sub-clause 3.2.1.1) may be provided with plug not establishing earthing continuity when inserted into Danish socket-outlets. | | N/A |
| 1.7.2.1 | CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: : "Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord." | | N/A |
| 1.7.5 | In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For stationary equipment, the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a. | | N/A |
| 1.7.5 | For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a. (Heavy Current Regulations, Section 107-2-D1) | | N/A |
| 3.2.1.1 | Supply cord of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contact or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current | | N/A |

| IEC 60950-1:2005 | | | |
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| SubClause | Difference + Test | Result - Remark | Verdict |
| | Regulations, Section 107-2-D1 or EN 60309-2. | | |

| Germany - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | |
|---|---|--|
| 1.7.2.1 | If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market. Of this requirement, rules for use even only by SERVICE PERSONS are not exempted. | To be provided by end-product Manufacturer. N/A |

| IEC 60950-1:2005 | | | |
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| SubClause | Difference + Test | Result - Remark | Verdict |

| Group - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | |
|--|---|--|------|
| General | Group Differences also includes the requirements in A11:2009 and A12:2011 | | Pass |
| 1.3 | A12:2011 - In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010 | | N/A |
| 1.5.1 | Add the following NOTE Z1: The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC | To be provided by end-product Manufacturer | Pass |
| 1.7.2.1 | Delete NOTE Z1 and the addition for Portable Sound System Add the following Zx clauses and annex to the existing standard and amendments | | N/A |
| 2.7.1 | Replace the subclause as follows: Basic requirements To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet. | | N/A |
| 2.7.2 | Void | Protective device to comply with the faults in 5.3 integral to | Pass |

| IEC 60950-1:2005 | | | | | | | | | |
|--------------------------------|---|------------------------|---------|-------------------------------|-------------|--------------------------------|------------|--|-----|
| SubClause | Difference + Test | Result - Remark | Verdict | | | | | | |
| 3.2.3 | Delete the NOTE and conduit sizes in parentheses in Table 3A | external power supply. | N/A | | | | | | |
| 3.2.5.1 | <p>Add the following Note: NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD.</p> <p>In Table 3B, replace the first four lines by the following:</p> <table> <tr><td>Up to and including 6</td><td>0.75 a)</td></tr> <tr><td>Over 6 up to and including 10</td><td>0.75 b) 1.0</td></tr> <tr><td>Over 10 up to and including 16</td><td>1.0 c) 1.5</td></tr> </table> <p>In the conditions applicable to table 3B, delete the words "in some countries" in condition a).</p> <p>In Note 1, applicable Table 3B, to delete the second sentence.</p> | Up to and including 6 | 0.75 a) | Over 6 up to and including 10 | 0.75 b) 1.0 | Over 10 up to and including 16 | 1.0 c) 1.5 | | N/A |
| Up to and including 6 | 0.75 a) | | | | | | | | |
| Over 6 up to and including 10 | 0.75 b) 1.0 | | | | | | | | |
| Over 10 up to and including 16 | 1.0 c) 1.5 | | | | | | | | |
| 3.3.4 | <p>In table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: "Over 10 up to and including 16 1.5 to 2.5 1.5 to by 4"</p> <p>Delete the fifth line: conductor sizes for 13 to 16A.</p> | | N/A | | | | | | |
| 4.3.13.6 | Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation). Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC. | | N/A | | | | | | |
| H | <p>Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 μSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level.</p> <p>Replace the notes as follows: NOTE - These values appear in Directive 96/29/Euratom. Delete NOTE 2.</p> | | N/A | | | | | | |

| IEC 60950-1:2005 | | | |
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| SubClause | Difference + Test | Result - Remark | Verdict |

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| Zx | Protection against excessive sound pressure from personal music players | | |
| Zx.1 | <p>General - This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players.</p> <p>A personal music player is a portable equipment for personal use, that:</p> <ul style="list-style-type: none"> - is designed to allow the user to listen to recorded or broadcast sound or video; and - primarily uses headphones or earphones that can be worn in or on or around the ears; and - allows the user to walk around while in use. <p>NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment.</p> <p>A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause.</p> <p>The requirements in this sub-clause are valid for music or video mode only.</p> <p>The requirements do not apply:</p> <ul style="list-style-type: none"> - while the personal music player is connected to an external amplifier; or - while the headphones or earphones are not used. <p>NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player.</p> <p>The requirements do not apply to:</p> <ul style="list-style-type: none"> - hearing aid equipment and professional equipment; <p>NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.</p> <ul style="list-style-type: none"> - analogue personal music players (personal music | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| | <p>players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015.</p> <p>NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies.</p> <p>For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.</p> | | |
| Zx.2 | <p>Equipment Requirements - No safety provision is required for equipment that complies with the following:</p> <ul style="list-style-type: none"> - equipment provided as a package (personal music player with its listening device), where the acoustic output LAeq,T is ≤ 85 dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and - a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1. <p>NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level LAeq,T is meant. See also Zx.5 and Annex Zx.</p> <p>All other equipment shall:</p> <ol style="list-style-type: none"> a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic | | N/A |

| IEC 60950-1:2005 | | | |
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| SubClause | Difference + Test | Result - Remark | Verdict |
| | <p>output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and</p> <p>NOTE 2 Examples of means include visual or audible signals. Action from the user is always required.</p> <p>NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off.</p> <p>d) have a warning as specified in Zx.3; and</p> <p>e) not exceed the following:</p> <ul style="list-style-type: none"> 1) equipment provided as a package (player with its listening device), the acoustic output shall be \leq 100 dBA measured while playing the fixed "programme simulation noise" described in EN 50332-1; and 2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be \leq 150 mV measured as described in EN 50332-2, while playing the fixed "programme simulation noise" described in EN 50332-1. For music where the average sound pressure (long term LAeq,T) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song. <p>NOTE 4 Classical music typically has an average sound pressure (long term LAeq,T) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.</p> | | |

| IEC 60950-1:2005 | | | |
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| SubClause | Difference + Test | Result - Remark | Verdict |
| Zx.3 | <p>Warning - The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following:</p> <ul style="list-style-type: none"> - the symbol of Figure 1 (IEC 60417-6044) with a minimum height of 5 mm; and - the following wording, or similar: <p>“To prevent possible hearing damage, do not listen at high volume levels for long periods.”</p> <p>Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level</p> | | N/A |
| Zx.4 | Requirements for Listening devices (headphones and earphones) | | N/A |
| Zx.4.1 | <p>Wired listening devices with analogue input With 94 dBA sound pressure output LAeq,T, the input voltage of the fixed “programme simulation noise” described in EN 50332-2 shall be \geq 75 mV.</p> <p>This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control).</p> <p>NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.</p> | | N/A |
| Zx.4.2 | <p>Wired listening devices with digital input With any playing device playing the fixed “programme simulation noise” described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output LAeq,T of the listening device shall be \leq 100 dBA.</p> <p>This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.).</p> <p>NOTE An example of a wired listening device with digital input is a USB headphone.</p> | | N/A |
| Zx.4.3 | Wireless listening devices In wireless mode: - with any playing and transmitting device playing | | N/A |

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| | <p>the fixed programme simulation noise described in EN 50332-1; and</p> <ul style="list-style-type: none"> - respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and - with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output LAeq,T of the listening device shall be ≤ 100 dBA. <p>NOTE An example of a wireless listening device is a Bluetooth headphone.</p> | | |
| Zx.5 | <p>Measurement Methods</p> <p>Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s.</p> <p>NOTE Test method for wireless equipment provided without listening device should be defined.</p> | | N/A |

| Ireland - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | |
|---|---|--|------|
| General | Ireland has national differences declared for 60950-1:2005, Am 1:2009 (below). | | Pass |
| 3.2.1.1 | Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997. | | N/A |
| 4.3.6 | DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997. | | N/A |

| IEC 60950-1:2005 | | | |
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| SubClause | Difference + Test | Result - Remark | Verdict |

| Israel - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | |
|--|--|--|------|
| General | Israel has national differences declared for 60950-1:2005, Am 1:2009 (below). | | Pass |
| 1.6.1 | Add Note: This clause is applicable subject to the Electricity Law, 1954, its regulations and revisions. | | N/A |
| 1.7 | Add: Sub-clause 1.7.201 shall be added at the beginning of the clause. | | N/A |
| 1.7.2.1 | Add: All the instructions and warnings related to safety shall also be written in the Hebrew language. | To be provided by end-product Manufacturer | N/A |
| 1.7.201 | The marking in the Hebrew language shall be in accordance with the Consumer Protection Order (Marking of goods), 1983. In addition, the marking required by clause 1.7.1, the following details shall be marked in the Hebrew language. The details shall be marked on the apparatus or on its package, or on a label properly attached to the apparatus or on the package, by bonding or sewing, in a manner that the label cannot be easily removed. 1) name of the apparatus and its commercial designation; 2) Manufacturer's name and address. If the apparatus is imported, the importer's name and address; 3) Manufacturer's registered trademark, if any; 4) Name of the model and serial number, if any; 5) country of manufacturer | To be provided by end-product Manufacturer | N/A |
| 2.9.4 | Add: Seven means of protection against electrocution are permitted according to the Electricity Law, 1954, and the Electricity Regulations (Earthing and means of protection against electricity of voltages up to 1,000V) 1991. The seven are 1) TN-S or TN-C-S 2) TT 3) IT 4) Isolated Transformer 5) Safety extra low voltage (SELV or ELV) 6) Residual current circuit breaker (30 ma = 1delta) 7) reinforced insulation; double insulation (Class II) | | N/A |
| 2.201 | Add: Prior to carrying out the tests in accordance with the clauses of this Standard, the compliance of | To be provided by end-product Manufacturer | Pass |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| | the apparatus with the relevant requirements specified in the appropriate part of the standard series SI 961, shall be checked. The apparatus shall meet the requirements in the appropriate part of the standard series SI 961. If there are components of the apparatus for the prevention of electromagnetic interference, these components shall not reduce the safety level of the apparatus as required by this standard. | | |
| 3.2.1.1 | Add after the note: The feed plug shall comply with the requirements of Israel Standard SI 32 Part 1.1. | | N/A |
| 3.2.1.2 | Add: At the end of the first paragraph add the following note: At the time of issue of the standard, there is no Israel Standard for connection accessories to d.c. | | N/A |

| IEC 60950-1:2005 | | | |
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| SubClause | Difference + Test | Result - Remark | Verdict |

| Japan - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | |
|--|---|--|------|
| General | NCBs are issuing and recognizing to 60950-1:2005, Am 1:2009. Japan has declared differences to 60950-1:2001 (see below.) | | Pass |
| 1.2.4.1 | Addition of the following note: Note: Even if the equipment is designed as Class I, the equipment is regarded as Class 0I equipment when 2-pin adaptor with earthing lead wire or cord set having 2-pin plug with earthing lead wire is provided or recommended. | | N/A |
| 1.2.4.3A | Addition of new clause Class 0I Equipment: Equipment having attachment plug without earthing blade, where protection against electric shock is achieved by: - using BASIC INSULATION, and - providing externally an earth terminal or a lead wire for earthing in order to connect those conductive parts that might assume a HAZARDOUS VOLTAGES in the event of BASIC INSULATION fault to the PROTECTIVE EARTHING CONDUCTOR in the building wiring. NOTE – Class 0I equipment may have a part constructed with Double Insulation or Reinforced Insulation. | | N/A |
| 1.3.2 | Add after the first paragraph: Note 1 Transportable or similar equipment that are relocated frequently for intended usage should not be designed as Class I or Class 0I equipment unless it is intended to be installed by service personnel. Note 2 Considering wiring circumstance in Japan, equipment intended to be installed where the provision for earthing connection is unlikely should not be designed as Class I or Class 0I equipment unless it is intended to be installed by service personnel. | | N/A |
| 1.5.1 | Replace the first paragraph with: Where safety is involved, components shall comply either with the requirements of this standard, with the safety aspects of the relevant JIS component standard, or IEC component standards in case there is no applicable JIS component standard is available. However, a component that falls within | | Pass |

| IEC 60950-1:2005 | | | |
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| SubClause | Difference + Test | Result - Remark | Verdict |
| | the scope of METI Ministerial ordinance No. 85 is properly used in accordance with its marked ratings, requirements of 1.5.4, 2.8.7 and 3.2.5 apply, and in addition, a cord connector of power supply cord set mating with appliance inlet complying with the standard sheet of IEC 60320-1, shall comply with relevant standard sheet of IEC 60320-1. | | |
| 1.5.1 | Replace note 1 with: Note 1 A JIS or an IEC component standard is considered relevant only if the component in question clearly falls within its scope. | | Pass |
| 1.5.2 | Replace the first sentence in the first dashed paragraph with the following: A component that has been demonstrated to comply with a JIS component standard harmonized with the relevant IEC component standard, or where such JIS component standard is not available, a component that has been demonstrated to comply with the relevant IEC component standard shall be checked for correct application and use in accordance with its rating. | | Pass |
| 1.5.2 | Add the following note after the first dashed paragraph: Note 1 See 1.7.5A when Type C.14 appliance coupler rated 10 A per IEC 60320-1 is used with an equipment rated not more than 125 V and rated more than 10 A. | | N/A |
| 1.5.2 | Replace first sentence in the third dashed paragraph with the following: Where no relevant IEC component standard or JIS component standard harmonized with the relevant IEC component standard exists, or where components are used in circuits not in accordance with their specified rating, the components shall be tested under the conditions occurring in the equipment. | | Pass |
| 1.5.6 | In this sub-clause, add "JIS C 5101-14:1998 or" before the reference number, IEC 60384-14:1993. | | N/A |
| 1.5.7.2 | In this sub-clause, add "JIS C 5101-14:1998 or" before the reference number, IEC 60384-14:1993. | | N/A |
| 1.5.8 | In the first paragraph, add "JIS C 5101-14:1998 or" before the reference number, IEC 60384-14:1993. | | N/A |
| 1.7.1 | Replace fifth dashed paragraph with the following: | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |

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| | manufacturer's or responsible company's name or trade-mark or identification mark | | |
| 1.7.5 | In the second paragraph, add "or JIS C 8303:2007" after the reference number, IEC/TR 60083:1997". | | N/A |
| 1.7.5A | Add the following new clause after 1.7.5: Appliance Coupler If appliance coupler according to IEC60320-1, C.14(rated current: 10A)is used in equipment whose rated voltage is less than 125V and rated current is over 10A, the following instruction or equivalent shall be described in the user instruction. " Use only designated cord set attached in this equipment" | | N/A |
| 1.7.12 | Replace first sentence with the following: Instructions and equipment marking related to safety shall be in Japanese. | | N/A |
| 1.7.17A | Add the following new clause. after 1.7.17: Marking for CLASS 0I EQUIPMENT For CLASS 0I EQUIPMENT, the following instruction shall be marked on the visible place of the mains plug or the main body: "Provide an earthing connection" Moreover, for CLASS 0I EQUIPMENT, the following or equivalent instruction shall be indicated on the visible place of the main body or written in the operating instructions: "Provide an earthing connection before the mains plug is connected to the mains. And, when disconnecting the earthing connection, be sure to disconnect after pulling out the mains plug from the mains." | | N/A |
| 2.1.1.1 | In item b) of this sub-clause, replace "IEC 60083" with "JIS C 8303:2007 or Article 1 of the Ministerial Ordinance (No. 85:1962)" | | N/A |
| 2.6.3.2 | Add the following after 1st paragraph: This also applies to the conductor of lead wire for protective earthing of CLASS 0I EQUIPMENT. | | N/A |
| 2.6.4.2 | Replace 1st paragraph with the following: Equipment required to have protective earthing shall have a main protective earthing terminal. | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| | For equipment with a DETACHABLE POWER SUPPLY CORD, the earthing terminal in the appliance inlet is regarded as the main protective earthing terminal except for CLASS 0I EQUIPMENT providing separate main protective earthing terminal other than appliance inlet. | | |
| 2.6.5.4 | Replace 1st sentence with the following: Protective earthing connections of CLASS I EQUIPMENT shall make earlier and break later than the supply connections in each of the following: | | Pass |
| 2.6.5.8A | Add the following new clause. after 2.6.5.8A: Earthing of CLASS 0I EQUIPMENT Plugs with a lead wire for earthing shall not be used for equipment having a rated voltage exceeding 150V. For plugs with a lead wire for earthing, the lead wire shall not be earthed by a clip. CLASS 0I EQUIPMENT shall be provided with an earthing terminal or lead wire for earthing in the external location where easily visible. | | N/A |
| 2.10.3.1 | In this sub-clause, replace IEC 60664-1 with JIS C 0664:2003. | | N/A |
| 2.10.3.2 | In the second paragraph, replace IEC 60664-1 with JIS C 0664:2003. | | N/A |
| 3.2.3 | Add the following after Table 3A: Table 3A applies when cables complying JIS C 3662 or JIS C 3663 are used. In case of other cables, cable entries shall be so designed that a conduit suitable for the cable used can be fitted. | | N/A |
| 3.2.5.1 | Add the following to the last of first dashed paragraph. Or mains cords shall be of the sheathed type complying with Appendix 1 of Article 1 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance. | | N/A |
| 3.2.5.1 | Add the following to the last of second dashed paragraph. Or mains cords shall be of the sheathed type complying with Appendix 1 of Article 1 of the Ministerial Ordinance on stipulating technical requirements for the Electrical Appliance. | | N/A |
| 3.2.5.1 | Delete 1) in Table 3B. | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| 3.3.4 | Add the following note to Table 3D: Note For cables other than those complying with JIS C 3662 or JIS C 3663, terminals shall be suitable for the size of the intended cables. | | N/A |
| 3.3.7 | Add the following after the first sentence: This requirement is not applicable to the external earthing terminal of Class 0I equipment. | | N/A |
| 4.3.4 | Add the following after the first sentence: This requirement also applies to those connections in Class 0I equipment, where CLEARANCE or CREEPAGE DISTANCES over BASIC INSULATION would be reduced to less than the values specified in 2.10. | | N/A |
| 4.3.13.5 | Replace the first paragraph with the following: Except as permitted below, equipment shall be classified and labelled according to JIS C 6802:2005, and JIS C 6803:2006 or IEC 60825-2:2000, as applicable. Replace IEC 60825-1 in the second and the last paragraph with JIS C 6802:2005. | | N/A |
| 4.5 | Add the following NOTE to Table 4B, 3): NOTE: In case no data for the material is available, Appendix 4, 1. (1). b. 3 of the Interpretation on the Ministerial Ordinance stipulating Technical Specifications for Electrical Appliances (Commerce and Distribution Policy Group No. 3:2008/06/19) may apply. | | N/A |
| 5.1.3 | Add a note after the first paragraph as follows: Note – Attention should be drawn to that majority of three-phase power system in Japan is of delta connection, and therefore, in that case, test is conducted using the test circuit from IEC 60990, figure 13. | | N/A |
| 5.1.6 | Replace Table 5A as shown in J60950-1. | | N/A |
| 6 | Replace IEC 60664-1 in NOTE 4 with JIS C 0664. | | N/A |
| 7 | Replace IEC 60664-1 in NOTE 3 with JIS C 0664:2003. | | N/A |
| 7.2 | Add the following after the paragraph: However, the separation requirements and tests of 6.2.1 a), b) and c) do not apply to a CABLE DISTRIBUTION SYSTEM if all of the following | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| | <p>apply:</p> <ul style="list-style-type: none"> – the circuit under consideration is a TNV-1 CIRCUIT; and – the common or earthed side of the circuit is connected to the screen of the coaxial cable and to all accessible parts and circuits (SELV, accessible metal parts and LIMITED CURRENT CIRCUITS, if any); and – the screen of the coaxial cable is intended to be connected to earth in the building installation. | | |
| JA | <p>Add new Annex JA:</p> <p>Document shredding machines shall also comply with the requirements of this annex except those of STATIONARY EQUIPMENT used by connecting directly to an AC MAINS SUPPLY of three-phase 200V or more.</p> | | N/A |
| JA.1 | <p>Add: Markings and instructions</p> <p>The symbol (JIS S 0101:2000, 6.2.4) (exclamation point in yellow triangle) and the following precautions for use shall be marked on readily visible part adjacent to document feed opening. The marking shall be clearly legible, permanent, and easily discernible;</p> <ul style="list-style-type: none"> - that use by an infants/children may cause a hazard of injury etc.; - that a hand can be drawn into the mechanical section for shredding when touching the document-slot; - that clothing can be drawn into the mechanical section for shredding when touching the document-slot; - that hairs can be drawn into the mechanical section for shredding when touching the document-slot; - in case of equipment incorporating a commutator motor, that equipment may catch fire or explode by spraying of flammable gas. | | N/A |
| JA.2 | <p>Add: Inadvertent Reactivation</p> <p>Any safety interlock that can be operated by means of the test finger, Figure JA.1, is considered to be likely to cause inadvertent reactivation of the hazard.</p> <p>Compliance is checked by inspection and, where necessary, by a test with the test finger, Figure JA.1</p> | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| JA.3 | <p>Add: Disconnection from the mains supply: Document shredding machines shall incorporate an isolating switch complying with sub-clause 3.4.2 as the device disconnecting the power of hazardous moving parts. For this switch, two-position (single-use) switch or multi-position (multifunction) switch (e.g., slide switch) may be used.</p> | | N/A |
| JA.3 | <p>Add: If two-position switch, the positions for “ON” and “OFF” shall be indicated in accordance with sub-clause 1.7.8. If multi-position switch, the position for “OFF” shall be indicated in accordance with sub-clause 1.7.8 and other positions shall be indicated with proper terms or symbols.</p> <p>Compliance is checked by inspection</p> | | N/A |
| JA.4 | <p>Add: Protection against hazardous moving parts: Any warning shall not be used instead of the structure for preventing access to hazardous moving parts.</p> <p>Document shredding machines shall comply with the following requirements.</p> <p>Insert the test finger, Figure JA.1, into all openings in MECHANICAL ENCLOSURES without applying appreciable force. It shall not be possible to touch hazardous moving parts with the test finger. This consideration applies to all sides of MECHANICAL ENCLOSURES when the equipment is mounted as intended . Before testing with the test finger, remove the parts detachable without a tool.</p> <p>Insert the wedge-probe, Figure JA.2, into the document-slot. And, against all directions of openings, if straight-cutting type, a force of 45 N shall apply to the probe, and 90 N if cross-cutting type. In this case, the weight of the probe is to be factored into the overall applied force. Before testing with the wedge-probe, remove the parts detachable without a tool. It shall not be possible to touch any hazardous moving parts, including the shredding roller or the mechanical section for shedding, with the probe.</p> <p>Note 1 - The thickness of the probe varies linearly, with slope changes at the respective points shown in the table.</p> | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |

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| | Note 2 –The allowable dimensional tolerance of the probe is +/- 0.127 mm. | | |
| W.1 | Replace second and third sentence in the first paragraph with the following: This distinction between earthed and unearthing (floating) circuit is not the same as between CLASS I EQUIPMENT, CLASS 0I EQUIPMENT and CLASS II EQUIPMENT. Floating circuits can exist in CLASS I EQUIPMENT or CLASS 0I EQUIPMENT and earthed circuits in CLASS II EQUIPMENT. | | N/A |

| Korea - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | |
|---|---|---|------|
| General | Korea has national differences declared for 60950-1:2005, Am 1:2009 (below). | | Pass |
| 1.5.101 | Plugs for the connection of the apparatus to the mains supply shall comply with the Korean requirement (KSC 8305) | | N/A |
| 8 | EMC - The apparatus shall comply with the relevant CISPR standards | EMC report to be provided by end-product Manufacturer | N/A |

| Spain - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | |
|---|---|--|------|
| General | Spain has national differences declared for 60950-1:2005, Am 1:2009 (below). | | Pass |
| 3.2.1.1 | Supply cords of single-phase equipment having a rated current not exceeding 10A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2.5A shall be provided with a plug according to UNE-EN 50075:1993. CLASS 1 EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2. | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |

| Switzerland - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | |
|--|--|--|------|
| General | Includes update from 60950-1:2005, AC:2011 | | Pass |
| 1.5.1 | Ordinance on environmentally hazardous substances SR 814.81, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury. Switches containing mercury such as thermostats, relays and level controllers are not allowed. | | Pass |
| 1.7.13 | Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15, Batteries - Annex 2.15 of SR 814.81 applies for batteries containing cadmium and mercury. Note: Ordinance relating to environmentally hazardous substances, SR 814.013 of 1986-06-09 is no longer in force and superseded by SR 814.81 of 2009-02-01 (ChemRRV). | | N/A |
| 3.2.1.1 | <p>Supply cords of portable electrical appliances having a rated current not exceeding 10 A shall be provided with a plug complying with IEC 60884-1 (3rd Ed.) + Amd. 1, SEV 1011 and one of the following dimension sheets:</p> <ul style="list-style-type: none"> - SEV 6533-2:2009, Plug type 11, L+N, 250 V, 10 A - SEV 6534-2:2009, Plug type 12, L+N+PE, 250 V, 10 A - SEV 6532-2:2009, Plug type 15, 3P+N+PE, 250/400 V, 10 A <p>Supply cords of portable electrical appliances having a rated current not exceeding 16 A shall be provided with a plug complying with IEC 60884-1 (3rd Ed.) + Amd. 1, SEV 1011 and one of the following dimension sheets:</p> <ul style="list-style-type: none"> - SEV 5933-2:2009, Plug type 21, L+N, 250 V, 16 A - SEV 5934-2:2009, Plug type 23, L+N+PE, 250 V, 16 A - SEV 5932-2:2009, Plug type 25, 3P+N+PE, 230/400 V, 16 A <p>NOTE: 16 A plugs are not often used in Swiss domestic installation systems.</p> | | N/A |
| 3.2.4 | Requirements according to this annex 3.2.1.1 | | N/A |

| IEC 60950-1:2005 | | | |
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| SubClause | Difference + Test | Result - Remark | Verdict |
| | apply. | | |

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| USA / Canada - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | |
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| 1.1.1 | Equipment able to be installed in accordance with the National Electrical Code ANSI/NFPA 70 and the Canadian Electrical Code, Part1, and when applicable, the National Electrical Safety Code, IEEE C2. | | Pass |
| 1.1.1 | Equipment able to be installed in accordance with ANSI/NFPA 75 and NEC Art. 645 unless intended for use outside of computer room and provided with such instructions. | | Pass |
| 1.1.2 | Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors. | | N/A |
| 1.1.2 | Equipment in wire-line communication facilities serving high-voltage electric power stations operating at greater than 1kV are excluded. | | N/A |
| 1.1.2 | Special requirements apply to equipment intended for use outdoors. | | N/A |
| 1.4.14 | For PLUGGABLE EQUIPMENT TYPE A, the protection in the installation is assumed to be 20 A. | | N/A |
| 1.5.1 | All IEC standards for components identified in Annex P.1 replaced by the relevant requirements of CSA and UL component standards in Annex P.1. | | Pass |
| 1.5.1 | All IEC standards for components identified in Annex P.2 alternatively satisfied by the relevant requirements of CSA and UL component standards in Annex P.2. | | Pass |
| 1.5.5 | Interconnecting cables acceptable for the application regarding voltage, current, temperature, flammability, mechanical serviceability and the like. | | N/A |
| 1.5.5 | For other than limited power and TNV circuits, the type of output circuit identified for output connector. | | N/A |
| 1.5.5 | External cable assemblies that exceed 3.05 m in length to be types specified in the NEC and CEC. | | N/A |
| 1.5.5 | Detachable external interconnecting cables 3.05 m or less in length and provided with equipment marked to identify the responsible organization and the designation for the cable. | | N/A |
| 1.5.5 | Building wiring and cable for use in ducts, plenums and other air handling space subject to special requirements and excluded from scope. | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| 1.5.5 | Telephone line and extension cords and the like comply with UL 1863 and CSA C22.2 No. 233. | | N/A |
| 1.6.1.2 | Equipment intended for connection to a d.c. power (mains) distribution system is subject to special circuit classification requirements (e.g., TNV-2) | | N/A |
| 1.6.1.2 | Earthing of d.c. powered equipment provided. | | N/A |
| 1.7 | Lamp replacement information indicated on lampholder in operator access area. | | N/A |
| 1.7.1 | Special marking format for equipment intended for use on a supply system with an earthed neutral and more than one phase conductor. | | N/A |
| 1.7.1 | Equipment voltage rating not higher than rating of the plug except under special conditions. | | N/A |
| 1.7.6 | Special fuse replacement marking for operator accessible fuses. | | N/A |
| 1.7.7 | Identification of terminal connection of the equipment earthing conductor. | | N/A |
| 1.7.7 | Connectors and field wiring terminals for external Class 2 or Class 3 circuits provided with marking indicating minimum Class of wiring to be used. | | N/A |
| 1.7.7 | Marking located adjacent to terminals and visible during wiring. | | N/A |
| 2.1.1.1 | Bare TNV conductive parts in the interior of equipment normally protected against contact by a cover intended for occasional removal are exempt provided instructions include directions for disconnection of TNV prior to removal of the cover. | | N/A |
| 2.3.1.b | Other telecommunication signaling systems (e.g., message waiting) than described in 2.3.1(b) are subject to M.4. | | N/A |
| 2.3.1.b | For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 V _p or 60 V d.c., the maximum current limit through a 2000 Ohm or greater resistor with loads disconnected is 7.1 mA peak or 30 mA d.c. under normal conditions. | | N/A |
| 2.3.1.b | Limits for measurements across 5000 ohm resistor in the event of a single fault are replaced after 200 ms with the limits of M.3.1.4. | | N/A |
| 2.3.2.1 | In the event of a single fault, the limits of 2.2.3 apply to SELV circuits and accessible conductive parts. | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| 2.5 | Overcurrent protection device required for Class 2 and Class 3 limiting in accordance with the NEC, or for a Limited Power Source, not interchangeable with devices of higher ratings if operator replaceable. | | N/A |
| 2.6 | Equipment having receptacles for output a.c. power connectors generated from an internal separately derived source have the earthed (grounded) circuit conductor suitably bonded to earth. | | Pass |
| 2.6.2 | Equipment with functional earthing is required to be marked with the functional earthing symbol (IEC 60417-6092). | | N/A |
| 2.6.3.3 | For PLUGGABLE EQUIPMENT TYPE A, if a) b) or c) are not applicable, the current rating of the circuit is taken as 20 A | | N/A |
| 2.6.3.3 | The first column on Table 2D requirement: "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration." | | N/A |
| 2.6.3.4 | Capacity of connection between earthing terminal and parts required to be earthed subject to special conditions based on the current rating of the circuit. | | N/A |
| 2.6.3.4 | Protective bonding conductors and their terminals of non-standard constructions (e.g. PWB traces) evaluated to limited short-circuit test of CSA C22.2 No.0.4. | | N/A |
| 2.6.4.1 | Field wiring terminals for earthing conductors suitable for wire sizes (gauge) used in US and Canada. | | N/A |
| 2.7.1 | Data for selection of special external branch circuit overcurrent devices marked on the equipment. | | N/A |
| 2.7.1 | Standard supply outlets protected by overcurrent device in accordance with the NEC, and CEC, Part 1. | | N/A |
| 2.7.1 | Overcurrent protection for individual transformers that distribute power to other units over branch circuit wiring. | | N/A |
| 2.7.1 | Additional requirements for overcurrent protection apply to equipment provided with panelboards. | | N/A |
| 2.7.1 | Non-motor-operated equipment requiring special overcurrent protective device marked with device rating. | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| 2.10.5.12 | Multi-layer winding wire subject to UL component wire requirements in addition to 2.10.5.12 and Annex U. | | N/A |
| 3.1.1 | Permissible combinations of internal wiring/external cable sizes for overcurrent and short circuit protection. | | Pass |
| 3.1.1 | All interconnecting cables protected against overcurrent and short circuit. | | N/A |
| 3.2 | Wiring methods permit connection of equipment to primary power supply in accordance with the NEC and CEC, Part 1. | | N/A |
| 3.2.1 | Permitted use for flexible cords and plugs. | | N/A |
| 3.2.1 | Flexible cords provided with attachment plug rated 125% of equipment current rating. | | N/A |
| 3.2.1 | Any Class II equipment provided with 15 or 20 A standard supply outlets, Edison-base lampholders or single pole disconnect device provided with a polarized type attachment plug. | | N/A |
| 3.2.1.2 | Equipment intended for connection to DC mains supply power systems complies with special wiring requirements (e.g., no permanent connection to supply by flexible cord). | | N/A |
| 3.2.1.2 | Equipment with one pole of the DC mains supply connected to both the equipment mains input terminal and the main protective earthing terminal provided with special instructions and construction provisions for earthing. | | N/A |
| 3.2.1.2 | Equipment with means for connecting supply to earthing electrode conductor has no switches or protective devices between supply connection and earthing electrode connection. | | N/A |
| 3.2.1.2 | Special markings and instructions for equipment with provisions to connect earthed conductor of a DC supply circuit to earthing conductor at the equipment. | | N/A |
| 3.2.1.2 | Special markings and instructions for equipment with earthed conductor of a DC supply circuit connected to the earthing conductor at the equipment. | | N/A |
| 3.2.1.2 | Terminals and leads provided for permanent connection of DC powered equipment to supply marked to indicate polarity if reverse polarity may | | N/A |

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| | result in a hazard. | | |
| 3.2.3 | Permanently connected equipment has provision for connecting and securing a field wiring system (i.e. conduit, or leads etc.) per the NEC and CEC, Part 1. | | N/A |
| 3.2.3 | Permanently connected equipment may have terminals or leads not smaller than No. 18 AWG (0.82 mm ²) and not less than 150 mm in length for connection of field installed wiring. | | N/A |
| 3.2.3 | If supply wires exceed 60 °C, marking indicates use of 75 °C or 90 °C wiring for supply connection as appropriate. | | N/A |
| 3.2.3 | Equipment compatible with suitable trade sizes of conduits and cables. | | N/A |
| 3.2.5 | Power supply cords are required to be no longer than 4.5 m in length. Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC. | | N/A |
| 3.2.5 | Conductors in power supply cords sized according to NEC and CEC, Part I. | | N/A |
| 3.2.5 | Power supply cords and cord sets incorporate flexible cords suitable for the particular application. | | N/A |
| 3.2.6 | Strain relief provided for non-detachable interconnecting cables not supplied by a limited power source. | | N/A |
| 3.2.9 | Adequate wire bending space and volume of field wiring compartment required to properly make the field connections. | | N/A |
| 3.2.9 | Equipment intended solely for installation in Restricted Access Locations using low voltage d.c. systems may not need provision for connecting and securing a field wiring system. A method of securing wiring or instructions provided to ensure the wiring is protected from abuse. | | N/A |
| 3.3 | Field wiring terminals provided for interconnection of units for other than LPS or Class 2 circuits also | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| | comply with 3.3. | | |
| 3.3 | Interconnection of units by LPS or Class 2 conductors may have field wiring connectors other than those specified in 3.3 if wiring is reliably separated. | | N/A |
| 3.3.1 | Terminals for the connection of neutral conductor identified by a distinctive white marking or other equally effective means. | | N/A |
| 3.3.3 | Wire binding screw terminal permitted for connection of No. 10 AWG (5.3 mm ²) or smaller conductor if provided with upturned lugs, cupped washer or equivalent retention. | | N/A |
| 3.3.4 | Terminals accept wire sizes (gauge) used in the U.S. and Canada. | | N/A |
| 3.3.4 | Terminals accept current-carrying conductors rated 125% of the equipment current rating. | | N/A |
| 3.3.5 | First column of Table 3E revised to require "Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration." | | N/A |
| 3.3.6 | Field wiring terminals marked to indicate the material(s) of the conductor appropriate for the terminals used. | | N/A |
| 3.3.6 | Connection of an aluminum conductor not permitted to terminal for equipment earthing conductor. | | N/A |
| 3.3.6 | Field wiring connections made through the use of suitable pressure connectors (including set screw type), solder lugs or splices to flexible leads. | | N/A |
| 3.4.2 | Separate motor control device(s) required for cord-connected equipment rated more than 12 A, or with motor rated more than 1/3 hp or more than 120 V. | | N/A |
| 3.4.8 | Vertically mounted disconnect devices oriented so up position of handle is "on". | | N/A |
| 3.4.11 | For computer-room applications, equipment with battery systems capable of supplying 750 VA for 5 min require battery disconnect means. | | N/A |
| 4.2.8.1 | Special opening restrictions for enclosures around CRTs with face dimension of 160 mm or more. | | N/A |
| 4.2.9 | Compartment housing high-pressure lamp marked to indicate risk of explosion. | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| 4.3.2 | Loading test for equipment with handle(s) used to support more than 9 kg tested at four times the weight of the unit. | | N/A |
| 4.3.6 | In addition to the IEC requirements, Direct Plug-in Equipment complies with UL 1310 or CSA 223 mechanical assembly requirements. | | N/A |
| 4.3.8 | Battery packs for both portable and stationary applications are required to comply with special component requirements. | | N/A |
| 4.3.12 | The maximum quantity of flammable liquid stored in equipment complies with ANSI/NFPA 30(Table NAE.6). | | N/A |
| 4.3.12 | Equipment using replenishable liquids marked to indicate type of liquid to be used. | | N/A |
| 4.3.13.2 | Equipment that produces x-radiation and does not comply with 4.3.12 under all conditions of servicing marked to indicate the presence of radiation where readily visible. | | N/A |
| 4.3.13.5. 1 | Requirements contained in the applicable national codes and regulations apply to lasers (21 CFR 1040 and REDR C1370). | | N/A |
| 4.7 | Automated information storage equipment intended to contain more than 0.76 m ³ of combustible media requires provision for automatic sprinklers or a gaseous agent extinguishing system. | | N/A |
| 4.7.3.1 | Equipment for use in environmental air space other than ducts or plenums provided with metal enclosure or with non-metallic enclosure having adequate fire-resistance and low smoke producing characteristics. Low smoke-producing characteristics evaluated according to UL 2043. Equipment for installation in space used for environmental air as described in Sec. 300-22(c) of the NEC provided with instructions indicating suitability for installation in such locations. | | N/A |
| 4.7.3.1 | Flame spread rating for external surface of combustible material with exposed area greater than 0.9 m ² or a single dimension greater than 1.8 m; 50 or less for computer room applications or 200 or less for other applications. | | N/A |
| 4.7.3.4 | Wire marked "VW-1" or "FT-1" considered equivalent. | | N/A |
| 5.1.8.2 | Special earthing provisions and instructions for | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| | equipment with high touch current due to telecommunication network connections. | | |
| 5.1.8.3 | Touch current due to ringing voltage for equipment containing telecommunication network leads. | | N/A |
| 5.3.7 | Overloading of SELV connectors and printed wiring board receptacles accessible to the operator. | | Pass |
| 5.3.7 | Tests interrupted by opening of a component repeated two additional times. | | N/A |
| 5.3.9.1 | Test interrupted by opening of wire or trace subject to certain conditions. | | N/A |
| 6 | Specialized instructions provided for telephones that may be connected to a telecommunications network. | | N/A |
| 6 | Marking identifying function of telecommunication type connectors not used for connection to a telecommunication network. | | N/A |
| 6.3 | Equipment remotely powered over telecommunication wiring systems provided with specialized markings adjacent to the connection. | | N/A |
| 6.3 | Overcurrent protection incorporated into equipment to provide power over telecommunication wiring system not interchangeable with devices of higher ratings if operator replaceable. | | N/A |
| 6.4 | Additional requirements for equipment intended for connection to a telecommunication network using cable subject to overvoltage from power line failures (Fig. 6C). | | N/A |
| 6.4 | Where 26 AWG line cord required by Fig. 6C, either the cord is provided with the equipment or described in the safety instructions. | | N/A |
| 7 | Equipment associated with the cable distribution system may need to be subjected to applicable parts of Chapter 8 of the NEC. | | N/A |
| H | Ionizing radiation measurements made under single fault conditions in accordance with the requirements of the Code of Federal Regulations 21 CFR 1020 and the Canadian Radiation Emitting Devices Act, REDR C1370. | | N/A |
| M.2 | Continuous ringing signals evaluated to Method A subjected to special accessibility considerations. | | N/A |
| M.4 | Special requirements for message waiting and similar telecommunications signals. | | N/A |

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| SubClause | Difference + Test | Result - Remark | Verdict |
| NAC | Equipment intended for use with a generic secondary protector marked with suitable instructions. | | N/A |
| NAC | Equipment intended for use with a specific primary or secondary protector marked with suitable instructions. | | N/A |
| NAD | Acoustic pressure from an ear piece less than 140 dBA for short duration disturbances, and less than 125 dBA for handsets, 118 dBA for headsets and insert earphones, for long duration disturbances. | | N/A |
| NAD | Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements. | | N/A |
| EE.5 | UL articulated accessibility probe (Fig. EE.3) required for assessing accessibility to document/media shredders, instead of Figure 2A test finger. | | N/A |

| IEC 60950-1:2005 | | | |
|------------------|-------------------|-----------------|---------|
| SubClause | Difference + Test | Result - Remark | Verdict |

| United Kingdom - Differences to IEC 60950-1:2005 (Second Edition); Am1:2009 + Am2:2013 | | | |
|---|---|--|-----|
| 2.6.3.3 | The current rating of the circuit shall be taken as 13 A, not 16 A. | | N/A |
| 2.7.1 | To protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met. | | N/A |
| 3.2.1.1 | Apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a "standard plug" in accordance with Statutory Instrument 1786: 1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE: "Standard plug" is defined in SI 1786: 1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug. | | N/A |
| 3.2.5.1 | A power supply cord with conductor of 1.25 mm ² is allowed for equipment with a rated current over 10A and up to and including 13A. | | N/A |
| 3.3.4 | The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current of over 10 A up to and including 13 A is 1.25 mm ² to 1.5 mm ² nominal cross-sectional area. | | N/A |
| 4.3.6 | The torque test is performed using a socket outlet complying with BS 1363 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125°C. | | N/A |
| 4.3.6 | Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply. | | N/A |

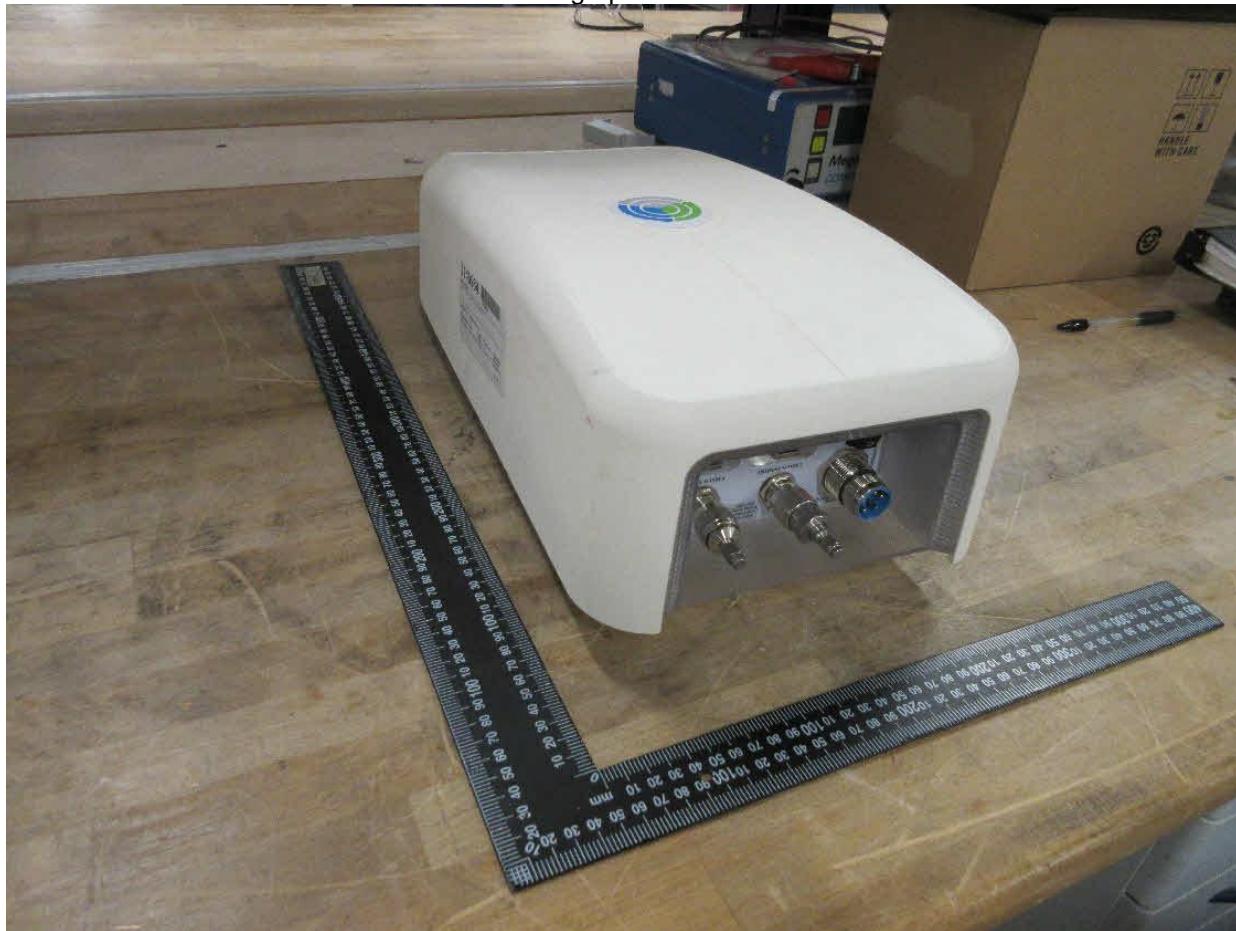
Enclosures

| Type | Supplement Id | Description |
|---------------|---------------|---|
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| Photographs | 3-02 | Overall bottom and front view |
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| Miscellaneous | 7-03 | IEC 60950-22 Test Report - National Differences |
| Miscellaneous | 7-04 | Reverse charging current protection - BT2 incompliant |

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Photographs ID 3-02



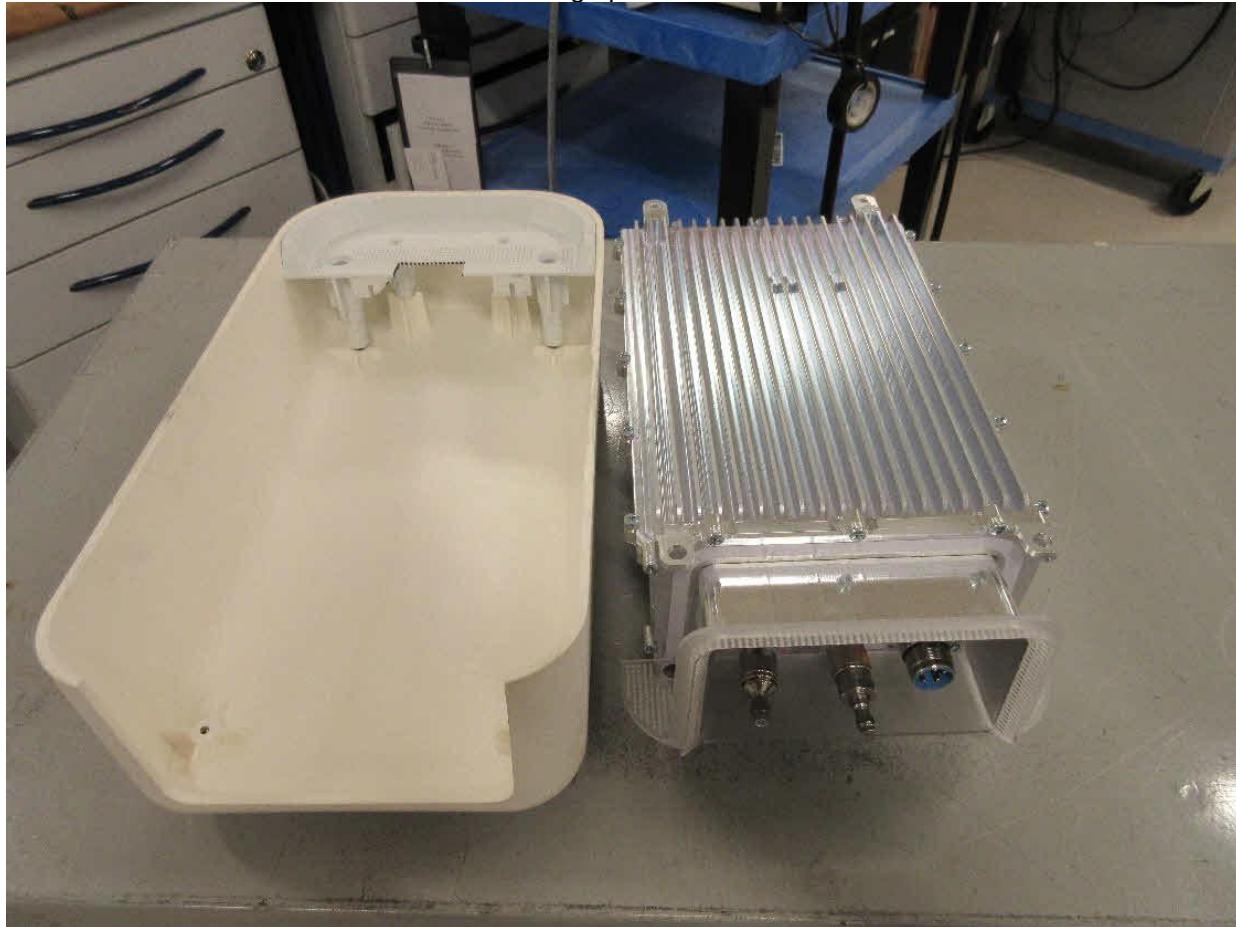
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Photographs ID 3-04



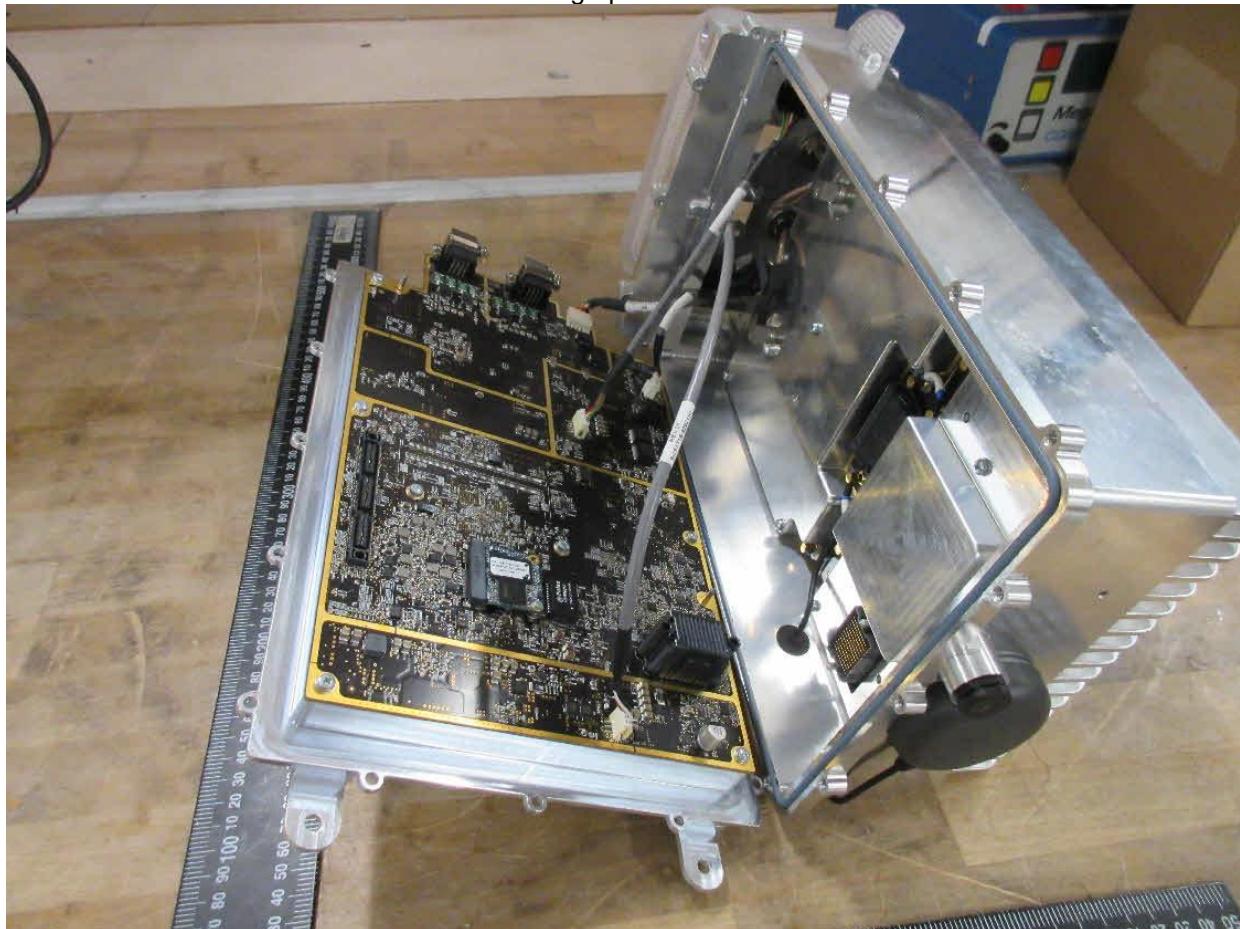
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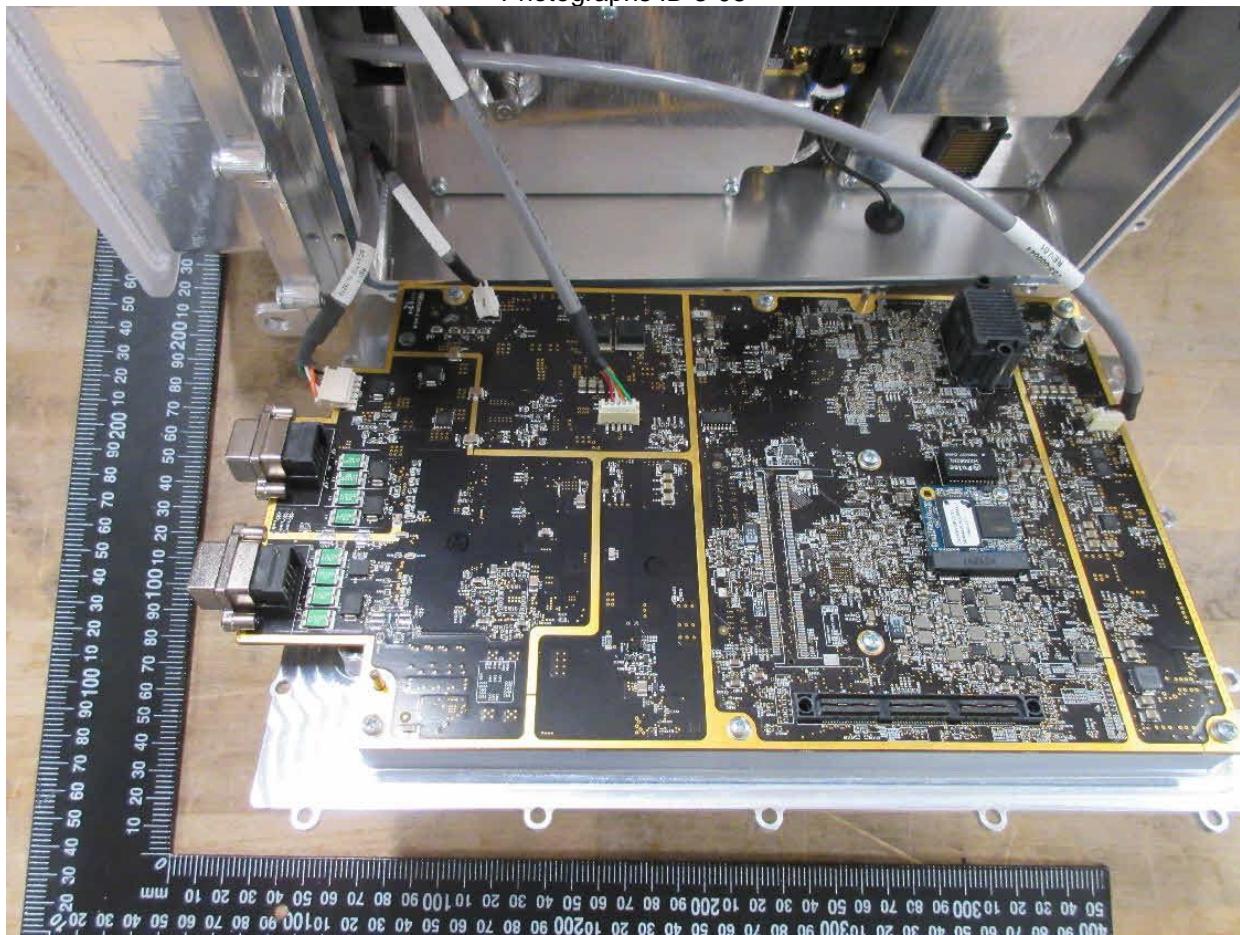
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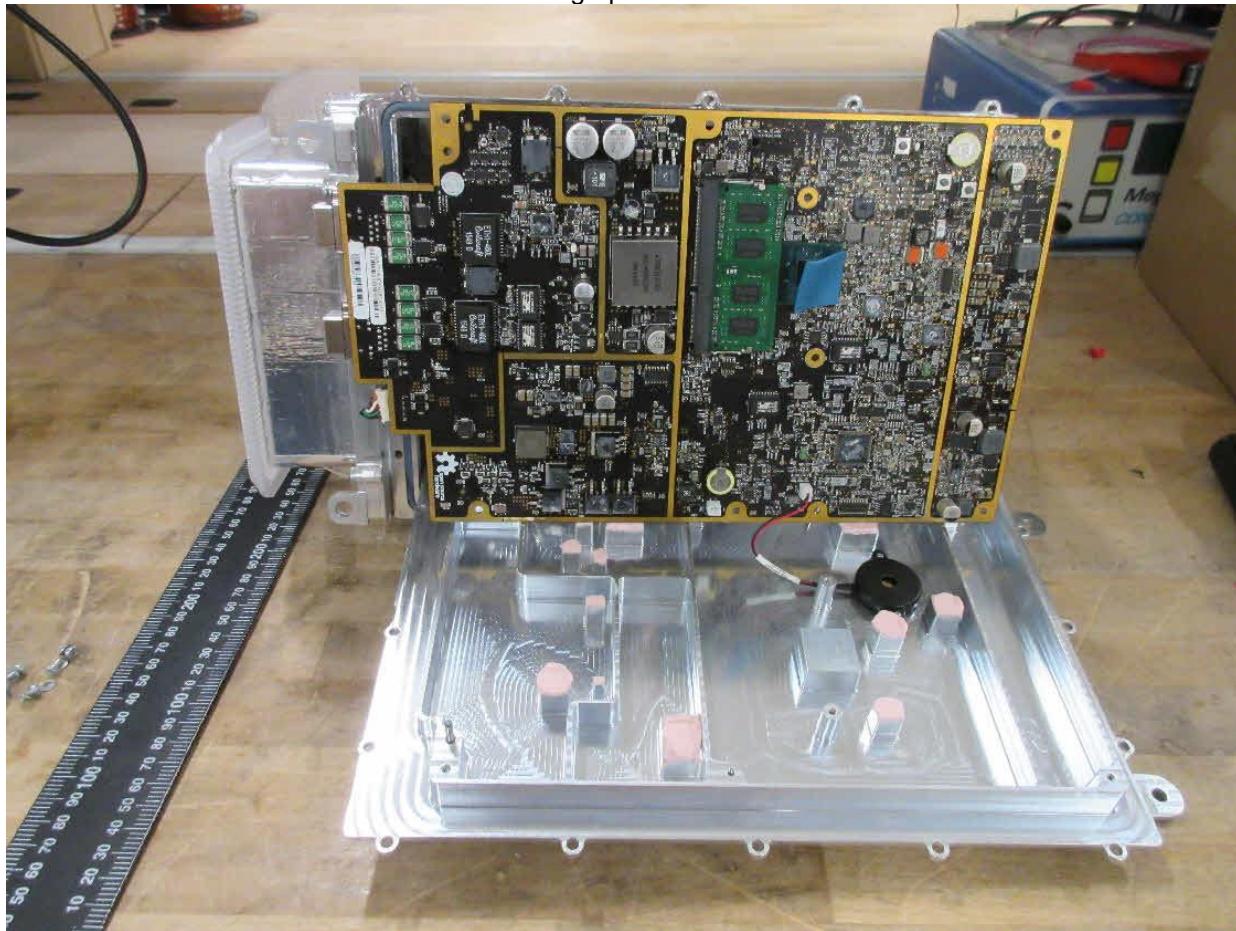
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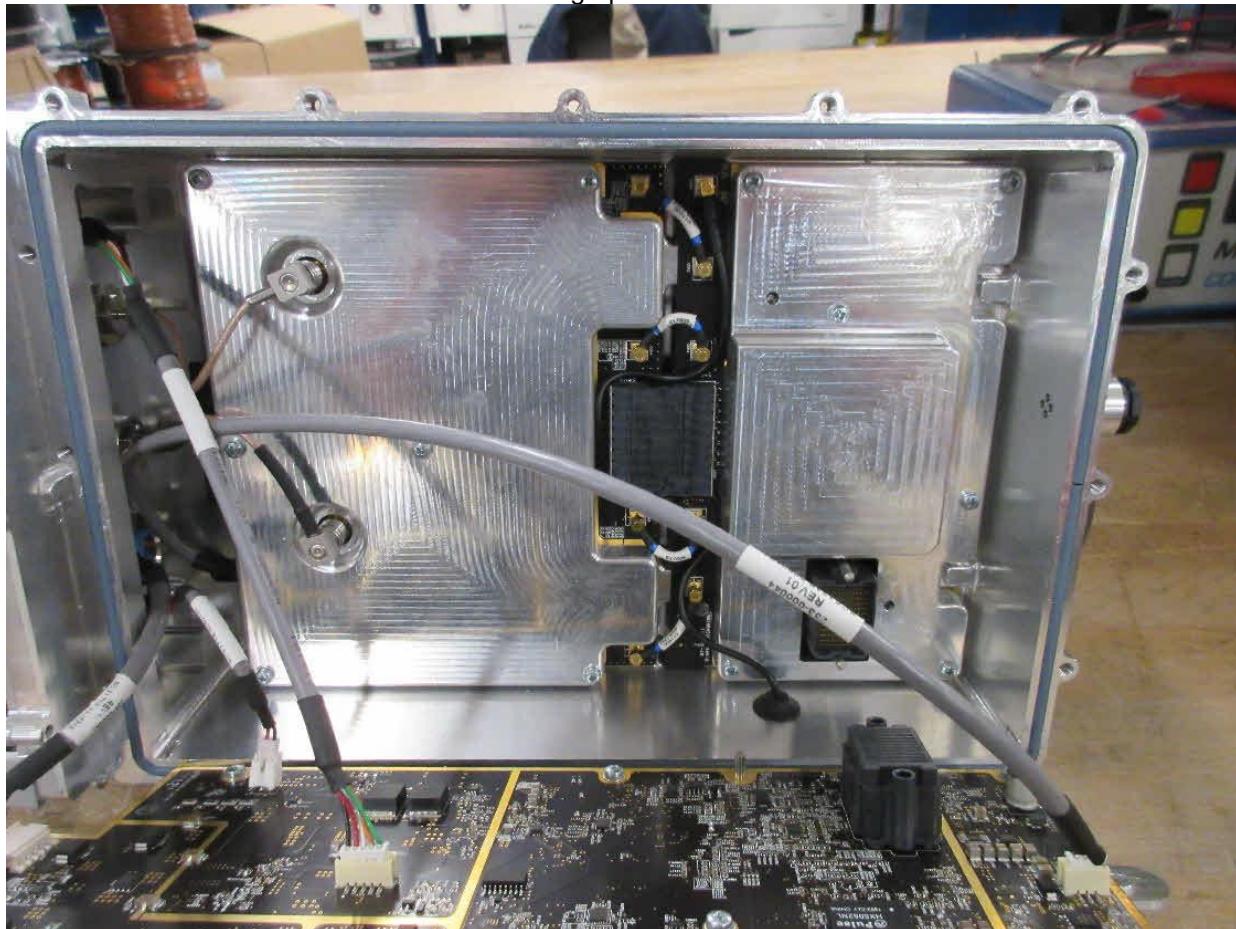
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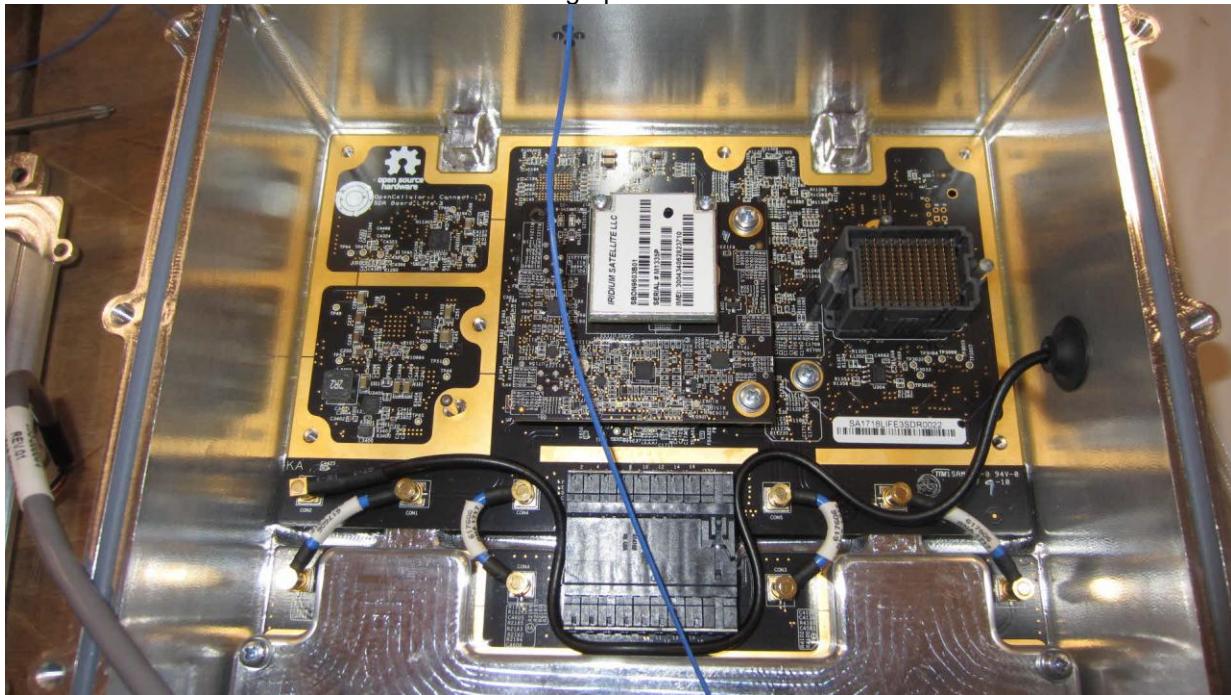
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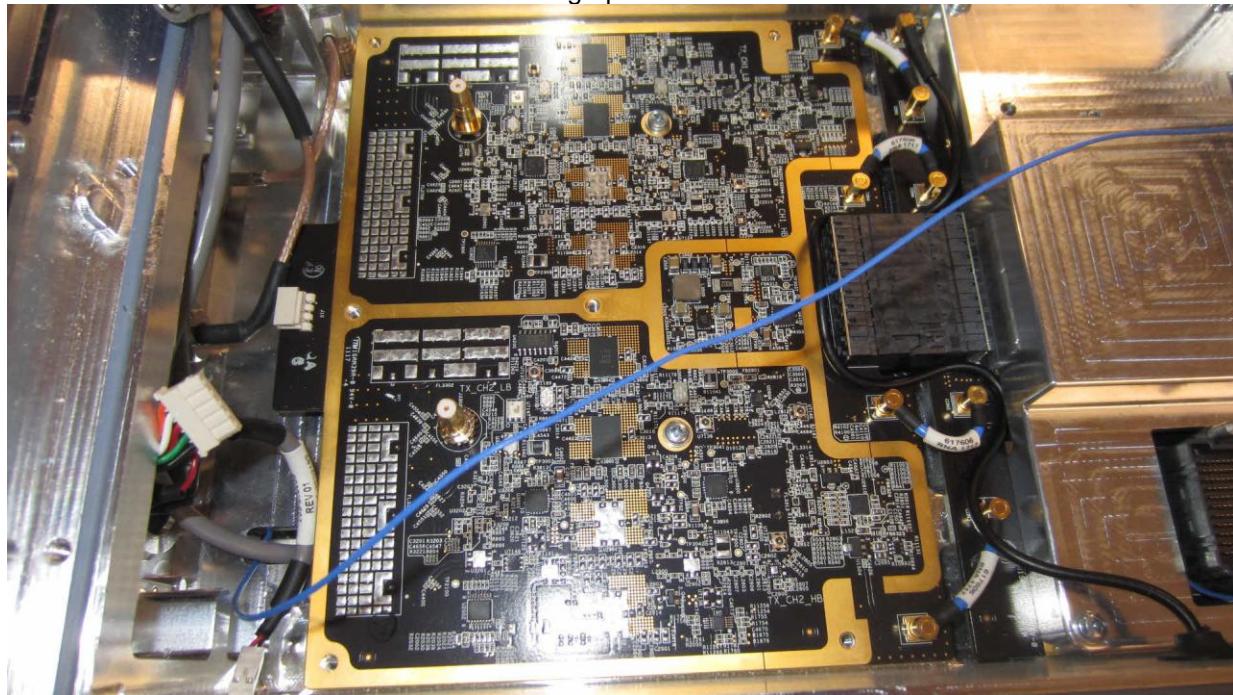
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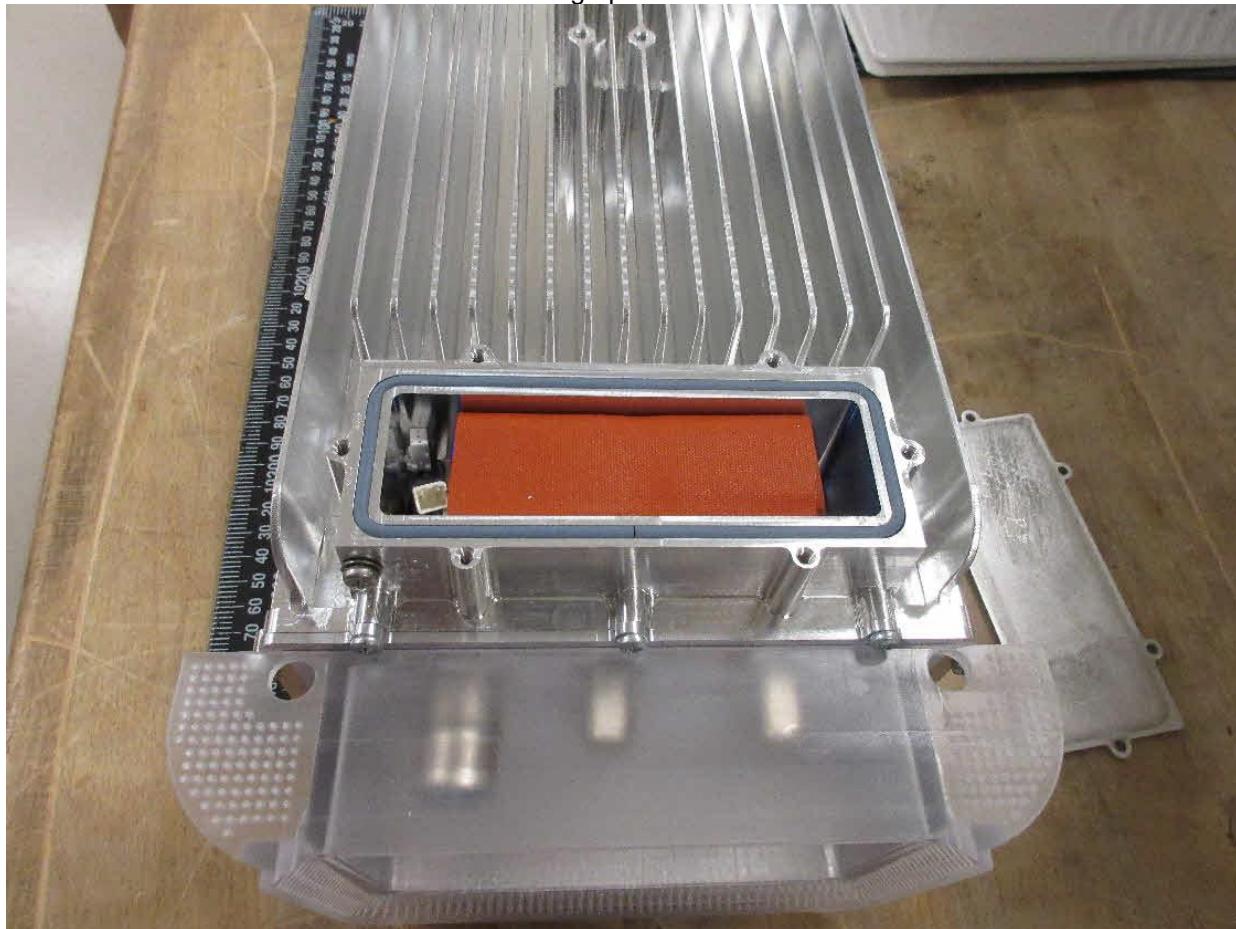
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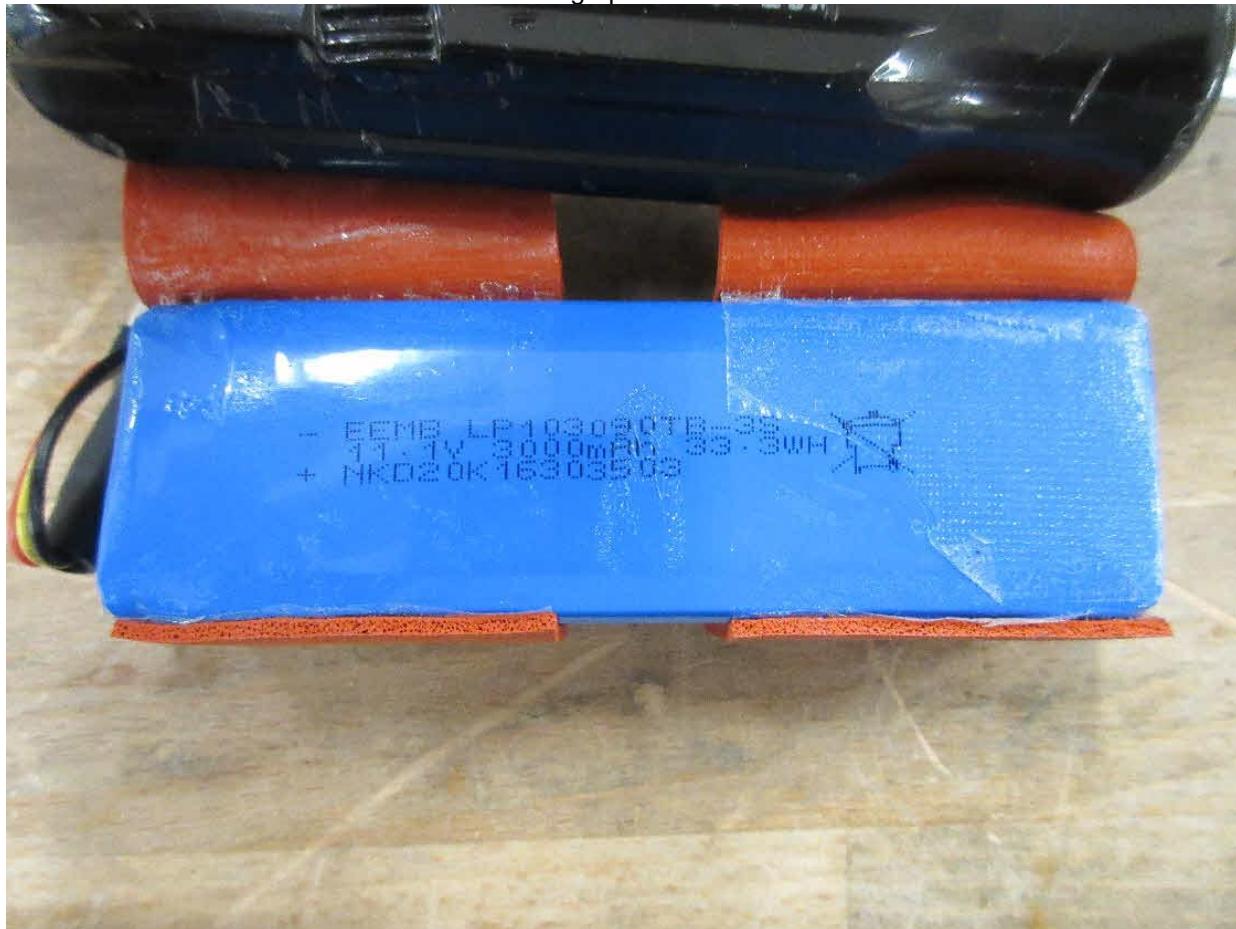
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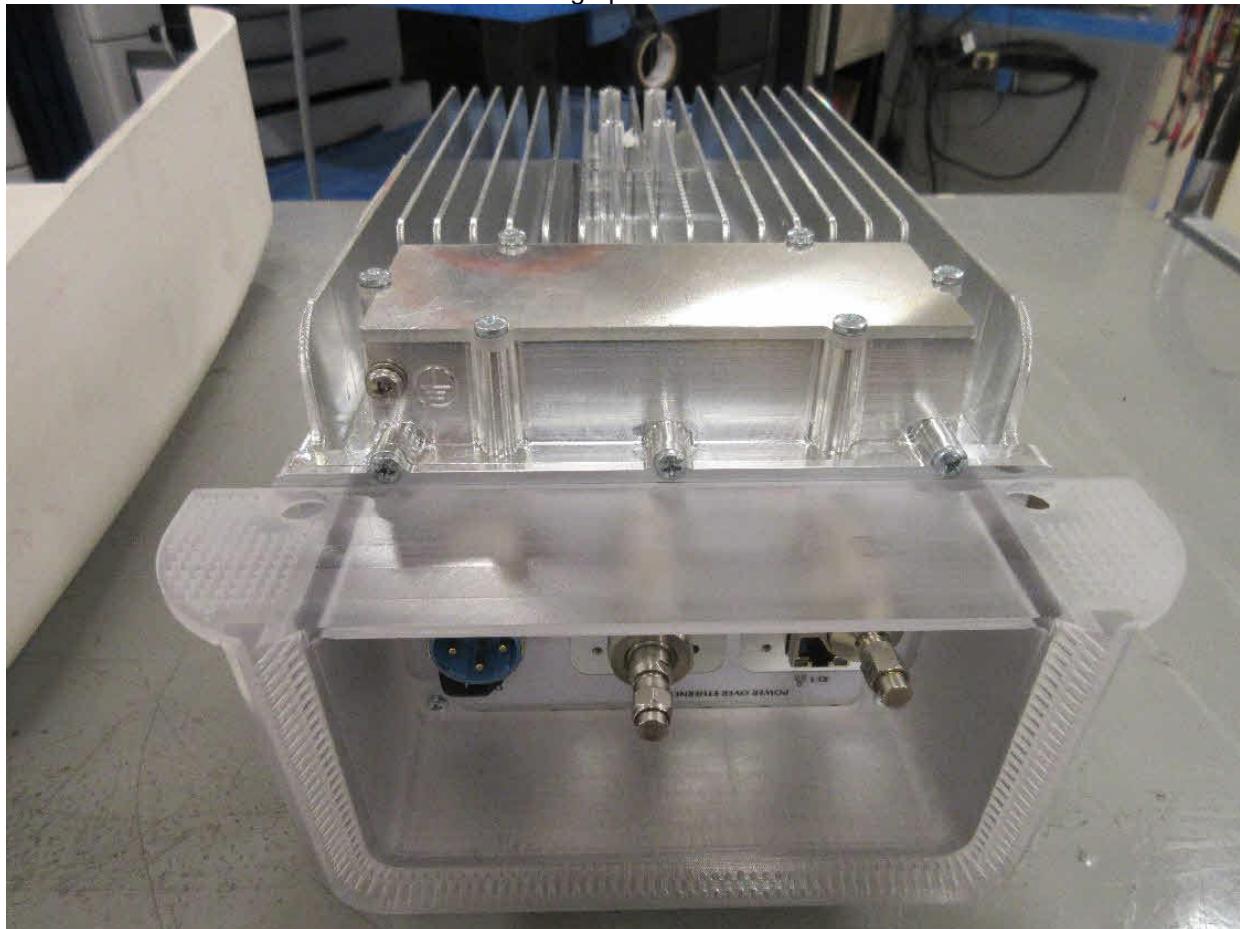
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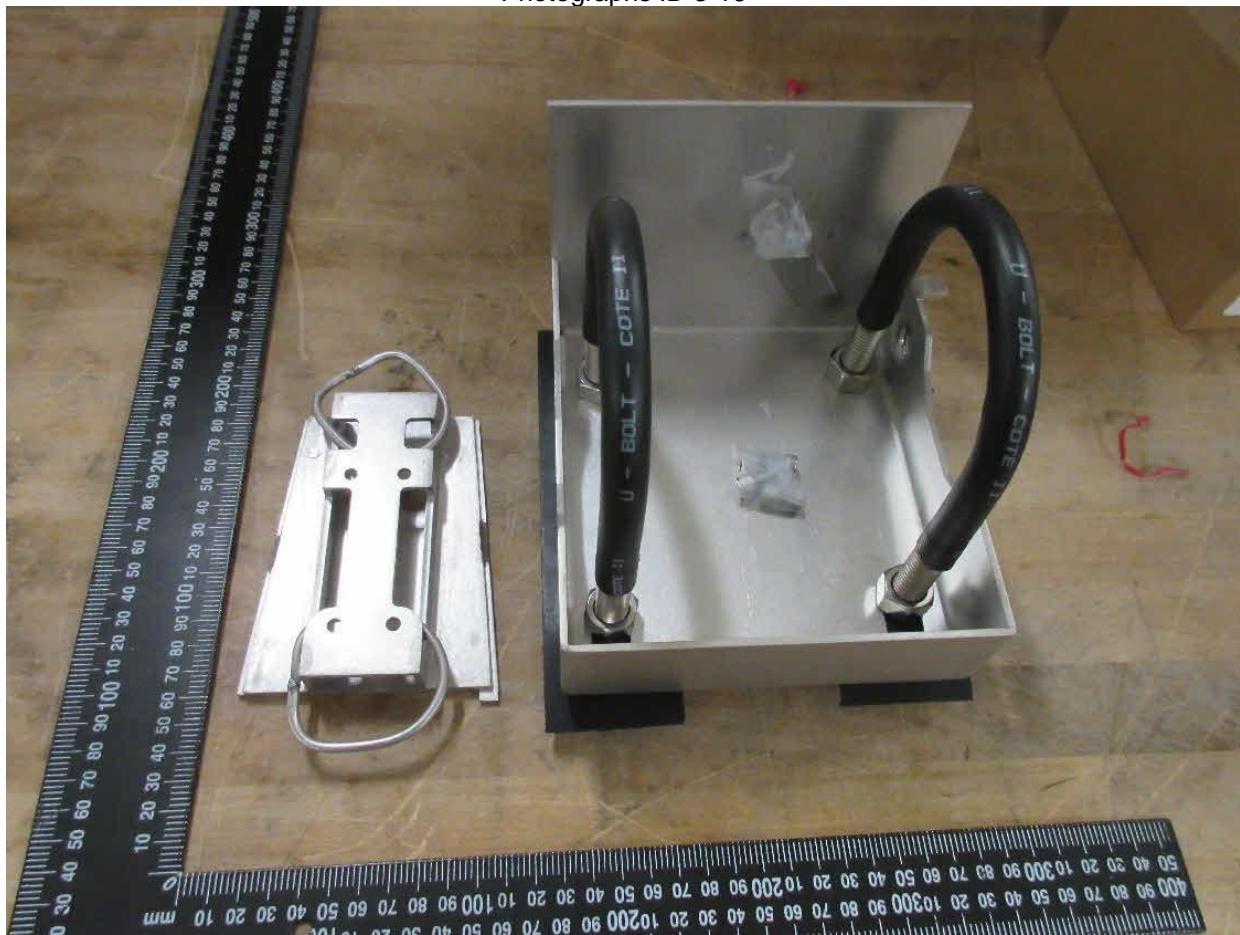
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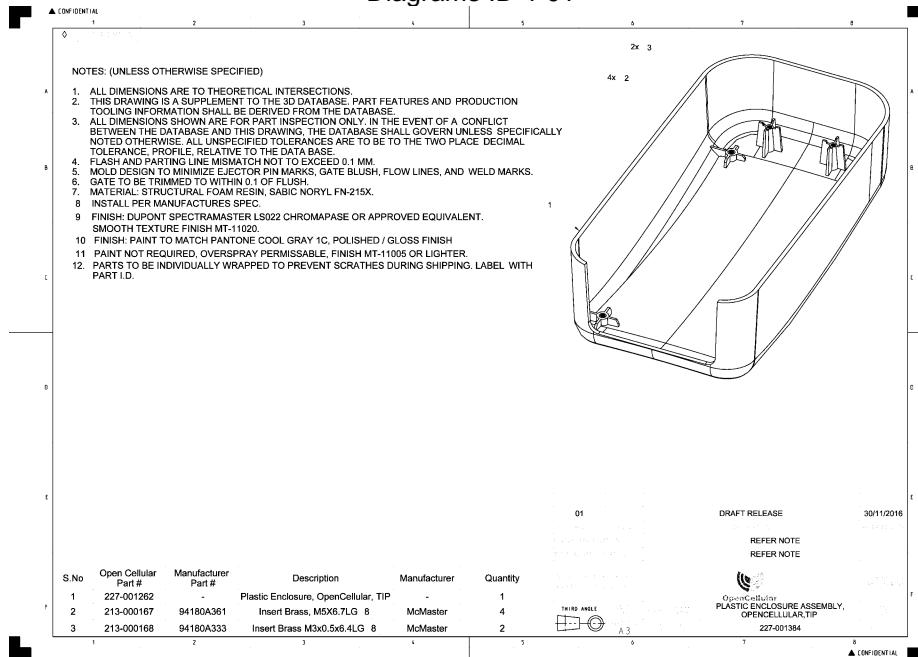
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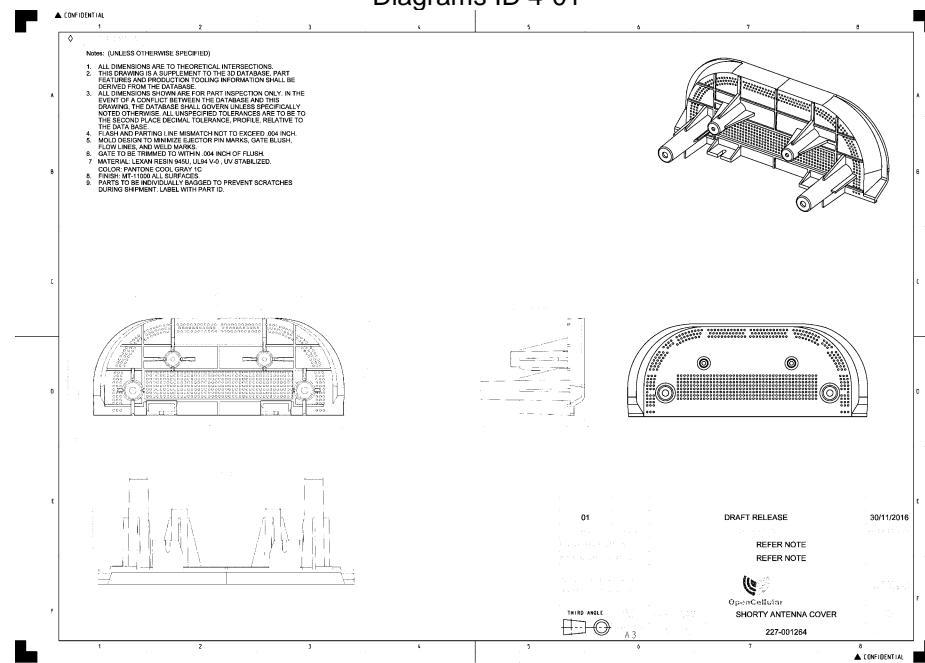
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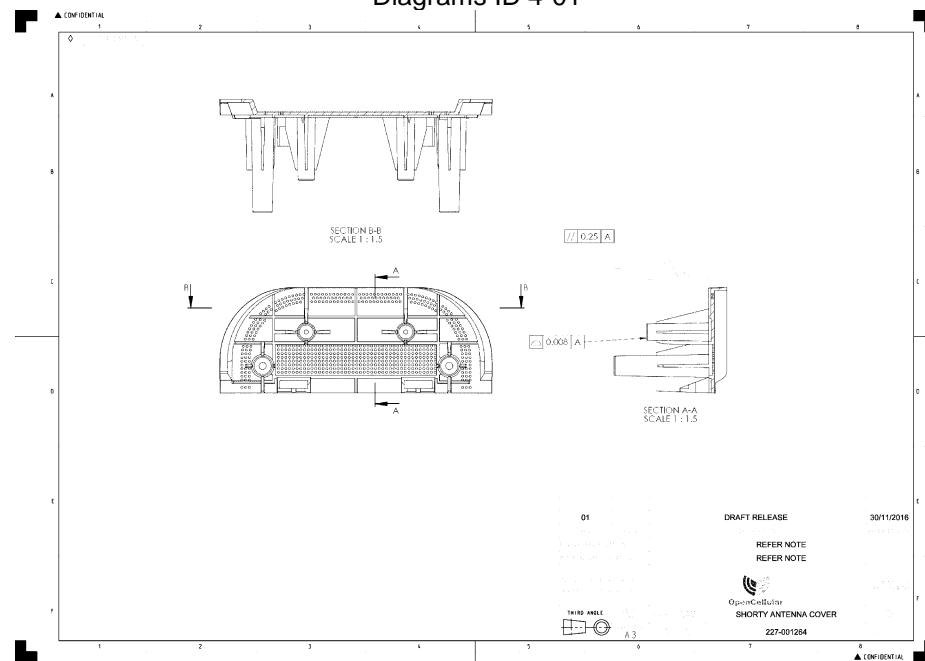
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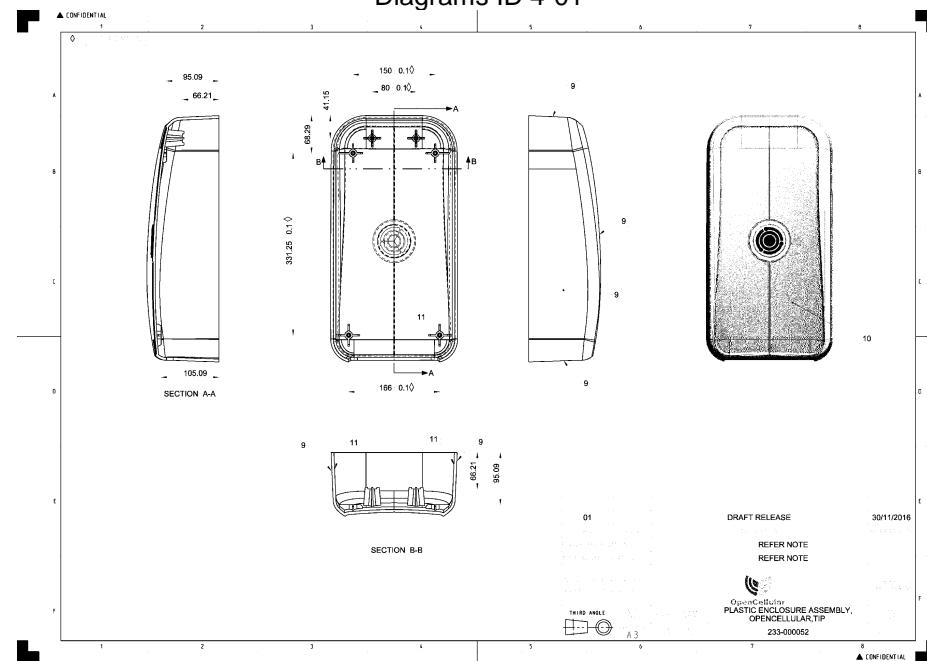
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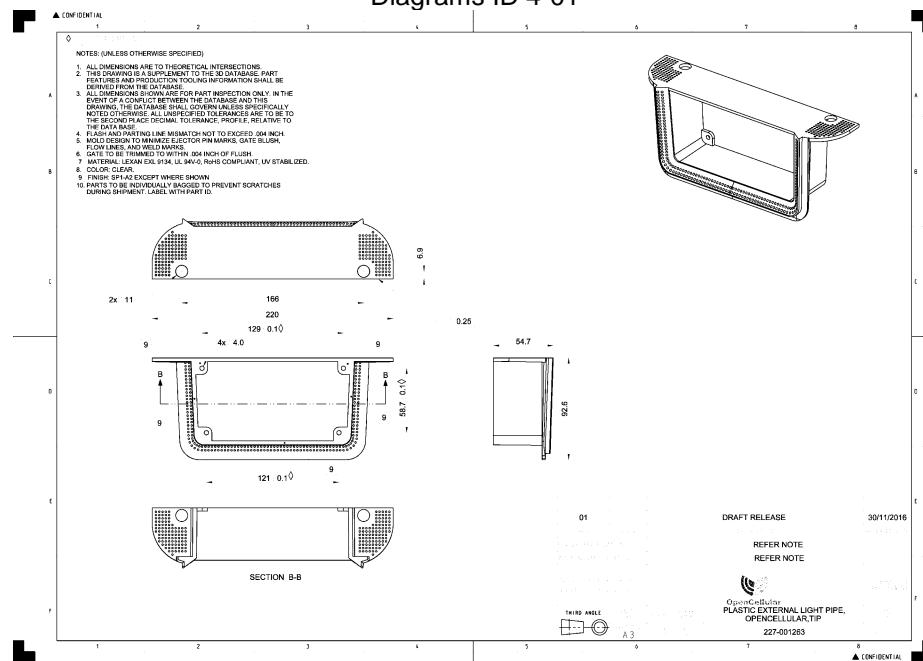
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Diagrams ID 4-01



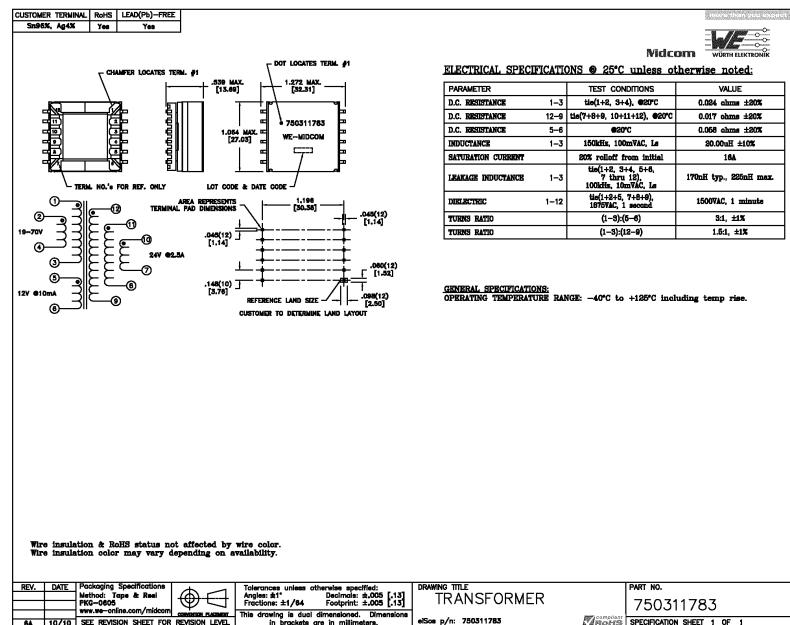
Diagrams ID 4-01



Diagrams ID 4-02



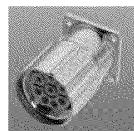
Diagrams ID 4-03



Diagrams ID 4-04

Brad® M23
Power Connectors
Receptacles

120234
Female Crimp Style Contacts
Straight
Front Panel Mount

**Features and Benefits**

- Modularity—same insert for all housings
- The integrated locking clip allows quick assembly
- Complete assembly and disassembly without special tools
- Lowest contact resistance as a result of a Gold-plated contact area
- Integrated strain-relief fitting

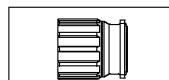
Physical

Housing: Copper-Zinc alloy, die-casting
Housing Surface: Nickel-plated Brass
Inserts (for contacts): Thermoplastic polyamid PA 6 (Nylon 6/6), PBT fire protection class 94V-0
Contacts: Brass alloy
Type of Contacts: Crimp
Contact Surface or Point of Contact: Nickel- and Gold-plated (0.25) μ m
Minimum Mating Cycles: >1000
Seals/O-Rings: Buna-N standard
Operating Temperature: -40 to 125°C

Environmental

Protection: IP67 per EN 60625 (connected)

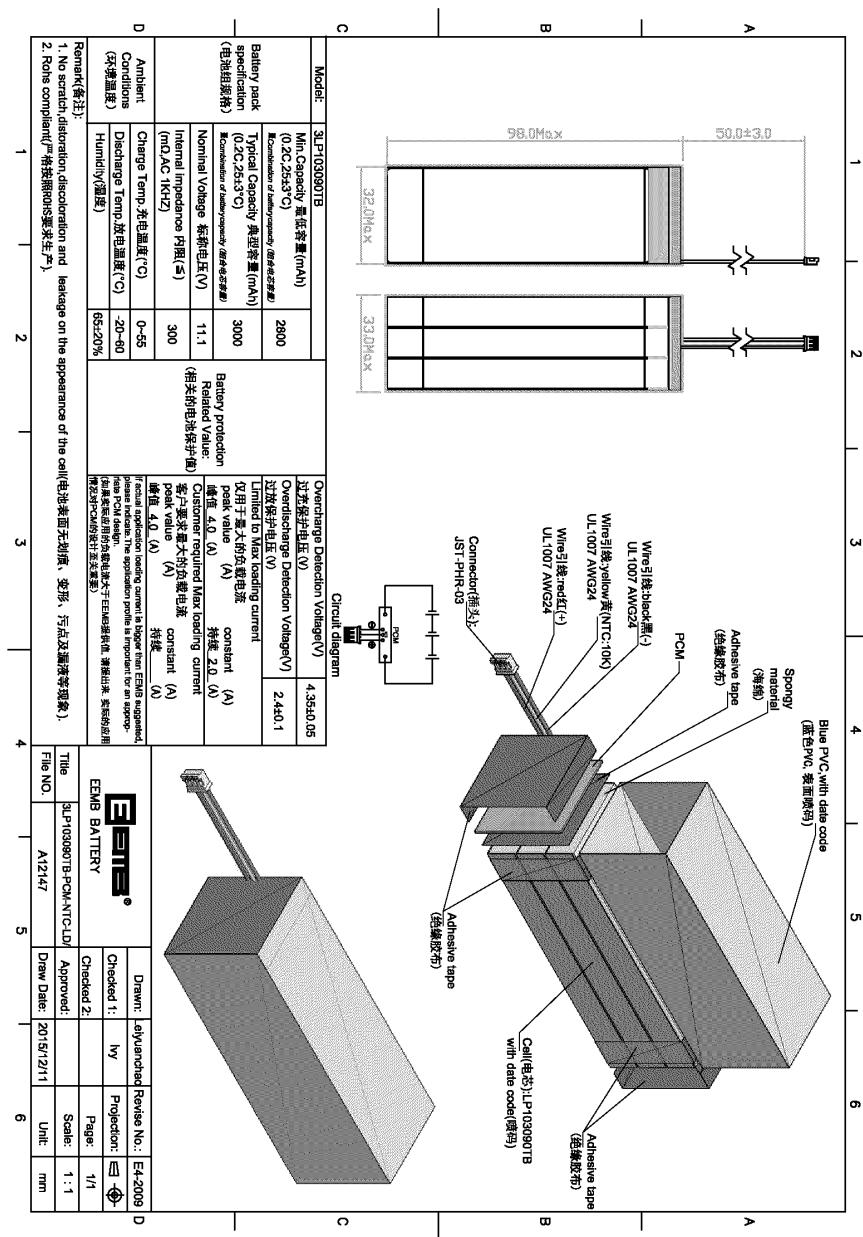
NEMA Rating: 4x



| Poles | Max. Current per Contact | Max. Voltage | Panel Mount Style | Mounting Type | Mounting Thread | Crimp Range | Straight | |
|-----------------|--------------------------|---------------|-------------------|---------------|------------------|---|-----------------|--------------------|
| | | | | | | | Engineering No. | Standard Order No. |
| 6 Pole (5+N+PE) | 28.0A | 800V | Front Panel | Flange-Mount | Flange 4xØ 3.2mm | 0.75-2.5mm ² | ERP8600-103 | 120234-0001 |
| 8 Pole (4+N+PE) | 4-8.0A, 4-28.0A | 4-300/ 4-800V | Front Panel | Flange-Mount | Flange 4xØ 3.2mm | 0.25-1.0mm ² / 75-2.5mm ² | ERP8600-113 | 120234-0003 |

Note: Sales drawings for all standard order numbers are available on molex.com

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| LP103090TB Specification | ZJQM-RD-SPC-A01674 | 0.0 | 2015-12-10 | 1/9 |

EEMB CO., LTD**Polymer Li-ion Battery****Specification**

聚合物锂离子电池

产品规格书

| | |
|--------------|------------|
| Model 型号: | LP103090TB |
| Capacity 容量: | 3000mAh |

| | | |
|-------------|------------|-------------|
| Prepared 编制 | Checked 审核 | Approved 批准 |
| | | |

Customer 客户名称:

Customer Approval (Customer confirmation) 客户确认:

| | | |
|--------------|------------|-------------|
| Signature 签字 | Checked 审核 | Approved 批准 |
| | | |

Address: Room ABCD, 25/F, Block A, Fortune Plaza, NO.7060 Shennan Road Shenzhen, China

Postal code: 518040

Phone: 0086-755-83022275

FAX: 0086-755-83021966

<http://www.eemb.com>

Diagrams ID 4-05

| | | | | | |
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1. Scope 适用范围

This product specification defines the requirements of the rechargeable polymer lithium-ion battery supplied to the customer by EEMB Co., Ltd.

本产品规格书适用于 EEMB 提供的聚合物锂离子电池

2. Battery Cell Basic Characteristics 电芯产品基本特性

| No. | Item 项目 | Characteristics 性能指标 | | | Remark 备注 |
|------|-----------------------------|--------------------------|-------------|---------------------|--|
| 2.1 | Model 型号 | LP103090TB | | | |
| 2.2 | Capacity 容量 | Nominal 标称容量 | 3000 | mAh | 0.2C _s A |
| | | Minimum 最小容量 | 2800 | mAh | 0.2C _s A |
| 2.3 | Nominal Voltage 额定电压 | 3.7 V | | | |
| 2.4 | Weight 重量 | Approx. 60 g | | | |
| 2.5 | Internal Impedance 内阻 | ≤ 60 | mΩ | AC 1KHz(50% charge) | |
| 2.6 | Dimension 外形尺寸 | Length 长 | ≤ 91 | mm | |
| | | Width 宽 | ≤ 30.5 | mm | |
| | | Thickness 主体厚 | ≤ 10.3 | mm | |
| 2.7 | Charge 充电 | Maximum Current 最大充电电流 | 3000 | mA | 1C _s A (CC&CV) |
| | | Limited Voltage 充电上限电压 | 4.200±0.020 | V | |
| | | End-of Current 充电截至电流 | 60 | mA | |
| 2.8 | Discharge 放电 | Maximum Current 最大放电电流 | 6000 | mA | 2.0C _s A |
| | | Cut-off Voltage 放电终止电压 | 2.750±0.005 | V | |
| 2.9 | Operation Temperature 工作温度 | Charge 充电温度 | 0 ~ 55 | ℃ | |
| | | Discharge 放电温度 | -20 ~ +60 | ℃ | |
| 2.10 | Storage Temperature 50%贮存温度 | 4h 4 小时 (贮存期) | -20 ~ +85 | ℃ | Recoverable capacity ≥ 90% Batteries thickness variation rate ≤ 10% 可恢复容量 ≥ 90% 电芯厚度变化率 ≤ 10% |
| | | 1 month 1 个月 (贮存期) | -20 ~ +60 | ℃ | Recoverable capacity ≥ 75% 可恢复容量 ≥ 75% |
| | | 3 months 3 个月 (贮存期) | -20 ~ +55 | ℃ | Recoverable capacity ≥ 70% 可恢复容量 ≥ 70% |
| | | 12 months 12 个月 (贮存期) | -20 ~ +25 | ℃ | Recoverable capacity ≥ 90% 可恢复容量 ≥ 90% |

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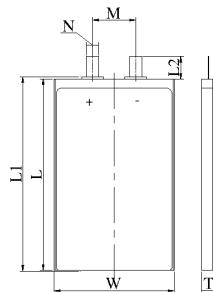
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| | | | |
|------|---|------------|--|
| | The recoverable capacity is the capacity that after high temperature storage, charge and discharge the cell at 0.2 C for 2 cycles under the normal temperature 25 °C.(charging to upper limit voltage, discharge to cut-off voltage) 可恢复容量是基于在高温储存完后，在常温 25°C 下对电池以 0.2C 进行充放电 2 个循环后测试得到的容量。（充电至上限电压，放电至终止电压） | | |
| 2.11 | Storage Relative Humidity 贮存湿度 | 65±20 % | |

3. Battery Cell Shape and Dimensions (Unit: mm)

产品外形及尺寸（单位：mm）

| Item 项目 | Specification 规格 |
|---------|------------------|
| T | Max10.3 |
| W | Max30.5 |
| L | Max91 |
| L1 | Max92 |
| L2 | 10±1 |
| M | 11±1 |
| N | 4±0.5 |



4. Appearance 外观

It shall be free from any defects such as remarkable scratches, breaks, cracks, discoloration, leakage, or middle deformation.

电池表面无划伤、裂纹、脏点、锈蚀、变形、变色、漏液等缺陷，中间无翘起

5. Battery Cell Specification 电池性能测试规范

5.1 Electrical Characteristics 电学性能

| No. | Item 项目 | Criteria 标准 | Test Instructions 测试方法 |
|-------|---|---|--|
| 5.1.1 | 1C ₅ A rate discharge capacity 1C ₅ A 放电容量 | Discharge Capacity ≥ Minimum Capacity 放电容量 ≥ 最小容量 | Full charge at 20±5°C, rest for 60 min, then discharge at the same temperature with 1.0C ₅ A to 2.75V. 电池在 20±5°C 完全充电后放置 1 小时后用 1C ₅ A 恒流放电至两端电压为 2.75V 时止记录放电容量。 |
| 5.1.2 | Different temperature discharge rate 不同温度放电率 | 1. Low temp.-10°C discharge rate≥80% 低温-10°C 放电率 ≥ 80% | Full charge at 20±5°C, rest for 16-24 hour at the different temperature, then discharge at 0.2C ₅ A to 2.75V. 电池完全充电后在不同的温度环境中搁置 16-24H 然后以 0.2C ₅ A 恒流放电至 2.75V 的容量比 |
| | | 2. Low temp. 0°C discharge rate≥90% 低温 0°C 放电率 ≥ 90% | |

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| | | LP103090TB Specification | ZJQM-RD-SPC-A01674 | 0.0 | 2015-12-10 | 5/9 |
| | | 3. High temp. 60°C discharge rate≥92% 高温 60°C 放电率≥92% | | | | |
| 5.1.3 | High temp. discharge capacity 高温性能 | Discharge Time≥54min 放电时间≥54min | Full charge at 20±5°C, store at 55±2°C for 2h, then discharge at the same temperature with 1.0CsA to 2.75V. 电池在 20±5°C 完全充电后放入 55±2°C 的高温箱中恒温 2h，然后在同一温度下以 1.0CsA 电流放电至 2.75V 记录放电时间。 | | | |
| 5.1.4 | Low temp. discharge capacity 低温性能 | Discharge Time≥4h 放电时间≥4h | Full charge at 20±5°C, store at -10°C±2°C for 16h~24h, then discharge at the same temperature with 0.2CsA to 2.75V 电池在 20±5°C 完全充电后放入 -10±2°C 的低温箱中恒温 16~24h，然后在同一温度下以 0.2CsA 电流放电至 2.75V 记录放电时间。 | | | |
| 5.1.5 | Cycle life 循环寿命 | ≥500 cycles (0.5sA) ≥500 次 (0.5sA) ≥800 cycles (0.2sA) ≥800 次 (0.2sA) | After full charge, rest for 10 min, then discharge at constant current to 2.75V, rest for 10 minutes. Repeat above steps until the two consecutive cycles of discharge time is less than the specified time. (500 cycles≥96mm,800 cycles≥240mm) 电池完全充电后搁置 10min。然后以规定电流恒流放电至 2.75V。搁置 10min。重复上述步骤直到连续两次循环的放电时间均少于规定的时间时寿命即为终止。(500 次≥96mm,800 次≥240mm) | | | |
| 5.1.6 | Capacity Retention 荷电保持能力 | Discharge Time≥4.5 h 放电时间≥4.5 h | After full charge, store at 20±5°C for 28 days. Then discharge with 0.2CsA to 2.75V 电池完全充电后在温度为 20±5°C 条件下将电池开路搁置 28 天后，以 0.2CsA 电流放电至 2.75V 记录放电时间。 | | | |

5.2 Acclimatization Characteristics 环境适应性能

| No. | Item 项目 | Criteria 标准 | Test Instructions 测试方法 |
|-------|--|---|--|
| 5.2.1 | High Temp. And High Humidity 恒定湿热性能 | No deformation, no rust, no fire or explosion; Discharge time ≥36min 电池外观应无明显变形、锈蚀、冒烟或爆炸，放电时间应不低于 36 min。 | After full charge, store at 40°C±2°C (90%~95%RH) for 48h. After test, place at 20°C±5°C for 2h and then discharge with 1CsA to end-voltage 电池完全充电后在 40°C ±2°C，相对湿度为 90%~95% 的恒温恒湿箱中搁置 48h 后，将电池取出在环境温度 20°C ±5°C 的条件下搁置 2h，然后 1CsA 电流放电至终止电压。 |
| 5.2.2 | Vibration 振动 | No damnification, leakage, no fire or explosion; Battery Voltage≥3.6V 电池外观应无明显损伤、漏 | Batteries are vibrated 30 min in three mutually perpendicular directions with amplitude of 0.38mm (10~30Hz) or 0.19mm (30~55Hz) and the scanning rate of 1oct per min |

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| | | LP103090TB Specification | ZJQM-RD-SPC-A01674 | 0.0 | 2015-12-10 | 6/9 |
| | | 液、冒烟或爆炸，电池电压应不低于 3.6V | 在三个相互垂直的方向按单振幅 0.38mm（振动频率 10~30Hz）、0.19mm（振动频率 30~55Hz）循环扫描振动 30min，扫频速度为 1oct/min。 | | | |
| 5.2.3 | Drop 自由跌落 | No leakage, no fire or explosion; Discharge Time≥51 min 电池应不漏液、不冒烟、不爆炸；放电时间应不低于 51 min。 | Batteries are dropped onto a hard board with the thickness of 18~20mm from 1meter from X, Y, Z direction of the positive and negative (six directions) and then discharge with 1C ₅ A to end-voltage, 电池由高度（最低点高度）为 1000mm 的位置自由跌落到置于水泥地面上的 18mm~20mm 厚的硬木板上，从 X、Y、Z 正负方向（六个方向）每个方向自由跌落 1 次。自由跌落结束后，将电池以 1C ₅ A 电流放电至终止电压 | | | |
| 5.2.4 | Low-pressure 低气压 | No leakage, no fire or explosion 电池应不漏液、不起火、不爆炸 | Put the batteries in a sealed vacuum and reduce internal pressure gradually to lower than 11.6 kpa. Keep for 6h 将电芯搁置在真空箱中，真空箱密封后，逐渐减少其内部压力至不高于 11.6kpa 并保持 6h | | | |

5.3 Safety Characteristics 安全性能

| No. | Item 项目 | Criteria 标准 | Test Instructions 测试方法 |
|-------|---------------------------|--|---|
| 5.3.1 | Overcharge 过充电 | No fire or explosion 电池应不爆炸、不起火。 | Charged the cells at 3C ₅ A current 20±5°C with a voltage limit of 4.8V and end the test when current drops close to 0 A 将接有热电偶的电池置于通风橱中，接正负极于恒流恒压源，调节电流至 3C ₅ A、电压为 4.8V。然后对电池以 3C ₅ A 充电，直至电池电压为 4.8V，当电流降到接近于 0A，结束试验。 |
| 5.3.2 | Short-Circuit 短路 | No fire or explosion; The maximum Temperature: 150°C. 电池不起火、不爆炸。电池外表温度不超过 150°C。 | Place the battery with thermocouple into a fume hood, and short-circuit by connecting the positive and negative terminals (resistance load of 0.1Ω), monitoring the battery temperature changes in the course of test. End the test when the battery temperature drops to about 10°C lower than peak value. 将接有热电偶的电池置于通风橱中，短路其正负极（线路总电阻 100mΩ），试验过程中监视电池温度变化。当电池温度下降到比峰值低约 10°C 时，结束试验。 |
| 5.3.3 | Thermal abuse 热滥用 | No fire or explosion 电池应不起火、不爆炸。 | Cell is heated in a circulating air oven at a rate of (5±2)°C per minute to 130±2°C, and then placed for 30 minutes at 130±2°C 电池放置于热箱中，温度以 (5±2)°C /min 的速率升至 130±2°C 并保温 30min。 |
| 5.3.4 | Temperature cycle 温度循环 | No leakage, no fire or explosion 电池应不泄露，不起火，不爆炸 | After full charge , place the battery in the temperature control box of 20±5°C, do the following steps: (1)Put the battery into test chamber of 75°C±2°C and keep for 6h. (2)Lower the temperature to -40±2°C and keep for 6h (3)Temperature conversion time is no longer than 30 min (4)Repeat the above three steps for 10 cycles. |

Diagrams ID 4-05

| | | | | | | | |
|---|--|--|------------------------------------|------------|--------------------|-------------|--|
| EEMB | | Document Name LP103090TB Specification | Document No. ZJQM-RD-SPC-A01674 | Ver 0.0 | Date 2015-12-10 | Page 7/9 | |
| | | <p>将电池充满电后，将电池放置在温度为 $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 的温控箱中进行如下步骤：</p> <p>(1) 将电池放入温度为 $75^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 的试验箱中保持 6h (2) 将试验箱的温度降为 $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$，并保持 6h (3) 温度转换时间不大于 30min (4) 重复步骤(1)-(3)，共循环 10 次</p> | | | | | |
| Note: Unless otherwise specified, all tests stated in this specification are conducted at the following conditions: Temp. : $20 \pm 5^{\circ}\text{C}$; Relative Humidity: 25%~85%. | | | | | | | |
| 备注：除特别说明外，本产品规格书规定的测试条件为：温度 $20 \pm 5^{\circ}\text{C}$ ，相对湿度 25%~85%。 | | | | | | | |
| <p>6. Battery Shipping Voltage 电池出货电压</p> <p>Voltage: 3.83V~3.9V 电池出货电压: 3.83V~3.9V</p> | | | | | | | |
| <p>7. Warranty 保质期</p> <p>6 months warranty for sample battery after date of production. One year warranty for finished battery after the date of production 样品电池保质期为（出厂之日起）半年；产品电池保质期为（出厂之日起）1年。</p> | | | | | | | |
| <p>8. Matters Needing Attention 注意事项</p> <p>Strictly observes the following needing attention. EEMB will not be responsible for any accident occurred by handling outside of the precautions in this specification. 您必须严格遵守下述电池使用注意事项。对于没有按照以下注意事项所造成的任何意外事故，EEMB 不负任何责任。</p> | | | | | | | |
| <p style="text-align: center;">! Danger 危险</p> <ul style="list-style-type: none"> ● Strictly prohibits heat or throw cell into fire. 严禁把电池投进火中或进行加热。 ● Strictly prohibits throw and wet cell in liquid such as water, gasoline or drink etc. 严禁把电池投入液体中，如水、汽油、饮料等，也不要把它弄湿。 ● Strictly prohibits use leave cell close to fire or inside of a car where temperature may be above 60°C. Also do not charge / discharge in such conditions. 禁止在火源附近或温度超过 60°C 的轿车中使用或遗留电池，也不要在此环境中进行充放电。 ● Strictly prohibits put batteries in your pockets or a bag together with metal objects such as necklaces. Hairpins, coins, or screws. Do not store or transportation batteries with such objects. 禁止把电池同项链、发夹、硬币或螺钉等金属品一起放在兜中或包中，也不要把它同上述物品一起储存或运输。 ● Strictly prohibits short circuit the (+) and (-) terminals with other metals. 禁止使用金属导体短路电池的正负极。 ● Do not place Cell in a device with the (+) and (-) in the wrong way around. 在装入设备时注意电池的正负极不要反装。 ● Strictly prohibits pierce Cell with a sharp object such as a needle. 禁止使用锐利的物品刺穿电池。 | | | | | | | |

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|-----------------------------|--------------------|-----|------------|------|
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- Strictly prohibits disassemble or modify the cell.
禁止对电池进行分解。
- Strictly prohibits welding a cell directly.
禁止直接对电池进行焊接。
- Do not use a Cell with serious scar or deformation.
禁止使用已经损坏的电池。
- Thoroughly read the user's manual before use, inaccurate handling of lithium ion rechargeable cell may cause leakage, heat, smoke, an explosion, or fire, capacity decreasing.
在使用之前请详细阅读操作说明书，不适当的操作可能引起电池变热、着火、爆炸、毁坏或电池容量的衰减。

! Warning 警 告

- Strictly prohibits put cell into a microwave oven, dryer, or high-pressure container.
禁止把电池放加热器皿、洗衣机或高压容器中。
- Strictly prohibits use cell with dry cells and other primary batteries, or new and old battery or batteries of a different package, type, or brand.
禁止把电池同干电池或其它原电池或者新旧电池一起使用，也不要同不同包装、不同型号或不同品牌的电池一起使用。
- Stop charging the Cell if charging is not completed within the specified time.
如果在规定的充电时间内充电没有结束，停止充电。
- Stop using the Cell if abnormal heat, odor, discoloration, deformation or abnormal condition is detected during use, charge, or storage.
在使用、充电或储存期间如发现电池有变热、散发气味、变色、变形或其它反常之处停止使用。
- Keep away from fire immediately when leakage or foul odor is detected.
当发现电池漏液或散发出难闻的气味时立即远离。
- If liquid leaks onto your skin or clothes, wash well with fresh water immediately.
如果电解液渗漏到您的皮肤或衣服上，立刻用大量清水冲洗。
- If liquid leaking from the Cell gets into your eyes, do not rub your eyes. Wash them well with clean edible oil and go to see a doctor immediately.
如果电解液渗出并进入您的眼睛里，不要揉擦您的眼睛，立刻用食用油清洗眼睛并就医。

! Caution 注 意

- Before using the Cell, be sure to read the user's manual and cautions on handling thoroughly.
在使用电池之前，应详细阅读操作指南并对使用中的注意事项有深刻的理解。
- Charging with specific charger according to product specification. Charge with CC/CV method. Strictly prohibits reversed charging. Connect cell reverse will not charge the cell. At the same time, it will reduce the charge-discharge characteristics and safety characteristics; this will lead to product heat and leakage.
充电时请使用指定的充电器并按照本规格书的要求进行充电。采用恒流恒压方式充电，禁止反向充电。若电池正负极接反，将无法对电芯进行充电；同时，反向充电会降低电芯的充放电性能和安全性，并会导致发热和泄漏。
- Store batteries out of reach of children so that they are not accidentally swallowed.
把电池放到小孩够不到的地方以免吞服。
- If younger children use the Cell, their guardians should explain the proper handling.

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| LP103090TB Specification | ZJQM-RD-SPC-A01674 | 0.0 | 2015-12-10 | 9/9 |

小孩使用电池时，监护人应详细解释操作方法。

- Before using the Cell, be sure to read the user's manual and cautions on handling thoroughly.
在将电池装入设备或从设备中取出之前详细阅读设备操作手册。
- Batteries have life cycles. If the time that the Cell powers equipment becomes much shorter than usual, the Cell life is at an end. Replace the Cell with a new same one.
电池具有使用寿命，如果使用电池的设备的工作时间比平常少的多，请更换新电池。
- When not using Cell for an extended period, remove it from the equipment and store in a place with low humidity and low temperature.
当长期不用时，要将电池从设备中取出并放在低温低湿的环境中保存。
- While the Cell pack is charged, used and stored, keep it away from objects or materials with static electric charges.
电池应在远离静电的场所进行充电、使用和储存。
- If the terminals of the Cell become dirty, wipe with a dry clothe before using the Cell.
如果电池的接线端变脏，在使用之前用干布擦净。
- Storage the cells in storage temperature range as the specifications. After full discharged, we suggest that charging to 3.7~4.0V with no using for a long time.
电芯应贮存在产品规格书规定的温度范围内，电芯放电放完后，如果长期不使用，建议充电至3.7~4.0V 贮存。
- Battery should be charged and discharged every 3 months at 0.2 C during long term storage, and then charge to 50-70% of the capacity for storage.
电池在长期贮存过程中，必须每3个月0.2C进行充放电一次，然后充电至50-70%的容量进行贮存。
- Do not exceed these ranges of the following temperature ranges:
电池在使用和贮存时的温度不能超出下面的要求：
 - Charge temperature range 充电 : 0°C to 55°C;
 - Discharge temperature range 放电 : -20°C to 60°C.
 - Store less than 1 month 贮存 1 个月 : -20°C - +60°C
 - Store less than 3 months 贮存 3 个月 : -20°C - +45°C
 - Store less than 1 year 贮存 12 个月 : -20°C - +25°C

! Special Notice 特别注意

Keep the cells in 50% charged state during long period storage. We recommend to charge the battery up to 50% of the total capacity every 3 months after receipt of the battery and maintain the voltage 3.7~4.0V. And store the battery in cool and dry place.

电池在长时间储存的过程中保持带电量为50%。我们建议每3个月充电至50%以上容量，保持电压在3.7~4.0V。将电池存储在阴凉干燥的地方。

EEMB reserves the final explanation. Please use battery strictly according to specification. EEMB will not be responsible for any inappropriate operation. EEMB keeps the right to change product specifications without previous notice. If any question, please consult with the manufacturer.

EEMB 保留最终解释权。请严格按照规范使用电池。EEMB 对任何不当操作将不负责。EEMB 保留修改产品规格书不另行通知的权利。如有任何问题, 请咨询制造商。

Misc ID 7-01

QUANTA
LABORATORIES

3199 De La Cruz Boulevard • Santa Clara, CA 95054-2483
TEL: (408) 988-0770 FAX: (408) 988-0762
E-MAIL: test@quantalabs.com

Certificate of Conformance

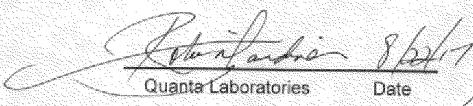
This is to certify that the results from the test(s) requested by
FACEBOOK are on file under
Quanta Laboratories Job No. QL-17-0834 and conform
to the specification(s) stated in P.O. No. 1074159

These results apply to the following equipment and are
available for review upon request.

Model No: OPEN CELLULAR-CONNECT-1

S/N: (See Report)

*** Sine Sweep, Random Vibration, Shock Tests ***
*** Earthquake Test ***
*** Temperature Cycling, HALT and HASS Tests***
*** Water, Dust Ingress (IP65) and Salt Fog Tests ***


Robert Andino 8/27/17
Quanta Laboratories Date

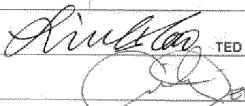
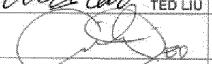
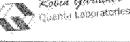
QL-TTS-151 TOTAL REPORT PAGES: Rev: 08/20/10

Misc ID 7-01

WATER INGRESS TEST DATA



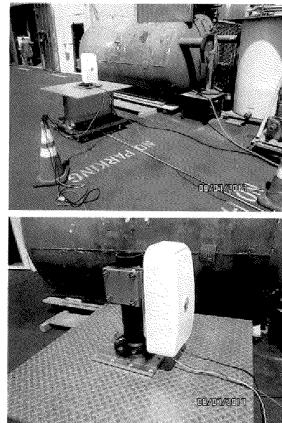
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| CLIENT: FACEBOOK | | | | P.O. NO: | 1074159 |
|---|-------|---|--|--|--|
| SPECIMEN: OPEN CELLULAR-CONNECT-1 | | | | JOB NO: | QL-17-0834 |
| SPECIFICATION: PER IEC 60529, IPX5. | | | | PAGE: | 1 OF 1 |
| DATE | S/N | WATER FLOW RATE | DISTANCE | DURATION | REMARKS |
| 08/07/17 | 10002 | 12.5 LPM ± 5% OR 3.3 GPM ± 5% | 2.5 M to 3 M | 1 MIN/M ² AT LEAST DURATION: 3 MIN | WATER JET NOZZLE 6.3MM DIAMETER 1. Operational test, test completed to specification requirements. 2. Unit worked normally before, during and after test. 3. No water observed in the unit after test. |
|  | | TEST CONDUCTOR: |  TED LIU | | DATE: 08-07-2017 |
| | | TEST ENGINEER: |  | | DATE: 08-07-2017 |
| | | WITNESS: | | | DATE: |
| | | Q. A. ENGINEER: |  <i>Ronald Gardner</i> Quantal Laboratories | | DATE: 08-07-2017 |

QL-TTS-022

Rev: 09/17/10

Misc ID 7-01

**FACEBOOK**
WATER INGRESS (IPX5) TEST

TEST SETUP

JOB NO. : QL-17-0834

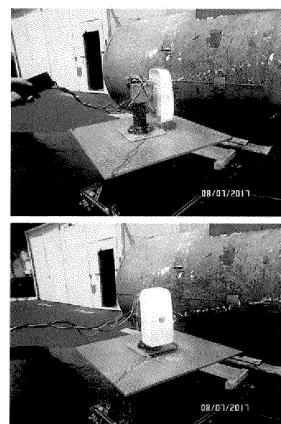
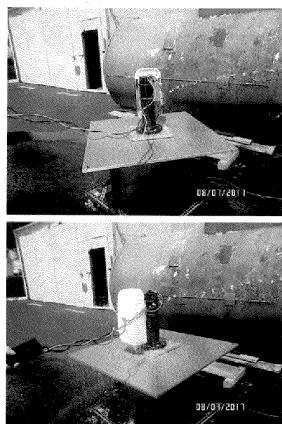
08-07-2017

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FACEBOOK

WATER INGRESS (IPX5) TEST

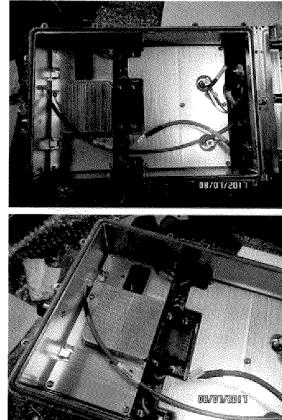


TEST ONGOING

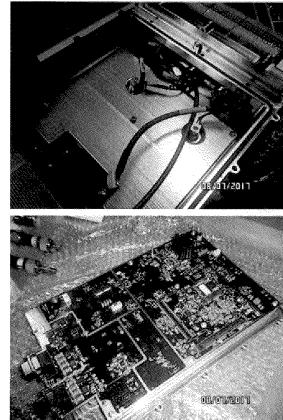
JOB NO. : QL-17-0834

08-07-2017

Misc ID 7-01



FACEBOOK
WATER INGRESS (IPX5) TEST



AFTER TEST

JOB NO. : QL-17-0834

08-07-2017

Misc ID 7-01

EQUIPMENT LIST FOR WATER INGRESS TEST



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 test@quantalabs.com www.quantalabs.com

| CLIENT: | FACEBOOK | P.O. No.: 1074159 | | | |
|---------|-------------------------------|----------------------|---------------|--------------|-------------------------|
| | | JOB NO.: QL-17-0834 | | | |
| MFGR | DESCRIPTION | FLOW RATE/ RANGE | SERIAL NO. | ASSET NO. | CALIBRATION DUE DATE |
| QUANTA | WATER INGRESS CART | N/A | QOC6 | QL-0495 | TIME OF TEST |
| QUANTA | IPX5 SPRAY NOZZLE | 6.3mmØ 12.5 l/min | N/A | QL-0502 | TIME OF TEST |
| OMEGA | FLOW METER FTB691A-NPT-1½" | 1-10 GPM | KF2449 | QL-0493 | 1/17/2018 |

Notes:

1. All Calibrations have been performed using standards having an accuracy traceable to NIST or derived from acceptable values of natural physical constants and complies with ISO-17025 and A2LA requirements.
2. Measurement uncertainty are calculated using a confidence level of 95% with a coverage factor of 2 (K = 2).

QL-TTS-098

Rev.11/04/16

Misc ID 7-01

DUST INGRESS TEST DATA

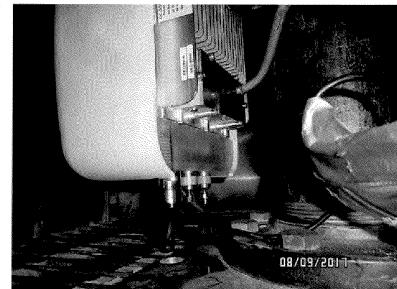


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| CLIENT: FACEBOOK | | | | | P.O. NO: 1074159 |
|---|-------|----------|--|-------------------------------------|--|
| SPECIMEN: OPEN CELLULAR-CONNECT-1 (QTY: 1) | | | | | JOB NO: QL-17-0834 |
| SPECIFICATION: PER IEC60529 IP6X SPEC. | | | CATEGORY 1 <input checked="" type="checkbox"/> | CATEGORY 2 <input type="checkbox"/> | PAGE 1 OF 1 |
| DATE | S/N | DURATION | TEMP. | DUST CONCENTRATION | REMARKS |
| 08/09/17 ~ 08/10/17 | 10002 | 8 HOURS | 35°C | 2Kg/m ³ | <p>TEST COMPLETED TO SPECIFICATION.</p> <p>NOTE:</p> <ul style="list-style-type: none"> PRESSURE INSIDE THE ENCLOSURE OF THE UNIT WAS MAINTAINED AT DEPRESSION RATE OF 2KPA (20 MBAR) AS COMPARED TO THE SURROUNDING ATMOSPHERIC PRESSURE BY A VACUUM PUMP CONNECTED TO THE UNIT (REFER TO IEC60529 SPEC.). NO DEPOSIT OF DUST/TALCUM POWDER WAS OBSERVED INSIDE THE ENCLOSURE AFTER THE TEST. |
| TEST CONDUCTOR: <i>Dr. Liu</i> TED LIU | | | | | DATE: 08-11-2017 |
| TEST ENGINEER: <i>C. Liu</i> | | | | | DATE: 08-11-2017 |
| WITNESS: | | | | | DATE: |
| Q. A. ENGINEER: <i>Robin Gardiner</i> Quantum Laboratories | | | | | DATE: 08-11-2017 |

Misc ID 7-01

FACEBOOK
DUST INGRESS (IP6X) TEST

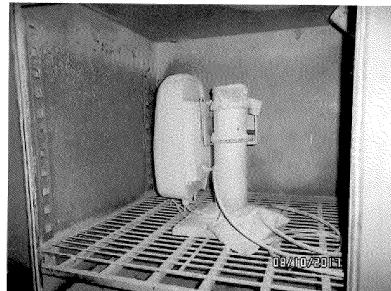


UNIT IN THE CHAMBER #46

JOB NO. : QL-17-0834

08-09-2017

Misc ID 7-01

**FACEBOOK**
DUST INGRESS (IP6X) TEST

AFTER TEST

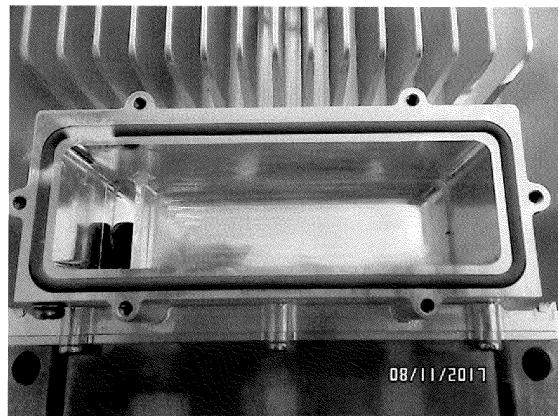
JOB NO. : QL-17-0834

08-10-2017

Misc ID 7-01



FACEBOOK
DUST INGRESS (IP6X)TEST



AFTER TEST

JOB NO. : QL-17-0834

08-11-2017

Misc ID 7-01

EQUIPMENT LIST FOR INGRESS/INTRUSION TEST



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 Phone: (408) 988-0770 FAX: (408) 988-0762
 test@quantalabs.com www.quantalabs.com

| CLIENT: FACEBOOK | | | P.O. No.: | 1074159 | |
|-------------------------------|-------------------------|-------------------------------|---------------|-----------|----------------------|
| MFGR | DESCRIPTION | RANGE | SERIAL NO. | ASSET NO. | CALIBRATION DUE DATE |
| WUXI NANYA SCI-TECH CO., LTD. | DUST CHAMBER #46 | N/A | G90060 | QL-0862 | TIME OF TEST |
| CHENGFENG FLOWMETER | AIR FLOWMETER | 0.25 ~ 2.5 m ³ /Hr | 4000118 | QL-0863 | REFERENCE |
| Dwyer Instrument | Liquid Filled Manometer | 0 ~ 304.8 mmH ₂ O | 2662409 | QL-1071 | 8/30/2021 |
| OMEGA | DIGITAL MANOMETER | | 30600010 2176 | QL-1078 | 9/12/2017 |
| KULITE SEMICONDUCTOR | PRESSURE TRANSDUCER | 0 ~ 50 PSIA | 8003028 | QL-0865 | REFERENCE |

Notes:

1. All Calibrations have been performed using standards having an accuracy traceable to NIST or derived from acceptable values of natural physical constants and complies with ISO-17025 and A2LA requirements.
2. Measurement uncertainty are calculated using a confidence level of 95% with a coverage factor of 2 (K = 2).

Enclosures

Misc ID 7-01

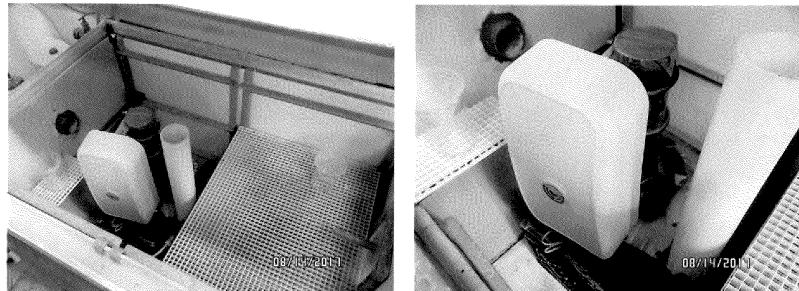
SALT FOG TEST DATA



3199 De La Cruz Blvd, Santa Clara, CA 95054
 Phone: (408) 988-0770 FAX: (408) 988-0762
 test@quantalabs.com www.quantalabs.com

| CLIENT: FACEBOOK | | | | | | | P.O. NO: 1074159 |
|--|-------|---------------|---------------|--------|--------------------------------------|-----------------------|--|
| SPECIMEN: OPEN CELLULAR-CONNECT-1 | | | | | | | JOB NO: QL-14-0834 |
| SPECIFICATION: Per Facebook's Open cellular-connect-1 Environmental Test spec. Doc. 3.6 Salt Fog. | | | | | | | PAGE 1 OF 1 |
| DATE | S/N | TIME | CHAMBER TEMP. | % NaCl | SPECIFIC GRAVITY OF FALL-OUT | PH @TEMP. OF FALL-OUT | COLLECTION RATE (ml/hr/80cm ²) |
| 08/14/17 ~ 08/18/17 | 10002 | 10:30 (08/14) | 87°F | 5% | 1.032 | 6.64 /22.7°C * | --- |
| | | 10:30 (08/15) | 97°F | 5% | 1.035 | 7.0 /30.9°C | 2.08 |
| | | ~ 08/16 | | | | | Air dry for 30 hrs |
| | | 16:30 (08/16) | 95°F | 5% | --- | — | Restarted Test |
| | | 16:30 (08/17) | 97°F | 5% | 1.033 | 7.08 /30.2°C | 2.23 |
| | | ~ 08/18 | | | | | Air dry for 24 hrs |
| | | (08/18) | | | | | Test stopped |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Note: • * Specific gravity and PH value in the first cells were obtained from solution made before the test at room temperature. • Test completed to customers specification. • See pictures for detail information after test. | | | | | | | |
| TEST CONDUCTOR: | | | | | | TED LIU | DATE: 08-18-2017 |
| TEST ENGINEER: | | | | | | | DATE: 08-18-2017 |
| WITNESS: | | | | | | | DATE: |
| Q. A. ENGINEER: | | | | | Robin Gardner Quanta Laboratories | | DATE: 08-18-2017 |

Misc ID 7-01

**FACEBOOK**
SALT FOG TEST

UNIT IN THE CHAMBER #28

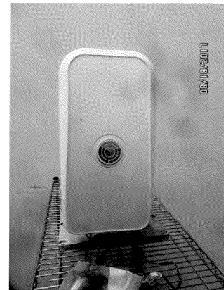
JOB NO. : QL-17-0834

08-14-2017

Misc ID 7-01



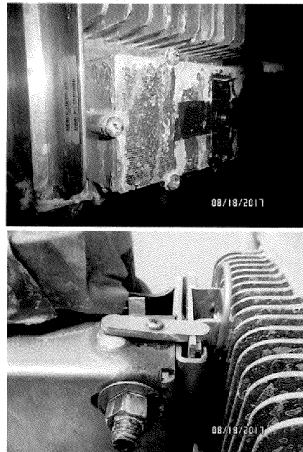
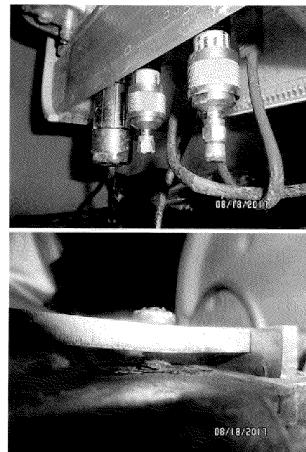
FACEBOOK
SALT FOG TEST



JOB NO. : QL-17-0834

08-18-2017

Misc ID 7-01

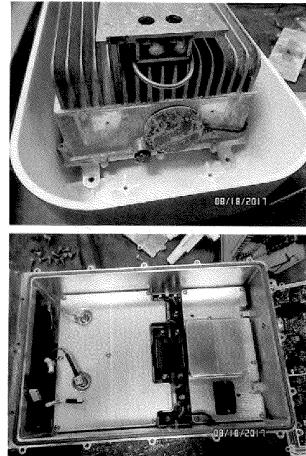
**FACEBOOK**
SALT FOG TEST

UNIT AFTER TEST

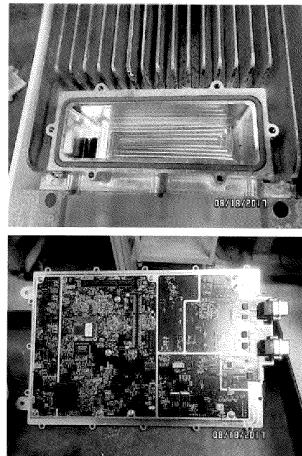
JOB NO. : QL-17-0834

08-18-2017

Misc ID 7-01



FACEBOOK
SALT FOG TEST



UNIT AFTER TEST

JOB NO. : QL-17-0834

08-18-2017

Misc ID 7-01

EQUIPMENT LIST FOR SALT FOG TEST



3199 De La Cruz Blvd, Santa Clara, CA 95054
 Phone: (408) 988-0770 FAX: (408) 988-0762
 test@quantalabs.com www.quantalabs.com

| CLIENT: | FACEBOOK | P.O. No.: | 1074159 | | |
|----------------------------|--|-------------------|---------------------|-----------|----------------------|
| MFGR | DESCRIPTION | RANGE | SERIAL NO. | ASSET NO. | CALIBRATION DUE DATE |
| THE GS EQUIPMENT CO. | TEST CHAMBER #28 SALT FOG MODEL: GS-SCH-22 | MIL SPEC. | N/A | QL-0533 | 8/29/2017 |
| WATLOW | TEMP. INDICATOR | 0 To 200 °F | 94AA1DA000R G008645 | QL-0959 | 11/7/2017 |
| OMEGA | TEMP. SENSOR | 0 To 200 °F | 45 | QL-0992 | 11/7/2017 |
| WESTON GAUGE | DIAL THERMOMETER | 0 To 200 °F | 29513 | QL-0499 | REFERENCE |
| HANNA INSTRUMENTS | PH METER MODEL: HI2212 | 0 To 14 | 8646286 | QL-0866 | 9/16/2017 |
| VWR SCIENTIFIC INC. | HYDROMETER 34610-002 | 1000 To 1220 | 2 | QL-0498 | 8/25/2017 |
| VWR SCIENTIFIC INC. | HYDROMETER 34610-002 | 1000 To 1220 | 1 | QL-0737 | 8/25/2017 |
| MILWAUKEE INSTRUMENTS INC. | REFRACTOMETER FOR SODIUM CHLORIDE MEASUREMENTS | 1,000 TO 1.216 SG | D0053599 | QL-1061 | TIME OF TEST |
| MORTON | CULINOX 99% FOOD GRADE SALT | N/A | N/A | N/A | N/A |

Notes:

1. All Calibrations have been performed using standards having an accuracy traceable to NIST or derived from acceptable values of natural physical constants and complies with ISO-17025 and A2LA requirements.
2. Measurement uncertainty are calculated using a confidence level of 95% with a coverage factor of 2 (K = 2).

Misc ID 7-01



3199 De La Cruz Boulevard • Santa Clara, CA 95054-2483
TEL: (408) 988-0770 FAX: (408) 988-0762
E-MAIL: test@quantalabs.com

Quanta Laboratories Test Report

Quanta Laboratories submits this report with our Certificate of Conformance to the requirements of the applicable specifications and with appropriate supporting data, but with no other expressed or implied warranty. Customer assumes full responsibility when using or interpreting the data herein for evaluation and/or reporting purposes.

End of Report

QL-17-0834

QL-TTS-150

Rev: 09/04/08



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UL Photo

Misc ID 7-02



Test Report issued under the responsibility of:



| TEST REPORT IEC 60950-22 Information technology equipment – Safety – Part 22: Equipment to be installed outdoors | |
|---|---|
| Report Number | E484144-A4-IT-1 |
| Date of issue | 2017-11-27 |
| Total number of pages..... | 22 |
| Name of Testing Laboratory preparing the Report | UL Fremont 47173 Benicia Street, Fremont, CA, 94538, USA |
| Applicant's name..... | FACEBOOK INC. |
| Address | 1 HACKER WAY MENLO PARK CA 94025 UNITED STATES |
| Test specification: | |
| Standard | IEC 60950-22(ed.2) |
| Test procedure | Informative |
| Non-standard test method..... | N/A |
| Test Report Form No..... | IEC60950_22B |
| Test Report Form(s) Originator.... | The Standards Institution of Israel |
| Master TRF | Dated 2016-04 |
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| General disclaimer: 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 CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report. | |

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Report No. E484144-A4-IT-1

| | | |
|---|--|--|
| Test item description | Base transceiver station | |
| Trade Mark | N/A | |
| Manufacturer..... | FCL TECH, INC. 1601 Willow Rd Menlo Park CA 94025 USA | |
| Model/Type reference | OPEN CELLULAR-CONNECT-1 | |
| Ratings | 16-24 Vdc, 3A 48 Vdc PoE, 1.5A (provided from external power source) | |
| Responsible Testing Laboratory (as applicable), testing procedure and testing location(s): | | |
| <input checked="" type="checkbox"/> UL Fremont | UL Fremont | |
| Testing location/ address | 47173 Benicia Street, Fremont, CA, 94538, USA | |
| <input type="checkbox"/> Associated CB Testing Laboratory: | | |
| Testing location/ address | | |
| Tested by (name, function, signature) | Paul Pham/ Handler |  |
| Approved by (name, function, signature).. : | Anh Nguyen/ Reviewer |  |
| <input type="checkbox"/> Testing procedure: CTF Stage 1: | | |
| Testing location/ address | | |
| Tested by (name, function, signature) | | |
| Approved by (name, function, signature).. : | | |
| <input type="checkbox"/> Testing procedure: CTF Stage 2: | | |
| Testing location/ address | | |
| Tested by (name + signature) | | |
| Witnessed by (name, function, signature). : | | |
| Approved by (name, function, signature).. : | | |
| <input type="checkbox"/> Testing procedure: CTF Stage 3: | | |
| <input type="checkbox"/> Testing procedure: CTF Stage 4: | | |
| Testing location/ address | | |
| Tested by (name, function, signature) | | |
| Witnessed by (name, function, signature).. : | | |
| Approved by (name, function, signature).. : | | |
| Supervised by (name, function, signature): | | |

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| | |
|--|---|
| List of Attachments (including a total number of pages in each attachment): N/A | |
| Summary of testing: Unless otherwise indicated, all tests were conducted at UL Fremont, 47173 Benicia Street, Fremont, CA, 94538, USA | |
| Tests performed (name of test and test clause): 1. Impact (4.2.5, 4.2.1, Part 22 10.2) 2. Part 22, 9.1, Annex B – Water Spray Test | Testing location: UL Fremont 47173 Benicia Street, Fremont, CA, 94538, USA |
| Summary of compliance with National Differences (List of countries addressed): Countries outside the CB Scheme membership may also accept this report. List of countries addressed: CA, US <input checked="" type="checkbox"/> The product fulfils the requirements of IEC 60950-22 (ed.2) (insert standard number and edition and delete the text in parenthesis, leave it blank or delete the whole sentence, if not applicable) | |

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Copy of marking plate:

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

Not Applicable

The product is to be marketed by other manufacturers; the Original Equipment Manufacturer doesn't provide the marking label or installation manual for this product.

The tests conducted on this product for this Informative Test Report are for information only; all required tests under the applicable standards shall be considered in the end-use application.

The product is not provided with outdoor bushing for the Ethernet RJ45 connectors. Suitable components shall be considered in the end-use application.

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| | |
|--|---|
| Test item particulars | |
| Temperature range : -20°C to +55°C | |
| Overvoltage category : <input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV | |
| IP protection class : | |
| 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..... : 2017-11-06 | |
| Date (s) of performance of tests : 2017-11-17, 2017-11-21 | |
| General remarks: | |
| "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. | |
| Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator. | |
| This Test Report Form is intended for the investigation of safety of equipment to be installed outdoors in accordance with IEC 60950-22. It can only be used together with the IEC 60950-1 requirements. | |
| Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02: | |
| The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... : | <input type="checkbox"/> Yes <input type="checkbox"/> Not applicable |
| When differences exist; they shall be identified in the General product information section. | |
| Name and address of factory (ies): | |
| Not applicable | |
| General product information: | |
| The product is an OEM GSM Base transceiver station. The product is powered by nominal 24 Vdc from a UL Listed/ IEC certified external Power Supply or 48 Vdc from PoE source of a host equipment. The product consists of electronic components mounted on PWB, housed within a fully enclosed metallic enclosure with a front plastic cover, then secured together by screws. | |
| The product is intended to be for outdoor installation and to be mounted on a pole. | |
| Model Differences | |
| N/A | |

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|--------------|--------------------|----------------------------|---------|
| IEC 60950-22 | | | |
| Clause | Requirement + Test | Result - Remark | Verdict |

| 4 CONDITIONS FOR OUTDOOR EQUIPMENT | | | |
|---|---|---|------------------------------------|
| 4.1 Ambient air temperature | | | |
| | Suitability for use at any temperature in the range specified by the manufacturer. If not specified by the manufacturer, the range is taken as -33°C to +40°C | The temperature range is -20 degree C to +55 degree C specified by the manufacturer. | P |
| 4.2 Mains supply | | | N/A |
| 4.2.1 General | | N/A | |
| | Suitability for the highest mains transient voltage expected in the installation location | Not directly connected to mains. | N/A |
| | Components within outdoor equipment that reduce mains transient voltage or the prospective fault current comply with IEC 61643-series | | N/A |
| 4.2.2 | Mains transient voltage on AC mains supply | | N/A |
| 4.2.3 | Mains transient voltage on DC mains supply | | N/A |
| 4.3 Rise of earth potential | | | N/A |
| | Special earthing conditions | N/A | N/A |
| | Reference to installation instructions | | N/A |
| 5 MARKING AND INSTRUCTIONS | | | |
| | Special installation features for protection from conditions in the outdoor location (see 1.7.2 of IEC 60950-1:2005) | Precautions in the installation instruction. | To be evaluated in end-use product |
| | outdoor enclosure classification according to IEC 60529 (IP Code) | IP65 - Based on IEC 60529 Test Report Ref. No. QL-17-0834 issued by Quanta Laboratories, Santa Clara, CA 95054, U.S. dated 2017-07-26 | P |
| 6 PROTECTION FROM ELECTRICAL SHOCK IN AN OUTDOOR LOCATION | | | |
| 6.1 | Voltage limits of user-accessible parts in outdoor locations (2.2.2 and 2.2.3 of IEC 60950-1:2005/AMD2:2013 with voltage limits of IEC60950-22) | | P |
| | Voltages under normal conditions (V) | Supplied by SELV and LPS source. | P |
| | Voltages under fault conditions (V) | Product is intended to be supplied by Certified SELV power supply. Fault conditions covered under the evaluation of the Certified power supply. | P |

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|--------------|---|--|---------|
| IEC 60950-22 | | | |
| Clause | Requirement + Test | Result - Remark | Verdict |
| 6.2 | Limited current circuits in outdoor locations | | N/A |
| | The requirements of 2.4 of IEC60950-1:2005/AMD1:2009/AMD2:2013 apply without change | (see separate test report IEC 60950-1) | N/A |
| 6.3 | Protection for socket-outlet in outdoor locations | | N/A |
| | Use of residual current protective device (RCD) with rated residual operating current not exceeding 30 mA in the mains supply to socket-outlets intended for general use and with a rated current not exceeding 20 A. | | N/A |
| | RCD is an integral part of the equipment | | N/A |
| | RCD is part of the building installation (installation instructions) | | N/A |
| 7 | WIRING TERMINALS FOR CONNECTION OF EXTERNAL CONDUCTORS | | |
| | The mains supply terminations powered via the normal building installation wiring are as specified in 3.3 of IEC 60950-1:2005/AMD2:2013 | | N/A |
| | The mains supply terminations powered directly from the mains distribution system are as specified in IEC 60364 | | N/A |
| 8 | CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES | | |
| 8.1 | General | | P |
| | Protection against corrosion by use of suitable materials or by application of a protective coating | Aluminum alloy used for enclosure chassis. | P |
| | Parts serving as a functional part of an outdoor enclosure (e.g., dials, connectors, etc.) comply with the same environmental protection requirements as for the outdoor enclosure | All relevant parts comply with applicable requirements. | P |
| | Use of outdoor enclosure to carry current during normal operation | Not used. | N/A |
| | Connection of a conductive part of an outdoor enclosure to protective earth for carrying fault currents (see 2.6 of IEC60950-1:2005/AMD1:2009/AMD2:2013 and 8.3 of this standard) | (see separate test report IEC 60950-1 and 8.3 of this report) | N/A |
| 8.2 | Resistance to ultra-violet radiation | | P |
| | Resistance of non-metallic parts of an outdoor enclosure to degradation by ultra-violet (UV) radiation | Top cover, antenna cover and light pipe external cover are UL approved plastic with UV rating used | P |
| | Parts providing mechanical support: | | N/A |
| | Tensile strength test (ISO 527) | | N/A |
| | Flexural strength test (ISO 178) | | N/A |

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| Page 8 of 21 | | Report No. E484144-A4-IT-1 | |
|--------------|---|---|---------|
| IEC 60950-22 | | | |
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Parts providing impact resistance: | | N/A |
| | Charpy impact test (ISO 179) | | N/A |
| | Izod impact test (ISO 180) | | N/A |
| | Tensile impact test (ISO 8256) | | N/A |
| | All parts: | | N/A |
| | Flammability classification (1.2.12 and annex A of IEC 60950-1:2005) | | N/A |
| 8.3 | Resistance to corrosion | | P |
| 8.3.1 | General | -- | P |
| | Resistance of metallic parts of an outdoor enclosure to the effects of water-borne contaminants | Aluminum alloy used for enclosure, deemed compliant | P |
| | Alternate method for 8.3.2-8.3.4 (IEC 61587-1) | | N/A |
| 8.3.2 | Test apparatus | | N/A |
| | Salt-spray test (IEC 60068-2-11) | | N/A |
| | Test in a water-saturated sulphur dioxide atmosphere (water-saturated sulphur dioxide atmosphere as described in Annex A; chamber as described in ISO 3231) | | N/A |
| 8.3.3 | Test procedure | | N/A |
| | Alternate test procedure | | N/A |
| 8.3.4 | Compliance criteria: | | N/A |
| | No rust other than surface corrosion of the protective coating; no cracking or other deterioration that will jeopardize the safety aspects as follows: | | N/A |
| | – continued protection against access to hazardous parts, including after mechanical strength tests; and | | N/A |
| | – continued protection against ingress of dust and water; and | | N/A |
| | – continued provision of earth continuity | | N/A |
| 8.4 | Bottoms of fire enclosures | | N/A |
| | Comply with 4.6.2 of IEC 60950-1:2005 | | N/A |
| | Bottom of fire enclosure of outdoor equipment mounted directly and permanently on a non-combustible surface (e.g., concrete or metal) | | N/A |
| 8.5 | Gaskets | | P |
| 8.5.1 | General | | P |
| 8.5.2 | Oil resistance | | N/A |

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| | | Page 9 of 21 | Report No. E484144-A4-IT-1 |
|--------|--|--|------------------------------------|
| | | IEC 60950-22 | |
| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.5.3 | Securing means | Mechanical means used | P |
| 9 | PROTECTION OF EQUIPMENT WITHIN AN OUTDOOR ENCLOSURE | | |
| 9.1 | Protection from moisture | | N/A |
| | Adequate protection from the effect of moisture on the enclosed equipment (see Table 2) | The OEM product is not provided with outdoor bushing for the Ethernet RJ45 connectors. Suitable components shall be considered in the end-use application. | To be evaluated in end-use product |
| 9.2 | Protection from plants and vermin | | N/A |
| | Adequate protection if entry by plants and vermin is a consideration | | N/A |
| 9.3 | Protection from excessive dust | | P |
| 9.3.1 | General | IP65 - Based on IEC 60529 Test Report Ref. No. QL-17-0834 issued by Quanta Laboratories, Santa Clara, CA 95054, U.S., dated 2017-07-26 | P |
| | Adequate protection against the ingress of the dust through the use of an appropriately rated IP5X or IP6X enclosure, or equivalent | | P |
| 9.3.2 | IP5X equipment | | N/A |
| 9.3.3 | IP6X equipment | | P |
| 10 | MECHANICAL STRENGTH OF ENCLOSURES | | |
| 10.1 | General | | P |
| | Adequate mechanical strength and protection against access to energized parts and other hazards within the equipment throughout the intended ambient operating range | | P |
| 10.2 | Impact test (4.2.5 of IEC 60950-1) | | P |
| | Low temperature conditioning for polymeric enclosures | Impact test conducted after unit was conditioned in a chamber at temperature of - 20 Deg C at least for 3 hours | P |
| | Compliance criteria: | | P |
| | - after test the level of protection remains in accordance with 9.1 of this standard | | P |
| | - after test the requirements of 4.2.1 of IEC 60950-1; 2005/ AMD1:2009/AMD2:2013 are met | | P |
| 11 | OUTDOOR EQUIPMENT CONTAINING VENTED BATTERIES | | |

TRF No. IEC60950_22B

Misc ID 7-02

| Page 10 of 21 | | Report No. E484144-A4-IT-1 | |
|---------------|--|--|---------|
| IEC 60950-22 | | | |
| Clause | Requirement + Test | Result - Remark | Verdict |
| 11.1 | Risk of explosion from lead acid, NiCd and NiMH batteries | N/A | |
| | Adequate ventilation in the compartment housing a valve regulated or vented battery, where gassing is possible during normal usage or over-charging | No gassing and VRLA battery used. | N/A |
| | Protection against the risk of ignition of local concentrations of hydrogen and oxygen in a compartment containing both a battery and electrical components | | N/A |
| | Construction of the ventilation system to ensure explosive gases venting in case of any potential fault, including distortion of the battery cases due to overheating or thermal runaway | | N/A |
| | Ventilation tubes used for conducting explosive gas from the battery cases to the outside air | | N/A |
| | Adequate ventilation under single-fault failure conditions in case of mechanical or forced-air ventilation | | N/A |
| | Enclosures with mechanical or electromechanical dampers | | N/A |
| 11.2 | Ventilation preventing an explosive gas concentration | | |
| | Comply with M.7 of IEC 62368-1:2014 | | N/A |
| 11.3 | Ventilation test | | |
| | Measured hydrogen gas concentration (% by volume) | | — |
| | Max. allowed gas concentration for the mixture location in proximity to an ignition source (% by volume) | ≤ 1% by volume | — |
| | Max. allowed gas concentration for the mixture location not in proximity to an ignition source (% by volume) | ≤ 2% by volume | — |
| | Overcharging of rechargeable battery (see 4.3.8 of IEC 60950-1:2005/AMD2:2013) | (see separate test report IEC 60950-1) | N/A |
| A | ANNEX A, WATER-SATURATED SULPHUR DIOXIDE ATMOSPHERE (see 8.3.2 and 8.3.3) | | |
| | Test chamber | | N/A |
| | Test method | | N/A |
| B | ANNEX B, WATER SPRAY TEST (see 9.1) | | |

TRF No. IEC60950_22B

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| Page 11 of 21 | | Report No. E484144-A4-IT-1 | |
|---------------|---|--|------------------------------------|
| IEC 60950-22 | | | |
| Clause | Requirement + Test | Result - Remark | Verdict |
| | Test apparatus | The OEM product is not provided with outdoor bushing for the Ethernet RJ45 connectors. Suitable components shall be considered in the end-use application. | To be evaluated in end-use product |
| | Test method | | N/A |
| C | ANNEX C, ULTRAVIOLET LIGHT CONDITIONING TEST (see 8.2) | | |
| C.1 | Test apparatus | | N/A |
| C.2 | Mounting of test samples..... | | N/A |
| C.3 | Carbon-arc light-exposure apparatus..... | | N/A |
| C.4 | Xenon-arc light-exposure apparatus | | N/A |
| D | ANNEX D, GASKET TESTS (see 8.5) | | |
| D.1 | Gasket tests | | P |
| D.2 | Tensile strength and elongation tests (for gaskets that can stretch) | | P |
| | Tensile strength (%) | Not less than 75% | P |
| | Elongation (%) | Not less than 60% | P |
| | Visible deterioration, deformation, melting, cracking or hardening of the material..... | No deterioration | P |
| D.3 | Compression test (for gaskets with closed cell construction) | Not closed cell construction | N/A |
| | Initial thickness of the specimen (mm) | | N/A |
| | Thickness of the specimen after test a) (mm), compression set after test a) (%)..... | | N/A |
| | Thickness of the specimen after test b) (mm), compression set after test b) (%)..... | | N/A |
| | Thickness of the specimen after test c) (mm), compression set after test c) (%)..... | | N/A |
| | Visible cracks or deterioration | | N/A |
| D.4 | Oil immersion test | Not subject to oil or coolant | N/A |
| | Swelling (%) | | N/A |
| | Shrinking (%) | | N/A |
| E | ANNEX E, RATIONALE | | |
| E.1 | General | | — |
| E.2 | Electric shock | | — |
| E.3 | Energy related hazards | | — |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| E.4 | Fire | | — |
| E.5 | Mechanical hazards | | — |
| E.6 | Heat related hazards | | — |
| E.7 | Radiation | | — |
| E.8 | Chemical hazards | | — |
| E.9 | Biological hazards | | — |
| E.10 | Explosion hazards | | — |

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| Clause | Requirement + Test | Result - Remark | Verdict |
| 8.2 TABLE: Resistance to ultra-violet radiation | | | |
| 8.2a) Tensile strength test (ISO 527) | | | |
| Material identification (manufacturer, type designation) | | N/A | — |
| Shape and dimensions of test samples..... | | | — |
| Conditioning for Set 1 of samples | | | — |
| Conditioning for Set 2 of samples (including Annex C) | | | — |
| Test conditions (T °C, RH %) | | | — |
| | | | |
| Set 1 (without Annex C conditioning) | | Set 2 (after Annex C conditioning) | |
| Test sample # | Tensile strength (MPa) | Test sample # | Tensile strength (MPa) |
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| Arithmetic mean for Set 1 (MPa) | | | |
| Arithmetic mean for Set 2 (MPa) | | | |
| Retention (%)..... | | | |
| Supplementary information: | | | |
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| Clause | Requirement + Test | Result - Remark | Verdict | | |
| 8.2 TABLE: Resistance to ultra-violet radiation | | | | | |
| 8.2b) Flexural strength test (ISO 178) | | | | | |
| N/A | | | | | |
| Material identification (manufacturer, type designation) | | | | | |
| Shape and dimensions of test samples..... | | | | | |
| Conditioning for Set 1 of samples..... | | | | | |
| Conditioning for Set 2 of samples (including Annex C) | | | | | |
| Test conditions (T °C, RH %)..... | | | | | |
| | | | | | |
| Set 1 (without Annex C conditioning) | | Set 2 (after Annex C conditioning) | | | |
| Test sample # | Flexural strength (MPa) | Test sample # | Flexural strength (MPa) | | |
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| Arithmetic mean for Set 1 (MPa) | | | | | |
| Arithmetic mean for Set 2 (MPa) | | | | | |
| Retention (%)..... | | | | | |
| Supplementary information: | | | | | |
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| 8.2 TABLE: Resistance to ultra-violet radiation | | | |
| 8.2c) Charpy impact test (ISO 179) - unnotched | | | |
| Material identification (manufacturer, type designation) | | | N/A |
| Shape and dimensions of test samples..... | | | — |
| Conditioning for Set 1 of samples..... | | | — |
| Conditioning for Set 2 of samples (including Annex C) | | | — |
| Test method (according to Tables 2 and 3 of ISO 179) | | | — |
| Test conditions (T °C, RH %)..... | | | — |
| Set 1 (without Annex C conditioning) | | Set 2 (after Annex C conditioning) | |
| Test sample # | Charpy impact strength (kJ/m ²) | Test sample # | Charpy impact strength (kJ/m ²) |
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| Arithmetic mean for Set 1 (kJ/m ²)..... | | | |
| Arithmetic mean for Set 2 (kJ/m ²)..... | | | |
| Retention (%)..... | | | |
| Supplementary information: | | | |

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

| 8.2 TABLE: Resistance to ultra-violet radiation | | | |
|---|---|---------------------------------------|---|
| 8.2d) Charpy impact test (ISO 179) - notched | | N/A | |
| Material identification (manufacturer, type designation) | | — | |
| Shape and dimensions of test samples..... | | — | |
| Conditioning for Set 1 of samples..... | | — | |
| Conditioning for Set 2 of samples (including Annex C) | | — | |
| Test method (according to Tables 2 and 3 of ISO 179) | | — | |
| Test conditions (T °C, RH %)..... | | — | |
| Set 1 (without Annex C conditioning) | | Set 2 (after Annex C conditioning) | |
| Test sample # | Charpy impact strength (kJ/m ²) | Test sample # | Charpy impact strength (kJ/m ²) |
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| Arithmetic mean for Set 1 (kJ/m ²)..... | | | |
| Arithmetic mean for Set 2 (kJ/m ²)..... | | | |
| Retention (%)..... | | | |
| Supplementary information: | | | |
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| 8.2 | TABLE: Resistance to ultra-violet radiation | | |
|---|---|---------------------------------------|---|
| 8.2e) | Izod impact test (ISO 180) - unnotched | | N/A |
| Material identification (manufacturer, type designation) | | | — |
| Shape and dimensions of test samples..... | | | — |
| Conditioning for Set 1 of samples..... | | | — |
| Conditioning for Set 2 of samples (including Annex C) | | | — |
| Test method (according to Table 1 of ISO 180) | | | — |
| Test conditions (T °C, RH %)..... | | | — |
| | | | |
| Set 1 (without Annex C conditioning) | | Set 2 (after Annex C conditioning) | |
| Test sample # | Izod impact strength (kJ/m ²) | Test sample # | Izod impact strength (kJ/m ²) |
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| Arithmetic mean for Set 1 (kJ/m ²)..... | | | |
| Arithmetic mean for Set 2 (kJ/m ²)..... | | | |
| Retention (%)..... | | | |
| Supplementary information: | | | |
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| TABLE: Resistance to ultra-violet radiation | | | |
|---|--|---------------------------------------|--|
| 8.2 | Tensile impact test (ISO 8256) - unnotched | | |
| 8.2g) | N/A | | |
| Material identification (manufacturer, type designation) | — | | |
| Shape and dimensions of test samples..... | — | | |
| Conditioning for Set 1 of samples..... | — | | |
| Conditioning for Set 2 of samples (including Annex C) | — | | |
| Test method (A or B) | — | | |
| Test conditions (T °C, RH %)..... | — | | |
| | | | |
| Set 1 (without Annex C conditioning) | | Set 2 (after Annex C conditioning) | |
| Test sample # | Tensile impact strength (kJ/m ²) | Test sample # | Tensile impact strength (kJ/m ²) |
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| Arithmetic mean for Set 1 (kJ/m ²)..... | | | |
| Arithmetic mean for Set 2 (kJ/m ²)..... | | | |
| Retention (%)..... | | | |
| Supplementary information: | | | |
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|--------|--------------------|-----------------|---------|

| 8.2 | TABLE: Resistance to ultra-violet radiation | | |
|---|--|---------------------------------------|--|
| 8.2h) | Tensile impact test (ISO 8256) - notched | | N/A |
| Material identification (manufacturer, type designation) | | | — |
| Shape and dimensions of test samples..... | | | — |
| Conditioning for Set 1 of samples..... | | | — |
| Conditioning for Set 2 of samples (including Annex C) | | | — |
| Test method (A or B) | | | — |
| Test conditions (T °C, RH %)..... | | | — |
| | | | |
| Set 1 (without Annex C conditioning) | | Set 2 (after Annex C conditioning) | |
| Test sample # | Tensile impact strength (kJ/m ²) | Test sample # | Tensile impact strength (kJ/m ²) |
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| Arithmetic mean for Set 1 (kJ/m ²)..... | | | |
| Arithmetic mean for Set 2 (kJ/m ²)..... | | | |
| Retention (%)..... | | | |
| Supplementary information: | | | |
| | | | |

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

| TABLE: Critical components information | | | | | |
|--|-------------------------|--------------|----------------|----------|-------------------------------------|
| Object / part No. | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity ¹⁾ |
| (see separate test report IEC 60950-1) | | | | | |
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| Supplementary information: | | | | | |
| ¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039. | | | | | |

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| ATTACHMENT TO TEST REPORT IEC 60950-22 NATIONAL DIFFERENCES | |
|--|--|
| Information Technology Equipment – Safety – Part 22: Equipment to be Installed Outdoors | |
| Part 1: General requirements | |
| Differences according to | CSA/UL 60950-22:2007, revised 10 December 2011 for Canada and USA; |
| Attachment Form No. | IEC60950_22A |
| Attachment Originator..... | UL |
| Master Attachment | Date 2014_11 |
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| IEC 60950-22 - Canada and US National Differences | | | |
|---|--|-----------------|------------------------------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 1.2 | For protection of ITE against direct lightning strikes, reference is made to NFPA 780 and CAN/CSA-B72-M87 (R2003) for additional requirements. | | To be evaluated in end-use product |
| 2 | All references to IEC 60950-1 in this standard are replaced by the equivalent UL 60950-1 and CSA 60950-1 Standards. All relevant Standards referenced in the Part 1 Standard (Annex P, including P.1 and P.2) also apply to this Part 22 Standard and are not listed below. All references to clauses and subclauses in IEC 60950-1 are to the second edition. If the relevant clause or subclause has been renumbered in IEC 60950-1, second edition, the first edition reference is identified in parentheses directly after the second edition reference. | | To be evaluated in end-use product |
| 4 | Applicable parts of Chapter 8 of the NEC and Rules 54 and 60 of the CEC may be applicable to ITE installed outdoors with connections to communication systems. | | N/A |
| 4.2 | Power supply cords are to be suitable outdoor use type as required by Section 400-4 of the NEC and Rule 4-012 of the CEC, i.e., marked "water resistant," "outdoor," "W" or "W-A." | | N/A |
| 4.2 | Surge Arrestors and Transient Voltage Surge Suppressors installed external to the ITE are required to comply with the appropriate NEC and CEC requirements. | | To be evaluated in end-use product |
| 5 | Outdoor Enclosures are required to be classified and marked in accordance with UL 50 and CAN/CSA C22.2 No. 94. | | N/A |

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| IEC 60950-22 - Canada and US National Differences | | | |
|---|--|-----------------|------------------------------------|
| Clause | Requirement + Test | Result - Remark | Verdict |
| 7 | Applicable parts of the NEC, NFPA 70; the National Electrical Safety Code, ANSI/IEEE C2; and Canadian Electrical Code, Part I, CSA C22.1; Canadian Electrical Code, Part III, CSA C22.3, are required, as appropriate. | | N/A |
| 7 | Wiring terminals intended to supply Class 2 outputs are required per Article 725 of the NEC and Rule 16 of the CEC to be marked. | | N/A |
| 11 | Requires stationary installations of storage batteries external to the ITE to comply with Article 480 of the NEC and Rule 26-540 of the CEC. | | To be evaluated in end-use product |

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