

STN	Environmentálne inžinierstvo (EE) Rozhranie napájania na vstupe zariadenia informačných a komunikačných technológií (IKT) Časť 3: Až 400 V jednosmerný prúd (DC)	STN EN 300 132-3 V2.3.1 87 0132
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Environmental Engineering (EE); Power supply interface at the input of Information and Communication Technology (ICT) equipment; Part 3: Up to 400 V Direct Current (DC)

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This standard includes the English version of the European Standard.

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Foreword

This European Standard (EN) has been produced by ETSI Technical Committee Environmental Engineering (EE).

The present document concerns the requirements for the interface between Information and Communication Technology (ICT) equipment and its power supply. It includes requirements relating to its stability and measurement. Various other references, detailed measurement and test arrangements are contained in informative annexes.

The introduced interface up to 400 V Direct Current (DC) is considering power consumption increase and equipment power density increase in order to get higher energy efficiency with less material than with low voltage -48 VDC or permanent AC powering solution.

The up to 400 VDC interface could also simplify the use of renewable energy source with DC output such as photovoltaic generator.

The present document is part 3 of a multi-part deliverable covering Environmental Engineering (EE); Power supply interface at the input to Information and Communication Technology (ICT) equipment, as identified below:

- Part 1: "Alternating Current (AC)";
- Part 2: "-48 V Direct Current (DC)";
- Part 3: "Up to 400 V Direct Current (DC)".**

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Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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1 Scope

The present document contains requirements and measurements methods for the physical interface "A3" that is situated between the power supply system(s) and the power consuming ICT equipment:

- the nominal voltage at power interface "A3" of ICT equipment defined in the present document is DC voltage up to 400 V;
- the output performance of the power equipment including the cable network at the interface "A3";
- the input of the ICT equipment connected to interface "A3".

The DC power can be supplied by a DC output power system e.g. via on-grid AC rectifiers, from DC/DC converters in solar systems, fuel cells, standby generators including a battery backup.

The present document aims at providing compatibility at interface "A3" between the power supply equipment and different ICT equipment (including/monitoring, cooling system, etc.) connected to the same power supply.

The requirements are defined for the purpose of the present document to:

- identify a power supply system with the same characteristics for all ICT equipment defined in the area of application; the area of application may be any location where the interface "A3" is used i.e. telecommunication centres, Radio Base Stations, datacentres and customer premises;
- facilitate interworking of different loads;
- facilitate the standardization of power supply systems for ICT equipment;
- facilitate the installation, operation and maintenance in the same network of ICT equipment and systems from different origins;
- secure robustness against temporary voltage deviations and transients during abnormal conditions.

General requirements for safety and EMC are out of the scope of the present document series unless specific requirement not defined in existing safety or EMC standards.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

- [1] IEC 60947-2: "Low-voltage switchgear and controlgear - Part 2: Circuit-breakers".
- [2] IEC 60269-1: "Low-voltage fuses - Part 1: General requirements".
- [3] IEC 61000-4-5: "Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test".

- [4] IEC 61000-4-29: "Electromagnetic compatibility (EMC) - Part 4-29: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests".
- [5] IEC 60898-2: "Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Part 2: Circuit-breakers for AC and DC operation".
- [6] ETSI EN 301 605 (V1.1.1) (2013): "Environmental Engineering (EE); Earthing and bonding of 400 VDC data and telecom (ICT) equipment".
- [7] Recommendation ITU-T L.1207 (2018): "Progressive migration of a telecommunication/information and communication technology site to 400 VDC sources and distribution".
- [8] IEC 60364-4-41: "Low voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock".
- [9] EN 60445: "Basic and safety principle for man-machine interface, marking and identification- Identification of equipment terminals, conductor terminations and conductors", (produced by CENELEC).
- [10] Recommendation ITU-T L.1203 (2016): "Colour and marking identification of up to 400 VDC power distribution for information and communication technology systems".

2.2 Informative references

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] ETSI EN 300 132-2: "Environmental Engineering (EE); Power supply interface at the input of Information and Communication Technology (ICT) equipment; Part 2: -48 V Direct Current (DC)".
- [i.2] IEC 60050-601: "International Electrotechnical Vocabulary. Chapter 601: Generation, transmission and distribution of electricity - General".
- [i.3] ETSI EN 300 386: "Telecommunication network equipment; ElectroMagnetic Compatibility (EMC) requirements; Harmonised Standard covering the essential requirements of the Directive 2014/30/EU".
- [i.4] EN 62368-1: "Audio/video, information and communication technology equipment - Part 1: Safety requirements", (produced by CENELEC).

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