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DIGITAL EXCHANGES

DIGITAL EXCHANGE INTERFACES FOR SUBSCRIBER ACCESS

ITU-T Recommendation Q.512

(Previously "CCITT Recommendation")

FOREWORD

The ITU-T (Telecommunication Standardization Sector) is a permanent organ of the International Telecommunication Union (ITU). The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

ITU-T Recommendation Q.512 was revised by ITU-T Study Group 11 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 7th of February 1995.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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SUMMARY

This Recommendation describes the subscriber side interface characteristics of digital exchanges. It applies to digital local and combined exchanges for telephony in Integrated Digital Networks (IDN) and to local and combined exchanges in an Integrated Services Digital Network (ISDN), and also to mixed (analogue/digital) networks.

This Recommendation is part of the Q.510-Series of Recommendations which defines the interface functions for digital exchanges in Integrated Digital Networks (IDN), mixed analogue/digital networks, 64 kbit/s-based Integrated Services Digital Network (ISDN).

BACKGROUND

Preamble to the Q.500-Series of Recommendations

In 1980, CCITT Study Group XI published the first series of Q.500 Recommendations related to "Digital transit exchanges for national and international applications".

In 1984, CCITT Study Group XI approved two sets of Recommendations on digital exchanges:

- "Digital transit exchanges in integrated digital networks and mixed analogue/digital networks" – Q.500-Series of Recommendations; and
- "Digital local and combined exchanges" – Q.510-Series of Recommendations.

In 1988, CCITT Study Group XI combined the Series Q.500 and Q.510 Recommendations into a single set applicable to digital local, combined, transit and international exchanges in Integrated Digital Networks (IDN) and mixed analogue-digital networks, and also to local, combined, transit and international exchanges in an Integrated Services Digital Network (ISDN).

In 1994, ITU-T Study Group 11 revised the Q.500-Series of Recommendations in order to include a new exchange interface for subscriber access – the V_5 interface (i.e. the $V_{5,1}$ interface). The V_3 interface is to the case of an ISDN primary rate access and the case that this interface is used not structured according to the ISDN principles is considered as not subject to ITU-T Recommendations. The V_4 interface is marked as not subject to ITU-T Recommendations; reference should be made to interface $V_{5,1}$ which covers static multiplexed ISDN basic accesses. The V_4 interface was a digital interface used to connect a digital access link which includes a static multiplexer supporting several basic access digital sections. For this interface, the specification (i.e. CV_1 channel structure) was not completed.

ITU-T will continue to further develop and complete these Recommendations in areas where there are unresolved issues and develop additional Recommendations on digital exchanges in the Q.500-Series and other series in the future.

The structure for the Q.500-Series of digital switching Recommendations is provided in Recommendation Q.500.

Recommendation Q.512

DIGITAL EXCHANGE INTERFACES FOR SUBSCRIBER ACCESS

(Melbourne, 1988; revised in 1994)

1 Scope

It applies to digital local and combined exchanges for telephony in Integrated Digital Networks (IDN) and to local and combined exchanges in an Integrated Services Digital Network (ISDN), and also to mixed (analogue/digital) networks. The field of application of this Recommendation is more fully defined in Recommendation Q.500 [B6].

Exchange interfaces for subscriber access that have been considered are described, and illustrated in Figure 1 and Table 1, but they are not intended to specify every interface. Other interfaces are for further study.

This Recommendation is not intended to define any transmission system, network or subscriber equipment in or connected to, a digital exchange via these interfaces. Therefore only the characteristics of the interfaces are described.

2 References

The following Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision: all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

- [1] CCITT Recommendation G.703 (1991), *Physical/electrical characteristics of hierarchical digital interfaces.*
- [2] CCITT Recommendation G.704 (1991), *Synchronous frame structures used at primary and secondary hierarchical levels.*
- [3] CCITT Recommendation G.706 (1991), *Frame alignment and Cyclic Redundancy Check (CRC) procedures relating to basic frame structures defined in Recommendation G.704.*
- [4] ITU-T Recommendation G.960 (1993), *Digital section for ISDN basic rate access.*
- [5] ITU-T Recommendation G.961 (1993), *Digital transmission system on metallic local lines for ISDN basic rate access.*
- [6] ITU-T Recommendation G.962 (1993), *Access digital section for ISDN primary rate at 2048 kbit/s.*
- [7] ITU-T Recommendation G.963 (1993), *Access digital section for ISDN primary rate at 1544 kbit/s.*
- [8] ITU-T Recommendation G.964 (1994), *V Interfaces at the digital Local Exchange (LE) – V_{5.1} interface (based on 2048 kbit/s) for the support of Access Network (AN).*
- [9] ITU-T Recommendation G.965 (1995), *V interfaces at the digital Local Exchange (LE) – V_{5.2} interface (based on 2048 kbit/s) for the support of Access Network (AN).*
- [10] CCITT Recommendation M.3603 (1992), *Application of maintenance principles to ISDN basic rate access.*
- [11] CCITT Recommendation M.3604 (1992), *Application of maintenance principles to ISDN primary rate access.*
- [12] CCITT Recommendation M.3605 (1992), *Application of maintenance principles to static multiplexed ISDN rate access.*