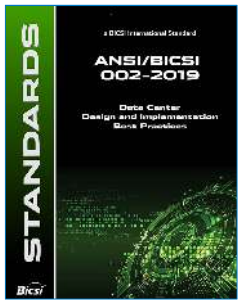
DATA CENTER STANDARDS

DATA CENTRE STANDARDS

- TIA-942-B " Telecommunications Infrastructure Standard for Data Centers"
  - First release 2005, current release 2017
  - Certification and Audit program available
    - Four levels; "Rated-1" to "Rated-4"



- ANSI/BICSI 002-2019 – "Data Center Design and Implementation Best Practices"
  - 550 pages of reference material covering data centres
  - Availability Classes defined;
    - Facility, Cabling, Network, Systems, Applications

- prISO/IEC 22237- Data centre facilities and infrastructures
  - Under publication, based on previous Technical Specifications (TS), 2018
  - Based and harmonized with the **European EN 50600 series** of standards

EN 50600 SERIES – DATA CENTRE FACILITIES AND INFRASTRUCTURES

- A serie of standards defining REQUIREMENTS and RECOMMENDATIONS covering
  - DESIGN
  - OPERATION AND MANAGEMENT
  - KPI'S

  + Technical reports

- 4 Availability Classes defined
  - NOT to be compared with any other classification system

- Relevant for ANYONE involved with
  - Design, Planning, Procurement, Integration, Installation, Operation and Maintenance... You?

- First release – November 2012


EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50600-1

November 2012

English version

Information technology - Data centre facilities and infrastructures - Part 1: General concepts

Installation et infrastructures de centres de traitement de données - Partie 1: Concepts généraux

Informationstechnik - Rechenzentren und Infrastrukturen - Teil 1: Allgemeine Konzepte

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

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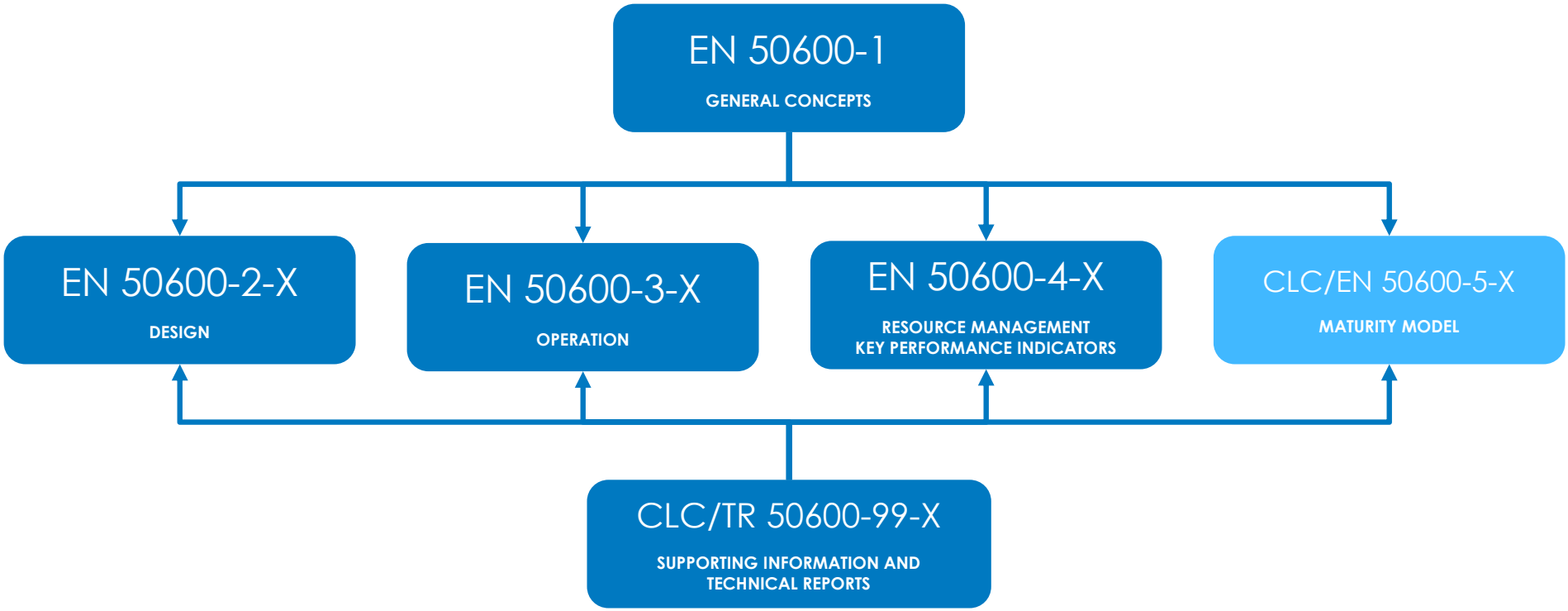
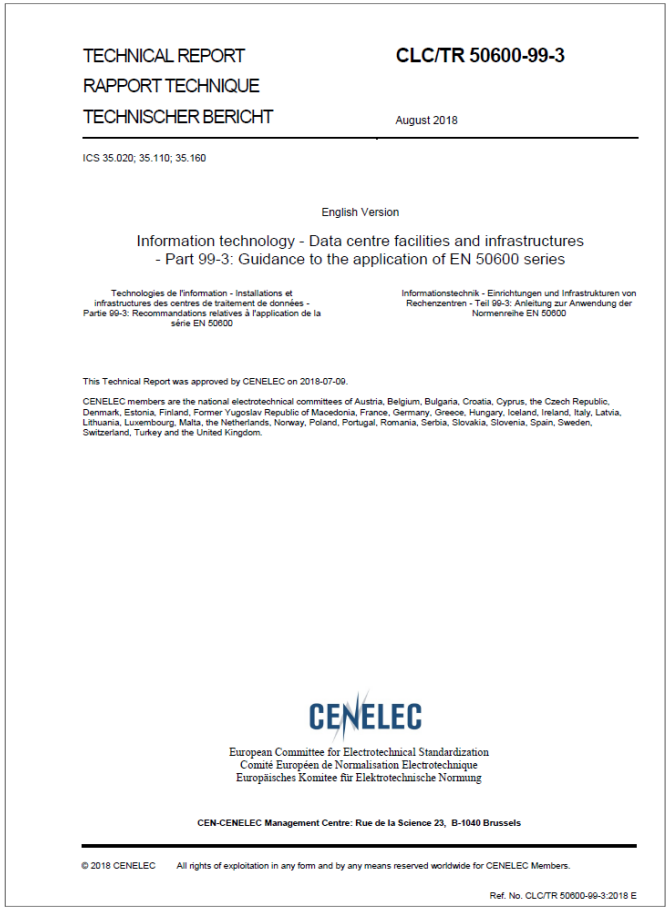
EN 50600 SERIES RELATIONSHIP



TR 50600-99-3 GUIDANCE DOCUMENT



TECHNICAL REPORT
RAPPORT TECHNIQUE
TECHNISCHER BERICHT

CLC/TR 50600-99-3

August 2018

ICS 35.020; 35.110; 35.160

English Version

Information technology - Data centre facilities and infrastructures
- Part 99-3: Guidance to the application of EN 50600 series

Technologies de l'information - Installations et infrastructures des centres de traitement de données - Partie 99-3: Recommandations relatives à l'application de la série EN 50600

Informationstechnik - Einrichtungen und Infrastrukturen von Rechenzentren - Teil 99-3: Anleitung zur Anwendung der Normenreihe EN 50600

This Technical Report was approved by CENELEC on 2018-07-09.

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

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

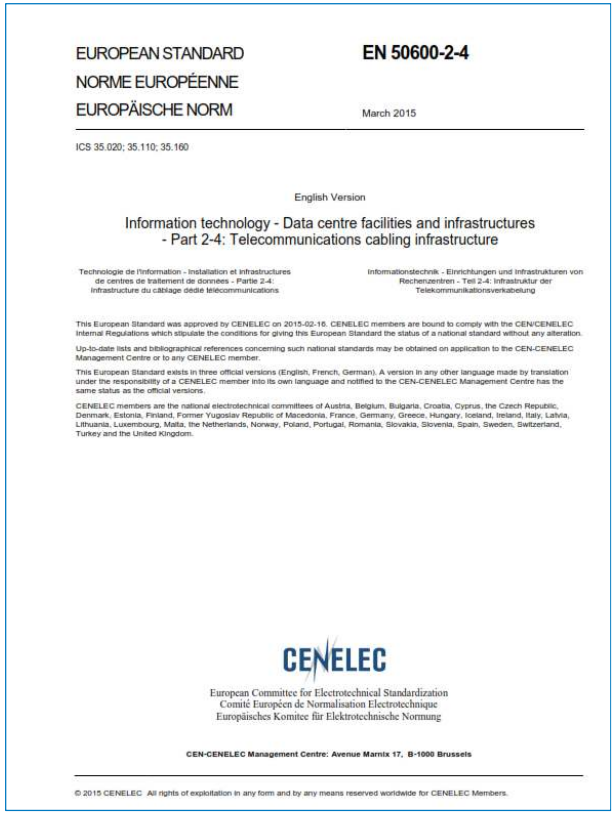
CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. CLC/TR 50600-99-3:2018 E

TR 50600-99-3

- Guideline for the correct application and interpretation of these standards
- Assessment of data centre design and operation using the EN 50600 series
  - One or all infrastructures of the DC meeting the availability requirements
  - Standards bodies are not judging whether an organization offering certification meets the underlying requirements - that is the role of accreditation specialists

EN 50600-2-4 TELECOMMUNICATIONS CABLING INFRASTRUCTURE



EUROPEAN STANDARD **EN 50600-2-4**

NORME EUROPÉENNE

EUROPÄISCHE NORM March 2015

ICS 35.020; 35.110; 35.160

English Version

Information technology - Data centre facilities and infrastructures - Part 2-4: Telecommunications cabling infrastructure

Technologie de l'information - Installation et infrastructures de centres de traitement de données - Partie 2-4: Infrastructure du câblage dédié télécommunications

Informationstechnik - Einrichtungen und Infrastrukturen von Rechenzentren - Teil 2-4: Infrastruktur der Telekommunikationsverkabelung

This European Standard was approved by CENELEC on 2015-02-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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CONFORMANCE CLAUSE

- Cabling design in accordance with
  - EN 50173-2 to support operation
  - EN 50173-5 to support the IT networking function
  - EN 50173-6 to support monitoring/control/environmental

- Installation specifications and installations
  - EN 50174-1 (specification and quality assurance)
  - EN 50174-2 (planning and practices inside buildings)
  - (EN 50174-3 planning and practices outside buildings)

- Pathways and spaces

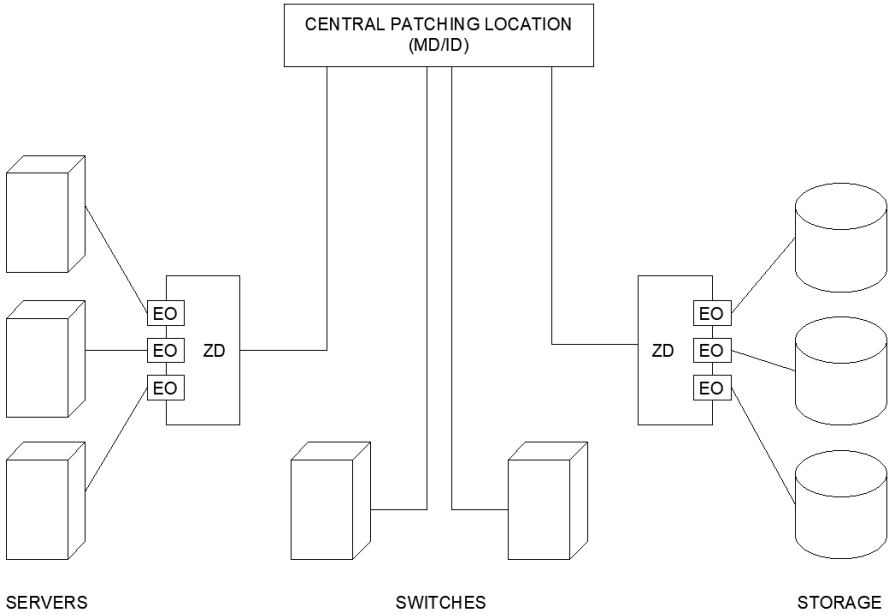
- Cabinets and racks

- Availability Class design requirements

EN 50600-2-4 AND CABLING TOPOLOGY

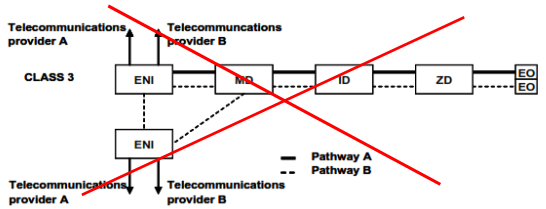
- Class 1 cabling
  - Fixed cabling or Direct attached equipment cords

- Class 2 and above
  - Fixed cabling infrastructure
  - Cross-connects are mandatory at MD/ID/ZD
  - Port replication of equipment ports

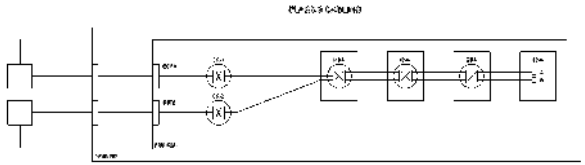


EN 50600-2-4 – ONGOING REVISION DISCUSSIONS

- Document structure completely revised



- Availabillity classes revised
  - Clarifying example illustrations to visualize
    - Availability Classes
    - Availability Classes with different buildings
    - Availability Classes with different floors
    - Annex including Availability Classes with equipment



- Spaces and pathway requirements depending of Availability class

- Added Normative Annex to include "Availability Classes for Cabling Infrastructures in Colocation Data Centres"
  - Introduction of "MMR" term in cabling standards
  - Multi-, Singlebuilding examples

ONE HIGHLIGHT WORTH NOTING FROM EN 50174

- The technical specifications shall define;
  - " any remote powering objectives"...
  - "ambient temperature range within pathways and spaces"

- EN 50174 and Remote Powering Classes 1-3
  - **RP1** – IEEE802.3af/at, up to 30 W no initial planning needed but need control of attachment of devices
  - **RP2** – Anything between 212-500 mA.
  - **RP3** – Up to 500mA/conductor on all cables, 100/90W IEEE802.3bt support. Initial planning, no additional control of attached devies, reduced cable lenghts, calculation to verify <60 deg C sheath
  - Distributor shall be labeled

- Example project, RP3 requirement;
  - 240 unspecified IT cables from distributor, 200/50 basket tray, ambient temperature 30 deg C.
    - IS POSSIBLE, SHEATH TEMPERATURE 55 DEGREES C, MAX CHANNEL LENGTH = 80 METERS (10m cords)
  - 240 unspecified IT cables from distributor, 200/50 **secure trunking**, ambient temperature 30 deg C.
    - NOT POSSIBLE – SHEATH TEMPERATURE >60 DEGREES C

SUMMARY

- Recommend data centre project designers to use EN 50600 series
  - Ensure they use latest publications
  - Availability classes definitions are updated – avoid misunderstandings

- EN 50600-2-4 require EN 50174 series to be followed
  - **Are pathway systems installed by other parties? Standards compliant?**
  - **Standardized cabling supports IT- applications (Ethernet, FibreChannel)**
  - **Cabling vendors rely that installations are made to standards**

- Is Remote Powering to be utilized in any areas?
  - Ambient temperature specified?
  - Pathway system? Secure trunking systems may be challenging.

QUESTION:

WHAT'S THE NAME OF THE STANDARD DESCRIBING THE EUROPEAN GENERAL CONCEPT OF AVAILABILITY CLASSES?

A – EN 50173-5
B – EN 50600-1
C – EN 50310

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CORRECT ANSWER:

B – EN 50600-1