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Second Edition

GSM

**GLOBAL SYSTEM FOR
MOBILE COMMUNICATIONS**

Digital cellular telecommunications system (Phase 2); MultiParty (MPTY) supplementary services - Stage 1 (GSM 02.84)

ETSI

European Telecommunications Standards Institute

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Foreword

This second edition European Telecommunication Standard (ETS) has been produced by the Special Mobile Group (SMG) Technical Committee (TC) of the European Telecommunications Standards Institute (ETSI).

This ETS describes MultiParty (MPTY) supplementary services within the European digital cellular telecommunications system (Phase 2) and correspond to GSM 02.84, version 4.4.7.

The specification from which this ETS has been derived was originally based on CEPT documentation, hence the presentation of this ETS may not be entirely in accordance with the ETSI/PNE rules.

Reference is made within this ETS to GSM Technical Specifications (GSM-TSs) (note).

NOTE: TC-SMG has produced documents which give the technical specifications for the implementation of the European digital cellular telecommunications system. Historically, these documents have been identified as GSM Technical Specifications (GSM-TSs). These TSs may have subsequently become I-ETSs (Phase 1), or ETSs (Phase 2), whilst others may become ETSI Technical Reports (ETRs). GSM-TSs are, for editorial reasons, still referred to in GSM ETSs.

Transposition dates	
Date of adoption of this ETS:	30 April 1996
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0   Multi party supplementary services

0.1   Scope

This specification describes the supplementary services belonging to the group MULTI PARTY SUPPLEMENTARY SERVICES.

The general aspects, including definitions and recommended provision, of the description of the GSM supplementary services are given in specification GSM 02.04.

The group of supplementary services MULTI PARTY SUPPLEMENTARY SERVICES consists of one supplementary service:

-    Multi Party service (section 1).

0.2   Normative references

This ETS incorporates by dated and 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]   GSM 01.04 (ETR 100): "European digital cellular telecommunication system (Phase 2); Abbreviations and acronyms".

[2]   GSM 02.04 (ETS 300 503): "European digital cellular telecommunication system (Phase 2); General on supplementary services".

[3]   GSM 02.30 (ETS 300 511): "European digital cellular telecommunication system (Phase 2); Man-Machine Interface (MMI) of the Mobile Station (MS)".

[4]   GSM 02.83 (ETS 300 516): "European digital cellular telecommunication system (Phase 2); Call Waiting (CW) and Call Hold (HOLD) supplementary services - Stage 1".

[5]   GSM 02.85 (ETS 300 518): "European digital cellular telecommunication system (Phase 2); Closed User Group (CUG) supplementary services - Stage 1".

0.3   Definitions and abbreviations

Abbreviations used in this specification are listed in GSM 01.04.

1 Multi-Party Service (MPTY)

1.1 Definition

This supplementary service provides a mobile subscriber with the ability to have a multi-connection call, i.e. a simultaneous communication with more than one party.

1.2 Description

1.2.1 Description

A precondition for the multi-party service is that the served mobile subscriber is in control of one active call and one call on hold, both calls having been answered. In this situation the served mobile subscriber can request the network to begin the multi-party service.

Once a multi-party call is active, remote parties may be added, disconnected or separated (i.e. removed from the multi-party call but remain connected to the served mobile subscriber).

The maximum number of remote parties is 5.

1.2.1.1 Indication about multi-party status

Notification shall be sent towards the served mobile subscriber and all the remote parties in a multi-party call at the invocation of this supplementary service. In addition, a notification shall always be sent towards all remote parties (i.e. not towards the served mobile subscriber) every time a new party is added to the multi-party call. Notifications shall also be sent to remote parties when they are put on hold and when they are retrieved in accordance with normal Call Hold procedures.

In the case where a previously private communication is added again to the multi-party call, a notification shall be sent towards all remote parties.

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

1.2.2 Applicability to telecommunication services

The applicability of this supplementary service is defined in GSM 02.04 (ETS 300 503).

1.2.3 Terminology

Served Mobile Subscriber

During the invocation and active phase, the service is under the control of the served mobile subscriber, i.e. the one who has subscribed to the service.

Remote Party

Any participant in the multi-party call who is not the served mobile subscriber.

1.3 Normal procedures with successful outcome

1.3.1 Provision

This supplementary service is provisioned for all Basic Services subscribed to and to which it is applicable, i.e. not to any subset of these BS.

The provision of the Call Hold supplementary service is also required.

1.3.2 Withdrawal

Withdrawal of the service is made by the service provider upon request by the subscriber or for service provider reasons.

1.3.5 Activation

The supplementary service shall be activated by the service provider as a result of provision.

1.3.6 Deactivation

The supplementary service shall be deactivated by the service provider as a result of withdrawal.

1.3.7 Invocation

Multi-Party service will be invoked by the served mobile subscriber by use of a control procedure, as defined in GSM 02.30.

1.3.8 Normal operation with successful outcome

Only the served mobile subscriber shall be able to add remote parties to the multi-party call.

1.3.8.1 Beginning the multi-party call

When the served mobile subscriber invokes multi-party service from the precondition defined in Section 1.2.1, the network joins the active call and the call on hold together into a multi-party call in which the served mobile subscriber and the remote parties can all communicate with one another.

1.3.8.2 Managing an active multi-party call

During an active multi-party call, the served mobile subscriber shall be able to:

(i) Add another remote party, to which a private communication has been established using the same procedures as in Section 1.3.8.1, if the number of remote parties does not then exceed the maximum number allowed, which results in an active multi-party call.

A "MPTY invoke" notification shall be sent towards all remote parties.

A Retrieve notification (according to GSM 02.83) shall be sent towards all previously held remote parties.

(ii) Put the connection to multi-party call on hold, i.e. place her connection to the multi-party call on hold (and typically later retrieve it). The served mobile subscriber may make an enquiry call (e.g. to a potential new remote party) or process a Call Waiting request from this state. While the multi-party call is on hold the remaining remote parties in the multi-party call can have communication with each other.

As a result of this scenario, the enquiry call or the accepted waiting call can be added to the multi-party call or released. If the call is released by the served mobile subscriber or by the remote party, the served mobile subscriber is in control of a held multi-party call.

A Hold notification (according to GSM 02.83) shall be sent towards all remote parties.

(iii)   Separate a remote party:

Explicitly choose one remote party to have a private communication with. This results in that remote party being removed from the multi-party call which is placed on hold, and the conversation between the served mobile subscriber and the designated remote party being a normal active call (see NOTE 1). The remaining remote parties may have communication with each other in this state.

As a result of this scenario the private communication can be added again to the multi-party call or released. If the private call is released by the served mobile subscriber or by the remote party, the served mobile subscriber is in control of a held multi-party call.

A Hold notification (according to GSM 02.83) shall be sent towards all remote parties, except the designated remote party to which a private communication was established.

(iv)   Terminate the entire multi-party call. When the served mobile subscriber releases, this is interpreted as a request for termination of the entire multi-party call even if there are calls on hold.

No further notification shall be sent.

(v)   Disconnect a remote party:

Explicitly release the remote parties on a one at a time basis (see NOTE 1). In the case when no remote parties remain, the multi-party call is terminated.

NOTE 1:   If the served mobile subscriber has a private communication with one of the remote parties and this remote party disconnects or is disconnected a notification is sent towards the served mobile subscriber that she has a multi-party call on hold.

The notification about the held multiparty call towards the served mobile subscriber is given by the MS, not by the network.

1.3.8.3   Managing a held multi-party call

During a held multi-party call the served mobile subscriber shall be able to:

1)   Retrieve the held multi-party call, which results in an active multi-party call.

2)   Initiate a new call.

3)   Process a Call Waiting request.

4)   Disconnect the held multi-party call. All calls belonging to the multi-party call shall be released.

5)   Disconnect a single remote party.

During a held multi-party call the served mobile subscriber shall NOT be able to:

Retrieve a single remote party.

1.3.8.4   Managing a single call and a MPTY

1.3.8.4.1   Single active call

If the served mobile subscriber is connected to a single active call (regardless whether it is a private communication or a new initiated call) and has a MPTY on hold, she is able to:

1)   Disconnect the single active call.

2)   Disconnect the held MPTY.

3)   Disconnect both. All calls, even if they are on hold, shall be released.

4)   Join the single active call and the held MPTY together.
        This would result in an active MPTY, except if the number of remote parties exceeds the number allowed.

        A "MPTY invoke" notification shall be sent towards all remote parties.

        A Retrieve notification (according to GSM 02.83) shall be sent towards the previously held remote party.

5)   Alternate between both calls.

1.3.8.4.2   Active MPTY and held call

If the served mobile subscriber is connected to a active MPTY and has a single call on hold, she is able to:

1)   Disconnect the active MPTY.

2)   Disconnect the single held call.

3)   Disconnect both. All calls, even if they are on hold, shall be released.

4)   Join the single held call and the active MPTY together. This would result in an active MPTY, except if the number of remote parties exceeds the number allowed.

        A "MPTY invoke" notification shall be sent towards all remote parties.
        A Retrieve notification (according to GSM 02.83) shall be sent towards all previously held remote parties.

5)   Alternate between both calls.

If the served mobile subscriber is connected to a active Multi Party call and has a single call on hold, a request for establishing a private communication will be rejected by the network. (Because this would lead to an active call and two calls on hold, which is not supported according to the GSM Call Hold Supplementary Service).

An indication will be given to the served mobile subscriber with the reason for failure.

1.3.8.5   Remote parties in a Multi-Party Call

Any of the remote parties shall be able to:

a)   Put her connection to the multi-party call on hold (and typically later retrieve it). The requirements of the Call Hold service then apply;
b)   Release from the multi-party call.

If a remote party releases and no remote party then remains, the requirements of the normal call release procedures then apply.

1.4 Exceptional procedures or unsuccessful outcome

If a served mobile subscriber attempts to invoke multi-party service and the network cannot accept that request, the request will be rejected and an indication will be given to the served mobile subscriber with a reason for denial. Some possible reasons for rejection are:

- service not subscribed;
- resources cannot be allocated;
- conflicting situation with other supplementary services;
- calls are not in appropriate state (e.g. one or more calls are not answered or are in the process of being cleared);
- service not supported by the LPLMN.

If the service provider cannot satisfy the request to add a further remote party (e.g. if the multi-party call has been cleared or if the maximum number of remote parties allowed has already been reached) the served mobile subscriber shall receive an indication that the request is denied, with the reason for failure.

If the radio path of the served mobile subscriber is lost permanently for any reason, the multi-party call shall be released.

1.5 Alternate procedures

None identified.

1.6 Interactions with other supplementary services

1.6.81.3 Connected line identification presentation

Remote parties in an existing multi-party call who have subscribed to connected line number identification presentation will not receive a new remote party's number whenever a served mobile subscriber adds a new remote party to the multi-party call.

1.6.82.1 Call forwarding unconditional

No interaction, the following text shall give a clarification.

Calling subscriber: If a calling subscriber attempts to establish a multi-party call to a subscriber with call forwarding unconditional active and operative, the forwarded-to subscriber will be alerted and can be added to the conference.

Forwarded-to subscriber: A forwarded-to subscriber can establish a multi-party call using an existing forwarded call as one of the multi-party connections.

1.6.82.2 Call forwarding on mobile subscriber Busy

No interaction, the following text shall give a clarification.

Calling subscriber: If a calling subscriber attempts to establish a multi-party call to a subscriber with call forwarding on mobile subscriber busy active and operative, and the forwarding condition is met, the forwarded-to subscriber will be alerted and can be added to the conference.

Forwarded-to subscriber: A forwarded-to subscriber can establish a multi-party call using an existing forwarded call as one of the multi-party connections.

1.6.82.3 Call forwarding on no reply

Same as the interaction between call forwarding on mobile subscriber busy and multi-party call.

1.6.82.4 Call Forwarding on mobile subscriber not reachable

Same as the interaction between call forwarding on mobile subscriber busy and multi-party call.

1.6.83.1 Call waiting

No interaction. The following text is included for clarification:

A user who is active on a multi-party call, either as the served mobile subscriber or as remote party, may receive an indication of a waiting call, provided that the maximum number of calls at the mobile equipment will not be exceeded.

After the multi-party call has been put on hold by this user, the waiting call may be accepted by the user.

1.6.83.2 Call hold

Any party involved in an active multi-party call (i.e. the served mobile subscriber or a remote party) may place the connection to the multi-party call on hold and later retrieve it.

1.6.84.1 Multi-party service

It shall be possible for any remote party in a multi-party call to alternate between two different multi-party calls.

Served Mobile Subscriber:

The served mobile subscriber cannot control more than one multi-party call at a time.

It shall not be possible to invoke multi-party service if either or both of the initial calls are active parts of one or two other multi-party calls.

Multi-Party Call controlled by one of the remote parties:

The network will not be required to prevent that a leg to one of the other remote parties can be part of another multi-party call controlled by that remote party.

1.6.85.1 Closed user group

See GSM 02.85, section 1.6.84.1.

1.6.88.1 Barring of all outgoing calls

If barring of all outgoing calls is activated after a multi-party call is invoked, any outgoing calls in progress within that multi-party call will not be barred. Any new outgoing call is barred.

1.6.88.2 Barring of outgoing international calls

Same as interworking between barring of all outgoing calls and multi-party service.

1.6.88.4 Barring of outgoing international calls except those directed to the home PLMN country

Same as interaction between barring of all outgoing calls and multi-party service.

1.6.88.6 Barring of incoming calls

If barring of incoming calls is activated after a multi-party call is invoked, any incoming calls in progress within that multi-party call will not be barred. Any new incoming call is barred.

1.6.88.7 Barring of incoming calls when roaming outside the home PLMN country

If barring of incoming calls when roaming outside the home PLMN country is made active and operative after a multi-party call is invoked, any incoming calls in progress within that multi-party call will not be barred. Any new incoming call is barred.

1.7 Interworking considerations

Interworking with non-GSM/ISDN:

If a remote party is neither a GSM nor an ISDN subscriber, it is possible that she is not notified.

Mapping of notifications:

Direction ISDN to GSM-PLMN:

> 3PTY and CONF shall be mapped onto MPTY.

Direction GSM-PLMN to ISDN:

> MPTY shall be mapped onto CONF.

History

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October 1993	Public Enquiry	PE 51:	1993-11-01 to 1994-02-25
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