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TERMINALS FOR TELEMATIC SERVICES

**ASYNCHRONOUS FACSIMILE DCE
CONTROL – SERVICE CLASS 1**

**ANNEX B – PROCEDURE FOR SERVICE
CLASS 1 SUPPORT OF V.34 MODEMS**

**Amendment 1 to
ITU-T Recommendation T.31**

(Previously "CCITT Recommendations")

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).

Amendment 1 to ITU-T Recommendation T.31, was prepared by ITU-T Study Group 8 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 3rd of July 1996.

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 amendment contains a new Annex B: "Procedure for Service class 1 support of V.34 modems" which support the features in future Recommendation T.30

Amendment 1 to Recommendation T.31

ASYNCHRONOUS FACSIMILE DCE CONTROL – SERVICE CLASS 1

Annex B

Procedure for Service Class 1 support of V.34 modems

(This annex forms an integral part of the Recommendation)

(Geneva, 1996)

B.1 Introduction

B.1.1 V.34 Modems

References in this annex to user data rates greater than 28,800 bits/s are in anticipation of an amended version of Recommendation V.34 expected in 1996.

Recommendation V.34 is standardized for use on the GSTN at rates up to 33,600 bit/s. Recommendation V.34 defines two modes of operation:

- Duplex (clauses 5, 7, 8, 9, 10.1, 11).
- Half duplex (clauses 5, 7, 8, 9, 10.2, 12).

Half duplex mode has two channels:

- Half duplex high speed primary channel
- Duplex low speed control channel

B.1.2 T.30 procedures for use with V.34 modems

Procedures for V.34 facsimile are defined for both V.34 modes:

- Annex C/T.30, with revisions, defines Group 3 facsimile duplex V.34.
- Annex F/T.30 defines Group 3 facsimile procedures for half duplex V.34.

This annex defines procedures for a Service Class 1 facsimile DCE to implement Annex C/T.30 or Annex F/T.30 with V.34 modems.

B.1.3 V.8 call negotiation

For all uses of Recommendation V.34, procedures defined in Recommendation V.8 are required for negotiating the call type. For T.30 operation, this includes determination of the V.34 mode (duplex or half-duplex) and the direction of the message (send or receive) if half duplex is used.

Annex A/V.25 *ter* defines procedures for a DCE to implement V.8 call negotiation under control of a DTE; these procedures are used in implementing Service Class 1 support for V.34 facsimile.

B.2 References

- ITU-T Recommendation V.34 (1996), *A modem operating at data signalling rates of up to 33 600 bit/s for use on the general switched telephone network and on leased point-to-point 2-wire telephone-type circuits.*
- ITU-T Recommendation V.25 *ter*/Annex A (1996), *Procedure for DTE – controlled call negotiation.*
- ITU-T Recommendation T.30 (1996).

B.3 Functions

A DCE compliant with this annex shall provide the following functions to the DTE:

- a) Procedures to control V.8 call type negotiation (e.g. Annex A/V.25 *ter*).
- b) Optional procedures to constrain the primary channel rate.
- c) Optional procedures to constrain the control channel rate.
- d) Procedures to simultaneously send and receive data in Annex C/T.30 operation.
- e) Procedures to simultaneously send and receive data in Annex F/T.30 operation.
- f) Procedures for flow control of DTE-DCE data streams.
- g) Procedures to control the V.34 mode.
- h) Indications of the V.34 state.

B.4 Definitions and conventions

The following definitions apply, in addition to those defined in this Recommendation or in Recommendations T.30 or V.34:

B.4.1 source DCE: The DCE which transmits primary channel data in half duplex mode.

B.4.2 recipient DCE: The DCE which receives primary channel data in half duplex mode.

B.4.3 HDLC frame octets: The binary coded information contained in the HDLC frames defined in Recommendation T.30 and its Annexes, consisting of the control octet, the address octet, received FCS octets and any FIF octets. The DCE generates and consumes: flags, flag transparency 0-bits, transmitted FCS octets.

B.5 Transparent data commands

Table 4 defines three Transparent Data Commands used in Service Class 1 facsimile DCE. This annex defines additional transparent data commands in Table B.1, for the following functions:

- a) shielding of escape characters in data;
- b) shielding of DC1 and DC3 characters for duplex DC1/DC3 in band flow control;
- c) transmit HDLC frames;
- d) transmit HDLC aborts;
- e) receive HDLC frames and indicate error/no-error FCS;
- f) indicate received HDLC aborts;
- g) carrier termination command and indication;
- h) half duplex primary/control channel selection and indication;
- i) rate renegotiation initiation, selection and indication;
- j) retrain initiation and selection;
- k) rate selection and indication.

Unless specified in the text, all transparent data commands defined are valid as commands from the DTE and as indications from the DCE.

B.6 Initial V.34 rate controls and indications

B.6.1 Initial V.34 rate controls, +F34 parameter

Write Syntax: +F34=[<maxp>][,<minp>][,<prefc>][,<maxp2>][,<minp2>]

Valid Values: see subparameters below.

Default values: 0,0,0,0,0 no preference specified; data rate limits determined by DCE.

Description

V.34 channel rate negotiation is done by the modem, not T.30 Phase B DIS/DCS/TCF/CFR exchange. The DTE may use this parameter to constrain the DCE in V.34 rate negotiation.

The DTE may set them anytime before the commencement of the V.34 training in which they are to take effect, including in advance of call establishment and V.8 negotiation. They remain in effect until altered by a subsequent <DLE><rate> transparent command code.

Subparameters

In half duplex V.34 operation, <maxp> is the maximum rate that the DCE may use for the primary channel, in units of 2400 bit/s. Valid non-zero <maxp> values range from 1 (2400 bit/s) to 14 (33 600 bit/s). In duplex operation, <maxp> is the maximum rate that the DCE may use for transmit data. If not set by the DTE, the default value 0 selects the maximum rate supported by the DCE.

In half duplex V.34 operation, <minp> is the minimum rate that the DCE may use for the primary channel. Valid values are the same as those defined for <maxp>. In duplex V.34 operation, <minp> is the minimum rate the DCE may use for transmit data. If not set by the DTE, the default value 0 selects the minimum rate supported by the DCE (2400 bit/s in Recommendation V.34).

In half duplex V.34 operation, <prefc> is the preferred rate that the DCE may use for the control channel receive rate, in units of 1200 bit/s. Valid <prefc> values are 1 (1200 bit/s) and 2 (2400 bit/s) and 0 (no preference specified). The default value is 0. If set to 0, the DCE allows the V.34 modem to select the rate. If set to 1 or 2, and if that rate is supported by the remote terminal, that rate is selected. This subparameter is ignored in duplex V.34 operation.

<maxp2> is the maximum rate that the DCE may use for receive data in duplex V.34 operation. Valid values are the same as those defined for <maxp>. If not set by the DTE, the default value 0 selects the same value as <maxp>. This subparameter is ignored in half duplex V.34 operation.

<minp2> is the minimum rate that the DCE may use for receive data in duplex V.34 operation. Valid values are the same as those defined for <maxp>. If not set by the DTE, the default value 0 selects the same value as <minp>. This subparameter is ignored in half duplex V.34 operation.

B.6.2 Initial V.34 rate indication

Syntax: +F34:<prate>,<crate>[,<crate2>] for half duplex

or: +F34:<prate>[,<prate2>] for duplex

The DCE shall issue this indication before the CONNECT result code is issued.

The DCE shall include a <prate> indication for duplex or half-duplex operation. Valid values for <prate> are the same as those defined for <maxp> (B.6.1). For duplex operation, the <prate2> indicates the receive rate, if different from the transmit rate.

If V.34 half duplex mode is used, the DCE shall also include a <crate> indication. <crate2> indicates the control channel receive rate, if different from the control channel transmit rate. Valid values for <crate> and <crate2> are the same as those defined for <prefc> (B.6.1).