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SERIES Q: SWITCHING AND SIGNALLING

Broadband ISDN – B-ISDN application protocols for access signalling

Stage 3 description for number identification supplementary services using B-ISDN digital subscriber signalling system No. 2 (DSS2) – Basic call: Support of ATM end system addressing format by Number identification supplementary services

ITU-T Recommendation Q.2951.9

(Formerly CCITT Recommendation)

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ITU-T Recommendation Q.2951.9

Stage 3 description for number identification supplementary services using B-ISDN digital subscriber signalling system No. 2 (DSS2) – Basic call: Support of ATM end system addressing format by Number identification supplementary services

Summary

This Recommendation belongs to the DSS2 family of ITU-T Recommendations and specifies extensions to Recommendations Q.2951.1, Q.2951.2, Q.2951.3 and Q.2951.5 to detail the additional DSS2 traffic related protocol procedures and functions needed to support the use of ATM end system addresses within the DDI, MSN, CLIP and COLP supplementary services.

Source

ITU-T Recommendation Q.2951.9 was prepared by ITU-T Study Group 11 (1997-2000) and approved under the WTSC Resolution 1 procedure on 3 December 1999.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSC Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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ITU-T Recommendation Q.2951.9

Stage 3 description for number identification supplementary services using B-ISDN digital subscriber signalling system No. 2 (DSS2) – Basic call: Support of ATM end system addressing format by Number identification supplementary services

(Geneva, 1999)

1 Scope

Recommendation Q.2951 covers the support of the number identification supplementary services for the Broadband Integrated Services Digital Network (B-ISDN) at the T_B reference point or coincident S_B and T_B reference point as defined in Recommendation I.413 by means of the Digital Subscriber Signalling System No. 2 (DSS2). This Recommendation defines the DSS2 protocol procedures, formats and functions needed to support the use of ATM end system addresses.

This Recommendation is part of the DSS2 family of ITU-T Recommendations, and specifies extensions to Recommendations Q.2951.1, Q.2951.2, Q.2951.3 and Q.2951.5. It does not repeat states, information elements, messages and procedures contained therein, but only specifies extensions related to the support of ATM end system addresses.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

[1] ITU-T Recommendation Q.2931 (1995), *Digital Subscriber Signalling No. 2 – User-Network Interface (UNI) layer 3 specification for basic call/connection control.*

[2] ITU-T Recommendation Q.2951.1 (1995), *Stage 3 description for number identification supplementary services using B-ISDN digital subscriber Signalling System No. 2 (DSS2) – Basic call: Direct-Dialling-In (DDI).*

[3] ITU-T Recommendation Q.2951.2 (1995), *Stage 3 description for number identification supplementary services using B-ISDN digital subscriber Signalling System No. 2 (DSS2) – Basic call: Multiple Subscriber Number (MSN).*

[4] ITU-T Recommendation Q.2951.3 (1995), *Stage 3 description for number identification supplementary services using B-ISDN digital subscriber Signalling System No. 2 (DSS2) – Basic call: Calling Line Identification Presentation (CLIP).*

[5] ITU-T Recommendation Q.2951.4 (1995), *Stage 3 description for number identification supplementary services using B-ISDN digital subscriber Signalling System No. 2 (DSS2) – Basic call: Calling Line Identification Restriction (CLIR).*

[6] ITU-T Recommendation Q.2951.5 (1995), *Stage 3 description for number identification supplementary services using B-ISDN digital subscriber Signalling System No. 2 (DSS2) – Basic call: Connected Line Identification Presentation (COLP).*

[7] ITU-T Recommendation Q.2951.6 (1995), *Stage 3 description for number identification supplementary services using B-ISDN digital subscriber Signalling System No. 2 (DSS2) – Basic call: Connected Line Identification Restriction (COLR)*.

[8] ITU-T Recommendation E.191 (2000), *B-ISDN addressing*.

[9] ITU-T Recommendation Q.2931, Amendment 4 (1999).

3 Definitions

This Recommendation defines the following terms:

3.1 ATM end system address: See Recommendation E.191 [8].

3.2 address presentation format: Indicates the address format to be used by the network for the delivery of the address information to the user in the Calling party number, the Called party number, and the Connected number information elements based on a subscription, the three values are native E.164 format, AESA format, and E.164 or AESA format.

4 Abbreviations

This Recommendation uses the following abbreviations:

AESA	ATM end system address
AESA (E.164)	AESA containing an E.164 address in the IDI field (see E.191 [8])
CdPN	Called party number
CgPN	Calling party number
CoPN	Connected party number
DCC	Data country code
ICD	International code designator
IDI	Initial domain identifier

5 Description

The ATM end system addressing capability provides for the indication of addresses in the AESA format. A number assigned to an access can be either in the native E.164 format or in the AESA format (e.g. E.164, DCC or ICD). In case of MSN a set of numbers consisting of native E.164 addresses and/or AESAs (e.g. E.164, DCC and ICD) can be assigned to a given access.

A subscription option, called "address presentation format" in the following, is relevant for the delivery of the address information in the network-to-user direction in the Calling party number, the Called party number, and the Connected number information elements.

This Recommendation is complementary to the specification of the DDI, MSN, CLIP, and COLP supplementary services.

6 Operational requirements

6.1 Provision/withdrawal

ATM end system addressing shall be provided after prior arrangement with the network operator and shall be withdrawn on the subscriber's request or for administrative reasons.

A subscription option defines the address presentation format to be used for the delivery of the address information in the network-to-user direction in the Calling party number, the Called party number, and the Connected number information elements, i.e. this subscription option is relevant only in conjunction with the DDI, MSN, CLIP, and COLP supplementary services.

6.2 Requirements on the originating network side

The procedures according to clause 9 shall apply.

6.3 Requirements on the terminating network side

The procedures according to clause 9 shall apply.

7 State definitions

No additional state definitions are required.

8 Coding requirements

The extensions to the coding of the Calling party number and the Called party number information elements are defined in Amendment 4/Q.2931 [9] (subclauses 4.5.13/Q.2931 and 4.5.11/Q.2931). The extensions to the Connected number information element defined in Q.2951.5 are by reference defined in Q.2931 [1].

9 Signalling requirements at the coincident S_{LB} and T_{LB} reference point

9.1 Delivery of Called party number to the called user in case of MSN or DDI

If the called user has subscribed to either MSN or DDI, the SETUP message sent to the called user has to include the Called party number information element. Table 1 specifies in which format the called party number is sent to the called user depending on the applicable combinations of received called party number parameter(s) and address presentation format subscribed at the destination UNI.

Table 1/Q.2951.9 – Delivery of Called party number to the called user

CdPN parameter(s) available for presentation at the destination UNI	Address presentation format at the destination UNI (according to subscription option)		
	E.164	**AESA**	**E.164 or AESA**
CdPN (E.164)	(Note 1)	(Note 2)	(Note 1)
CdPN (E.164) AESA for CdPN (E.164)	(Note 1) no	no yes	no yes
AESA for CdPN (others)	(Note 3)	yes	yes

CdPN (E.164) Called Party Number with native E.164 address

AESA for CdPN (E.164) CdPN with AESA (E.164) format

AESA for CdPN (others) CdPN with AESA (non E.164) format

NOTE 1 – Send called party number information to the called user according to Q.2951.1 or Q.2951.2.

NOTE 2 – Send called party number information to the called user by embedding the native E.164 address into AESA format. In case of overlap, receiving the digits shall be collected by the network using a network specific timer (range 10 – 20 s). On expiry of this timer, the digits collected shall be sent to the called user according to the procedures in 5.2.1/Q.2931.

NOTE 3 – "This setting of the Address presentation format is not appropriate if non-E.164 AESAs are assigned to an access."

yes Send called party number information to the called user in the format received.

no Do not send called party number information to the called user in the format received.

embed Native E.164 address embedded into AESA format.

9.2 CLIP

The use of E.164 addresses within the CLIP supplementary service is specified in Q.2951.3 [4]. If AESA is used based on a subscription, this Recommendation complements Q.2951.3 [4] and the following procedures replace those parts of Q.2951.3 [4] which are valid only for a addressing/numbering plan identification set to E.164.

9.2.1 Actions at the originating local exchange

The actions at the originating local exchange when a special arrangement applies as well as when a special arrangement does not apply are summarized in Figure 1 in SDL form.

NOTE – In order to show the relationship to the procedures without the use of AESA, Figure 1 includes partly also the handling of the native E.164 addresses as specified in Q.2951.3 [4].

In addition the following rules shall apply:

- For screening of AESA (E.164) only the E.164 number in the IDI part shall be screened.
- The selector information (last octet of an AESA) shall not be considered for screening.

The handling of the presentation indicator provided in the Calling party number information element shall be according to the CLIR supplementary service as specified in Q.2951.4 [5].

9.2.2 Actions at the destination local exchange

The delivery of the calling party number information to the called user depends on the following:

- availability of calling party number information at the destination side;
- subscription to the address presentation format;
- subscription to the two party delivery option or not.

The actions at the destination local exchange are summarized in Figure 2 in SDL form.

NOTE – In order to show the relationship to the procedures without the use of AESA, Figure 2 includes partly also the handling of the native E.164 addresses as specified in Q.2951.3 [4].

Whether presentation of the calling party number information is allowed or not is determined by the presentation indicator provided together with the relevant number information according to the CLIR supplementary service as specified in Q.2951.4 [5].

9.2.3 Interworking with other networks

Subclause 3.11/Q.2951.3 is applicable for interworking with other networks if native E.164 addresses are used. For interworking in the direction from other networks to B-ISDN AESAs are not received. For interworking in the direction from B-ISDN to other networks, the following applies:

- If an E.164 AESA is used within the calling party number the E.164 part of the AESA will be mapped into native E.164 format.
- If a non-E.164 AESA is used within the calling party number interworking with networks not supporting non-E.164 AESAs is not possible, and the AESA will be discarded.

9.3 COLP

The use of E.164 addresses within the COLP supplementary service is specified in Q.2951.5 [6]. If AESA is used based on a subscription, this Recommendation complements Q.2951.5 [6] and the following procedures replace those parts of Q.2951.5 [6] which are valid only for a addressing/numbering plan identification which is set to E.164 addresses.

9.3.1 Actions at the destination local exchange

The actions at the destination local exchange when a special arrangement applies as well as when a special arrangement does not apply are summarized in Figure 3 in SDL form.

NOTE – In order to show the relationship to the procedures without the use of AESA, Figure 3 includes partly also the handling of the native E.164 addresses as specified in Q.2951.5 [6].

In addition the following rules shall apply:

- For screening of AESA (E.164) only the E.164 number in the IDI part shall be screened.
- The selector information (last octet of an AESA) shall not be considered for screening.

The handling of the presentation indicator provided in the Connected number information element shall be according to the COLR supplementary service as specified in Q.2951.6 [7].

9.3.2 Actions at the originating local exchange

The delivery of the connected number information to the calling user depends on the following:

- connected party number information available at the originating side;
- subscription for the address presentation format.

The actions at the originating local exchange are summarized in Figure 4 in SDL form.

NOTE – In order to show the relationship to the procedures without the use of AESA Figure 4 includes partly also the handling of the native E.164 addresses as specified in Q.2951.5 [6].

Whether presentation of the connected number information is allowed or not is determined by the presentation indicator provided together with the relevant number information according to the COLR supplementary service as specified in Q.2951.6 [7].

9.3.3 Interworking with other networks

Subclause 3.11/Q.2951.5 [6] is applicable for interworking with other networks if native E.164 addresses are used. For interworking in the direction from other networks to B-ISDN AESAs are not received. For interworking in the direction from B-ISDN to other networks, the following applies:

- If an E.164 AESA is used within the connected party number, the E.164 part of the AESA will be mapped into native E.164 format.
- If a non-E.164 AESA is used within the connected party number, interworking with networks not supporting non-E.164 AESAs is not possible, and the AESA will be discarded.

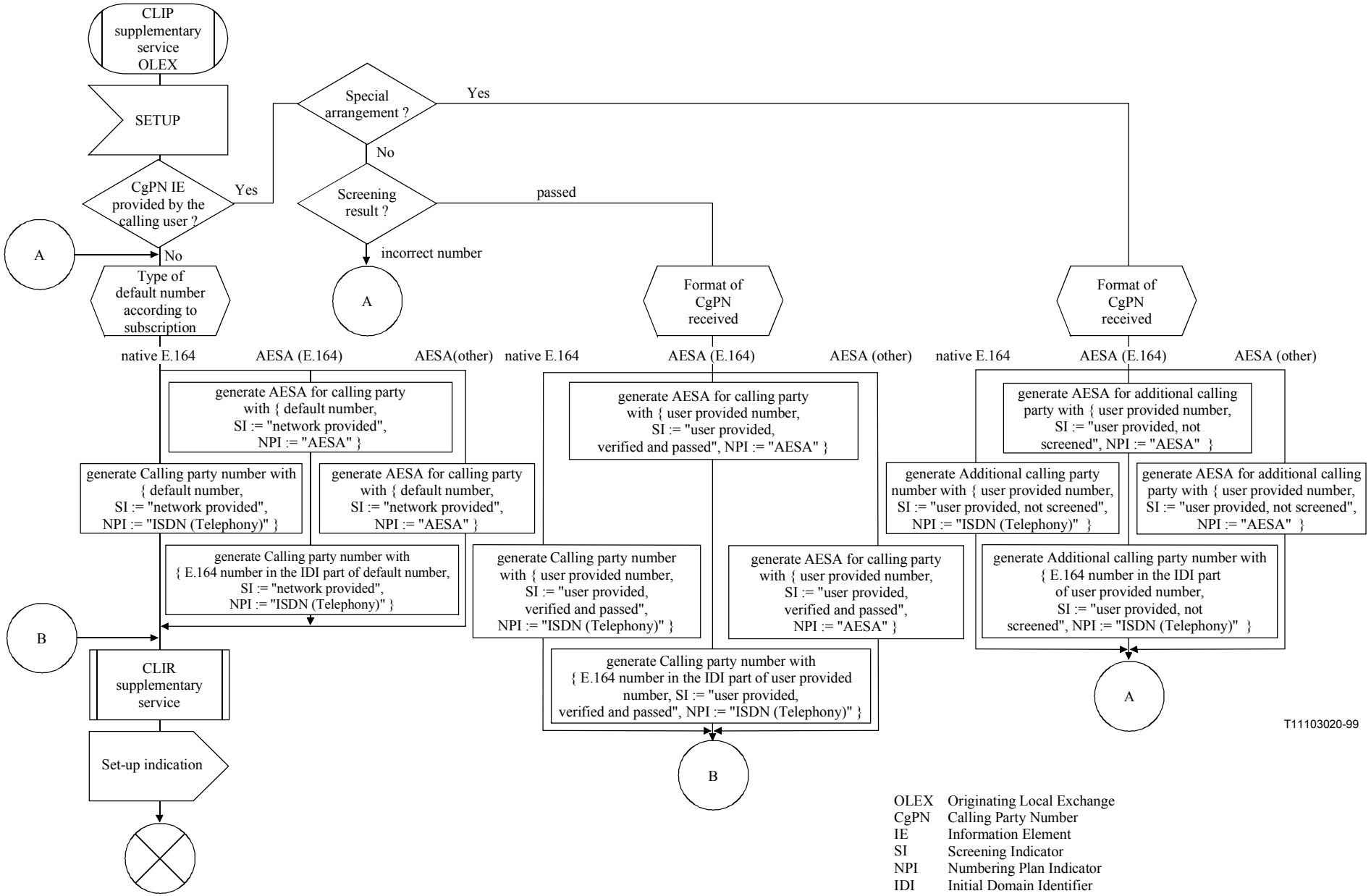

Figure 1/Q.2951.9 – Procedures for CLIP at the originating local exchange

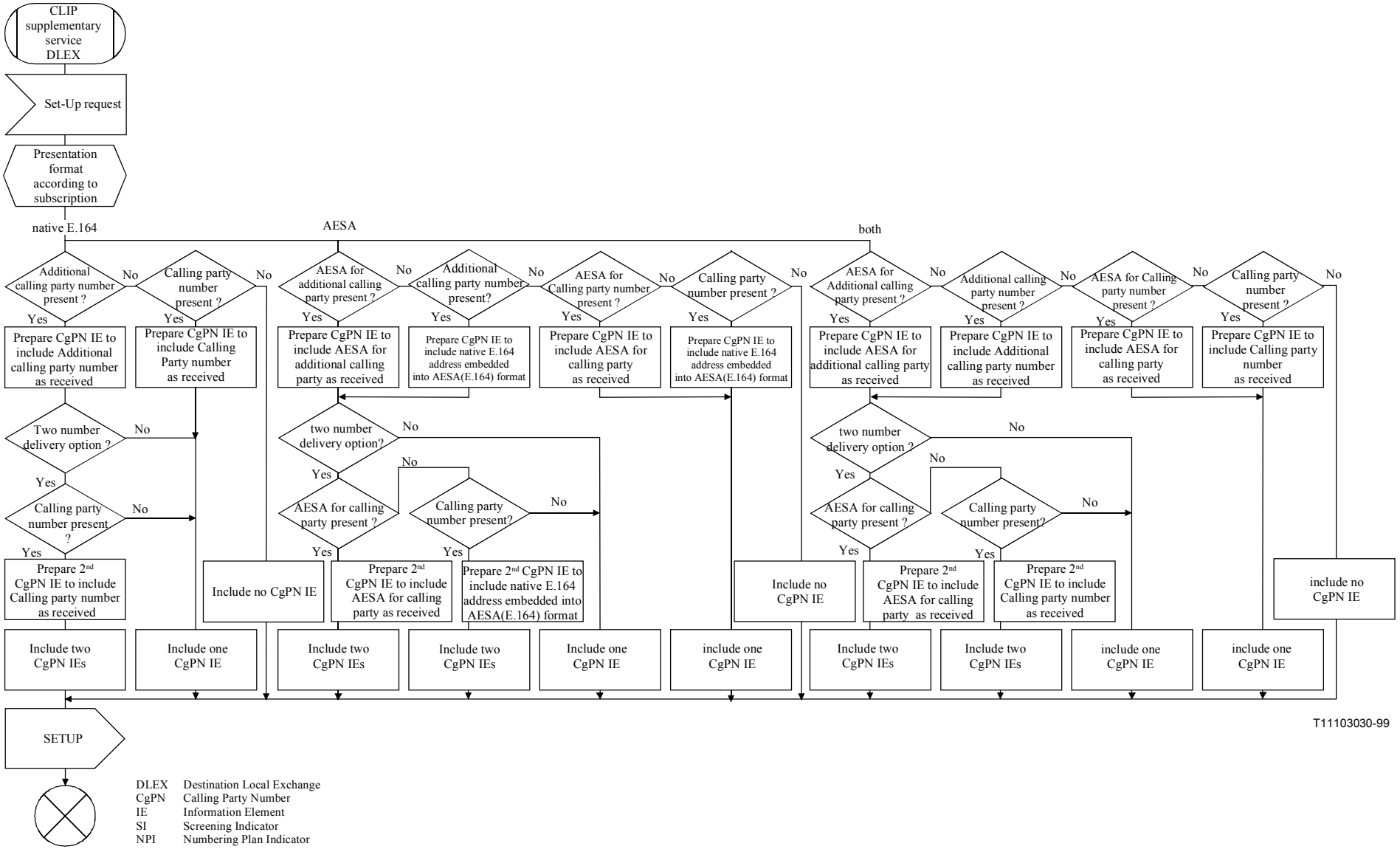

Figure 2/Q.2951.9 – Procedures for CLIP at the destination local exchange

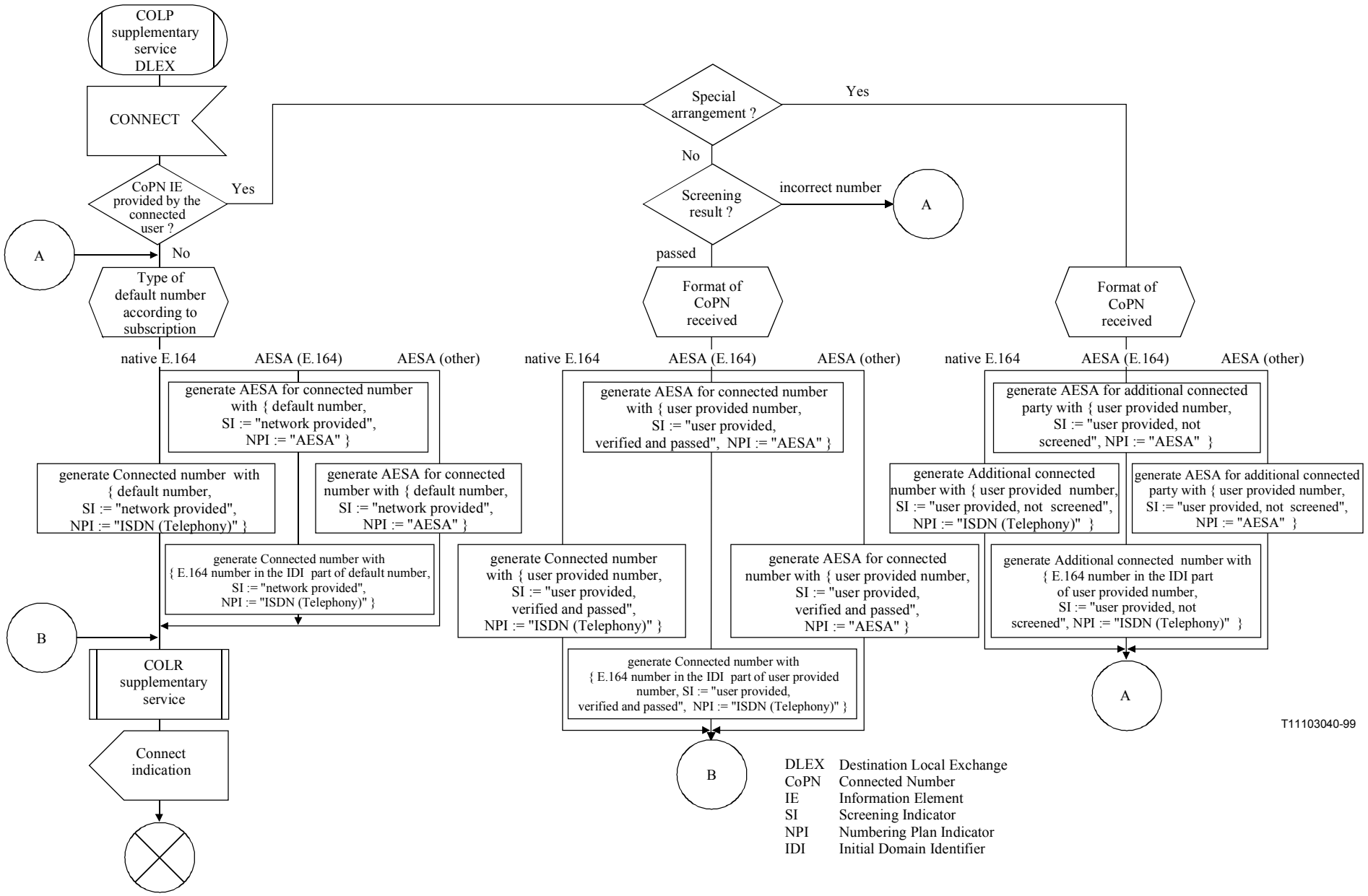

Figure 3/Q.2951.9 – Procedures for COLP at the destination local exchange

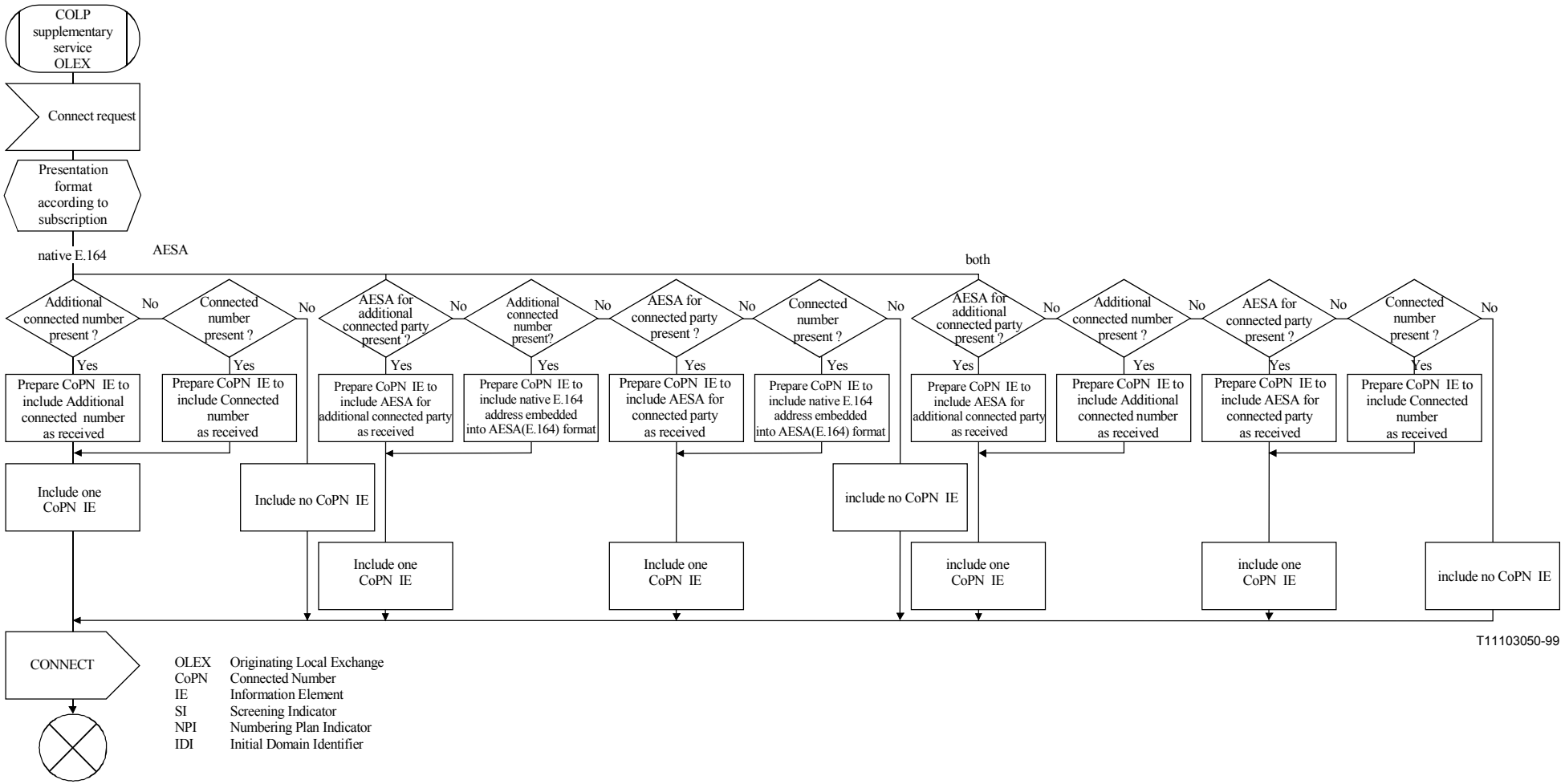

Figure 4/Q.2951.9 – Procedures for COLP at the originating local exchange

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Geneva, 2001