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*European Standard (Telecommunications series)*

**Integrated Services Digital Network (ISDN);  
Telephony 7 kHz, videotelephony, audiographic conference  
and videoconference teleservices;  
Digital Subscriber Signalling System No. one (DSS1) protocol;  
Part 1: Protocol specification**

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**Reference**

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**Keywords**

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**Postal address**

---

F-06921 Sophia Antipolis Cedex - FRANCE

---

**Office address**

---

650 Route des Lucioles - Sophia Antipolis  
Valbonne - FRANCE  
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16  
Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
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# Contents

Intellectual Property Rights .....	6
Foreword .....	6
1 Scope .....	8
2 References .....	9
3 Definitions and abbreviations .....	10
3.1 Definitions .....	10
3.2 Abbreviations .....	11
4 Void.....	12
5 Additional generic requirements for basic telecommunication services not defined in EN 300 403-1 .....	12
5.1 Description .....	12
5.2 Operational requirements .....	12
5.3 Coding requirements .....	12
5.4 State definitions.....	12
5.5 Signalling procedures at the coincident S and T reference point.....	13
5.5.1 Procedures for establishment of a second or subsequent connection within the same call .....	13
5.5.1.1 Normal operation .....	13
5.5.1.2 Exceptional procedures .....	13
5.5.2 Provision of in-band tones and announcements.....	14
5.6 Procedures for interworking with private ISDNs .....	14
5.6.1 Procedures for the establishment of a second connection within the same call .....	14
5.6.2 Provision of in-band tones and announcements.....	14
5.7 Interactions with other networks.....	14
5.8 Parameter values (timers).....	14
5.9 Dynamic description (SDL diagrams) .....	14
6 Telephony 7 kHz teleservice.....	15
6.1 Description .....	15
6.2 Operational requirements .....	15
6.2.1 Provision and withdrawal.....	15
6.2.2 Requirements on the originating network side.....	15
6.2.3 Requirements on the destination network side.....	15
6.3 Coding requirements .....	16
6.4 State definitions.....	16
6.5 Signalling procedures at the coincident S and T reference point.....	16
6.5.1 Call establishment at the originating interface .....	16
6.5.2 Call establishment at the destination interface .....	18
6.5.2.1 First connection.....	18
6.5.2.2 Further connections .....	18
6.5.3 Call clearing.....	19
6.5.4 In-band tones and announcements .....	19
6.5.5 Restart procedure.....	19
6.5.6 Call rearrangements .....	19
6.5.7 Call collisions .....	19
6.5.8 Handling of error conditions.....	19
6.5.9 User notification procedure .....	19
6.5.10 Basic telecommunication service identification and selection .....	20
6.5.11 Signalling procedures for bearer capability selection .....	20
6.5.12 Signalling procedures for high layer compatibility selection.....	20
6.5.13 Status request procedures.....	20
6.6 Procedures for interworking with private ISDNs .....	20
6.7 Interactions with other networks.....	21

6.8	Parameter values (timers) .....	21
6.9	Dynamic description (SDL diagrams) .....	21
7	Videotelephony teleservice .....	21
7.1	Description .....	21
7.2	Operational requirements .....	22
7.2.1	Provision and withdrawal .....	22
7.2.2	Requirements on the originating network side .....	22
7.2.3	Requirements on the destination network side .....	22
7.3	Coding requirements .....	22
7.4	State definitions .....	23
7.5	Signalling procedures at the coincident S and T reference point .....	23
7.5.1	Call establishment at the originating interface .....	23
7.5.1.1	First connection .....	23
7.5.1.2	Further connections .....	26
7.5.2	Call establishment at the destination interface .....	26
7.5.2.1	First connection .....	26
7.5.2.2	Further connections .....	27
7.5.3	Call clearing .....	27
7.5.4	In-band tones and announcements .....	28
7.5.5	Restart procedures .....	28
7.5.6	Call rearrangements .....	28
7.5.7	Call collisions .....	28
7.5.8	Handling of error conditions .....	28
7.5.9	User notification procedure .....	28
7.5.10	Basic telecommunication service identification and selection .....	29
7.5.11	Signalling procedures for bearer capability selection .....	29
7.5.12	Signalling procedures for high layer compatibility selection .....	29
7.5.13	Status request procedures .....	29
7.6	Procedures for interworking with private ISDNs .....	29
7.6.1	First connection .....	29
7.6.2	Further connections .....	30
7.7	Interactions with other networks .....	31
7.8	Parameter values (timers) .....	31
7.9	Dynamic description (SDL diagrams) .....	31
8	Audiographic conference teleservice .....	31
8.1	Description .....	31
8.2	Operational requirements .....	32
8.2.1	Provision and withdrawal .....	32
8.2.2	Requirements on the originating network side .....	32
8.2.3	Requirements on the destination network side .....	32
8.3	Coding requirements .....	32
8.4	State definitions .....	33
8.5	Signalling procedures at the coincident S and T reference point .....	33
8.5.1	Call establishment at the originating interface .....	33
8.5.1.1	First connection .....	33
8.5.1.2	Further connections .....	35
8.5.2	Call establishment at the destination interface .....	35
8.5.2.1	First connection .....	35
8.5.2.2	Further connections .....	36
8.5.3	Call clearing .....	37
8.5.4	In-band tones and announcements .....	37
8.5.5	Restart procedures .....	37
8.5.6	Call rearrangements .....	37
8.5.7	Call collisions .....	37
8.5.8	Handling of error conditions .....	37
8.5.9	User notification procedure .....	38
8.5.10	Basic telecommunication service identification and selection .....	38
8.5.11	Signalling procedures for bearer capability selection .....	38
8.5.12	Signalling procedures for high layer compatibility selection .....	38

8.5.13	Status request procedures.....	38
8.6	Procedures for interworking with private ISDNs .....	38
8.6.1	First connection .....	38
8.6.2	Further connections.....	40
8.7	Interactions with other networks.....	40
8.8	Parameter values (timers) .....	40
8.9	Dynamic description (SDL diagrams) .....	40
9	Videoconference teleservice .....	40
9.1	Description .....	40
9.2	Operational requirements .....	41
9.2.1	Provision and withdrawal.....	41
9.2.2	Requirements on the originating network side.....	41
9.2.3	Requirements on the destination network side.....	41
9.3	Coding requirements .....	41
9.4	State definitions.....	42
9.5	Signalling procedures at the coincident S and T reference point.....	42
9.5.1	Call establishment at the originating interface .....	42
9.5.1.1	First connection.....	42
9.5.1.2	Further connections .....	44
9.5.2	Call establishment at the destination interface .....	44
9.5.2.1	First connection.....	44
9.5.2.2	Further connections.....	45
9.5.3	Call clearing.....	46
9.5.4	In-band tones and announcements .....	46
9.5.5	Restart procedures .....	46
9.5.6	Call rearrangements .....	46
9.5.7	Call collisions .....	46
9.5.8	Handling of error conditions.....	46
9.5.9	User notification procedure .....	47
9.5.10	Basic telecommunication service identification and selection .....	47
9.5.11	Signalling procedures for bearer capability selection .....	47
9.5.12	Signalling procedures for high layer compatibility selection .....	47
9.5.13	Status request procedures.....	47
9.6	Procedures for interworking with private ISDNs .....	47
9.6.1	First connection .....	48
9.6.2	Further connections.....	49
9.7	Interactions with other networks.....	49
9.8	Parameter values (timers) .....	49
9.9	Dynamic description (SDL diagrams) .....	49
<b>Annex A (informative):</b>	<b>Signalling flows for the telephony 7 kHz teleservice.....</b>	<b>50</b>
<b>Annex B (informative):</b>	<b>Signalling flows for the videotelephony teleservice.....</b>	<b>53</b>
<b>Annex C (informative):</b>	<b>Signalling flows for the audiographic conference teleservice .....</b>	<b>57</b>
<b>Annex D (informative):</b>	<b>Signalling flows for the videoconference teleservice .....</b>	<b>61</b>
<b>Annex E (informative):</b>	<b>Identification of changes from previous standards.....</b>	<b>65</b>
E.1	Identification of changes from ETS 300 267-1 to its amendment A1 .....	65
E.2	Identification of changes from ETS 300 267-1 including amendment A1 to the present document .....	66
E.3	Identification of changes from EN 300 267-1 V1.2.2 to the present document .....	67
	Bibliography .....	68
	History .....	69

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## Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN), and is now submitted for the Voting phase of the ETSI standards Two-step Approval Procedure.

The present document is part 1 of a multi-part EN covering the Integrated Services Digital Network (ISDN); Telephony 7 kHz, videotelephony, audiographic conference and videoconference teleservices; Digital Subscriber Signalling System No. one (DSS1) protocol, as described below:

**Part 1: "Protocol specification";**

Part 2: "Protocol Implementation Conformance Statement (PICS) proforma specification";

Part 3: "Test Suite Structure and Test Purposes (TSS&TP) specification for the user";

Part 4: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the user";

Part 5: "Test Suite Structure and Test Purposes (TSS&TP) specification for the network";

Part 6: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network".

Information in the present document concerning usage of the in-band protocol has been prepared in association with ETSI Technical Committee Terminal Equipment (TE); such information is outside the scope of Technical Committee Signalling Protocol and Switching (SPS) but has been included here to improve the presentation for implementors.

In accordance with CCITT Recommendation I.130 [5], the following three level structure is used to describe the telecommunication services as provided by European public telecommunications operators under the pan-European ISDN:

- stage 1: is an overall service description, from the user's standpoint;
- stage 2: identifies the functional capabilities and information flows needed to support the service described in stage 1; and;
- stage 3: defines the signalling system protocols and switching functions needed to implement the service described in stage 1.

The present document details the stage 3 aspects (DSS1 protocol) needed to support the telephony 7 kHz, videotelephony, audiographic conference and videoconference teleservices.

The telephony 7 kHz stage 1 and stage 2 aspects are detailed in ETS 300 263 [18] and ETS 300 265 [20], respectively.

The videotelephony stage 1 and stage 2 aspects are detailed in ETS 300 264 [19] and ETS 300 266 [21], respectively.

The audiographic conference stage 1 aspects are detailed in ETS 300 675 [27].

The videoconference stage 1 aspects are detailed in ETS 300 678 [28].

The present document is an extended and updated version of ETS 300 267-1 [22] and its amendment A1 (ETS 300 267-1 Amendment 1 [23]). Annex E identifies relevant differences between the present document and these standards.

<b>Proposed national transposition dates</b>	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

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# 1 Scope

The present document specifies the stage three of the videotelephony, telephony 7 kHz, audiographic conference and videoconference teleservices for the pan-European Integrated Services Digital Network (ISDN) as provided by European public telecommunications operators at the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [6]) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol. Stage three identifies the protocol procedures and switching functions needed to support a telecommunication service (see CCITT Recommendation I.130 [5]).

In addition, the present document specifies the protocol requirements at the T reference point where the service is provided to the user via a private ISDN.

The present document does not specify the additional protocol requirements where the service is provided to the user via a telecommunication network that is not an ISDN.

For the telephony 7 kHz, videotelephony, audiographic conference and videoconference teleservices, the present document specifies procedures for commencement of the in-band protocol by normative reference to the relevant in-band protocol ETSS.

The present document also specifies additional procedures to those required to support basic call in EN 300 403-1 [25] in order to support the four teleservices described in the present document. These additional procedures may be used to support other basic telecommunication services.

The telephony 7 kHz teleservice is a real-time teleservice in which speech (7 kHz or 3,1 kHz bandwidth) can be interchanged using one circuit-mode 64 kbit/s connection.

The videotelephony teleservice is a real-time, audiovisual teleservice in which speech and moving pictures are interchanged by means of one or two 64 kbit/s circuit-mode connections in the ISDN. The picture information transmitted is sufficient for adequate representation of fluid movements of a person displayed in head and shoulders view.

The audiographic conference teleservice is a real-time teleservice in which high quality speech, control signals and data are interchanged using one or more circuit-mode 64 kbit/s connection(s).

The videoconference teleservice is a real-time teleservice in which high quality audio, video, control signals and data are interchanged using two or more circuit-mode 64 kbit/s connections.

Procedures for the correlation of independent connections within the same videotelephony, audiographic conference or videoconference calls are outside the scope of the present document. This places responsibility on the user of this service to avoid situations where certain supplementary services are being used, and also situations where multiple calls are being presented to the same user at the same time.

Further parts of the present document specify the method of testing required to identify conformance to the present document.

The present document is applicable to equipment supporting the videotelephony, telephony 7 kHz, audiographic conference and videoconference teleservices, to be attached at either side of a T reference point or coincident S and T reference point when used as an access to the public ISDN.

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## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

- [1] CCITT Recommendation G.711 (1988): "Pulse code modulation (PCM) of voice frequencies".
- [2] ITU-T Recommendation H.221 (1993): "Frame structure for a 64 to 1 920 kbit/s channel in audiovisual teleservices".
- [3] ITU-T Recommendation H.242 (1993): "System for establishing communication between audiovisual terminals using digital channels up to 2 Mbit/s".
- [4] ITU-T Recommendation I.112 (1993): "Vocabulary of terms for ISDNs".
- [5] CCITT Recommendation I.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [6] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".
- [7] CCITT Recommendation Q.9 (1988): "Vocabulary of switching and signalling terms".
- [8] ETSI ETS 300 082: "Integrated Services Digital Network (ISDN); 3,1 kHz telephony teleservice; End-to-end compatibility".
- [9] ETSI ETS 300 092-1: "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [10] ETSI ETS 300 097-1: "Integrated Services Digital Network (ISDN); Connected Line Identification Presentation (COLP) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [11] ETSI ETS 300 102-1: "Integrated Services Digital Network (ISDN); User-network interface layer 3; Specifications for basic call control".
- [12] ETSI ETS 300 143: "Integrated Services Digital Network (ISDN); Audiovisual services Inband signalling procedures for audiovisual terminals using digital channels up to 2 048 kbit/s".
- [13] ETSI ETS 300 144: "Integrated Services Digital Network (ISDN); Audiovisual services; Frame structure for a 64 kbit/s to 1 920 kbit/s channel and associated syntax for inband signalling".
- [14] ETSI ETS 300 145: "Integrated Services Digital Network (ISDN); Audiovisual services; Videotelephone systems and terminal equipment operating on one or two 64 kbit/s channels".
- [15] ETSI EN 300 196-1 (V1.2): "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [16] ETSI I-ETS 300 245-2: "Integrated Services Digital Network (ISDN); Technical characteristics of telephony terminals; Part 2: PCM A-law handset telephony".
- [17] ETSI I-ETS 300 245-5: "Integrated Services Digital Network (ISDN); Technical characteristics of telephony terminals; Part 5: Wideband (7 kHz) handset telephony".

- [18] ETSI ETS 300 263: "Integrated Services Digital Network (ISDN); Telephony 7 kHz teleservice; Service description".
- [19] ETSI ETS 300 264: "Integrated Services Digital Network (ISDN); Videotelephony teleservice; Service description".
- [20] ETSI ETS 300 265: "Integrated Services Digital Network (ISDN); Telephony 7 kHz teleservice; Functional capabilities and information flows".
- [21] ETSI ETS 300 266: "Integrated Services Digital Network (ISDN); Videotelephony teleservice; Functional capabilities and information flows".
- [22] ETSI ETS 300 267-1: "Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [23] ETSI ETS 300 267-1 Amendment 1: "Integrated Services Digital Network (ISDN); Telephony 7 kHz and videotelephony teleservices; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [24] ETSI I-ETS 300 281: "Integrated Services Digital Network (ISDN); Telephony 7 kHz teleservice; Terminal requirements necessary for end-to-end compatibility".
- [25] ETSI EN 300 403-1 (V1.2): "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".
- [26] ETSI ETS 300 403-2: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 2: Specification and Description Language (SDL) diagrams".
- [27] ETSI ETS 300 675: "Integrated Services Digital Network (ISDN); Audiographic conference teleservice; Service description".
- [28] ETSI ETS 300 678: "Integrated Services Digital Network (ISDN); Videoconference teleservice; Service description".
- [29] ETSI EN 300 267-1 (V1.2): "Integrated Services Digital Network (ISDN); Telephony 7 kHz, videotelephony, audiographic conference and videoconference teleservices; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

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## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

**basic telecommunication service:** telecommunication service that is either a teleservice or a bearer service

**bearer capability:** type of transmission media provided by the network, and thus the type of the overall connection, and also the set of lower layer protocols required on the connection

**bearer service:** see ITU-T Recommendation I.112 [4], definition 202

**bearer:** association of transmission channels or circuits, and switching, set up to provide a means for transfer of information between two or more points in a telecommunication network. It does not include control signalling

**call control message:** message as defined in EN 300 403-1 [25], subclause 3.1, which on sending or receipt causes a change of the call state at either the network or the user. A call control message thus indicates or causes a change in the state of the bearer. Call control messages also include the INFORMATION message and PROGRESS message

**call reference:** identifier of a signalling transaction. The signalling transaction may either be bearer related, in which case the signalling transaction can be used to control that bearer, or bearer independent, in which case there is no bearer associated with that signalling transaction. Where there is only one bearer required for a call, then the call reference of the associated bearer-related signalling transaction may be used to identify the call

**call state:** state as defined in EN 300 403-1 [25] subclause 2.1 for either the user or the network as appropriate. A call state may exist for each call reference value (and for each additional responding CEI in the incoming call states). This represents the state of a state machine associated with a bearer-related or bearer-independent signalling transaction. For a bearer-related signalling transaction the call state also identifies the condition of the associated bearer, and where a call consists of only one bearer, may also identify the condition of the call

**call:** see CCITT Recommendation Q.9 [7], definition 2201

**connection type:** see ITU-T Recommendation I.112 [4], definition 316

**connection:** see CCITT Recommendation Q.9 [7], definition 0011. In the present document the use of this term is taken to include a bearer and its associated control signalling

**data link connection endpoint identifier: Connection Endpoint Identifier (CEI):** identifier used by a layer 3 protocol entity to address its peer entity

**fallback:** mechanism for selecting, at the time of call request and establishment, an alternative bearer capability, or high layer compatibility, to that primarily requested by the calling user. Fallback may occur either due to the network being unable to provide the primarily requested bearer capability, or high layer compatibility, or due to the called user desiring an alternative bearer capability, or high layer compatibility

**high layer compatibility:** set of higher layer protocols required for the call; this information may also be used to define the basic telecommunication service as a particular teleservice

**in-band protocol entity:** protocol entity within the terminal responsible for the provision of the in-band procedures (e.g. I-ETS 300 245-2 [16], ETS 300 143 [12], I-ETS 300 245-5 [17])

**Integrated Services Digital Network (ISDN):** see ITU-T Recommendation I.112 [4], definition 308

**network:** DSS1 protocol entity at the network side of the user-network interface

**service; telecommunication service:** see ITU-T Recommendation I.112 [4], definition 201

**teleservice:** see ITU-T Recommendation I.112 [4], definition 203

**user:** DSS1 protocol entity at the user side of the user-network interface

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CEI	Connection Endpoint Identifier
DSS1	Digital Subscriber Signalling System No. one
ISDN	Integrated Services Digital Network
PSTN	Public Switched Telephone Network
SDL	Specification and Description Language

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## 4 Void

## 5 Additional generic requirements for basic telecommunication services not defined in EN 300 403-1

### 5.1 Description

Clause 5 provides generic requirements for the provision of the telephony 7 kHz, videotelephony, audiographic conference and videoconference basic telecommunication services that are not contained in other ETSs (e.g. EN 300 403-1 [25]). The specification of a basic telecommunication service can be simplified by normative reference to the appropriate generic procedures within clause 5. These generic procedures form requirements for a basic telecommunication service only when such a normative reference is made.

NOTE: This approach has been adopted in the specification of the telephony 7 kHz teleservice in clause 6, in the specification of the videotelephony teleservice in clause 7, in the specification of the audiographic conference teleservice in clause 8 and in the specification of the videoconference teleservice in clause 9. Other basic telecommunication services outside the scope of the present document can be specified in this manner.

These additional generic requirements have been defined to be compatible with the existing requirements of EN 300 403-1 [25].

### 5.2 Operational requirements

Operational requirements are specified for each basic telecommunication service (for example, see subclauses 6.2, 7.2, 8.2 and 9.2).

### 5.3 Coding requirements

The message structures defined in subclause 3.1 of EN 300 403-1 [25] shall apply. The message structures defined in subclause 3.4 of EN 300 403-1 [25] are applicable to accesses supporting the telephony 7 kHz, the videotelephony, the audiographic conference and the videoconference teleservices, but their use is outside the scope of the present document.

The information elements defined in subclause 4.5 of EN 300 403-1 [25] shall apply, with the addition that the Connected number and the Connected subaddress information elements defined in ETS 300 097-1 [10], clause 7, shall also be used.

### 5.4 State definitions

The call states defined in subclause 2.1 of EN 300 403-1 [25] shall apply.

The states defined in subclause 2.4 of EN 300 403-1 [25] are applicable to accesses supporting the telephony 7 kHz, videotelephony, audiographic conference and videoconference teleservices, but are outside the scope of the present document.

## 5.5 Signalling procedures at the coincident S and T reference point

### 5.5.1 Procedures for establishment of a second or subsequent connection within the same call

NOTE: Prior to the following procedures, and for the establishment of the first connection, other procedures take place according to EN 300 403-1 [25], clause 5.

#### 5.5.1.1 Normal operation

Where the basic telecommunication service requires a second or subsequent connection, in addition to a first connection the following procedures apply:

- a) the originating user shall include in the Bearer capability information element, included in the SETUP message requesting the first connection, a specification of an appropriate in-band signalling protocol;

NOTE 1: ETS 300 144 [13] and ETS 300 143 [12] form an appropriate in-band signalling protocol which can be requested within the Bearer capability information element by setting the information transfer field to "unrestricted digital information" or "unrestricted digital information with tones/announcements" and setting the layer one protocol field to "ITU-T Recommendations H.221 [2] and H.242 [3]".

- b) the originating user shall establish the second or subsequent connection after the CONNECT message has been received by the originating user for the first connection or previous subsequent connection respectively, and the compatibility checking and in-band signalling procedures have identified a common mode which requires a second (or subsequent) connection;

- c) the originating user shall include in the Bearer capability information element included in the SETUP message requesting the subsequent connection a specification of the same in-band signalling protocol as specified for the first connection.

NOTE 2: These procedures provide no mechanism for ensuring that a request for a new connection presented subsequent to a connection of an already answered call is a request that relates to the same call. With these procedures, it is a subscriber's responsibility, subsequent to answer to ensure that both connections relate to the same call. Advice on the limitations of the service will then be required.

NOTE 3: Because these procedures provide no information within the network as to the relationship between the connections comprising a call, supplementary services (if invoked) will act independently on each connection. It is the subscriber's responsibility to ensure that these independent actions are appropriately correlated. For example, call forwarding should not be invoked in such a way that connection one is forwarded to a location different from that of connection two, or so that one connection is forwarded and the other connection is not. Advice on the limitations of the service will then be required.

#### 5.5.1.2 Exceptional procedures

The procedures of EN 300 403-1 [25] shall apply with the exception that if the incoming SETUP message to the destination user provides a means to distinguish between the first and the second or subsequent connection, then when a second or subsequent connection is presented to a user, and this user has not connected to a first connection, then the user shall reject the second connection in accordance with EN 300 403-1 [25], subclause 5.3 indicating cause #21 "call rejected".

## 5.5.2 Provision of in-band tones and announcements

The procedures for the provision of tones and announcements as specified in EN 300 403-1 [25], subclauses 5.1.3, 5.1.7 and annex K for when the information transfer capability field specifies "speech" and "3,1 kHz audio" shall be applicable when the information transfer capability field specifies "unrestricted digital information with tones/announcements".

In addition, the procedures specified in EN 300 403-1 [25], subclauses 5.1.6, 5.2.6, 5.3.4.1 and 5.4 that relate to the provision of tones and announcements are valid when the information transfer capability specifies "unrestricted digital information with tones/announcements".

Tones and announcements shall be encoded as specified in CCITT Recommendation G.711 [1] and shall be presented to the user as specified in I-ETS 300 245-2 [16], clause 5.

## 5.6 Procedures for interworking with private ISDNs

### 5.6.1 Procedures for the establishment of a second connection within the same call

NOTE: Prior to the following procedures, and for the establishment of the first connection, other procedures take place according to EN 300 403-1 [25], clause 5.

The procedures of subclause 5.5.1 shall apply.

### 5.6.2 Provision of in-band tones and announcements

The procedures of subclause 5.5.2 shall apply.

## 5.7 Interactions with other networks

No additional generic procedures apply for interworking with non-ISDNs.

NOTE: Procedures for interworking with non-ISDNs can be found in EN 300 403-1 [25].

## 5.8 Parameter values (timers)

Not applicable.

## 5.9 Dynamic description (SDL diagrams)

The specification of ETS 300 403-2 [26] shall apply.

NOTE: ETS 300 403-2 [26] provides a state machine that represents the reception and transmission of messages. As these procedures only reflect the addition of new information elements, no additional dynamic description is required.

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## 6 Telephony 7 kHz teleservice

### 6.1 Description

At call establishment, this teleservice allows, with permission from the calling user, fallback to occur to the telephony 3,1 kHz teleservice.

It is mandatory for users and networks supporting the telephony 7 kHz teleservice to support the telephony 3,1 kHz teleservice.

The 7 kHz teleservice uses the connection type "unrestricted digital information with tones/announcements".

This clause identifies the relevant procedures for this teleservice.

NOTE 1: Where the user is attached to a network that does not support this teleservice, the user may obtain an equivalent service, possibly without tones and announcements, by requesting a call according to the circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category. The network may provide the capabilities of transferring the remaining appropriate Bearer capability and High layer compatibility information element encodings. In order for this alternative service mechanism to operate, the destination user will also have to support the reception of calls using the circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category.

NOTE 2: The procedures of this clause are designed to allow for interworking at the destination side, where fallback is allowed, with existing terminals supporting the telephony 3,1 kHz teleservice.

NOTE 3: The stage one description for this teleservice allows the user to initiate renegotiation of this service once the connection is established. This is performed by using the in-band protocol. If this action takes place after a telephony 7 kHz teleservice connection is established, then the network entities involved in the call will continue to treat the call as a call of the telephony 7 kHz teleservice. Where renegotiation is made to a telephony 3,1 kHz style of operation, the terminal will have to provide any required echo-cancellation devices and A-law/ $\mu$ -law converters. Where renegotiation is made to a videotelephony style of operation, the network may preclude establishment of a second connection. Where the original call was established as a call of the telephony 3,1 kHz teleservice, and renegotiation is made using the in-band protocol to a telephony 7 kHz style of operation, communication may be impaired or rendered impossible by included network devices such as A-law/ $\mu$ -law converters and echo-cancellation devices.

### 6.2 Operational requirements

#### 6.2.1 Provision and withdrawal

The telephony 7 kHz teleservice shall be either provided after prior arrangement with the service provider or be available on a general basis.

Withdrawal shall be at the request of the customer or for administrative reasons.

Various optional subscription arrangements are defined in subclause 6.1 of ETS 300 263 [18].

#### 6.2.2 Requirements on the originating network side

The requirements of the originating network side are covered in subclause 6.5.

#### 6.2.3 Requirements on the destination network side

The requirements of the destination network side are covered in subclause 6.5.

## 6.3 Coding requirements

The Bearer capability information element uses the following codings:

- a) for the information transfer capability field, "speech" and "unrestricted digital information with tones/announcements";
- b) where the information transfer capability field is set to "speech", for the user information layer one protocol, "CCITT Recommendation G.711 [1] A-law" as described in EN 300 403-1 [25]; and
- c) where the information transfer capability field is set to "unrestricted digital information with tones/announcements", for the user information layer one protocol, "ITU-T Recommendation H.221 [2] and ITU-T Recommendation H.242 [3]" as described in subclause 4.5.5 of EN 300 403-1 [25].

NOTE: The ETSs replacing these ITU-T Recommendations are ETS 300 144 [13] (ITU-T Recommendation H.221 [2]) and ETS 300 143 [12] (ITU-T Recommendation H.242 [3]).

The High layer compatibility information element shall use the coding of "telephony" in the high layer characteristics identification field.

## 6.4 State definitions

The states for this teleservice are defined in subclause 5.4 of the present document.

## 6.5 Signalling procedures at the coincident S and T reference point

### 6.5.1 Call establishment at the originating interface

Where fallback is not allowed the procedures of EN 300 403-1 [25], subclause 5.1 and ETS 300 092-1 [9], subclause 9.2 shall be used with the following additions:

- 1) in the SETUP message, the user shall set the high layer characteristics identification field of the High layer compatibility information element to "telephony" and shall include a single Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements";
- 2) where EN 300 403-1 [25], as modified by subclause 5.5.2 of the present document, specifies that tones or announcements should be provided, the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5 in order to receive the tones and announcements;
- 3) when a CONNECT message is received the in-band protocol entity associated with the user shall initiate the in-band signalling procedures as specified in I-ETS 300 245-5 [17], clause 6.

Where fallback is allowed the procedures of EN 300 403-1 [25], subclause 5.1 and ETS 300 092-1 [9], subclause 9.2 shall be used with the following additions:

- a) the generic procedures for bearer capability selection at the originating side, as specified in EN 300 403-1 [25], subclause 5.11.1, shall be used. In the SETUP message, to indicate that a telephony teleservice is required, the user shall set the high layer characteristics identification field of the High layer compatibility information element to "telephony" and, shall set the information transfer capability field of the first Bearer capability information element included in the SETUP message to "speech" and the information transfer capability field of the second Bearer capability information element included in the SETUP message to "unrestricted digital information with tones/announcements". The Low layer compatibility information element shall not be included in the SETUP message; any necessary low layer information shall be included in the Bearer capability information element.

NOTE 1: When this setting is used, the network will reserve any required echo cancellation devices, A-law/ $\mu$ -law converters, etc. in case a speech information transfer capability is used for the resultant connection.

- b) If the optional subscription check for the prime service defined in table 1 is successful, the originating network shall establish the call; if the optional subscription check is not successful, the originating network shall release the call with cause #57 "bearer capability not authorized".

**Table 1: Possible Bearer capability and High layer compatibility information element codepoints indicated in a telephony 7 kHz call request and resultant basic telecommunication services**

	<b>1<sup>st</sup> Bearer capability = speech</b>	<b>2<sup>nd</sup> Bearer capability = unrestricted digital information with tones/announcements</b>
<b>1<sup>st</sup> High layer compatibility = telephony</b>	Unnotified fallback telephony 3,1 kHz	Prime telephony 7 kHz
<b>Key:</b> Prime: This is the basic telecommunication service that gives a quality of communication that is the best choice if the destination user supports this basic telecommunication service. Unnotified fallback: This is a fallback basic telecommunication service where the resultant basic telecommunication service may not be indicated by the destination user or the network (where the network is the originating network and does not support fallback). If no indication is given, then this basic telecommunication service should be assumed by the receiving network or user respectively. This is to enable communication with terminals supporting the existing telephony 3,1 kHz teleservice.		

- c) The network shall, except where fallback occurs in the network, indicate, according to the procedures of EN 300 403-1 [25], subclause 5.11.1, the resultant basic telecommunication service of the call by including a Bearer capability information element in the CONNECT message with the information transfer capability field set to "unrestricted digital information with tones/announcements" or "speech" in which case an ordinary telephony 3,1 kHz teleservice call exists. Where the Bearer capability information element is not present in the CONNECT message, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred.
- d) The network shall, where fallback occurs in the network, indicate, according to the procedures of EN 300 403-1 [25], subclause 5.11.1, the resultant basic telecommunication service of the call by including a Bearer capability information element, in the same message as the relevant Progress indicator information element, with the information transfer capability field set to "speech" in which case an ordinary telephony 3,1 kHz teleservice call exists. Where the Bearer capability information element is not present in the same message as the related Progress indicator information element, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred.
- e) If fallback does not occur, when a CONNECT message is received the in-band protocol entity associated with the user shall initiate the in-band signalling procedures as specified in I-ETS 300 245-5 [17], clause 6.

NOTE 2: On calls originally offered as the videotelephony teleservice (see subclause 7.5, table 2) and if the originating user does not support the telephony 7 kHz teleservice, and for which fallback occurred to the telephony 7 kHz teleservice, the in-band protocol entity associated with the originating user may be unable to establish a 7 kHz mode.

- f) If fallback does occur to the telephony 3,1 kHz teleservice, when a CONNECT message is received the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5.
- g) Where EN 300 403-1 [25], as modified by subclause 5.5.2 of the present document, specifies that tones or announcements should be provided, the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5 in order to receive the tones and announcements.

## 6.5.2 Call establishment at the destination interface

### 6.5.2.1 First connection

Where fallback is not allowed the procedures of EN 300 403-1 [25], subclause 5.2 and ETS 300 097-1 [10], subclause 9.2 shall be used with the following additions:

- 1) in the SETUP message, the network shall set the high layer characteristics identification field of the High layer compatibility information element to the value included by the originating user (i.e. "telephony"); and shall include a single Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements";
- 2) when a CONNECT ACKNOWLEDGE message is received the in-band protocol entity associated with the user shall initiate the in-band signalling procedures as specified in I-ETS 300 245-5 [17], clause 6.

Where fallback is allowed the procedures of EN 300 403-1 [25], subclause 5.2 and ETS 300 097-1 [10], subclause 9.2 shall be used with the following additions:

- a) the generic procedures for bearer capability selection at the destination side, as specified in EN 300 403-1 [25], subclause 5.11.2, shall be used. In the SETUP message, the network shall set the high layer characteristics identification field of the High layer compatibility information element to the value included by the originating user (i.e. "telephony"); shall include a first Bearer capability information element with the information transfer capability field set to "speech"; and shall include a second Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements". The Low layer compatibility information element shall not be included in the SETUP message; any necessary low layer information shall be included in the Bearer capability information element;
- b) the destination user shall assume the basic telecommunication services defined in table 1 and shall apply the procedures of annex B of EN 300 403-1 [25] to each of these basic telecommunication services according to the destination user requirements;
- c) the destination user may indicate the resultant basic telecommunication service of the call by including a Bearer capability information element in the CONNECT message with the information transfer capability field set to "unrestricted digital information with tones/announcements" or "speech" in which case an ordinary telephony 3,1 kHz teleservice call exists. Where the Bearer capability information element is not present in the CONNECT message, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred;
- d) if fallback does not occur, when a CONNECT ACKNOWLEDGE message is received the in-band protocol entity associated with the user shall initiate the in-band signalling procedures as specified in I-ETS 300 245-5 [17], clause 6.

NOTE: A user accepting calls as the telephony 7 kHz teleservice which were originally offered with the videotelephony teleservice as the prime service (see subclause 7.5, table 2; i.e. the originating user does not support the telephony 7 kHz teleservice) may be unable to establish a 7 kHz mode in the in-band protocol.

- e) If fallback does occur to the telephony 3,1 kHz teleservice, when a CONNECT ACKNOWLEDGE message is received the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5.

### 6.5.2.2 Further connections

Not applicable.

### 6.5.3 Call clearing

The procedures of EN 300 403-1 [25], subclause 5.3 shall be used.

For presenting tones and announcements on clearing, the procedures of EN 300 403-1 [25], subclause 5.3.4.1, as modified by subclause 5.5.2 of the present document, shall be used. When a call of the telephony 7 kHz teleservice is in progress in a 7 kHz mode, the tone or announcement shall be presented in a 3,1 kHz mode, encoded according to CCITT Recommendation G.711 [1] A-law. The in-band protocol entity associated with the user shall switch to A-law as specified in I-ETS 300 245-5 [17], clause 6.

### 6.5.4 In-band tones and announcements

The procedures of EN 300 403-1 [25], subclause 5.4, as modified by subclause 5.5.2 of the present document, shall be used only during connection establishment.

In-band tones and announcements on call clearing are provided in accordance with subclause 6.5.3.

**NOTE:** The in-band protocol entity associated with the user cannot, on the basis of user information in the B-channel, switch from 7 kHz mode to a mode where it can decode tones and announcements encoded in A-law according to CCITT Recommendation G.711 [1]. However, if the end-to-end connection is interrupted the terminal will consider this as a failure situation and will switch to mode 0U. This is not regarded as an acceptable way of switching to mode 0U to provide tones and announcements.

### 6.5.5 Restart procedure

The procedures of EN 300 403-1 [25], subclause 5.5 are outside the scope of the present document.

**NOTE:** The restart procedures defined in subclause 5.5 of EN 300 403-1 [25] are not service specific and, where implemented, are used independently of individual calls and service requests.

### 6.5.6 Call rearrangements

The procedures of EN 300 403-1 [25], subclause 5.6 shall be used. Prior to these procedures the in-band protocol entity associated with the user shall switch to mode 0U (unframed), A-law as specified in I-ETS 300 245-5 [17], clause 6.

On receipt of the RESUME ACKNOWLEDGE message, the in-band protocol entity associated with the user shall initiate the in-band signalling procedures as specified in I-ETS 300 245-5 [17], clause 6.

**NOTE:** Where the terminal portability supplementary service is subscribed to and used, the full procedures of subclause 5.6 of EN 300 403-1 [25] has to be provided. Where the terminal portability supplementary service is not subscribed to, only the rejection procedures need to be provided.

### 6.5.7 Call collisions

The procedures of EN 300 403-1 [25], subclause 5.7 shall apply.

### 6.5.8 Handling of error conditions

The procedures of EN 300 403-1 [25], subclause 5.8 shall apply.

**NOTE:** Where the user requests the telephony 7 kHz teleservice with fallback allowed from a network that does not support the telephony 7 kHz teleservice then the network will discard the second Bearer capability information element and will proceed with the call as a telephony 3,1 kHz call. No explicit indication of fallback will be given in this case.

### 6.5.9 User notification procedure

The procedures of EN 300 403-1 [25], subclause 5.9 and EN 300 196-1 [15], clause 9 shall apply.

### 6.5.10 Basic telecommunication service identification and selection

The procedures of EN 300 403-1 [25], subclause 5.10 shall apply.

### 6.5.11 Signalling procedures for bearer capability selection

The procedures of EN 300 403-1 [25], subclause 5.11 shall apply.

### 6.5.12 Signalling procedures for high layer compatibility selection

The procedures of EN 300 403-1 [25], subclause 5.12 shall apply.

### 6.5.13 Status request procedures

The support of the status request procedure according to subclause 10.3 of EN 300 196-1 [15] is mandatory for any implementation conforming to the present document and to be connected to the coincident S and T reference point.

## 6.6 Procedures for interworking with private ISDNs

There is no in-band protocol entity associated with the user where the user is a private ISDN, therefore the procedures of subclause 6.5 concerning in-band protocol entities do not apply.

The procedures of subclause 6.5 shall apply for the user and the network with the exception that the following procedures shall apply at the destination interface instead of subclause 6.5.2.

If a private ISDN is attached to the access at the destination interface, the following procedures are applicable at call request. The private ISDN acts as the called user.

Where fallback is not allowed the procedures of EN 300 403-1 [25], subclause 5.2 and ETS 300 097-1 [10], subclause 9.2 shall be used with the following additions:

- in the SETUP message, the network shall set the high layer characteristics identification field of the High layer compatibility information element to the value included by the originating user (i.e. "telephony"); and shall include a single Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements".

Where fallback is allowed the procedures of EN 300 403-1 [25], subclause 5.2 and ETS 300 097-1 [10], subclause 9.2 shall be used with the following additions:

- a) The generic procedures for bearer capability selection at the destination side to a private ISDN, as specified in subclause 5.11.3.2 of EN 300 403-1 [25], shall be used. In the SETUP message, to indicate that a telephony teleservice is required, the network shall set the high layer characteristics identification field of the High layer compatibility information element to "telephony", and shall set the information transfer capability field of the first Bearer capability information element included in the SETUP message to "speech" and the information transfer capability field of the second Bearer capability information element included in the SETUP message to "unrestricted digital information with tones/announcements". The Low layer compatibility information element shall not be included in the SETUP message; any necessary low layer information shall be included in the Bearer capability information element.

NOTE: When this setting is used, the private ISDN will reserve any required echo cancellation devices, A-law/ $\mu$ -law converters, etc. in case a speech information transfer capability is used for the resultant connection.

- b) The destination user shall assume the basic telecommunication services defined in table 1;

- c) The destination user shall, except where fallback occurs in the private ISDN, indicate, according to the procedures of EN 300 403-1 [25], subclause 5.11.3.2, the resultant basic telecommunications service of the call by including a Bearer capability information element in the CONNECT message with the information transfer capability field set to "unrestricted digital information with tones/announcements" or "speech" in which case an ordinary telephony 3,1 kHz teleservice call exists. Where the Bearer capability information element is not present in the CONNECT message, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred.
- d) The destination user shall, where fallback occurs in the private ISDN, indicate, according to the procedures of EN 300 403-1 [25], subclause 5.11.3.2, the resultant basic telecommunications service of the call by including a Bearer capability information element, in the same message as the relevant Progress indicator information element, with the information transfer capability field set to "speech" in which case an ordinary telephony 3,1 kHz teleservice call exists. Where the Bearer capability information element is not present in the same message as the related Progress indicator information element, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred.

## 6.7 Interactions with other networks

Where the calling user has indicated that fallback is allowed, interworking with the PSTN shall occur according to the procedures of subclause 5.1.6 and subclause 5.2.6 of EN 300 403-1 [25], and a Progress indicator information element with a progress description #1 "call is not end-to-end ISDN, further call progress information may be available in-band" shall be sent to the calling user. If interworking does occur to the PSTN, when a CONNECT message is received the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5.

When fallback is not allowed, no interworking with the PSTN shall occur, and the call shall be cleared with a cause value of #65 "bearer capability not implemented".

## 6.8 Parameter values (timers)

The parameter values specified in EN 300 403-1 [25], clause 9 shall apply.

## 6.9 Dynamic description (SDL diagrams)

The dynamic description of ETS 300 403-2 [26] shall apply.

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# 7 Videotelephony teleservice

## 7.1 Description

At call establishment, this teleservice allows, with permission from the calling user, fallback to occur to the telephony 7 kHz or telephony 3,1 kHz teleservices.

It is mandatory for users and networks supporting the videotelephony teleservice to support the telephony 3,1 kHz teleservice. It is optional for users and networks supporting the videotelephony teleservice to support the telephony 7 kHz teleservice.

Compatibility checking, as described in the present document, shall be consistent with the basic telecommunication services supported.

The videotelephony teleservice uses the connection type "unrestricted digital information with tones/announcements" for the first connection and the connection type "unrestricted digital information" for the second connection.

This clause identifies the relevant procedures for this teleservice.

NOTE 1: Where the user is attached to a network that does not support this teleservice, the user may obtain an equivalent service, without fallback and possibly without tones and announcements, by requesting a call according to the circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category. The network may provide the capabilities of transferring the remaining appropriate Bearer capability and High layer compatibility information element encodings. In order for this alternative service mechanism to operate, the destination user will also have to support the reception of calls using the circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category.

NOTE 2: The procedures of this clause are designed to allow for interworking at the destination side, where fallback is allowed, with existing terminals supporting the telephony 3,1 kHz teleservice.

NOTE 3: The stage one description for this teleservice allows the user to initiate renegotiation of this service once the connection is established. This is performed by using the in-band protocol. If this action takes place after a videotelephony teleservice connection is established, then the network entities involved in the call will continue to treat the call as a call of the videotelephony teleservice. Where renegotiation is made to a telephony 3,1 kHz style of operation, the terminal will have to provide any required echo-cancellation devices and A-law/ $\mu$ -law converters. Where the original call was established as a call of the telephony 3,1 kHz teleservice, and renegotiation is made using the in-band protocol to a videotelephony style of operation, communication may be impaired or rendered impossible by included network devices such as A-law/ $\mu$ -law converters and echo-cancellation devices.

## 7.2 Operational requirements

### 7.2.1 Provision and withdrawal

The videotelephony teleservice shall be either provided after prior arrangement with the service provider or be available on a general basis.

Withdrawal shall be at the request of the customer or for administrative reasons.

Various optional subscription arrangements are defined in subclause 6.1 of ETS 300 264 [19].

### 7.2.2 Requirements on the originating network side

The requirements of the originating network side are covered in subclause 7.5.

### 7.2.3 Requirements on the destination network side

The requirements of the destination network side are covered in subclause 7.5.

## 7.3 Coding requirements

The Bearer capability information element uses the following codings:

- a) for the information transfer capability field, "speech", "unrestricted digital information with tones/announcements" and "unrestricted digital information";
- b) where the information transfer capability field is set to "speech", for the user information layer one protocol, "CCITT Recommendation G.711 [1] A-law" as described in EN 300 403-1 [25];

- c) where the information transfer capability field is set to "unrestricted digital information with tones/announcements", for the user information layer one protocol, "Recommendations H.221 [2] and H.242 [3]" as described in subclause 4.5.5 of EN 300 403-1 [25]; and,
- d) where the establishment of an additional channel is required, and the information transfer capability field is set to "unrestricted digital information", for the user information layer one protocol, "ITU-T Recommendations H.221 [2] and H.242 [3]" as described in subclause 4.5.5 of EN 300 403-1 [25].

NOTE: The ETSs replacing these ITU-T Recommendations are ETS 300 144 [13] (ITU-T Recommendation H.221 [2]) and ETS 300 143 [12] (ITU-T Recommendation H.242 [3]).

The High layer compatibility information element shall use the codings of "telephony" and "videotelephony" in the high layer characteristics identification field.

The High layer compatibility information element uses the codings of "capability set of initial channel of ITU-T Recommendation H.221 [2]" and "capability set of subsequent channel of ITU-T Recommendation H.221 [2]" in the extended audiovisual characteristics identification field.

## 7.4 State definitions

The states for this teleservice are defined in subclause 5.4 of the present document.

## 7.5 Signalling procedures at the coincident S and T reference point

### 7.5.1 Call establishment at the originating interface

#### 7.5.1.1 First connection

Where fallback is not allowed the procedures of EN 300 403-1 [25], subclause 5.1 and ETS 300 092-1 [9], subclause 9.2 shall be used with the following additions:

- 1) In the SETUP message, the user shall set the high layer characteristics identification field of the High layer compatibility information element to "videotelephony", the extended audiovisual characteristics identification field of the High layer compatibility information element to "capability set of initial channel of ITU-T Recommendation H.221 [2]", and shall include a single Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements".
- 2) Where EN 300 403-1 [25], as modified by subclause 5.5.2 of the present document, specifies that tones or announcements should be provided, the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5 in order to provide the tones and announcements.
- 3) When a CONNECT message is received the in-band protocol entity associated with the user shall initiate the in-band signalling procedures as specified in ETS 300 143 [12], and refined by ETS 300 145 [14], clause 6.

Where fallback is allowed the procedures of EN 300 403-1 [25], subclause 5.1 and ETS 300 092-1 [9], subclause 9.2 shall be used with the following additions:

- a) The generic procedures for bearer capability selection at the originating side, as specified in EN 300 403-1 [25], subclause 5.11.1, and the generic procedures for high layer compatibility selection at the originating side, as specified in EN 300 403-1 [25], subclause 5.12.1, shall be used. In the SETUP message, to indicate that a videotelephony teleservice is required, with fallback allowed to telephony 7 kHz or telephony 3,1 kHz, the user shall set the high layer characteristics identification field of the first High layer compatibility information element included in the SETUP message to "telephony", the high layer characteristics identification field of the second High layer compatibility information element included in the SETUP message to "videotelephony", the extended audiovisual characteristics identification field of the second High layer compatibility information element to "capability set of initial channel of ITU-T Recommendation H.221 [2]", and, shall set the information transfer capability field of the first Bearer capability information element included in the SETUP message to "speech" and the information transfer capability field of the second Bearer capability information element included in the SETUP message to "unrestricted digital information with tones/announcements". The Low layer compatibility information element shall not be included in the SETUP message; any necessary low layer information shall be included in the Bearer capability information element.

NOTE 1: When this setting is used, the network will reserve any required echo cancellation devices, A-law/ $\mu$ -law converters, etc., in case a speech information transfer capability is used for the resultant connection.

- b) If the optional subscription check for the prime service defined in table 2 is successful, the originating network shall establish the call; if the optional subscription check is not successful, the originating network shall release the call with cause #57 "bearer capability not authorized".

**Table 2: Possible combinations of Bearer capability and High layer compatibility information element codepoints in a videotelephony call request and resultant basic telecommunication services**

	<b>1<sup>st</sup> Bearer capability = speech</b>	<b>2<sup>nd</sup> Bearer capability = unrestricted digital information with tones/announcements</b>
<b>1<sup>st</sup> High layer compatibility = telephony</b>	Unnotified fallback telephony 3,1 kHz	Fallback telephony 7 kHz
<b>2<sup>nd</sup> High layer compatibility = videotelephony</b>	not interpreted	Prime videotelephony
<b>Key:</b>		
Prime: This is the basic telecommunication service that gives a quality of communication that is the best choice if the destination user supports this basic telecommunication service.		
Fallback: This is a basic telecommunication service that is legal but is not the best choice to fulfil the requirements of the originating user.		
Unnotified fallback: This is a fallback basic telecommunication service where the resultant basic telecommunication service may not be indicated by the destination user or the network (where the network is the originating network and does not support fallback). If no indication is given, then this basic telecommunication service should be assumed by the receiving network or user respectively. This is to enable communication with terminals supporting the existing telephony 3,1 kHz teleservice.		
Not interpreted: This is a combination which shall not be used for any identification of a basic service, neither by the network nor by the user.		

- c) The network shall, except where fallback occurs in the network, indicate, according to the procedures of EN 300 403-1 [25], subclauses 5.11.1 and 5.12.1, the resultant basic telecommunication service of the call by including in the CONNECT message a Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements" or "speech" in which case an ordinary telephony 3,1 kHz teleservice call exists, and, if received, a High layer compatibility information element with the received value, i.e. a high layer characteristics identification field set to "videotelephony" or "telephony" and, for the high layer characteristics identification field set to "videotelephony", an extended audiovisual characteristics identification field set to "capability set of initial channel of ITU-T Recommendation H.221 [2]". Where neither the Bearer capability information element nor the High layer compatibility information element is present in the CONNECT message, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred. Where the High layer compatibility information element is not present in the CONNECT message, and the information transfer capability field of the Bearer capability information element is set to "speech", the resultant teleservice is telephony 3,1 kHz. Where the High layer compatibility information element is not present in the CONNECT message, and the information transfer capability field of the Bearer capability information element is set to "unrestricted digital information with tones/announcements" the resultant teleservice is unknown.

NOTE 2: It may be possible to subsequently identify the high layer compatibility, and thus the teleservice, from any in-band protocol within the B-channel.

NOTE 3: The combination of the two information elements will not match the values "speech", for the Bearer capability information element, together with "videotelephony", for the High layer compatibility information element, because such a combination is considered as not interpreted according to table 2.

- d) The network shall, where fallback occurs in the network, indicate, according to the procedures of EN 300 403-1 [25], subclauses 5.11.1 and 5.12.1, the resultant basic telecommunications service of the call by including, in the same message as the relevant Progress indicator information element, a Bearer capability information element with the information transfer capability field set to "speech" in which case an ordinary telephony 3,1 kHz teleservice call exists, and, if such information has been received, a High layer compatibility information element as received. "telephony". Where neither the Bearer capability information element nor the High layer compatibility information element is present in the same message as the related Progress indicator information element, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred. Where the High layer compatibility information element is not present in the same message as the related Progress indicator information element, and the information transfer capability field of the Bearer capability information element is set to "speech", the resultant teleservice is telephony 3,1 kHz. Where the High layer compatibility information element is not present in the same message as the related Progress indicator information element, and the information transfer capability field of the Bearer capability information element is set to "unrestricted digital information with tones/announcements", the resultant teleservice is unknown.

NOTE 4: It may be possible to subsequently identify the high layer compatibility, and thus the teleservice, from any in-band protocol within the B-channel.

- e) If fallback does not occur, when a CONNECT message is received the in-band protocol entity associated with the user shall initiate the in-band signalling procedures as specified in ETS 300 143 [12] and refined by ETS 300 145 [14], clause 6.
- f) If fallback does occur to the telephony 3,1 kHz teleservice, when a CONNECT message is received the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5.
- g) If fallback does occur to the telephony 7 kHz teleservice, further procedures shall be as defined in clause 6 of the present document.
- h) Where EN 300 403-1 [25], as modified by subclause 5.5.2 of the present document, specifies that tones or announcements should be provided, the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5 in order to receive the tones and announcements.

### 7.5.1.2 Further connections

If fallback does not occur, and the resultant mode of the videotelephony call, as determined by the in-band procedures, requires a second connection, this shall be established according to the procedures of subclause 5.5.1. The Bearer capability information element included in the SETUP message shall have the information transfer capability field set to "unrestricted digital information". The High layer compatibility information element included in the SETUP message shall have the high layer characteristics identification field set to "videotelephony", and the extended audiovisual characteristics identification field of the High layer compatibility information element to "capability set of subsequent channel of ITU-T Recommendation H.221 [2]".

When a CONNECT message is received the in-band protocol entity associated with the user shall initiate the in-band signalling procedures as specified in ETS 300 143 [12] and refined by ETS 300 145 [14], clause 6.

## 7.5.2 Call establishment at the destination interface

### 7.5.2.1 First connection

Where fallback is not allowed the procedures of EN 300 403-1 [25], subclause 5.2 and ETS 300 097-1 [10], subclause 9.2 shall be used with the following additions:

- 1) In the SETUP message, the network shall set the high layer characteristics identification field and the extended audiovisual characteristics identification field of the High layer compatibility information element to the values included by the originating user (i.e. "videotelephony" and "capability set of initial channel of ITU-T Recommendation H.221 [2]"); and shall include a single Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements".
- 2) When a CONNECT ACKNOWLEDGE message is received the in-band protocol entity associated with the user shall initiate the in-band signalling procedures as specified in ETS 300 143 [12] and refined by ETS 300 145 [14], clause 6.

Where fallback is allowed the procedures of EN 300 403-1 [25], subclause 5.2 and ETS 300 097-1 [10], subclause 9.2 shall be used with the following additions:

- a) The generic procedures for bearer capability selection at the destination side, as specified in EN 300 403-1 [25], subclause 5.11.2, and the generic procedures for high layer compatibility selection at the destination side, as specified in EN 300 403-1 [25], subclause 5.12.2, shall be used. In the SETUP message, the network shall set the high layer characteristics identification field of the first and second High layer compatibility information element to the values included by the originating user (i.e. "telephony" and "videotelephony" respectively); shall set the extended audiovisual characteristics identification field of the second High layer compatibility information element to the value included by the originating user (i.e. "capability set of initial channel of ITU-T Recommendation H.221 [2]"); shall include a first Bearer capability information element with the information transfer capability field set to "speech"; and shall include a second Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements". The Low layer compatibility information element shall not be included in the SETUP message; any necessary low layer information shall be included in the Bearer capability information element.
- b) The destination user shall assume the basic telecommunication services defined in table 2 and shall apply the procedures of annex B of EN 300 403-1 [25] to each of these basic telecommunication services according to the destination user requirements.

- c) The destination user may indicate the resultant basic telecommunications service of the call by including in the CONNECT message a Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements" or "speech" in which case an ordinary telephony 3,1 kHz teleservice call exists, and a High layer compatibility information element with a high layer characteristics identification field set to "videotelephony" or "telephony". Where the high layer characteristics identification field is set to "videotelephony", and, if the extended audiovisual characteristics identification field was included in the received High layer compatibility information element, the destination user shall set the extended audiovisual characteristics identification field to the value included by the network in the SETUP message (i.e. "capability set of initial channel of ITU-T Recommendation H.221 [2]"). Where the Bearer capability information element is not present in the CONNECT message, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred, irrespective of the coding of the High layer compatibility information element, if included. Where the Bearer capability information element is present in the CONNECT message, and the High layer compatibility information element is not present, fallback shall be determined by the coding of the Bearer capability information element; if its information transfer capability field is set to "unrestricted digital information with tones/announcements", then fallback to the telephony 7 kHz teleservice shall be assumed to have occurred, and, if it is set to "speech", then fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred.

NOTE: The combination of the two information elements will not match the values "speech", for the Bearer capability information element, together with "videotelephony", for the High layer compatibility information element, because such a combination is considered as not interpreted according to table 2.

- d) If fallback does not occur, when a CONNECT ACKNOWLEDGE message is received the in-band protocol entity associated with the user shall initiate the in-band signalling procedures as specified in ETS 300 143 [12] and refined by ETS 300 145 [14], clause 6.
- e) If fallback does occur to the telephony 3,1 kHz teleservice, when a CONNECT ACKNOWLEDGE message is received the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5.
- f) If fallback does occur to the telephony 7 kHz teleservice, the procedures of clause 6 of the present document shall be followed.

### 7.5.2.2 Further connections

If fallback does not occur, and the resultant mode of the videotelephony call, as determined by the in-band procedures specified in ETS 300 143 [12], requires a second connection, this shall be established according to the procedures of subclause 5.5.1. The Bearer capability information element included in the SETUP message shall have the information transfer capability field set to "unrestricted digital information". The High layer compatibility information element included in the SETUP message shall be set to the value included by the originating user, i.e. the high layer characteristics identification field set to "videotelephony" and the extended audiovisual characteristics identification field set to "capability of subsequent channel of ITU-T Recommendation H.221 [2]".

If a SETUP message is received with a high layer characteristics identification field of the High layer compatibility information element set to "videotelephony", and the extended audiovisual characteristics identification field of the High layer compatibility information element set to "capability set of subsequent channel of ITU-T Recommendation H.221 [2]", then, to accept the call, the destination user shall not send the ALERTING message, but shall automatically accept the call with a CONNECT message.

When a CONNECT ACKNOWLEDGE message is received the in-band protocol entity associated with the user shall initiate the in-band signalling procedures as specified in ETS 300 143 [12], and refined by ETS 300 145 [14], clause 6.

### 7.5.3 Call clearing

The procedures of EN 300 403-1 [25], subclause 5.3 shall be used for clearing each connection.

For presenting tones and announcements on clearing, the procedures of EN 300 403-1 [25], subclause 5.3.4.1, as modified by subclause 5.5.2 of the present document, shall be used. When a call of the videotelephony teleservice is in progress, the tone or announcement shall be presented in a 3,1 kHz mode on the first connection, encoded according to CCITT Recommendation G.711 [1] A-law. The in-band protocol entity associated with the user shall switch to A-law as specified in ETS 300 145 [14], clause 6.

## 7.5.4 In-band tones and announcements

The procedures of EN 300 403-1 [25], subclause 5.4, as modified by subclause 5.5.2 of the present document, shall be used only during establishment of the first connection.

In-band tones and announcements on call clearing are provided in subclause 7.5.3.

NOTE: The in-band protocol entity associated with the user cannot, on the basis of user information in the B-channel, switch from 7 kHz or a videotelephony mode to a mode where it can decode tones and announcements encoded in A-law according to CCITT Recommendation G.711 [1]. However, if the end-to-end connection is interrupted, the terminal will consider this as a failure situation and will switch to mode 0U. This is not regarded as an acceptable way of switching to mode 0U to provide tones and announcements.

## 7.5.5 Restart procedures

The procedures of EN 300 403-1 [25], subclause 5.5 are outside the scope of the present document.

NOTE: The restart procedures defined in subclause 5.5 of EN 300 403-1 [25] are not service specific and, where implemented, are used independently of individual calls and service requests.

## 7.5.6 Call rearrangements

The procedures of EN 300 403-1 [25], subclause 5.6 shall be used for each connection. Prior to these procedures the in-band protocol entity associated with the user shall switch to mode 0U (unframed), A-law as specified in ETS 300 145 [14], subclause 6.3.1.2.

On receipt of the RESUME ACKNOWLEDGE message, the in-band protocol entity associated with the user shall initiate the in-band signalling procedures as specified in ETS 300 145 [14], subclause 6.3.1.2.

NOTE: Where the terminal portability supplementary service is subscribed to and used, the full procedures of subclause 5.6 of EN 300 403-1 [25] has to be provided. Where the terminal portability supplementary service is not subscribed to, only the rejection procedures need to be provided.

Where two connections exist for a call, each connection shall be suspended with a different value of the Call identity information element. It is the responsibility of the terminal to generate these information elements from values supplied by the human user.

## 7.5.7 Call collisions

The procedures of EN 300 403-1 [25], subclause 5.7 shall apply.

## 7.5.8 Handling of error conditions

The procedures of EN 300 403-1 [25], subclause 5.8 shall apply.

NOTE: Where the user requests the videotelephony teleservice with fallback allowed from a network that does not support the videotelephony teleservice then the network will discard the second Bearer capability information element and the second High layer compatibility information element and will proceed with the call as a telephony 3,1 kHz call. No explicit indication of fallback will be given in this case.

## 7.5.9 User notification procedure

The procedures of EN 300 403-1 [25], subclause 5.9 and EN 300 196-1 [15], clause 9 shall apply.

NOTE: Where two connections exist, in some circumstances, notifications will be applied only to the first connection; in other circumstances identical notifications will be applied to both connections.

## 7.5.10 Basic telecommunication service identification and selection

The procedures of EN 300 403-1 [25], subclause 5.10 shall apply.

## 7.5.11 Signalling procedures for bearer capability selection

The procedures of EN 300 403-1 [25], subclause 5.11 shall apply.

## 7.5.12 Signalling procedures for high layer compatibility selection

The procedures of EN 300 403-1 [25], subclause 5.12 shall apply.

## 7.5.13 Status request procedures

The support of the status request procedure according to subclause 10.3 of EN 300 196-1 [15] is mandatory for any implementation conforming to the present document and to be connected to the coincident S and T reference point.

# 7.6 Procedures for interworking with private ISDNs

There is no in-band protocol entity associated with the user where the user is a private ISDN, therefore the procedures of subclause 7.5 concerning in-band protocol entities do not apply.

The procedures of subclause 7.5 shall apply for the user and the network with the exception that the following procedures shall apply at the destination interface instead of subclause 7.5.2.

If a private ISDN is attached to the access at the destination interface, the following procedures are applicable at call request. The private ISDN acts as the called user.

## 7.6.1 First connection

Where fallback is not allowed the procedures of EN 300 403-1 [25], subclause 5.2 and ETS 300 097-1 [10], subclause 9.2 shall be used with the following additions:

- In the SETUP message, the network shall set the high layer characteristics identification field and the extended audiovisual characteristics identification field of the High layer compatibility information element to the value included by the originating user (i.e. "videotelephony" and "capability set of initial channel of ITU-T Recommendation H.221 [2]"); and shall include a single Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements".

Where fallback is allowed the procedures of EN 300 403-1 [25], subclause 5.2 and ETS 300 097-1 [10], subclause 9.2 shall be used with the following additions:

- a) The generic procedures for bearer capability selection at the destination side to a private ISDN, as specified in EN 300 403-1 [25], subclause 5.11.3.2, and the generic procedures for high layer compatibility selection at the destination side to a private ISDN, as specified in EN 300 403-1 [25], subclause 5.12.3.2, shall be used. In the SETUP message, to indicate that a videotelephony teleservice is required, the network shall set the high layer characteristics identification field of the first and second High layer compatibility information element to the values included by the originating user (i.e. "telephony" and "videotelephony"); shall set the extended audiovisual characteristics identification field of the second High layer compatibility information element to the value included by the originating user (i.e. "capability set of initial channel of ITU-T Recommendation H.221 [2]"); and, shall set the information transfer capability field of the first Bearer capability information element included in the SETUP message to "speech" and the information transfer capability field of the second Bearer capability information element included in the SETUP message to "unrestricted digital information with tones/announcements". The Low layer compatibility information element shall not be included in the SETUP message; any necessary low layer information shall be included in the Bearer capability information element.

NOTE 1: When this setting is used, the private ISDN will reserve any required echo cancellation devices, A-law/ $\mu$ -law converters, etc. in case a speech information transfer capability is used for the resultant connection.

- b) The destination user shall assume the basic telecommunication services defined in table 2.
- c) The destination user shall, except where fallback occurs in the private ISDN, indicate, according to the procedures of EN 300 403-1 [25], subclauses 5.11.3.2 and 5.12.3.2, the resultant basic telecommunications service of the call by including in the CONNECT message a Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements" or "speech" in which case an ordinary telephony 3,1 kHz teleservice call exists, and a High layer compatibility information element with a high layer characteristics identification field set to "videotelephony" or "telephony". Where neither the Bearer capability information element nor the High layer compatibility information element is present in the CONNECT message, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred. Where the High layer compatibility information element is not present in the CONNECT message, and the information transfer capability field of the Bearer capability information element is set to "speech", the resultant teleservice is telephony 3,1 kHz. Where the High layer compatibility information element is not present in the CONNECT message, and the information transfer capability field of the Bearer capability information element is set to "unrestricted digital information with tones/announcements" the resultant teleservice is unknown.

NOTE 2: It may be possible to subsequently identify the high layer compatibility, and thus the teleservice, from any in-band protocol within the B-channel.

NOTE 3: The combination of the two information elements will not match the values "speech", for the Bearer capability information element, together with "videotelephony", for the High layer compatibility information element, because such a combination is considered as not interpreted according to table 2.

- d) The destination user shall, where fallback occurs in the private ISDN, indicate, according to the procedures of EN 300 403-1 [25], subclauses 5.11.3.2 and 5.12.3.2, the resultant basic telecommunications service of the call by including, in the same message as the relevant Progress indicator information element, a Bearer capability information element with the information transfer capability field set to "speech" in which case an ordinary telephony 3,1 kHz teleservice call exists, and, if received from the destination private network, a High layer compatibility information element as received. Where neither the Bearer capability information element nor the High layer compatibility information element is present in the same message as the related Progress indicator information element, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred. Where the High layer compatibility information element is not present in the same message as the related Progress indicator information element, and the information transfer capability field of the Bearer capability information element is set to "speech", the resultant teleservice is telephony 3,1 kHz. Where the High layer compatibility information element is not present in the same message as the related Progress indicator information element, and the information transfer capability field of the Bearer capability information element is set to "unrestricted digital information with tones/announcements", the resultant teleservice is unknown.

NOTE 4: It may be possible to subsequently identify the high layer compatibility, and thus the teleservice, from any in-band protocol within the B-channel.

## 7.6.2 Further connections

If fallback does not occur, and the resultant mode of the videotelephony call, as determined by the in-band procedures, requires a second connection, this shall be established according to the procedures of subclause 5.6.1. The Bearer capability information element included in the SETUP message shall have the information transfer capability field set to "unrestricted digital information". The High layer compatibility information element included in the SETUP message shall be set to the value included by the originating user, i.e. the high layer characteristics identification field set to "videotelephony" and the extended audiovisual characteristics identification field set to "capability of subsequent channel of ITU-T Recommendation H.221 [2]".

## 7.7 Interactions with other networks

Where the calling user has indicated that fallback is allowed, interworking with the PSTN shall occur according to the procedures of subclauses 5.1.6 and 5.2.6 of EN 300 403-1 [25], and a Progress indicator information element with a progress description #1 "call is not end-to-end ISDN, further call progress information may be available in-band" shall be sent to the calling user. If interworking does occur to the PSTN, when a CONNECT message is received the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5. "When fallback is not allowed, no interworking with the PSTN shall occur, and the call shall be cleared with a cause value of #65 "bearer capability not implemented".

Interworking shall not occur on the second connection request.

## 7.8 Parameter values (timers)

The parameter values specified in EN 300 403-1 [25], clause 9 shall apply.

## 7.9 Dynamic description (SDL diagrams)

The dynamic description of ETS 300 403-2 [26] shall apply.

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# 8 Audiographic conference teleservice

## 8.1 Description

At call establishment, this teleservice allows, with permission from the calling user, fallback to occur to the telephony 7 kHz or telephony 3,1 kHz teleservices.

It is mandatory for users and networks supporting the audiographic conference teleservice to support the telephony 3,1 kHz teleservice and the telephony 7 kHz teleservice.

Compatibility checking, as described in the present document, shall be consistent with the basic telecommunication services supported.

The audiographic conference teleservice uses the connection type "unrestricted digital information with tones/announcements" for the first connection and the connection type "unrestricted digital information" for the subsequent connections.

This subclause identifies the relevant procedures for this teleservice.

NOTE 1: Where the user is attached to a network that does not support this teleservice, the user may obtain an equivalent service, without fallback and possibly without tones and announcements, by requesting a call according to the circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category. The network may provide the capabilities of transferring the remaining appropriate Bearer capability and High layer compatibility information element encodings. In order for this alternative service mechanism to operate, the destination user will also have to support the reception of calls using the circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category.

NOTE 2: The procedures of this clause are designed to allow for interworking at the destination side, where fallback is allowed, with existing terminals supporting the telephony 3,1 kHz teleservice.

NOTE 3: The stage one description for this teleservice allows the user to initiate renegotiation of this service once the connection is established. This is performed by using the in-band protocol. If this action takes place after an audiographic conference teleservice connection is established, then the network entities involved in the call will continue to treat the call as a call of the audiographic conference teleservice. Where renegotiation is made to a telephony 3,1 kHz style of operation, the terminal will have to provide any required echo-cancellation function and support A-law and  $\mu$ -law coding. Where the original call was established as a call of the telephony 3,1 kHz teleservice, and renegotiation is made using the in-band protocol to an audiographic conference style of operation, communication may be impaired or rendered impossible by included network devices such as A-law/ $\mu$ -law converters and echo-cancellation devices.

## 8.2 Operational requirements

### 8.2.1 Provision and withdrawal

The audiographic conference teleservice shall be either provided after prior arrangement with the service provider or be available on a general basis.

Withdrawal shall be at the request of the customer or for administrative reasons.

Various optional subscription arrangements are defined in subclause 6.1 of ETS 300 675 [27].

### 8.2.2 Requirements on the originating network side

The requirements of the originating network side are covered in subclause 8.5.

### 8.2.3 Requirements on the destination network side

The requirements of the destination network side are covered in subclause 8.5.

## 8.3 Coding requirements

The Bearer capability information element uses the following codings:

- a) For the information transfer field, "speech", "unrestricted digital information with tones/announcements" and "unrestricted digital information".
- b) Where the information transfer capability field is set to "speech", for the user information layer one protocol, "CCITT Recommendation G.711 [1] A-law" as described in EN 300 403-1 [25].
- c) Where the information transfer capability field is set to "unrestricted digital information with tones/announcements", for the user information layer one protocol, "ITU-T Recommendations H.221 [2] and H.242 [3]" as described in subclause 4.5.5 of EN 300 403-1 [25]; and
- d) Where the establishment of an additional channel is required, and the information transfer capability field is set to "unrestricted digital information", for the user information layer one protocol, "ITU-T Recommendations H.221 [2] and H.242 [3]" as described in subclause 4.5.5 of EN 300 403-1 [25].

NOTE: The ETSs replacing these ITU-T Recommendations are ETS 300 144 [13] (ITU-T Recommendation H.221 [2]) and ETS 300 143 [12] (ITU-T Recommendation H.242 [3]).

The High layer compatibility information element shall use the codings of "telephony" and "audiographic conferencing" in the high layer characteristics identification field.

The High layer compatibility information element uses the codings of "capability set of initial channel of ITU-T Recommendation H.221 [2]" and "capability set of subsequent channel of Recommendation H.221 [2]" in the extended audiovisual characteristics identification field.

## 8.4 State definitions

The states for this teleservice are defined in subclause 5.4 of the present document.

## 8.5 Signalling procedures at the coincident S and T reference point

### 8.5.1 Call establishment at the originating interface

#### 8.5.1.1 First connection

Where fallback is not allowed the procedures of EN 300 403-1 [25], subclause 5.1, and ETS 300 092-1 [9], subclause 9.2, shall be used with the following additions:

- 1) In the SETUP message, the user shall set the high layer characteristics identification field of the High layer compatibility information element to "audiographic conferencing", the extended audiovisual characteristics identification field of the High layer compatibility information element to "capability set of initial channel of ITU-T Recommendation H.221 [2]", and shall include a single Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements".
- 2) Where EN 300 403-1 [25], as modified by subclause 5.5.2 of the present document, specifies that tones or announcements should be provided, the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5, in order to provide the tones and announcements.
- 3) When a CONNECT message is received, the in-band protocol entity associated with the user shall initiate the in-band procedures, as specified in ETS 300 143 [12], and refined by ETS 300 145 [14], clause 6.

Where fallback is allowed the procedures of EN 300 403-1 [25], subclause 5.1, and ETS 300 092-1 [9], subclause 9.2, shall be used with the following additions:

- a) The generic procedures for the originating user to indicate that bearer capability selection, as specified in subclause 5.11.1 of EN 300 403-1 [25], and high layer compatibility selection, as specified in subclause 5.12.1 of EN 300 403-1 [25] shall be used. In the SETUP message, to indicate that an audiographic conference teleservice is required, with fallback allowed to telephony 7 kHz or telephony 3,1 kHz, the user shall set the high layer characteristics identification field of the first High layer compatibility information element included in the SETUP message to "telephony", the high layer characteristics identification field of the second High layer compatibility information element included in the SETUP message to "audiographic conferencing", the extended audiovisual characteristics identification field of the second High layer compatibility information element to "capability set of initial channel of ITU-T Recommendation H.221 [2]" and; shall set the information transfer capability field of the first Bearer capability information element included in the SETUP message to "speech" and the information transfer capability field of the second Bearer capability information element included in the SETUP message to "unrestricted digital information with tones/announcements". The Low layer compatibility information element shall not be included in the SETUP message; any necessary low layer information shall be included in the Bearer capability information element.

NOTE 1: When this setting is used, the network will reserve any required echo-cancellation devices, A-law/ $\mu$ -law converters, etc., in case a speech information transfer capability is used for the resultant connection.

- b) If the optional subscription check for the prime service defined in table 3 is successful, the originating network shall establish the call; if the optional subscription check is not successful, the originating network shall release the call with cause #57 "bearer capability not authorized".

**Table 3: Possible combinations of Bearer capability and High layer compatibility information element codepoints in an audiographic conference call request and resultant basic telecommunication services**

	<b>1<sup>st</sup> Bearer capability = speech</b>	<b>2<sup>nd</sup> Bearer capability = unrestricted digital information with tones/announcements</b>
<b>1<sup>st</sup> High layer compatibility = telephony</b>	Unnotified fallback telephony 3,1 kHz	Fallback telephony 7 kHz
<b>2<sup>nd</sup> High layer compatibility = audiographic conferencing</b>	not interpreted	Prime audiographic conference

**Key:**  
 Prime: This is the basic telecommunication service that gives a quality of communication that is the best choice if the destination user supports this basic telecommunication service.  
 Fallback: This is a basic telecommunication service that is legal but is not the best choice to fulfil the requirements of the originating user.  
 Unnotified fallback: This is a fallback basic telecommunication service where the resultant basic telecommunication service may not be indicated by the destination user or the network (where the network is the originating network and does not support fallback). If no indication is given, then this basic telecommunication service should be assumed by the receiving network or user respectively. This is to enable communication with terminals supporting the existing telephony 3,1 kHz teleservice.  
 Not interpreted: This is a combination which shall not be used for any identification of a basic service, neither by the network nor by the user.

- c) The network shall, except where fallback occurs in the network, indicate, according to the procedures of subclause 5.11.1 and subclause 5.12.1 of EN 300 403-1 [25], the resultant basic telecommunication service of the call by including in the CONNECT message a Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements" or "speech", in which case an ordinary telephony 3,1 kHz teleservice call exists, and, if received, a High layer compatibility information element with the received value, i.e. a high layer characteristics identification field set to "audiographic conferencing" or "telephony" and, for the high layer characteristics identification field set to "audiographic conferencing", an extended audiovisual characteristics identification field set to "capability set of initial channel of ITU-T Recommendation H.221 [2]". Where neither the Bearer capability information element nor the High layer compatibility information element is present in the CONNECT message, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred. Where the high layer compatibility information element is not present in the CONNECT message, and the information transfer capability field of the Bearer capability information element is set to "speech", the resultant teleservice is telephony 3,1 kHz. Where the High layer compatibility information element is not present in the CONNECT message, and the information transfer capability of the Bearer capability information element is set to "unrestricted digital information with tones/announcements", the resultant teleservice is unknown.

NOTE 2: It may be possible to subsequently identify the high layer compatibility, and thus the teleservice, from any in-band protocol within the B-channel.

NOTE 3: The combination of the two information elements will not match the values "speech", for the Bearer capability information element, together with "videotelephony", for the High layer compatibility information element, because such a combination is considered as not interpreted according to table 3.

- d) The network shall, where fallback occurs in the network, indicate, according to the procedures of subclause 5.11.1 of EN 300 403-1 [25], the resultant basic telecommunication service of the call by including, in the same message as the relevant Progress indicator information element, a Bearer capability information element with the information transfer capability field set to "speech" in which case an ordinary telephony 3,1 kHz teleservice call exists, and, if such information has been received, a High layer compatibility information element as received. Where neither the Bearer capability information element nor the High layer compatibility information element is present in the same message as the related Progress indicator information element, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred. Where the High layer compatibility information element is not present in the same message as the related Progress indicator information element, and the information transfer capability field of the Bearer capability information element is set to "speech", the resultant teleservice is telephony 3,1 kHz.

NOTE 4: It may be possible to subsequently identify the high layer compatibility, and thus the teleservice, from any in-band protocol within the B-channel.

- e) If fallback does not occur, when a CONNECT message is received the in-band protocol entity associated with the user shall initiate the framing of the end-to-end path, according to ETS 300 144 [13]. The in-band procedures shall be established as specified in ETS 300 143 [12], and refined in ETS 300 145 [14], clause 6.
- f) If fallback does occur to the telephony 3,1 kHz teleservice, when a CONNECT message is received, the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5.
- g) If fallback does occur to the telephony 7 kHz teleservice, further procedures are defined in clause 6 of the present document.
- h) Where EN 300 403-1 [25], as modified by subclause 5.5.2 of the present document, specifies that tones or announcements should be provided, the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5, in order to receive the tones and announcements.

### 8.5.1.2 Further connections

If fallback does not occur, and the resultant mode of the audiographic conference call, as determined by the in-band procedures, requires further connections, these shall be established according to the procedures of subclause 5.5.1. For each one of them, the Bearer capability information element included in the SETUP message shall have the information transfer capability field set to "unrestricted digital information". The High layer compatibility information element included in the SETUP message shall have the high layer characteristics identification field set to "audiographic conferencing", and the extended audiovisual characteristics identification field of the High layer compatibility information element to "capability set of subsequent channel of ITU-T Recommendation H.221 [2]".

When a CONNECT message is received the in-band protocol entity associated with the user shall initiate the framing of the end-to-end path, according to ETS 300 144 [13]. The in-band procedures shall be established as specified in ETS 300 143 [12], and refined in ETS 300 145 [14], clause 6.

## 8.5.2 Call establishment at the destination interface

### 8.5.2.1 First connection

Where fallback is not allowed the procedures of EN 300 403-1 [25], subclause 5.2 and ETS 300 097-1 [10], subclause 9.2 shall be used with the following additions:

- 1) In the SETUP message, the network shall set the high layer characteristics identification field and the extended audiovisual characteristics identification field of the High layer compatibility information element to the values included by the originating user (i.e. "audiographic conferencing" and "capability set of initial channel of ITU-T Recommendation H.221 [2]"); and shall include a single Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements".
- 2) When a CONNECT ACKNOWLEDGE message is received, the in-band protocol entity associated with the user shall initiate the framing of the end-to-end path, according to ETS 300 144 [13]. The in-band procedures shall be established as specified in ETS 300 143 [12], and refined in ETS 300 145 [14], clause 6.

Where fallback is allowed the procedures of EN 300 403-1 [25], subclause 5.2 and ETS 300 097-1 [10], subclause 9.2 shall be used with the following additions:

- a) The generic procedures for bearer capability selection at the destination side, as specified in subclause 5.11.2 of EN 300 403-1 [25], and the generic procedures for high layer compatibility selection at the destination side, as specified in subclause 5.12.2 of EN 300 403-1 [25], shall be used. In the SETUP message, the network shall set the high layer characteristics identification field of the first and second High layer compatibility information element to the values included by the originating user (i.e. "telephony" and "audiographic conferencing" respectively); shall set the extended audiovisual characteristics identification field of the second High layer compatibility information element to the value included by the originating user (i.e. "capability set of initial channel of ITU-T Recommendation H.221 [2]"); shall include a first Bearer capability information element with the information transfer capability field set to "speech"; and shall include a second Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements". The Low layer compatibility information element shall not be included in the SETUP message; any necessary low layer information shall be included in the Bearer capability information element.

- b) The destination user shall assume the basic telecommunication services defined in table 3 and shall apply the procedures of annex B of EN 300 403-1 [25] to each of these basic telecommunication services according to the destination user requirements.
- c) The destination user may indicate the resultant basic telecommunication service of the call by including in the CONNECT message a Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements" or "speech", in which case an ordinary telephony 3,1 kHz teleservice call exists, and a High layer compatibility information element with a high layer characteristics identification field set to "audiographic conferencing" or "telephony". Where the high layer characteristics identification field is set to "audiographic conferencing", and, if the extended audiovisual characteristics identification field was included in the received High layer compatibility information element, the destination user shall set the extended audiovisual characteristics identification field to the value included by the network in the SETUP message (i.e. "capability set of initial channel of ITU-T Recommendation H.221 [2]"). Where the Bearer capability information element is not present in the CONNECT message, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred, irrespective of the coding of the High layer compatibility information element, if included. Where the Bearer capability information element is present in the CONNECT message, and the High layer compatibility information element is not present, fallback shall be determined by the coding of the Bearer capability information element: if its information transfer capability is set to "unrestricted digital information with tones/announcements", then fallback to the telephony 7 kHz teleservice shall be assumed to have occurred, whereas if it is set to "speech", fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred.

NOTE: The combination of the two information elements will not match the values "speech", for the Bearer capability information element, together with "videotelephony", for the High layer compatibility information element, because such a combination is considered as not interpreted according to table 3.

- d) If fallback does not occur, when a CONNECT ACKNOWLEDGE message is received, the in-band protocol entity associated with the user shall initiate the framing of the end-to-end path, according to ETS 300 144 [13]. The in-band procedures shall be established as specified in ETS 300 143 [12], and refined in ETS 300 145 [14], clause 6.
- e) If fallback does occur to the telephony 3,1 kHz teleservice, when a CONNECT ACKNOWLEDGE message is received, the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5.
- f) If fallback does occur to the telephony 7 kHz teleservice, the procedures of clause 6 of the present document shall be followed.

### 8.5.2.2 Further connections

If fallback does not occur, and the resultant mode of the audiographic conference call, as determined by the in-band procedures specified in ETS 300 143 [12], requires further connections, these shall be established according to the procedures of subclause 5.5.1. For each one of them, the Bearer capability information element included in the SETUP message shall have the information transfer capability field set to "unrestricted digital information". The High layer compatibility information element included in the SETUP message shall be set to the value included by the originating user, i.e. the high layer characteristics identification field set to "audiographic conferencing", and the extended audiovisual characteristics identification field set to "capability of subsequent channel of ITU-T Recommendation H.221 [2]".

If a SETUP message is received with a high layer characteristics identification field of the High layer compatibility information element set to "audiographic conferencing", and the extended audiovisual characteristics identification field of the High layer compatibility information element set to "capability set of subsequent channel of ITU-T Recommendation H.221 [2]", then, to accept the call, the destination user shall not send the ALERTING message, but shall automatically accept it, by sending a CONNECT message.

When a CONNECT ACKNOWLEDGE message is received, the in-band protocol entity associated with the user shall initiate the framing of the end-to-end path, according to ETS 300 144 [13]. The in-band procedures shall be established as specified in ETS 300 143 [12], and refined in ETS 300 145 [14], clause 6.

### 8.5.3 Call clearing

The procedures of EN 300 403-1 [25], subclause 5.3, shall be used for clearing each connection.

For presenting tones and announcements on clearing, the procedures of EN 300 403-1 [25], subclause 5.3.4.1, as modified by subclause 5.5.2 of the present document shall be used. When a call of the audiographic conference teleservice is in progress, the tone or announcement shall be presented in a 3,1 kHz mode on the first connection, encoded according to CCITT Recommendation G.711 [1] A-law. The in-band protocol entity associated with the user shall switch to A-law, as specified in ETS 300 145 [14], clause 6.

### 8.5.4 In-band tones and announcements

The procedures of EN 300 403-1 [25], subclause 5.4, as modified by subclause 5.5.2 of the present document, shall be used only during establishment of the first connection. In-band tones and announcements on call clearing are provided in subclause 8.5.3.

NOTE: The in-band protocol entity associated with the user cannot, on the basis of user information in the B-channel, switch from 7 kHz or an audiographic conference mode to a mode where it can decode tones and announcements encoded in A-law according to CCITT Recommendation G.711 [1]. However, if the end-to-end connection is interrupted, the terminal will consider this as a failure situation and will switch to mode 0U. This is not regarded as an acceptable way of switching to mode 0U to provide tones and announcements.

### 8.5.5 Restart procedures

The procedures of EN 300 403-1 [25], subclause 5.5, are outside the scope of the present document.

NOTE: The restart procedures defined in subclause 5.5 of EN 300 403-1 [25] are not service specific and, where implemented, are used independently of individual call and service requests.

### 8.5.6 Call rearrangements

The procedures of EN 300 403-1 [25], subclause 5.6, shall be used for each connection. Prior to these procedures, the in-band protocol entity associated with the user shall switch to mode 0U (unframed) using the procedure P as specified in ETS 300 145 [14], subclause 7.5.1.

NOTE: Where the terminal portability supplementary service is subscribed to and used, the full procedures of subclause 5.6 of EN 300 403-1 [25] has to be provided. Where the terminal portability supplementary service is not subscribed to, only the rejection procedures need to be provided.

Where several connections exist for a call, each connection shall be suspended with a different value of the Call identity information element. It is the responsibility of the terminal to generate these information elements from values supplied by the human user.

### 8.5.7 Call collisions

The procedures of EN 300 403-1 [25], subclause 5.7, shall apply.

### 8.5.8 Handling of error conditions

The procedures of EN 300 403-1 [25], subclause 5.8, shall apply.

NOTE: Where the user requests the audiographic conference teleservice with fallback allowed from a network that does not support this teleservice, then the network will discard the second Bearer capability information element and will proceed with the call as a telephony 3,1 kHz call. No explicit indication of fallback will be given in this case.

## 8.5.9 User notification procedure

The procedures of EN 300 403-1 [25], subclause 5.9, and EN 300 196-1 [15], clause 9, shall apply.

NOTE: Where several connections exist, in some circumstances, notifications will be applied only to the first connection; in other circumstances identical notifications will be applied to the entire set of connections.

## 8.5.10 Basic telecommunication service identification and selection

The procedures of EN 300 403-1 [25], subclause 5.10 shall apply.

## 8.5.11 Signalling procedures for bearer capability selection

The procedures of EN 300 403-1 [25], subclause 5.11 shall apply.

## 8.5.12 Signalling procedures for high layer compatibility selection

The procedures of EN 300 403-1 [25], subclause 5.12 shall apply.

## 8.5.13 Status request procedures

The support of the status request procedure, according to subclause 5.13 of EN 300 403-1 [25], and subclause 10.3 of EN 300 196-1 [15], is mandatory for any implementation conforming to the present document and to be connected to the coincident S and T reference point.

# 8.6 Procedures for interworking with private ISDNs

There is no in-band protocol entity associated with the user where the user is a private ISDN, therefore the procedures of subclause 8.5 concerning in-band protocol entities do not apply.

The procedures of subclause 8.5 shall apply for the user and the network, with the exception that the following procedures shall apply at the destination interface instead of subclause 8.5.2.

If a private ISDN is attached to the access at the destination interface, the following procedures are applicable at call request. The private ISDN acts as the called user.

In the audiographic conference teleservice, the first call is always devoted to the transfer of speech and data, while the subsequent calls are only used for data communication.

These subsequent calls can only be originated by the calling user's terminal after the connection of the first call has been established.

## 8.6.1 First connection

Where fallback is not allowed the procedures of EN 300 403-1 [25], subclause 5.2, and ETS 300 097-1 [10], subclause 9.2, shall be used. Additionally, in the SETUP message, the network shall set the high layer characteristics identification field and the extended audiovisual characteristics identification field of the High layer compatibility information element to the values included by the originating user (i.e. "audiographic conferencing" and "capability set of initial channel ITU-T Recommendation H.221 [2]"); and shall include a single Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements".

Where fallback is allowed the procedures of EN 300 403-1 [25], subclause 5.2, and ETS 300 097-1 [10], subclause 9.2, shall be used with the following additions:

- a) The generic procedures for bearer capability selection at the destination side to a private ISDN, as specified in subclause 5.11.3.2 of EN 300 403-1 [25], and the generic procedures for high layer compatibility selection at the destination side to a private ISDN, as specified in subclause 5.12.3.2 of EN 300 403-1 [25], shall be used. In the SETUP message, to indicate that an audiographic conference teleservice is required, the network shall set the high layer characteristics identification field of the first and second High layer compatibility information elements to the values included by the originating user (i.e. "telephony" and "audiographic conferencing"); shall set the extended audiovisual characteristics identification field of the second high layer compatibility information element to the value included by the originating user (i.e. "capability set of initial channel of ITU-T Recommendation H.221 [2]"); and, shall set the information transfer capability field of the first Bearer capability information element included in the SETUP message to "speech" and the information transfer capability field of the second Bearer capability information element included in the SETUP message to "unrestricted digital information with tones/announcements". The Low layer compatibility information element shall not be included in the SETUP message; any necessary low layer information shall be included in the Bearer capability information element.

NOTE 1: When this setting is used, the private ISDN will reserve any required echo-cancellation devices, A-law/ $\mu$ -law converters, etc., in case a speech information transfer capability is used for the resultant connection.

- b) The destination user shall assume the basic telecommunication services defined in table 3.
- c) The destination user shall, except where fallback occurs in the private ISDN, indicate, according to the procedures of subclauses 5.11.3.2 and 5.12.3.2 of EN 300 403-1 [25], the resultant basic telecommunication service of the call by including in the CONNECT message a Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements" or "speech", in which case an ordinary telephony 3,1 kHz teleservice call exists, and a High layer compatibility information element with a high layer characteristics identification field set to "audiographic conferencing" or "telephony". Where neither the Bearer capability information element nor the High layer compatibility information element is present in the CONNECT message, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred. Where the High layer compatibility information element is not present in the CONNECT message, and the information transfer capability field of the Bearer capability information element is set to "speech", the resultant teleservice is telephony 3,1 kHz. Where the High layer compatibility information element is not present in the CONNECT message, and the information transfer capability field of the Bearer capability information element is set to "unrestricted digital information with tones/announcements", the resultant teleservice is unknown.

NOTE 2: The combination of the two information elements will not match the values "speech", for the Bearer capability information element, together with "videotelephony", for the High layer compatibility information element, because such a combination is considered as not interpreted according to table 3.

- d) The destination user shall, where fallback occurs in the private ISDN, indicate, according to the procedures of subclauses 5.11.3.2 and 5.12.3.2 of EN 300 403-1 [25], the resultant basic telecommunication service of the call by including, in the same message as the relevant Progress indicator information element, a Bearer capability information element with the information transfer capability field set to "speech", in which case an ordinary telephony 3,1 kHz teleservice call exists, and, if received from the destination private network, a High layer compatibility information element as received. Where neither the Bearer capability information element nor the High layer information element is present in the same message as the related Progress indicator information element, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred. Where the High layer compatibility information element is not present in the same message as the related Progress indicator information element, and the information transfer capability field of the Bearer capability information element is set to "speech", the resultant teleservice is telephony 3,1 kHz.

## 8.6.2 Further connections

If fallback does not occur, and the resultant mode of the audiographic conference call requires further connections, as determined by the in-band procedures, these shall be established according to the procedures of subclause 5.6.1. For each one of them, the Bearer capability information element included in the SETUP message shall have the information transfer capability field set to "unrestricted digital information". The High layer compatibility information element included in the SETUP message shall be set to the value included by the originating user, i.e. the high layer characteristics identification field set to "audiographic conferencing" and the extended audiovisual characteristics identification field set to "capability of subsequent channel of ITU-T Recommendation H.221 [2]".

## 8.7 Interactions with other networks

Where the calling user has indicated that fallback is allowed, interworking with the PSTN shall occur according to the procedures of subclause 5.1.6 and subclause 5.2.6 of EN 300 403-1 [25], and a Progress indicator information element with a progress description #1, "call is not end-to-end ISDN: further call progress information may be available in-band", shall be sent to the calling user.

When fallback is not allowed, no interworking with the PSTN shall occur, and the call shall be cleared with a cause value of #65 "bearer capability not implemented".

Interworking shall not occur on the second connection request.

## 8.8 Parameter values (timers)

The parameter values specified in EN 300 403-1 [25], clause 9, shall apply.

## 8.9 Dynamic description (SDL diagrams)

The dynamic description of ETS 300 403-2 [26] shall apply.

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# 9 Videoconference teleservice

## 9.1 Description

At call establishment, this teleservice allows, with permission from the calling user, fallback to occur to the telephony 7 kHz or telephony 3,1 kHz teleservices.

It is mandatory for users and networks supporting the videoconference teleservice to support the telephony 3,1 kHz teleservice and the telephony 7 kHz teleservice.

Compatibility checking, as described in the present document, shall be consistent with the basic telecommunication services supported.

The videoconference teleservice uses the connection type "unrestricted digital information with tones/announcements" for the first connection and the connection type "unrestricted digital information" for the subsequent connections.

This clause identifies the relevant procedures for this teleservice.

NOTE 1: Where the user is attached to a network that does not support this teleservice, the user may obtain an equivalent service, without fallback and possibly without tones and announcements, by requesting a call according to the circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category. The network may provide the capabilities of transferring the remaining appropriate Bearer capability and High layer compatibility information element encodings. In order for this alternative service mechanism to operate, the destination user will also have to support the reception of calls using the circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category.

NOTE 2: The procedures of this clause are designed to allow for interworking at the destination side, where fallback is allowed, with existing terminals supporting the telephony 3,1 kHz teleservice.

NOTE 3: The stage one description for this teleservice allows the user to initiate renegotiation of this service once the connection is established. This is performed by using the in-band protocol. If this action takes place after a videoconference teleservice connection is established, then the network entities involved in the call will continue to treat the call as a call of the videoconference teleservice. Where renegotiation is made to a telephony 3,1 kHz style of operation, the terminal will have to provide any required echo-cancellation function and support both A-law and  $\mu$ -law coding. Where the original call was established as a call of the telephony 3,1 kHz teleservice, and renegotiation is made using the in-band protocol to a videoconference style of operation, communication may be impaired or rendered impossible by included network devices such as A-law/ $\mu$ -law converters and echo-cancellation devices.

## 9.2 Operational requirements

### 9.2.1 Provision and withdrawal

The videoconference teleservice shall be either provided after prior arrangement with the service provider or be available on a general basis.

Withdrawal shall be at the request of the customer or for administrative reasons.

Various optional subscription arrangements are defined in subclause 6.1 of ETS 300 678 [28].

### 9.2.2 Requirements on the originating network side

The requirements of the originating network side are covered in subclause 9.5.

### 9.2.3 Requirements on the destination network side

The requirements of the destination network side are covered in subclause 9.5.

## 9.3 Coding requirements

The Bearer capability information element uses the following codings:

- a) for the information transfer capability field, "speech", "unrestricted digital information with tones/announcements" and "unrestricted digital information";
- b) where the information transfer capability field is set to "speech", for the user information layer one protocol, "ITU-T Recommendation G.711 [1] A-law" as described in EN 300 403-1 [25];
- c) where the information transfer capability field is set to "unrestricted digital information with tones/announcements", for the user information layer one protocol, "ITU-T Recommendations H.221 [2] and H.242 [3]" as described in subclause 4.5.5 of EN 300 403-1 [25]; and
- d) where the establishment of an additional channel is required, and the information transfer capability field is set to "unrestricted digital information", for the user information layer one protocol, "ITU-T Recommendations H.221 [2] and H.242 [3]" as described in subclause 4.5.5 of EN 300 403-1 [25].

NOTE: The ETSS replacing these ITU-T Recommendations are ETS 300 144 [13] (ITU-T Recommendation H.221 [2]) and ETS 300 143 [12] (ITU-T Recommendation H.242 [3]).

The High layer compatibility information element shall use the codings of "telephony" and "videoconferencing" in the high layer characteristics identification field.

The High layer compatibility information element uses the coding of "capability set of initial channel of ITU-T Recommendation H.221 [2]" and "capability set of subsequent channel of ITU-T Recommendation H.221 [2]" in the extended audiovisual characteristics identification field.

## 9.4 State definitions

The states for this teleservice are defined in subclause 5.4 of the present document.

## 9.5 Signalling procedures at the coincident S and T reference point

### 9.5.1 Call establishment at the originating interface

#### 9.5.1.1 First connection

Where fallback is not allowed the procedures of EN 300 403-1 [25], subclause 5.1, and ETS 300 092-1 [9], subclause 9.2, shall be used with the following additions:

- 1) In the SETUP message, the user shall set the high layer characteristics identification field of the High layer compatibility information element to "videoconferencing", the extended audiovisual characteristics identification field of the High layer compatibility information element to "capability set of initial channel of ITU-T Recommendation H.221 [2]", and shall include a single Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements".
- 2) Where EN 300 403-1 [25], as modified by subclause 5.5.2 of the present document, specifies that tones or announcements should be provided, the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5, in order to provide the tones and announcements.
- 3) When a CONNECT message is received, the in-band protocol entity associated with the user shall initiate the in-band procedures, as specified in ETS 300 143 [12], and refined by ETS 300 145 [14], clause 6.

Where fallback is allowed the procedures of EN 300 403-1 [25], subclause 5.1, and ETS 300 092-1 [9], subclause 9.2, shall be used with the following additions:

- a) The generic procedures for the originating user to indicate that bearer capability selection, as specified in subclause 5.11.1 of EN 300 403-1 [25], and high layer compatibility selection, as specified in subclause 5.12.1 of EN 300 403-1 [25] shall be used. In the SETUP message, to indicate that a videoconference teleservice is required, with fallback allowed to telephony 7 kHz or telephony 3,1 kHz, the user shall set the high layer characteristics identification field of the first High layer compatibility information element included in the SETUP message to "telephony", the high layer characteristics identification field of the second High layer compatibility information element included in the SETUP message to "videoconferencing", the extended audiovisual characteristics identification field of the second High layer compatibility information element to "capability set of initial channel of ITU-T Recommendation H.221 [2]" and; shall set the information transfer capability field of the first Bearer capability information element included in the SETUP message to "speech" and the information transfer capability field of the second Bearer capability information element included in the SETUP message to "unrestricted digital information with tones/announcements". The Low layer compatibility information element shall not be included in the SETUP message; any necessary low layer information shall be included in the Bearer capability information element.

NOTE 1: When this setting is used, the network will reserve any required echo-cancellation devices, A-law/ $\mu$ -law converters, etc., in case a speech information transfer capability is used for the resultant connection.

- b) If the optional subscription check for the prime service defined in table 4 is successful, the originating network shall establish the call; if the optional subscription check is not successful, the originating network shall release the call with cause #57 "bearer capability not authorized".

**Table 4: Possible combinations of Bearer capability and High layer compatibility information element codepoints in a videoconference call request and resultant basic telecommunication services**

	<b>1<sup>st</sup> Bearer capability = speech</b>	<b>2<sup>nd</sup> Bearer capability = unrestricted digital information with tones/announcements</b>
<b>1<sup>st</sup> High layer compatibility = telephony</b>	Unnotified fallback telephony 3,1 kHz	Fallback telephony 7 kHz
<b>2<sup>nd</sup> High layer compatibility = videoconferencing</b>	not interpreted	Prime videoconference

**Key:**  
**Prime:** This is the basic telecommunication service that gives a quality of communication that is the best choice if the destination user supports this basic telecommunication service.  
**Fallback:** This is a basic telecommunication service that is legal but is not the best choice to fulfil the requirements of the originating user.  
**Unnotified fallback:** This is a fallback basic telecommunication service where the resultant basic telecommunication service may not be indicated by the destination user or the network (where the network is the originating network and does not support fallback). If no indication is given, then this basic telecommunication service should be assumed by the receiving network or user respectively. This is to enable communication with terminals supporting the existing telephony 3,1 kHz teleservice.  
**Not interpreted:** This is a combination which shall not be used for any identification of a basic service, neither by the network nor by the user.

- c) The network shall, except where fallback occurs in the network, indicate, according to the procedures of subclause 5.11.1 and subclause 5.12.1 of EN 300 403-1 [25], the resultant basic telecommunication service of the call by including in the CONNECT message a Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements" or "speech", in which case an ordinary telephony 3,1 kHz teleservice call exists, and, if received, a High layer compatibility information element with the received value, i.e. a high layer characteristics identification field set to "videoconferencing" or "telephony" and, for the high layer characteristics identification field set to "videoconferencing", an extended audiovisual characteristics identification field set to "capability set of initial channel of ITU-T Recommendation H.221 [2]". Where neither the Bearer capability information element nor the High layer compatibility information element is present in the CONNECT message, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred. Where the high layer compatibility information element is not present in the CONNECT message, and the information transfer capability field of the Bearer capability information element is set to "speech", the resultant teleservice is telephony 3,1 kHz. Where the High layer compatibility information element is not present in the CONNECT message, and the information transfer capability of the Bearer capability information element is set to "unrestricted digital information with tones/announcements", the resultant teleservice is unknown.

NOTE 2: It may be possible to subsequently identify the high layer compatibility, and thus the teleservice, from any in-band protocol within the B-channel.

NOTE 3: The combination of the two information elements will not match the values "speech", for the Bearer capability information element, together with "videotelephony", for the High layer compatibility information element, because such a combination is considered as not interpreted according to table 4.

- d) The network shall, where fallback occurs in the network, indicate, according to the procedures of subclause 5.11.1 of EN 300 403-1 [25], the resultant basic telecommunication service of the call by including, in the same message as the relevant Progress indicator information element, a Bearer capability information element with the information transfer capability field set to "speech" in which case an ordinary telephony 3,1 kHz teleservice call exists, and, if such information has been received, a High layer compatibility information element as received. Where neither the Bearer capability information element nor the High layer compatibility information element is present in the same message as the related Progress indicator information element, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred. Where the High layer compatibility information element is not present in the same message as the related Progress indicator information element, and the information transfer capability field of the Bearer capability information element is set to "speech", the resultant teleservice is telephony 3,1 kHz.

NOTE 4: It may be possible to subsequently identify the high layer compatibility, and thus the teleservice, from any in-band protocol within the B-channel.

- e) If fallback does not occur, when a CONNECT message is received the in-band protocol entity associated with the user shall initiate the framing of the end-to-end path, according to ETS 300 144 [13]. The in-band procedures shall be established as specified in ETS 300 143 [12], and refined in ETS 300 145 [14], clause 6.
- f) If fallback does occur to the telephony 3,1 kHz teleservice, when a CONNECT message is received, the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5.
- g) If fallback does occur to the telephony 7 kHz teleservice, further procedures are defined in clause 6 of the present document.
- h) Where EN 300 403-1 [25], as modified by subclause 5.5.2 of the present document, specifies that tones or announcements should be provided, the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5, in order to receive the tones and announcements.

### 9.5.1.2 Further connections

If fallback does not occur, and the resultant mode of the videoconference call, as determined by the in-band procedures, requires further connections, these shall be established according to the procedures of subclause 5.5.1. For each one of them, the Bearer capability information element included in the SETUP message shall have the information transfer capability field set to "unrestricted digital information". The High layer compatibility information element included in the SETUP message shall have the high layer characteristics identification field set to "videoconferencing", and the extended audiovisual characteristics identification field of the High layer compatibility information element to "capability set of subsequent channel of ITU-T Recommendation H.221 [2]".

When a CONNECT message is received the in-band protocol entity associated with the user shall initiate the framing of the end-to-end path, according to ETS 300 144 [13]. The in-band procedures shall be established as specified in ETS 300 143 [12], and refined in ETS 300 145 [14], clause 6.

## 9.5.2 Call establishment at the destination interface

### 9.5.2.1 First connection

Where fallback is not allowed the procedures of EN 300 403-1 [25], subclause 5.2 and ETS 300 097-1 [10], subclause 9.2 shall be used with the following additions:

- 1) In the SETUP message, the network shall set the high layer characteristics identification field and the extended audiovisual characteristics identification field of the High layer compatibility information element to the values included by the originating user (i.e. "videoconferencing" and "capability set of initial channel of ITU-T Recommendation H.221 [2]"); and shall include a single Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements".
- 2) When a CONNECT ACKNOWLEDGE message is received, the in-band protocol entity associated with the user shall initiate the framing of the end-to-end path, according to ETS 300 144 [13]. The in-band procedures shall be established as specified in ETS 300 143 [12], and refined in ETS 300 145 [14], clause 6.

Where fallback is allowed the procedures of EN 300 403-1 [25], subclause 5.2 and ETS 300 097-1 [10], subclause 9.2 shall be used with the following additions:

- a) The generic procedures for bearer capability selection at the destination side, as specified in subclause 5.11.2 of EN 300 403-1 [25], and the generic procedures for high layer compatibility selection at the destination side, as specified in subclause 5.12.2 of EN 300 403-1 [25], shall be used. In the SETUP message, the network shall set the high layer characteristics identification field of the first and second High layer compatibility information element to the values included by the originating user (i.e. "telephony" and "videoconferencing" respectively); shall set the extended audiovisual characteristics identification field of the second High layer compatibility information element to the value included by the originating user (i.e. "capability set of initial channel of ITU-T Recommendation H.221 [2]"); shall include a first Bearer capability information element with the information transfer capability field set to "speech"; and shall include a second Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements". The Low layer compatibility information element shall not be included in the SETUP message; any necessary low layer information shall be included in the Bearer capability information element.

- b) The destination user shall assume the basic telecommunication services defined in table 4 and shall apply the procedures of annex B of EN 300 403-1 [25] to each of these basic telecommunication services according to the destination user requirements.
- c) The destination user may indicate the resultant basic telecommunication service of the call by including in the CONNECT message a Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements" or "speech", in which case an ordinary telephony 3,1 kHz teleservice call exists, and a High layer compatibility information element with a high layer characteristics identification field set to "videoconferencing" or "telephony". Where the high layer characteristics identification field is set to "videoconferencing", and, if the extended audiovisual characteristics identification field was included in the received High layer compatibility information element, the destination user shall set the extended audiovisual characteristics identification field to the value included by the network in the SETUP message (i.e. "capability set of initial channel of ITU-T Recommendation H.221 [2]"). Where the Bearer capability information element is not present in the CONNECT message, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred, irrespective of the coding of the High layer compatibility information element, if included. Where the Bearer capability information element is present in the CONNECT message, and the High layer compatibility information element is not present, fallback shall be determined by the coding of the Bearer capability information element: if its information transfer capability is set to "unrestricted digital information with tones/announcements", then fallback to the telephony 7 kHz teleservice shall be assumed to have occurred, whereas if it is set to "speech", fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred.

NOTE: The combination of the two information elements will not match the values "speech", for the Bearer capability information element, together with "videotelephony", for the High layer compatibility information element, because such a combination is considered as not interpreted according to table 4.

- d) If fallback does not occur, when a CONNECT ACKNOWLEDGE message is received, the in-band protocol entity associated with the user shall initiate the framing of the end-to-end path, according to ETS 300 144 [13]. The in-band procedures shall be established as specified in ETS 300 143 [12], and refined in ETS 300 145 [14], clause 6.
- e) If fallback does occur to the telephony 3,1 kHz teleservice, when a CONNECT ACKNOWLEDGE message is received, the in-band protocol entity associated with the user shall initiate the in-band procedures as specified in I-ETS 300 245-2 [16], clause 5.
- f) If fallback does occur to the telephony 7 kHz teleservice, the procedures of clause 6 of the present document shall be followed.

### 9.5.2.2 Further connections

If fallback does not occur, and the resultant mode of the videoconference call, as determined by the in-band procedures specified in ETS 300 143 [12], requires further connections, these shall be established according to the procedures of subclause 5.5.1. For each one of them, the Bearer capability information element included in the SETUP message shall have the information transfer capability field set to "unrestricted digital information". The High layer compatibility information element included in the SETUP message shall be set to the value included by the originating user, i.e. the high layer characteristics identification field set to "videoconferencing", and the extended audiovisual characteristics identification field set to "capability of subsequent channel of ITU-T Recommendation H.221 [2]".

If a SETUP message is received with a high layer characteristics identification field of the High layer compatibility information element set to "videoconferencing", and the extended audiovisual characteristics identification field of the High layer compatibility information element set to "capability set of subsequent channel of ITU-T Recommendation H.221 [2]", then, to accept the call, the destination user shall not send the ALERTING message, but shall automatically accept it, by sending a CONNECT message.

When a CONNECT ACKNOWLEDGE message is received, the in-band protocol entity associated with the user shall initiate the framing of the end-to-end path, according to ETS 300 144 [13]. The in-band procedures shall be established as specified in ETS 300 143 [12], and refined in ETS 300 145 [14], clause 6.

### 9.5.3 Call clearing

The procedures of EN 300 403-1 [25], subclause 5.3, shall be used for clearing each connection.

For presenting tones and announcements on clearing, the procedures of EN 300 403-1 [25], subclause 5.3.4.1, as modified by subclause 5.5.2 of the present document shall be used. When a call of the videoconference teleservice is in progress, the tone or announcement shall be presented in a 3,1 kHz mode on the first connection, encoded according to CCITT Recommendation G.711 [1] A-law. The in-band protocol entity associated with the user shall switch to A-law, as specified in ETS 300 145 [14], clause 6.

### 9.5.4 In-band tones and announcements

The procedures of EN 300 403-1 [25], subclause 5.4, as modified by subclause 5.5.2 of the present document, shall be used only during establishment of the first connection. In-band tones and announcements on call clearing are provided in subclause 9.5.3.

**NOTE:** The in-band protocol entity associated with the user cannot, on the basis of user information in the B-channel, switch from 7 kHz or a videoconference mode to a mode where it can decode tones and announcements encoded in A-law according to CCITT Recommendation G.711 [1]. However, if the end-to-end connection is interrupted, the terminal will consider this as a failure situation and will switch to mode 0U. This is not regarded as an acceptable way of switching to mode 0U to provide tones and announcements.

### 9.5.5 Restart procedures

The procedures of EN 300 403-1 [25], subclause 5.5, are outside the scope of the present document.

**NOTE:** The restart procedures defined in subclause 5.5 of EN 300 403-1 [25] are not service specific and, where implemented, are used independently of individual call and service requests.

### 9.5.6 Call rearrangements

The procedures of EN 300 403-1 [25], subclause 5.6, shall be used for each connection. Prior to these procedures, the in-band protocol entity associated with the user shall switch to mode 0U (unframed) using the procedure P as specified in ETS 300 145 [14], subclause 7.5.1.

**NOTE:** Where the terminal portability supplementary service is subscribed to and used, the full procedures of subclause 5.6 of EN 300 403-1 [25] has to be provided. Where the terminal portability supplementary service is not subscribed to, only the rejection procedures need to be provided.

Where several connections exist for a call, each connection shall be suspended with a different value of the Call identity information element. It is the responsibility of the terminal to generate these information elements from values supplied by the human user.

### 9.5.7 Call collisions

The procedures of EN 300 403-1 [25], subclause 5.7, shall apply.

### 9.5.8 Handling of error conditions

The procedures of EN 300 403-1 [25], subclause 5.8, shall apply.

**NOTE:** Where the user requests the videoconference teleservice with fallback allowed from a network that does not support this teleservice, then the network will discard the second Bearer capability information element and will proceed with the call as a telephony 3,1 kHz call. No explicit indication of fallback will be given in this case.

### 9.5.9 User notification procedure

The procedures of EN 300 403-1 [25], subclause 5.9, and EN 300 196-1 [15], clause 9, shall apply.

NOTE: Where several connection exist, in some circumstances, notifications will be applied only to the first connection; in other circumstances identical notifications will be applied to the entire set of connections.

### 9.5.10 Basic telecommunication service identification and selection

The procedures of EN 300 403-1 [25], subclause 5.10 shall apply.

### 9.5.11 Signalling procedures for bearer capability selection

The procedures of EN 300 403-1 [25], subclause 5.11 shall apply.

### 9.5.12 Signalling procedures for high layer compatibility selection

The procedures of EN 300 403-1 [25], subclause 5.12 shall apply.

### 9.5.13 Status request procedures

The support of the status request procedure, according to subclause 5.13 of EN 300 403-1 [25], and to subclause 10.3 of EN 300 196-1 [15], is mandatory for any implementation conforming to the present document and to be connected to the coincident S and T reference point.

## 9.6 Procedures for interworking with private ISDNs

There is no in-band protocol entity associated with the user where the user is a private ISDN, therefore the procedures of subclause 9.5 concerning in-band protocol entities do not apply.

The procedures of subclause 9.5 shall apply for the user and the network, with the exception that the following procedures shall apply at the destination interface instead of subclause 9.5.2.

If a private ISDN is attached to the access at the destination interface, the following procedures are applicable at call request. The private ISDN acts as the called user.

In the videoconference teleservice, the first call is initially devoted to the transfer of speech, while the subsequent calls can be used for video signals, for signals related to conference control and for data communication.

These subsequent calls can only be originated, by the calling user's terminal, after the connection of the first call has been established, and after the end-to-end capability exchange and mode in-band initialization procedure are completed.

NOTE: The end-to-end path is framed according to ETS 300 144 [13]. The in-band protocol is established according to ETS 300 143 [12].

## 9.6.1 First connection

Where fallback is not allowed the procedures of EN 300 403-1 [25], subclause 5.2, and ETS 300 097-1 [10], subclause 9.2, shall be used. Additionally, in the SETUP message, the network shall set the high layer characteristics identification field and the extended audiovisual characteristics identification field of the High layer compatibility information element to the values included by the originating user (i.e. "videoconferencing" and "capability set of initial channel ITU-T Recommendation H.221 [2]"); and shall include a single Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements".

Where fallback is allowed the procedures of EN 300 403-1 [25], subclause 5.2, and ETS 300 097-1 [10], subclause 9.2, shall be used with the following additions:

- a) The generic procedures for bearer capability selection at the destination side to a private ISDN, as specified in subclause 5.11.3.2 of EN 300 403-1 [25], and the generic procedures for high layer compatibility selection at the destination side to a private ISDN, as specified in subclause 5.12.3.2 of EN 300 403-1 [25], shall be used. In the SETUP message, to indicate that a videoconference teleservice is required, the network shall set the high layer characteristics identification field of the first and second High layer compatibility information elements to the values included by the originating user (i.e. "telephony" and "videoconferencing"); shall set the extended audiovisual characteristics identification field of the second high compatibility information element to the value included by the originating user (i.e. "capability set of initial channel of ITU-T Recommendation H.221 [2]"); and, shall set the information transfer capability field of the first Bearer capability information element included in the SETUP message to "speech" and the information transfer capability field of the second Bearer capability information element included in the SETUP message to "unrestricted digital information with tones/announcements". The Low layer compatibility information element shall not be included in the SETUP message; any necessary low layer information shall be included in the Bearer capability information element.

NOTE 1: When this setting is used, the private ISDN will reserve any required echo-cancellation devices, A-law/ $\mu$ -law converters, etc., in case a speech information transfer capability is used for the resultant connection.

- b) The destination user shall assume the basic telecommunication services defined in table 4.
- c) The destination user shall, except where fallback occurs in the private ISDN, indicate, according to the procedures of subclause 5.11.3.2 and subclause 5.12.3.2 of EN 300 403-1 [25], the resultant basic telecommunication service of the call by including in the CONNECT message a Bearer capability information element with the information transfer capability field set to "unrestricted digital information with tones/announcements" or "speech", in which case an ordinary telephony 3,1 kHz teleservice call exists, and a High layer compatibility information element with a high layer characteristics identification field set to "videoconferencing" or "telephony". Where neither the Bearer capability information element nor the High layer compatibility information element is present in the CONNECT message, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred. Where the High layer compatibility information element is not present in the CONNECT message, and the information transfer capability field of the Bearer capability information element is set to "speech", the resultant teleservice is telephony 3,1 kHz. Where the High layer compatibility information element is not present in the CONNECT message, and the information transfer capability field of the Bearer capability information element is set to "unrestricted digital information with tones/announcements", the resultant teleservice is unknown.

NOTE 2: The combination of the two information elements will not match the values "speech", for the Bearer capability information element, together with "videotelephony", for the High layer compatibility information element, because such a combination is considered as not interpreted according to table 4.

- d) The destination user shall, where fallback occurs in the private ISDN, indicate, according to the procedures of subclauses 5.11.3.2 and 5.12.3.2 of EN 300 403-1 [25], the resultant basic telecommunication service of the call by including, in the same message as the relevant Progress indicator information element, a Bearer capability information element with the information transfer capability field set to "speech", in which case an ordinary telephony 3,1 kHz teleservice call exists, and, if received from the destination private network, a High layer compatibility information element as received. Where neither the Bearer capability information element nor the High layer information element is present in the same message as the related Progress indicator information element, fallback to the telephony 3,1 kHz teleservice shall be assumed to have occurred. Where the High layer compatibility information element is not present in the same message as the related Progress indicator information element, and the information transfer capability field of the Bearer capability information element is set to "speech", the resultant teleservice is telephony 3,1 kHz.

## 9.6.2 Further connections

If fallback does not occur, and the resultant mode of the videoconference call requires further connections, as determined by the in-band procedures, these shall be established according to the procedures of subclause 5.6.1. For each one of them, the Bearer capability information element included in the SETUP message shall have the information transfer capability field set to "unrestricted digital information". The High layer compatibility information element included in the SETUP message shall be set to the value included by the originating user, i.e. the high layer characteristics identification field set to "videoconferencing" and the extended audiovisual characteristics identification field set to "capability of subsequent channel of ITU-T Recommendation H.221 [2]".

## 9.7 Interactions with other networks

Where the calling user has indicated that fallback is allowed, interworking with the PSTN shall occur according to the procedures of subclause 5.1.6 and subclause 5.2.6 of EN 300 403-1 [25], and a Progress indicator information element with a progress description #1, "call is not end-to-end ISDN: further call progress information may be available in-band", shall be sent to the calling user.

When fallback is not allowed, no interworking with the PSTN shall occur, and the call shall be cleared with a cause value of #65 "bearer capability not implemented".

Interworking shall not occur on the second connection request.

## 9.8 Parameter values (timers)

The parameter values specified in EN 300 403-1 [25], clause 9, shall apply.

## 9.9 Dynamic description (SDL diagrams)

The dynamic description of ETS 300 403-2 [26] shall apply.

## Annex A (informative): Signalling flows for the telephony 7 kHz teleservice

Annex A gives some example signalling flows for successful calls where the telephony 7 kHz teleservice was requested. The examples are:

- figure A.1: Fallback not allowed, no interworking with PSTN;
- figure A.2: Fallback allowed, but does not occur;
- figure A.3: Fallback allowed, and occurs to telephony 3,1 kHz within the network beyond the indicated interface;
- figure A.4: Fallback allowed, and occurs to telephony 3,1 kHz at the destination terminal interface;
- figure A.5: Fallback allowed, interworking with PSTN beyond indicated interface.

Each figure contains cases corresponding to the four interfaces within the scope of the present document. These are shown side by side to indicate related messages for each interface.

The following symbols are used in figures A.1 to A.5:

- BC: Bearer capability information element;
- BC1: First Bearer capability information element;
- BC2: Second Bearer capability information element;
- HLC: High layer compatibility information element;
- O: Optional information in the context of bearer capability selection;
- PI: Progress indicator information element.

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC = UDI with T/A) (HLC = telephony)			
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <-----	CONNECT <-----	CONNECT <-----	CONNECT <-----

Figure A.1: Fallback not allowed, no interworking with PSTN

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <----- (BC = UDI with T/A)			

Figure A.2: Fallback allowed, but does not occur

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
(note 1)	(note 1)	(note 1)	(note 1)
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)	Not applicable
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
PROGRESS (note 2) <----- (PI = #5) (BC = speech) (note 3)	PROGRESS (note 2) <----- (PI = #5) (BC = speech) (note 3)	PROGRESS (note 2) <----- (PI = #5) (BC = speech)	
ALERTING <-----	ALERTING <-----	ALERTING <-----	
CONNECT <-----	CONNECT <-----	CONNECT <-----	

NOTE 1: If the fallback occurred in the network prior to this interface, then the procedures on this interface will be a basic call providing the telephony 3,1 kHz teleservice.

NOTE 2: Any appropriate call control message may also carry this information.

NOTE 3: Where this information element is not present, the resultant Bearer capability information element shall be identified as described in the exceptional procedures for bearer capability selection.

Figure A.3: Fallback allowed, and occurs to telephony 3,1 kHz within the network beyond this interface

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <----- (BC = speech)	CONNECT <----- (BC = speech)	CONNECT <----- (BC = speech)	CONNECT <----- (BC = speech)(O)

**Figure A.4: Fallback allowed, and occurs to telephony 3,1 kHz at the destination interface**

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC = telephony)	Not applicable
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
PROGRESS (note) <----- (PI = #1)	PROGRESS (note) <----- (PI = #1)	PROGRESS (note) <----- (PI = #1)	
ALERTING <-----	ALERTING <-----	ALERTING <-----	
CONNECT <-----	CONNECT <-----	CONNECT <-----	

NOTE: Any appropriate call control message may also carry this information.

**Figure A.5: Fallback allowed, interworking with PSTN beyond indicated interface**

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## Annex B (informative): Signalling flows for the videotelephony teleservice

Annex B gives some example signalling flows for successful calls where the videotelephony teleservice was requested. The examples are:

- figure B.1: Fallback not allowed, no interworking with PSTN;
- figure B.2: Fallback allowed, but does not occur;
- figure B.3: Fallback allowed, and occurs to telephony 3,1 kHz within the network beyond the indicated interface;
- figure B.4: Fallback allowed, and occurs to telephony 3,1 kHz at the destination terminal interface;
- figure B.5: Fallback allowed, and occurs to telephony 7 kHz at the destination terminal interface;
- figure B.6: Fallback allowed, interworking with PSTN beyond indicated interface.

Each figure contains four cases corresponding to the four interfaces within the scope of the present document. These are shown side by side to indicate related messages for each interface.

For convenience, only figure B.1 shows the establishment of a second connection for use in videotelephony mode 2. This second connection is also allowed in figure B.2.

The following symbols are used in figures B.1 to B.5:

- BC: Bearer capability information element;
- BC1: First Bearer capability information element;
- BC2: Second Bearer capability information element;
- HLC: High layer compatibility information element;
- HLC1: First High layer compatibility information element;
- HLC2: Second High layer compatibility information element;
- O: Optional information in the context of bearer capability and high layer compatibility selection;
- PI: Progress indicator information element.

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC = UDI with T/A) (HLC = videotelephony)			
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <-----	CONNECT <-----	CONNECT <-----	CONNECT <-----
SETUP -----> (BC = UDI) (HLC = videotelephony)			
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----
CONNECT <-----	CONNECT <-----	CONNECT <-----	CONNECT <-----

Figure B.1: Fallback not allowed, no interworking with PSTN

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <----- (BC = UDI with T/A) (HLC = videotelephony)			

Figure B.2: Fallback allowed, but does not occur

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
(note 1)	(note 1)	(note 1)	(note 1)
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	Not applicable
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
PROGRESS (note 2) <----- (PI = #5) (BC = speech)(note 3) (HLC = telephony)(O)	PROGRESS (note 2) <----- (PI = #5) (BC = speech)(note 3) (HLC = telephony)(O)	PROGRESS (note 2) <----- (PI = #5) (BC = speech) (HLC = telephony)(O)	
ALERTING <-----	ALERTING <-----	ALERTING <-----	
CONNECT <-----	CONNECT <-----	CONNECT <-----	

NOTE 1: If the fallback occurred in the network prior to this interface, then the procedures on this interface will be a basic call providing the telephony 3,1 kHz teleservice.

NOTE 2: Any appropriate call control message may also carry this information.

NOTE 3: Where this information element is not present, the resultant Bearer capability information element shall be identified as described in the exceptional procedures for bearer capability selection.

**Figure B.3: Fallback allowed, and occurs to telephony 3,1 kHz within the network beyond the indicated interface**

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <----- (BC = speech) (HLC = telephony)	CONNECT <----- (BC = speech) (HLC = telephony)	CONNECT <----- (BC = speech) (HLC = telephony)	CONNECT <----- (BC = speech)(O) (HLC = telephony)(O)

**Figure B.4: Fallback allowed, and occurs to telephony 3,1 kHz at the destination terminal interface**

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <----- (BC = UDI with T/A) (HLC = telephony)	CONNECT <----- (BC = UDI with T/A) (HLC = telephony)	CONNECT <----- (BC = UDI with T/A) (HLC = telephony)	CONNECT <----- (BC = UDI with T/A) (HLC = telephony)(O)

**Figure B.5: Fallback allowed, and occurs to telephony 7 kHz at the destination terminal interface**

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videotelephony)	Not applicable
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
PROGRESS (note) <----- (PI = #1)	PROGRESS (note) <----- (PI = #1)	PROGRESS (note) <----- (PI = #1)	
ALERTING <-----	ALERTING <-----	ALERTING <-----	
CONNECT <-----	CONNECT <-----	CONNECT <-----	

NOTE: Any appropriate call control message may also carry this information.

**Figure B.6: Fallback allowed, interworking with PSTN beyond indicated interface**

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## Annex C (informative): Signalling flows for the audiographic conference teleservice

Annex C gives some examples of signalling flows for successful calls where the audiographic conference teleservice was requested. The examples are:

- figure C.1: Fallback not allowed, no interworking with PSTN;
- figure C.2: Fallback allowed, but does not occur;
- figure C.3: Fallback allowed, and occurs to telephony 3,1 kHz within the network beyond the indicated interface;
- figure C.4: Fallback allowed, and occurs to telephony 3,1 kHz at the destination terminal interface;
- figure C.5: Fallback allowed, and occurs to telephony 7 kHz at the destination terminal interface;
- figure C.6: Fallback allowed, interworking with PSTN beyond indicated interface.

Each figure contains four cases corresponding to the four interfaces within the scope of the present document. These are shown side by side to indicate related messages for each interface.

For convenience, only figure C.1 shows the establishment of a second further connection for use in audiographic conference mode 2. Further connections are also allowed in figure C.2.

The following symbols are used in figures C.1 to C.6:

- BC: Bearer capability information element;
- BC1: First Bearer capability information element;
- BC2: Second Bearer capability information element;
- HLC: High layer compatibility information element;
- HLC1: First High layer compatibility information element;
- HLC2: Second High layer compatibility information element;
- O: Optional information;
- PI: Progress indicator information element.

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC = UDI with T/A) (HLC = audiographic conferencing)  CALL PROCEEDING <-----	SETUP -----> (BC = UDI with T/A) (HLC = audiographic conferencing)  CALL PROCEEDING <-----	SETUP -----> (BC = UDI with T/A) (HLC = audiographic conferencing)  CALL PROCEEDING <-----	SETUP -----> (BC = UDI with T/A) (HLC = audiographic conferencing)  CALL PROCEEDING <-----
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <-----	CONNECT <-----	CONNECT <-----	CONNECT <-----
SETUP -----> (BC = UDI) (HLC = audiographic conferencing)  CALL PROCEEDING <-----			
CONNECT <-----	CONNECT <-----	CONNECT <-----	CONNECT <-----

Figure C.1: Fallback not allowed, no interworking with PSTN

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)  CALL PROCEEDING <-----	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)  CALL PROCEEDING <-----	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)  CALL PROCEEDING <-----	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)  CALL PROCEEDING <-----
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <----- (BC = UDI with T/A) (HLC = audiographic conferencing)	CONNECT <----- (BC = UDI with T/A) (HLC = audiographic conferencing)	CONNECT <----- (BC = UDI with T/A) (HLC = audiographic conferencing)	CONNECT <----- (BC = UDI with T/A) (HLC = audiographic conferencing)

Figure C.2: Fallback allowed, but does not occur

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
(note 1)	(note 1)	(note 1)	(note 1)
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)	Not applicable
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
PROGRESS (note 2) <----- (PI = #5) (BC = speech) (note 2) (HLC = telephony) (0)	PROGRESS (note 2) <----- (PI = #5) (BC = speech) (note 3) (HLC = telephony) (0)	PROGRESS (note 2) <----- (PI = #5) (BC = speech) (note 3) (HLC = telephony) (0)	
ALERTING <-----	ALERTING <-----	ALERTING <-----	
CONNECT <-----	CONNECT <-----	CONNECT <-----	

NOTE 1: If the fallback occurred in the network prior to this interface, then the procedures on this interface will be a basic call providing the telephony 3,1 kHz teleservice.

NOTE 2: Any appropriate call control message may also carry this information.

NOTE 3: Where this information element is not present, the resultant Bearer capability information element shall be identified as described in the exceptional procedures for bearer capability selection.

**Figure C.3: Fallback allowed, and occurs to telephony 3,1 kHz within the network beyond the indicated interface**

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <----- (BC = speech) (HLC = telephony)	CONNECT <----- (BC = speech) (HLC = telephony)	CONNECT <----- (BC = speech) (HLC = telephony)	CONNECT <----- (BC = speech) (0) (HLC = telephony) (0)

**Figure C.4: Fallback allowed, and occurs to telephony 3,1 kHz at the destination terminal interface**

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <----- (BC = UDI with T/A) (HLC = telephony)	CONNECT <----- (BC = UDI with T/A) (HLC = telephony)	CONNECT <----- (BC = UDI with T/A) (HLC = telephony)	CONNECT <----- (BC = UDI with T/A) (0) (HLC = telephony) (0)

Figure C.5: Fallback allowed, and occurs to telephony 7 kHz at the destination terminal interface

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = audiographic conferencing)	Not applicable
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
PROGRESS (note) <----- (PI = #1)	PROGRESS (note) <----- (PI = #1)	PROGRESS (note) <----- (PI = #1)	
ALERTING <-----	ALERTING <-----	ALERTING <-----	
CONNECT <-----	CONNECT <-----	CONNECT <-----	

NOTE: Any appropriate call control message may also carry this information.

Figure C.6: Fallback allowed, interworking with PSTN beyond indicated interface

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## Annex D (informative): Signalling flows for the videoconference teleservice

Annex D gives some examples of signalling flows for successful calls where the videoconference teleservice was requested. The examples are:

- figure D.1: Fallback not allowed, no interworking with PSTN;
- figure D.2: Fallback allowed, but does not occur;
- figure D.3: Fallback allowed, and occurs to telephony 3,1 kHz within the network beyond the indicated interface;
- figure D.4: Fallback allowed, and occurs to telephony 3,1 kHz at the destination terminal interface;
- figure D.5: Fallback allowed, and occurs to telephony 7 kHz at the destination terminal interface;
- figure D.6: Fallback allowed, interworking with PSTN beyond indicated interface.

Each figure contains four cases corresponding to the four interfaces within the scope of the present document. These are shown side by side to indicate related messages for each interface.

For convenience, only figure D.1 shows the establishment of a second further connection for use in videoconference mode 2. Further connections are also allowed in figure D.2.

The following symbols are used in figures D.1 to D.6:

- BC: Bearer capability information element;
- BC1: First Bearer capability information element;
- BC2: Second Bearer capability information element;
- HLC: High layer compatibility information element;
- HLC1: First High layer compatibility information element;
- HLC2: Second High layer compatibility information element;
- O: Optional information;
- PI: Progress indicator information element.

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC = UDI with T/A) (HLC = videoconferencing)			
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <-----	CONNECT <-----	CONNECT <-----	CONNECT <-----
SETUP -----> (BC = UDI) (HLC = videoconferencing)			
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----
CONNECT <-----	CONNECT <-----	CONNECT <-----	CONNECT <-----

Figure D.1: Fallback not allowed, no interworking with PSTN

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <----- (BC = UDI with T/A) (HLC = videoconferencing)			

Figure D.2: Fallback allowed, but does not occur

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
(note 1)	(note 1)	(note 1)	(note 1)
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	Not applicable
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
PROGRESS (note 2) <----- (PI = #5) (BC = speech) (note 3) (HLC = telephony) (0)	PROGRESS (note 2) <----- (PI = #5) (BC = speech) (note 3) (HLC = telephony) (0)	PROGRESS (note 2) <----- (PI = #5) (BC = speech) (note 3) (HLC = telephony) (0)	
ALERTING <-----	ALERTING <-----	ALERTING <-----	
CONNECT <-----	CONNECT <-----	CONNECT <-----	

NOTE 1: If the fallback occurred in the network prior to this interface, then the procedures on this interface will be a basic call providing the telephony 3,1 kHz teleservice.

NOTE 2: Any appropriate call control message may also carry this information.

NOTE 3: Where this information element is not present, the resultant Bearer capability information element shall be identified as described in the exceptional procedures for bearer capability selection.

**Figure D.3: Fallback allowed, and occurs to telephony 3,1 kHz within the network beyond the indicated interface**

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <----- (BC = speech) (HLC = telephony)	CONNECT <----- (BC = speech) (HLC = telephony)	CONNECT <----- (BC = speech) (HLC = telephony)	CONNECT <----- (BC = speech) (0) (HLC = telephony) (0)

**Figure D.4: Fallback allowed, and occurs to telephony 3,1 kHz at the destination terminal interface**

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----
ALERTING <-----	ALERTING <-----	ALERTING <-----	ALERTING <-----
CONNECT <----- (BC = UDI with T/A) (HLC = telephony)	CONNECT <----- (BC = UDI with T/A) (HLC = telephony)	CONNECT <----- (BC = UDI with T/A) (HLC = telephony)	CONNECT <----- (BC = UDI with T/A) (0) (HLC = telephony) (0)

Figure D.5: Fallback allowed, and occurs to telephony 7 kHz at the destination terminal interface

(a) originating coincident S and T reference point	(b) originating T reference point	(c) destination T reference point	(d) destination coincident S and T reference point
SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	SETUP -----> (BC1 = speech) (BC2 = UDI with T/A) (HLC1 = telephony) (HLC2 = videoconferencing)	Not applicable
CALL PROCEEDING <-----	CALL PROCEEDING <-----	CALL PROCEEDING <-----	
PROGRESS (note) <----- (PI = #1)	PROGRESS (note) <----- (PI = #1)	PROGRESS (note) <----- (PI = #1)	
ALERTING <-----	ALERTING <-----	ALERTING <-----	
CONNECT <-----	CONNECT <-----	CONNECT <-----	

NOTE: Any appropriate call control message may also carry this information.

Figure D.6: Fallback allowed, interworking with PSTN beyond indicated interface

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## Annex E (informative): Identification of changes from previous standards

### E.1 Identification of changes from ETS 300 267-1 to its amendment A1

The main differences between ETS 300 267-1 [22] and its amendment A1 (ETS 300 267-1 Amendment 1 [23]) are as follows:

- a) the Repeat indicator information element is not defined in ETS 300 102-1 [11] and therefore it should not be mentioned in subclause 5.3, items a) and b). Further editorial changes have been identified;
- b) the name of the field within the High layer compatibility information element is corrected in subclause 5.3, item 3);
- c) the name of the information element in subclause 5.5.1.2, item c) is corrected. Further editorial changes have been identified for items d) and e);
- d) the last paragraph of subclause 5.5.5.1 is amended to deal with the circumstances where reduced subscription exists at the destination network. In this case, the highest supported alternative basic service is offered. The cause value returned back across the network is removed. An editorial correction for the first paragraph of subclause 5.5.5.1 has also been identified;
- e) subclause 5.6.2.2, item f), and subclause 5.6.5.1 are editorially corrected;
- f) in subclause 6.2.1, the reference within ETS 300 263 [18] is corrected;
- g) in subclause 6.3, the name of the high layer characteristics information field is corrected;
- h) the references to I-ETS 300 281 [24] in subclause 6.5.1 item 3) and item e), subclause 6.5.2 item 2) and item d), subclause 6.5.3 second paragraph, and subclause 6.5.6 first and second paragraphs are corrected. The correct reference should be to clause 7;
- i) the situations under which tones and announcements can be provided are clarified. Tones and announcements during the establishment phase and during the active phase are provided in subclauses 6.5.4 and 7.5.4, whereas tones and announcements on call clearing are covered in subclauses 6.5.3 and 7.5.3, despite what is indicated by the subclause titles;
- j) the references in subclause 6.6 item c) and item d) are made more specific;
- k) the reference in subclause 6.7 to a subclause of ETS 300 102-1 [11] is corrected;
- l) the reference in subclause 7.2.1 to ETS 300 264 [19] is corrected;

- m) the name of one of the fields in subclause 7.3, item d) and the name of the high layer characteristics information field are corrected;
- n) in subclause 7.5.1 item 2) and item f) "in-band signalling procedures" is confusing and is amended to "in-band procedures". In item c) the name of the high layer characteristics information field is corrected. The interpretation of the resultant teleservice in the event of the absence of the High layer compatibility information element is improved. Two minor editorial changes have also been identified;
- o) in subclause 7.5.2, item c) the name of the field is corrected. The text referring to the extended audiovisual characteristics identification field is also applied to videotelephony. The closing sentences are made clearer. In item e) "in-band signalling procedures" is amended to "in-band procedures";
- p) in subclause 7.6, item c) and item d) the name of the high layer characteristics information field is incorrectly applied. The interpretation of the resultant teleservice in the event of the absence of the High layer compatibility information element is improved. In addition, in item d), the first "network" is changed to "private ISDN". Text is added for alignment with subclause 7.5.1 item d);
- q) in subclause 7.7, first paragraph, the reference is corrected, and some text to align with subclause 6.7 is added.

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## E.2 Identification of changes from ETS 300 267-1 including amendment A1 to the present document

The main differences between ETS 300 267-1 [22] including amendment A1 (ETS 300 267-1 Amendment 1 [23]) and the present document are as follows:

- a) the standard has been extended to cover the audiographic conference and videoconference teleservices. This has resulted in extensions to the scope and other general text to include these teleservices, provision of new clauses 8 and 9, and provision of a new annexes C and D;

NOTE: As the signalling procedures required to perform these teleservices are basically the same as those required for the telephony 7 kHz and the videotelephony teleservices described in clauses 6 and 7, the structure and the wording of the new clauses are also very similar.

- b) references to ETS 300 102-1 [11] have been updated to EN 300 403-1 [25]. As the procedures for bearer capability selection, high layer compatibility selection and basic service identification have now been included in EN 300 403-1 [25], they have been removed from clause 5 of the present document, and EN 300 403-1 [25] has been referenced directly from clauses 6, 7, 8 and 9;
- c) references to ETS 300 082 [8] have been replaced by equivalent references to I-ETS 300 245-2 [16], as the former standard is to be withdrawn;
- d) also, references to I-ETS 300 281 [24] have been replaced by equivalent references to I-ETS 300 245-5 [17], as the former standard is to be withdrawn.

The following standards were found relevant for inclusion as new references:

- I-ETS 300 245-2 [16];
- I-ETS 300 245-5 [17];
- EN 300 403-1 [25];
- ETS 300 403-2 [26];
- ETS 300 675 [27];
- ETS 300 678 [28].

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## E.3 Identification of changes from EN 300 267-1 V1.2.2 to the present document

The main differences between EN 300 267-1 V1.2.2 [29] and the present document are as follows:

- a) in the whole document the name of information elements and its field was corrected according to EN 300 403-1 [25];
- b) in subclauses 6.1, 7.1, 8.1 and 9.1 NOTE 1 was clarified;
- c) the reference in subclauses 6.3, 7.3 and 9.3 to EN 300 403-1 [25] is corrected;
- d) the description of unnotified fallback in tables 1, 2, 3 and 4 were clarified;
- e) the 2<sup>nd</sup> paragraph of subclause 7.1 were changed back to the original text of ETS version, as the support of 7 kHz telephony is an optional requirement in the service description;
- f) the reference in subclause 6.6 a) was corrected to EN 300 403-1 [25];
- g) the text of subclause 7.5.1 and subclause 7.6 was moved into new subclauses. Subclauses 7.5.1.1 and 7.6.1 describing the first, subclauses 7.5.1.2 and 7.6.2 describing further connections;
- h) in subclauses 7.5.1.1 c), 7.5.2.1 c), 7.6.1 c), 8.5.1.1 c), 8.5.2.1 c), 8.6.1 c), 9.5.1.1 c), 9.5.2.1 c) and 9.6.1 c) a NOTE was inserted describing a not interpreted combination of BC and HLC; the same text, which exist now in the NOTE, were removed from subclauses 8.5.1.1 c), 8.5.2.1 c), 8.6.1 c), 9.5.1.1 c), 9.5.2.1 c) and 9.6.1 c);
- i) in subclauses 7.5.1.1 d), 7.6.1 d), 8.5.1.1 d), 8.6.1 d), 9.5.1.1 d) and 9.6.1 d) the first sentence was modified;
- j) in subclauses 7.5.1.1 d) and 7.6.1 d) the second sentence was deleted;
- k) in subclauses 7.6.1, 8.6.1 and 9.6.1 the references for the originating side procedures was corrected to the references for the destination side;
- l) a sentence defining the resultant teleservice when a "speech" BC is received without HLC was added to subclauses 8.5.1.1 c) and 9.5.1.1 c).

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## Bibliography

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

CCITT Recommendation F.710 (1991): "General principles for audiographic conference service".

ITU-T Recommendation F.711 (1993): "Audiographic conference teleservice for ISDN".

CCITT Recommendation F.720 (1992): "Videotelephony services - General".

CCITT Recommendation F.721 (1992): "Videotelephony teleservice for ISDN".

CCITT Recommendation F.730 (1992): "Videoconference service - General".

I-ETS 300 442 (1995): "Integrated Services Digital Network (ISDN); Videotelephony teleservice; Terminal characteristics".

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## History

<b>Document history</b>				
Edition 1	February 1994	Publication as ETS 300 267-1		
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