



EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 186

July 1993

Source: ETSI TC-NA

Reference: T/NA1(89)28

ICS: 33.080

Key words: ISDN, supplementary service

**Integrated Services Digital Network (ISDN);
Three-Party (3PTY) supplementary service
Service description**

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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 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.

This ETS details the stage 1 aspects (overall service description) for the Three-Party (3PTY) supplementary service. Stage 2 and stage 3 aspects are detailed in ETS 300 187 (1993) and ETS 300 188 (1993) respectively.

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1 Scope

This standard defines the stage one of the Three-Party (3PTY) 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.

Interaction 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 3PTY supplementary service enables a user to establish, participate in and control, a three-way conversation, i.e. a simultaneous communication involving the served user and two remote parties.

The 3PTY supplementary service is applicable to all circuit-switched telecommunications services carrying speech.

This standard is applicable to the stage two and the stage three standards for the ISDN 3PTY 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, or 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 standard 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 standard 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 standard 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 the 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 to describe them".
- [4] CCITT Recommendation Q.9 (1988): "Vocabulary of switching and signalling terms".

3 Definitions

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

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

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 to whom the 3PTY supplementary service is provided and who invokes the 3PTY supplementary service.

Remote party: a user involved in a call, other than the served user.

NOTE: Whilst two calls are connected in a three-way conversation, there are two remote parties involved.

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

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

Three-way conversation: communication between all three users, i.e. the served user and both remote parties.

Private communication: communication between the served user and one remote party. This excludes communication with the other remote party.

4 Symbols and abbreviations

3PTY	Three-Party
ISDN	Integrated Services Digital Network

5 Description

The 3PTY supplementary service shall be available to users who are connected to the network via a basic access or a primary rate access.

The 3PTY supplementary service enables a user to establish, participate in and control, a three-way conversation.

The 3PTY supplementary service can be invoked by the served user who is involved in at least two calls (one active call and at least one held call), each of which may be an incoming or outgoing call.

The connections shall be established on each of the two calls prior to the invocation of the 3PTY supplementary service.

NOTE: Due to the capabilities of equipment used in some networks to support the 3PTY supplementary service, users may have the in-band communication limited, e.g. to 3,1 kHz speech encoding instead of 7 kHz speech encoding.

6 Procedures

6.1 Provision and withdrawal

The 3PTY supplementary service shall be provided by prior arrangement with the service provider.

The 3PTY supplementary service shall be withdrawn by the service provider upon request of the subscriber or for service provider reasons.

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 Beginning the 3PTY supplementary service

The served user who has at least two calls (an active call and at least one held call) can request the invocation of the 3PTY supplementary service in order to join together the active call and the held call into a three-way conversation. The connection shall be established on each of the two calls prior to the invocation of the 3PTY supplementary service.

Each of the two calls can be either an incoming or an outgoing call.

NOTE: Some networks may prevent a user from establishing a three-way conversation that would include calls which are not intended for speech communication. However, it is still the responsibility of the served user to ensure that the two calls are compatible.

6.2.3.2 Managing the three-way conversation

During the three-way conversation, the served user can:

- a) explicitly disconnect one of the remote parties. The 3PTY supplementary service shall be terminated automatically, the remote party's call shall be terminated, and the served user shall stay connected to the remaining remote party;
- b) terminate the entire three-way conversation. The 3PTY supplementary service shall be terminated automatically and both calls shall be terminated;
- c) explicitly choose one remote party to have a private communication with that remote party. The 3PTY supplementary service shall be terminated automatically. The served user shall then have two calls: an active call between the served user and the chosen remote party; and a held call between the served user and the other remote party.

After the 3PTY supplementary service has been terminated as a result of this action, the served user can request the invocation of the 3PTY supplementary service again in order to connect the remote parties into a three-way conversation.

6.2.3.3 Actions available to the remote parties

A remote party can terminate their call. The 3PTY supplementary service shall be terminated automatically, and the served user shall stay connected to the remaining remote party.

6.2.3.4 Information provided to participants

The served user and the remote parties shall be informed of the invocation and termination of the 3PTY supplementary service.

When the 3PTY supplementary service is terminated, and a remote party cannot continue to communicate with the served user (e.g. see item c) of subclause 6.2.3.2), the remote party shall be informed that communication with the served user has been interrupted.

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

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

If a user attempts to invoke the 3PTY supplementary service and the service provider cannot comply with the request, the service provider shall reject the request and give the user the reason for rejection.

Possible reasons for rejection are:

- the 3PTY supplementary service is not subscribed to;
- resources cannot be allocated;
- calls are not in an appropriate state (e.g. both calls are held calls).

In all cases of rejection, the user's calls shall remain in the same state as they were in before the rejected request was received.

6.3.4 Interrogation

Not applicable.

7 Intercommunication considerations

7.1 Interworking with non-ISDNs

The remote parties can belong to any non-ISDN.

NOTE: If interworking with non-ISDNs occurs, notification to remote parties may not be possible.

7.2 Interworking with private ISDNs

NOTE: The requirements for the support of the 3PTY supplementary service, whereby a private ISDN can transfer a served user's request for the invocation of the 3PTY supplementary service to the public ISDN, are not covered in this standard. This functionality will be the subject of additional standards.

The remote parties can belong to any private ISDN.

When a remote user is on a network different from that of the served user (e.g. one user is 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.

Two three-way conversations in different networks, e.g. one in a private ISDN and the other in a public ISDN, can be connected together. The served user of a three-way conversation in one network shall act as a remote party of the three-way conversation in the other network.

8 Interaction with other supplementary services

8.1 Advice of charge services

8.1.1 Charging information at call set-up time

The served user shall be informed about the charging rate for those calls which that user has established.

Charges for the use of the 3PTY supplementary service:

As a network option, the charging information can be sent to the served user.

NOTE: However, in some networks no charging information can be given in this case, e.g. due to off-line processing of the charges.

8.1.2 Charging information during the call

Charges for the different connections within the 3PTY supplementary service:

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

Charges for the use of the 3PTY supplementary service:

As a network option, the charging information can be sent to the served user.

8.1.3 Charging information at the end of the call

Charges for the different connections to the 3PTY supplementary service:

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

Charges for the use of the 3PTY supplementary service:

As a network option, the charging information can be sent to the served user.

8.2 Call waiting

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

NOTE: The call waiting supplementary service can be invoked for any user participating in a three-way conversation.

8.3 Call hold

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

When the served user invokes the call hold supplementary service in order to hold the three-way conversation, then the two remote parties shall be informed.

When a remote party invokes the call hold supplementary service, the served user of the 3PTY supplementary service shall be informed. The other remote party in the three-way conversation shall not be informed.

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

8.4 Explicit call transfer

The served user who has invoked the 3PTY supplementary service cannot invoke the explicit call transfer supplementary service in order to transfer either of the calls involved. The served user shall terminate the 3PTY supplementary service in order to transfer either of the calls involved in the three-way conversation.

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

For the successful invocation of the 3PTY supplementary service, any closed user group restrictions applied to one call shall match with any closed user group restrictions applied to the other call.

8.7 Completion of calls to busy subscriber

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

Each participant in a three-way conversation can be involved separately in a conference.

In order to convert a three-way conversation into a conference, the served user of the 3PTY supplementary service shall terminate the 3PTY supplementary service first and then shall invoke the conference call, add-on supplementary service. Subsequently, the held call can be added to the conference.

As a network option, a user in a three-way conversation, but who is not the served user of the 3PTY supplementary service, can add their connection to the three-way conversation to a conference which is controlled by that user.

8.8.2 Meet-me conference

A participant can be involved separately in a three-way conversation as well as in a conference.

NOTE: A service provider may take appropriate measures to prevent a call to a conference from being joined with another call into a three-way conversation. The associated procedures are outside the scope of this standard.

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

The 3PTY supplementary service cannot be provided on a per multiple subscriber number basis.

Calls using different multiple subscriber numbers to identify the served user can be included in the same three-way conversation.

8.14 Subaddressing

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

8.15 Terminal portability

The network shall prevent the served user of the 3PTY supplementary service from invoking the terminal portability supplementary service.

When a remote party invokes the terminal portability supplementary service, the served user of the 3PTY supplementary service shall be informed. The other remote party in the three-way conversation shall not be informed.

8.16 Three-party

Each party in a three-way conversation can be involved separately in another three-way conversation.

A served user cannot invoke the 3PTY supplementary service if one or both calls to be connected are already part of another three-way conversation controlled by the same served user.

As a network option, a remote party in a three-way conversation can invoke the 3PTY supplementary service in order to make their connection to the three-way conversation a part of another three-way conversation controlled by that remote party.

8.17 User-to-user signalling

During the three-way conversation, the served user can send user-to-user information separately to each remote party and the served user can receive user-to-user information separately from each remote party. User-to-user information shall not be transferred between the remote parties.

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

Clause A.2 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, who has at least one call on hold and one active call can:

- a) 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).
- b) disconnect the active party, the other parties are still held;
- c) disconnect one of the held parties;
- d) 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;
- e) request the service provider to connect two users (i.e. invoke the explicit call transfer supplementary service);
- f) request the service provider to begin a three-way conversation (i.e. invoke the 3PTY 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;
- g) request the service provider to begin the conference call, add-on supplementary service, including the active call in the conference.

History

Document history	
July 1993	First Edition
February 1996	Converted into Adobe Acrobat Portable Document Format (PDF)