Operational Equipment Power and Environment Standard

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1. **Scope**

This Standard details generic requirements for:

- Environment and Cooling Equipment
- D.C. Power Supplies and Equipment
- A.C. Power Supplies and Equipment

Power equipment for the Access Network is also covered.

2. **Invitation to Tender Response**

To each Generic Standard "Requirement" you are required to make a declaration of "Compliant", "Partially compliant" or "Non-compliant" as appropriate. A concise supporting statement describing the way in which you comply, or why you do not shall follow this declaration.

If you have already responded to this issue of this Generic Standard, and intend to refer to all or part of your earlier submission, you must state the date the previous submission was made, the contract number, and the buyer to whom the submission was sent.

You should note that BT reserves the right to validate the information given in your submission.

3. **Generic Requirements for Equipment Environment**

3.1 **Environmental Conditions**

3.1.1 The equipment shall meet its normal operating performance when subjected to normal and exceptional environmental conditions as defined in the ETSI EN300 019 standard series as published by the European Telecommunications Standards Institute (ETSI)
3.1.2 Testing shall be carried out in accordance with the requirements specified in the ETSI EN300 019 standard series. Test results shall be provided.

3.2 Specific Environmental Condition Requirements

3.2.1 Equipment designated for installation in specific types of internal and external locations shall meet the specific requirements as listed below in Table 1.

Table 1 Installation Type Designation

<table>
<thead>
<tr>
<th>Installation Type Designation</th>
<th>Environmental Condition Specification</th>
<th>Environmental Test Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone exchange areas and general offices</td>
<td>ETSI EN 300 019-1-3[1] Class 3.1 Normal &amp; Exceptional Conditions</td>
<td>ETSI EN 300 019-2-3[2] Class 3.1 Normal &amp; Exceptional Conditions</td>
</tr>
<tr>
<td>Outdoor Enclosures</td>
<td>ETSI EN 300 019-1-4[3] Class 4.1 Normal &amp; Extended Conditions</td>
<td>ETSI EN 300 019-2-4[4] Class 4.1 Normal &amp; Extended Conditions</td>
</tr>
<tr>
<td>Underground locations, e.g. footway boxes, etc.</td>
<td>ETSI EN 300 019-1-8[5]</td>
<td>ETSI EN 300 019-2-8[6]</td>
</tr>
</tbody>
</table>

3.2.2 Test results shall be provided.

3.2.3 If the installation environment is not covered by the above descriptions, the supplier must obtain clarification for the standard required.
4. Generic Requirements for Electrical Supplies

4.1 Equipment Operated by Direct Current (D.C.)

Equipment that operates using a D.C. supply must meet the requirements of ETSI EN 300 132-2[7].

4.2 Equipment Operated by Alternating Current (A.C.) derived from Direct Current (D.C.)

Equipment which operates using an A.C. derived from a D.C. supply shall meet the requirements of ETSI ETS 300 132-1[8].

4.3 Power Equipment for the Access Network

All power equipment for the access network shall be in accordance with European Standard ETSI EN 302 099[9].

4.4 A.C. Power Input Standards

All power conversion and other equipment provided as part of telecommunications systems must work satisfactorily from an incoming A.C. supply derived either from the public mains supply or from the output of a standby generator. The supply will be within the following limits:-
Steady State

Voltage 400/230 volts ±10%
Frequency 50 Hz +3.6% -1%
Total Harmonic Distortion (THD) ≤6%
(Not including distortion caused by the equipment itself)

Slow Transients (restoring to the continuous values above within 1-second voltage and 5-seconds frequency due to standby generator load changes)

Voltage 400/230V ± 15%
Frequency 50 Hz ± 10%

5 Earthing and Safety Requirements

5.1 Equipment Earthing.

All equipment and installations shall comply with the requirements of ETSI EN 300 253[10].

5.2 Safety Standards

All equipment procured for BT use within exchanges and non-operational buildings must conform to BS-EN 60950[11].

Stationary batteries should meet the requirements of BS EN 50272-2[12].
6 Approval of Power Systems Provided with Telecommunications Equipment

All power systems providing D.C. or no break A.C. power supplies, supplied with telecommunications equipment must be subject to assessment and approval by BT Network Power and Cooling Unit.

7. Equipment Racks, Cabinets and Miscellaneous Racks & Cabinets

Rack, cabinets and miscellaneous racks and cabinets used for housing telecommunication and communication equipment shall be compliant with the ETSI EN 300 119[13] standard series.

8. References

[1] ETSI EN 300 019-1-3 V2.3.2 (2009-11); Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-3: Classification of environmental conditions; Stationary use at weather protected locations
[2] ETSI EN 300 019-2-3 V2.3.1 (2013-04); Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 2-3: Specification of environmental tests; Stationary use at weather protected locations
[3] ETSI EN 300 019-1-4 V2.1.2 (2003-04); Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-4: Classification of environmental conditions; Stationary use at non-weather protected locations
[4] ETSI EN 300 019-2-4 V2.3.1 (2013-06); Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 2-4: Specification of environmental tests; Stationary use at non-weather protected locations
[5] ETSI EN 300 019-1-8 V2.1.4 (2003-04); Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-8: Classification of environmental conditions; Stationary use at underground locations
[6] ETSI EN 300 019-2-8 V2.1.2 (1999-09); Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 2-8: Specification of environmental tests; Stationary use at underground locations

[7] ETSI EN 300 132-2 V2.4.6 (2011-12); Environmental Engineering (EE); Power supply interface at the input to telecommunications and datacom (ICT) equipment; Part 2: Operated by -48 V direct current (dc)

[8] ETSI ETS 300 132-1 ed.1 (1996-09); Equipment Engineering (EE); Power supply interface at the input to telecommunications equipment; Part 1: Operated by alternating current (ac) derived from direct current (dc) sources

[9] ETSI EN 302 099 V1.1.1 (2002-01); Environmental Engineering (EE); Powering of equipment in access network

[10] ETSI EN 300 253 V2.1.1 (2002-04); Environmental Engineering (EE); Earthing and bonding of telecommunication equipment in telecommunication centres


[13] ETSI EN 300 119; Environmental Engineering (EE); European telecommunication standard for equipment practice;
   -1 V2.1.1 (2004-09); Part 1: Introduction and terminology
   -2 V2.2.2 (2009-12); Part 2: Engineering requirements for racks and cabinets
   -3 V2.2.2 (2010-01); Part 3: Engineering requirements for miscellaneous racks and cabinets
   -4 V2.1.1 (2004-09); Part 4: Engineering requirements for subracks in miscellaneous racks and cabinets
   -5 V1.2.2 (2004-12); Part 5: Thermal management

9. History

Issue 1: June 1998
Issue 2: January 1999 - Electronic format changed to Word 6/95. Text revised in Table 1 and Section 5.
Issue 3: January 2000 – Section 2 first paragraph amended. Section 3.1.2 – last paragraph added. Section 3.2.2 – renumbered to 3.2.3. Section 3.2.2 – new. Section 4.3 referenced document has changed to EN 302 099. Section 5 added. Sections 6 & 7 renumbered.
Issue 4: Reference Section includes ETS 300 253 & BS EN 60950.
Issue 5: ETS 300 019 has been changed to EN 300 019 in Sections 3.1.1, 3.1.2, Table 1 & References.
Issue 6: ETSI ETS 300 253 has been changed to ETSI EN 300 253. New Section 7 has been added.