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Foreword

This ETSI Technical Report (ETR) has been produced by the Equipment Engineering (EE) Technical Committee of the European Telecommunications Standards Institute (ETSI).

ETRs are informative documents resulting from ETSI studies which are not appropriate for European Telecommunication Standard (ETS) or Interim European Telecommunication Standard (I-ETS) status. An ETR may be used to publish material which is either of an informative nature, relating to the use or the application of ETSs or I-ETSs, or which is immature and not yet suitable for formal adoption as an ETS or an I-ETS.

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1 Scope

This report applies to all telecommunication equipment forming part of a public telecommunication network installed either on the public telecommunication operators' sites, or in the premises of operators' customers.

The aim of this report is to facilitate the installation and operation of equipment obtained from various sources by limiting the variety of electrical and optical connectors for ITU-T digital hierarchy interfaces defined in G.703 [1] and G.957 [2].

2 References

This ETR incorporates by dated and undated reference, provisions from other publications. These references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETR only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ITU-T Recommendation G.703: "Physical/electrical characteristics of hierarchical digital interfaces".
 - [2] ITU-T Recommendation G.957: "Optical interfaces for equipments and systems relating to the synchronous digital hierarchy".
 - [3] ETS 300 119-4: "Equipment Engineering (EE); European telecommunication standard for equipment practice; Part 4: Engineering requirements for subracks in miscellaneous racks and cabinets".
 - [4] CECC 75 301-802: "Rectangular connectors for frequencies below 3MHz Part 2: Detail specification for a range of connectors with round contacts. Fixed solder types (D sub)".
 - [5] IEC 603-2: "Connectors for frequencies below 3MHz for Use with Printed Boards Part 2: Detail Specification for Two-Part Connectors with Assessed Quality, for Basic Grid of 2,54 mm (0,1 in) with Common Mounting Features".
 - [6] Not allocated.
- NOTE 1: A future edition of the present ETR will cite IEC 48 B (Secretariat) 335 to be IEC 1076-4-103 "Detail specification for cable to printed board connectors with assessed quality, having a basic grid of 2,5 mm, with shielding against electromagnetic interference, for use in digital applications employing high speed data rates" as reference number 6 when publicly available.
- [7] Not allocated.
- NOTE 2: A future edition of the present ETR will cite IEC 48 B (Netherlands) 110 "Cable to board modular connectors, with assessed quality, shielded against electromagnetic interference, having a basic grid of 2,0 mm and terminations on a multiple grid of 0,5 mm" as reference number 7 when publicly available.
- [8] IEC 169-29: "Radio frequency connectors Part 13: RF coaxial connectors with inner diameter of outer conductor 5,5 mm (0,22 in) - Characteristic impedance 75 ohms (Type 1.5/5.6) - Characteristic impedance 50 ohms (Type 1.8/5.6) with similar mating dimensions".
 - [9] IEC 169-13: "Radio frequency connectors Part 13: Miniature RF coaxial connectors with screw-, push-pull and snap-on coupling or slide-in rack and panel applications - Characteristic impedance 50 ohms (Type 1.0/2.3)".

[10] Not allocated.

NOTE 3: A future edition of the present ETR will cite prEN 122 300 "Sectional specification: radio frequency connectors: series SMZ" as reference number 10 when publicly available.

[11] CECC 86 110: "Sectional specification: Connector sets for optical fibres and cables, Type FC".

[12] IEC 874-14: "Connectors for optical fibres and cables Part 14: Sectional specifications for fibre optic connector type SC".

[13] EN 186210: "Sectional specification: Connector sets for optical fibres and cables, Type CF08".

[14] IEC 874-6: "Connectors for optical fibres and cables Part 6: Sectional specifications for fibre optic connector type LSA".

3 Definitions

For the purposes of this ETR, the following definitions apply:

ITU-T Interface connector: A connector provided to connect the network cabling to an individual equipment or system, the minimum level considered being a subrack, as define in ETS 300 119-4 [3]. This connector may be single- or multi-way to provide single or multiple connection for ITU-T interface(s).

4 Connector types

The following list of connectors is intended as a guide. It covers types / families of connectors which have been used for many years as well as types more recently adopted. The order of listing does not imply an order of preference.

Some of the specifications do not contain information regarding cable housings, connector locking methods, cable termination techniques, wire and cable sizes, EMC performance, connector density (stackability), etc.

4.1 Electrical connectors

Connectors can be chosen from the following. For new developments, connectors with a metric grid are preferred [6] and [7], where applicable.

4.1.1 Connectors for 64 kbit/s

CECC 75 301-802 [4] (IEC 807-2) (D sub)

IEC 603-2 [5]

Currently under development in IEC [6] (2,5 mm)

Currently under development in IEC [7] (2,0 mm)

4.1.2 Connectors for 2 048 kbit/s

120 Ω:

CECC 75 301-802 [4] (IEC 807-2) (D sub)

IEC 603-2 [5]

Currently under development in IEC [6] (2,5 mm)

Currently under development in IEC [7] (2,0 mm)

75 Ω:

CECC 75 301-802 [4] (IEC 807-2) (D sub)

Currently under development in IEC [6] (2,5 mm)

Currently under development in IEC [7] (2,0 mm)

IEC 169-29 [8] (1,0/2,3)

IEC 169-13 [9] (1,6/5,6)

Currently under development in CENELEC [10] (SMZ)

4.1.3 Connectors for bit rates 8 448 kbit/s, 34 368 kbit/s, 139 264 kbit/s, 155 520 kbit/s

Currently under development in IEC [6] (2,5 mm)

Currently under development in IEC [7] (2,0 mm)

IEC 169-29 [8] (1,0/2,3)

IEC 169-13 [9] (1,6/5,6)

Currently under development in CENELEC [10] (SMZ)

4.2 Optical connectors

Optical connectors for all bit rates should be chosen from the following:

CECC 86 110 [11] (IEC 874-7) (FC)

IEC 874-14 [12] (SC)

EN 186210 [13] (IEC 874-13) (CF08)

IEC 874-6 [14] (LSA)

5 Levels of connector standardization

5.1 D sub connector

(See CECC 75 301-802 [4].)

5.1.1 Connector orientation

It is recommended that the D sub-connector be mounted in such a way that the contact number 1 is positioned at the top (connector vertical), or the left (connector horizontal), when looking at the mating side of the fixed connector. It is recommended that the male connector is mounted on the equipment (see figure 1). Note that the vertical mounting position is preferred.

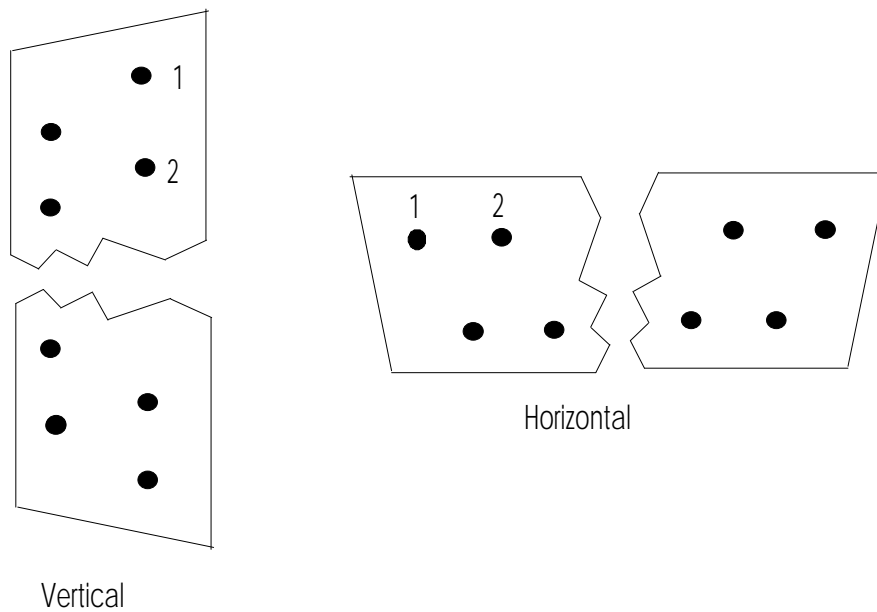


Figure 1: View of male D sub-connector mating face

5.1.2 Locking device

The most common practice is a screw lock with a 4-40 UNC 2B internal screw thread at the fixed connector side.

5.2 Metric connectors

5.2.1 Connector orientation

It is recommended that the metric connector be mounted in such a way that the contact numbered 1 is positioned at the top (connector vertical), or the left (connector horizontal), when looking at the mating side of the fixed connector. It is recommended that the male connector is mounted on the equipment. Note that the vertical mounting position is preferred.

The connector should be polarized to provide insertion in one way only. In addition, positional coding may be desirable.

5.2.2 Locking device

A locking device should be provided. If this is achieved with screws, then they should be metric.

History

Document history	
October 1996	First Edition