

INTERNATIONAL STANDARD

ISO/IEC 14709-1

1997

AMENDMENT 1
2004-08

Amendment 1

**Information technology –
Configuration of customer premises
cabling (CPC) for applications –**

**Part 1:
Integrated services digital network (ISDN)
basic access**

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FOREWORD

Amendment 1 to International Standard ISO/IEC 14709-1 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

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Contents

Add the following new title:

Annex A (normative) Characteristics of Category 3 and Category 5 (ISO/IEC 11801:1995) cables

Add, after Annex B:
Bibliography

Page iii

Foreword

Add, after the third paragraph, the following two new paragraphs:

Amendment 1 (2004) replaces subclause 6.6 of ISO/IEC 14709-1 by a generalised specification of the star configuration as another configuration option for dedicated ISDN cabling.

The requirements in this part of ISO/IEC 14709 have been derived from ITU-T Recommendation I.430 (Blue Book) and EN 300 012.

Delete the last paragraph of the introduction:

Annexes A and B of this part of ISO/IEC 14709 are for information only.

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Introduction

Add, after the existing paragraph, the following two new paragraphs:

For general safety requirements refer to IEC 60950-1 and for EMC requirements refer to IEC 61000-4 and CISPR 22.

Category 3 and category 5 cable definitions and requirements used in this standard are from the first edition of ISO/IEC 11801 (1995). The relevant values are given in Annex A, since the first edition of ISO/IEC 11801 has been replaced. Category 5 cable requirements as stated in ISO/IEC 11801 (first edition, 1995) are less stringent and do not include additional requirements specified in ISO/IEC 11801 (second edition, 2002).

Page 1

Scope

Add, at the end of the scope, the following new paragraph:

General safety and EMC requirements have not been included in this standard.

Page 1

2 Normative references

Replace "IEC 603-7" by "IEC 60603-7".
This change applies to the whole document.

Add the following new document after publication IEC 60603-7:

EN 300 012-1, Integrated Services Digital Network (ISDN) – Basic User-Network Interface (UNI) – Part 1: Layer 1 specification

Page 2

4.1 Abbreviations

Add:

CP Consolidation point

Page 8

6.6 The star configuration

Replace the existing text of subclause 6.6 by the following new text and renumber the following figures accordingly.

The star configuration which is shown in Figure 6a) is primarily intended for the domestic and small office/home office (SOHO) environment.

Requirements

The NT shall be configured in short passive bus mode. The maximum number of branches shall be 4 (four). The maximum length of cabling from the NT to the farthest telecommunications outlet in any branch (i.e. $d_8 + d_9$) shall not exceed

- a) 50 m, if either installed balanced cables match Category 3 or if d_8 and d_9 are implemented mixing Category 3 and Category 5 (ISO/IEC 11801:1995) cables. Extension cords shall not be used to extend the cabling distance from NT to the socket beyond 50 m,
- b) 100 m, if installed balanced cables match Category 5 (ISO/IEC 11801:1995). Extension cords shall not be used to extend the cabling distance from NT to the socket beyond 100 m.

NOTE For this application the minimum requirements of Category 3 cables and Category 5 cables as specified in the first edition of ISO/IEC 11801:1995 are applicable, see Annex A. For this application the low frequency requirements given in Annex A are not explicitly specified in ISO/IEC 11801: 2002.

It is recommended not to use spurs to connect telecommunications outlets. However, if spurs are present they shall not exceed 1 m.

The polarity of each wire of the balanced cable unit shall be maintained throughout the cabling.

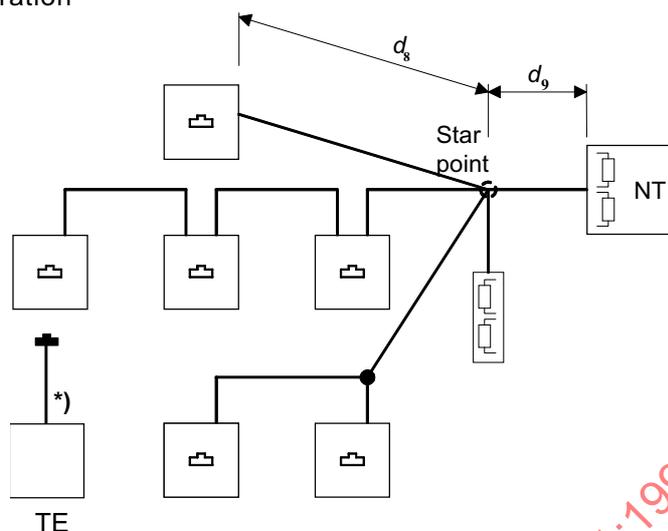
The 100 Ω termination resistors shall be permanently connected to the star point for proper administration of this configuration.

The maximum number of telecommunications outlets in a branch may exceed 1 (one) provided that the maximum number of TEs attached does not exceed 4 (four).

The individual branches of the star configuration may be connected at the star point in the following ways:

- hardwired (as indicated in Figure 6a);
- using connecting hardware in accordance with ISO/IEC 11801 (see Figure 6b).

a) Star configuration



d_8 Length from the star point to the farthest telecommunication outlet in any branch

d_9 Length from the star point to NT

*) TE connecting cord or integral cord

Maximum number of telecommunication outlets: 12 (twelve)

Maximum number of terminals: 4 (four)

b) Implementation example of connections at the star point

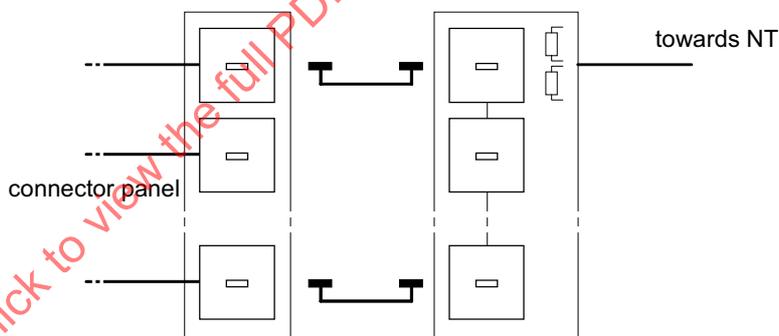


Figure 6 – ISDN star configuration

Renumber figures 6 to 9 accordingly.

6.7.1 General

Figure on page 9 (previously Figure 6, now Figure 7):

Replace “TP” with “CP” and replace the existing NOTE by the following new NOTE:

NOTE In installations that were implemented on the basis of the replaced publication ISO/IEC:11801:1995 (edition 1.0) and ISO/IEC 11801:2000 (edition 1.2) TPs may be found instead of CPs.

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Annex A

Add the following new annex A and rename the existing annex A as Bibliography.

Annex A

(normative)

Characteristics of Category 3 and Category 5 (ISO/IEC 11801:1995) cables

The general electrical characteristics of installed balanced 100 Ω Category 3 as well as of 100 Ω and 120 Ω Category 5 cables are given in Table A.1. The required attenuation of these cables is given in Table A.2. The requirements in Table A.1 and Table A.2 are derived from the category 3 and category 5 cable requirements, specified in the first edition of ISO/IEC 11801: 1995. The Category 5 cable referenced in the second edition of ISO/IEC 11801:2002 is the recommended media for new installations.

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Table A.1 - General electrical characteristics of installed balanced 100 Ω and 120 Ω cables

Electrical characteristics		Frequency MHz	Cable type		
			100 Ω Category 3	100 Ω Category 5	120 Ω Category 5
a)	Characteristic impedance Z_0 Ω	0,064 ^b	125 ± 25	125 ± 25	125 ± 45
		≥1	100 ± 15	100 ± 15	120 ± 15
b)	Maximum d.c. loop resistance $\Omega/100$ m	d.c.	30		
c)	Minimum velocity of propagation	1	0,4 × c	0,60 × c	
		10	0,6 × c	0,65 × c	
		100	N/A	0,65 × c	
d)	Maximum resistance unbalance %	d.c.	3		
e)	Maximum capacitance unbalance pair to ground ^b pF/km	0,000 8 or 0,001	1 600		
f)	Maximum transfer impedance ^a mΩ/m	10	100		
g)	Minimum d.c. insulation resistance $M\Omega \times km$	d.c.	150		
h)	Dielectric strength conductor/conductor and conductor/screen	d.c.	750 V, 1 min		
		or a.c.	500 V, 1 min		
i)	Minimum structural return loss dB at 100 m cable length	1 ^b to 100	ffs		
^a Only applicable when screens are present. Other measurement methods and values covering the coupling parameters of screened and unscreened cables are under consideration.					
^b These requirements are no longer explicitly specified in the second edition of ISO/IEC 11801: 2002. Category 5 cables (having minimum media requirements for ISO/IEC 11801 Class D channels) will in practice meet these requirements according to the backward compatibility requirements, wherein a transmission channel that meets the minimum requirements of ISO/IEC 11801: 2002 always meets or exceeds the transmission requirements of ISO/IEC 11801: 1995.					

Table A.2 - Attenuation of installed balanced 100 Ω and 120 Ω cables

Electrical characteristics	Frequency MHz	Cable type		
		100 Ω Category 3	100 Ω Category 5	120 Ω Category 5
Maximum attenuation dB/100 m	0,064 ^a	0,9	0,8	0,8
	0,256 ^a	1,3	1,1	1,1
	0,512 ^a	1,8	1,5	1,5
	0,772 ^a	2,2	1,8	1,8
	1	2,6	2,1	2,0
	4	5,6	4,3	3,8
	10	9,8	6,6	5,7
	16	13,1	8,2	7,1
	20	N/A	9,2	8,0
	31,25	N/A	11,8	10,0
	62,5	N/A	17,1	15,0
	100	N/A	22,0	19,0

^a These requirements are no longer explicitly specified in the second edition of ISO/IEC 11801:2002. Category 5 cables (having minimum media requirements for ISO/IEC 11801 Class D channels) will in practice meet these requirements according to the backward compatibility requirements, wherein a transmission channel that meets the minimum requirements of ISO/IEC 11801:2002 always meets or exceeds the transmission requirements of ISO/IEC 11801:1995.

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Annex B

Replace Table B.1 by the following new Table B.1:

Table B.1 - Examples of recommended maximum distances for typical installations

No.	Cable type	d_1 m	d_2 m	d_3 m	d_4 m	d_5 m	d_6 m	d_7 m	d_8 m	d_9 m	Source of specification
1	0,5 mm CW1308	400	100	45	250	FFS ^d	FFS	FFS	FFS	FFS	UK
2	0,5 mm CW1700	800	150	70	400	FFS	FFS	FFS	FFS	FFS	UK
3	0,5 mm CW1750	800	150	70	400	FFS	FFS	FFS	FFS	FFS	UK
4	J-Y(ST)Y 2x2x0,6	600 ^a	120 ^a	25 ^b	450	FFS	FFS	FFS	FFS	FFS	Germany
5	J-Y(ST)Y>10x2x0,6	700 ^a	130 ^a	27 ^b	495	FFS	FFS	FFS	FFS	FFS	Germany
6	J-2Y(ST)Y 2x2x0,6 ST III BD	900 ^a	180 ^a	35 ^b	615	FFS	FFS	FFS	FFS	FFS	Germany
7	J-2Y(ST)Y>10x2x0,6 ST III BD	1 000 ^a	180 ^a	35 ^b	615	FFS	FFS	FFS	FFS	FFS	Germany
8	J-02YSH 2..10x2x0,6 ST II BD ^c	1 000 ^a	200 ^a	43 ^b	750	FFS	FFS	FFS	FFS	FFS	Germany
9	J-2Y(ST)CH 2x2x0,6 ST VI BD	920 ^a	180 ^a	39 ^b	690	FFS	FFS	FFS	FFS	FFS	Germany
10	278-4-6 ^c (4 pairs; 0,6 mm)	800	130	30	500	0,5	90	90	FFS	FFS	France
11	L120 (4 pairs; 0,6 mm)	1000	150	50	500	0,5	90	90	FFS	FFS	France
12	Cat. 3: 0,4 mm; 4 pairs; 2 pairs	350	150	50	200	FFS	FFS	FFS	FFS	FFS	Japan, US ^e
13	Cat. 3: 0,5 mm; 4 pairs; 2 pairs	550	150	50	350	FFS	FFS	FFS	FFS	FFS	Japan, US ^e
14	Cat. 3: 0,65 mm, 4 pairs; 2 pairs	750	150	50	550	FFS	FFS	FFS	FFS	FFS	Japan, US ^e

^a Worst case calculations.

^b Theoretical values.

^c This cable is not recommended in cases where the use of primary access is envisaged.

^d FFS = For further study.

^e The performance and distance capabilities of different cables may vary. Check with the manufacturer for specific information on distances supported for different configurations.