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SERIES V: DATA COMMUNICATION OVER THE
TELEPHONE NETWORK

Control procedures

**Procedure for control of V.70 and H.324
terminals by a DTE**

ITU-T Recommendation V.252

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION V.252

PROCEDURE FOR CONTROL OF V.70 AND H.324 TERMINALS BY A DTE

Summary

This Recommendation describes the operation of the DCE/DTE interface in which either an H.324 entity or a V.70 DSVD entity is implemented in the DCE. The V.70 entity in the DCE comprises at least a V.76 multiplexer and the V.75 control unit. The H.324 entity in the DCE comprises at least an H.223 multiplexer and the H.245 control unit for H.324. Audio and video transducers and codecs, if present, are implemented in the DCE or in devices attached directly to the DCE. Commands and indications defined in this Recommendation are valid in FCLASS=17.0 or FCLASS=18.0. The availability of Class 17.0 in a DCE indicates that the DCE is capable of supporting the control functions of a V.70 DSVD device. The availability of Class 18.0 in a DCE indicates that the DCE is capable of supporting the control functions of an H.324 terminal.

Source

ITU-T Recommendation V.252 was prepared by ITU-T Study Group 16 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 6th of February 1998.

FOREWORD

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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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Recommendation V.252**PROCEDURE FOR CONTROL OF V.70 AND H.324 TERMINALS BY A DTE***(Geneva, 1998)***1 Scope**

This Recommendation describes the operation of the DCE/DTE interface in which either an H.324 entity or a V.70 DSVD entity is implemented in the DCE. The V.70 entity in the DCE comprises at least a V.76 multiplexer and the V.75 control unit. The H.324 entity in the DCE comprises at least an H.223 multiplexer and the H.245 control unit for H.324. Audio and video transducers and codecs, if present, are implemented in the DCE or in devices attached directly to the DCE. In the case of an H.324 DCE, if one or more data channels are present, one of them is assumed to terminate in the DTE. Commands and indications defined in this Recommendation are valid in FCLASS=17.0 and/or FCLASS=18.0. The availability of Class 17.0 in a DCE indicates that the DCE is capable of supporting the V.76 multiplexing and V.75 control functions of a V.70 DSVD device. The availability of Class 18.0 in a DCE indicates that the DCE is capable of supporting the H.223 multiplexing and H.245 control functions of an H.324 terminal.

2 Control model

Figure 1 is a block diagram of a typical Class 17 system:

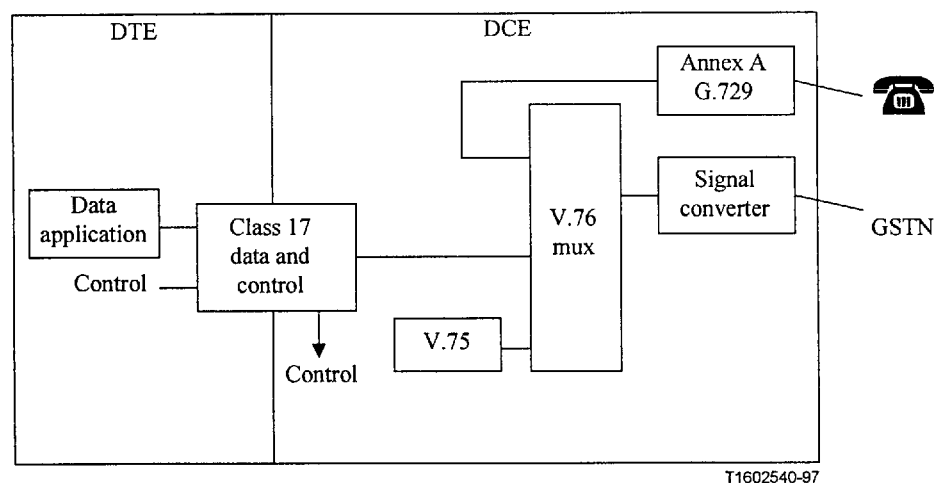
**Figure 1/V.252 – V.70 DSVD DCE**

Figure 2 is a block diagram of a typical Class 18 system:

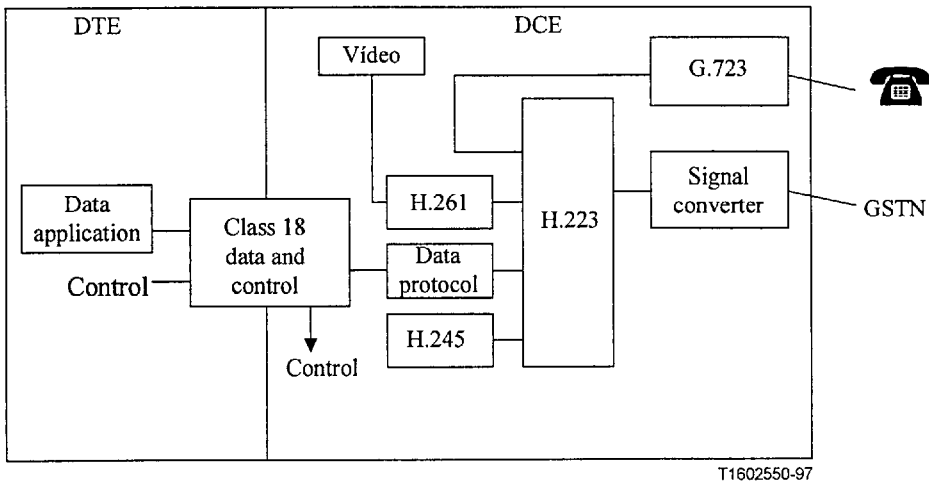


Figure 2/V.252 – H.324 terminal with "data port"

The basic model of V.70/H.324 DCE control is that there are a number of named "devices" which are capable of sourcing or sinking audio, video, or data streams. These logical devices include physical media devices such as cameras, displays, microphones and speakers. All logical devices are assigned a one - or two-character device code.

The DTE can control device characteristics and which devices are active on a given connection. The assignment of devices to specific V.76 or H.223 multiplexer channels, however, is the responsibility of the V.75 or H.245 control entity, respectively, in the DCE.

2.1 Device codes

Each logical device is assigned a one - or two-character "device code", as follows:

Table 1/V.252 – Device codes

Device code	Logical device
L	Local telephone port (see Note 1)
M0	Internal microphone
M1	External microphone
Mn	n = 2..255 Additional microphones
S0	Internal speaker
S1	External speaker
Sn	n = 2..255 Additional loudspeakers
H0	External handset/headset
Hn	n = 1..255 Additional handsets/headsets
C0	Internal camera
C1	External camera
Cn	n = 2..255 Additional cameras

Table 1/V.252 – Device codes (end)

Device code	Logical device
V0	Internal video display device
V1	External video display device
Vn	n = 2..255 Additional video displays
NOTE 1 – It may be possible in some DCE, by hardware strapping or other means outside the scope of this Recommendation, to configure the "L" local telephone port device to interconnect to either a local telephone device and appear as a PSTN telephone line (which would require the DCE to provide loop voltage, etc.) or to interconnect to a second PSTN telephone line and appear as a telephone device (which would require the DCE to provide loop supervision, ring detect, etc.).	
NOTE 2 – It is intended that the device codes for non-video devices be identical to those defined in other functional classes, such as in Class 8.0.	
NOTE 3 – Support for "L" and "R" suffixes for left and right identification can be added once they are supported by H.245 and V.75.	

In addition, data channels are given a numeric identification label, with channel 0 being the "data port" channel connected to the DTE. Channel existence and source/sink device assignment may be performed prior to a connection, either by default or by configuration command. In this case, the DCE shall automatically negotiate such operation with the remote end at the commencement of a communication session. Alternately, channels and devices may be created and/or destroyed dynamically during a connection using the appropriate commands.

3 Commands

3.1 Terminal configuration, +STC

Parameter

+STC= "<string of device codes>"

Description

This parameter is used to select the audio, video (for Class 18), and data devices that are to be used in a connection. If supported by the remote terminal, the specified devices shall be used. If issued during a connection, this is an action command that changes the configuration of the connection; in this case, the DCE shall return ERROR if the new configuration is not supported by the remote terminal (e.g., if an OpenLogicalChannelReject response is received from the remote terminal).

Note also that, prior to the ERROR final result code, the DCE may issue information text as to the reason for the failure. This information text shall take the form of +STC: FAIL <err_num>, where the <err_num> parameter has the following value assignments:

<err_num>	Definition
0	Syntax error
1	XID frame rejection
2	OpenLogicalChannel rejection

If issued during a connection, this shall cause the relevant channels to be established or released. Depending on the channel configuration and specific DCE implementation, this may be preceded by capability exchanges between the DCEs. If the channel indications defined in clause 5 are enabled, they are issued when the channels are opened or closed.

Defined values

A valid parameter value consists of a string, bounded by double quotes, of device codes as defined in 2.1, with the device codes separated by commas.

Default value

Default configuration is determined by the manufacturer.

Read syntax

+STC?

In command state (i.e., not during a connection), the DCE shall return the current parameter setting, e.g.:

+STC: "L,C0,V0,0"

for a DCE configured for audio on the local telephone, transmit video from the internal camera, receive video to the internal display, and a data channel to the DTE.

In on-line command state, the DCE shall return the current configuration in use on the connection.

Test syntax

+STC=?

The DCE shall return information text indicating supported configurations. Lists of alternative devices which cannot be supported simultaneously may be enclosed in parentheses, e.g.:

+STC: "(L,M0,M1), (L,S0,S1), (C0,C1), (V0,V1), 0"

indicates the ability to support one audio transmit channel (from either local phone, or internal or external microphones), one audio receive channel, one video channel in each direction, and a data channel to the DTE. As another example, a DCE capable of supporting two duplex audio channel pairs, with one pair to the local phone, would return:

+STC: "L, (M0,M1), (S0,S1), (C0,C1), (V0,V1), 0"

More complex dependencies may be indicated by the DCE by returning multiple lines.

3.2 Close logical channel, +STH

Parameter

+STH="<string of device codes>"

Description

This action command is issued during a connection to cause the specified channel(s) to be released.

Defined values

A valid parameter value consists of a string, bounded by double quotes, of device codes as defined in 2.1, with the device codes separated by commas.

Test syntax

+STH=?

In on-line command state, the DCE shall return the current configuration in use on the connection, similar to the +STC? response, e.g.:

+STH: "L,C0,V0,0"

for a DCE configured for audio on the local telephone, transmit video from the internal camera, receive video to the internal display, and a data channel to the DTE.

In command state (i.e., not during a connection), the DCE shall return ERROR.

3.3 Data configuration, +SDC

Parameter

+SDC=<dcode>,<appl>,<prtcls>[,<nlpidData>[,<t84prof>[,<uih>[,<winsize>[,<recovery>[,<crc>[,<n401>[,<V42bislen>[,<V42bissiz>]]]]]]]]

Description

This parameter sets the preferred operating mode for duplex data channel <dcode>. Data channel 0 is connected to the DTE port; other data channels may exist which terminate in the DCE. For data channel 0, the data application mode is communicated to the remote terminal, but the application itself is assumed to reside in the DTE. If the remote terminal is incapable of operating at the preferred mode, data channel operation may take place in another mode within the DCE's capability.

This command serves to configure DCE capabilities exchanges, and may be issued prior to a connection to change the DCE from the default configuration, or during a connection prior to a +STC command. The subsequent +STC will then trigger a capabilities exchange.

Defined values

<dcode>	Duplex data channel identifier (data ch. 0 is always connected to DTE)	
<appl>	Data application mode (for data ch. 0, these are assumed to run in the DTE):	
	0	Non-standard application
	1	T.120
	2	Reserved
	3	User data
	4	T.84
	5	T.434
	6	H.224
	7	ISO/IEC TR 9577
	8	Reserved for future standardization
<prtcls>	Data protocol mode	
	Class 17 (V.70 DSVD) definitions	Class 18 (H.324) definitions
	0	Non-standard protocol
	1	Asynchronous ERM
	2	Asynchronous ERM w. V.42bis
	3	Asynchronous UNERM
	4	Reserved
		Non-standard protocol
		Buffered V.14
		V.42/LAPM
		HDLC Frame Tunneling
		Transparent
<nlpidData>	Network Layer Protocol Identifier data; hexadecimal coded octet string	
<t84prof>	A 32-bit integer in hexadecimal format defining a bit-mapped value with T.84 capabilities. Bit assignments are as follows:	
	00001	Unrestricted
	00002	QCIF