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Digital cellular telecommunications system (Phase 2+) (GSM); Voice Broadcast Service (VBS) - Stage 1 (GSM 02.69 version 6.0.1 Release 1997)

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European Standard (Telecommunications series)

Digital cellular telecommunications system (Phase 2+); Voice Broadcast Service (VBS) - Stage 1 (GSM 02.69 version 6.0.1 Release 1997)

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Foreword

This European Standard (Telecommunications series) has been produced by the Special Mobile Group (SMG).

The present document specifies the stage one description of the Voice Broadcast Service (VBS) within the digital cellular telecommunications system.

The contents of the present document may be subject to continuing work within SMG and may change following formal SMG approval. Should SMG modify the contents of the present document it will then be re-submitted for formal approval procedures by ETSI with an identifying change of release date and an increase in version number as follows:

Version 6.x.y

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- 6 GSM Phase 2+ Release 1997
- x the second digit is incremented for changes of substance, i.e. technical enhancements, corrections, updates, etc.;
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- y the third digit is incremented when editorial only changes have been incorporated in the specification.

Proposed national transposition dates

Date of adoption of this EN:	3 September 1999
Date of latest announcement of this EN (doa):	31 December 1999
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 June 2000
Date of withdrawal of any conflicting National Standard (dow):	30 June 2000

1 Scope

The present document specifies the stage one description of the Voice Broadcast Service (VBS) which allows the distribution of speech (or other signals which can be transmitted via the speech codec), generated by a service subscriber, into a predefined geographical area to all or a group of service subscribers located in this area.

The Voice Broadcast Service (VBS) is applicable to all mobile stations in a certain network and area which have the technical capability and the respective subscription to receive a VBS call.

NOTE: It is not considered as requirement that normal GSM Phase 2 mobile stations will be able to be used for this service.

The service is described from the service subscriber's and user's point of view; in particular:

- the procedure for normal operation with successful outcome;
- the action to be taken in exceptional circumstances;
- the interaction with other GSM services and features.

The present document does not deal with the Man-Machine Interface (MMI) requirements, but makes reference to the appropriate Global System for Mobile communications (GSM) specifications.

The present document defines a teleservice of the digital cellular telecommunication system GSM. Any interaction with other services and/or networks not dealt within clauses 8 or 9 are outside the scope of the present document.

2 References

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

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- 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, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.
- For this Release 1997 document, references to GSM documents are for Release 1997 versions (version 6.x.y).

- [1] GSM 01.04: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".
- [2] GSM 02.67: "Digital cellular telecommunications system (Phase 2+); enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 1".
- [3] GSM 12.05: "Digital cellular telecommunications system (Phase 2); Subscriber related event and call data".

3 Definitions and abbreviations

3.1 Definitions

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

network operator: Entity which provides the network operating elements and resources for the execution of the VBS.

service provider: Entity which offers the VBS for subscription. The network operator may be the service provider.

service subscriber: Mobile subscriber which subscribes to the VBS.

voice broadcast call: An instance of the VBS initiated by a VBS subscriber. This term is used synonymously with the term "VBS call".

group identification (group ID): A numerical classification. The maximum number of group IDs which can be defined in one PLMN depends on the maximum number of group call areas defined in this PLMN. The maximum number of group IDs and group call areas shall be 10^8 , Service subscriber shall be provided with one or up to 50 group IDs.

dispatcher: Particular fixed line or mobile users are identified within the network as dispatchers. Dispatchers shall receive all voice broadcast calls to a certain group ID in a group call area (this shall be done automatically by the network). In addition they can initiate voice broadcast calls to a group ID in a group call area.

Dispatchers shall be connected to a voice broadcast call by means of standard links via radio or via an ISDN. They shall be called by their ISDN or MSISDN number, respectively. When dispatchers initiate voice broadcast calls, they shall call a particular MSISDN number which is related to a group ID and group call area. Dispatchers using the GSM network can be located outside of this group call area.

The identities of the dispatchers are exclusively predefined in the network by the service provider. There will be none or up to five dispatchers involved in a particular voice broadcast call.

destination subscriber: Service subscriber or dispatcher to which the VBS call is directed.

calling subscriber: Service subscriber or dispatcher which invokes the VBS call.

group call area: Predefined area composed of one or a cluster of cells, to which a particular VBS call is distributed. The maximum number of group call area IDs which can be defined in one PLMN depends on the maximum number of group IDs defined in this PLMN. The maximum number of group IDs and group call areas combined shall be 10^8 , The composition of a group call area is predefined in the network by the service provider. Changing of cell allocations in the network due to operational reasons will need an adaptation of the group call area definition. The group call area may include cells of more than one MSC area and cells of more than one PLMN.

3.2 Abbreviations

Abbreviations used in the present document are listed in GSM 01.04.

4 Description

The VBS is defined in the following. Figure 1 gives an explanation of the logical concept of the VBS.

- a) The VBS enables a calling subscriber to send speech unidirectional and simultaneously to all entitled dispatchers and to destination subscribers belonging to a predefined group call area who have a subscription to the applicable group ID.
- b) The calling subscriber may be any service subscriber which has subscribed to the related group ID and is entitled to establish a voice broadcast call by his subscription or any dispatcher who is entitled for it by his identity which shall be registered in the network.

The destination subscriber may be any service subscriber which has subscribed to the related group ID or any dispatcher who is entitled for it by his identity which is registered in the network.

- c) The broadcast call shall be established in a group call area which is comprised of one or a cluster of cells. Group call areas shall be predefined in the network by the service provider, co-ordinated by the network operator.

In case of a service subscriber initiating a VBS call, the group call area is uniquely identified by the actual cell in which the service subscriber resides at the moment of VBS call initialization and by the called group ID.

A dispatcher initiating a VBS call will be connected to a related predefined group call area. The entitlement of the dispatcher is checked by the network element responsible for the voice broadcast call management by verification of the calling identity. Since a dispatcher may be registered to more than one group call area and group ID an indication of the wanted group call area and group ID has to be given in form of a dedicated address called by the dispatcher.

- d) Destination subscribers are all service subscribers or a group of service subscribers identified by the called group ID which have their present location in the group call area, and preregistered dispatchers. Destination service subscribers shall be notified with the group ID, not by paging the service subscriber individually. Dispatchers shall be called individually with their identity.

Service subscribers which leave the group call area during an on going VBS call cease to be destination subscribers. Service subscribers which enter the group call area during an on going VBS call shall become destination subscribers within 500 ms after reception of the first notification message related to the VBS call.

- e) The calling subscriber shall remain within the voice broadcast call until she terminates the call, loses contact with the network or leaves the group call area. The latter case does not apply to calling subscribers who are dispatchers. The VBS call shall be terminated by the network as soon as the network has determined that the calling subscriber has left the VBS call area.

- f) The calling subscriber shall be informed by the network with a suitable indication about the successful establishment of the voice broadcast call so that he can start to speak.

NOTE: A successful establishment means that all broadcast downlink channels are allocated, with the restrictions mentioned in clause 6, whether somebody is listening or not, and the related dispatchers are alerted.

- g) Authentication is mandatory at GSM call set up. To allow fast call set up in VBS authentication of the calling subscriber at invocation may optionally be delayed.

Authentication of the destination subscriber, who have no uplink connection, is not required.

Confidentiality on the radio path is optional.

- h) Different levels of priority and pre-emption shall be applied as defined in the corresponding stage 1 description on the enhanced Multi-Level Precedence and Pre-emption service (eMLPP), GSM 02.67.

- i) A number of voice broadcast calls may exist simultaneously intended for different groups of destination subscribers in the same group call area.

Parallel voice broadcast calls are possible to the same group of destination subscribers in different, possibly overlapping group call areas.

- j) VBS shall also be provided in case of roaming. For this, certain group IDs shall be defined as supra-PLMN group IDs which have to be co-ordinated between the network operators and which shall be known in the networks and in the SIM. A service subscriber which is entitled by his subscription to establish voice broadcast calls while roaming shall only be able to use supra-PLMN group IDs in case of roaming.

- k) For certain levels of priorities an acknowledgement of receipt of a voice broadcast call can be required as an application option (e.g. for railway emergency calls) from all or from nominated destination subscribers (the nomination is recorded on the SIM). The acknowledgement itself shall be performed at the end of the voice broadcast call. The acknowledgement shall indicate the time the reception started and the time the reception terminated. The acknowledgement has to be given to a predefined recipient.