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OF ITU

I.250

**INTEGRATED SERVICES DIGITAL NETWORK (ISDN)
SERVICE CAPABILITIES**

DEFINITION OF SUPPLEMENTARY SERVICES

ITU-T Recommendation I.250

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation I.250 was published in Fascicle III.7 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

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

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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.

TABLE 1/I.250

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

Supplementary services	Circuit mode bearer services						Teleservices				
	64 kbit/s unrestricted demand	64 kbit/s speech demand	64 kbit/s, 3.1 kHz audio demand	64 kbit/s unrestricted permanent	64 kbit/s, 3.1 kHz audio permanent	1920 kbit/s unrestricted permanent	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 ^{a)}											
Sub-addressing ^{a)}											
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 ^{a)}											
Line hunting	X	X	X				X				
Call waiting	X	X	X				X				
Call hold	X	X	X				X				
Completion of calls to busy subscribers ^{a)}											
Conference calling	X	X	X				X				
Three party service	X	X	X				X				
Closed user group	X	X	X				X	X	X	X	X
Private numbering plan ^{a)}											
Credit card calling ^{a)}											
Advice of charge	X	X	X				X	X	X	X	X
Reserve charging ^{a)}											
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.

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 identification (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.