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8 [[]HJbc`ca fYy`Y`n`]bH[f]fUb]a]gfcf]lj Ua]fG8 BŁ!`8 U`]bg_Y`gfcf]lj Y. h`Y`Z`b]U+
_<nžj]XYch`Y`Z`b]UžUj X]c[fUž bU`cbZYfYbWU]b`j]XYc`cbZYfYbWU!`Dfctc`c`
X] []HJbY`bUfc b]y`Y`g][bU]nU]Y`y`h`%fB GG`Ł!`%`XY. `GdYV]Z`_U]Y`Udfctc`c`U

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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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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Contents

Intellectual Property Rights.....	6
Foreword	6
1 Scope.....	8
2 Normative references	9
3 Definitions.....	10
4 Abbreviations.....	11
5 Additional generic requirements for basic telecommunication services not defined in EN 300 403-1	11
5.1 Description.....	11
5.2 Operational requirements.....	11
5.3 Coding requirements.....	12
5.4 State definitions	12
5.5 Signalling procedures at the coincident S and T reference point	12
5.5.1 Procedures for establishment of a second or subsequent connection within the same call.....	12
5.5.1.1 Normal operation.....	12
5.5.1.2 Exceptional procedures.....	13
5.5.2 Provision of in-band tones and announcements	13
5.6 Procedures for interworking with private ISDNs.....	13
5.6.1 Procedures for the establishment of a second connection within the same call.....	13
5.6.2 Provision of in-band tones and announcements	13
5.7 Interactions with other networks.....	13
5.8 Parameter values (timers).....	13
5.9 Dynamic description (SDL diagrams).....	14
6 Telephony 7 kHz teleservice.....	14
6.1 Description.....	14
6.2 Operational requirements.....	14
6.2.1 Provision and withdrawal.....	14
6.2.2 Requirements on the originating network side	15
6.2.3 Requirements on the destination network side	15
6.3 Coding requirements.....	15
6.4 State definitions	15
6.5 Signalling procedures at the coincident S and T reference point	15
6.5.1 Call establishment at the originating interface.....	15
6.5.2 Call establishment at the destination interface	17
6.5.2.1 First connection	17
6.5.2.2 Further connections	17
6.5.3 Call clearing	18
6.5.4 In-band tones and announcements.....	18
6.5.5 Restart procedure	18
6.5.6 Call rearrangements.....	18
6.5.7 Call collisions.....	18
6.5.8 Handling of error conditions	18
6.5.9 User notification procedure.....	18
6.5.10 Basic telecommunication service identification and selection.....	19
6.5.11 Signalling procedures for bearer capability selection.....	19
6.5.12 Signalling procedures for high layer compatibility selection	19
6.5.13 Status request procedures	19
6.6 Procedures for interworking with private ISDNs.....	19
6.7 Interactions with other networks.....	20
6.8 Parameter values (timers).....	20
6.9 Dynamic description (SDL diagrams).....	20

7	Videotelephony teleservice	20
7.1	Description.....	20
7.2	Operational requirements	21
7.2.1	Provision and withdrawal	21
7.2.2	Requirements on the originating network side	21
7.2.3	Requirements on the destination network side	21
7.3	Coding requirements	21
7.4	State definitions	22
7.5	Signalling procedures at the coincident S and T reference point	22
7.5.1	Call establishment at the originating interface.....	22
7.5.2	Call establishment at the destination interface	24
7.5.2.1	First connection	24
7.5.2.2	Further connections	25
7.5.3	Call clearing	25
7.5.4	In-band tones and announcements.....	26
7.5.5	Restart procedures.....	26
7.5.6	Call rearrangements.....	26
7.5.7	Call collisions.....	26
7.5.8	Handling of error conditions	26
7.5.9	User notification procedure.....	26
7.5.10	Basic telecommunication service identification and selection.....	27
7.5.11	Signalling procedures for bearer capability selection.....	27
7.5.12	Signalling procedures for high layer compatibility selection	27
7.5.13	Status request procedures	27
7.6	Procedures for interworking with private ISDNs.....	27
7.7	Interactions with other networks.....	28
7.8	Parameter values (timers).....	29
7.9	Dynamic description (SDL diagrams).....	29
8	Audiographic conference teleservice	29
8.1	Description.....	29
8.2	Operational requirements	30
8.2.1	Provision and withdrawal	30
8.2.2	Requirements on the originating network side	30
8.2.3	Requirements on the destination network side	30
8.3	Coding requirements	30
8.4	State definitions	30
8.5	Signalling procedures at the coincident S and T reference point	31
8.5.1	Call establishment at the originating interface.....	31
8.5.1.1	First connection	31
8.5.1.2	Further connections	33
8.5.2	Call establishment at the destination interface	33
8.5.2.1	First connection	33
8.5.2.2	Further connections	34
8.5.3	Call clearing	35
8.5.4	In-band tones and announcements.....	35
8.5.5	Restart procedures.....	35
8.5.6	Call rearrangements.....	35
8.5.7	Call collisions.....	35
8.5.8	Handling of error conditions	35
8.5.9	User notification procedure.....	36
8.5.10	Basic telecommunication service identification and selection.....	36
8.5.11	Signalling procedures for bearer capability selection.....	36
8.5.12	Signalling procedures for high layer compatibility selection	36
8.5.13	Status request procedures	36
8.6	Procedures for interworking with private ISDNs.....	36
8.6.1	First connection.....	36
8.6.2	Further connections	38
8.7	Interactions with other networks.....	38
8.8	Parameter values (timers).....	38
8.9	Dynamic description (SDL diagrams).....	38

9	Videoconference teleservice	38
9.1	Description.....	38
9.2	Operational requirements.....	39
9.2.1	Provision and withdrawal.....	39
9.2.2	Requirements on the originating network side	39
9.2.3	Requirements on the destination network side	39
9.3	Coding requirements.....	39
9.4	State definitions	40
9.5	Signalling procedures at the coincident S and T reference point	40
9.5.1	Call establishment at the originating interface.....	40
9.5.1.1	First connection	40
9.5.1.2	Further connections	42
9.5.2	Call establishment at the destination interface	42
9.5.2.1	First connection	42
9.5.2.2	Further connections	43
9.5.3	Call clearing	43
9.5.4	In-band tones and announcements.....	44
9.5.5	Restart procedures.....	44
9.5.6	Call rearrangements.....	44
9.5.7	Call collisions.....	44
9.5.8	Handling of error conditions	44
9.5.9	User notification procedure.....	44
9.5.10	Basic telecommunication service identification and selection.....	44
9.5.11	Signalling procedures for bearer capability selection.....	45
9.5.12	Signalling procedures for high layer compatibility selection	45
9.5.13	Status request procedures	45
9.6	Procedures for interworking with private ISDNs.....	45
9.6.1	First connection.....	45
9.6.2	Further connections.....	46
9.7	Interactions with other networks.....	46
9.8	Parameter values (timers).....	47
9.9	Dynamic description (SDL diagrams).....	47
Annex A (informative):	Signalling flows for the telephony 7 kHz teleservice.....	48
Annex B (informative):	Signalling flows for the videotelephony teleservice.....	51
Annex C (informative):	Signalling flows for the audiographic conference teleservice	55
Annex D (informative):	Signalling flows for the videoconference teleservice.....	59
Annex E (informative):	Identification of changes from previous standards.....	63
E.1	Identification of changes from ETS 300 267-1 to its amendment A1	63
E.2	Identification of changes from ETS 300 267-1 including amendment A1 to the present document.....	64
Annex F (informative):	Bibliography.....	65
History		66

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Signalling Protocols and Switching (SPS).

The present document is part 1 of a multi-part standard covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN) telephony 7 kHz, videotelephony, audiographic conference and videoconference teleservices, 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 SPS but has been included here to improve the presentation for implementors.

In accordance with CCITT Recommendation I.130, 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 and ETS 300 265, respectively.

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

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

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

The present document is an extended and updated version of ETS 300 267-1 (1994) and its amendment A1 (1996). Annex E identifies relevant differences between the present document and these standards.

National transposition dates	
Date of adoption of this EN:	3 April 1998
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1 Scope

This first part of EN 300 267 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 [4]) 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 [3]).

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 ETSSs.

The present document also specifies additional procedures to those required to support basic call in EN 300 403-1 [16] 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 call 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.

2 Normative references

References may be made to:

- a) specific versions of publications (identified by date of publication, edition number, version number, etc.), in which case, subsequent revisions to the referenced document do not apply; or
- b) all versions up to and including the identified version (identified by "up to and including" before the version identity); or
- c) all versions subsequent to and including the identified version (identified by "onwards" following the version identity); or
- d) publications without mention of a specific version, in which case 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 I.112 (1993): "Vocabulary of terms for ISDNs".
- [3] CCITT Recommendation I.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [4] ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".
- [5] CCITT Recommendation Q.9 (1988): "Vocabulary of switching and signalling terms".
- [6] 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".
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- [7] 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".
- [8] 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" (equivalent to ITU-T Recommendation H.242).
- [9] 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 in-band signalling" (equivalent to ITU-T Recommendation H.221).
- [10] ETS 300 145: "Integrated Services Digital Network (ISDN); Audiovisual services; Videotelephone systems and terminal equipment operating on one or two 64 kbit/s channels".
- [11] 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".
- [12] I-ETS 300 245-2: "Integrated Services Digital Network (ISDN); Technical characteristics of telephony terminals; Part 2: PCM A-law handset telephony".
- [13] I-ETS 300 245-5: "Integrated Services Digital Network (ISDN); Technical characteristics of telephony terminals; Part 5: Wideband (7 kHz) handset telephony".
- [14] ETS 300 263 (1994): "Integrated Services Digital Network (ISDN); Telephony 7 kHz teleservice; Service description".
- [15] ETS 300 264 (1994): "Integrated Services Digital Network (ISDN); Videotelephony teleservice; Service description".

- [16] 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]".
- [17] 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".
- [18] ETS 300 675: "Integrated Services Digital Network (ISDN); Audiographic conference teleservice; Service description".
- [19] ETS 300 678: "Integrated Services Digital Network (ISDN); Videoconference teleservice; Service description".

3 Definitions

The following definitions apply:

basic telecommunication service: A telecommunication service that is either a teleservice or a bearer service.

bearer capability: The 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 [2], definition 202.

bearer: An 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: A message as defined in EN 300 403-1 [16], 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: An 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: A state as defined in EN 300 403-1 [16] 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 [5], definition 2201.

connection type: See ITU-T Recommendation I.112 [2], definition 316.

connection: See CCITT Recommendation Q.9 [5], 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: The 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: The 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: The protocol entity within the terminal responsible for the provision of the in-band procedures (e.g. I-ETS 300 245-2 [12], ETS 300 143 [8], I-ETS 300 245-5 [13]).

Integrated Services Digital Network (ISDN): See ITU-T Recommendation I.112 [2], definition 308.

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

service; telecommunication service: See ITU-T Recommendation I.112 [2], definition 201.

teleservice: See ITU-T Recommendation I.112 [2], definition 203.

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

4 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

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 [16]). 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 [16].

5.2 Operational requirements

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

5.3 Coding requirements

The message structures defined in subclause 3.1 of EN 300 403-1 [16] shall apply. The message structures defined in subclause 3.4 of EN 300 403-1 [16] 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 [16] shall apply, with the addition that the Connected number and the Connected subaddress information elements defined in ETS 300 097-1 [7], clause 7, shall also be used.

5.4 State definitions

The call states defined in subclause 2.1 of EN 300 403-1 [16] shall apply.

The states defined in subclause 2.4 of EN 300 403-1 [16] 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 [16], clause 5.

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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 [9] and ETS 300 143 [8] 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 "Recommendations H.221 and H.242".

- 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 [16] 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 [16], 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 [16], 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 [16], 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 ITU-T Recommendation G.711 [1] and shall be presented to the user as specified in I-ETS 300 245-2 [12], clause 5.

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5.6 Procedures for interworking with private ISDNs

[https://standards.itech.ai/catalog/standards/sist/01a3034e-0346-4b12-a81d-](https://standards.itech.ai/catalog/standards/sist/01a3034e-0346-4b12-a81d-ad0490d9c71f/sist-en-300-267-1-v1-2-2-2005)

[ad0490d9c71f/sist-en-300-267-1-v1-2-2-2005](https://standards.itech.ai/catalog/standards/sist/01a3034e-0346-4b12-a81d-ad0490d9c71f/sist-en-300-267-1-v1-2-2-2005)

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 [16], 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 [16].

5.8 Parameter values (timers)

Not applicable.