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SECTION 5

SUPPLEMENTARY SERVICES IN ISDN

Recommendation I.250

DEFINITION OF SUPPLEMENTARY SERVICES

(Melbourne, 1988)

1 General

Recommendation I.210 describes the principles for defining telecommunication services supported by an ISDN including the concept of bearer services, teleservices and supplementary services. It also provides the means for the definition and description of such services.

The purpose of this Recommendation is to define a recommended set of supplementary services to be used in association with basic bearer services and with basic teleservices. These definitions form the basis for detailed descriptions as given in Recommendations I.251 to I.257, which are used to define the network capabilities required.

Supplementary services are described by prose definitions and descriptions and by dynamic descriptions following the description method given in Recommendation I.130. The application for supplementary services of the attribute technique described in Recommendation I.140 is for further study.

Note — Alignment and interworking between user facilities as defined in Recommendations X.2 and X.301 for the provision of data transmission services and the supplementary services in the I.250-Series and interworking in the I.500-Series of Recommendations require further study.

2 List of supplementary services

The following set of supplementary services is currently identified and more may be identified in the future:

Recommendation I.251 Number Identification supplementary services

I.251.1 Direct-Dialling-In (DDI)

I.251.2 Multiple Subscriber Number (MSN)

I.251.3 Calling Line Identification Presentation (CLIP)

I.251.4 Calling Line Identification Restriction (CLIR)

I.251.5 Connected Line Identification Presentation (COLP)

I.251.6 Connected Line Identification Restriction (COLR)

I.251.7 Malicious Call Identification (MCI) (Note)

I.251.8 Sub-addressing (SUB) (Note)

Recommendation I.252 Call Offering supplementary services

I.252.1 Call Transfer (CT)

I.252.2 Call Forwarding Busy (CFB)

I.252.3 Call Forwarding No Reply (CFNR)

I.252.4 Call Forwarding Unconditional (CFU)

I.252.5 Call Deflection (CD) (Note)

I.252.6 Line Hunting (LH)

Recommendation I.253 Call Completion supplementary services

I.253.1 Call Waiting (CW)

I.253.2 Call Hold (HOLD)

I.253.3 Completion of Calls to Busy Subscribers (CCBS) (Note)

Recommendation I.254 Multiparty supplementary services

I.254.1 Conference Calling (CONF)

I.254.2 Three Party Service (3PTY)

Recommendation I.255 Community of Interest supplementary services

I.255.1 Closed User Group (CUG)

I.255.2 Private Numbering Plan (PNP) (Note)

Recommendation I.256 Charging supplementary services

I.256.1 Credit Card Calling (CRED) (Note)

I.256.2 Advice of Charge (AOC)

I.256.3 Reverse Charging (REV) (Note)

Recommendation I.257 Additional Information Transfer supplementary service

I.257.1 User-to-User Signalling (UUS)

Note — This service having been identified now requires further study; its description is not yet included.

3 Association of supplementary services to bearer services and teleservices

Table 1/I.250 shows the association of supplementary services to basic bearer services and basic teleservices identified so far. Their provision in a particular ISDN is a network provider’s option. Other associations are for further study.

Service Recommendations of the F-Series may recommend the individual provision of supplementary services with teleservices, for example, the provision with the telematic services Teletex, Telefax, Mixed Mode, etc.

4 Definitions of supplementary services

a) At stage 1 of the description method the services are described from the user's perspective, but do not concern details of the human interface itself. For example, in Call Waiting there is a statement that the served user ''shall be informed'' that a call is waiting. It does not specify whether this shall be accomplished by a bell, a light, a synthesized voice, etc.

b) Similarly, the stage 1 service description is independent of the amount of functionality in the user's terminal other than that required to provide the human interface. For example, the Conference Calling Service description is designed to be independent of whether the conference bridge is in the terminal, in the serving exchange, or elsewhere.

c) While the service descriptions are directly applicable to public networks, it is expected that the design of private networks will take these descriptions into account in order to ease the interworking between public and private networks.

d) Although reference is made to human users, there is no restriction on a machine or procedures being the user of these supplementary services. Examples include automatic answering terminals, voice announcement systems, etc.

e) Combining points a) to d), there is no prohibition against ''machines'' (e.g. call distributors) that *use* the CCITT described services and then *offer* the same or other (e.g. customized) services to *their* users.

f) Lastly, the ''machine'' referred to above could, in fact, be an entire private network.

H.T. [1T1.250]

TABLE 1/I.250

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Association of supplementary services to basic bearer services and to basic teleservices supported by ISDN

}

Supplementary services	{ Teleservices { 64 kbit/s speech demand { { { Telephony	{ Teletex	Telefax 4	Videotex	Mixed mode						
Direct-dialling-in	X	X	X				X	X	X	X	X
Multiple subscriber number	X	X	X				X	X	X	X	X
{ Calling line identification presentation }	X	X	X	b)	b)	b)	X	X	X	X	X
{ Calling line identification restriction }	X	X	X	b)	b)	b)	X	X	X	X	X
{ Connected line identification presentation }	X	X	X	b)	b)	b)	X	X	X	X	X
{ Connected line identification restriction }	X	X	X	b)	b)	b)	X	X	X	X	X
{ Malicious calls identification | ua) }											
Sub-addressing | ua)											
Call transfert	X	X	X				X				
Call forwarding busy	X	X	X				X				
Call forwarding no reply	X	X	X				X			X	
Call forwarding unconditional	X	X	X				X			X	
Call deflection | ua)											
Line hunting	X	X	X				X				
Call waiting	X	X	X				X				
Call hold	X	X	X				X				
{ Completion of calls to busy subscribers | ua) }											
Conference calling	X	X	X				X				

Table 1/I.250 [1T1.250], p. A L'ITALIENNE

H.T. [2T1.250]

{
TABLE 1/I.250 *(continued)*
}

Supplementary services	Teleservices 64 kbit/s speech demand Telephony	Teletex	Telefax 4	Videotex	Mixed mode						
Three party service	X	X	X				X				
Closed user group	X	X	X				X	X	X	X	X
Private numbering plan | ua)											
Credit card calling | ua)											
Advice of charge	X	X	X				X	X	X	X	X
Reserve charging | ua)											
User-to-user signalling	X	X	X	b)	b)	b)	X	X	X		X

X denotes applications of supplementary services identified within each supplementary service description; other associations are for further study.

a) This supplementary service is not yet included in the descriptions.

b) Further study is required on the association of this supplementary service to this circuit mode bearer service.

Tableau 1/I.250 [2T1.250], p. 2 A L'ITALIENNE

4.1 *Number Identification supplementary services* (Recommendation I.251)

I.251.1 **Direct Dialling In (DDI)** is a supplementary service which enables a user to directly call another user on a ISPBX or other private system without attendant intervention.

I.251.2 **Multiple Subscriber Number (MSN)** is a supplementary service which provides the possibility for assigning multiple ISDN numbers to a single interface.

I.251.3 **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.

I.251.4 **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.

I.251.5 **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.

I.251.6 **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.

I.251.7 Malicious call identifiction (Definition not yet included, further study is needed).

I.251.8 Sub-addressing (Definition not yet included, further study is needed).

4.2 *Call Offering supplementary services* (Recommendation I.252)

I.252.1 **Call Transfer** is a supplementary service which enables a user to transfer an established (i.e. active) call to a third party. For the original call, the served user may have been either the calling or called party (i.e. it may have been either an incoming or outgoing call).

I.252.2 **Call Forwarding Busy (CFB)** is a supplementary service which permits a served user to have the network send to another number all incoming calls for the served user’s ISDN number (or just those associated with a specified basic service) which meet busy at the served user’s ISDN number. The served user’s originating service is unaffected.

I.252.3 **Call Forwarding No Reply (CFNR)** is a supplementary service which permits a served user to have the network send to another number all incoming calls for the served user’s ISDN number which meet no reply (or just those associated with a specific basic service which meet no reply). The served user’s originating service is unaffected.

I.252.4 **Call Forwarding Unconditional (CFU)** is a supplementary service which permits a served user to have the network send to another number all incoming calls for the served user’s ISDN number (or just those associated with a specified basic service). The served user’s originating service is unaffected. If this service is activated, calls are forwarded regardless of the condition of the termination.

I.252.5 Call Deflection (Definition not yet included, further study is needed).

I.252.6 **Line Hunting** is a supplementary service which enables incoming calls to a specific ISDN number to be distributed over a group of interfaces.

4.3 *Call Completion supplementary services* (Recommendation I.253)

I.253.1 **Call Waiting** is a supplementary service which permits a subscriber to be notified of an incoming call (as per Basic Call procedures) with an indication that no interface information channel is available. The user then has the choice of accepting, rejecting or ignoring the waiting call (as per Basic Call procedures).

I.253.2 **Call Hold** is a supplementary service which allows a user to interrupt communications on an existing call/connection and then subsequently, if desired, reestablish communications.

I.253.3 Completion of Calls to Busy Subscribers (Definition not yet included, further study is needed).

4.4 *Multiparty supplementary services* (Recommendation I.254)

I.254.1 **Conference Calling** is an ISDN supplementary service which allows a user to communicate simultaneously with multiple parties, which may also communicate among themselves.

I.254.2 **Three-Party Service** is a supplementary service which enables a user who is active on a call to hold that call, make an additional call to a third party, switch from one call to the other as required (privacy being provided between the two calls), and/or release one call and return to the other. Optionally, the served user could subscribe to an ability to join the two calls together into a three-way conversation.

4.5 *Community of Interest supplementary services* (Recommendation I.255)

I.255.1 **Closed User Group (CUG)** is a supplementary service which enables users to form groups, to and from which access is restricted. A specific user may be a member of one or more CUGs. Members of a specific CUG can communicate among themselves but not, in general, with users outside the group. Specific CUG members can have additional capabilities that allow them to originate calls outside the group, and/or to receive calls from outside the group. Specific CUG members can have additional restrictions that prevent them from originating calls to other members of the CUG, or from receiving calls from other members of the CUG.

I.255.2 Private Numbering Plan (Definition not yet included, further study is needed).

4.6 *Charging supplementary services* (Recommendation I.256)

I.256.1 Credit Card Calling (Definition not yet included, further study is needed).

I.256.2 **Advice of Charge** is a supplementary service allowing the user paying for a call to be informed of usage-based charging information.

This service may include one or more of the following cases:

1) Charging information at the end of the call.

2) Charging information during a call.

3) Charging information at call setup time.

I.256.3 Reverse charging (Definition not yet included, further study is needed).

4.7 *Additional information transfer supplementary service* (Recommendation I.257)

I.257.1 **User-to-User Signalling (UUS)** is a supplementary service which allows an ISDN user to send/receive a limited amount of information to/from another ISDN user over the signalling channel in association with a call to the other ISDN user.

Recommendation I.251

NUMBER IDENTIFICATION SUPPLEMENTARY SERVICES

(Melbourne, 1988)

The purpose of this Recommendation is to provide the stage 1 description of the method defined in Recommendation I.130 using the means given in Recommendation I.210.

Supplementary services are described by a prose definition and description (step 1.1) and by a dynamic description (step 1.3). The application of the attribute technique (step 1.2), as defined in Recommendation I.140, for supplementary services is for further study.

This Recommendation describes the following Number Identification supplementary services:

I.251.1 Direct-Dialling-In (DDI)

I.251.2 Multiple Subscriber Number (MSN)

I.251.3 Calling Line Identification Presentation (CLIP)

I.251.4 Calling Line Identification Restriction (CLIR)

I.251.5 Connected Line Identification Presentation (COLP)

I.251.6 Connected Line Identification Restriction (COLR)

I.251.7 Malicious Call Identification (MCI) (Note)

I.251.8 Sub-addressing (SUB) (Note)

Note — This service having been identified now requires further study, its description is not yet included.

1 I.251.1 — **Direct-Dialling-In**

1.1 *Definition*

Direct-Dialling-In (DDI) enables a user to directly call another user on an integrated services private branch exchange (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 called user, is passed to that user during call establishment. 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 supplementary service MSN.

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

1.2.2 *Specific terminology*

None.

1.2.3 *Qualifications on the applicability to telecommunication services*

No restrictions.

1.3 *Procedures*

1.3.1 *ProvisionB/Fwithdrawal*

This service shall be provided/withdrawn after pre-arrangement with the service provider. The service provider shall allocate a set of ISDN numbers.

1.3.2 *Normal procedures*

1.3.2.1 *Activation/deactivation/registration*

Activation through subscription.

1.3.2.2 *Invocation and operation*

Call initiation procedures are the same as for the basic service. The calling and called users perceive the same completion procedures as for the basic service, without attendant intervention. Upon answer, the calling user is connected to the called user designated by the ISDN number.

Note — When the connection from the caller to the ISPBX is established, the called ISPBX might use the connection for call progress signalling transmission.

1.3.3 *Exceptional procedures*

1.3.3.1 *Activation/deactivation/registration*

Not applicable.

1.3.3.2 *Invocation and operation*

If the called user is busy or does not answer, the procedures for basic calls will apply.

If a call is made by sending incomplete address information, the call will be released by time supervision within the public exchange. A corresponding time supervision within the ISPBX may also be convenient.

1.3.4 *Alternative procedures*

1.3.4.1 *Activation/deactivation/registration*

None identified.

1.3.4.2 *Invocation and operation*

None identified.

1.4 *Network capabilities for charging*

This Recommendation does not cover charging principles. Future Recommendations in the D-Series are expected to contain that information.

It shall be possible to charge the subscriber accurately for the service.

1.5 *Interworking requirements*

No problems identified.

1.6 *Interaction with other supplementary services*

1.6.1 *Call Waiting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.2 *Call Transfer*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.3 *Connected Line Identification Presentation*

For further study.

1.6.4 *Connected Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.5 *Calling Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.6 *Calling Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.7 *Closed User Group*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.8 *Conference Calling*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.9 *Direct-Dialling-In*

Not applicable.

1.6.10 *Call Diversion (i.e. Call Forwarding) services*

1.6.10.1 *Call Forwarding Busy*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.10.2 *Call Forwarding No Reply*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.10.3 *Call Forwarding Unconditional*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.11 *Line Hunting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.12 *Three-Party Service*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.13 *User-to-User Signalling*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.14 *Multiple Subscriber Number*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.15 *Call Hold*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.6.16 *Advice of Charge*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

1.7. *Dynamic description*

The dynamic description is as for basic services.

2 I.251.2 — **Multiple Subscriber Number**

2.1 *Definition*

Multiple Subscriber Number (MSN) provides the possibility for assigning multiple ISDN numbers to a single interface. For example, this service:

1) allows dialling from a line connected to a public network directly to terminals connected to a basic access which has subscribed to MSN (e.g. in a passive bus configuration);

2) enables the network to determine which ISDN number is applicable on originating calls (e.g. for charging purposes, for notification to the called party and application for supplementary services).

It is considered:

— that some Administrations may not have knowledge or control over what is connected to the basic access, e.g. an NT2 or passive bus;

— that Administrations have differing numbering methods;

— that common international terminal specifications are desired.

2.2 *Description*

2.2.1 *General description*

The addressing of terminals on a basic access may be achieved by applying a set of ISDN numbers to the single basic access. When a call with one of these ISDN numbers is delivered, the called number is indicated to the MSN user, either directly or through a mapping by the network.

In general, any set of numbers may be sent from the network to the subscriber's equipment during call establishment. However, it is recognized that administrative practices and certain equipment designs may lead to the adoption of restricted numbering sequences, e.g. by relating the last digit(s) of a fixed length ISDN number to the terminals to be connected. The actual method of relating the ISDN number to a particular terminal is a matter of national implementation but may, for example, be done by central intelligence or by distributed intelligence within the terminals.

The essential difference between this supplementary service and DDI concerns the length of the number sent to, and processed by, the user's installation. In the DDI situation the user (ISPBX) will be tailored on a per installation basis to receive the particular number of digits necessary to identify the terminals of this user (ISPBX).

With the multiple subscriber number supplementary service however, the service provider will fix the length of the number to be transmitted to the user's installation. It may comprise 1 or 2 or 3 of the last digits up to the full ISDN number. This number will be sent to the user network interface.

The digit(s) significant for terminal differentiation is/are an integral part of the ISDN numbering scheme.

Note — MSN is independent from and does not impose any constraints on ''service indication'' and ''sub-addressing''.

2.2.2 *Specific terminology*

None.

2.2.3 *Qualifications on the applicability to telecommunication services*

No restrictions.

2.3 *Procedures*

2.3.1 *Provision/withdrawal*

The service shall be provided after pre-arrangement with the service provider.

The service provider shall allocate a set of ISDN numbers (not necessarily consecutive). At the option of the service provider, one of these numbers may be designated by the MSN subscriber as the default number for the interface. At the option of the service provider, the user may specify a mapping arrangement between ISDN number and MSN digit(s).

2.3.2 *Normal procedures*

2.3.2.1 *Activation/deactivation/registration*

Activation through subscription.

2.3.2.2 *Invocation and operation*

The destination number sent by the calling user will be analyzed in the network. If the called user subscribes to this supplementary service, the network sends the available part of the ISDN number or at least the relating digit(s):

i) identical to that last digit(s) of the ISDN number; or

ii) generated by the network on the basis of a mapping process between ISDN number(s) and MSN digit(s).

Terminals compatible to the MSN service will react on a call as follows:

— if MSN digit(s) equal to their own preadjusted identity is (are) presented, they react to it in a predetermined way;

— if there is a set-up message without MSN digit(s), the terminal will interpret it as a normal call. (This may happen if a terminal with MSN capabilities is used on an interface, where MSN is not subscribed for.)

Terminals not compatible to the MSN service will react to a call as follows:

— whether there is (are) MSN digit(s) or not, the call will be interpreted as a normal call.

On outgoing calls a terminal compatible with the MSN service may provide the ISDN number (or MSN digits) when placing the call. The network will carry this identity unchanged or will replace the digit(s) by the associated ISDN number. The ISDN number of the calling terminal will then be sent to the called user with the incoming call (refer to § 3, CLIP supplementary service).

It is possible to allocate one ISDN number to one or more terminals. Similarly, one terminal may allow the assignment of one or more than one number. Further, as an administrative option a specific digit or sequence of digits may be allocated to enable all terminals in a point-to-multipoint configuration to react in the same way as they would if the supplementary service MSN were not subscribed to.

2.3.3 *Exceptional procedures*

2.3.3.1 *Activation/deactivation/registration*

Not applicable.

2.3.3.2 *Invocation and operation*

An ISDN number or MSN digits, generated by a terminal at an interface where MSN is in operation shall be discarded by the network unless this number is subscribed to by this interface. A default number may be provided by the network.

2.3.4 *Alternative procedures*

2.3.4.1 *Activation/deactivation/registration*

None identified.

2.3.4.2 *Invocation and operation*

None identified.

2.4 *Network capabilities for charging*

This Recommendation does not cover charging principles. Future Recommendations in the D-Series are expected to contain that information.

It shall be possible to charge the subscriber accurately for the service.

2.5 *Interworking requirements*

None identified.

2.6 *Interaction with other supplementary services*

In case of interaction with other supplementary services, these services could be applicable to the individual MSN rather than to the subscriber access.

2.6.1 *Call Waiting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.6.2 *Call Transfer*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.6.3 *Connected Line Identification Presentation*

See COLP (§ 5) interaction with MSN.

2.6.4 *Connected Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.6.5 *Calling Line Identification Presentation*

Upon call initiation, if the ISDN number indicated by the MSN user terminal is not subscribed to for the interface, or if no numbering information is indicated, a default number (if designated by the MSN subscriber) or a number unavailable indication is provided to the CLIP user.

2.6.6 *Calling Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.6.7 *Closed User Group*

For further study.

2.6.8 *Conference Calling*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.6.9 *Direct-Dialling-In*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.6.10 *Call Diversion (i.e. Call Forwarding) services*

2.6.10.1 *Call Forwarding Busy*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.6.10.2 *Call Forwarding No Reply*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.6.10.3 *Call Forwarding Unconditional*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.6.11 *Line Hunting service*

For further study.

2.6.12 *Three-Party Service*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.6.13 *User-to-User Signalling*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.6.14 *Multiple Subscriber Number*

Not applicable.

2.6.15 *Call Hold*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.6.16 *Advice of Charge*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

2.7 *Dynamic description*

The dynamic description is as for the basic services.

3 I.251.3 — **Calling Line Identification Presentation**

3.1 *Definition*

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 set-up 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 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 calling party’s ISDN-number by Telematic terminals and by other non-voice terminals is for further study.

3.3 *Procedures*

3.3.1 *Provision/withdrawal*

CLIP may be provided on a subscription basis or be generally available. CLIP may be withdrawn at the request of the subscriber or by the network provider for administrative reasons.

3.3.2 *Normal procedures*

3.3.2.1 *Activation/deactivation/registration*

CLIP is activated on provision and deactivated on withdrawal. No information needs to be registered with the network for this supplementary service.

3.3.2.2 *Invocation and operation*

The number presented shall unambiguously identify the access of the calling party. The number presented is either:

i) completely provided by the network;

ii) completely provided by the calling party; or

iii) partially provided by the network with the rest provided by the calling party (e.g. the access number is provided by the network and the additional digits to make the number complete by the calling party).

Where either the complete calling number, or part of the calling number is initially provided by the calling party, the network shall check its validity. If this check is successful, then this number is used by the network. For complete calling numbers, this validity check shall determine whether the number is allocated to the access; for partially provided numbers this check shall, for example, determine whether the digits are within the allocated range.

3.3.3 *Exceptional procedures*

3.3.3.1 *Activation/deactivation/registration*

None identified.

3.3.3.2 *Invocation and operation*

If the network check on a calling party-provided number is unsuccessful, the network will use the default number as the number of the calling party.

There are two cases where the calling party number is not presented to the called party:

i) when the calling party has an arrangement (see definition of Calling Line Identification Restriction) whereby presentation of his number is not allowed; and

ii) when the calling party number is not available, e.g., due to interworking with the analogue telephone network (PSTN).

In such cases no number is presented to the called party, but he shall receive an indication that the number of the calling party is unavailable.

3.3.4 *Alternative procedures*

3.3.4.1 *Activation/deactivation/registration*

None identified.

3.3.4.2 *Invocation and operation*

In some cases where a calling party has an arrangement such that presentation of his number is not allowed, there may be certain categories of called party that have the ability to override this restriction and have the calling number presented. This function is a national option.

Problems may occur when the calling party does not belong to the same network as the called party and in the calling party's network the override category does not exist, while, in the called party's network it does. A problem occurs when a calling party who restricts presentation and assumes that his number is *never* presented, makes a call to a called party who is in the override category.

The cases where the override category is applied is a national matter. Depending on bilateral agreement about the application of the override category in country B, and the ''presentation not allowed'' arrangement of the calling party in country A, country A may or may not deliver the calling line identification to country B. Agreements are also needed with any transit network.

3.4 *Network capabilities for charging*

This Recommendation does not cover charging principles. Future Recommendations in the D-Series are expected to contain that information.

It shall be possible to charge the subscriber accurately for the service.

3.5 *Interworking requirements*

On calls incoming from some non-ISDN networks, the calling number may be delivered to the destination ISDN without the ability to indicate whether presentation is allowed or not. How the ISDN should behave in this case is for further study.

From some other non-ISDN networks, no calling party number may be available to the ISDN and therefore the full number of the calling party cannot be given to the called party who has been provided with CLIP. In this situation a partial number, or a ''number unavailable'' indication, is given to the called party.

As a national option, the originating network shall have the possibility to restrict any information identifying the calling party from being forwarded to another network. If a destination network receives a calling party ISDN number without any indication of presentation allowed or restricted, the destination network (host network) will act according to its own rules and regulations.

3.6 *Interaction with other supplementary services*

3.6.1 *Call Waiting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

If an ISDN user(s) who has subscribed to the Call Waiting service at his B access, has been given a call waiting indication and has subscribed to the CLIP service, then the calling party’s number shall be presented to the ISDN user(s) at B at the time the call waiting indication is given. The presentation of the CLIP information shall be the same as when the ISDN user(s) at B receives a normal call.

3.6.2 *Call Transfer*

Refer to Recommendation I.252, § 1.6.5, interaction with CLIP.

3.6.3 *Connected Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

3.6.4 *Connected Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

3.6.5 *Calling Line Identification Presentation*

Not relevant.

3.6.6 *Calling Line Identification Restriction*

The calling line identification will not be presented if the calling user has an arrangement to inhibit the presentation of his number to the called party. The only occasion when a user subscribing to CLIP can take precedence over CLIR is when the user is in an override category. This is a national option.

3.6.7 *Closed User Group*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

3.6.8 *Conference Calling*

Any party that has subscribed to CLIP will receive the number of a calling conference controller when:

— the party is to be included as a ‘‘new party’’ during the invocation of a conference call; or

— the party is being added to an existing conference call.

3.6.9 *Direct Dialling In*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

3.6.10 *Call Diversion (i.e. Call Forwarding) services*

If an incoming call to the party to which CLIP has been provided has already been forwarded, then the calling party’s number should be the number of the original calling party.

3.6.10.1 *Call Forwarding Busy*

Refer to Recommendation I.252, § 2.6.5, interaction with CLIP.

3.6.10.2 *Call Forwarding No reply*

Refer to Recommendation I.252, § 3.6.5, interaction with CLIP.

3.6.10.3 *Call Forwarding Unconditional*

Refer to Recommendation I.252, § 4.6.5, interaction with CLIP.

3.6.11 *Line Hunting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

The Line Hunting service occurs before CLIP. The Line Hunting service would first provide a selection of an interface for presentation of a call. Once the service selects an interface, normal call processing would occur including the presentation of the calling party's number to a selected interface who has subscribed to CLIP.

3.6.12 *Three-Party service*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

3.6.13 *User-to-User Signalling*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

3.6.14 *Multiple Subscriber Number*

Refer to § 2.6.5 above, interaction with CLIP.

3.6.15 *Call Hold*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

3.6.16 *Advice of Charge*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

3.7 *Dynamic description*

The dynamic description for this service is shown in Figure 1/I.251.

4 I.251.4 — **Calling Line Identification Restriction**

4.1 *Definition*

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 are 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.

Figure 1/I.251, p.

Figure 1/I.251 (suite), (feuillet 2 sur 2), p.

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.

4.3 *Procedures*

4.3.1 *Provision/withdrawal*

CLIR can be provided on a subscription basis or can be generally available.

As a network provider option, CLIR can be offered with several subscription options. The options apply separately to each ISDN number. Subscription options are summarized below:

Subscription option Values CLIR mode — permanent (active for all calls) — temporary (specified by user per call)
Default — presentation restricted (only for temporary mode) — presentation not restricted

It is a network provider option to specify either or both of the above options for all subscribers, for instance, in an exchange or network.

4.3.2 *Normal procedures*

4.3.2.1 *Activation/deactivation/registration*

If subscribed to in the permanent mode, CLIR is always activated. If subscribed to on a temporary basis, CLIR is activated upon explicit request for the service, or on default, on a particular call and is deactivated after that call.

4.3.2.2 *Invocation and operation*

If the called party subscribes to Calling Line Identification Presentation and the calling party has CLIR activated, the called party shall receive an indication that the calling party number is not available.

4.3.3 *Exceptional procedures*

4.3.3.1 *Activation/deactivation/registration*

No exceptional procedures identified.

4.3.3.2 *Invocation and operation*

No exceptional procedures identified.

4.3.4 *Alternative procedures*

4.3.4.1 *Activation/deactivation/registration*

No alternative procedures identified.

4.3.4.2 *Invocation and operation*

Certain countries may define categories of subscribers that have the ability to override the presentation restriction and have the calling party's ISDN number and any sub-address presented (e.g., the police).

The ability to have such an override option is a national matter.

When a call originates in one ISDN and terminates in another ISDN and CLIR is applied, the rules and regulations of the destination network (the host network) should apply. For example, if the override category is not applicable in the originating network but it is in the destination network, a call with CLIR applied can still be overridden in the destination network, whenever information on the calling line is available for this network.

4.4 *Network capabilities for charging*

This Recommendation does not cover charging principles. Future Recommendations in the D-Series are expected to contain that information.

It shall be possible to charge the subscriber accurately for the service.

4.5 *Interworking requirements*

On calls to or via non-ISDNs, it cannot be assured that a CLIR indication can be carried to the destination network. As a national option the originating network shall have the possibility to restrict any information identifying the calling party from being forwarded to the destination network when CLIR is applicable. If a network receives a calling party ISDN number without any indication of presentation allowed or restricted, the destination network (the host network) will act according to its rules and regulations.

4.6 *Interaction with other supplementary services*

4.6.1 *Call Waiting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

Assume that a call from a user at C, who has subscribed to the CLIR service, invokes Call Waiting at a user(s) at B. The user(s) at B would receive a call waiting indication but would not receive the number of the calling user at C when the call waiting indication is given.

4.6.2 *Call Transfer*

Assume that a user A has an established call with user B and wishes to transfer this call with user B to user C. If user A has subscribed to CLIR, then user C shall not receive a calling number when user A invokes any call transfer procedure. If user B has subscribed to CLIR, then user C shall not receive a calling number during the transfer of user B to user C.

4.6.3 *Connected Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

4.6.4 *Connected Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

4.6.5 *Calling Line Identification Presentation*

CLIR will take precedence over Calling Line Identification Presentation (CLIP).

The only occasion when a user subscribing to CLIP can take precedence over CLIR is when the user has an override category. This is a national option.

4.6.6 *Calling Line Identification Restriction*

Not relevant.

4.6.7 *Closed User Group*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

4.6.8 *Conference Calling*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

4.6.9 *Direct-Dialling-In*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

4.6.10 *Call Diversion (i.e. Call Forwarding) services*

4.6.10.1 *Call Forwarding Busy*

When CLIR is applicable and activated, the calling party's ISDN-number will not be presented to the ‘‘forwarded-to’’ user unless this user is in an override category. The latter is a national option.

4.6.10.2 *Call Forwarding No Reply*

When CLIR is applicable and activated, the calling party's ISDN-number will not be presented to the ‘‘forwarded-to’’ user unless this user is in an override category. The latter is a national option.

4.6.10.3 *Call Forwarding Unconditional*

When CLIR is applicable and activated, the calling party's ISDN-number will not be presented to the ‘‘forwarded-to’’ user unless this user is in an override category. The latter is a national option.

4.6.11 *Line Hunting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

4.6.12 *Three-Party Service*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

4.6.13 *User-to-User Signalling*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

4.6.14 *Multiple Subscriber Number*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

4.6.15 *Call Hold*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

4.6.16 *Advice of Charge*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

4.7 *Dynamic description*

The dynamic description for this service is shown in Figure 1/I.251.

5 I.251.5 — **Connected Line Identification Presentation**

5.1 *Definition*

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 connected party answers the incoming call. The network should be capable of transmitting at least 15 digits (maximum length of an ISDN number).

Note — The possibility of enhancing this service to provide the called party number before the called party answers the call is for further study.

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 connected party's ISDN number by Telematic terminals and by other non-voice terminals is for further study.

5.3 *Procedures*

5.3.1 *ProvisionB/Fwithdrawal*

The COLP supplementary service may be provided on a subscription basis or be generally available.

COLP may be withdrawn at the request of the subscriber or by the network provider for administrative reasons.

5.3.2 *Normal procedures*

5.3.2.1 *ActivationB/FdeactivationB/Fregistration*

COLP is activated on provision and deactivated on withdrawal.

No information needs to be registered with the network for this supplementary service.

5.3.2.2 *Invocation and operation*

The number presented shall unambiguously identify the access of the connected party. The number presented is either:

i) completely provided by the network;

ii) completely provided by the connected party; or

iii) partially provided by the network with the rest provided by the connected party (e.g. the access number is provided by the network and the additional digits to make the number complete by the connected party).

Where either the complete connected number, or part of the connected number is initially provided by the connected party, the network shall check its validity. If this check is successful then this number is used by the network.

5.3.3 *Exceptional procedures*

5.3.3.1 *ActivationB/FdeactivationB/Fregistration*

None identified.

5.3.3.2 *Invocation and operation*

There are two cases where the connected party number is not presented to the calling party:

i) when the connected party has an arrangement whereby presentation of his number is not allowed (see definition of Connected Line Identification Restriction); or

ii) when the connected party number is not available (e.g. due to interworking with the analogue telephone network (PSTN)).

In such cases the calling party shall be given a number unavailable indication.

If the network check on the connected party provided number is unsuccessful, the network default number will be used instead.

5.3.4 *Alternative procedures*

5.3.4.1 *ActivationB/FdeactivationB/Fregistration*

None identified.

5.3.4.2 *Invocation and operation*

In some cases where a connected party has an arrangement such that presentation of his number is not allowed, there may be certain categories of calling party that have the ability to override this restriction and have the connected number presented. This function is a national matter.

Problems may occur when the connected party does not belong to the same network as the calling party and in the connected party's network the override category does not exist, while in the calling party's network, it does exist. A problem occurs when a connected party who restricts presentation and assumes that his number is *never* presented, receives a call from a calling party who is in the override category.

The cases where the override category is applied is a national matter. Depending on bilateral agreement about the application of the override category in country A, and the presentation not allowed arrangement of the connected party in country B, country B may or may not deliver the connected line identification to country A. Agreements are also needed with any transit network.

5.4 *Network capabilities for charging*

This Recommendation does not cover charging principles. Future Recommendations in the D-Series are expected to contain that information.

It shall be possible to charge the subscriber accurately for the service.

5.5 *Interworking requirements*

On calls destined to some non-ISDN networks, the connected number may be delivered to the originating ISDN without the ability to indicate whether presentation is allowed or not. How the ISDN should behave in this case is for further study.

On calls destined to some other non-ISDN networks, no connected party number may be available to the ISDN and therefore the full number of the connected party cannot be given to the calling party who has been provided with COLP. In this situation a partial number shall be given unless no information is available whereupon a ‘‘number unavailable indication’’ is given to the calling party.

5.6. *Interaction with other supplementary services*

5.6.1 *Call Waiting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

5.6.2 *Call Transfer*

Assume the situation where a user A has an established call with a user B and wishes to transfer this call with user B to a user C.

Except in the case where user C prohibits the presentation of his number, user C’s number shall be presented:

— to user B upon successful completion of the transfer to user C (independent of the type of transfer procedure invoked by user A) provided that user B has subscribed to COLP;

— to user A when user A is using normal or explicit transfer procedures and has subscribed to COLP. The connected party’s number will not be presented to user A if user A invokes the single step Call Transfer procedure.

Note — The connected number presentation may not be possible if interworking with a non-ISDN network is invoked in the call transfer.

5.6.3 *Connected Line Identification Presentation*

Not applicable.

5.6.4 *Connected Line Identification Restriction*

The connected line identification will not be presented if the connected user has subscribed to COLR.

5.6.5 *Calling Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

5.6.6 *Calling Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

5.6.7 *Closed User Group*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

5.6.8 *Conference Calling*

A conference controller who has also subscribed to COLP should be presented with the connected party's number when that party is either part of the initial activation of the conference or is added as a new conferee to an existing conference.

Conferees in an existing conference who have subscribed to COLP will not receive a new party's number whenever a conference controller adds a new party to the conference.

5.6.9 *Direct-Dialling-In*

For further study.

5.6.10 *Call Diversion (i.e. Call Forwarding) services*

5.6.10.1 *Call Forwarding Busy (CFB)*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

Assume a calling user A, who has subscribed to COLP, places a call to a user B who is busy and this call is forwarded to a user C. If user B has also subscribed to a notification option with his CFB service, calling user A may receive the forwarded-to user C's number with the notification of the forwarding. In any event, assuming user C answers the call, user C's number will be returned to user A unless user C has subscribed to COLR.

5.6.10.2 *Call Forwarding No Reply (CFNR)*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

Assume a calling user A, who has subscribed to COLP, places a call to a user B who has subscribed to the CFNR service, and who does not reply to the call within the subscribed time interval. If user B has also subscribed to

a notification option with his CFNR service, calling user A may receive the forwarded-to user C's number with the notification of the forwarding. In any event, assuming user C answers the call, user C's number will be returned to user A unless user C has subscribed to COLR.

5.6.10.3 *Call Forwarding Unconditional (CFU)*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

Assume a calling user A, who has subscribed to COLP, places a call to a user B who has subscribed to the CFU service. This call to user B would then be forwarded to user C. If user B has also subscribed to a notification option with his CFU service, calling user A may receive the forwarded-to user C's number with the notification of the forwarding. In any event, assuming user C answers the call, user C's number will be returned to user A unless user C has subscribed to COLR.

5.6.11 *Line Hunting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

5.6.12 *Three-Party Service*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

5.6.13 *User-to-User Signalling*

No impact, i.e. neither supplementary service affects the the other supplementary service.

5.6.14 *Multiple Subscriber Number*

Assume user A, who has subscribed to COLP, places a call to a user B to whom the network is applying the MSN service. Assuming user B answers the call, the connected number at B (which may be identical to the called number) will be returned to user A unless user B has subscribed to COLR. Other interactions are for further study.

5.6.15 *Call Hold*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

5.6.16 *Advice of charge*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

5.7 *Dynamic description*

The dynamic description for this service is shown in Figure 2/I.251.

6 I.251.6 — **Connected Line Identification Restriction**

6.1 *Definition*

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.

6.2.2 *Specific terminology*

None identified.

6.2.3 *Qualifications on the applicability to telecommunication services*

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

Figure 2/I.251, p.

Figure 2/I.251 (feuillet 2 sur 2), p.

6.3 *Procedures*

6.3.1 *ProvisionB/Fwithdrawal*

COLR can be provided on a subscription basis or be generally available.

As a network provider option, COLR can be offered with several subscription options. The options apply separately to each ISDN number. Subscription options are summarized below:

Subscription option Values

COLR mode — permanent (active for all calls) — temporary (specified by user per call) Default — presentation restricted (only for temporary mode) — presentation not restricted

It is a network provider option to specify either or both of the above options for all subscribers, for instance, in an exchange or network.

6.3.2 *Normal procedures*

6.3.2.1 *ActivationB/FdeactivationB/Fregistration*

If subscribed to in the permanent mode, COLR is always activated. If subscribed to on a temporary basis, COLR is activated upon explicit request for the service, or on default, on a particular call and is deactivated after that call.

6.3.2.2 *Invocation and operation*

If the calling party subscribes to Connected Line Identification Presentation and the connected party has COLR activated, the calling party shall receive an indication that the connected party number is not available.

6.3.3 *Exceptional procedures*

6.3.3.1 *ActivationB/FdeactivationB/Fregistration*

No exceptional procedures identified.

6.3.3.2 *Invocation and operation*

No exceptional procedures identified.

6.3.4 *Alternative procedures*

6.3.4.1 *ActivationB/FdeactivationB/Fregistration*

No alternative procedures identified.

6.3.4.2 *Invocation and operation*

Certain countries may define categories of subscribers that have the ability to override the presentation restriction and have the connected party's ISDN number presented (e.g. the police).

The ability to have such an override option is a national matter.

When a call originates in one ISDN and terminates in another ISDN and COLR is applied, the rules and regulations of the destination network (the host network) should apply. For example, if the override category is not applicable in the originating network but it is in the destination network, a call with COLR applied can still be overridden in the destination network, whenever information on the connected line is available for this network.

6.4 *Network capabilities for charging*

This Recommendation does not cover charging principles. Future Recommendations in the D-Series are expected to contain that information.

It shall be possible to charge the subscriber accurately for the service.

6.5 *Interworking requirements*

On calls to or via non-ISDNS, it cannot be assured that a COLR indication can be carried to the originating network. As a national option the destination network shall have the possibility to restrict any information identifying the connected party from being returned to the originating network when COLR is applicable. If a network receives a connected party ISDN number without any indication of presentation allowed or restricted, the originating network (the host network) will act according to its rules and regulations.

6.6 *Interaction with other supplementary services*

6.1 *Call Waiting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

Assume that a call from a user C, invokes Call Waiting at user B, who has subscribed to the COLR service. User B would receive a call waiting indication but would not have his number returned when the call waiting indication is given.

6.6.2 *Call Transfer*

Assume that user A has an established call with user B and wishes to transfer this call with user B to a user C.

If user C has subscribed to COLR, then user A shall not receive the connected number when user A invokes any call transfer procedure. If user C has subscribed to COLR, then user B shall not receive the connected number during the transfer of user B to user C.

6.6.3 *Connected Line Identification Presentation*

COLR will take precedence over COLP. The only occasion when a user subscribing to COLP can take precedence over COLR is when the user is in an override category. This is a national option.

6.6.4 *Conencted Line Identification Restriction*

Not relevant.

6.6.5 *Calling Line Identification Presentation*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

6.6.6 *Calling Line Identification Restriction*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

6.6.7 *Closed User Group*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

6.6.8 *Conference Call*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

6.6.9 *Direct-Dialling-In*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

6.6.10 *Call Diversion (i.e. Call Forwarding) services*

6.6.10.1 *Call Forwarding Busy*

When the diverted call is finally answered, no connected number will be presented to the calling party unless this party is in an override category. The latter is a national option.

6.6.10.2 *Call Forwarding No Reply*

When the diverted call is finally answered, no connected number will be presented to the calling party unless this party is in an override category. The latter is a national option.

6.6.10.3 *Call Forwarding Unconditional*

When the diverted call is finally answered, no connected number will be presented to the calling party unless this party is in an override category. The latter is a national option.

6.6.11 *Line Hunting*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

6.6.12 *Three-Party Service*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

6.6.13 *User-to-User Signalling*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

6.6.14 *Multiple Subscriber Number*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

6.6.15 *Call Hold*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

6.16 *Advice of charge*

No impact, i.e. neither supplementary service affects the operation of the other supplementary service.

6.7 *Dynamic description*

The dynamic description for this service is shown in Figure 2/I.251.

7 I.251.7 — **Malicious Call Identification**

This service, having been identified, now requires further study, its description is not yet included.

8 I.251.8 — **Sub-addressing**

This service, having been identified, now requires further study, its description is not yet included.

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