

ICS 35.110

English Version

**Information technology - Cabling installation - Part 99-2:
Mitigation and protection from electrical interference**

Technologies de l'information - Installation de câblages -
Partie 99-2:

Informationstechnik - Installation von
Kommunikationsverkabelung - Teil 99-2: Abschwächung
von und Schutz vor elektrischer Störung

This Technical Report was approved by CENELEC on 2020-02-10.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Definitions, abbreviations and symbology	5
3.1 Definitions	5
3.2 Abbreviations	6
4 Coupling mechanisms and countermeasures	6
4.1 General	6
4.2 Countermeasures against galvanic or common mode impedance coupling	6
4.3 Countermeasures against capacitive coupling	6
4.4 Countermeasures against inductive coupling	7
4.5 Countermeasures against radiative coupling	8
4.6 Protection against very low frequency fields	9
5 Assessment of the electromagnetic environment	9
6 Filtering and electrical isolation components and surge protective devices	14
6.1 Filtering	14
6.1.1 General	14
6.1.2 Design	15
6.1.3 Installation	15
6.2 Electrical isolation components	16
6.2.1 General	16
6.2.2 Design	16
6.2.3 Installation	17
6.3 Surge protective devices	19
6.3.1 General	19
6.3.2 Design	19
6.3.3 Installation	19
Bibliography	21

European foreword

This document (CLC/TR 50174-99-2:2020) was prepared by the Technical Committee 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 shall not be held responsible for identifying any or all such patent rights.

A previous version of this document was published as informative Annex A in EN 50174-2:2009. During the revision of EN 50174-2:2009, TC 215 decided to remove the Annex, revise and then publish it as separate Technical Report.

Introduction

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

This document supports the requirements and recommendations of the EN 50174 series in relation to the mitigation and protection of telecommunications cabling from electromagnetic interference by describing:

- a) coupling mechanisms and possible countermeasures;
- b) assessment of the electromagnetic environment;
- c) filtering, isolation and surge protections measures.

1 Scope

This document addresses the mitigation and protection of telecommunications cabling from electromagnetic interference by describing:

- a) coupling mechanisms and possible countermeasures;
- b) assessment of the electromagnetic environment;
- c) filtering, isolation and surge protections measures.

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

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. 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 50174 (series), *Information technology - Cabling installation*

EN 50174-2:2018, *Information technology - Cabling installation - Part 2: Installation planning and practices inside buildings*

EN 50174-3, *Information technology - Cabling installation - Part 3: Installation planning and practices outside buildings*

EN 50310:2016, *Telecommunications bonding networks for buildings and other structures*

3 Definitions, abbreviations and symbology

3.1 Definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1.1

common bonding network

set of interconnected conductive structures that combine the functions of a protective bonding network and a telecommunications bonding network

[SOURCE: EN 50310:2016, 3.1.6]