



Data communication — Arrangements for DTE to DTE physical connection using V.24 and X.24 interchange circuits

Transmission des données — Arrangements pour la connexion physique ETTD à ETTD utilisant des circuits de jonction V.24 et X.24

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ISO/TR 7477 was prepared by Technical Committee ISO/TC 97, *Information processing systems*.

The reasons which led to the decision to publish this document in the form of a technical report type 2 are explained in the Introduction.

0 Introduction

Consideration has been given to the existing DTE/DCE interface specifications which provide the mechanical, electrical, functional and procedural characteristics for the physical interconnection of DTEs to modems in telephone networks (CCITT V-series Recommendations) or to termination units of data networks (CCITT X-series Recommendations); a unique ISO requirement exists to further define the direct interconnection of such DTEs without intervening telecommunication facilities.

Also, in the DTE to DTE physical connection, the distance of interconnection may be considerably greater when compared with the usual short telephone/data network interconnections; an additional option to permit the alternate use of balanced type electrical characteristics is therefore required.

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Descriptors: data processing, data transmission, data terminal equipment, data communication equipment, electric connectors, specifications.

In the case of synchronous transmission, a variety of arrangements to provide signal element timing in lieu of the network clocks must also be supported.

In view of further developments of interfaces for future telecommunication facilities by the CCITT, an appropriate time for reconsidering the publication of an International Standard may be at the end of the CCITT 1985 to 1988 study period.

This Technical Report deals with the interconnection of Data Terminal Equipment (DTE) without any signal conversion, whereby a DTE is not attached to Data Circuit-terminating Equipment (DCE) which is part of a telecommunication facility.

The desired DTE to DTE direct connection may be totally located at the user's territory. The aim being to relate these interconnections to the elements of the CCITT recommended/ISO standardized DTE/DCE interfaces, in order to avoid equipment proliferation.

1 Scope and field of application

This Technical Report describes various arrangements for the interconnection of Data Terminal Equipment (DTE), without intermediate Data Circuit-terminating Equipment (DCE), in terms of electrical, mechanical, and functional characteristics.

This Technical Report applies to DTEs with interface circuits standardized in CCITT Recommendation V.24 for data transmission over telephone networks or with interface circuits standardized in CCITT Recommendation X.24 for transmission over public data networks.

The interconnections are restricted to point-to-point connections. Extension to multipoint configurations requires further study.

This Technical Report applies primarily to DTEs which employ the balanced electrical characteristics of CCITT Recommendation V.11 (X.27) for data signalling rates up to 10 Mbit/s. Additionally, it may be applied to DTEs employing the unbalanced electrical characteristics of CCITT Recommendation V.10 (X.26) for data signalling rates up to 100 kbit/s and of CCITT Recommendation V.28 for data rates below 20 kbit/s. Interworking between a DTE employing V.10 (X.26) and a DTE employing V.11 (X.27) or with a DTE employing V.28 is permitted.

The interconnection may be used for start-stop and synchronous transmission. For synchronous transmission, the signal element timing may be provided by either one DTE, both DTEs, or by an external signal element timing source which is inserted as intermediate equipment.

2 References

ISO 2110, *Data Communication — 25-pin DTE/DCE interface connector and pin assignments.*

ISO 4902, *Data communication — 37-pin and 9-pin DTE/DCE interface connectors and pin assignments.*

ISO 4903, *Data communication — 15-pin DTE/DCE interface connector and pin assignments.*

CCITT Recommendation V.10 (or X.26), *Electrical characteristics for unbalanced double-current interchange circuits for general use with integrated circuit equipment in the field of data communications.*

CCITT Recommendation V.11 (or X.27), *Electrical characteristics for balanced double-current interchange circuits for general use with integrated circuit equipment in the field of data communications.*

CCITT Recommendation V.24, *List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE).*

CCITT Recommendation X.24, *List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) on public data networks (PDN).*

CCITT Recommendation V.28, *Electrical characteristics for unbalanced double-current interchange circuits.*

3 Interconnection configurations

Three types of DTE to DTE interconnection configurations are considered for point-to-point connections with interfaces according to CCITT Recommendations V.24 and X.24. They are shown in figure 1.