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8 [[]HJbc`ca fYy`Y`n`]bHY[f]fUb]a]g'g'cf]h] Ua]'f'f'G8 B'È'8 cdc`b]bUg'g'cf]H]j .
Xc_cb Ub`Y`_]WUb`UnUgYXYbY[U'bUfc b]_U'f'f'76 G'È'È'Cd]g'g'cf]h] Y

Integrated Services Digital Network (ISDN); Completion of Calls to Busy Subscriber (CCBS) supplementary service; Service description

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

In accordance with ITU-T Recommendation I.130 [1], the following three level structure is used to describe the supplementary telecommunications services as provided by European public telecommunications operators under the pan-European Integrated Services Digital Network (ISDN):

- Stage 1: is an overall service description, from the user's standpoint;
- Stage 2: identifies the functional capabilities and information flows needed to support the service described in stage 1; and
- Stage 3: defines the signalling system protocols and switching functions needed to implement the service described in stage 1.

The present document details the stage 1 aspects (overall service description) for the Completion of Calls to Busy Subscriber (CCBS) supplementary service. The stage 2 aspects are detailed in ETS 300 358 (see bibliography) and the stage 3 aspects are detailed in EN 300 359-1 [7] and EN 300 356-18 [8].

National transposition dates

Date of adoption of this EN:	25 May 2001
Date of latest announcement of this EN (doa):	31 August 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	28 February 2002
Date of withdrawal of any conflicting National Standard (dow):	28 February 2002

1 Scope

The present document defines the stage one of the Completion of Calls to Busy Subscriber (CCBS) supplementary service for the pan-European Integrated Services Digital Network (ISDN) as provided by European public telecommunications operators. Stage one is an overall service description from the user's point of view (see ITU-T Recommendation I.130 [1]), but does not deal with the details of the human interface itself.

The present document defines the interworking requirements of private ISDNs with the public ISDN.

In addition, the present document specifies the base functionality where the service is provided to the user via a private ISDN.

The present document does not specify the additional requirements where the service is provided to the user via a telecommunications network that is not an ISDN but does include interworking requirements of other networks with the public ISDN.

Interactions with supplementary services not listed in clause 7 are outside the scope of the present document.

Charging principles are outside the scope of the present document.

The CCBS supplementary service enables user A, encountering a busy destination B, to have the call completed without having to make a new call attempt when the destination B becomes not busy.

The CCBS supplementary service is applicable to all circuit-switched telecommunications services with the following exceptions:

- a) call 2, of the videotelephony teleservice (see ETS 300 264 in bibliography);
- b) all other circuit-switched telecommunications services requiring the use of more than one B-channel.

The present document is applicable to the stage two and stage three documents for the ISDN CCBS supplementary service. The terms "stage two" and "stage three" are also defined in ITU-T Recommendation I.130 [1]. Where the text indicates the status of a requirement (i.e. as strict command or prohibition, as authorization leaving freedom, or as a capability or possibility), this shall be reflected in the text of the relevant stage two and stage three documents.

Furthermore, conformance to the present document is met by conforming to the stage three document with the field of application appropriate to the equipment being implemented. Therefore, no method of testing is provided for the present document.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, subsequent revisions do apply.

- [1] ITU-T Recommendation I.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [2] ITU-T Recommendation I.112 (1988): "Vocabulary of terms for ISDNs".
- [3] ITU-T Recommendation I.210 (1993): "Principles of telecommunication services supported by an ISDN and the means to describe them".
- [4] ITU-T Recommendation E.164 (1997): "The international public telecommunication numbering plan".

- [5] ITU-T Recommendation Q.9 (1988): "Vocabulary of switching and signalling terms".
- [6] ITU-T Recommendation I.221 (1993): "Common specific characteristics of services".
- [7] ETSI EN 300 359-1 (V1.3.2): "Integrated Services Digital Network (ISDN); Completion of Calls to Busy Subscriber (CCBS) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".
- [8] ETSI EN 300 356-18 (V3.1.3): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 18: Completion of Calls to Busy Subscriber (CCBS) supplementary service [ITU-T Recommendation Q.733, clause 3 (1997), modified]".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

basic access: see ITU-T Recommendation Q.9 [5], clause 1, definition 1551

basic call procedures: procedures by which a call (as an instance of a telecommunications service) is established and terminated

busy: see ITU-T Recommendation I.221 [6], clause 3

CCBS busy: any one of the following conditions will cause user A to be considered as CCBS busy:

- maximum number of calls reached at user A;
- no B-channels available at user A; [SIST EN 300 357 V1.2.1:2005](https://standards.iteh.ai/catalog/standards/sist/4eb7e8fe-2fd8-4a23-bfe5-3fc34012b087/sist-en-300-357-v1-2-1-2005)
- CCBS recall pending on user A. <https://standards.iteh.ai/catalog/standards/sist/4eb7e8fe-2fd8-4a23-bfe5-3fc34012b087/sist-en-300-357-v1-2-1-2005>

CCBS call: call generated by the network from user A to destination B resulting from user A's acceptance of a CCBS recall

CCBS recall: indication informing user A that the network is ready to initiate a CCBS call to destination B and that the network is awaiting a response to this indication

CCBS recall timer: maximum time the network will wait for user A to respond to a CCBS recall. The value of this timer shall be a minimum of 10 seconds and a maximum of 20 seconds

CCBS request: instance of an activation of the CCBS supplementary service which is held in a queue pending the correct conditions for the CCBS supplementary service to be completed

CCBS service duration timer: maximum time the CCBS supplementary service will remain activated for user A within the network. The value of this timer shall be a minimum of 15 minutes and a maximum of 45 minutes

compatible terminal: terminal which can support the bearer service or teleservice requested for the original call to destination B and which can accept calls to the ISDN number and subaddress identifying the called user in the original call to destination B

destination B: entity addressed in the original call

destination B idle guard timer: time the network will wait after destination B has become not busy before informing user A. The value of this timer shall be a maximum of 15 seconds

Integrated Services Digital Network (ISDN): see ITU-T Recommendation I.112 [2], clause 2.3, definition 308

ISDN number: number conforming to the numbering plan and structure specified in ITU-T Recommendation E.164 [4]

primary rate access: see ITU-T Recommendation Q.9 [5], clause 1, definition 1552

retention timer: this timer specifies the amount of time that the network retains all of the information supplied by the calling user when the call encounters busy. This timer is part of the basic call procedures. Although this timer is optional for the basic call procedures, it is needed for the operation of the CCBS supplementary service. The value shall be greater than 15 seconds

service; telecommunications service: see ITU-T Recommendation I.112 [2], clause 2.2, definition 201

subaddress: see ITU-T Recommendation E.164 [4], clause 11.2

supplementary service: see ITU-T Recommendation I.210 [3], clause 2.4

suspended CCBS request: CCBS request which cannot be served even if destination B is not busy, because user A is busy or CCBS busy

user A: user who originated the call and to whom the CCBS supplementary service is provided

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CCBS	Completion of Calls to Busy Subscriber
ISDN	Integrated Services Digital Network

4 Description

The CCBS supplementary service enables user A, encountering a busy destination B, to have the call completed without having to make a new call attempt when the destination B becomes not busy.

When user A requests the CCBS supplementary service, the network will monitor for destination B becoming not busy.

When destination B becomes not busy (i.e. access resources, e.g. at least one B-channel, are not busy) then the network will wait a short time in order to allow the resources to be re-used for originating a call. If the resources are not re-used by destination B within this time, then the network will automatically recall user A.

When user A accepts the CCBS recall, then the network will automatically generate a CCBS call to destination B.

The CCBS supplementary service shall be available to users who are connected to the network via a basic access or a primary rate access.

NOTE: A supplementary service provided to destination B which prevents the registration of CCBS requests is outside the scope of the present document.

5 Procedures

5.1 Provision and withdrawal

The CCBS supplementary service shall be provided to user A after prior arrangement with the service provider or shall be generally available.

The CCBS supplementary service shall be withdrawn by the service provider upon request of the subscriber or for service provider reasons.

As a service provider option, the CCBS supplementary service can be offered with a subscription option, which shall apply to the whole access of user A. The subscription option is detailed in table 1.

Table 1

Subscription option	Values
Recall mode	- Global, i.e. CCBS recall offered to all terminals.
	- Specific, i.e. CCBS recall offered to the terminal, which activated the CCBS supplementary service.

If the subscription option is not offered, one of the two values shall be chosen by the service provider.

5.2 Normal procedures

5.2.1 Registration and erasure

Not applicable.

5.2.2 Activation and deactivation

5.2.2.1 Activation

When the network encounters a busy destination B, it shall retain the call information for the CCBS supplementary service for the period defined by the retention timer. During this time user A can activate the CCBS supplementary service. The value of the retention timer shall be a minimum of 15 seconds.

Upon receipt of a request for the activation of the CCBS supplementary service the network shall check that a compatible terminal exists at destination B (see annex A).

When it has been established that a compatible terminal exists at destination B, the network shall register the CCBS request based on the retained call information and user A shall be informed that the activation was successful. Multiple requests against destination B shall be queued.

When the activation of the CCBS supplementary service is accepted the CCBS service duration timer shall be started. The value of this timer shall be a minimum of 15 minutes and a maximum of 45 minutes. The network shall monitor for destination B becoming not busy.

User A can have a limited number of CCBS requests outstanding. This limit shall apply in general for all users and its value shall be a network provider option with a maximum value of 5. The requests can be to different destinations, or can be to the same destination B with different service requirements (e.g. bearer service and teleservice requirements), or as a network option, the same service requirements.

Destination B can have a limited number of incoming CCBS requests outstanding. This limit shall apply in general for all users and its value shall be a destination network option with a maximum value of 5.

As a further destination network option, the size of the destination B CCBS queue can be reduced for individual users. The reduced size can have zero length.

NOTE 1: Reducing the queue length allows a network operator to balance the interaction between the CCBS supplementary service and other supplementary services (e.g. the call waiting supplementary service and the freephone supplementary service).

NOTE 2: As a consequence of the queue having zero length, the CCBS supplementary service will be unavailable to users calling destination B.

Having activated the CCBS supplementary service, user A can originate calls and receive calls as normal.