# Final draft ETSI EN 300 132-3-1 V2.1.1 (2011-10)



Environmental Engineering (EE);
Power supply interface at the input to telecommunications and datacom (ICT) equipment;

Part 3: Operated by rectified current source, alternating current source or direct current source up to 400 V;

Sub-part 1: Direct current source up to 400 V

https://standards.iteh.ai/catalog/standards/etsi/7d69be6c-c2fd-4070-95a2-3fb3c020f698/etsi-en-300-132-3-1-v2-1-1-2012-

#### Reference

#### REN/EE-02017-1

Keywords

environment, interface, power supply

#### **ETSI**

650 Route des Lucioles F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C Association à but non lucratif enregistrée à la Sous-Préfecture de Grasse (06) N° 7803/88

# (https://standards.iteh.ai) Document Preview

#### Important notice

<u>ETSI EN 300 132-3-1 V2.1.1 (2012-02</u>

https://standards.iteh.ai/catalog/ Individual copies of the present document can be downloaded from:etsi-en-300-132-3-1-v2-1-1-2012-http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<a href="http://portal.etsi.org/tb/status/status.asp">http://portal.etsi.org/tb/status/status.asp</a></a>

#### Copyright Notification

No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2011.
All rights reserved.

**DECT**<sup>TM</sup>, **PLUGTESTS**<sup>TM</sup>, **UMTS**<sup>TM</sup> and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members. **3GPP**<sup>TM</sup> and **LTE**<sup>TM</sup> are Trade Marks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

**GSM**® and the GSM logo are Trade Marks registered and owned by the GSM Association.

## Contents

|  | Intellectual Property Rights   |  |  | 5  |  |
|--|--|--|--|----|--|
|  | Foreword5  |  |  |    |  |
|  | 1  | Scope  |  | 6  |  |
|  | 2  | References   |  | 6  |  |
|  | 2.1  |  |  |    |  |
|  | 2.2  | Informative reference  | S  | 7  |  |
|  | 3  | 7  |  |    |  |
|  | 3.1  |  | nd abbreviations   |    |  |
|  | 3.2  | •  |  |    |  |
|  | 3.3  | Abbreviations  |  | 9  |  |
|  | 4 Interface A39  |  |  |    |  |
|  | 5  | DC interface requireme   | ents   | 10 |  |
|  | 5.1  | Nominal voltage  |  |    |  |
|  | 5.2  | $\mathcal{E}$  |  |    |  |
|  | 5.3  | r · · · · · · · · · · · · · · · · · · ·                                      |  |    |  |
|  | 5.4<br>5.5   | 6 (-1)   |  |    |  |
|  |  |  |  | 11 |  |
|  | 6  |  | Voltage variations, voltage dips, short interruptions and voltage surges at  | 12 |  |
|  | 6.1  | interface A3   |  |    |  |
|  | 6.2  |  |  |    |  |
|  | 6.3  |  | D  |    |  |
|  | 6.4  |  | Document Preview   |    |  |
|  | 7  |  |  |    |  |
|  | 8  | Maximum steady state   | current  | 15 |  |
|  | 18.1rds  | 3.1 S.1 Maximum steady state current Im, in the normal service voltage range |  |    |  |
|  | 8.2 Maximum steady state current in the abnormal service voltage range |  |  |    |  |
|  | 9  | Inrush current on conne  | ection to interface A3   | 15 |  |
|  | 9.1  |  |  |    |  |
|  | 9.2  | Measurements   |  | 17 |  |
|  | 10   | Earthing and Bonding.  |  | 17 |  |
|  | 11   | Electrical Safety requirements.  |  | 17 |  |
|  | 12   | EMC requirements at the  | ne input of telecommunications and datacom (ICT) equipment   | 18 |  |
|  | Anne   | ex A (informative):  | Power supply considerations  | 19 |  |
|  | Anne   | ex B (normative):  | Identification of interface A3   | 20 |  |
|  | Anne   | ex C (informative):  | Calculation of the extreme DC voltage range at interface A3  | 21 |  |
|  | Anne   | ex D (informative):  | Guide for defining inrush current energy, measuring inrush current and test generator peak inrush current drive capability | 22 |  |
|  | D.1  | Measurement  |  | 22 |  |
|  | D.2  | Test generator peak inr  | ush current drive capability   | 23 |  |
|  | D.3 Example of inrush curren   |  | ent waveform   |    |  |
|  | Anne   | ex E (informative):  | Dimensioning of over-current protective devices  | 25 |  |

#### Final draft ETSI EN 300 132-3-1 V2.1.1 (2011-10)

| Annex F (informative): | Test generator for voltage dips, short interruptions and voltage variations                                 | 26 |
|------------------------|---|----|
| Annex G (informative): | Details of the voltage transient measurement in the most common case of distribution and protective devices | 27 |
| Annex H (informative): | Diagram of voltage ranges and values at the interface A3  | 30 |
| History                |   | 31 |

## iTeh Standards (https://standards.iteh.ai) Document Preview

ETSI EN 300 132-3-1 V2.1.1 (2012-02)

https://standards.iteh.ai/catalog/standards/etsi/7d69bc6c-c2fd-4070-95a2-3fb3c020f698/etsi-en-300-132-3-1-v2-1-1-2012

### Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://ipr.etsi.org).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

#### **Foreword**

This final draft European Standard (EN) has been produced by ETSI Technical Committee Environmental Engineering (EE), and is now submitted for the ETSI standards One-step Approval Procedure.

The present document concerns the requirements for the interface between telecommunication or datacommunication equipment (so called telecommunications and datacom (ICT) equipment) and its power supply. It includes requirements relating to its stability and measurement. Various other references and detailed measurement and test arrangements are contained in informative annexes.

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

The DC interface could also simplify the use of renewable energy with DC output such as photovoltaic generator.

The present document is part 3-1 of a multi-part deliverable covering Environmental Engineering (EE); Power supply interface at the input to telecommunication and datacom (ICT) equipment, as identified below:

- Part 1: "Operated by alternating current (ac) derived from direct current (dc) sources";
- https://standa Part 2: ha "Operated by -48 V direct current (dc)"; C2
  - Part 3-0: "Operated by rectified current source, alternating current source or direct current source up to 400 V, Subpart 0: Overview";
  - Part 3-1: "Operated by rectified current source, alternating current source or direct current source up to 400 V; Sub-part 1: Direct current source up to 400 V";
  - Part 3-2: "Operated by rectified current source, alternating current source or direct current source up to 400 V; Sub-part 2: Alternating up to 400 V solution";
  - Part 3-3: "Operated by rectified current source, alternating current source or direct current source up to 400 V; Sub-part 3: Rectified current up to 400 V solution".

The parts 3-0 to 3-3 are the result of a revision of EN 300 132-3 [3]. This revision was necessary, because the present document was not clear. Sub-parts have been introduced for voltage interfaces A3 up to 400 V.

| Proposed national transposition dates  |                                 |  |  |  |  |
|--|---------------------------------|--|--|--|--|
| Date of latest announcement of this EN (doa):  | 3 months after ETSI publication |  |  |  |  |
| Date of latest publication of new National Standard or endorsement of this EN (dop/e): | 6 months after doa              |  |  |  |  |
| Date of withdrawal of any conflicting National Standard (dow):                         | 6 months after doa              |  |  |  |  |