|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **๑. ข้อมูลสถานีวิทยุกระจายเสียง** | | | | | | |
| ชื่อสถานี:  ที่อยู่: |  | | | | | |
| หน่วยงาน:  ที่อยู่: |  | | | | | |
| ความถี่ (MHz): |  | | | | | |
| **๒. ข้อมูลเครื่องส่งวิทยุกระจายเสียง** | | | | | | |
| ตราอักษร**:** | | | | | | |
| รุ่น/แบบ**:** | | | | | | |
| หมายเลขเครื่อง**:** | | | | | | |
| ใบอนุญาต (ถ้ามี) 🞎 นำเข้า 🞎 ทำ  เลขที่**:**  ลงวันที่**:** | | | | | | |
| ภาพถ่ายด้านหน้าเครื่องส่งวิทยุกระจายเสียง | | | | | | |
| ภาพถ่ายด้านหลังเครื่องส่งวิทยุกระจายเสียง | | | | | | |
| **๓. มาตรฐานทางเทคนิคของเครื่องส่งวิทยุกระจายเสียง** | | | | | | |
| **มาตรฐานทางเทคนิค** | | **ขีดจำกัด** | **ผลการทดสอบ** | | **ผลการประเมิน** | |
| **ผ่าน** | **ไม่ผ่าน** |
| 3.1 กำลังส่งที่กำหนด | | *P* W ± 0.5 dB โดย *P* = W  โดย *P* คือ กำลังส่งที่กำหนด |  | W |  |  |
| 3.2 การแพร่แปลกปลอม | | ต่ำกว่ากำลังคลื่นพาห์อย่างน้อย  46 + 10 log *P*  หรือ 70 dBc  โดย *P* คือ กำลังส่งที่กำหนด |  | dBc |  |  |
| 3.3 การแพร่นอกแถบ | | ≤ 0 dBc เมื่อ f = fc ± 100 kHz  ≤ 80 dBc เมื่อ f = fc ± 200 kHz  ≤ 85 dBc เมื่อ f = fc ± 300 kHz  ≤ 85 dBc เมื่อ f = fc ± 500 kHz  โดย f คือ ความถี่ที่ทำการทดสอบ  fc คือ ความถี่คลื่นพาห์ |  | dBc  dBc  dBc  dBc |  |  |
| 3.4 ค่าผิดพลาดทางความถี่ | | ± 2 kHz |  | kHz |  |  |
| 3.5 ค่าเบี่ยงเบนทางความถี่ | | ± 75 kHz |  | kHz |  |  |

| **4. มาตรฐานทางเทคนิคด้านความปลอดภัยทางไฟฟ้า** | | | | |
| --- | --- | --- | --- | --- |
| **มาตรฐานทางเทคนิค** | | **ผลการประเมิน** | | |
| **ผ่าน** | **ไม่ผ่าน** | **ไม่ได้ทดสอบ** |
| **1** | **GENERAL** |  |  |  |
| **1.5** | **Components** |  |  |  |
| 1.5.1 | General |  |  |  |
|  | Comply with IEC 60950-1 or relevant component  standard |  |  |  |
| 1.5.2 | Evaluation and testing of components |  |  |  |
| 1.5.3 | Thermal controls |  |  |  |
| 1.5.4 | Transformers |  |  |  |
| 1.5.5 | Interconnecting cables |  |  |  |
| 1.5.6 | Capacitors bridging insulation |  |  |  |
| 1.5.7 | Resistors bridging insulation |  |  |  |
| 1.5.7.1 | Resistors bridging functional, basic or supplementary insulation |  |  |  |
| 1.5.7.2 | Resistors bridging double or reinforced insulation between a.c. mains and other circuits |  |  |  |
| 1.5.7.3 | Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable |  |  |  |
| 1.5.8 | Components in equipment for IT power systems |  |  |  |
| 1.5.9 | Surge suppressors |  |  |  |
| 1.5.9.1 | General |  |  |  |
| 1.5.9.2 | Protection of VDRs |  |  |  |
| 1.5.9.3 | Bridging of functional insulation by a VDR |  |  |  |
| 1.5.9.4 | Bridging of basic insulation by a VDR |  |  |  |
| 1.5.9.5 | Bridging of supplementary, double or reinforced insulation by a VDR |  |  |  |
|  |  |  |  |  |
| **1.6** | **Power interface** |  |  |  |
| 1.6.1 | AC power distribution systems |  |  |  |
| 1.6.2 | Input current |  |  |  |
| 1.6.3 | Voltage limit of hand-held equipment |  |  |  |
| 1.6.4 | Neutral conductor |  |  |  |
|  |  |  |  |  |
| **1.7** | **Marking and instructions** |  |  |  |
| 1.7.1 | Power rating and identification markings |  |  |  |
| 1.7.1.1 | Power rating mark |  |  |  |
|  | Multiple mains supply connections |  |  |  |
|  | Rated voltage(s) or voltage range(s) (V) |  |  |  |
|  | Symbol for nature of supply, for d.c. only |  |  |  |
|  | Rated frequency or rated frequency range (Hz) |  |  |  |
|  | Rated current (mA or A) |  |  |  |
| 1.7.1.2 | Identification markings |  |  |  |
|  | Manufacturer's name or trademark or identification mark |  |  |  |
|  | Model identification or type reference |  |  |  |
|  | Symbol for Class II equipment only |  |  |  |
|  | Other markings and symbols |  |  |  |
| 1.7.1.3 | Use of graphical symbols |  |  |  |
| 1.7.2 | Safety instructions and marking |  |  |  |
| 1.7.2.1 | General |  |  |  |
| 1.7.2.2 | Disconnect devices |  |  |  |
| 1.7.2.3 | Overcurrent protective device |  |  |  |
| 1.7.2.4 | IT Power distribution systems |  |  |  |
| 1.7.2.5 | Operator access with a tool |  |  |  |
| 1.7.2.6 | Ozone |  |  |  |
| 1.7.3 | Short duty cycles |  |  |  |
| 1.7.4 | Supply voltage adjustment |  |  |  |
|  | Method and means of adjustment; reference to  installation instructions |  |  |  |
| 1.7.5 | Power outlets on the equipment |  |  |  |
| 1.7.6 | Fuse identification (marking, special fusing characteristics, cross-reference) |  |  |  |
| 1.7.7 | Wiring terminals |  |  |  |
| 1.7.7.1 | Protective earthing and bonding terminals |  |  |  |
| 1.7.7.2 | Terminals for a.c. mains supply conductors |  |  |  |
| 1.7.7.3 | Terminals for d.c. mains supply conductors |  |  |  |
| 1.7.8 | Controls and indicators |  |  |  |
| 1.7.8.1 | Identification, location and marking |  |  |  |
| 1.7.8.2 | Colours |  |  |  |
| 1.7.8.3 | Symbols according to IEC 60417 |  |  |  |
| 1.7.8.4 | Markings using figures |  |  |  |
| 1.7.9 | Isolation of multiple power sources |  |  |  |
| 1.7.10 | Thermostats and other regulating devices |  |  |  |
| 1.7.11 | Durability |  |  |  |
| 1.7.12 | Removable parts |  |  |  |
| 1.7.13 | Replaceable batteries |  |  |  |
|  | Language(s) |  |  |  |
| 1.7.14 | Equipment for restricted access locations |  |  |  |
|  |  |  |  |  |
| **2** | **PROTECTION FROM HAZARDS** |  |  |  |
| **2.1** | **Protection from electric shock and energy hazards** |  |  |  |
| 2.1.1 | Protection in operator access areas |  |  |  |
| 2.1.1.1 | Access to energized parts |  |  |  |
|  | Test by inspection  Test with test finger (Figure 2A)  Test with test pin (Figure 2B)  Test with test probe (Figure 2C) |  |  |  |
| 2.1.1.2 | Battery compartments |  |  |  |
| 2.1.1.3 | Access to ELV wiring |  |  |  |
|  | Working voltage (Vpeak or Vrms); minimum  distancethroughinsulation (mm) |  |  |  |
| 2.1.1.4 | Access to hazardous voltage circuit wiring |  |  |  |
| 2.1.1.5 | Energy hazards |  |  |  |
| 2.1.1.6 | Manual controls |  |  |  |
| 2.1.1.7 | Discharge of capacitors in equipment |  |  |  |
|  | Measured voltage (V); time-constant (s) |  |  |  |
| 2.1.1.8 | Energy hazards - d.c. mains supply |  |  |  |
|  | a) Capacitor connected to the d.c. mains supply |  |  |  |
|  | b) Internal battery connected to the mains supply |  |  |  |
| 2.1.1.9 | Audio amplifiers |  |  |  |
| 2.1.2 | Protection in service access areas |  |  |  |
| 2.1.3 | Protection in restricted access locations |  |  |  |
|  |  |  |  |  |
| **2.2** | **SELV circuits** |  |  |  |
| 2.2.1 | General requirements |  |  |  |
| 2.2.2 | Voltages under normal conditions (V) |  |  |  |
| 2.2.3 | Voltages under fault conditions (V) |  |  |  |
| 2.2.4 | Connection of SELV circuits to other circuits |  |  |  |
|  |  |  |  |  |
| **2.3** | **TNV circuits** |  |  |  |
| 2.3.1 | Limits |  |  |  |
|  | Type of TNV circuits |  |  |  |
| 2.3.2 | Separation from other circuits and from accessible parts |  |  |  |
| 2.3.2.1 | General requirements |  |  |  |
| 2.3.2.2 | Protection by basic insulation |  |  |  |
| 2.3.2.3 | Protection by earthing |  |  |  |
| 2.3.2.4 | Protection by other constructions |  |  |  |
| 2.3.3 | Separation from hazardous voltages |  |  |  |
| 2.3.4 | Connection of TNV circuits to other circuits |  |  |  |
| 2.3.3 | Separation from hazardous voltages |  |  |  |
|  | Insulation employed |  |  |  |
| 2.3.4 | Connection of TNV circuits to other circuits |  |  |  |
|  | Insulation employed |  |  |  |
| 2.3.5 | Test for operating voltages generated externally |  |  |  |
|  |  |  |  |  |
| **2.4** | **Limited current circuits** |  |  |  |
| 2.4.1 | General requirements |  |  |  |
| 2.4.2 | Limit values |  |  |  |
|  | Frequency (Hz) |  |  |  |
|  | Measured current (mA) |  |  |  |
|  | Measured voltage (V) |  |  |  |
|  | Measured circuit capacitance (nF or µF) |  |  |  |
| 2.4.3 | Connection of limited current circuits to other circuits |  |  |  |
|  |  |  |  |  |
| **2.5** | **Limited power sources** |  |  |  |
|  | a) Inherently limited output |  |  |  |
|  | b) Impedance limited output |  |  |  |
|  | c) Regulating network limited output under normal operating and single fault condition |  |  |  |
|  | Use ofi ntegrated circuit(IC) currentlimiters |  |  |  |
|  | d) Overcurrent protective device limited output |  |  |  |
|  | Max. output voltage (V), max. output current (A), max.apparentpower(VA) |  |  |  |
|  | Current rating of overcurrent protective device (A) |  |  |  |
|  |  |  |  |  |
| **2.6** | **Provisions for earthing and bonding** |  |  |  |
| 2.6.1 | Protective earthing |  |  |  |
| 2.6.2 | Functional earthing |  |  |  |
|  | Use of symbol for functional earthing |  |  |  |
| 2.6.3 | Protective earthing and protective bonding conductors |  |  |  |
| 2.6.3.1 | General |  |  |  |
| 2.6.3.2 | Size of protective earthing conductors |  |  |  |
|  | Rated current (A), cross-sectional area (mm²),AWG |  |  |  |
| 2.6.3.3 | Size of protective bonding conductors |  |  |  |
|  | Rated current (A), cross-sectional area (mm²),AWG |  |  |  |
|  | Protective current rating (A), cross-sectional area (mm²),AWG |  |  |  |
| 2.6.3.4 | Resistance of earthing conductors and their terminations; resistance (ohm), voltage drop (V),test current (A), duration (min) |  |  |  |
| 2.6.3.5 | Colour of insulation |  |  |  |
| 2.6.4 | Terminals |  |  |  |
| 2.6.4.1 | General |  |  |  |
| 2.6.4.2 | Protective earthing and bonding terminals |  |  |  |
|  | Rated current (A), type, nominal thread diameter (mm) |  |  |  |
| 2.6.4.3 | Separation of the protective earthing conductor from protective bonding conductors |  |  |  |
| 2.6.5 | Integrity of protective earthing |  |  |  |
| 2.6.5.1 | Interconnection of equipment |  |  |  |
| 2.6.5.2 | Components in protective earthing conductors and protective bonding conductors |  |  |  |
| 2.6.5.3 | Disconnection of protective earth |  |  |  |
| 2.6.5.4 | Parts that can be removed by an operator |  |  |  |
| 2.6.5.5 | Parts removed during servicing |  |  |  |
| 2.6.5.6 | Corrosion resistance |  |  |  |
| 2.6.5.7 | Screws for protective bonding |  |  |  |
| 2.6.5.8 | Reliance on telecommunication network or cable distribution system |  |  |  |
|  |  |  |  |  |
| **2.7** | **Overcurrent and earth fault protection in primary circuits** |  |  |  |
| 2.7.1 | Basic requirements |  |  |  |
|  | Instructions when protection relies on building installation |  |  |  |
| 2.7.2 | Faults not covered in 5.3.7 |  |  |  |
| 2.7.3 | Short-circuit backup protection |  |  |  |
| 2.7.4 | Number and location of protective devices |  |  |  |
| 2.7.5 | Protection by several devices |  |  |  |
| 2.7.6 | Warning to service personnel |  |  |  |
|  |  |  |  |  |
| **2.8** | **Safety interlocks** |  |  |  |
| 2.8.1 | General principles |  |  |  |
| 2.8.2 | Protection requirements |  |  |  |
| 2.8.3 | Inadvertent reactivation |  |  |  |
| 2.8.4 | Fail-safe operation |  |  |  |
|  | Protection against extreme hazard |  |  |  |
| 2.8.5 | Moving parts |  |  |  |
| 2.8.6 | Overriding |  |  |  |
| 2.8.7 | Switches, relays and their related circuits |  |  |  |
| 2.8.7.1 | Separation distances for contact gaps and their related circuits (mm) |  |  |  |
| 2.8.7.2 | Overload test |  |  |  |
| 2.8.7.3 | Endurance test |  |  |  |
| 2.8.7.4 | Electric strength test |  |  |  |
| 2.8.8 | Mechanical actuators |  |  |  |
|  |  |  |  |  |
| **2.9** | **Electrical insulation** |  |  |  |
| 2.9.1 | Properties of insulating materials |  |  |  |
| 2.9.2 | Humidity conditioning |  |  |  |
|  | Relative humidity(%),temperature(°C) |  |  |  |
| 2.9.3 | Grade of insulation |  |  |  |
| 2.9.4 | Separation from hazardous voltages Method(s)used |  |  |  |
|  |  |  |  |  |
| **2.10** | **Clearances, creepage distances and distances through insulation** |  |  |  |
| 2.10.1 | General |  |  |  |
| 2.10.1.1 | Frequency |  |  |  |
| 2.10.1.2 | Pollution degrees |  |  |  |
| 2.10.1.3 | Reduced values for functional insulation |  |  |  |
| 2.10.1.4 | Intervening unconnected conductive parts |  |  |  |
| 2.10.1.5 | Insulation with varying dimensions |  |  |  |
| 2.10.1.6 | Special separation requirements |  |  |  |
| 2.10.1.7 | Insulation in circuits generating starting pulses |  |  |  |
| 2.10.2 | Determination of working voltage |  |  |  |
| 2.10.2.1 | General |  |  |  |
| 2.10.2.2 | RMS working voltage |  |  |  |
| 2.10.2.3 | Peak working voltage |  |  |  |
| 2.10.3 | Clearances |  |  |  |
| 2.10.3.1 | General |  |  |  |
| 2.10.3.2 | Mains transient voltages |  |  |  |
|  | 1. AC mains supply 2. Earthed d.c. mains supplies 3. Unearthed d.c. mains supplies 4. Battery operation |  |  |  |
| 2.10.3.3 | Clearances in primary circuits |  |  |  |
| 2.10.3.4 | Clearances in secondary circuits |  |  |  |
| 2.10.3.5 | Clearances in circuits having starting pulses |  |  |  |
| 2.10.3.6 | Transients from a.c. mains supply |  |  |  |
| 2.10.3.7 | Transients from d.c. mains supply |  |  |  |
| 2.10.3.8 | Transients from telecommunication networks and cable distribution systems |  |  |  |
| 2.10.3.9 | Measurement of transient voltage levels |  |  |  |
|  | 1. Transients from a mains supply   For an a.c. mains supply  For a d.c. mains supply   1. Transients from a telecommunication network |  |  |  |
| 2.10.4 | Creepage distances |  |  |  |
| 2.10.4.1 | General |  |  |  |
| 2.10.4.2 | Material group and comparative tracking index |  |  |  |
|  | CTI tests |  |  |  |
| 2.10.4.3 | Minimum creepage distances |  |  |  |
| 2.10.5 | Solid insulation |  |  |  |
| 2.10.5.1 | General |  |  |  |
| 2.10.5.2 | Distances through insulation |  |  |  |
| 2.10.5.3 | Insulating compound as solid insulation |  |  |  |
| 2.10.5.4 | Semiconductor devices |  |  |  |
| 2.10.5.5 | Cemented joints |  |  |  |
| 2.10.5.6 | Thin sheet material - General |  |  |  |
| 2.10.5.7 | Separable thin sheet material |  |  |  |
|  | Number of layers(pcs) |  |  |  |
| 2.10.5.8 | Non-separable thin sheet material |  |  |  |
| 2.10.5.9 | Thin sheet material - standard test procedure |  |  |  |
|  | Electric strength test |  |  |  |
| 2.10.5.10 | Thin sheet material - alternative test procedure |  |  |  |
|  | Electric strength test |  |  |  |
| 2.10.5.11 | Insulation in wound components |  |  |  |
| 2.10.5.12 | Wire in wound components |  |  |  |
|  | Working voltage |  |  |  |
|  | 1. Basic insulation not under stress 2. Basic, supplementary, reinforced insulation 3. Compliance with Annex U |  |  |  |
|  | Two wires in contact inside wound component;  angle between 45° and 90° |  |  |  |
| 2.10.5.13 | Wire with solvent-based enamel in wound components |  |  |  |
|  | Electric strength test |  |  |  |
|  | Routine test |  |  |  |
| 2.10.5.14 | Additional insulation in wound components |  |  |  |
|  | Working voltage |  |  |  |
|  | - Basic insulation not under stress |  |  |  |
|  | - Supplementary, reinforced insulation |  |  |  |
| 2.10.6 | Construction of printed boards |  |  |  |
| 2.10.6.1 | Uncoated printed boards |  |  |  |
| 2.10.6.2 | Coated printed boards |  |  |  |
| 2.10.6.3 | Insulation between conductors on the same inner surface of a printed board |  |  |  |
| 2.10.6.4 | Insulation between conductors on different layers of a printed board |  |  |  |
|  | Distance through insulation |  |  |  |
|  | Number of insulation layers (pcs) |  |  |  |
| 2.10.7 | Component external terminations |  |  |  |
| 2.10.8 | Tests on coated printed boards and coated components |  |  |  |
| 2.10.8.1 | Sample preparation and preliminary inspection |  |  |  |
| 2.10.8.2 | Thermal conditioning |  |  |  |
| 2.10.8.3 | Electric strength test |  |  |  |
| 2.10.8.4 | Abrasion resistance test |  |  |  |
| 2.10.9 | Thermal cycling |  |  |  |
| 2.10.10 | Test for Pollution Degree 1 environment and insulating compound |  |  |  |
| 2.10.11 | Tests for semiconductor devices and cemented joints |  |  |  |
| 2.10.12 | Enclosed and sealed parts |  |  |  |
|  |  |  |  |  |
| **3** | **WIRING, CONNECTIONS AND SUPPLY** |  |  |  |
| **3.1** | **General** |  |  |  |
| 3.1.1 | Current rating and overcurrent protection |  |  |  |
| 3.1.2 | Protection against mechanical damage |  |  |  |
| 3.1.3 | Securing of internal wiring |  |  |  |
| 3.1.4 | Insulation of conductors |  |  |  |
| 3.1.5 | Beads and ceramic insulators |  |  |  |
| 3.1.6 | Screws for electrical contact pressure |  |  |  |
| 3.1.7 | Insulating materials in electrical connections |  |  |  |
| 3.1.8 | Self-tapping and spaced thread screws |  |  |  |
| 3.1.9 | Termination of conductors |  |  |  |
|  | 10 N pull test |  |  |  |
| 3.1.10 | Sleeving on wiring |  |  |  |
|  |  |  |  |  |
| **3.2** | **Connection to mains supply** |  |  |  |
| 3.2.1 | Means of connection |  |  |  |
| 3.2.1.1 | Connection to an a.c. mains supply |  |  |  |
| 3.2.1.2 | Connection to a d.c. mains supply |  |  |  |
| 3.2.2 | Multiple supply connections |  |  |  |
| 3.2.3 | Permanently connected equipment |  |  |  |
|  | Number of conductors, diameter of cable and conduits(mm) |  |  |  |
| 3.2.4 | Appliance inlets |  |  |  |
| 3.2.5 | Power supply cords |  |  |  |
| 3.2.5.1 | AC power supply cords |  |  |  |
|  | Type |  |  |  |
|  | Rated current (A), cross-sectional area (mm²), AWG |  |  |  |
| 3.2.5.2 | DC power supply cords |  |  |  |
| 3.2.6 | Cord anchorages and strain relief |  |  |  |
|  | Mass of equipment(kg),pull(N) |  |  |  |
|  | Longitudinal displacement (mm) |  |  |  |
| 3.2.7 | Protection against mechanical damage |  |  |  |
| 3.2.8 | Cord guards |  |  |  |
|  | Diameter of minor dimension D (mm); test mass (g) |  |  |  |
| 3.2.9 | Supply wiring space |  |  |  |
|  |  |  |  |  |
| **3.3** | **Wiring terminals for connection of external conductors** |  |  |  |
| 3.3.1 | Wiring terminals |  |  |  |
| 3.3.2 | Connection of non-detachable power supply cords |  |  |  |
| 3.3.3 | Screw terminals |  |  |  |
| 3.3.4 | Conductor sizes to be connected |  |  |  |
|  | Rated current (A), cord/cable type, cross-sectional area(mm²) |  |  |  |
| 3.3.5 | Wiring terminal sizes |  | : |  |
|  | Rated current (A), type and nominal thread diameter(mm) |  |  |  |
| 3.3.6 | Wiring terminals design |  |  |  |
| 3.3.7 | Grouping of wiring terminals |  |  |  |
| 3.3.8 | Stranded wire |  |  |  |
|  |  |  |  |  |
| **3.4** | **Disconnection from the mains supply** |  |  |  |
| 3.4.1 | General requirement |  |  |  |
| 3.4.2 | Disconnect devices |  |  |  |
| 3.4.3 | Permanently connected equipment |  |  |  |
| 3.4.4 | Parts which remain energized |  |  |  |
| 3.4.5 | Switches in flexible cords |  |  |  |
| 3.4.6 | Number of poles - single-phase and d.c. equipment |  |  |  |
| 3.4.7 | Number of poles - three-phase equipment |  |  |  |
| 3.4.8 | Switches as disconnect devices |  |  |  |
| 3.4.9 | Plugs as disconnect devices |  |  |  |
| 3.4.10 | Interconnected equipment |  |  |  |
| 3.4.11 | Multiple power sources |  |  |  |
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| 3.5.2 | Types of interconnection circuits |  |  |  |
| 3.5.3 | ELV circuits as interconnection circuits |  |  |  |
| 3.5.4 | Data ports for additional equipment |  |  |  |
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|  | Test force (N) |  |  |  |
|  |  |  |  |  |
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| 4.2.6 | Drop test; height (mm) |  |  |  |
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| 4.2.10 | Wall or ceiling mounted equipment; force (N) |  |  |  |
|  |  |  |  |  |
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|  | Torque |  |  |  |
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| 4.3.7 | Heating elements in earthed equipment |  |  |  |
| 4.3.8 | Batteries |  |  |  |
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| 4.3.11 | Containers for liquids or gases |  |  |  |
| 4.3.12 | Flammable liquids |  |  |  |
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| 4.3.13.1 | General |  |  |  |
| 4.3.13.2 | Ionizing radiation |  |  |  |
|  | Measured radiation (pA/kg) |  |  |  |
|  | Measured high-voltage(kV) |  |  |  |
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| 4.3.13.5.1 | Lasers (including laser diodes) |  |  |  |
|  | Laser class |  |  |  |
| 4.3.13.5.2 | Light emitting diodes (LEDs) |  |  |  |
| 4.3.13.6 | Other types |  |  |  |
|  |  |  |  |  |
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| 4.4.2 | Protection in operator access areas |  |  |  |
|  | Household and home/office document/media shredders |  |  |  |
| 4.4.3 | Protection in restricted access locations |  |  |  |
| 4.4.4 | Protection in service access areas |  |  |  |
| 4.4.5 | Protection against moving fan blades |  |  |  |
| 4.4.5.1 | General |  |  |  |
|  | Not considered to cause pain or injury. a) |  |  |  |
|  | Is considered to cause pain, not injury. b) |  |  |  |
|  | Considered to cause injury. c) |  |  |  |
| 4.4.5.2 | Protection for users |  |  |  |
|  | Use of symbol or warning |  |  |  |
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|  | Use of symbol or warning |  |  |  |
|  |  |  |  |  |
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| 4.5.2 | Temperature tests |  |  |  |
|  | Normal load condition per Annex L |  |  |  |
| 4.5.3 | Temperature limits for materials |  |  |  |
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| **4.6** | **Openings in enclosures** |  |  |  |
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|  | Dimensions (mm) |  |  |  |
| 4.6.2 | Bottoms of fire enclosures |  |  |  |
|  | Construction of the bottom, dimensions (mm) |  |  |  |
| 4.6.3 | Doors or covers in fire enclosures |  |  |  |
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| 4.6.4.1 | Constructional design measures |  |  |  |
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|  |  |  |  |  |
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|  | Method 1, selection and application of components wiring and materials |  |  |  |
|  | Method 2, application of all of simulated fault condition tests |  |  |  |
| 4.7.2 | Conditions for a fire enclosure |  |  |  |
| 4.7.2.1 | Parts requiring a fire enclosure |  |  |  |
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| 4.7.3 | Materials |  |  |  |
| 4.7.3.1 | General |  |  |  |
| 4.7.3.2 | Materials for fire enclosures |  |  |  |
| 4.7.3.3 | Materials for components and other parts outside fire enclosures |  |  |  |
| 4.7.3.5 | Materials for air filter assemblies |  |  |  |
| 4.7.3.6 | Materials used in high-voltage components |  |  |  |
|  |  |  |  |  |
| **5** | **ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS** |  |  |  |
| **5.1** | **Touch current and protective conductor current** |  |  |  |
| 5.1.1 | General |  |  |  |
| 5.1.2 | Configuration of equipment under test (EUT) |  |  |  |
| 5.1.2.1 | Single connection to an a.c. mains supply |  |  |  |
| 5.1.2.2 | Redundant multiple connections to an a.c. mains supply |  |  |  |
| 5.1.2.3 | Simultaneous multiple connections to an a.c. mains supply |  |  |  |
| 5.1.3 | Test circuit |  |  |  |
| 5.1.4 | Application of measuring instrument |  |  |  |
| 5.1.5 | Test procedure |  |  |  |
| 5.1.6 | Test measurements |  |  |  |
|  | Supply voltage (V) |  |  |  |
|  | Measured touch current (mA) |  |  |  |
|  | Max.allowed touch current (mA) |  |  |  |
|  | Max. allowed protective conductor current (mA) |  |  |  |
| 5.1.7 | Equipment with touch current exceeding 3,5 mA |  |  |  |
| 5.1.7.1 | General |  |  |  |
| 5.1.7.2 | Simultaneous multiple connections to the supply |  |  |  |
| 5.1.8 | Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks |  |  |  |
| 5.1.8.1 | Limitation of the touch current to a telecommunication network or to a cable distribution system |  |  |  |
|  | Supply voltage (V) |  |  |  |
|  | Measured touch current (mA) |  |  |  |
|  | Max.allowed touch current (mA) |  |  |  |
| 5.1.8.2 | Summation of touch currents from telecommunication networks |  |  |  |
|  | 1. EUT with earthed telecommunication ports 2. EUT whose telecommunication ports have no   reference to protective earth |  |  |  |
|  |  |  |  |  |
| **5.2** | **Electric strength** |  |  |  |
| 5.2.1 | General |  |  |  |
| 5.2.2 | Test procedure |  |  |  |
|  |  |  |  |  |
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| 5.3.1 | Protection against overload and abnormal operation |  |  |  |
| 5.3.2 | Motors |  |  |  |
| 5.3.3 | Transformers |  |  |  |
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| 5.3.6 | Audio amplifiers in ITE |  |  |  |
| 5.3.7 | Simulation of faults |  |  |  |
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| 5.3.9 | Compliance criteria for abnormal operating and fault conditions |  |  |  |
| 5.3.9.1 | During the tests |  |  |  |
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|  |  |  |  |  |
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| **6.1** | **Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment** |  |  |  |
| 6.1.1 | Protection from hazardous voltages |  |  |  |
| 6.1.2 | Separation of the telecommunication network from earth |  |  |  |
| 6.1.2.1 | Requirements |  |  |  |
|  | Supply voltage (V) |  |  |  |
|  | Current in the test circuit (mA) |  |  |  |
| 6.1.2.2 | Exclusions |  |  |  |
|  |  |  |  |  |
| **6.2** | **Protection of equipment users from overvoltages on telecommunication networks** |  |  |  |
| 6.2.1 | Separation requirements |  |  |  |
| 6.2.2 | Electric strength test procedure |  |  |  |
| 6.2.2.1 | Impulse test |  |  |  |
| 6.2.2.2 | Steady-state test |  |  |  |
| 6.2.2.3 | Compliance criteria |  |  |  |
|  |  |  |  |  |
| **6.3** | **Protection of the telecommunication wiring system from overheating** |  |  |  |
|  | Max.output current (A) |  |  |  |
|  | Current limiting method |  |  |  |
|  |  |  |  |  |
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| **7.1** | **General** |  |  |  |
| **7.2** | **Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment** |  |  |  |
| **7.3** | **Protection of equipment users from overvoltages**  **on the cable distribution system** |  |  |  |
| **7.4** | **Insulation between primary circuits and cable distribution systems** |  |  |  |
| 7.4.1 | General |  |  |  |
| 7.4.2 | Voltage surge test |  |  |  |
| 7.4.3 | Impulse test |  |  |  |
|  |  |  |  |  |
| **A** | **ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE** |  |  |  |
| **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)** |  |  |  |
| A.1.1 | Samples |  |  |  |
|  | Wall thickness (mm) |  |  |  |
| A.1.2 | Conditioning of samples; temperature (°C) |  |  |  |
| A.1.3 | Mounting of samples |  |  |  |
| A.1.4 | Test flame (see IEC 60695-11-3) |  |  |  |
|  | Flame A, B, C or D |  |  |  |
| A.1.5 | Test procedure |  |  |  |
| 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)** |  |  |  |
| **A.2.1** | **Samples,material** |  |  |  |
|  | Wall thickness (mm) |  |  |  |
| **A.2.2** | **Conditioning of samples; temperature (°C)** |  |  |  |
| **A.2.3** | **Mounting of samples** |  |  |  |
| **A.2.4** | **Test flame (see IEC 60695-11-4)** |  |  |  |
|  | Flame A, B or C |  |  |  |
| **A.2.5** | **Test procedure** |  |  |  |
| **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) |  |  |  |
|  | Sample 2 burning time(s) |  |  |  |
|  | Sample 3 burning time(s) |  |  |  |
| **A.3** | **Hot flaming oil test (see 4.6.2)** |  |  |  |
| A.3.1 | Mounting of samples |  |  |  |
| A.3.2 | Test procedure |  |  |  |
| A.3.3 | Compliance criterion |  |  |  |
|  |  |  |  |  |
| **B** | **ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)** |  |  |  |
| **B.1** | **General requirements** |  |  |  |
|  | Position |  |  |  |
|  | Manufacturer |  |  |  |
|  | Type |  |  |  |
|  | Rated values |  |  |  |
| **B.2** | **Test conditions** |  |  |  |
| **B.3** | **Maximum temperatures** |  |  |  |
| **B.4** | **Running overload test** |  |  |  |
| **B.5** | **Locked-rotor overload test** |  |  |  |
|  | Test duration (days) |  |  |  |
|  | Electric strength test: testvoltage (V) |  |  |  |
| **B.6** | **Running overload test for d.c. motors in secondary circuits** |  |  |  |
| **B.6.1** | **General** |  |  |  |
| **B.6.2** | **Test procedure** |  |  |  |
| **B.6.3** | **Alternative test procedure** |  |  |  |
| **B.6.4** | **Electric strength test; test voltage (V)** |  |  |  |
| **B.7** | **Locked-rotor overload test for d.c. motors in secondary circuits** |  |  |  |
| B.7.1 | General |  |  |  |
| B.7.2 | Test procedure |  |  |  |
| B.7.3 | Alternative test procedure |  |  |  |
| B.7.4 | Electric strength test; test voltage (V) |  |  |  |
| **B.8** | **Test for motors with capacitors** |  |  |  |
| **B.9** | **Test for three-phase motors** |  |  |  |
| **B.10** | **Test for series motors** |  |  |  |
|  | Operating voltage (V) |  |  |  |
|  |  |  |  |  |
| **C** | **ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)** |  |  |  |
|  | Position |  |  |  |
|  | Manufacturer |  |  |  |
|  | Type |  |  |  |
|  | Rated values |  |  |  |
|  | Method of protection |  |  |  |
| **C.1** | **Overload test** |  |  |  |
| **C.2** | **Insulation** |  |  |  |
|  | Protection from displacement of windings |  |  |  |
|  |  |  |  |  |
| **D** | **ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)** |  |  |  |
| **D.1** | **Measuring instrument** |  |  |  |
| **D.2** | **Alternative measuring instrument** |  |  |  |
|  |  |  |  |  |
| **E** | **ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)** |  |  |  |
|  |  |  |  |  |
| **F** | **ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)** |  |  |  |
|  |  |  |  |  |
| **G** | **ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES** |  |  |  |
| **G.1** | **Clearances** |  |  |  |
| G.1.1 | General |  |  |  |
| G.1.2 | Summary of the procedure for determining minimum clearances |  |  |  |
| **G.2** | **Determination of mains transient voltage (V)** |  |  |  |
| G.2.1 | AC mains supply |  |  |  |
| G.2.2 | Earthed d.c. mains supply |  |  |  |
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| G.2.4 | Battery operation |  |  |  |
| **G.3** | **Determination of telecommunication network transient voltage (V)** |  |  |  |
| **G.4** | **Determination of required withstand voltage (V)** |  |  |  |
| **G.4.1** | **Mains transients and internal repetitive peaks** |  |  |  |
| **G.4.2** | **Transients from telecommunication networks** |  |  |  |
| **G.4.3** | **Combination of transients** |  |  |  |
| **G.4.4** | **Transients from cable distribution systems** |  |  |  |
| **G.5** | **Measurement of transient voltages (V)** |  |  |  |
|  | 1. Transients from a mains supply   For an a.c. mains supply  For a d.c. mains supply   1. Transients from a telecommunication network |  |  |  |
| **G.6** | **Determination of minimum clearances** |  |  |  |
|  |  |  |  |  |
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|  |  |  |  |  |
| **J** | **ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)** |  |  |  |
|  | Metal(s)used |  |  |  |
|  |  |  |  |  |
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| **K.2** | **Thermostat reliability; operating voltage (V)** |  |  |  |
| **K.3** | **Thermostat endurance test; operating voltage (V)** |  |  |  |
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| **K.5** | **Thermal cut-out reliability** |  |  |  |
| **K.6** | **Stability of operation** |  |  |  |
|  |  |  |  |  |
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|  |  |  |  |  |
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| **M.2** | **Method A** |  |  |  |
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| 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 |  |  |  |
| M.3.2.1 | Conditions for use of a tripping device or a monitoring voltage |  |  |  |
| M.3.2.2 | Tripping device |  |  |  |
| M.3.2.3 | Monitoring voltage (V) |  |  |  |
|  |  |  |  |  |
| **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.1** | **ITU-T impulse test generators** |  |  |  |
| **N.2** | **IEC 60065 impulse test generator** |  |  |  |
|  |  |  |  |  |
| **P** | **ANNEX P, NORMATIVE REFERENCES** |  |  |  |
|  |  |  |  |  |
| **Q** | **ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)** |  |  |  |
|  | - Preferred climatic categories |  |  |  |
|  | - Maximum continuous voltage |  |  |  |
|  | - Combination Pulse current |  |  |  |
|  | Body of the VDR Test according to IEC60695-11-5 |  |  |  |
|  | Body of the VDR. Flammability class of material min (V-1) |  |  |  |
|  |  |  |  |  |
| **R** | **ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES** |  |  |  |
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| **T** | **ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)** |  |  |  |
|  |  |  |  |  |
| **U** | **ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)** |  |  |  |
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| **V.2** | **TN power distribution systems** |  |  |  |
|  |  |  |  |  |
| **W** | **ANNEX W, SUMMATION OF TOUCH CURRENTS** |  |  |  |
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| W.1.1 | Floating circuits |  |  |  |
| W.1.2 | Earthed circuits |  |  |  |
| **W.2** | **Interconnection of several equipments** |  |  |  |
| W.2.1 | Isolation |  |  |  |
| W.2.2 | Common return, isolated from earth |  |  |  |
| W.2.3 | Common return, connected to protective earth |  |  |  |
|  |  |  |  |  |
| **X** | **ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)** |  |  |  |
| **X.1** | **Determination of maximum input current** |  |  |  |
| **X.2** | **Overload test procedure** |  |  |  |
|  |  |  |  |  |
| **Y** | **ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)** |  |  |  |
| **Y.1** | **Test apparatus** |  |  |  |
| **Y.2** | **Mounting of test samples** |  |  |  |
| **Y.3** | **Carbon-arc light-exposure apparatus** |  |  |  |
| **Y.4** | **Xenon-arc light-exposure apparatus** |  |  |  |
|  |  |  |  |  |
| **Z** | **ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)** |  |  |  |
|  |  |  |  |  |
| **AA** | **ANNEX AA, MANDREL TEST (see 2.10.5.8)** |  |  |  |
|  |  |  |  |  |
| **BB** | **ANNEX BB, CHANGES IN THE SECOND EDITION** |  |  |  |
|  |  |  |  |  |
| **CC** | **ANNEX CC, EVALUATION OF INTEGRATED CIRCUIT (IC) CURRENT LIMITERS** |  |  |  |
| **CC.1** | **General** |  |  |  |
| **CC.2** | **Test program 1** |  |  |  |
| **CC.3** | **Test program 2** |  |  |  |
| **CC.4** | **Test program 3** |  |  |  |
| **CC.5** | **Compliance** |  |  |  |
|  |  |  |  |  |
| **DD** | **ANNEX DD, REQUIREMENTS FOR THE MOUNTING MEANS OF RACK- MOUNTED EQUIPMENT** |  |  |  |
| **DD.1** | **General** |  |  |  |
| **DD.2** | **Mechanical strength test, variable N** |  |  |  |
| **DD.3** | **Mechanical strength test, 250 N, including end stops** |  |  |  |
| **DD.4** | **Compliance** |  |  |  |
|  |  |  |  |  |
| **EE** | **ANNEX EE, HOUSEHOLD AND HOME/OFFICE DOCUMENT/MEDIASHREDDERS** |  |  |  |
| **EE.1** | **General** |  |  |  |
| **EE.2** | **Markings and instructions** |  |  |  |
|  | Use of markings or symbols |  |  |  |
|  | Information of user instructions, maintenance and/or servicing instructions |  |  |  |
| **EE.3** | **Inadvertent reactivation test** |  |  |  |
| **EE.4** | **Disconnection of power to hazardous moving parts** |  |  |  |
|  | Use of markings or symbols |  |  |  |
| **EE.5** | **Protection against hazardous moving parts** |  |  |  |
|  | Test with test finger (Figure 2A) |  |  |  |
|  | Test with wedge probe (Figure EE1 and EE2) |  |  |  |
|  |  |  |  |  |
| **1.5.1** | **TABLE: list of critical components** |  |  |  |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **object/part No.** | **manufacturer/**  **trademark** | **type/model** | **technical data** | **standard (Edition or year)** | **mark(s) of**  **conformity1)** | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | |  |  |  |  |  |  | | **supplementary information:** | | | | | | | | | | |
|  |  |  |  |  |
| **1.6.2** | **TABLE: Electrical data (in normal conditions)** |  |  |  |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Loading** | **I (A** | **I rated (A)** | **P (W)** | **Fuse #** | **I fuse (A)** | **condition/status** | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | **supplementary information:** | | | | | | | | | | | |
|  |  |  |  |  |
| **2.1.1.5 c1)** | **TABLE: Max. V, A, VA test** |  |  |  |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Voltage (rated) (V)** | **Current (rated) (A)** | **Voltage (max.) (V)** | **Current (max.) (A)** | **VA (max.) (VA)** | |  |  |  |  |  | | **supplementary information:** | | | | | | | | | |
|  |  |  |  |  |
| **2.1.1.5 c2)** | **TABLE: Stored energy** |  |  |  |
| |  |  |  | | --- | --- | --- | | **Capacitance C (µF)** | **Voltage U (V)** | **Energy E (J)** | |  |  |  | | **supplementary information:** | | | | | | | |
|  |  |  |  |  |
| **2.2** | **TABLE: Evaluation of voltage limiting components in SELV circuits** |  |  |  |
| |  |  |  |  | | --- | --- | --- | --- | | **Component (measured between)** | **max. voltage (V)**  **(normal operation)** | | **Voltage limiting components** | | **V peak** | **V d.c** | |  |  |  |  | | **Fault test performed on voltage limiting components** | **Voltage measured (V) in SELV circuits (V peak or V d.c.)** | | | |  |  | | | | **supplementary information:** | | | | | | | | |
|  |  |  |  |  |
| **2.4** | **TABLE: Limited current circuit test** |  |  |  |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Location** | **Voltage (Vp)** | **Current (mA)** | **Frequency (kHz)** | **Limit (mA)** | |  |  |  |  |  | |  |  |  |  |  | | **supplementary information**: | | | | | | | | | |
|  |  |  |  |  |
| **2.5** | **TABLE: Limited power source measurement** |  |  |  |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Distance through insulation (DTI) at/of:** | **Current (A)** | | **VA** | | | **Measured** | **Limit** | **Measured** | **Limit** | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | | **supplementary information:** | | | | | | | | | |
|  |  |  |  |  |
| **2.10.2** | **TABLE: Working voltage measurements** |  |  |  |
| |  |  |  |  | | --- | --- | --- | --- | | **Location** | **RMS voltage (V)** | **Peak voltage (V)** | **Comments** | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | | **supplementary information:** | | | | | | | | |
|  |  |  |  |  |
| **2.10.3 and**  **2.10.4** | **TABLE: Clearance and creepage distance measurements** |  |  |  |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **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** |  |  |  |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **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** |  |  |  |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Battery category** | | | | |  | | | | | | | | | | **Manufacturer** | | | | |  | | | | | | | | | | **Type / model** | | | | |  | | | | | | | | | | **Voltage** | | | | |  | | | | | | | | | | **Capacity (mAh)** | | | | |  | | | | | | | | | | **Tested and Certified by (incl. Ref. No.)** | | | | |  | | | | | | | | | | **Circuit protection diagram** | | | | |  | | | | | | | | | | **MARKINGS AND INSTRUCTIONS (1.7.12, 1.7.15)** | | | | |  | | | | | | | | | | **Location of replaceable battery** | | | | |  | | | | | | | | | | **Language(s)** | | | | |  | | | | | | | | | | **Close to the battery** | | | | |  | | | | | | | | | | **In the servicing instructions** | | | | |  | | | | | | | | | | **In the operating instructions** | | | | |  | | | | | | | | | | **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?** | | | | |  | | | | | | | | | | **Temperature** |  | | | |  | | | | | | | | | |  | **Non-rechargeable batteries** | | | | **Rechargeable batteries** | | | | | | | | | |  | **Discharging** | | **Un- intentional**  **charging** | | **Charging** | | **Discharging** | | | | **Reversed**  **charging** | | | |  | **Meas.**  **current** | **Manuf. specs** | **Meas.**  **current** | **Manuf. specs** | **Meas.**  **current** | **Manuf. specs** | | | **Meas.**  **current** | **Manuf. specs** | | | **Max. current**  **during**  **normal**  **condition** |  |  |  | |  |  |  |  | | |  |  | | | **Max. current**  **during**  **fault**  **condition** |  |  |  | |  |  |  |  | | |  |  | | | **supplementary information:** | | | | | | | | | | | | | | | **Test results:** | | | | | | | | | **VERDICT** | | | | | | **- Chemical leaks** | | | |  | | | | |  |  | | |  | | **- Explosion of the battery** | | | |  | | | | |  |  | | |  | | **- Emission of flame or expulsion of molten metal** | | | |  | | | | |  |  | | |  | | **- Electric strength tests of equipment after completion of tests** | | | |  | | | | |  |  | | |  | | **supplementary information:** | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |
| **4.5** | **TABLE: Thermal requirements** |  |  |  |
| |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Supply voltage (V) :** | | | | |  | |  | |  |  | |  |  | | **Ambient Tmin (°C) :** | | | | |  | |  | |  |  | |  |  | | **Ambient Tmax (°C) :** | | | | |  | |  | |  |  | |  |  | | **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)** | |  | | | | |  | |  | |  |  | |  |  | |  | | | | |  | |  | |  |  | |  |  | |  | | | | |  | |  | |  |  | |  |  | | **Temperature T of winding:** | **t1 (°C)** | **R1 (ohm)** | **t2 (°C)** | **R2 (ohm)** | | **T**  **(°C)** | | **Allowed**  **Tmax (°C)** | | | **Insulation class** | | | |  |  |  |  |  | |  | |  | | |  | | | | **supplementary information:** | | | | | | | | | | | | | | | | | | |
|  |  |  |  |  |
| **4.5.2** | **TABLE: Ball pressure test of thermoplastic parts** |  |  |  |
| |  |  |  | | --- | --- | --- | | **allowed impression diameter (mm)** | **≤ 2 mm** |  | | **part** | **test temperature (°C)** | **Impression**  **diameter (mm)** | |  |  |  | |  |  |  | | **supplementary information:** | | | | | | | |
|  |  |  |  |  |
| **5.1.6** | **TABLE: Touch current measurement** |  |  |  |
| |  |  |  |  | | --- | --- | --- | --- | | **Measured between** | **Measured (mA)** | **Limit (mA)** | **Comments/conditions** | |  |  |  |  | | **supplementary information:** | | | | | | | | |
|  |  |  |  |  |
| **5.2** | **TABLE: Electric strength tests, impulse tests and voltage surge tests** |  |  |  |
| |  |  |  |  | | --- | --- | --- | --- | | **Test voltage applied between:** | **Voltage shape**  **(AC, DC,**  **impulse, surge)** | **Test voltage**  **(V)** | **Breakdown**  **Yes / No** | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | | **supplementary information:** | | | | | | | | |
|  |  |  |  |  |
| **5.3** | **TABLE: Fault condition tests** |  |  |  |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Ambient temperature (°C) :** | | | | | | | | **Model/Type of power supply:** | | | | | | | | **Manufacturer of power supply:** | | | | | | | | **Rated markings of power supply:** | | | | | | | | **Component No.** | **Fault** | **Supply**  **voltage**  **(V)** | **Test**  **time** | **Fuse #** | **Fuse current**  **(A)** | **Observation** | |  |  |  |  |  |  |  | |  |  |  |  |  |  |  | | **supplementary information:** | | | | | | | | | | | |
|  |  |  |  |  |
| **C.2** | **TABLE: Transformers** |  |  |  |
| |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 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:** | | | | | | | | | | | | | |

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| --- |
| **ผู้ทดสอบมาตรฐานทางเทคนิคของเครื่องส่งวิทยุกระจายเสียง**  ลงชื่อ  ( )  ตำแหน่ง  หน่วยงาน  ที่อยู่หน่วยงาน  **ผู้ทดสอบมาตรฐานทางเทคนิคด้านความปลอดภัยทางไฟฟ้า**  ลงชื่อ  ( )  ตำแหน่ง  หน่วยงาน  ที่อยู่หน่วยงาน    วันที่ |