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Information technology - Cabling installation - Part 99-1: Remote powering

S.R. CLC/TR 50174-99-1:2015

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Foreword

This document (CLC/TR 50174-99-1:2015) has been prepared by CLC/TC 215 "Electrotechnical aspects of telecommunication equipment".

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Introduction

EN 50174 series specify the specification, planning and practices applicable to installation of telecommunications cabling.

Balanced cabling in accordance with EN 50173-1 is increasingly used to provide power as well as telecommunication services to a wide range of terminal equipment. This Technical Report examines the effects of remote powering (i.e. thermal heating) on installed cabling.

The components considered are of those specified in EN 50173-1. The components of Category 5 as defined in EN 50173:1995 were not specified in terms of current carrying capacity etc.; they are not supported by this Technical Report.

This Technical Report supports recognized application standards for power feeding produced by IEEE (IEEE 802.3at) but is not restricted to the current feeding specification of that standard.

The delivery of POTS, ISDN, PoE and PoEplus using fully energized bundles of up to 100 cables in accordance with EN 50288-X-1 in ventilated pathways is not considered to represent a problem and is not considered in this Technical Report. In addition, there is no reported evidence of such installations of those remote powering applications producing problems in unventilated conditions. As a result, this Technical Report will only consider such situations if the modelling and subsequent testing of cabling implementations indicates any cause for concern.

1 Scope

This Technical Report defines requirements and recommendations concerning limits for the application and operation of remote powering using cabling comprising balanced cabling components of Category 5 and above as defined in EN 50173-1.

This Technical Report also describes:

- a set of specific implementations which are the basis of a mathematical model for the temperature increases in bundles of cables under remote powering conditions;
- a matching testing protocol used to provide data for the mathematical model;

NOTE The testing protocol was established in order to enable comparison of data from different sources in order to support the development of the mathematical model and to develop appropriate planning and installation rules as suggested by different installation conditions. It is not the role of CLC/TR 50174-99-1:2015 to develop test methods for balanced, or other, cables and the protocol defined in Annex B is not as such a test method.

- the mathematical model that is employed as the basis for the resulting requirements and recommendations.

Safety (electrical safety and protection, optical power, fire, etc.) and electromagnetic compatibility (EMC) requirements are outside the scope of this Technical Report and are covered by standards and regulations. However, information given in this Technical Report may be of assistance in meeting these standards and regulations.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50173 series, *Information technology – Generic cabling systems*

EN 50173-1:2011, *Information technology – Generic cabling systems – Part 1: General requirements*

EN 50174 series, *Information technology – Cabling installation*

EN 50174-2:2009 + A1:2011 + A2:2014, *Information technology – Cabling installation – Part 2: Installation planning and practices inside buildings*

3 Terms, definitions, abbreviations and symbology

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50173 series and in EN 50174 series and the following apply.

3.1.1

requirement met by design

requirement that does not require testing and where conformance may be achieved either by selection of appropriate components and their installation techniques or by conformance of a related parameter

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