EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 139

March 1992

Source: ETSI TC-NA

Reference: T/NA1(89)27

ICS: 33.080

Key words: ISDN, supplementary service

Integrated Services Digital Network (ISDN);
Call Hold (HOLD) supplementary service
Service description

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

New presentation - see History box

Contents

Foreword

This European Telecommunication Standard (ETS) has been produced by the Network Aspects (NA) Technical Committee of the European Telecommunications Standards Institute (ETSI).

In accordance with CCITT 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 stand-point;

- 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.

This standard details the stage 1 aspects (overall service description) for the Call Hold (HOLD) supplementary service. The stage 2 and stage 3 aspects are detailed in ETS 300 140 (1992) and ETS 300 141 (1992), respectively.

Blank page

1 Scope

This standard defines the stage one of the Call Hold (HOLD) 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 CCITT Recommendation I.130 [1]), but does not deal with the details of the human interface itself.

This standard defines the interworking requirements of private ISDNs with the public ISDN.

In addition this standard specifies the base functionality where the service is provided to the user via a private ISDN.

This standard 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 8 are outside the scope of this standard.

Charging principles are outside the scope of this standard.

The HOLD supplementary service allows a user to interrupt communications on an existing call and then subsequently, if desired, re-establish communications.

Use of the HOLD supplementary service to hold calls by terminals simultaneously using more than one B-channel is outside the scope of this standard.

The HOLD supplementary service is applicable to all circuit mode basic telecommunications services. Although it may not be meaningful for some services, the network will not restrict its applicability.

This standard is applicable to the stage two and stage three standards for the ISDN HOLD supplementary service. The terms "stage two" and "stage three" are also defined in CCITT Recommendation I.130 [1]. Where the text indicates the status of a requirement, (i.e. as strict command or prohibition, as authorisation leaving freedom, as a capability or possibility), this shall be reflected in the text of the relevant stage two and stage three standards.

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

2 Normative references

This ETS incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of, any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] CCITT Recommendation I.130 (1988): "Method for the characterisation of telecommunication services supported by an ISDN and network capabilities of an ISDN".

[2] CCITT Recommendation I.112 (1988): "Vocabulary of terms for ISDNs".

[3] CCITT Recommendation I.210 (1988): Principles of telecommunication services supported by an ISDN and the means used to describe them".

[4] CCITT Recommendation Q.9 (1988): "Vocabulary of switching and signalling terms".

3 Definitions

For the purposes of this standard, the following definitions apply:

Integrated Services Digital Network (ISDN): see CCITT Recommendation I.112 [2], § 2.3, definition 308.

(Basic) service; telecommunications service: see CCITT Recommendation I.112 [2], § 2.2, definition 201.

Supplementary service: see CCITT Recommendation I.210 [3], § 2.4.

Served user: the user who places a call on hold.

Basic access: see CCITT Recommendation Q.9 [4], § 1, definition 1551.

Primary rate access: see CCITT Recommendation Q.9 [4], § 1, definition 1552.

4 Symbols and abbreviations

HOLD   Call Hold

ISDN   Integrated Services Digital Network

PSTN   Public Switched Telephone Network

5 Description

The Call Hold (HOLD) supplementary service shall apply to the basic access and to the primary rate access.

> NOTE: Some networks will not support the HOLD supplementary service on the primary rate access.

The HOLD supplementary service allows a user to interrupt communications on an existing call and then subsequently, if desired, re-establish communications.

When the HOLD supplementary service is invoked, communication on a B-channel shall be interrupted and the B-channel shall be released from use by the existing call. A B-channel shall be reserved for use by the terminal used to invoke the HOLD supplementary service.

A B-channel on that user's interface shall always be available to the terminal used to hold the call to enable the user to:

- retrieve that call from hold;

- originate a new call;

- retrieve another call; or

- establish connection to an incoming call, e.g. a waiting call.

One B-channel shall be kept available for the user as long as the user has:

1) one or more calls on hold; and

2) is not currently connected to any other call.

The network shall only reserve one B-channel for the terminal used to invoke the HOLD supplementary service.

When the user wishes to reconnect to a held call, the retrieve operation shall be requested.

Annex A gives more information on the management of active and held calls.

6 Procedures

6.1 Provision and withdrawal

The HOLD supplementary service shall be provided after prior arrangement with the service provider or shall be generally available. Withdrawal shall be at the request of the customer or for administrative reasons.

> NOTE: As the HOLD supplementary service is a prerequisite for the use of some supplementary services (e.g. the call waiting and three party supplementary services) a service provider may choose to make the subscription to the HOLD supplementary service implied by the subscription of these supplementary services.

6.2 Normal procedures

6.2.1 Activation, deactivation and registration

Not applicable.

6.2.2 Erasure

Not applicable.

6.2.3 Invocation and operation

6.2.3.1 Hold request

A call can be placed on hold:

- on the calling user's interface, by the calling user at any time after the connection has been established, but before the call is terminated, or as a network option, after the call has been offered to the called user; and

- on the called user's interface, by the called user at any time after the connection has been established, but before the call is terminated.

The served user can request the HOLD supplementary service in order to interrupt communication on the call. If the network accepts this request, then communication on the call shall be interrupted and the served user shall be informed. The associated B-channel shall then be made available for other uses. The network shall immediately send a notification to the remote party indicating that the call has been placed on hold. When the call is held before the connection has been established, the notification shall be sent only to those terminals that have responded at that time.

> NOTE: During an interim period of time, some networks may not support the sending of notifications to the remote user.

When a call is on hold, either user may clear the call by the use of basic call procedures.

6.2.3.2   Retrieve request

The user can indicate a B-channel selection parameter in the retrieve request. The parameter can indicate:

1)   any B-channel is acceptable;

2)   a specified B-channel is preferred; or

3)   a specified B-channel is exclusively required.

If the service provider can satisfy the request, the call will be returned to the active phase; if it cannot, the request shall be rejected with the appropriate indication returned to the user.

If the retrieve request is successful, the network shall immediately send a notification to the remote party indicating that the call has been retrieved. When the call is retrieved before the connection has been established, the notification shall be sent only to those terminals that have responded at that time.

> NOTE: During an interim period of time, some networks may not support the sending of notifications to the remote user.

6.2.3.3   Reservation processing

When a call is placed on hold, a B-channel on the user's interface shall be reserved for use by the terminal.

If more than one call is placed on hold from that terminal by repeated requests for the HOLD supplementary service, then only a single B-channel shall be reserved and the calls on hold shall be associated with that reservation.

Furthermore, the following conditions concerning channel reservation shall apply:

1)   when a call is retrieved, any reservation associated with that call shall be cleared, independent of the B-channel used to retrieve the call;

2)   when a call is cleared, any reservation associated with the call shall be cleared and the service provider shall continue to reserve a B-channel for the terminal until there are no more held calls associated with the terminal;

3)   when all reservations for a terminal are cleared, normal B-channel allocation procedures shall apply;

4)   when any reservation is outstanding for a user (as identified by a terminal) and that user is not using a B-channel for an active call, then the network shall consider a B-channel as "unavailable" for that user for subsequent incoming calls (see also subclause 8.2).

6.2.4   Interrogation

Not applicable.

6.3   Exceptional procedures

6.3.1   Activation, deactivation and registration

Not applicable.

6.3.2   Erasure

Not applicable.

6.3.3   Invocation and operation

6.3.3.1   Hold request

If the user tries to hold a call while the HOLD supplementary service is not provided to that user or for some other reason the service provider cannot hold the call, an indication giving the reason for the failure shall be provided to the user.

6.3.3.2   Retrieve request

If the user tries to retrieve a previously held call and the service provider cannot perform this request, the user shall be informed of the reason for failure (e.g. the call may be in the process of being cleared).

6.3.4   Interrogation

Not applicable.

7   Intercommunication considerations

7.1   Interworking with non-ISDNs

The operation of this supplementary service shall not be affected by the nature (i.e. ISDN or non-ISDN) of the far end of the connection.

> NOTE: If the remote user is a Public Switched Telephone Network (PSTN) user, the notifications about the hold request or retrieve request of the call to that user may not be supported. In this interworking case it may also occur that a call is held before the call is offered to the called user.

7.2   Interworking with private ISDNs

When a remote user is on a network different from that of the served user (e.g. one user on a private ISDN and the other user on a public ISDN), indications to the remote user shall be sent to the remote user's network for forwarding to the remote user.

8   Interaction with other supplementary services

8.1   Advice of charge services

8.1.1   Charging information at call set-up time

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

8.1.2   Charging information during the call

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

> NOTE: In the case of a served user's outgoing call being held and the served user has activated the advice of charge; charging information during the call supplementary service, the charging information is sent when appropriate whilst the call is on hold.

8.1.3   Charging information at the end of the call

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

8.2 Call waiting

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

> NOTE: A user may use the HOLD supplementary service to hold an active call in order to be able to subsequently answer the waiting call from C.

8.3 Call hold

If the HOLD supplementary service is provided to both users involved in one call, each of these users can hold and retrieve the call independently from these operations having been carried out by the other user.

8.4 Call transfer services

8.4.1 Explicit call transfer

The invocation of the explicit call transfer supplementary service shall have no impact on any held calls not involved in the transfer.

If either of the transferred users have put their call on hold prior to the transfer, the resulting transferred call shall remain on hold by that user. The transferring user shall be replaced as the held user in the resulting call by the other user.

8.4.2 Single-step call transfer

The invocation of the single-step call transfer supplementary service shall have no impact on any held calls not involved in the transfer.

If the transferred user has put the call to the transferring user on hold prior to the transfer, the resulting transferred call shall remain on hold by that user. The transferring user shall be replaced as the held user in the call by the transferred to user.

8.5 Number identification services

8.5.1 Calling line identification presentation

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

8.5.2 Calling line identification restriction

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

8.5.3 Connected line identification presentation

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

8.5.4 Connected line identification restriction

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

8.6   Closed user group

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

8.7   Completion of calls to busy subscribers

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

8.8   Conference services

8.8.1   Conference call, add-on

Any party involved in an active conference (i.e. the conference controller or a conferee) can place their connection to the conference on hold and later retrieve it.

8.8.2   Meet-me conference

Any party involved in a meet-me conference can place their connection to the conference on hold and later retrieve it.

Any party placing their connection to the conference on hold can retrieve any other call it had previously placed on hold.

8.9   Direct dialling in

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

8.10   Diversion services

8.10.1   Call forwarding unconditional

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

8.10.2   Call forwarding busy

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

8.10.3   Call forwarding no reply

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

8.10.4   Call deflection

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

8.11   Freephone

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

8.12 Malicious call identification

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

8.13 Multiple subscriber number

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

8.14 Sub-addressing

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

8.15 Terminal portability

A terminal cannot suspend an active call when a call is held at that terminal.

A held call shall not be suspended.

8.16 Three party service

Any party involved in a three-way conversation can place the connection to the three-way conversation on hold and can later retrieve it.

While the connection of one party to the three-way conversation is held, the other parties can continue to communicate.

8.17 User-to-user signalling

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

Annex A (Informative): Management of active and held calls

A.1 Introduction

This Annex describes the management functions available to the user when the user has more than one call. This situation can arise when the user invokes the HOLD supplementary service in order to temporarily break the communication on one call and then establish communication with another user, by making another call, answering a waiting call, or retrieving a previously held call.

In addition, the user can invoke some supplementary services, e.g. the explicit call transfer supplementary service, which can involve an active and a held call. The procedures for such supplementary services are contained within the standards for those supplementary services.

The following paragraph describes the functions available to users having more than one call in progress.

A.2 Functionality available to the served user controlling more than one call

The served user A, who has one or more call on hold and one active call can:

1) Switch from one call to another call as required (possibly several times), privacy being provided between the calls.

    NOTE: There may exist a terminal function which performs the "alternate" procedure (i.e. sequential hold and retrieve functions).

2) Disconnect the active party, with the other parties still held.

3) Disconnect one of the held parties.

4) Establish another call (having first put the active call on hold). When the served user is in control of only held calls, the user can establish a further call.

5) Request the service provider to connect two users (i.e. invoke the explicit call transfer supplementary service).

6) Request the service provider to begin a three-way conversation (i.e. invoke the three party supplementary service). The served user can invoke this step only after the call to one party has reached the active state and at least one call is held.

7) Request the service provider to begin the conference call, add-on supplementary service, including the active call in the conference.

History

Document history	
March 1992	First Edition
January 1996	Converted into Adobe Acrobat Portable Document Format (PDF)