



# AMENDMENT

**ETS 300 143**

**A1**

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**This amendment A1 modifies  
the European Telecommunication Standard ETS 300 143 (1994)**

**Integrated Services Digital Network (ISDN);  
Audiovisual services;  
Inband signalling procedures for audiovisual terminals using  
digital channels up to 2 048 kbit/s**

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## Foreword

This amendment to ETS 300 143 (1994) was produced by the Terminal Equipment (TE) Technical Committee of the European Telecommunications Standards Institute (ETSI).

<b>Transposition dates</b>	
Date of adoption of this ETS:	31 January 1996
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Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 October 1996
Date of withdrawal of any conflicting National Standard (dow):	31 October 1996

## Amendments

The proposed amendments are as follows:

**Page 7, clause 1 (Scope), amend the present NOTE to read as NOTE 1 and add the following second note:**

NOTE 2: Terminals in accordance with this ETS can interwork with equipment conforming to ITU-T Recommendation H.242.

**Page 7, clause 2 (Normative references), add the following references:**

- [7] ITU-T Recommendation H.224 (1994): "A real time control protocol for simplex applications using the H.221 LSD/HSD/MLP channels".
- [8] Draft prETS 300 481: "Terminal Equipment (TE); Integrated Services Digital Network (ISDN) B-Channel Aggregation; Procedures and terminal requirements".
- [9] ITU-T Recommendation T.122 (1993): "Multipoint communication service for audiographic and audiovisual conferencing service definition".
- [10] ITU-T Recommendation T.123 (1994): "Protocol stacks for audiographic and audiovisual teleconference applications".
- [11] ITU-T Recommendation T.124: "Generic conference control".
- [12] Draft ITU-T Recommendation T.125 (1994): "Multipoint communication service protocol specification".
- [13] ITU-T Recommendation H.243 (1993): "Procedures for establishing communication between three or more audiovisual terminals using digital channels up to 2 Mbit/s".
- [14] Draft prETS 300 483: "Terminal Equipment (TE); Integrated Services Digital Network (ISDN); Multipoint communications for audiovisual services; Main functionalities and basic requirements for Multipoint Control Units (MCUs)".

**Page 8, clause 4 (Symbols and abbreviations), amend the following abbreviations to read as follows and insert the note as given below:**

H-MLP	High speed MLP logical subchannel
MLP	Logical data subchannel named "MLP"

NOTE: MLP was previously referred to the ITU-T Recommendation T.120 Multilayer Protocol, but now is just a name for the logical subchannel which may contain T.120 or ITU-T Recommendation H.224 [7] protocol, or Dummy data, see ETS 300 144 [1].

**Page 9, subclause 5.1.1 (Audio capabilities), insert the following new paragraphs after the second paragraph and before table 1 as follows:**

At the beginning of the call the default encoding law shall be A-law. If information is available to the terminal, either by configuration or by user input, as to whether the destination is within a  $\mu$ -law region, then this encoding law shall be used after the reception of the ALERTING message or, if the ALERTING message is not received, the CONNECT message, or in-band signalling, as described in clause 6 has been initiated.

The information shall be encoded using the  $\mu$ -law at 64 kbit/s as defined in CCITT Recommendation G.711 [3].

It is the responsibility of the calling terminal to ensure that correct encoding law is used. If no indication on the coding law is available, the calling terminal shall use the default coding law while monitoring the statistics of the incoming signal. In order to determine whether the incoming signal was encoded by A-law or  $\mu$ -law PCM, the algorithm described in appendix 1 to CCITT Recommendation G.725 [5] shall be used.

**Page 11, subclause 5.1.9 (Rules for capability sets), amend the first paragraph to read as follows:**

A capability set is valid if it conforms to the rules set out in this clause. If a received capability set is found to have broken one or more of these rules it shall be considered invalid and consequently ignored. The capability set consists of the capability marker (111) [24] followed by all currently valid values, in any order (except for MPI values). No values other than {Null} shall be repeated within a set (except for MPI values, see subclause 5.1.2).

**Page 12, subclause 5.1.9 (Rules for capability sets), replace table 2 by the new table given below:**

**Table 2: BAS capabilities that can be included in a valid capability set**

Audio	Absent or one or more values from {A-law, $\mu$ -law, G.722-48, G.728, Au-ISO} (ETS 300 144 [1], tables 8 & 10)
Video	Absent, or { [(QCIF plus one MPI value) or (CIF plus two MPI values)] and/or video-ISO}
Transfer rate	Absent (meaning rate = 64 kbit/s only, see also note), or { no or one value of {1B; 2B; 3B; 4B; 5B; 6B}, and/or no or one value of {1H0; 2H0; 3H0; 4H0; 5H0}, and/or H11, and/or H12, and/or any relevant values from {128, 192, 256, 512, 768, 1 152, 1 472 kbit/s}}
Restricted network	Absent or present
Single/multiple channel Compatibility	Absent or {SM-comp} or {6B-H0-com}
Low-Speed Data (LSD)	Absent or all relevant values (ETS 300 144 [1], table 8)
High-Speed Data (HSD)	Absent or all relevant values (ETS 300 144 [1], table 10)
Low-speed MLP	Absent or all relevant values or MLP Set1 or MLP Set2 (ETS 300 144 [1], tables 8 & 10)
High-speed MLP	Absent or all relevant values (ETS 300 144 [1], table 10)
Applications in data channel	Absent or all relevant values (ETS 300 144 [1], table 12)
Encryption	Absent or present
Multiple-Byte Extension	Absent or present
NOTE:	When reducing the transfer-rate capability to 64 kbit/s from an higher rate, the value (001)[0] shall be included.

**Page 12, subclause 5.1.9 (Rules for capability sets), amend the first sentence after the two bullet points of the text to read:**

Repetition of the capability set is limited to 10 seconds - see subclause 6.1.1.

**Page 13, subclause 5.2.3 (LSD/MLP commands), modify the first paragraph to read as follows:**

### 5.2.3 LSD/MLP commands

**Fixed rate LSD/MLP** cannot penetrate into Audio bit positions. It can reduce its capacity within the data bit positions currently occupied.

Page 14, subclause 5.2.4 (Rules for commands), replace table 3 with the table given below:

Table 3: Command summary

Attribute		Alternative values (value sent last is valid only)	Default assumed	Comments
Audio	(000)	[0, 4-7, 18-19, 24-31]	[18]	
Transfer rate	(001)	[0-16, 23, 24, 26, 29]	[0]	
	(001)	[17]		See subclause 7.5
Video and other	(010)	[0-3]	[0]	
	(010)	[6, 7]	[7]	
	(010)	[16]		Cancelled by command in video frame
	(010)	[17]		Expires after fast update completed
	(010)	[18, 21]	[21]	
	(010)	[19, 21]	[21]	
	(010)	[20, 21]	[21]	
	(010)	[23, 26]	[26]	
	(010)	[27, 28]	[28]	
LSD	(011)	[0-15, 31] or [0-31]	[0]	Simultaneous LSD and MLP may be sent only if {H.224-sim}
MLP	(011)	[16-30] or [0-31]	[16]	Has been received - see ITU-T Recommendation H.224 [7]
HSD	** (011)	[0, 17-22]	[0]	**Reached from escape table (111)[16]
H-MLP	** (011)	[2-8, 13, 14]	[14]	
Au-ISO	** (001)	[0-22]	[0]	
	** (001)	[23, 24]	[24]	
	** (001)	[25-28]	[25]	

Page 15, subclause 6.1 (Capability exchange (sequence A)), replace by the text given below:

This sequence involves the transmission by both terminals of their current capability sets. Either terminal may initiate the sequence and there is no problem caused by both doing so simultaneously or nearly simultaneously. Capability BAS should not be sent unnecessarily when the incoming signal is unframed. The sequence is used in various procedures, in which the initiating terminal wishes to inform the other of its own capability set (for example at the start of the call or when the capability set has been changed), or wishes to check the current capability set of the other (for example in a fault a fault recovery procedure), or both.

When a terminal activates sequence A during a call, it shall maintain the current mode of multimedia multiplexing, including FAS and BAS in additional channels if relevant.

A terminal which is intended to interwork with a Channel Aggregation Unit according to draft prETS 300 481 [8], on receiving the command [capex], shall immediately initiate this sequence A unless a capability exchange is already in progress: in the latter case, the terminal shall continue the sequence, ensuring that at least one complete capability set is transmitted after receipt of [capex].

Page 15, subclause 6.1.1 (Initiating terminal), delete the last paragraph and insert the following text:

If X receives any further capability sets before expiry of timer  $T_1$ , it shall not respond to this by repeating its own capability set; after expiry of  $T_1$ , it shall respond according to subclause 6.1.2.

Capability sets shall not be sent continuously for more than 10 seconds: if necessary, the sequence shall be terminated, one or more commands sent, and then a new sequence started.

**Page 19, subclause 7.1.1 (Initial channel), insert the following text at the end of the subclause:**

BAS commands other than default values (1B transfer rate, A/ $\mu$ -law audio, video-off, etc) shall not be transmitted before the sequence A is finished at the start of the communication.

**Pages 21 and 22, subclause 7.5 (Procedure for activation and deactivation of data channels), replace the subclause by the following text:**

## **7.5 Procedure for activation and de-activation of data channels**

### **7.5.1 General**

ETS 300 144 [1] provides capability and command BAS codes for four types of logical data channel: MLP, H-MLP, LSD, HSD. A number of alternative bitrates are provided for each type. The following rules apply to the simultaneous activation of two or more types:

- a) MLP and H-MLP may be activated simultaneously, and when both are open, with appropriate commands, then a single MLP sub-channel at the combined rate shall result (e.g. MLP rates of about 100 kbit/s on a 2B call);
- b) neither LSD nor HSD may be opened when MLP and/or H-MLP are open, with the exception of the case when the remote equipment has declared the capability {H.224-sim} - see ITU-T Recommendation H.224 [7]; similarly, and again with this exception, neither MLP nor H-MLP may be opened when either LSD or HSD is open;
- c) LSD may not be opened if HSD is open; likewise HSD may not be opened if LSD is open;
- d) the commands [var-MLP] and [var-LSD] both identify as a data path the whole of the I-channel capacity not otherwise allocated by other commands; they shall not be used together, nor when any other data type or rate is in force.

### **7.5.2 Activation of data channels**

Each terminal shall transmit a data-rate capability code (see ETS 300 144 [1]) for each data type and rate it is able to receive (see also subclause 7.5.7 concerning dummy data capability). This may be done during the capability exchange sequence at the start of the call or, later, by initiating a new capability exchange.

A terminal may transmit a data stream (simultaneous use of two or more data channels is dealt with in subclause 7.5.1 above) of any type and at any rate which has been indicated in the data capability codes it has received from the remote equipment (see note). The appropriate data command (in accordance with ETS 300 144 [1]) is sent, and in the following sub-multiframe, the data channel is opened, occupying the bits within each frame as defined in ETS 300 144 [1]. However, at the time the data command is first sent, these bits shall be unoccupied or contain only video or other variable rate information; therefore, for example, audio or other fixed data rate signals shall be removed from this part of the frame with the prior transmission of an appropriate command. In the case of occupancy by video information, commands are not available to reduce the video rate.

NOTE: Sometimes symmetrical data transmission is required, e.g. in data transmission through the V.24/V.28 interface. If more than one data rate has been identified as common between two terminals, asymmetrical data transmission may take place according to different terminal procedures. This can be avoided by e.g., declaring only one rate as a data capability.

### **7.5.3 Rate-change of data channels**

At any time during data transmission the rate may be changed by an appropriate data command, subject to the provisions given above.

#### 7.5.4 De-activation of data channels

To close a data channel the data OFF command (in accordance with ETS 300 144 [1]) shall be sent. If video is ON, it shall then occupy the bits freed in the next sub-multiframe and thereafter; otherwise those bits remain unoccupied, if no variable rate data command is in force.

#### 7.5.5 Data equipment using audiographic conferencing protocols

The following provisions apply equally to the use of MLP on the I-channel and to H-MLP in other channels or time-slots, although only MLP is mentioned.

Each terminal capable of operating audiographic conferencing protocols specified in ITU-T Recommendations T.122 [9], T.123 [10], T.124 [11] and T.125 [12] shall transmit one or more of the MLP-capability codes and also the T.120 capability value (table 12 of ETS 300 144 [1]). This may be done during the capability exchange sequence at the start of the call, or at a later time by initiating a new capability exchange.

When a terminal or MCU wishes to transmit audiographic conferencing protocols, it shall transmit MLP ON at the appropriate rate and then T.120-on. When a terminal receives MLP-ON it shall establish an MLP channel at an appropriate rate (the same rate, if [MCC] is in force) in the return direction.

To change the MLP rate, an appropriate MLP command is sent.

To discontinue use of the audiographic conferencing protocol, this matter may first be negotiated within the protocol itself; then one or both terminals transmit MLP-OFF (T.120-off may also be used, but no procedure is specified).

#### 7.5.6 Data equipment not using audiographic conferencing protocols

Following the opening of a data channel, a code from table 12 of ETS 300 144 [1] may be sent, indicating the content of the channel applicable from the start of the next submultiframe. During the communication session, changes of content may be indicated by transmission of another code from table 12 of ETS 300 144 [1].

Before closing a data channel, a code from table 12 of ETS 300 144 [1] may be sent if applicable and if desired.

NOTE: In the case where 64 kbit/s HSD, for example, has been transmitted in the highest-numbered channel of a multiple B-channel connection, a slip during this data transmission would leave a misalignment when the HSD is turned off. To avoid corruption of video under these circumstances, it may be advisable to switch off the video stream before sending HSD-off, switching it on again as soon as A = 0 is received on the erstwhile data channel.

#### 7.5.7 Dummy Data

Terminals which have no data capability at all may experience a loss of video service when engaged in a multipoint call with other terminals which have data capabilities and begin to use them. To overcome this, the simple (dataless) terminal may optionally be designed to transmit "dummy data" in a data channel, consisting of all Ones, whenever this is necessary to comply with the received command [MCC] as defined in ETS 300 144 [1]. At the same time, the terminal shall be able to digest the incoming multiplexed signal containing data at the given rate(s), correctly processing the reduced video rate but discarding the data.

Such a terminal shall include in its capability set the value {Nil\_Data}, together with a list of the data capabilities that can be accepted, including as a minimum the value {MLP-6.4k}; both these values are defined in ETS 300 144 [1].

NOTE: The preferred rates is specified in the draft Edition 2 of ETS 300 145 [2].



When connected to an MCU, the latter will send [MCC] according to draft prETS 300 483 [14], and thereafter the simple terminal shall mode-switch to transmit a multiplex of the same audio, video and data rates as it receives, but only Ones are sent in the data channel. The data bits of the incoming signal are discarded and the video correctly decoded at the lower rate.

In point-to-point connection there is no need to open a data channel in order to send dummy data.

**Page 22, insert the following new subclause 7.7:**

## **7.7 Transmission of network addresses (optional)**

NOTE 1: The SBE and MBE symbols referred to in this subclause are defined in ETS 300 144 [1].

The optional procedures of this subclause provide for an end-point to request network-address information from the remote end-point to which it is connected. An "end-point" may be a terminal, MCU, channel aggregator or other equipment conforming to this ETS. EP-1 refers to the requesting end-point, and EP-2 to that receiving the request.

An end-point which cannot recognise or act upon a received request shall simply disregard it.

NOTE 2: The European ISDN videotelephony standards require the use of the same network address for additional channels as for the initial channel; however, in other networks this may not be the case. The ITU has strongly recommended that, wherever possible, additional-channel network addresses should be such as is conveyed by one of the single SBE symbols NIS, NIC, NID, and terminals should be able to transmit and receive NCA-a, NIS, NIC and NID.

### **7.7.1 Network address request**

To elicit the address of the initial channel connection, as may be necessary following a Call Transfer, for example, EP-1 shall send the SBE symbol NCA-i.

To elicit the addresses of potential additional connections, as may be necessary at a calling EP when only the initial connection address has been made available, EP-1 shall send the SBE symbol NCA-a; it then expects to receive NIS, NIC, NID, NIA-s, or NIA-m in reply. Such a request may be made after Sequence A is complete, or at other times during the call if necessary. If no reply is received, then the calling end may assume that additional-connection addresses have the relationship which is customary on that network, if known, or may take other appropriate action.

### **7.7.2 Network address transmission**

An EP-2 which has all its addresses the same shall be able to respond to receipt of NCA-a by returning the SBE symbol NIS.

An EP-2 which has consecutive addresses above that for the initial connection shall be able to respond to receipt of NCA-a by returning the SBE symbol NIC.

An EP-2 which has address for connection #2 the same as that for the initial connection, and pairs or connections on consecutive addresses above this, shall be able to respond to receipt of NCA-a by returning the SBE symbol NID.

An EP-2 which has different network addresses for its multiple ports, and these addresses are not consecutive above the address for the initial connection, shall respond in one of two ways:

- using the SBE symbol sequence NIA-s;
- using the MBE message NIA-m: in this case EP-1 must have included {MBE-cap} in its capability set.

In either case, the number of addresses conveyed by this message shall be consistent with the transfer-rate capability declared by that EP-2.

## History

Document history			
July 1993	Unified Approval Procedure	UAP 08:	1993-07-26 to 1993-12-17
May 1994	First Edition		
August 1995	Unified Approval Procedure	UAP 34:	1995-08-21 to 1995-12-15
January 1996	Amendment 1 to 1st Edition		
Note:	The references to the changed pages in the standard refer to an old presentation. See history box at the end of the standard itself.  The new presentation format applied from 1 December 1995 might have different page numbering. The clause numbering has not changed.		