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SECTION 3

SUPPLEMENTARY SERVICES

Recommendation Q.80

INTRODUCTION TO STAGE 2 SERVICE DESCRIPTIONS FOR SUPPLEMENTARY SERVICES

1 Introduction

The purpose of this Recommendation is to provide an introduction to the Stage 2 service descriptions for supplementary services, given in Recommendations Q.81-87.

2 Cross-references

The work in Recommendations Q.81-87 is based on the Stage 1 service descriptions given in the I.251-257-Series Recommendations (see Annex A). They are coordinated with the Stage 2 service description for basic calls, given in Recommendation Q.71, and were developed according to the methodology given in Recommendation Q.65.

3 Relationships among supplementary services

3.1 *Call diversion services*

Recommendation I.252, §§ 2-5, defines a set of supplementary services called ‘‘Call Diversion Services’’. This set consists of the Call Forwarding supplementary services and the Call Deflection supplementary service. This section describes how these services relate to each other and describes the different network routing techniques which may be used to provide these services. It begins with the latter topic.

3.1.1 *Network Routing Techniques*

Figure 1/Q.80 gives an overview of the Call Diversion services and illustrates the network routing techniques that may be used for these services.

Referring to Figure 1/Q.80, a Call Diversion occurs if User A calls User B who has subscribed to one of the Call Diversion services, and the call processing for that service (described below) determines that the call should be sent to User C.

If User C is relatively close to User B, then it would be reasonable for User B’s serving switch to simply switch the call to User C (i.e. act like a transit switch as if User A had called User C directly). This technique is called ‘‘forward switching’’.

If User C is not close to User B (e.g. User CC in Figure 1/Q.80), then it might be reasonable for User B’s serving switch to ask that a previous switch in the call path (e.g. Switch 2) to re-route the call. This is called ‘‘(partial) rerouting’’. If User B’s serving switch asks that User A’s switch (i.e. Switch 1) re-route the call, this is called ‘‘(full) rerouting’’.

Note 1 — The choice of network routing technique is the prerogative of each network provider and may be determined by factors other that geographical distance.

Note 2 — The analogy to a transit switch is not totaly correct. In general, User A will be charged for the connection to User B, and User B will be charged for the connection to User C.

Figure 1/Q.80, p.

3.1.2 *Call processing*

In Call Forwarding, the decision to divert the call is made by the serving switch, either because it has been instructed (by a previous interaction with the served user) to forward all calls, or to forward any calls that meet busy, or those that meet No Reply. (See Figure 2/Q.80). (Details of the call processing for Call Forwarding are given in Recommendations Q.82, § 2, § 3 and § 4).

In Call Deflection, the decision to divert the call is made by the served user, upon receipt of an incoming call indication. (*Note* — Care should be taken not to confuse Call Deflection with a possible architecture for Call Forwarding which places the ‘‘forwarding detection’’ entity in the served user’s equipment. In Call Deflection, the actual user is involved in deciding whether to divert the call). (Details of the call processing for Call Diversion are expected to be provided early in the next study period.)

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Figure 2/Q.80, p.

ANNEX A
(to Recommendation Q.80)

Cross-reference list of Stage 1 and Stage 2

Recommendations on supplementary services

Stage 2 Based on Stage 1 given in:

Q.80 Introduction to Stage 2 service description for supplementary services

Q.81 Number identification supplementary services I.251

§ 1 Direct dialling in I.251, § 1

(§ 2) Multiple subscriber number I.251, § 2

Parentheses ‘‘( )’’ around a § of a Recommendation number implies that the § may not appear in the 1988 CCITT Recommendations.

§ 3	CLIP	I.251, § 3
§ 4	CLIR	I.251, § 4
§ 5	COLP	I.251, § 5
§ 6	COLR	I.251, § 6
(§ 7)	Malicious call ID	(I.251, § 7)
(§ 8)	Sub-addressing	(I.251, § 8)

Stage 2 Based on Stage 1 given in:

Q.82 Call offering supplementary services I.252

(§ 1) Call transfer I.252, § 1

§ 2 Call forwarding busy I.252, § 2

§ 2 Call forwarding no reply I.252, § 3

§ 2 Call forwarding unconditional I.252, § 4

(§ 3) Call deflection (I.252, § 5)

§ 4 Line hunting I.252, § 6

Q.83 Call completion supplementary services I.253

§ 1 Call waiting I.253, § 1

§ 2 Call hold I.253, § 2

(§ 3) CCBS (I.253, § 3)

(*Q.84*) *Multiparty supplementary services I.254*

(§ 1) Conference calling I.254, § 1

(§ 2) Three-party I.254, § 2

Q.85 ''Community of interest'' supplementary services I.255

§ 1 Closed user group I.255, § 1

(§ 2) ISDN networking services (I.255, § 2)

Private numbering plan

Q.86 Charging supplementary services I.256

§ 1 Credit card calling I.256, § 1

§ 2 Advice of charge I.256, § 2

(§ 3) Reverse charging (I.256, § 3)

Q.87 Additional information transfer supplementary services I.257

§ 1 User-to-user signalling I.257, § 1

Recommendation Q.81

NUMBER IDENTIFICATION SUPPLEMENTARY SERVICES

1 Direct dialling in (DDI)

1.1 *Definition*

direct dialling in (DDI) enables a user to call directly another user on a ISPBX or other private system without attendant intervention.

1.2 *Description*

1.2.1 *General description*

A part of the ISDN number, which is significant to the user, is passed to the user. This supplementary service is based on the use of the ISDN number and does not include sub-addressing.

Note 1 — A similar method to select a terminal on a passive bus is described in the Stage 1 description of the supplementary service MSN.

Note 2 — The caller may or may not find the ISDN number in the public directory.

Recommendation E.164 provides the flexibility for Administrations to use national numbering plans of fixed or variable number lengths. This flexibility also applies to DDI numbers, i.e. even within a given PABX DDI numbers of different lengths may appear.

The number of digits used by a PABX supporting the DDI feature is not necessarily known by their serving local exchange nor by any other entity of the public network.

The DDI number (fixed or variable length) is sent en-bloc or by over-lap sending from the exchange to the PABX or other private system which finally and automatically establishes a connection to the destination without the assistance of an operator.

1.2.2 *Qualifications on the applicability to telecommunication services*

No restrictions.

1.3 *Derivation of a functional model* (Step 1)

1.3.1 *Functional model description*

Two functional models are used to show the different requirements of DDI.

Functional model 1 represents the situation where DDI is used to address a terminal on a single ISPBX connected to the public network.

Functional model 2 describes the situation where DDI is used to address a terminal within a private network consisting of several PBXs.

Although functional model 1 can be seen as a special application of model 2 it is preferred to describe the two models independently to show different situations more clearly.

Figure 1-1/Q.81, p.

1.3.2 *Description of the functional entities*

FE1: Call control agent of the calling user

FE2: Call control entity of the calling user

FE3: DDI Access control to the private network (located in the public network)

FE4: DDI Service control for the called user and access control in the private network

FE5: Call control agent of the called user

FE6: DDI Access control in the private network

FE7: DDI Service control in the private network for the called user.

1.3.3 *Relationship to basic service*

The call setup procedures in the public network are mainly the same as for the basic service.

FE1 and FE2 therefore have the same functionality as CCA and CC. r_1 and r_2 correspond to r_1 and r_2 in the basic service.

FE3 includes specific functionality of DDI in the relationship r_3.

FE4, FE6 and FE7 are entities in a private network that are only specified here as far as they are influenced by r_3. The same applies for r_4 and r_5.

1.4 *Information flow diagrams* (Step 2)

1.4.1 *Diagrams*

The diagrams for model 1 are shown in Figure 1-2/Q.81.

Figure 1-2/Q.81 (à l'italienne), p.

1.4.1.1 *Diagrams for model 2*

Figure 1-3/Q.81, p.

Notes to Figures 1-2/Q.81 and 1-3/Q.81

Note 1 — Optional signalling information which may be used to acknowledge seizure and/or for B channel negotiation.

Nota 2 — Optional signalling information which may be used to indicate complete address information.

Note 3 — If not already sent, this signalling information may be sent to the originating user to indicate complete address information.

Note 4 — If the PABX recognizes the receipt of complete address information, this signalling information may be sent.

Note 5 — On receipt of complete address information, this signalling information may be generated by the sub-PABX. If already sent by the PABX, it will not be transferred to the originating user.

Note 6 — Instead of ALTERTING, a CONNECT signalling information may be sent directly in case of an automatically responding terminal.

Note 7 — Optional early switch through backward transmission path.

1.4.2 *Definitions*

The definitions for ACK, ADDRESS INFO, PROCEEDING, REPORT and SETUP are the same as for the basic service.

1.4.2.1 *Meaning of [PROGRESS]*

PROGRESS can be sent from the entity serving the called user to indicate that sufficient ADDRESS INFO was received to address a user terminal or access line. It is an unconfirmed information flow.

1.4.2.2 *Information content of [PROGRESS]*

B-channel information in r_3 if not yet included in a previous sent information element.

1.5 *SDL diagrams of functional entities* (Step 3)

SDL diagrams are provided for FE3 covering the aspects of both functional models and giving the relation between r_2 and r_3. FE1 and FE2 are, as said, already covered by the basic procedures so that all aspects of DDI, that are relevant for the public network, are covered in these diagrams.

In the SDL diagrams only those procedures are described that deviate from the basic procedures.

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Figure 1-4/Q.81 (sheet 1 of 3), p.

Figure 1-4/Q.81 (sheet 2 of 3), p.

Figure 1-4/Q.81 (sheet 3 of 3), p.

Notes to Figure 1-4/Q.81 (sheets 1 to 3)

Note 1 — Through connection is generally only done when the setup confirmation is received from the called user. This is described in option A.

In specific national applications through connection may already be done in an earlier point in time. This is covered in options B1 or B2 and requires further considerations.

Note 2 — Negotiation of a B channel is not necessarily an independent information flow. It can be combined with the first backward information flow that is required for call control. This information flow can be PROGRESS, REPORT (alerting) or SETUP.

1.6 *Functional entity actions* (Step 4)

1.6.1 *Specific actions in FE3*

1.6.1.1 *Channel selection*

Negotiation for the selection of a B-channel will be permitted between the network and the PABX. The selection procedure is as follows:

a) in the SETUP Request, the network will indicate one of the following:

1) channel is indicated, no acceptable alternative; or

2) channel is indicated, any alternative is acceptable; or

3) any channel is acceptable.

b) In cases 1) and 2), if the indicated channel is acceptable and available, the PABX selects it for the call.

In case 2), if the PABX cannot grant the indicated channel, it selects any other available B-channel and identifies that channel in the first information sent in response to the SETUP Indication.

In case 3), the PABX selects any available B-channel and identifies that channel in the first information sent in response to the SETUP Indication.

c) If no channel identification information element is present in the first response, the B-channel indicated in the SETUP Request will be assumed.

If the B-channel indicated in the first response is unacceptable to the network, it will clear the call.

d) When a B-channel has been selected by the PABX that channel may be connected by the PABX.

e) In case 1), if the indicated B-channel is not available, or in cases 2), 3), if no B-channel is available and the PABX cannot proceed with the offered call, the PABX clears the call.

The preferred solution for B-channel selection is alternative 1): B-channel is selected by exchange B.

1.6.1.2 *Through connection*

The general time for through connection in FE3 is, when setup is confirmed by the called user. This prevents fraudulent use of the connection without charging.

As a consequence of this procedure all tones and announcements during call setup have to be generated in the public network.

As an alternative some network providers may allow for an early through connection.

1.6.2 *Specific actions in FE6 and FE7*

1.6.2.1 *Through connection*

In case of an ISDN terminal or sub-PABX connected to the PABX, the through connection of the B-channel in the PABX is done with the sending of SETUP to the terminal/sub-PABX. In the sub-PABX the through connection is done with the sending of SETUP to the terminal. In the terminal the through connection is done at the receipt of CONNECT ACKNOWLEDGE from the PABX/sub-PABX.

In case of an analogue terminal connected to the ISDN PABX/sub-PABX the through connection of the B-channel in the terminal is done with the sending of CONNECT to the ISDN PABX/sub-PABX. In the ISDN PABX/sub-PABX the through connection is done at the receipt of SETUP Confirmation from the terminal. Note that this case is for further study.

1.7 *Allocation of functional entities to physical locations*

The mapping between functional entities and their possible physical locations is given in the following matrix.

H.T. [T1.81]

Functional entities Scenario	FE1	FE2	FE3	FE4	FE5	FE6	FE7
Call to ISPBX	TE	LE	LE	NT2	TE	—	—
Call to private network	TE	LE	LE	—	TE	NT2	NT2

Table [T1.81], p.

2 Multiple subscriber number

Under study.

3 Calling Line Identification Presentation (CLIP)

3.1 *General*

calling line identification presentation (CLIP) is a supplementary service offered to the called party which provides the calling party's ISDN number, possibly with sub-address information, to the called party.

3.2 *Description*

3.2.1 *General description*

When CLIP is applicable and activated, the network provides the called party with the number of the calling party at call setup on all incoming calls.

The calling party number may be accompanied by a sub-address.

The network should be capable of transmitting at least 15 digits (maximum length of an ISDN number). In addition, if provided by the calling party, the network should be capable of transmitting a sub-address. The length of the sub-address is defined in the relevant Recommendation.

The network to which the calling party belongs should attempt to ensure that enough digits are transmitted to enable the called party to return the call, based on the calling number presented.

3.2.2 *Specific terminology*

None identified.

3.2.3 *Qualifications on the applicability to telecommunication services*

This supplementary service is applicable to all telecommunication services.

It is to be noted that in the Telematic services, an exchange of terminal identification (TID) occurs at a higher layer subsequent to a successful call establishment.

For Telematic services this supplementary service shall consist only of the access number of the calling party and this shall be provided by the network. For other non-voice services this supplementary service is for further study. The presentation of the CLI by Telematic terminals and by other non-voice terminals is for further study.

3.3 *Derivation of a functional model*

This part of the description is common with the service calling line identification restriction since this service has some impact on calling line identification presentation.

The model used for illustrating the calling line identification services procedures is given below:

Diagram T1110930-88, p.

3.4 *Information flow diagrams*

The calling line identity information needed to provide the calling line identification services is normally carried in the messages used to establish the call.

The calling line identity will be delivered to the called party by his local exchange and/or ISPBX during the call establishment if the calling line identity is available and presentation is allowed.

If calling line identity is not available in the destination local or transit exchange at call request, the exchange may optionally request the calling line identity from the originating local exchange.

The specifications of functions for Calling Line Identification include adaptions for private network implementations (in a full private network environment) and mobile network implementations. Private Network/Public ISDN interworking situations are for further study.

The calling line identity is made up of a number of information units:

— the subscriber's national (ISDN) number, or

— private network (ISDN) number, or

— international ISDN number and possibly other indications only for international calls, or

— partial number (optional) (Note 1);

— optionally, sub-address information, if explicitly provided by the calling user;

— numbering plan identification;

— type of address.

In addition to the calling identity the subscriber may be given the following information:

— Presentation indicator (PI) showing:

a) presentation allowed, or

b) presentation restricted, or

c) number not available due to interworking (Note 2)

— Screening indicator (SI) showing:

a) user provided, verified and passed, or

b) network provided

Note 1 — For international calls the partial number may be the international prefix and the country code. For national calls the partial number may be the trunk prefix and the area code.

Note 2 — The technical solutions for the various interworking arrangements with dedicated networks have not been detailed in this document.

Figure 3-1/Q.81, p. 11

Figure 3-2/Q.81, p.

Notes to Figures 3-1/Q.8 and 3-2/Q.81

Note 1 — The information flow contains:

- no information (should not be permitted for DDI-ISPBX in some networks);
- part of the subscriber number (extension number, selection on a passive bus);
- subscriber number;
- national number indicators;
- international number (for mobile application);
- numbering plan identification;
- type of address;
- presentation indicator (optional). Optional: sub-address.

Note 2 — The information flow contains:

- national number;
- if present: sub-address;
- international number;
- presentation indicator (allowed/restricted/not available due to interworking);

— screening indicator (network provided/subscriber provided, verified and passed);

— type of address;

— numbering plan identification.

Note 3 — The information flow contains:

- international number;
- no information (e.g. presentation restriction)
- if present: sub-address;
- presentation indicator (allowed/restricted/not available due to interworking);
- screening indicator (network provided/subscriber provided, verified and passed);
- type of address;
- numbering plan identification.

Note 4 — The information flow contains:

- no information;
- national number (for national calls);
- international number (for international calls);
- if present: sub-address;
- presentation indicator (allowed/restricted/not available due to interworking);
- screening indicator (network provided/subscriber provided, verified and passed);
- type of address;
- numbering plan identification.

Note 5 — The information flow contains:

- no information;
- part of the extension number (e.g. selection on a passive bus);
- extension number or private network number;
- optional: sub-address;
- type of address;
- numbering plan identification.

Note 6 — The information flow contains:

- extension number or private network number;
- if present: sub-address;
- presentation indicator (allowed/restricted/not available due to interworking);
- screening indicator (network provided/subscriber provided, verified and passed);
- type of address;
- numbering plan identification.

3.5 *SDL diagrams for functional entities*

FE2 — Determination of the calling line identity — originating side

The ability of an ISDN component to determine the calling line identity and if present, the sub-address. In public network the calling line identity is the national ISDN number, in private network the private network number and in mobile network the international ISDN number.

FE3 — Determination of the international calling line identity

The ability of an ISDN component to determine the international calling line identity and if present, the sub-address.

FE4 — Determination of the calling line identity — destination side

The ability of an ISDN component to determine the calling line identity and if present, the sub-address. In some networks the calling line identity given to an extension user connected to an ISPBX shall include outgoing prefix if the call is originated or passed through the public network.

Figure 3-3/Q.81, p.

Figure 3-4/Q.81 (sheet 1 of 2), p.

Figure 3-4/Q.81 (sheet 2 of 2), p.

Figure 3-5/Q.81, p.

Notes to Figure 3-5/Q.81

Note A — No information about the identity of the calling party is sent to the called party.

Note B — Set PI — Presentation restricted, address information will not be presented to the called party.

Note 1 — Presentation may be restricted due to national regulations or presentation restriction.

Presentation restriction may be overridden due to the called party's category (e.g. police).

Note 2 — The request option is not supported by private networks (CL identity is always included). The request option is not defined by Study Group XVIII.

Note 3 — In the case where the address information is not available due to interworking, only the indicators are presented to the user.

3.6 *Functional entity actions*

3.6.1 *Functional entity actions for FE2*

— Check if calling line identity is provided from the user;

— verify (and complete) calling line identity;

— set PI and SI;

— set type of number.

3.6.2 *Functional entity actions for FE3*

— check if calling line identity may be passed between Administrations;

— at the originating side: provide international number;

— at the destination side: add international prefix.

3.6.3 *Functional entity actions for FE4*

— check CLIP subscription;

— check if calling line identity is provided from FE3;

— request the calling line identity (optional);

— check for CLIR and if presentation is allowed pass CLI to FE5.

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3.7 *Allocation of functional entities to physical location*

H.T. [T2.81]

Functional entity Scenario	FE1	FE2	FE3	FE4	FE5
National call	TE	LE		LE	TE
International call	TE	LE	TR	LE	TE
Call between NT2s	NT2	LE	(TR)	LE	NT2
Call between NT2-TE	NT2	LE	(TR)	LE	TE
National private network	TE	NT2		NT2	TE
International private network	TE	NT2	TR/NT2	NT2	TE

Note — (TR) means that this functional entity is included in the case of international calls.

Table [T2.81], p.

4 Calling Line Identification Restriction (CLIR)

4.1 *General*

calling line identification restriction (CLIR) is a supplementary service offered to the calling party to restrict presentation of the calling party's ISDN number and sub-address to the called party.

4.2 *Description*

4.2.1 *General description*

When CLIR is applicable and activated the originating node provides the destination node with a notification that the calling party's ISDN number and any sub-address information is not allowed to be presented to the called party. In this case no calling party number is included in the call offering to the called party's installation.

Note — When CLIR is subscribed to, some network providers may not wish to send the originating identity of the calling customer to other network providers.

Calling line identification restriction includes two options:

i) presentation restriction for all calls;

ii) temporary presentation restriction.

The presentation indicator is included in the SETUP req. ind. Information Flow received from the calling user. When no indicator is present a default value is used as follows.

The presentation indicator is stored in the public network (local exchange) as a default value for each user. The default value may be ‘‘presentation allowed’’ or ‘‘presentation restricted’’. This default value may be changed *only* by the network provider.

The first option is considered a minimum implementation.

The second option gives the calling user a possibility on a per call basis to override the default presentation indicator value stored in the public network. This option may be available on a subscription basis or generally.

4.2.2 *Specific terminology*

None identified.

4.2.3 *Qualifications on the applicability to telecommunication services*

None identified; i.e., this supplementary service is applicable to all telecommunication services.

The service calling line identification restriction has impact on the service calling line identification presentation, and therefore, the rest of the description is common for the two services. This part is presented in the CLIP description.

5 Connected Line Identification Presentation (COLP)

5.1 *General*

connected line identification presentation (COLP) is a supplementary service offered to the calling party which provides the connected party’s ISDN-number to the calling party.

5.2 *Description*

5.2.1 *General description*

When COLP is applicable and activated, the network provides the calling party with the number of the connected party when the called party responds positively to the incoming call. The network should be capable of transmitting at least 15 digits (maximum length of an ISDN number).

5.2.2 *Specific terminology*

None identified.

5.2.3 *Qualifications on the applicability to telecommunication services*

This supplementary service is applicable to all telecommunication services.

It is to be noted that in the Telematic services, an exchange of Terminal Identification (TID) occurs at a higher layer subsequent to a successful call establishment.

For Telematic services, this supplementary service shall consist only of the access number of the connected party and this shall be provided by the network. For other non-voice services, this supplementary service is for further study. The presentation of the COLI by Telematic terminals and by other non-voice terminals is for further study.

5.3 *Derivation of a functional model*

This part of the description is common with the service Connected Line Identification Restriction (COLR) since this service has some impact on Connected Line Identification Presentation.

The model used for illustrating the ‘‘Connected Line Identification Services’’ procedures is given in Figure 5-1/Q.81 below.

Figure 5-1/Q.81, p.

5.4 *Information flow diagrams*

The Connected Line Identity information needed to provide the Connected Line Identification Services is normally carried in the messages indicating that the call has been answered.

The original Connected Line Identity will be delivered to the calling party by his local exchange and/or ISPBX when the call enters the active state if the Connected Line Identity is available and presentation is allowed.

If Connected Line Identity is not available in the originating local or transit exchange at call connection time, the exchange may optionally request the Connected Line Identity from the destination local exchange.

The specifications of functions for COLP include adaptions for private network applications (in a full private network environment) and mobile network applications. Private NetworkB/FPublic ISDN interworking situations are for further study.

The Connected Line Identity is made up of a number of information units:

— the subscriber's national (ISDN) number, or

— private network number, or

— international ISDN-number and possibly other indications only for international calls, or

— partial number (optional) (Note 1);

— optionally, sub-address information, if explicitly provided by the calling user;

— numbering plan identification;

— type of address.

In addition to the Connected Line Identity, the subscriber may be given the following information:

— Presentation Indicator showing:

a) presentation allowed, or

b) presentation restricted, or

c) number not available due to interworking (Note 2);

— Screening indicator showing:

a) User provided, verified and passed, or

b) network provided.

Note 1 — For international calls, the partial number may be the international prefix and the country code. For national calls, the partial number may be the trunk prefix and the area code.

Note 2 — The technical solutions for the various interworking arrangements with dedicated networks have not been detailed in this Recommendation.

Figure 5-2/Q.81, p.

Figure 5-3/Q.81, p.

Notes to Figures 5-2/Q.81 and 5-3/Q.81

Note 1 — The information flow contains:

— no information (should not be permitted for DDI-ISPBX in some networks);

— part of the subscriber number (extension number, selection on a passive bus);

— subscriber number;

— national number;

— international number (for mobile applications);

— numbering plan identification;

— type of address;

— presentation indicator;

— optional: sub-address.

Note 2 — The information flow contains:

— national number;

— if present: sub-address;

— international number;

— presentation indicator (allowed/restricted/not available due to interworking);

— screening indicator (network provided/subscriber provided, verified and passed);

— type of address;

— numbering plan identification.

Note 3 — The information flow contains:

- international number;
- no information (e.g., presentation restriction);
- if present: sub-address;
- presentation indicator (allowed/restricted/not available due to interworking);
- screening indicator (network provided/subscriber provided);
- type of address;
- numbering plan identification.

Note 4 — The information flow contains:

- no information (depending on indicators);
- national number (for national calls);
- international number (for international calls);
- if present: sub-address;
- presentation indicator (allowed/restricted/not available due to interworking);
- screening indicator (network provided/subscriber provided, verified and passed);
- type of address;
- numbering plan identification:

Note 5 — The information flow contains:

- no information;
- part of the extension number (e.g., selection on a passive bus);
- extension number or private network number;
- optional: sub-address;
- type of address;
- numbering plan identification.

Note 6 — The information flow contains:

- extension number or private network number;
- if present: sub-address;
- presentation indicator (allowed/restricted/not available due to interworking);
- screening indicator (private network provided/user provided, verified and passed);
- type of address;
- numbering plan identification.

5.5 *SDL diagrams for functional entities*

FE4 — Determination of the Connected Line Identity — Destination side

The ability of an ISDN component to determine the Connected Line Identity and if present, the sub-address. The Connected Line Identity may contain prefixes. In public network, the Connected Line Identity is the national ISDN Number, in private network the private Network Number and in mobile network the International ISDN Number.

FE3 — Determination of the International Connected Line Identity

The ability of an ISDN component to determine the International Connected Line Identity and if present, the sub-address.

FE2 — Determination of the Connected Line Identity — Originating side

The ability of an ISDN component to determine the Connected Line Identity and if present, the sub-address. In some networks, the Connected Line Identity sent to an extension connected to an ISPBX shall contain the outgoing prefix.

Figure 5-4/Q.81, p.

Figure 5-5/Q.81 (sheet 1 of 2), p.

Figure 5-5/Q.81 (sheet 2 of 2), p.

Figure 5-6/Q.81, p.

Notes to Figure 5-6/Q.81

Note A — No information about the connected line. Identity is sent to the calling party.

Note B — Set IP presentation restricted. Address information will not be presented to the calling party.

Note 1 — Presentation may be restricted or overridden due to national regulations or presentation restriction.

Presentation restriction may be overridden due to the called party's category (e.g. police).

Note 2 — The request option is not supported by private networks.

Note 3 — In the case where the address information is not available due to interworking, only the indicators are presented for the user.

5.6 *Functional entity actions*

5.6.1 *Functional entity actions for FE2*

— check COLP subscription;

— check if Connected Line is provided;

— request Connected Line Identify (optional);

— check for COLR and if presentation allowed, pass COLI to FE1.

5.6.2 *Functional entity actions for FE3*

— check if Connected Line Identity may be passed between administrations;

— at the destination side: provide international number;

— at the originating side: add international prefix.

5.6.3 *Functional entity actions for FE4*

— check if Connected Line Identity is provided from the user;

— verify (and complete) Connected Line Identity;

— set PI and SI;

— set type of number.

5.7 *Allocation of functional entities to physical location*

H.T. [T3.81]

Functional entity Scenario	FE1	FE2	FE3	FE4	FE5
National call	TE	LE		LE	TE
International call	TE	LE	TR	LE	TE
Call between NT2s	NT2	LE	(TR)	LE	NT2
Call between NT2-TE	NT2	LE	(TR)	LE	TE
National private network	TE	NT2		NT2	TE
International private network	TE	NT2	TR/NT2	NT2	TE

Note — (TR) means that this functional entity is included in the case of international calls.

Table [T3.81], p.

6 Connected Line Identification Restriction (COLR)

6.1 *General*

connected line identification restriction (COLR) is a supplementary service offered to the connected party to restrict presentation of the connected party's ISDN number to the calling party.

6.2 *Description*

6.2.1 *General description*

When COLR is applicable and activated, the destination node provides the originating node with a notification that the connected party's ISDN number is not allowed to be presented to the calling party. In this case no connected party number is included in the call connected information to the calling party's installation.

Note — When COLR is subscribed to, some network providers may not wish to send the identity of the connected customer to other network providers.

Detailed descriptions of functions and information flows

Connected line identification restriction includes two options:

i) presentation restriction for all calls;

ii) temporary presentation restriction.

The presentation indicator is included in the SETUP conf. resp. Information Flow received from the called user. When no indicator is present, then a default value is used as follows.

The presentation indicator is stored in the public network (local exchange) as a default value for each user. The default value may be value may be changed *only* by the network provider.

The first option is considered a minimum implementation.

The second option gives the user who receives (and accepts) the call, a possibility on a per call basis to override the default presentation indicator value stored in the public network. This option may be available on a subscription basis or generally.

The service connected line identification restriction has impact on the service connected line identification presentation, and therefore, the rest of the description is common for the two services. This part is presented in the COLP description.

6.2.2 *Specific terminology*

None identified.

6.2.3 *Qualifications on the applicability to telecommunications services*

None identified; i.e., this supplementary service is applicable to all telecommunication services.

7 Malicious call identification

Under study.

Blanc