

INTERNATIONAL STANDARD

ISO/IEC 15018

First edition
2004-06

Information technology – Generic cabling for homes

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CONTENTS

	Page
FOREWORD	7
Introduction	8
1 Scope	11
2 Normative references	11
3 Definitions and abbreviations	14
3.1 Definitions	14
3.2 Abbreviations	18
4 Conformance	19
5 Structure of the generic cabling system to support ICT and/or BCT applications	20
5.1 General	20
5.2 Functional elements	20
5.3 Cabling subsystems for ICT and BCT	20
5.3.1 General	20
5.3.2 Primary home cabling subsystem	22
5.3.3 Secondary home cabling subsystem	23
5.4 Cabling structure for ICT and BCT applications	23
5.5 Interfaces	24
5.5.1 Equipment interfaces and test interfaces	24
5.5.2 Channel and permanent link	25
5.5.3 Network access cabling	26
5.5.4 External network interface	27
5.6 Accommodation of functional elements	27
5.6.1 Distributors	27
5.6.2 Application outlets	28
5.6.3 Cable pathways	29
5.7 Dimensioning and configuring	29
5.7.1 Distributors	29
5.7.2 Application outlets	30
5.7.3 Equipment cords	31
5.7.4 Building entrance facilities	31
6 Cabling to support CCCB applications	31
6.1 General	31
6.2 Functional elements	31
6.3 Cabling subsystems for CCCB	32
6.3.1 General	32
6.3.2 Area feeder cabling subsystem	32
6.3.3 Coverage area cabling subsystem	33
6.4 Cabling structure for CCCB applications	34
6.5 Interfaces	34
6.5.1 Equipment interfaces and test interfaces	34
6.5.2 Channel and permanent link	35
6.5.3 Network access cabling	36
6.5.4 External network interface	36

6.6	Accommodation of functional elements	37
6.6.1	Area connection points (ACPs).....	37
6.6.2	Control outlets (COs)	37
6.6.3	Cable pathways	37
6.7	Dimensioning and configuring	37
6.7.1	Distributors	37
6.7.2	Control outlet (CO).....	37
6.7.3	Cable sharing	38
6.7.4	Equipment cords.....	38
6.7.5	Building entrance facilities.....	38
7	Performance.....	38
7.1	General.....	38
7.2	ICT channel performance.....	40
7.3	BCT channel performance	40
7.4	CCCB channel performance.....	43
8	Reference implementation	45
8.1	General.....	45
8.2	Cabling assumptions	45
8.2.1	Introduction	45
8.2.2	General	45
8.2.3	Dimensions for ICT and BCT channels	47
8.2.4	Dimensions for CCCB channels.....	48
9	Cable requirements	49
9.1	General.....	49
9.2	Cable performance for ICT.....	49
9.3	Cable performance for BCT	51
9.3.1	Requirements for balanced pairs for BCT	51
9.3.2	Requirements for coaxial cables for BCT	52
9.4	Cable performance for CCCB coverage area	54
10	Connecting hardware.....	56
10.1	General requirements	56
10.1.1	Applicability	56
10.1.2	Location.....	56
10.1.3	Design.....	56
10.1.4	Operating environment.....	57
10.1.5	Mounting	57
10.1.6	Installation practices	57
10.1.7	Marking and colour coding	57
10.2	Mating interfaces at TO, BO and CO	58
10.2.1	General	58
10.2.2	Mating interface for TO	58
10.2.3	Mating interface for BO	58
10.2.4	Mating interface for CO	59
10.2.5	Minimum performance requirements	59
11	Safety requirements and screening practices	65
11.1	General.....	65

11.2 Coexistence with mains	65
11.3 Operational safety	65
11.4 Screening practices	66
11.4.1 General	66
11.4.2 Earthing	66
Annex A (normative) BCT channel levels	67
Annex B (normative) Link performance	68
B.1 General	68
B.2 Performance requirements for ICT permanent links	68
B.3 Performance requirements for BCT permanent links	69
B.4 Performance requirements for CCCB permanent links	71
Annex C (informative) BCT levels: channel and link performance and implementation	72
C.1 General	72
C.2 BCT-H, BCT-M and BCT-L channels	72
C.3 BCT-H, BCT-M and BCT-L links	74
C.4 BCT levels' implementation	76
C.4.1 General	76
C.4.2 Cable specifications	76
C.4.3 Connecting hardware specifications	76
C.4.4 Maximum channel lengths for reference implementations	76
C.4.5 Channel lengths using other coaxial cable specifications	77
C.4.6 Channel lengths using other balanced cable specifications	77
Annex D (informative) Applications and associated cabling	78
Bibliography	81
Figure 1 – Overview of a generic cabling for home	9
Figure 2 – Structure of the generic cabling system	21
Figure 3 – Interconnect and cross-connect models	22
Figure 4 – Hierarchical structure of a generic cabling system in support of ICT and BCT applications	23
Figure 5 – Equipment and test interfaces in support of ICT and BCT applications	24
Figure 6 – Channels and permanent links within the home	26
Figure 7 – Examples of interconnection of home and network access cabling	27
Figure 8 – Interconnection of home cabling subsystems	29
Figure 9 – Structure of the generic cabling system in support of CCCB applications	32
Figure 10 – Hierarchical structure of a generic cabling system in support of CCCB applications	34
Figure 11 – Equipment and test interfaces in support of CCCB applications	35
Figure 12 – Channels and permanent links for CCCB cabling	36
Figure 13 – Reference implementations for ICT and BCT channels (PHD/SHD - TO/BO)	47
Figure 14 – Reference implementations for CCCB channels with PHD or SHD	48
Figure 15 – Reference implementations for CCCB channels with PHD and SHD	49
Figure 16 – Pin grouping assignments for IEC 60603-7 series outlet (front view)	58

Figure 17 – Pin grouping assignments for 61076-3-104 outlet (front view)	59
Figure 18 – Pin grouping assignments for IEC 60603-7-7 outlet (front view)	59
Figure 19 – Conductor assignment of IEC 61169-2 and IEC 61169-24 (Type F) connector	59
Table 1 – Maximum channel lengths for reference implementations of ICT/BCT channels	30
Table 2 – Different channels and their potential use	39
Table 3 – Minimum performance of BCT-B channels	41
Table 4 – Minimum performance of BCT-C channels	42
Table 5 – Minimum performance of CCCB copper channels for information transfer	44
Table 6 – Minimum performance of CCCB channels for d.c. power feeding	44
Table 7 – Link length equations	46
Table 8 – Mechanical performance requirements for ICT and balanced BCT cables	50
Table 9 – Minimum transmission performance requirements BCT balanced pairs	51
Table 10 – Minimum electrical performance requirements for BCT coaxial cable	52
Table 11 – Mechanical performance requirements for coaxial BCT cables	53
Table 12 – Minimum transmission performance requirements for CCCB coverage area cables	54
Table 13 – Mechanical performance requirements for balanced CCCB coverage area cables	55
Table 14 – Mechanical characteristics of connecting hardware for use with balanced cabling	61
Table 15 – Return loss (<i>RL</i>)	62
Table 16 – Insertion loss	63
Table 17 – Near end crosstalk (<i>NEXT</i>)	63
Table 18 – Far end crosstalk (<i>FEXT</i>)	63
Table 19 – Input to output resistance	64
Table 20 – Current carrying capacity	64
Table 21 – Propagation delay	64
Table 22 – Coupling and screening attenuation	64
Table 23 – Insulation resistance	65
Table 24 – Voltage proof	65
Table A.1 – BCT channels division	67
Table B.1 – Minimum performance of BCT-B permanent links	69
Table B.2 – Minimum performance of BCT-C permanent links	70
Table C.1 – Minimum insertion loss of BCT_B channels for BCT-H, BCT-M and BCT-L	73
Table C.2 – Minimum insertion loss of BCT-C channels for BCT-H, BCT-M and BCT-L	74
Table C.3 – Insertion loss for BCT-B permanent links	75
Table C.4 – Insertion loss for BCT-C permanent links	75
Table C.5 – BCT-L, BCT-M and BCT-H channel implementations	77

Table D.1 – Grouping of applications and cabling78
Table D.2 – Characteristics of ICT, BCT & CCCB cabling80

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INFORMATION TECHNOLOGY – GENERIC CABLING FOR HOMES

FOREWORD

- 1) ISO (International Organization for Standardization) and IEC (International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.
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International Standard ISO/IEC 15018 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

Introduction

This standard specifies a generic cabling for three groups of applications in homes:

- Information and Communications Technologies (ICT);
- Broadcast and Communications Technologies (BCT);
- Commands, Controls and Communications in Buildings (CCCB);

as shown in Figure 1, and it is intended to guide installations in new buildings or refurbishments. (Cabling is a part of the infrastructure that supports home systems.)

This standard also applies where cabling is installed to support only one or two of the three application groups listed above.

This standard specifies a generic cabling infrastructure based upon balanced cabling and/or coaxial cabling. ICT channels specified in this standard include optical fibre. The wider use of fibre optical cabling in a home is for further study.

These groups of applications may also be supported by different types of cabling, which may be subject to other standards. For example, ISO/IEC 11801 specifies generic cabling for ICT applications in general for the office environment. While the cabling structure and reference implementations are matched to the home environment in this standard, the channel performances specified for ICT are identical to those specified in ISO/IEC 11801.

This standard specifies a generic cabling for a home that may support ICT, BCT and CCCB application groups. Because it is designed to cover the three major groups, the cabling system may be installed prior to the selection of specific applications. The home may contain one or more buildings (e.g. farm) or may be within a building which contains more than one home (e.g. one home in a multi-dwelling building).

The campus or backbone cabling connecting individual homes is built according to the relevant standard (for instance ISO/IEC 11801 or IEC 60728).

Generic cabling realised according to this standard:

- a) allows deployment of a wide range of applications without changes to the fixed cabling infrastructure;
- b) provides a platform to support moves, adds and changes of connectivity.

This standard provides:

- users with an application-independent generic cabling for applications run in homes;
- users with a flexible cabling scheme such that changes are both easy and economical;
- building professionals (for example, architects) with guidance for accommodating cabling before specific requirements are known, i.e. in the initial planning either for construction or refurbishment;
- industry and applications standardisation bodies (e.g. ITU-T, ISO/IEC JTC 1/SC 6, ISO/IEC JTC 1/SC 25/WG 1, IEC TC 100) with a cabling system that supports current products and provides a basis for future product development in home electronic systems;
- users, designers and manufacturers of application-specific cabling systems with advice on interfacing to this generic cabling;
- suppliers of cabling components and installers of cabling with relevant requirements;
- service providers with a distribution system for their services.

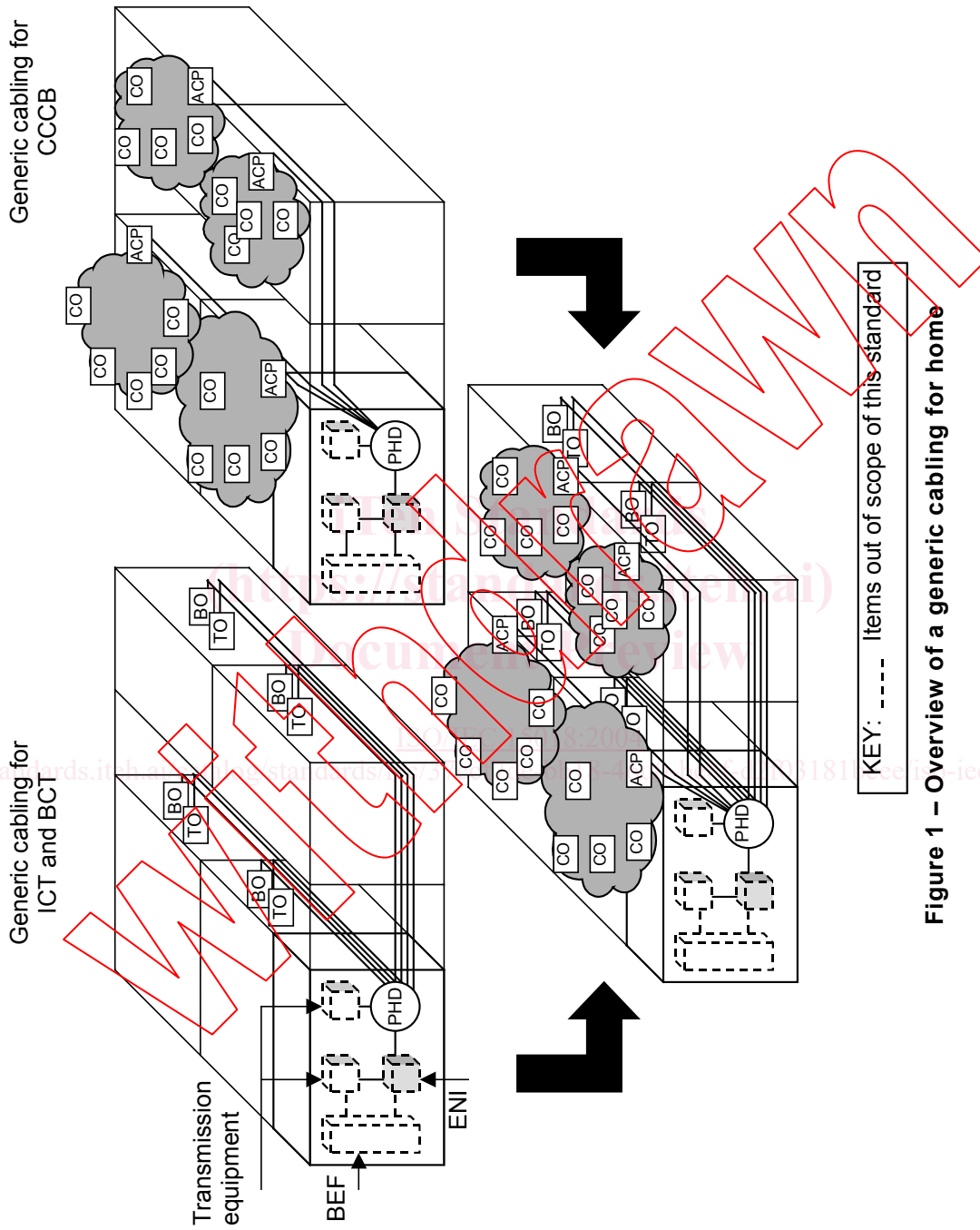


Figure 1 – Overview of a generic cabling for home

A number of ICT, BCT and CCCB applications have been analysed to determine the requirements for a generic cabling (see Table D.2) and to specify the minimum performance of channels given in clause 7. These requirements, together with the logical and physical models described in clauses 5 and 6, have been used to develop the requirements for cabling components and to stipulate their arrangement into generic cabling systems.

Wireless and (unguided) infrared as well as Power Line Communication may also be used for applications mentioned above. Media used for these technologies are not covered in this standard.

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Information technology - Generic cabling for homes

1 Scope

This International Standard specifies generic cabling for homes. A home may contain one or more buildings or may be within a building that contains more than one home.

This standard specifies a generic cabling for three groups of applications:

- Information and Communications Technologies (ICT);
- Broadcast and Communications Technologies (BCT);
- Commands, Controls and Communications in Buildings (CCCB).

It specifies cabling that comprises one or more of the following:

- balanced cabling;
- coaxial cabling;
- optical fibre cabling.

The standard specifies the requirements for the design and configuration of the generic cabling with respect to:

- a) structure and topology;
- b) minimum configuration;
- c) performance requirements for permanent links and channels;
- d) density and location of connection points;
- e) interfaces to application-specific equipment and external networks;
- f) coexistence with other building services.

Although safety (electrical, fire, etc.) and electromagnetic compatibility (EMC) requirements are outside the scope of this International Standard and are covered by other standards and regulations, information given in this International Standard may be of assistance in meeting these requirements.

NOTE 1 National regulations and local codes may preclude carrying certain services on the cabling specified in this standard.

NOTE 2

- Test requirements in this standard are for system designers.
- The installation tests should be decided between supplier and customer or according to the relevant installation guide.

2 Normative references

The following referenced documents are indispensable for the application 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.

IEC 60189-1:1986, *Low-frequency cables and wires with PVC insulation and PVC sheath – Part 1: General test and measuring methods Amendment 3 (1992)*

IEC 60352-3, *Solderless connections – Part 3: Solderless accessible insulation displacement connections – General requirements, test methods and practical guidance*

IEC 60352-4, *Solderless connections – Part 4: Solderless non-accessible insulation displacement connections – General requirements, test methods and practical guidance*

IEC 60352-6, *Solderless connections – Part 6: Insulation piercing connections – General requirements, test methods and practical guidance*

IEC 60364-4-41, *Electrical installations of buildings – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60512-2:1985, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 2: General examination, electrical continuity and contact resistance tests, insulation tests and voltage stress tests*

IEC 60512-25-1, *Connectors for electronic equipment – Tests and measurements - Part 25-1: Test 25a – Crosstalk ratio*

IEC 60512-25-2, *Connectors for electronic equipment – Tests and measurements – Part 25-2: Test 25b – Attenuation (insertion loss)*

IEC 60512-25-4, *Connectors for electronic equipment – Tests and measurements – Part 25-4: Test 25d - Propagation delay*

IEC 60512-25-5, *Connectors for electronic equipment – Tests and measurements – Part 25-5: Test 25e – Return loss¹*

IEC 60512-3, *Electromechanical components for electronic equipment; basic testing procedures and measuring methods – Part 3: Current-carrying capacity tests*

IEC 60603-7, *Connectors for frequencies below 3 MHz for use with printed boards – Part 7: Detail specification for connectors, 8-way, including fixed and free connectors with common mating features, with assessed quality*

IEC 60603-7-1:2002, *Connectors for electronic equipment – Part 7-1: Detail specification for 8-way, shielded free and fixed connectors with common mating features, with assessed quality*

IEC 60603-7-2, *Connectors for electronic equipment – Part 7-2: Detail specification for 8-way unshielded free and fixed connectors, for data transmission with frequencies up to 100 MHz¹*

IEC 60603-7-3, *Connectors for electronic equipment – Part 7-3: Detail specification for 8-way shielded connectors for frequencies up to 100 MHz¹*

IEC 60603-7-4, *Connectors for electronic equipment – Part 7-4: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz (CAT 6, unshielded)¹*

IEC 60603-7-5, *Connectors for electronic equipment – Part 7-5: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz (CAT 6, shielded)¹*

IEC 60603-7-7:2002, *Connectors for electronic equipment – Part 7-7: Detail specification for 8-way, shielded, free and fixed connectors, for data transmission with frequencies up to 600 MHz (category 7, shielded)*

IEC 60728 (all parts), *Cabled distribution systems for television and sound signals*

¹ To be published.