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Integrated Services Digital Network (ISDN);
Calling Line Identification Presentation (CLIP) supplementary service;
Digital Subscriber Signalling System No. one (DSS1) protocol;
Part 1: Protocol specification

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

New presentation - see History box

Contents

Foreword

This European Telecommunication Standard (ETS) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS 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) Calling Line Identification Presentation (CLIP) supplementary service, 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: "TSS&TP specification for the network";

Part 6: "ATS and partial PIXIT proforma specification for the network".

In accordance with CCITT Recommendation I.130, the following three level structure is used to describe the supplementary telecommunications services as provided by European public telecommunications operators under the pan-European Integrated Services Digital Network (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.

This standard details the stage three aspects (signalling system protocols and switching functions) needed to support the Calling Line Identification Presentation (CLIP) supplementary service. The stage 1 and stage 2 aspects are detailed in ETS 300 089 (1992) and ETS 300 091 (1992), respectively.

This reprint includes all previous Corrigenda as shown in the History box at the last page.

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1 Scope

This first part of ETS 300 092 specifies the stage three of the Calling Line Identification Presentation (CLIP) supplementary service 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 CCITT Recommendation I.411 [1]) 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 [2]).

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

This standard does not specify the additional protocol requirements where the service is provided to the user via a telecommunications network that is not an ISDN.

The CLIP supplementary service provides the called party with the possibility to receive identification of the calling party, and is applicable to all telecommunication services.

Further parts of this standard specify the method of testing required to identify conformance to this standard.

This standard is applicable to equipment supporting the CLIP supplementary service, 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

This standard incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of any of these publications apply to this standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1]   CCITT Recommendation I.411 (1988): "ISDN user-network interfaces Reference configurations".

[2]   CCITT Recommendation I.130 (1988): "Method for characterisation of telecommunications services supported by an ISDN and network capabilities of an ISDN".

[3]   CCITT Recommendation I.112 (1988): "Vocabulary of terms for ISDNs".

[4]   CCITT Recommendation E.164 (1988): "Numbering plan for the ISDN era".

[5]   CCITT Recommendation E.163 (1988): "Numbering plan for the international telephone service".

[6]   ETS 300 102-1 (1990): "Integrated Services Digital Network (ISDN); User-network interface layer 3; Specifications for basic call control".

[7]   ETS 300 195-1: "Integrated Services Digital Network (ISDN); Supplementary service interactions; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[8]   CCITT Recommendation I.210 (1988): "Principles of telecommunication services supported by an ISDN and the means to describe them".

[9]   ETS 300 089 (1992): "Integrated Services Digital Network (ISDN); Calling Line Identification Presentation (CLIP) supplementary service; Service description".

[10]   ETS 300 102-2 (1990): "Integrated Services Digital Network (ISDN); User network interface layer 3; Specifications for basic call control - SDL diagrams".

[11]   ETS 300 093-1 (1992): "Integrated Services Digital Network (ISDN); Calling Line Identification Restriction (CLIR) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[12]   CCITT Recommendation Z.100 (1988): "Functional Specification and Description Language (SDL)".

3   Definitions

For the purpose of this standard, the following definitions apply:

Integrated Services Digital Network (ISDN): see CCITT Recommendation I.112 [3], § 2.3, definition 308.

Service; telecommunications service: see CCITT Recommendation I.112 [3], § 2.2, definition 201.

Supplementary service: see CCITT Recommendation I.210 [8], § 2.4.

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

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

Served user: the user of a particular ISDN number who has subscribed to the presentation of the calling line identification information in association with incoming calls. The served user is also known as the called user.

Calling user: the user that initiated an incoming call at the served user. The calling user need not have subscribed to the CLIP supplementary service.

Address: the ISDN number of the calling user, and a subaddress if provided by that user.

ISDN number: a number conforming to the numbering plan and structure specified in CCITT Recommendation E.164 [4].

Subaddress: see CCITT Recommendation E.164 [4], § 11.2.

Calling subaddress: the subaddress of the calling user.

Calling number: the ISDN number of the calling user.

International number: an ISDN number structured as specified in § 3.2 (the paragraphs relating to international number) of CCITT Recommendation E.164 [4].

National number; National significant number: an ISDN number structured as specified in § 3.2 (in the paragraphs relating to national significant number) of CCITT Recommendation E.164 [4].

Subscriber number: an ISDN number structured as specified in § 3.2 (the paragraphs relating to subscriber number) of CCITT Recommendation E.164 [4].

Default number: an agreed ISDN number between the user, at the calling side, and the network provider.

Special arrangement: an agreement between a customer and a public network operator whereby customer supplied calling party numbers are not screened by the public ISDN.

4 Symbols and abbreviations

CLIP   Calling Line Identification Presentation

CLIR   Calling Line Identification Restriction

DSS1   Digital Subscriber Signalling System No. one

ISDN   Integrated Services Digital Network

5 Description

The CLIP supplementary service is a supplementary service offered to the called user. It provides the calling user's ISDN number, possibly with the calling user's subaddress information, to the called user.

The information provided to the called user shall consist of the ISDN number of the calling user in a form sufficient to allow the returning of the call (i.e. a subscriber number, a national number or an international number and optionally a subaddress if provided by the calling user).

6 Operational requirements

6.1 Provision and withdrawal

See ETS 300 089 [9], subclause 6.1.

6.2 Requirements on the originating network side

All information pertaining to the CLIP supplementary service shall be inserted in the SETUP message sent as part of the basic call procedures according to ETS 300 102-1 [6], Clause 5.

In the case where no information is provided by the calling user (as part of the basic call procedures) the network shall provide the default number associated with the access (in which the call was generated) in the originating local exchange.

When the calling number information is provided by the calling user, the network can only verify that the number is within the set of numbers allocated to that user.

Where a special arrangement exists with the calling user, no verification shall be performed.

6.3 Requirements on the destination network side

See subclause 9.5.

7 Coding requirements

ETS 300 102-1 [6], subclauses 4.5.10 and 4.5.11 give the coding for the calling party number and the calling party subaddress information elements which are required to support this service.

The purpose of the calling party number information element is to identify the origin of a call.

The purpose of the calling party subaddress information element is to identify a subaddress associated with the origin of the call.

8 State definitions

No specific state definitions are required.

9 Signalling procedures at the coincident S and T reference point

9.1 Activation, deactivation and registration

Not applicable.

9.2 Actions at the originating user

9.2.1 Normal operation

These procedures shall be provided as part of the basic service and the calling user need not have subscribed to the CLIP supplementary service.

The numbering plan identifier, to be indicated within the calling party number information element, sent by the calling user, shall be either "ISDN/telephony numbering plan (CCITT Recommendations E.164 [4] and E.163 [5])" or "unknown".

>   NOTE: Either coding may be used and the treatment of both by the network is identical.

Where the calling number included by the calling user is complete, the type of number to be indicated within the calling party number information element, sent by the calling user, shall be one of the following:

- "subscriber number", in the case where the complete subscriber number is sent;

- "national number", in the case where the complete national number is sent;

- "international number", in the case where the complete international number is sent.

Where a partial calling number is included by the calling user (e.g. to indicate digits specific to the direct dialling in or the multiple subscriber number supplementary services) the user shall set the type of number to be indicated within the calling party number information element to "unknown".

9.2.2 Exceptional procedures

Not applicable.

9.3 Actions at the originating local exchange if a special arrangement does not apply

9.3.1 Normal operation

These procedures shall be provided as part of the basic service and the calling user need not have subscribed to the CLIP supplementary service.

When a SETUP message is received from the calling user, the network shall check to see if the calling party number and calling party subaddress information elements are included.

If the calling party number information element is received with a coding of the numbering plan identifier field other than "ISDN/telephony numbering plan (CCITT Recommendations E.164 [4] and E.163 [5])" or "unknown", then the network shall discard the calling party number information element and process the call as if that information element was not received.

At the originating side, the network shall set the value of the screening indicator based on the outcome of the screening of the calling number. The network shall disregard any value of the screening indicator, if received from the calling user.

If the calling party number information element is included, the network shall perform the screening function. If the calling number received from the calling user is determined to be correct, the network shall set the screening indicator to "user-provided, verified and passed".

> NOTE: Some networks may accept a full ISDN number in a calling party number information element with the addition of a prefix or escape digits to the number digits field and the type of number field set to "unknown".

If the SETUP message does not contain the calling party number information element or the screening function has determined the provided calling number to be incorrect, the network shall use a default number associated with the calling user. The network shall set the screening indicator to "network provided".

In the case where the calling user provides partial calling number information and the number is a valid digit sequence for the user access arrangement, the network shall complete the number as appropriate. The network shall set the screening indicator to "user-provided, verified and passed".

> NOTE: In some cases the network cannot guarantee that the completed number identifies an end user.

If the calling party subaddress information element is available, it shall be passed transparently through the network.

The number digits and the screening indicator, as determined by the procedures above, shall be forwarded to the destination local exchange, in association with the basic call request.

The presentation indicator, as determined by the procedures of the CLIR supplementary service (see ETS 300 093-1 [11]), shall be forwarded to the destination local exchange, in association with the basic call request.

The actions at the originating local exchange are summarised in table 1.

Table 1: Information provided by the calling user and by the network

Information provided by the calling user		Information provided by the network		
Calling user number received from the calling user (octet 4)	Type of number (octet 3)	Calling user number forwarded to the called user if CLIR is not activated (octet 4)	Screening Indicator forwarded to the called user (octet 3)	Type of number forwarded to the called user (octet3)
No calling party number information element is provided by the calling user		Default number stored at the network side	Network-provided	"Inter-national number" or "national number" or "unknown" (NOTE 1,7)
Valid part of the number not sufficient for returning the call (NOTE 2)	"Unknown"	Completion of the number (NOTE 3)	User-provided verified, and passed (NOTE 4)	"Inter-national number" or "national number" or "unknown" (NOTE 1,7)
Correct complete calling user number (NOTE 5)	"Subscriber number" or "national number" or "inter-national number"	Complete calling user number	User-provided, verified and passed	"Inter-national number" or "national number" or "unknown" (NOTE 1,7)
Incorrect number (NOTE 6)	Any type of number	Default number stored at the network side	Network-provided	"Inter-national number" or "national number" or "unknown" (NOTE 1,7)

NOTE 1: A national number shall be converted to an international number at some point in the public network path where the destination is in a different country.

NOTE 2: This assumes that the user's equipment provides that part of the number pertaining to its own (private) domain. This may be multiple subscriber number digits provided by a terminal equipment or an extension line number provided by a private ISDN. The network shall interpret the number digits and check if it is a valid digit sequence according to the agreements existing between the calling user and the network provider.

NOTE 3: Completion means that the remaining part of the ISDN number associated with the appropriate access is added to the user provided part of the number.

NOTE 4: The term "verified" implies matching of the user provided number or part of this number with the range(s) of numbers stored at the network side and it implies at least a valid format of user provided number information (e.g. a direct dialling in number).

NOTE 5: The term "correct" implies from the network point of view matching of the subscriber number provided by the user with one of the numbers in the set of numbers stored at the network side. This number may also contain direct dialling in and/or multiple subscriber number digits.

NOTE 6: The number provided by the user is discarded.

NOTE 7: As a network option, the type of number may be coded "unknown", in which case, the number is organised to the network dialling plan, i.e. prefixes, or the absence of a prefix, shall be used to distinguish international numbers and national numbers from each other.

9.3.2 Exceptional procedures

Not applicable.

9.4 Actions at the originating local exchange if a special arrangement applies

9.4.1 Normal operation

These procedures shall be provided as part of the basic service and the calling user need not have subscribed to the CLIP supplementary service.

When a SETUP message is received from the calling user, the network shall check to see if the calling party number and calling party subaddress information elements are included.

If the calling party number information element is received with a coding of the numbering plan identifier field other than "ISDN/telephony numbering plan (CCITT Recommendations E.164 [4] and E.163 [5])" or "unknown", then the network shall discard the calling party number information element and process the call as if that information element was not received.

If the calling party number information element is received with the coding of the type of number field other than "national number" or "international number", then the network shall discard the calling party number information element and process the call as if that information element was not received.

The network shall disregard any value of the screening indicator, if received from the calling user.

If the SETUP message does not contain the calling party number information element, the network shall use a default number associated with the calling user. The network shall set the screening indicator to "network provided".

If the calling party number information element is included, the network shall set the screening indicator to "user-provided, not screened".

If the calling party subaddress information element is available, it shall be passed transparently through the network.

The number digits and the screening indicator, as determined by the procedures above, shall be forwarded to the destination local exchange, in association with the basic call request.

The presentation indicator, as determined by the procedures of the CLIR supplementary service (see ETS 300 093-1 [11]), shall be forwarded to the destination local exchange, in association with the basic call request.

The actions at the originating local exchange are summarised in table 2.

Table 2: Information provided by the calling user and by the network

Information provided by the calling user		Information provided by the network		
Calling user number received from the calling user (octet 4)	Type of number (octet 3)	Calling user number forwarded to the called user if CLIR is not activated (octet 4)	Screening Indicator forwarded to the called user (octet 3a)	Type of number forwarded to the called user (octet 3)
No Calling party number information element is provided by the calling user		Default number stored at the network side	Network provided	"International number" or "national number" or "unknown" (NOTE 1,2)
Any digit sequence conforming to E.164/E.163	"National number" or "international number"	Number provided by the user (NOTE 1)	User-provided not screened	"International number" or "national number" or "unknown" (NOTE 1,2)
NOTE 1: A national number shall be converted to an international number at some point in the public network path where the destination is in a different country. NOTE 2: As a network option, the type of number may be coded "unknown", in which case, the number is organised according to the network dialling plan, i.e. prefixes, or the absence of a prefix, shall be used to distinguish international numbers and national numbers from each other.				

9.4.2 Exceptional procedures

Not applicable.

9.5 Actions at the destination local exchange

9.5.1 Normal operation

When the network sends a SETUP message to the called user and if the called user is provided with the CLIP supplementary service, the network shall check to see if the calling number is available.

If the calling number is available and presentation is allowed according to the presentation indicator supplied together with the calling number, the network shall include the calling party number information element in the SETUP message sent to the called user. If provided, the network shall also include the calling party subaddress information element in the SETUP message. The presentation and screening indicators associated with the calling number, and the calling subaddress, received at the destination exchange shall be passed transparently to the called user.

The numbering plan identifier field shall be coded either as "ISDN/telephony numbering plan (CCITT Recommendations E.164 [4] and E.163 [5])" or "unknown".

If presentation is not allowed according to the presentation indicator supplied together with the calling number, the network shall include the calling party number information element in the SETUP message sent to the called user. The presentation indicator in the calling party number information element shall indicate "presentation restricted". The screening indicator shall indicate "network provided". The type of number and the numbering plan identification shall be set to "unknown" and the number digits field shall not be included. The network shall not include the calling party subaddress information element, if provided, in the SETUP message.

If neither the calling number nor an indication that presentation is restricted is available at the destination local exchange the network shall include the calling party number information element in the SETUP message sent to the called user. The presentation indicator shall be set to "number not available due to interworking" and the screening indicator shall be set to "network provided", the type of number and the numbering plan identification shall be set to "unknown" and the number digits field shall not be included. The network shall not include the calling party subaddress information element, if provided, in the SETUP message.

If the called user is not provided with the CLIP supplementary service, then neither the calling party number nor the calling party subaddress information elements shall be included in the SETUP message sent to the called user.

If presentation is restricted but the called user has the "override" category (e.g. police or emergency service) marked in the destination local exchange, the network shall include the calling party number information element, and calling party subaddress information element if the subaddress was supplied by the calling user, in the SETUP message. In this case, the presentation and screening indicators shall be passed transparently to the called user.

The numbering plan identifier field shall be coded either as "ISDN/telephony numbering plan (CCITT Recommendations E.164 [4] and E.163 [5])" or "unknown".

NOTE: If the presentation indicator in the calling party number information element received by the user is set to "number not available due to interworking" or "presentation restricted", the remaining information in the calling party number information element should be ignored by the user.

9.5.2 Exceptional procedures

Not applicable.

10 Procedures for interworking with private ISDNs

The procedures specified in Clause 9 shall be used.

NOTE: The procedures specified in subclause 9.4 are particularly appropriate for an attached private network.

11 Interaction with other networks

On calls incoming from some non-ISDNs, the calling number may be delivered to the destination ISDN without an indication of calling line identity restriction. In this case a number of options exist and the selection of the following is according to the network rules and regulations:

- the network shall send the calling party number information element according to the contents of subclause 9.5.1, fifth paragraph and shall include no calling party subaddress information element;

- the network shall send the calling party number information element according to the contents of subclause 9.5.1, fourth paragraph and shall include no calling party subaddress information element;

- the network shall send the calling party number information element according to the contents of subclause 9.5.1 second paragraph and shall include the calling party subaddress information element if the calling subaddress is available. The presentation indicator is set to "presentation allowed" and the screening indicator is set to "network provided".

For some other non-ISDNs, no complete calling number may be available to the ISDN and therefore the full number of the calling user cannot be given to the called user who has been provided with the CLIP supplementary service. In this case the network shall send the calling party number information element according to subclause 9.5.1, fifth paragraph and shall include no calling party subaddress information element.

On calls incoming from some non-ISDNs, the calling party number may be delivered to the destination ISDN with an indication of calling line identity restriction. In this case the ISDN shall follow the procedures specified in clause 9.5.

As a network option, the originating network may restrict any address information identifying the calling user from being forwarded to another network.

12   Interaction with other supplementary services

The interactions of the CLIP supplementary service with other supplementary services shall be as specified in ETS 300 195-1 [7].

13   Parameter values (timers)

No specific timers are required.

14 Dynamic description (SDLs)

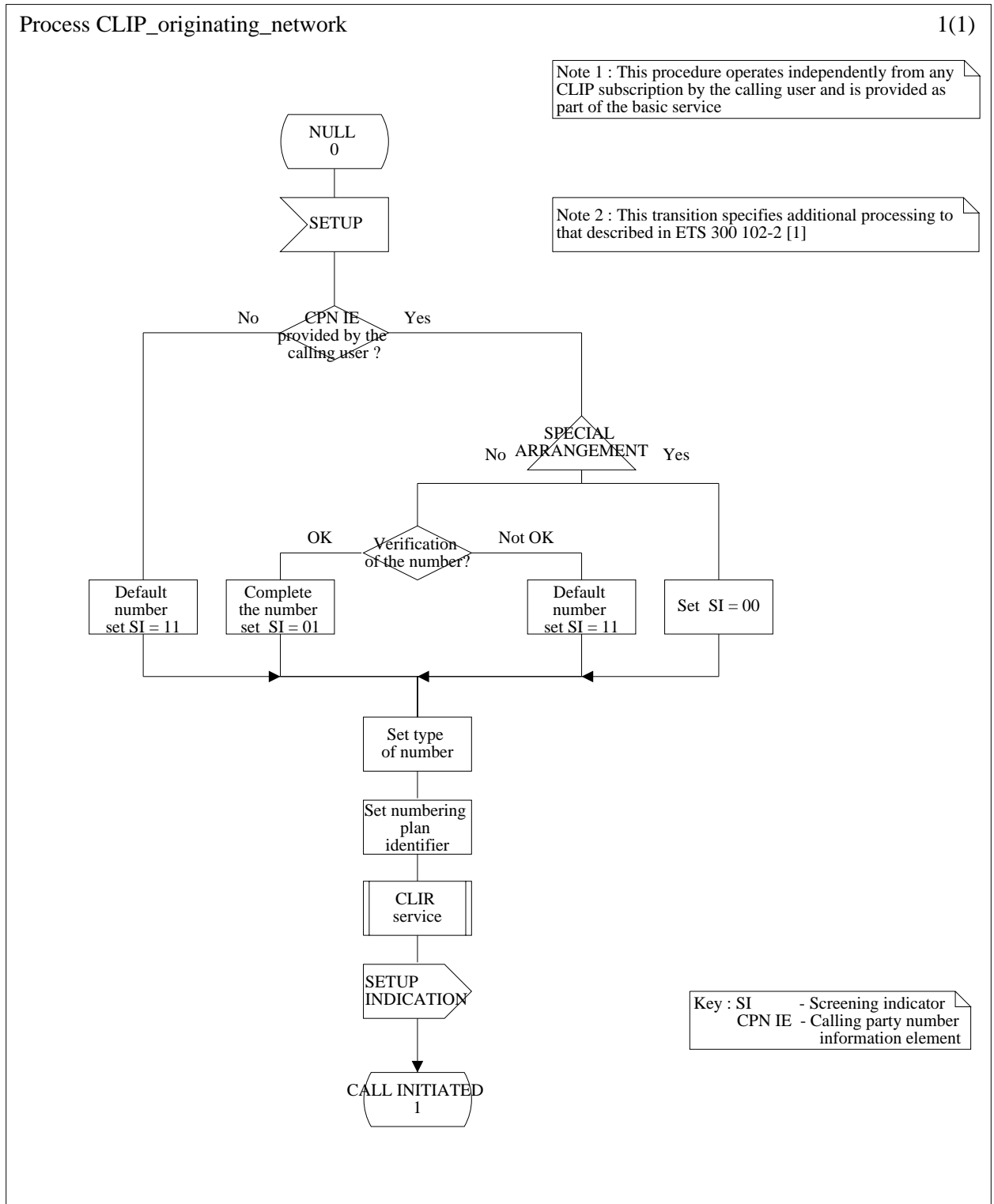The dynamic description is specified in figures 1 and 2 according to CCITT Recommendation Z.100 [12].

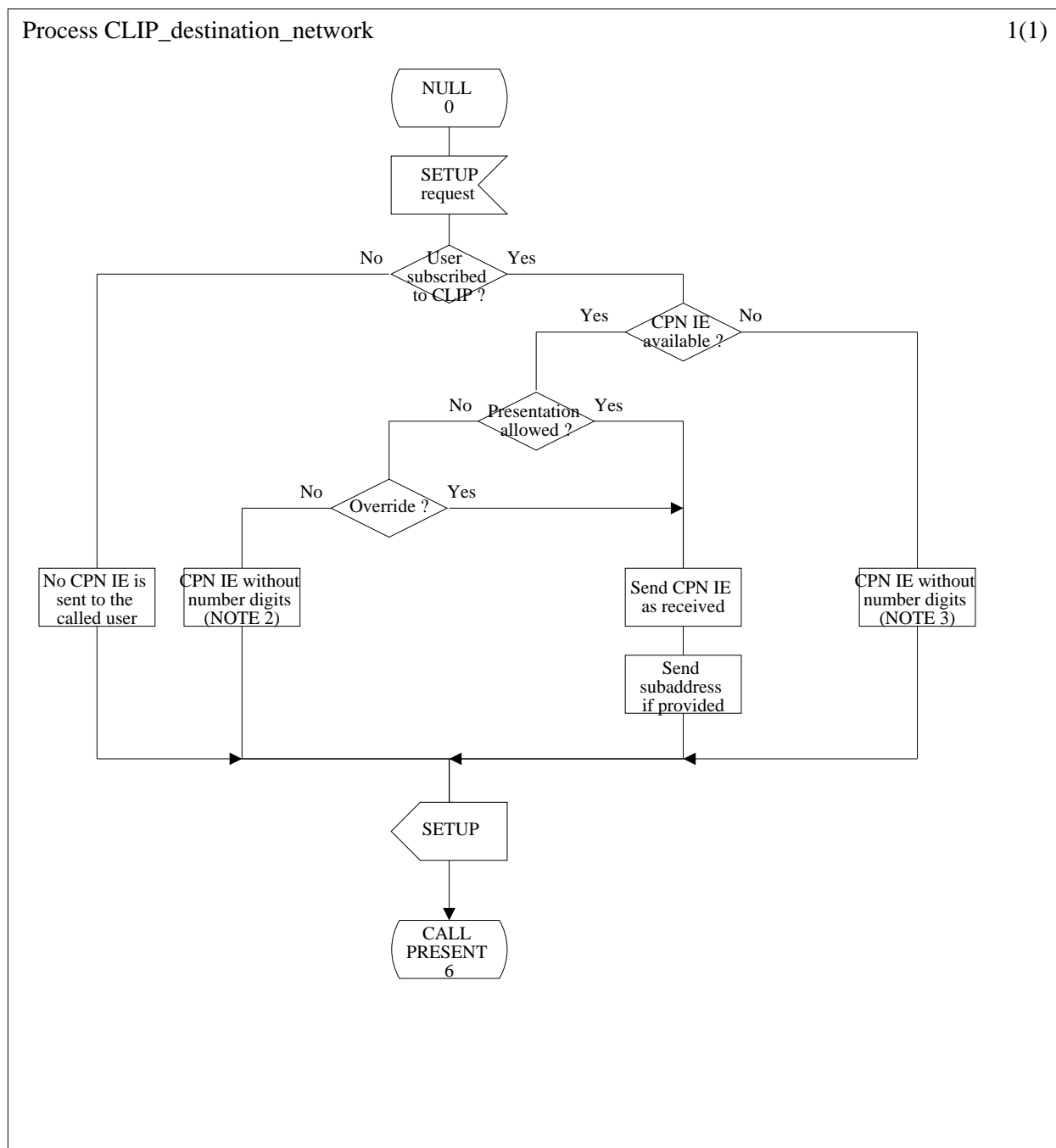**Figure 1: SDL for originating network dynamic description**

Process CLIP_destination_network   1(1)

Figure 2: SDL for destination network side dynamic description

Notes to figure 2.

Key:

SI =	Screening indicator.
PI =	Presentation indicator.
CPN IE=	Calling party number information element.
NPI =	Numbering plan identifier.
TON =	Type of number.

NOTE 1: This transition specifies additional processing to that discussed in ETS 300 102-2 [10].

NOTE 2: In this case;

SI   = is set to "network provided",
PI   = 01,
NPI   = 0000, and
TON   = 000.

NOTE 3: In this case;

SI   = 11,
PI   = 10,
NPI   = 0000, and
TON   = 000.

Annex A (informative): Signalling flows

No CLIP supplementary service specific signalling flow is necessary in addition to basic call control according to ETS 300 102-1 [6].

Annex B (normative):   **Two Calling party number information elements delivery option**

B.1   Scope

This annex specifies additional procedures of the CLIP supplementary service that may be supported as a network option.

These additional features shall have no impact and shall place no requirement whatsoever on the provision and operation of the CLIP supplementary service defined in this standard by public ISDNs that do not support these additional features, nor on the interchangeability of terminals.

B.2   Additional procedures at the destination network side

B.2.1   Normal operation

If the calling party number information element delivered as a result of the procedures of subclause 9.5 has a screening indicator set to "user-provided, not screened", and presentation is allowed according to the presentation indicator supplied together with the calling user number, then the network shall send a second calling party number information element, immediately following the first calling party number information element, containing the default number of the access of the calling user. This second calling party number information element shall be provided according to the procedures of subclause 9.5.

In all other cases, only one calling party number information element is sent, and this shall be sent according to the procedures of subclause 9.5.

B.2.2   Exceptional procedures

Not applicable.

Annex C (informative): Terminal interchangeability between public and private ISDNs

Terminals conforming to this standard are also compatible with private ISDNs offering interfaces conforming to the Calling Line Identification Presentation (CLIP) supplementary service aspects of ETS 300 191, provided the terminal is able to accept the calling party number information element with the numbering plan identifier coded as "private numbering plan".

Terminals conforming to the Calling Line Identification Presentation (CLIP) aspects of ETS 300 191 are also compatible with public ISDNs offering interfaces conforming to this standard.

Annex D (informative): Bibliography

ETS 300 191:   "Private Telecommunication Networks (PTN); Signalling protocol at the S-reference point; Identification supplementary services".

History

Document history	
March 1992	First Edition
April 1994	Corrigendum to First Edition: change to part 1 of a multi-part standard
March 1996	Converted into Adobe Acrobat Portable Document Format (PDF) and incorporation of all prior Corrigenda