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Date: 04 September 2025

Origin: International

Latest date for receipt of comments: 28 October 2025

Project No. 2024/01050

Responsible committee: TCT/7/3 Telecommunications; Installation requirements: Facilities and infrastructures

Interested committees:

Title: Draft BS ISO/IEC 22237-5 Information technology — Data centre facilities and infrastructures. Part 5: Telecommunications cabling infrastructure.

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/IEC DIS 22237-5

Information technology — Data centre facilities and infrastructures —

Part 5: Telecommunications cabling infrastructure

*Technologie de l'information — Installation et infrastructures de
centres de traitement de données —*

Partie 5: Infrastructure du câblage dédié télécommunications

ICS: 35.020; 35.200

ISO/IEC JTC 1/SC 39

Secretariat: **ANSI**

Voting begins on:
2025-09-04

Voting terminates on:
2025-11-27

This document has not been edited by the ISO Central Secretariat.

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ISO/IEC DIS 22237-5:2025(en)

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Published in Switzerland

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119 **Foreword**

120 ISO (the International Organization for Standardization) is a worldwide federation of national
 121 standards bodies (ISO member bodies). The work of preparing International Standards is normally
 122 carried out through ISO technical committees. Each member body interested in a subject for which a
 123 technical committee has been established has the right to be represented on that committee.
 124 International organizations, governmental and non-governmental, in liaison with ISO, also take part
 125 in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all
 126 matters of electrotechnical standardization.

127 The procedures used to develop this document and those intended for its further maintenance are
 128 described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for
 129 the different types of ISO documents should be noted. This document was drafted in accordance with
 130 the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

131 Attention is drawn to the possibility that some of the elements of this document may be the subject
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 133 of any patent rights identified during the development of the document will be in the Introduction
 134 and/or on the ISO list of patent declarations received (see www.iso.org/patents).

135 Any trade name used in this document is information given for the convenience of users and does
 136 not constitute an endorsement.

137 For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and
 138 expressions related to conformity assessment, as well as information about ISO's adherence to the
 139 World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see
 140 www.iso.org/iso/foreword.html.

141 This document was prepared by Technical Committee ISO/IEC JTC 1, *Information Technology*,
 142 Subcommittee SC 39, *Sustainability, IT & data centres*.

143 This second edition cancels and replaces the first edition (ISO/IEC TS 22237-5:2018), which has been
 144 technically revised.

145 The main changes are as follows:

- 146 — the document structure has been completely revised;
- 147 — the availability classes have been revised;
- 148 — a clause on physical security has been added (Clause 7);
- 149 — Annex C summarizing the requirements and recommendations of the document has been added;
- 150 — Annex D with examples for cabling infrastructures including the location of active equipment has
 151 been added;
- 152 — Annex E with an availability description has been added;
- 153 — Annex F with specific requirements for colocation data centres has been added.

154 A list of all parts in the ISO/IEC 22237 series can be found on the ISO website.

155 Any feedback or questions on this document should be directed to the user's national standards body.
 156 A complete listing of these bodies can be found at www.iso.org/members.html.

157 Introduction

158 The unrestricted access to internet-based information demanded by the information society has led
 159 to an exponential growth of both internet traffic and the volume of stored/retrieved data. Data
 160 centres are housing and supporting the information technology and network telecommunications
 161 equipment for data processing, data storage and data transport. They are required both by network
 162 operators (delivering those services to customer premises) and by enterprises within those customer
 163 premises.

164 Data centres need to provide modular, scalable and flexible facilities and infrastructures to easily
 165 accommodate the rapidly changing requirements of the market. In addition, energy consumption of
 166 data centres has become critical, both from an environmental point of view (reduction of carbon
 167 footprint), and with respect to economic considerations (cost of energy) for the data centre operator.

168 The implementation of data centres varies in terms of:

- 169 a) purpose (enterprise, co-location, co-hosting or network operator facilities);
- 170 b) security level;
- 171 c) physical size; and
- 172 d) accommodation (mobile, temporary and permanent constructions).

173 NOTE Cloud services can be provided by all data centre types mentioned.

174 The needs of data centres also vary in terms of availability of service, the provision of security and
 175 the objectives for energy efficiency. These needs and objectives influence the design of data centres
 176 in terms of building construction, power distribution, environmental control, telecommunications
 177 cabling and physical security. Effective management and operational information is required to
 178 monitor achievement of the defined needs and objectives.

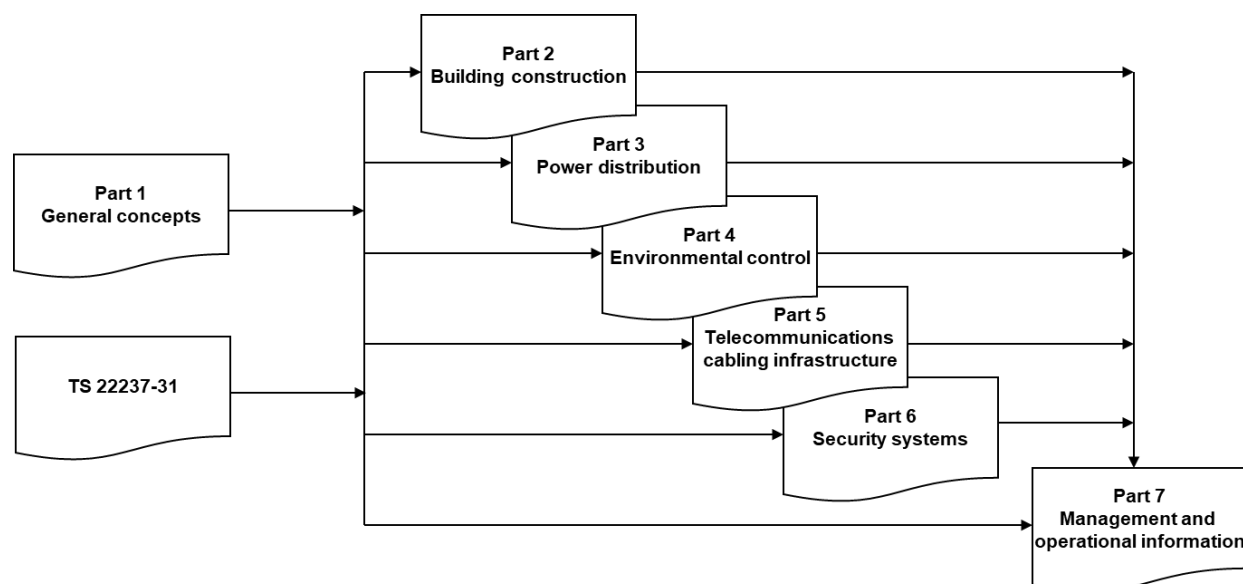
179 The ISO/IEC 22237 series specifies requirements and recommendations to support the various
 180 parties involved in the design, planning, procurement, integration, installation, operation and
 181 maintenance of facilities and infrastructures within data centres. These parties include:

- 182 1) owners, operators, facility managers, ICT managers, project managers, main contractors;
- 183 2) consultants, architects, building designers and builders, system/installation designers, auditors,
 184 test and commissioning agents;
- 185 3) suppliers of equipment; and
- 186 4) installers, maintainers.

187 At the time of publication of this document, the ISO/IEC 22237 series comprises the following
 188 documents:

- 189 — ISO/IEC 22237-1, *Information technology — Data centre facilities and infrastructures — Part 1:*
 190 *General concepts;*
- 191 — ISO/IEC 22237-2, *Information technology — Data centre facilities and infrastructures — Part 2:*
 192 *Building construction;*
- 193 — ISO/IEC 22237-3, *Information technology — Data centre facilities and infrastructures — Part 3:*
 194 *Power distribution;*

- 195 — ISO/IEC 22237-4, *Information technology — Data centre facilities and infrastructures — Part 4:*
196 *Environmental control*;
- 197 — ISO/IEC 22237-5 (this document), *Information technology — Data centre facilities and*
198 *infrastructures — Part 5: Telecommunications cabling infrastructure*;
- 199 — ISO/IEC 22237-6, *Information technology — Data centre facilities and infrastructures — Part 6:*
200 *Security systems*;
- 201 — ISO/IEC TS 22237-7: *Information technology — Data centre facilities and infrastructures —*
202 *Part 7: Management and operational information*
- 203 — ISO/IEC TS 22237-30: *Information technology — Data centre facilities and infrastructures —*
204 *Part 30: Earthquake risk and impact analysis*.
- 205 The inter-relationship of the documents within the ISO/IEC 22237 series is shown in Figure 1.



206

207 **Figure 1 — Schematic relationship between the ISO/IEC 22237 series of documents**

208 ISO/IEC 22237-2 to ISO/IEC 22237-6 specify requirements and recommendations for particular
209 facilities and infrastructures to support the relevant classification for “availability”, “physical
210 security” and “energy efficiency enablement” selected from ISO/IEC 22237-1.

211 This document addresses the specific requirements for the telecommunications cabling
212 infrastructure in data centres used for the purpose of IT networking and building services (in
213 accordance with the requirements of ISO/IEC 22237-1.

214 ISO/IEC TS 22237-7 addresses the operational and management information (in accordance with the
215 requirements of ISO/IEC 22237-1.

216 ISO/IEC TS 22237-31 addresses resilience attributes, including dependability and fault tolerance metrics.

217 This document is intended for use by and collaboration between architects, building designers and
218 builders, system and installation designers.

219 The ISO/IEC 22237 series does not address the selection of information technology and network
220 telecommunications equipment, software and associated configuration issues.

221 Figure 2 shows the schematic and contextual relationships of ISO/IEC 22237-5 with other cabling
222 and cabling installation related standards.

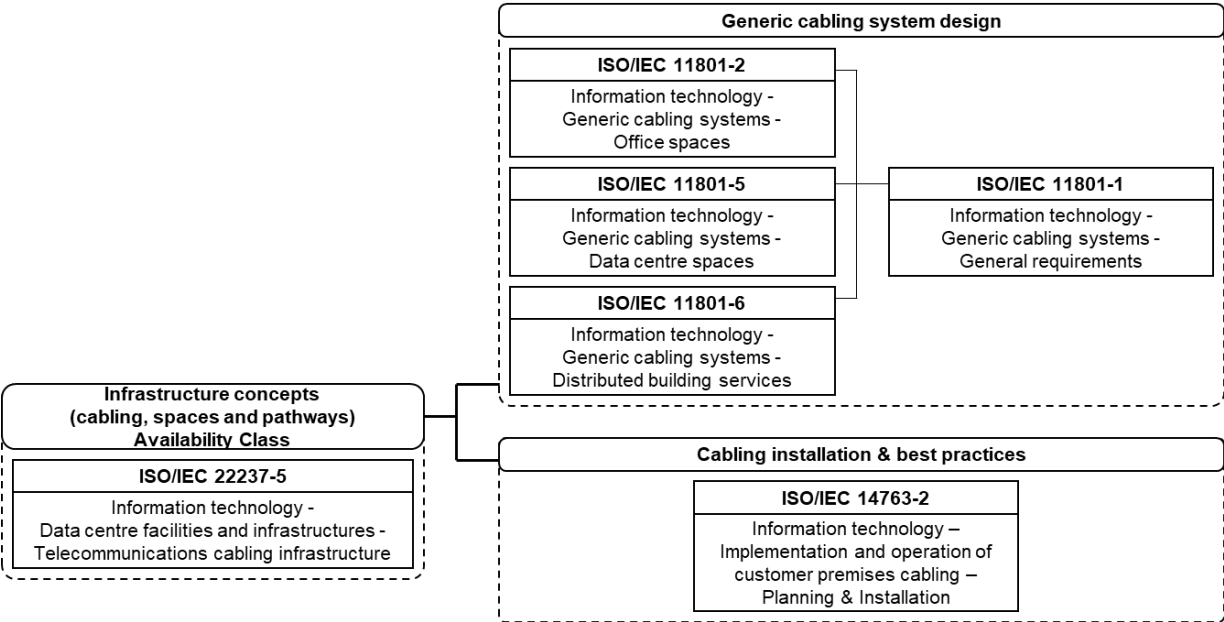


Figure 2 — Schematic relationship between ISO/IEC 22237-5 and other cabling design and installation standards

The importance of the information technology and network telecommunications cabling infrastructure is similar to that of other infrastructures such as environmental control, power distribution and security systems. As with other utilities, interruptions to service can have a serious impact. Poor quality of service due to lack of planning, use of inappropriate components, incorrect installation, poor administration or inadequate support can threaten an organization's effectiveness.

Information technology — Data centre facilities and infrastructures — Part 5: Telecommunication cabling infrastructure

1 Scope

This document specifies design principles for information technology and network telecommunications cabling (e.g. SAN and LAN) in accordance with ISO/IEC 11801-5, based upon the criteria and classifications for “availability” and “physical security” within ISO/IEC 22237-1.

This document addresses the telecommunications cabling infrastructures used in data centres. It describes:

- a) for design, the application of generic cabling standards in the ISO/IEC 11801 series;
- b) for installation specification, planning and practices and quality assurance, the application of ISO/IEC 14763-2 (and related standards).

In addition, this document specifies requirements and recommendations for the following:

- 1) general information technology cabling to support the IT operation of the data centre;
- 2) telecommunications cabling to monitor and control, as appropriate, power distribution, environmental control and physical security of the data centre;
- 3) other building automation cabling;
- 4) pathways, pathway systems, spaces and enclosures for the telecommunications cabling infrastructures.

Safety and electromagnetic compatibility (EMC) requirements are outside the scope of this document and are covered by other standards and regulations. However, information given in this document can be of assistance in meeting these standards and regulations.

Conformance of data centres to the present document is covered in Clause 4.

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.

ISO/IEC 11801-2, *Information technology — Generic cabling for customer premises – Part 2: Office premises*

ISO/IEC 11801-5, *Information technology — Generic cabling for customer premises – Part 5: Data centres*

ISO/IEC 11801-6, *Information technology — Generic cabling for customer premises – Part 6: Distributed building services*

- 265 ISO/IEC 14763-2, *Information technology — Implementation and operation of customer premises*
 266 *cabling - Part 2: Planning and installation*
- 267 ISO/IEC 22237-1, *Information technology — Data centre facilities and infrastructures — Part 1:*
 268 *General concepts*
- 269 ISO/IEC 22237-2, *Information technology — Data centre facilities and infrastructures —*
 270 *Part 2: Building construction*
- 271 ISO/IEC 22237-3, *Information technology — Data centre facilities and infrastructures — Part 3: Power*
 272 *distribution*
- 273 ISO/IEC 22237-4, *Information technology — Data centre facilities and infrastructures — Part 4:*
 274 *Environmental control*
- 275 ISO/IEC 22237-6, *Information technology — Data centre facilities and infrastructures — Part 6:*
 276 *Security systems*
- 277 ISO/IEC 30129, *Information technology — Telecommunications bonding networks for buildings and*
 278 *other structures*

279 **3 Terms, definitions and abbreviated terms**

280 **3.1 Terms and definitions**

281 For the purposes of this document, the terms and definitions given in ISO/IEC 22237-1 and the
 282 following apply.

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

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

286 **3.1.1**

287 **application-specific cabling**

288 structured cabling with a configuration and performance which is considered to provide a specific
 289 benefit for a single, or limited number of applications, as compared to generic cabling

290 **3.1.2**

291 **cabinet**

292 enclosed construction for housing closures and information technology equipment (see 3.1.16)

293 **3.1.3**

294 **central patching location**

295 passive cross-connect to connect different functional elements of a data centre

296 Note 1 to entry: A central patching location can be located in the main distribution area and/or the intermediate
 297 distribution area and is therefore a configuration of an MD and/or an ID in accordance with the cabling of
 298 ISO/IEC 11801-5.

- 304 **3.1.4**
 305 **cross-connect**
 306 passive connection between cabling subsystems using a patch cord or jumper
 307 [SOURCE: ISO/IEC 11801-1:2017, 3.1.38]
- 308 **3.1.5**
 309 **customer space**
 310 part of a cabinet, a cabinet, a cage or a computer room in a colocation data centre that customers can
 311 rent to host their ITE
- 312 **3.1.6**
 313 **entrance room**
 314 space that houses the external telecommunications provider equipment and that provides the
 315 demarcation points for the external telecommunications services
- 316 **3.1.7**
 317 **equipment outlet**
 318 fixed connecting device for terminating the zone distribution cabling and providing the interface to
 319 the equipment cord
 320 [SOURCE: ISO/IEC 11801-5:2017, 3.1.3]
- 321 **3.1.8**
 322 **equipment distribution area**
 323 area served by LDP(s) and EO(s) of cabling and accommodating the LDP(s), EO(s), servers, storage
 324 device and other networking equipment and their connections to the EO(s)
 325 Note 1 to entry: Cabling is in accordance with ISO/IEC 11801-5.
- 326 **3.1.9**
 327 **external network interface**
 328 termination point providing demarcation of external telecommunications service provision
 329 [SOURCE: ISO/IEC 11801-1:2017, 3.1.44]
- 330 **3.1.10**
 331 **fixed cabling**
 332 cabling subsystem between closures which has either a peer-to-peer or hierarchical structure and
 333 which enables the installation of cross-connects or interconnects at those closures
- 334 **3.1.11**
 335 **floor distributor**
 336 distributor used to connect between the horizontal cable and other cabling subsystems or equipment
- 337 **3.1.12**
 338 **floor distribution area**
 339 area accommodating the FD(s) of cabling and associated transmission equipment
 340 Note 1 to entry: Cabling in accordance with ISO/IEC 11801-2.
- 341 **3.1.13**
 342 **frame**
 343 open construction, typically self-supporting and floor-mounted, intended for housing closures and
 344 other telecommunications equipment
 345 [SOURCE: ISO/IEC 14763-2:2019, 3.1.15]
- 346 **3.1.14**
 347 **generic cabling**
 348 structured telecommunications cabling system, capable of supporting a wide range of standardized
 349 applications

350 Note 1 to entry: Application-specific hardware is not a part of generic cabling.

351 Note 2 to entry: Generic cabling can be installed without prior knowledge of the required applications.

352 [SOURCE: ISO/IEC 11801-1:2017, 3.1.48 – modified: Notes to entry added]

353 **3.1.15**

354 **information technology equipment**

355 equipment designed for the purpose of

356 a) receiving data from an external source (such as via network interface or via a keyboard);

357 b) performing processing and storage functions on the received data (such as computation, data
358 transformation or recording, filing, sorting, storage, transfer of data);

359 c) providing a data output (either to other equipment or by the reproduction of data)

360 d) data network transport

361 **3.1.16**

362 **interconnect**

363 passive connection to a cabling subsystem not using a patch cord or jumper

364 [SOURCE: ISO/IEC 11801-1:2017, 3.1.54]

365 **3.1.17**

366 **intermediate distributor**

367 distributor used to make connections between the main distribution cabling subsystem,
368 intermediate distribution cabling subsystem, network access cabling subsystem and cabling
369 subsystems specified in ISO/IEC 11801-1 and active equipment

370 [SOURCE: ISO/IEC 11801-5:2017, 3.1.6]

371 **3.1.18**

372 **intermediate distribution area**

373 area accommodating the ID(s) of cabling and associated IT equipment

374 Note 1 to entry: Intermediate distributions areas (and IDs) are primarily used in larger data centres to enable
375 data centre growth or to provide segmentation for specific applications.

376 Note 2 to entry: cabling in accordance with ISO/IEC 11801-5.

377 **3.1.19**

378 **IT equipment**

379 See 3.1.16

380 **3.1.20**

381 **IT load**

382 any active equipment providing data transport services, data processing or data storage inside the
383 data centre

384 **3.1.21**

385 **jumper**

386 cable, cable unit or cable element without connectors used for a cross-connections

387 **3.1.22**

388 **local distribution point**

389 connection point in the zone distribution cabling subsystem between a zone distributor and an
390 equipment outlet

391 [SOURCE: ISO/IEC 11801-5:2017, 3.1.7]

- 390 **3.1.23**
 391 **network telecommunication equipment**
 392 equipment within the data centre that provides data transport services inside or outside the data
 393 centre
- 394 **3.1.24**
 395 **main distributor**
 396 distributor used to make connections between the main distribution cabling subsystem, network
 397 access cabling subsystem and cabling subsystems as specified in ISO/IEC 11801-1 and active
 398 equipment
- 399 Note 1 to entry: A central patching location located in a main distribution area is a specific configuration of a
 400 MD in accordance with the cabling of ISO/IEC 11801-5.
- 401 [SOURCE: ISO/IEC 11801-5:2017, 3.1.11 – modified: Note 1 to entry added]
- 402 **3.1.25**
 403 **main distribution area**
 404 area accommodating the main distributor(s) of cabling and associated transmission equipment
- 405 Note 1 to entry: A main distribution area can be in dedicated “main distributor space” or within the computer
 406 room of the data centre.
- 407 Note 2 to entry: Cabling in accordance with ISO/IEC 11801-5.
- 408 **3.1.26**
 409 **meet-me-room**
 410 space in a colocation data centre which enables the interconnection between data centre customer
 411 spaces and/or between data centre customer spaces and telecommunications providers
- 412 **3.1.27**
 413 **pathway**
 413 <cable route, cable way> defined route for cables between termination points
- 414 [SOURCE: ISO/IEC 14763-2:2019, 3.1.34]
- 415 **3.1.28**
 416 **pathway system**
 417 cable management system or other area or volume defined by markings or fittings used to protect
 418 and/or support the cabling in order that its desired performance is maintained
- 419 [SOURCE: ISO/IEC 14763-2:2019, 3.1.35]
- 420 **3.1.29**
 421 **point-to-point connection**
 422 direct connection of two pieces of IT equipment using a dedicated cable rather than a generic cabling
 423 system
- 424 **3.1.30**
 425 **premises entrance facility**
 426 facility that provides all necessary services, and which complies with all relevant regulations, for the
 427 entry of specific infrastructures or services into premises
- 428 [SOURCE: ISO/IEC 22237-1:2021, 3.1.27]
- 429 **3.1.31**
 430 **rack**
 431 open construction, typically wall-mounted, for housing closures and other telecommunications
 432 equipment
- 433 [SOURCE: ISO/IEC 14763-2:2019, 3.1.41]
- 434 **3.1.32**
 435 **structured cabling**
 436 telecommunications cabling comprising fixed cables between points of distribution at which

437 equipment or other fixed cables can be connected

435

436 3.1.33

437 telecommunications provider

438 either an access provider or a service provider

439 Note 1 to entry: The term service provider is defined in ISO/IEC 14763-2:2019, 3.1.49.

440 3.1.34

441 zone distributor

442 distributor used to make connections between the main distribution cabling subsystem,
443 intermediate distribution cabling subsystem, zone distribution cabling subsystem, network access
444 cabling subsystem, cabling subsystems specified in ISO/IEC 11801-1 and active equipment

445 [SOURCE: ISO/IEC 11801-5:2017, 3.1.15]

446 3.1.35

447 zone distribution area

448 area accommodating the ZD(s) of cabling and associated transmission equipment

449 Note 1 to entry: Cabling in accordance with ISO/IEC 11801-5.

450 3.1.36

451 zone patching location

452 passive cross-connect to connect different functional elements of a data centre zone

453 Note 1 to entry: A zone patching location can be located in a zone distribution area and is therefore a specific
454 configuration of a ZD in accordance with the cabling of ISO/IEC 11801-5.

455 3.2 Abbreviated terms

456 For the purposes of this document the following abbreviated terms apply:

BEF Building Entrance Facility

BD Building Distributor

C Connection

CD Campus Distributor

CFR Cabinet/Frame/Rack

CPL Central Patching Location

ENI External Network Interface

ER Entrance Room

EDA Equipment Distribution Area

EO Equipment Outlet

EoR End of Row

EQP Transmission Equipment

FDA Floor Distribution Area

FD Floor Distributor

IDA Intermediate Distribution Area

ID Intermediate Distributor

ICT Information & Communications Technology

IT Information Technology

ITE Information Technology Equipment

LDP	Local Distribution Point
MDA	Main Distribution Area
MD	Main Distributor
MMR	Meet-Me-Room
MoR	Middle of Row
N/A	Not Applicable
NOC	Network Operating Centre
SO	Service Outlet
TE	Terminal Equipment
ToR	Top of Rack
ZDA	Zone Distribution Area
ZD	Zone Distributor
ZPL	Zone Patching Location

4 Conformance

For a data centre to conform to this document:

- a) telecommunications cabling to support the IT operation of the data centre shall be in accordance with Clause 5, Clause 6 and ISO/IEC 11801-2;
 - b) telecommunications cabling for monitoring and/or control of power distribution, environmental control and physical security of the data centre shall be in accordance with Clause 5 and ISO/IEC 11801-6;
 - c) telecommunications cabling for information technology and network telecommunications to and within the computer room space of the data centre shall:
 - 1) be in accordance with Clause 5;
 - 2) be installed within an infrastructure, facilities and spaces meeting the requirements of Clause 6;
 - 3) meet the physical security aspects of Clause 7 and ISO/IEC 22237-6;
 - 4) have a design solution that meets the required Availability Class of Clause 8.
- In addition:
- d) the installation specification, quality assurance (including documentation) of the cabling shall be in accordance with ISO/IEC 14763-2 (subject to additional requirements of Clause 6);
 - e) installation planning and practices of the cabling shall be in accordance with ISO/IEC 14763-2;
 - f) telecommunications bonding networks for buildings and other structures shall be according to ISO/IEC 30129.
 - g) the designer of the telecommunications cabling for information technology and network telecommunications to and within the computer room space of the data centre shall coordinate the cabling design with the data centre network administrators regarding the network architecture, topology, physical locations and specific interfaces required to be supported.

478 **5 Telecommunications cabling within the data centre**

479 **5.1 General**

480 This clause defines the requirements and recommendations for the performance, design criteria and
481 architectures for the different cabling types in a data centre.

482 The telecommunications cabling within the data centre serves to support the following:

- 483 a) data centre information technology and network telecommunications;
- 484 b) monitoring and controlling of other data centre infrastructures;
- 485 c) building management and automation.

486 The design and planning of cabling infrastructures should be undertaken at an early stage of the data
487 centre design or refurbishment and should be integrated with the design and planning of:

- 488 1) building construction;
- 489 2) electrical power;
- 490 3) environmental control systems;
- 491 4) security systems;
- 492 5) lighting systems;
- 493 6) building management and automation systems.

494 **5.2 Requirements for cabling supporting the IT operations in all data centre spaces**

495 Information technology cabling to support the IT operations of the data centre in all data centre
496 spaces shall be in accordance with ISO/IEC 11801-2. The cabling infrastructure shall use a fixed
497 cabling infrastructure (i.e. according to ISO/IEC 11801-2 or application-specific) in cabling
498 subsystems in a single-path architecture.

499 Examples for spaces with IT operations are:

- 500 a) office space;
- 501 b) testing space;
- 502 c) NOC.

503 Cabling for the NOC shall have the same level of redundancy as the ITE monitored or controlled by
the NOC. This standard does not specify the redundancy requirements for the cabling in office or
test spaces.

504 In cases where data centre owners agree to the use of application-specific cabling because of
505 advantages compared with generic cabling, those application-specific cabling systems shall have a
506 fixed and structured cabling infrastructure approach in accordance with the cabling subsystem
architecture of ISO/IEC 11801-2.

507 **5.3 Requirements for cabling providing distributed building services in all data centre spaces**

509 ISO/IEC 11801-6 specifies generic cabling that supports a wide range of communication services
510 within premises. It reflects the increasing use of generic cabling in support of non user specific

- 511 services, including the monitoring and control of data centre infrastructures. Many of these services
512 require the use of remote powered devices and include:
- 513 a) power distribution as described in ISO/IEC 22237-3: e.g. lighting, power distribution, incoming
514 utility metering;
 - 515 b) environmental control as described in ISO/IEC 22237-4; e.g. temperature, humidity;
 - 516 c) security management as described in ISO/IEC 22237-6, e.g. access control, cameras,
517 motion/proximity detectors, time and attendance monitoring.

518 The telecommunications cabling infrastructure for these purposes shall be in accordance with
519 ISO/IEC 11801-6 in all data centre spaces and shall use a fixed cabling infrastructure (i.e. according
520 to ISO/IEC 11801-6 or application-specific) in cabling subsystems. Any required redundancy should
521 be provided by the number of SOs provided throughout the data centre spaces.

522 In cases where data centre owners agree to the use of application-specific cabling because of
523 advantages compared with generic cabling, those application-specific cabling systems shall have a
524 fixed and structured cabling infrastructure approach in accordance with the cabling subsystem
architecture of ISO/IEC 11801-6.

525 Cabling for the electrical power systems, environmental control systems and building management
and automation systems shall have the same level or redundancy as the electrical power systems
and environmental control systems. This standard does not specify the redundancy requirements
for cabling of security systems, lighting systems etc..

526 **5.4 Requirements for cabling for ICT services to and within the computer room space**

527 **5.4.1 General**

528 The cabling infrastructures to or within the computer room space of a data centre shall be
529 appropriate to provide networking and telecommunications capabilities and can comprise:

- 530 a) point-to-point cabling;
- 531 b) fixed cabling in accordance with ISO/IEC 11801-5;
- 532 c) fixed application-specific cabling.

533 The cabling infrastructure shall meet the design requirements for the chosen Availability
Class
534 according to Clause 8.

535 **5.4.2 Point-to-point cabling**

536 **5.4.2.1 General**

537 The point-to-point connection method uses cable assemblies (cords; typically factory-produced) that
538 directly connects between active equipment. Each cord connects a single port or a group of ports of
539 one device to a single port of another device or a group of devices.

540 Although point-to-point cabling seems to be the simplest and most cost-effective method of providing
541 connections, this cabling type should only be used for connections within the same or two
adjacent CFRs for the following reasons:

- 542 a) Point-to-point cabling has a limited lifetime because it is often not reusable when equipment is
replaced and/or its location changes;
- 543 b) Continuous changes to the required interconnections increase both the planning and the
operational resources required for each change (see Figure 3);
- 544 c) It increases the risk of interfering with other infrastructures including those for environmental
control.