



**SLOVENSKI STANDARD**  
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**Varnost - Napeljave za daljinsko napajanje z električno energijo - Varnostne zahteve za postavitve in obratovanje napeljav informacijske tehnologije z daljinskim napajanjem**

SAFETY - Remote Power Feeding Installations - Safety requirements for the erection and operation of information technology installations with remote power feeding

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**ICS:**

35.200	Vmesniška in povezovalna oprema	Interface and interconnection equipment
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# ETSI ES 202 999 V1.1.1 (2010-11)

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*ETSI Standard*

**SAFETY;  
Remote Power Feeding Installations;  
Safety requirements for the erection and operation  
of information technology installations  
with remote power feeding**

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## Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Telecommunications Equipment Safety (Safety).

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# 1 Scope

The present document contains safety requirements for the erection of information technology installations with remote power feeding at an operating a.c. voltage exceeding 50 V (rms value) or an operating d.c. voltage exceeding 120 V, conductor to conductor and/or conductor to earth. It applies in addition to EN 60950-1 [3] and EN 60950-21 [4] and contains terms, requirements and tests.

If special standards are applicable for installations and parts of installations these shall take precedence; for example EN 60950-1 [3] and EN 60950-21 [4].

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# 2 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 reference document (including any amendments) applies.

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## 2.1 Normative references

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

- [1] CENELEC EN 60417-1 (1999): "Graphical symbols for use on equipment. Overview and application". [SIST ES 202 999 V1.1.1:2012](https://standards.iteh.ai/catalog/standards/sist/3656da7d-185c-4ff7-9869-75593ea10c66/sist-es-202-999-v1-1-1-2012)
- [2] CENELEC EN 60900 (2004): "Live working. Hand tools for use up to 1 000 V a.c. and 1 500 V d.c.". <https://standards.iteh.ai/catalog/standards/sist/3656da7d-185c-4ff7-9869-75593ea10c66/sist-es-202-999-v1-1-1-2012>
- [3] CENELEC EN 60950-1: "Information technology equipment - Safety - Part 1: General requirements".
- [4] CENELEC EN 60950-21: "Information technology equipment - Safety - Part 21: Remote power feeding".
- [5] ITU-T Directives concerning the protection of telecommunication lines against harmful effects from electric power and electrified railway lines (volume IV).
- [6] ITU-T Recommendation K.10: "Low frequency interference due to unbalance about earth of telecommunication equipment".

## 2.2 Informative references

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.

Not applicable.

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the following terms and definitions given in EN 60950-1 [3], EN 60950-21 [4] and the following apply:

**load power-fed point:** load power-fed point extracts electric power from the remote power feeding circuits via its remote power feeding equipment

**remote power feeding:** supply of electric power in the form of direct or alternating current to information technology installations through cables of the associated telecommunication line

**remote power feeding cables:** cables of a telecommunication line which are used for remote power feeding and may at the same time be telecommunication cables

NOTE: They are components of the information technology installation.

**remote power feeding circuit:** circuit which is established by interconnecting remote power feeding devices and cables to form a functional entity

NOTE: See also RFT circuit (remote feeding telecommunication circuit), RFT-C circuits and RFT-V circuits according to EN 60950-21 [4].

**remote power feeding devices:** devices used for remote power feeding, e.g. to supply or extract electric power

**remote power feeding equipment:** equipment from which the electric power necessary for the remote power feeding of information technology installations is extracted

NOTE 1: It is a component of the information technology installation.

NOTE 2: For information technology equipment see EN 60950-1 [3].

**remote power feeding point:** remote power feeding point supplies remote power feeding circuits with electrical current via its remote power feeding equipment

**remote power feeding section:** part of remote power feeding circuits located between a remote power feeding point and the immediately following power-fed point, or between two adjacent power-fed points

**RFT-C circuit:** RFT circuit which is so designed and protected that under normal operating conditions and single fault conditions, the currents in the circuit do not exceed defined values

NOTE: See EN 60950-21 [4].

**RFT-V circuit:** RFT circuit which is so designed and protected that under normal operating conditions and single fault conditions, the voltages are limited and the accessible area of contact is limited

NOTE: See EN 60950-21 [4].

**type of remote power feeding:** electrical operating mode of the remote power feed in a remote power feeding circuit. It is specified by particular characteristics of the circuit configuration and power feeding method. A distinction is made in particular between the following ones:

- **a.c. remote power feeding:** power-fed points receive an a.c. supply;
- **d.c. remote power feeding:** power-fed points receive a d.c. supply;
- **double-ended remote power feeding:** remote power feeding circuit has two remote power feeding points;
- **external remote power feeding:** different cables are used for the remote power feeding and telecommunications connections;
- **internal remote power feeding:** same cables are used for the remote power feeding and telecommunications connections;



- **parallel remote power feeding:** power-fed points within a remote power feeding circuit are connected in parallel;
- **series remote power feeding:** power-fed points within a remote power feeding circuit are connected in series;
- **single-ended remote power feeding:** the remote power feeding circuit has only one remote power feeding point.

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

a.c.	alternating current
d.c.	direct current
RFT circuit	Remote Feeding Telecommunication circuit
RFT-C circuit	Remote Feeding Telecommunication-Current circuit
RFT-V circuit	Remote Feeding Telecommunication-Voltage circuit

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## 4 Limits

### 4.1 Permitted limit values in maintenance range

For limit values during normal operation and during single fault conditions see EN 60950-21 [4], clause 6.

### 4.2 Equipment with (which limit values are exceeded according to clause 4.1

For equipment with which the limit values according to clause 4.1 are exceeded, EN 60950-1 [3] shall be valid along with clauses 5 to 7 of the present document.

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## 5 General requirements

- 5.1** Remote power supply equipment shall be operated in restricted access locations according to EN 60950-1 [3], see clause 1.2.7.3. Remotely fed equipment e.g. a repeater, shall also be accommodated in locations with limited access.  
For example, joint boxes and chambers in cable systems which can be opened only with the aid of tools shall comply with the requirements for restricted limited access locations.

- 5.2** Voltage sources where the output current is limited according to clause 4.1 shall always switch themselves off reliably when exceeding these limit values by +10 %.

*Test:* Check the current control circuits switch-off level.

- 5.3** Remote power circuits according to clause 4.2 shall have a monitoring system for detection of faults and unbalance. Any deviation from target values shall activate an alarm or be displayed to people in the operator service area or in the restricted access location.

*Test:* Make the monitoring system respond to earth faults or unbalance.

- 5.4** Remote power devices shall be constructed so as to provide protection against an electrical shock or power hazard according to EN 60950-1 [3].

*Test:* According to EN 60950-1 [3].