3GPP TSG_CN **Tdoc NP-000276**
Plenary Meeting #8, Dusseldorf, Germany
21st – 23rd June 2000.

Source: **TSG_N WG "1"**

Title: **CRs to 3G Work Item "ASCI-R00"**

Agenda item: **7.3**

Document for: **APPROVAL**

Introduction:

This document contains **"12"** CRs on **Work Item "ASCI-R00",** that have been agreed by **TSG_N WG "1",** and are forwarded to **TSG_N Plenary** meeting #8 for approval.

SMG#32 plenary should have forwarded this document as in P-00-255.

Tdoc	Spec	CR	Rev	CAT	Rel.	Old Ver	New Ver	Subject
N1-000678	03.69	CRA016		B	R00	8.1.0	9.0.0	Introduction of Originator-to-dispatcher information into VBS
N1-000768	03.69	CRA018		F	R00	8.1.0	9.0.0	VBS service accessibility
N1-000770	03.69	CRA019		C	R00	8.1.0	9.0.0	Originator outside Group Call Area
N1-000772	03.69	CRA020		F	R00	8.1.0	9.0.0	Notification response & uplink reply procedure definition
N1-000774	03.69	CRA021		F	R00	8.1.0	9.0.0	Release dataFlow correction
N1-000679	04.69	CRA022		B	R00	8.1.0	9.0.0	Introduction of Originator-to-dispatcher information into VBS
N1-000676	03.68	CRA023		B	R00	8.1.0	9.0.0	Introduction of Originator-to-dispatcher information into VGCS
N1-000677	04.68	CRA025		B	R00	8.1.0	9.0.0	Introduction of Originator-to-dispatcher information into VGCS
N1-000767	03.68	CRA027		F	R00	8.1.0	9.0.0	VGCS service accessibility
N1-000769	03.68	CRA028		C	R00	8.1.0	9.0.0	talker outside Group Call Area
N1-000771	03.68	CRA029		F	R00	8.1.0	9.0.0	Notification response & uplink reply procedure definition
N1-000773	03.68	CRA030		F	R00	8.1.0	9.0.0	Release dataFlow correction

3GPP-CN1/SMG3WPA Meeting #12
Oahu/Hawaii, USA. 22-26 May, 2000

***Document* N1-000676**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

GSM 03.68	**CR**	**A023**	Current Version:	8.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: SMG#32	for approval	X	strategic	X	*(for SMG use only)*
list expected approval meeting # here ↑	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [X]

Source: STF 139 **Date:** 18 May 2000

Subject: Introduction of Originator-to-dispatcher information into VGCS

Work item: ASCI

Category: *(only one category shall be marked with an X)*

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature	X		Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	
				Release 00	X

Reason for change: It is a requirement of GSM Railways to present information from the originator of a call (functional number) to the dispatchers at call setup. The information should be included in the VGCS call setup and mapped in the originating MSC into UUS1. For fast call setup, compression and a restriction in length is necessary to meet time requirements.

Clauses affected: 3.1, 4.2.1.1, new clause 4.2.7, 5.1, 11.3.1.1.1

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications	X	→ List of CRs:	GSM 04.68-A025, GSM 02.68-Axxx
MS test specifications	X	→ List of CRs:	in preparation
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments: -

ETSI TS 100 933 V8.1.0 (2000-04)

Technical Specification

Digital cellular telecommunications system (Phase 2+);
Voice Group Call Service (VGCS);
Stage 2
(GSM 03.68 version 8.1.0 Release 1999)

3 Definitions and abbreviations

3.1 Definitions

Definitions used in this specification are also defined in GSM 02.68.

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

voice group call channel: Combined uplink/downlink to be allocated in a cell of the group call area for a particular voice group call. The uplink can be used by the presently talking service subscriber only. All mobile stations of the listening service subscribers in one cell shall listen to the common downlink.

group members: Service subscribers entitled to belong to a particular group classified by a certain group identification (group ID).

voice group call member: Any group member or dispatcher participating in an on going voice group call.

group call attributes: Group call area, dispatcher identities, and the non-activity time which results in the release of the voice group call by the network.

Group Call Register (GCR): A functionality in the network containing the group call attributes.

group call anchor MSC: The MSC responsible for managing and maintaining a particular voice group call. The group call anchor MSC is determined as the one controlling the cells of the group call area (see also group call relay MSC). For voice group call services where the group call area exceeds one MSC area, the group call anchor MSC is predefined in the network.

group call relay MSC: MSC controlling cells of a group call area which are not under control of the group call anchor MSC for those voice group call services where the group call area exceeds one MSC area.

notification: Notifications are given on common control channels or dedicated channels in order to inform group members which are either in idle mode or in dedicated mode or participating in a voice group call or voice broadcast call on the existence of voice group calls.

Notification Channel (NCH): Common control channel on which the notifications are sent by the network (equivalent to a paging channel).

Originator-to-dispatcher information: Information sent by the service subscriber originating a voice group call to the network during call setup for distribution to the dispatchers to be attached to the group call during call setup.

3.2 Abbreviations

Abbreviations used in this specification are also listed in GSM 01.04.

For the purpose of this specification the following abbreviations apply:

eMLPP	enhanced Multi-Level Precedence and Pre-emption
GCR:	Group Call Register
NCH:	Notification Channel
VBS:	Voice Broadcast Service
VGCS:	Voice Group Call Service

4 Main concepts

4.1 Group definition

Service subscribers can become group members on a PLMN wide basis to one or more groups pre-defined in the network by a corresponding group identification (group ID). The membership enables them to initiate or receive voice group calls associated with that group ID. Certain dispatchers connected to external networks also require the capability to initiate or receive voice group calls.

In addition to subscriber details in the HLR, it is necessary for the mobile station to be aware of its group membership by storing details on the SIM. This is required because it shall respond to notification messages which include only the group ID (i.e. no IMSI or TMSI details).

Having become a group member, each service subscriber can set to active state or deactive state the group ID or any one out of his several group IDs on the SIM. In active state the subscriber can initiate voice group calls to that group. When in deactive state the subscriber can not make voice group calls to the group and the mobile station ignores any notification for that group.

4.2 Group conversations

4.2.1 Group call initiation

4.2.1.1 Normal operation with successful outcome

A group call area can be restricted to a single MSC area or can exceed one MSC area (implementation option).

A voice group call shall be initiated by a calling subscriber by a related input function, e.g. via MMI ~~action,~~ specifying ~~for~~ the selected service ~~selection~~ and the group ID dialled. As an option, the request of the calling subscriber to set up a voice group call may specify information to be sent as originator-to-dispatcher information to the network; in this case the originator-to-dispatcher information is included in the signalling for call setup from the mobile station to the network. It is the responsibility of the input function to ensure that the originator-to-dispatcher information has a correct format (in particular, an allowed length).

The MSC in which a voice group call is initiated obtains (by requesting the Group Call Register (GCR, see clause 5) the group call attributes.

This GCR interrogation after call initiation also determines whether the MSC shall act as anchor or as relay MSC. If the MSC is not the MSC then the call will be "forwarded" from the relay to the respective MSC (information also delivered by GCR) and further "call-establishment" is done by the anchor MSC as described in the following.

When a calling subscriber initiates a voice group call, one voice group call channel shall be established in each cell of the group call area and notifications for that call shall be sent in each of these cells. As an alternative, voice group call channels may only be established in cells in reaction to responses received from mobile stations on the notifications. At the same time standard connections to dispatchers in the mobile network or in an external network shall be established. If originator-to-dispatcher information has been received in the signalling for call setup from the mobile station to the network and if the originating MSC supports processing of originator-to-dispatcher information, this information is transformed into originator-to-user information and sent to the dispatchers as UUS1 when setting up the standard connections.

A voice group call channel shall consist of a combined uplink/downlink. The uplink will be used exclusively by the presently talking service subscriber. All mobile stations of the listening service subscribers in one cell shall only listen to the same common downlink.

The calling subscriber shall have its dedicated standard uplink/downlink during call establishment and for the first period when he will be the talking service subscriber up to the time when the network decides that he shall join the voice group call channel. The mobile station of the calling subscriber shall then go to the voice group call channel and the dedicated standard uplink/downlink shall be released. From that moment on the calling subscriber shall be treated as all the other services subscribers.

Only one voice group call channel shall be established in each cell for any given voice group call, although there may be a number of simultaneous voice group calls within the same cell.

Service subscribers shall be notified on the voice group call in each cell. These voice group call notification messages shall be broadcast on the notification channel (NCH).

The notification messages use the group ID rather than individual TMSIs/IMSIs. Additionally, a group call area identification shall be included in order to enable a resolution in the case of overlapping group call areas. A service subscriber's mobile station needs to be able to recognise notification messages for those group IDs subscribed to and presently activated.

The network may also send messages on appropriate voice group call channel FACCHs, in order to notify group call members who may participate in other voice group calls. In addition, also paging information messages for standard calls may be sent in order to inform group call members on actually paged point-to-point calls.

Further the network may provide notification on the voice group call to service subscribers who have subscribed to the paged group ID and which are in dedicated mode. The process of broadcasting messages on NCHs is to be carried out throughout the call in order to provide the "late entry" facility whereby group members entering the area can join the call.

On receiving notification of a voice group call a group call member's mobile station shall adjust to the nominated channel to receive the voice group call if this channel was described in the notification message and receive the information on the downlink. Whilst receiving, the mobile station shall not transmit on the uplink SACCH. This group receive mode is different to the normal idle mode or dedicated mode. If no channel description was provided in the notification message, the mobile station shall establish a dedicated connection in order to respond to the notification. The network may then provide the mobile station with a channel description for the voice group call.

As a further mobile station option, the mobile station may read its paging subchannel in the current cell while in group receive mode or in group transmit mode in order to receive paging messages for mobile terminated calls.

4.2.7 Processing of originator-to-dispatcher information

The originating service subscriber may include originator-to-dispatcher information during call setup. If the originating MSC supports processing of originator-to-dispatcher information, it transforms the received originator-to-dispatcher information into UUS1, and sends it

- if the originating MSC is not the voice group call anchor MSC: to the voice group call anchor MSC;
- if the originating MSC is the voice group call anchor MSC: to the dispatchers to be attached to the group call during call setup of the connections to these dispatchers.

The anchor MSC receiving UUS1 in a voice group call setup from an originating relay MSC forwards this UUS1 to the dispatchers to be attached to the group call during call setup of the connections to these dispatchers.

Transformation of originator-to-dispatcher information: Originator-to-dispatcher information can be compressed or uncompressed.

- Decompression of compressed originator-to-dispatcher information is specified in GSM 04.68.
- The transformation of uncompressed originator-to-dispatcher information into UUS1 is the UUS1 containing the same user-user IE as the originator-to-dispatcher information.
- The transformation of compressed originator-to-dispatcher information into UUS1 is the UUS1 resulting from transforming the decompressed originator-to-dispatcher information into UUS1.

5 General architecture

5.1 Group Call Register (GCR)

The general architecture of GSM is maintained. In addition, a network function is required which is used for registration of the group call attributes, the Group Call Register (GCR).

The GCR function is mainly a database function, holding information about voice group calls.

NOTE 1: The GCR implementation is not specified. It may be realized e.g. as a new network node, in a PABX directly attached to an MSC, inside an MSC or as an HLR. The interface between the GCR function and other functions is not specified in the GSM technical specifications. As a consequence, the functional split between MSC and GCR as developed in this document is only indicative, and other functional splits can be implemented.

The GCR data for a specific voice group call is set at the creation of the group call attributes, and can be subsequently modified. No support for these functions is specified in the GSM technical specifications.

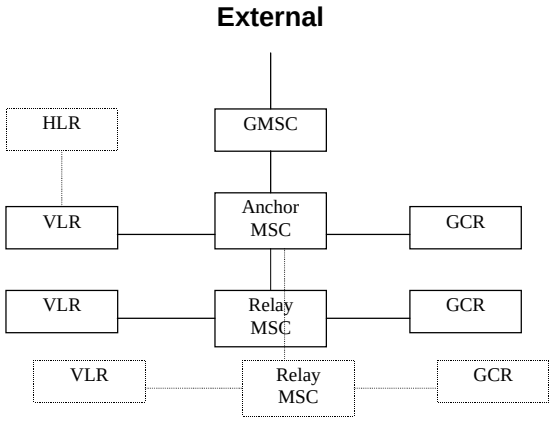

Figure 1: Functional architecture with a Group Call Register

The signalling between the entities shown in figure 1, for the two cases of service subscriber and dispatcher originated calls, shall be as defined in the following.

Service subscriber originated: The MSC containing the cell within which this voice group call is initiated shall perform subscription checking against VLR records. It shall then consult its GCR to determine the group call attributes related to its MSC area and whether it is the group call anchor MSC for that voice group call. If it is not, the GCR shall provide with the group call attributes the routing information identifying the group call anchor MSC to the originating MSC. The originating MSC shall then route the voice group call to the anchor MSC; if the initiation of the voice group call had specified originator-to-dispatcher information and processing of originator-to-dispatcher information is supported by the originating MSC, the originator-to-dispatcher information is transformed by the originating MSC into UUS1 and sent to the anchor MSC . If the originating MSC is the group call anchor MSC, along with the group call attributes, the GCR shall provide information on all group call relay MSCs to be involved.

The group call anchor MSC shall set up links to all group call relay MSCs. It shall also initiate setup of point-to-point connections to the dispatchers associated to the voice group call (see clause 8.1.2.2); if UUS1 information has been received in the signalling for call setup from the originating MSC, this UUS1 information is included in the setup of point-to-point connections to the dispatchers. Each MSC involved in a voice group call obtains its proper group call attributes from the GCR related to the MSC.

The IMSI of the calling service subscriber must be provided to and stored in the anchor MSC and each relay MSC in order to allow the originator to clear the group call later on.

Dispatcher originated: In the case of dispatchers calling from an external network, the call request, in the form of an ISDN number, shall be received at a GMSC. The number shall be analysed and the call shall be directly routed to the

group call anchor MSC by the GMSC based on the called identity without requesting an HLR. The group call anchor MSC shall interrogate the GCR and obtain the group call attributes. If an identical voice group call is currently in progress, the dispatcher shall be connected to this call and no new call shall be initiated. When interrogating the GCR, the identity of the dispatcher is compared with the list of dispatchers which are allowed to initiate the call. If the dispatcher is not in the list, or an identity is not provided, the network shall reject the call.

NOTE 2: Optionally dispatchers may also be user of the GSM network in which the VGCS service is provided or may directly be connected to a PABX containing the GCR. Dispatcher which are registered for a certain voice group call and which have also a subscription for VGCS with the same group ID as the voice group call for which they are dispatcher shall deactivate this group ID when they are located in the corresponding group call area in order to avoid conflicts between paging for the dispatcher and notifications for the group ID.

11.3 Call management

11.3.1 Call establishment

A voice group call can be established by either a service subscriber or by a dispatcher.

11.3.1.1 Service subscriber call establishment

11.3.1.1.1 Initial stage

~~In the initial stages (between the MS and the MSC), service subscriber originated voice group call establishment shall proceed as for a standard call.~~ The initial signalling from the ~~originator~~ originating service subscriber informs the network that a voice group call is required and details the group ID; it may specify originator-to-dispatcher information. No information relative to the group call area is given by the caller.

The network shall perform a number of checks in order to determine how to handle the call:

- Check of the ability of the subscriber to establish the call;
- Check whether the call can be initiated from the cell;
- Check of the existence of an on-going call of the same group call reference.

The MSC shall check the VLR records for the ability of the subscriber to start the call. If the service subscriber has no subscription for the voice group call service with the indicated group ID, the call shall be released. In addition, the VLR shall return barring and identity presentation restriction checks to the MSC.

The MSC shall then request information from the GCR by giving the group ID and the originating cell ID as defined in subclause 9.2. The GCR first derives the group call area ID from the group ID and the originating cell ID. If no group call area ID is related to the group ID and originating cell ID, the call shall be released. If a group call area ID is related to the group ID and originating cell ID, the GCR shall transfer the corresponding group call attributes to the MSC. From that moment until the MSC indicates the contrary, the call shall be considered as on-going by the GCR.

If the MSC is not the group call anchor MSC for the voice group call as indicated in the GCR, then the voice group call request shall be passed to the group call anchor MSC; in that case, if the initiation of the voice group call had specified originator-to-dispatcher information and processing of originator-to-dispatcher information is supported by the MSC, the originator-to-dispatcher information is transformed by the originating MSC into UUS1 and sent to the anchor MSC.

It is possible that two service subscribers or a service subscriber and a dispatcher or two dispatchers may attempt to establish a call using the same group ID and corresponding to the same group call area ID. If the two voice group calls are established with the same group ID but for different group call areas then separate voice group calls shall be established. If the group call areas overlap, it is up to receiving mobile station to determine which call to participate in. If more than one call is made to identical group ID and group call area, the network shall reject all but one of the call attempts.

A service subscriber which is entitled by his subscription to establish voice group calls while roaming shall only be able to use supra-PLMN group IDs as defined in subclause 9.1 in case of roaming. In case of roaming, the mobile station shall only react on notifications for supra-PLMN group IDs.

If the GCR receives a new interrogation related to a group call reference where the call is indicated as on-going in the GCR, the GCR shall provide the on-going status together with the group call reference back to the MSC. The MSC shall then release the call with cause user busy in case of a service subscriber originated call request. The mobile station of the service subscriber shall then look for notifications of the respective group ID on the NCH and join the voice group call. In case of a dispatcher originated voice group call request, the MSC shall join the dispatcher to the conference bridge of the voice group call.

Because of the possibility of overlapping group call areas, each call requires a unique reference, assigned by the GCR related to the MSC in which the call was originated. The group call reference shall be composed of the group ID and a group call area ID (see clause 9).

Authentication of the calling subscriber can be performed by the network as for normal calls.

3GPP-CN1/SMG3WPA Meeting #12
Oahu/Hawaii, USA. 22-26 May, 2000

***Document* N1-000677**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

GSM 04.68	**CR**	**A025**	Current Version:	8.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: SMG#32	for approval	X	strategic	X	*(for SMG use only)*
list expected approval meeting # here ↑	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [X]

Source: STF 139 **Date:** 18 May 2000

Subject: Introduction of Originator-to-dispatcher information into VGCS

Work item: ASCI

Category: *(only one category shall be marked with an X)*

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature	X		Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	
				Release 00	X

Reason for change: It is a requirement of GSM Railways to present information from the originator of a call (functional number) to the dispatchers at call setup. The information should be included in the VGCS call setup and mapped in the originating MSC into UUS1. For fast call setup, compression and a restriction in length is necessary to meet time requirements.

Clauses affected: 8.5, 9.3, new clauses 8.x and 9.4.x

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications	X	→ List of CRs:	GSM 03.68-A023, GSM 02.68-Axxx
MS test specifications	X	→ List of CRs:	in preparation
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments: The use of bits 7 and 8 of the Message Types IE were redefined in 24.007 and 24.008 of R99. Corresponding changes to GSM 04.68 and GSM 04.69 had not been carried out. This aspect is however not dealt with in this CR, but is the matter of an independent CR to 04.68.

ETSI EN 300 948 V8.1.0 (2000-04)

European Standard (Telecommunications series)

Digital cellular telecommunications system (Phase 2+); Group Call Control (GCC) protocol (GSM 04.68 version 8.1.0 Release 1999)

GLOBAL SYSTEM FOR
MOBILE COMMUNICATIONS

8.x IMMEDIATE SETUP 2

This message is sent by the MS to the network in order to set-up a group call immediately, i.e. without previous establishment of an MM connection, and to include compressed originator-to dispatcher information. The message shall only be used if the MS has a valid TMSI. See table 8.x.

Message type: IMMEDIATE SETUP 2;

Significance: dual

Direction: MS to network.

Table 8.3: IMMEDIATE SETUP 2 message content

IEI	Information element	Type / Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 9.1	M	V	1/2
	Transaction identifier	Transaction identifier 9.2	M	V	1/2
	Message type	Message type 9.3	M	V	1
	Spare half octet	Spare half octet 9.4.6	M	V	½
	Ciphering key sequence number	Ciphering key sequence number GSM 04.08, 10.5.1.2	M	V	½
	Mobile station classmark	Mobile station classmark 2 GSM 04.08, 10.5.1.6	M	LV	4
	TMSI	TMSI/P-TMSI GSM 04.18, 10.5.2.42	M	V	4
	Group identity	Call reference 9.4.1	M	V	4
	Compressed otdi	Compressed otdi 9.4.x	M	V	5

8.x.1 TMSI

The *TMSI* information element indicates the Temporary Mobile Subscriber Identity of the MS.

8.x.2 Compressed otdi

This information element contains compressed originator-to-dispatcher information.

8.5 SETUP

This message is sent by the MS to the network in order to set-up a group call after establishment of an MM connection.

See table 8.5.

Message type: SETUP;

Significance: dual ;

Direction: MS to network.

Table 8.5: SETUP message content

IEI	Information element	Type / Reference	Presence	Format	Length
	protocol discriminator	protocol discriminator 9.1	M	V	1/2
	transaction identifier	transaction identifier 9.2	M	V	1/2
	message type	message type 9.3	M	V	1
	Group identity	Call reference 9.4.1	M	V	4
7E	Originator-to-dispatcher information	User-user 3G 24.008 section10.5.4.25	O	TLV	3-35

8.5.1 Originator-to-dispatcher information

The *Originator-to-dispatcher* IE specifies originator-to-dispatcher information. The coding of the IE is equal to the coding of User-user information defined in 3G 24.008 section 10.5.4.25.

9.3 Message Type

The message type IE and its use are defined in GSM 04.07. Table 9.1 defines the value part of the message type IE used in the GCC protocol.

Table 9.1: Message types for GCC

8	7	6	5	4	3	2	1	
0	x	1	1	0	0	0	1	IMMEDIATE SETUP
0	x	1	1	0	0	1	0	SETUP
0	x	1	1	0	0	1	1	CONNECT
0	x	1	1	0	1	0	0	TERMINATION
0	x	1	1	0	1	0	1	TERMINATION REQUEST
0	x	1	1	0	1	1	0	TERMINATION REJECT
0	x	1	1	1	0	0	0	STATUS
0	x	1	1	1	0	0	1	GET STATUS
0	x	1	1	1	0	1	0	SET PARAMETER
0	x	1	1	1	0	1	1	IMMEDIATE SETUP 2

Bit 8 is reserved for possible future use as an extension bit, see GSM 04.07.

Bit 7 is reserved for the send sequence number in GCC messages sent from the MS. In GCC messages sent from the network an, bit 7 is coded with a "0", see GSM 04.07.

9.4.x Compressed otdi

The *Compressed utdi* information element specifies an integer N in 40 bit binary representation; bit 8 of octet 1 is the most significant bit and bit 1 of octet 5 is the least significant bit. The integer denotes compressed originator-to-dispatcher information. The corresponding decompressed user-to-dispatcher information is given by the following attributes:

- User-user protocol discriminator: IA5 characters
- User-user information: The user-user information is a string of 12 digits which are the decimal representation of the integer N with leading zeros.

3GPP-CN1/SMG3WPA Meeting #12
Oahu/Hawaii, USA. 22-26 May, 2000

***Document* N1-000678**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

GSM 03.69 **CR** **A016** Current Version: 8.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: SMG#32 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

strategic [X] non-strategic [ ] *(for SMG use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [X]

Source: STF 139 **Date:** 18 May 2000

Subject: Introduction of Originator-to-dispatcher information into VBS

Work item: ASCI

Category: *(only one category shall be marked with an X)*

F	Correction	[ ]
A	Corresponds to a correction in an earlier release	[ ]
B	Addition of feature	[X]
C	Functional modification of feature	[ ]
D	Editorial modification	[ ]

Release:

Phase 2	[ ]
Release 96	[ ]
Release 97	[ ]
Release 98	[ ]
Release 99	[ ]
Release 00	[X]

Reason for change: It is a requirement of GSM Railways to present information from the originator of a call (functional number) to the dispatchers at call setup. The information should be included in the VBS call setup and mapped in the originating MSC into UUS1. For fast call setup, compression and a restriction in length is necessary to meet time requirements.

Clauses affected: 3.1, 4.2.1.1, new clause 4.2.7, 5.1, 11.3.1.1.1

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:	
Other GSM core specifications	[X]	→ List of CRs:	GSM 04.68-A025, GSM 02.68-Axxx
MS test specifications	[X]	→ List of CRs:	in preparation
BSS test specifications	[ ]	→ List of CRs:	
O&M specifications	[ ]	→ List of CRs:	

Other comments: -

ETSI TS 100 934 V8.1.0 (2000-04)

Technical Specification

Digital cellular telecommunications system (Phase 2+);
Voice Broadcast Service (VBS);
Stage 2
(GSM 03.69 version 8.1.0 Release 1999)

3 Definitions and abbreviations

3.1 Definitions

Definitions used in the present document are also defined in GSM 02.69.

voice broadcast channel: Downlink to be allocated in each cell of the group call area for a particular voice broadcast call. All mobile stations of the destination subscriber being service subscribers in one cell shall listen to the common downlink.

group members: Service subscribers entitled to belong to a particular group classified by a certain group identification (group ID).

voice broadcast call member: Any group member or dispatcher participating in an on going voice broadcast call.

broadcast call attributes: Group call area, dispatcher identities.

Group Call Register (GCR): A functionality in the network containing the broadcast call attributes.

group call anchor MSC: The MSC responsible for managing and maintaining a particular voice broadcast call. The group call anchor MSC is determined as the one controlling the cells of the group call area (see also group call relay MSC). For voice broadcast services where the group call area exceeds an MSC area, the group call anchor MSC is predefined in the network.

group call relay MSC: MSC controlling cells of a group call area which are not under control of the group call anchor MSC for those voice broadcast services where the group call area exceeds one MSC area.

notification: Notifications are given on common channels or dedicated channels in order to inform group members which are either in idle mode or in dedicated mode or participating in a voice group call or broadcast call on the existence of voice broadcast calls.

Notification channel (NCH): Common control channel on which the notifications are sent by the network (equivalent to a paging channel).

Originator-to-dispatcher information: Information sent by the service subscriber originating a voice broadcast call to the network during call setup for distribution to the dispatchers to be attached to the voice broadcast call during call setup.

3.2 Abbreviations

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

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

eMLPP	enhanced Multi-Level Precedence and Pre-emption
GCR:	Group Call Register
NCH:	Notification Channel
VBS:	Voice Broadcast Service
VGCS:	Voice Group Call Service

4 Main concepts

4.1 Group definition

Service subscribers can become group members on a PLMN wide basis to one or more groups pre-defined in the network by a corresponding group identification (group ID). The membership enables them to receive voice broadcast calls associated with that group ID. In addition, certain group members are entitled by their subscription to initiate voice broadcast calls. Certain dispatchers connected to external networks also require the capability to initiate or receive voice broadcast calls.

In addition to subscriber details in the HLR, it is necessary for the mobile station to be aware of its group membership by storing details on the SIM. This is required because it shall respond to notification messages which include only the group ID (i.e. no IMSI or TMSI details).

Having become a group member, each service subscriber can set to active state or deactive state the group ID or any one out of his several group IDs on the SIM. In active state the subscriber can initiate voice broadcast calls to that group ID. When in deactive state the subscriber can not make voice broadcast calls to the group and the mobile station ignores any notification for that group ID.

4.2 Broadcast process

4.2.1 Broadcast call initiation

4.2.1.1 Normal operation with successful outcome

A group call area can be restricted to a single MSC area or can exceed one MSC area (implementation option).

A voice broadcast call shall be initiated by a calling subscriber by a related input function, e.g. via MMI ~~action,~~ specifying ~~for~~ the selected service ~~selection~~ and the group ID dialled. As an option, the request of the calling subscriber to set up a voice broadcast call may specify information to be sent as originator-to-dispatcher information to the network; in this case the originator-to-dispatcher information is included in the signalling for call setup from the mobile station to the network. It is the responsibility of the input function to ensure that the originator-to-dispatcher information has a correct format (in particular, an allowed length).

The MSC in which the voice broadcast call is initiated obtains (by requesting the Group Call Register (GCR, see clause 5) the group call attributes.

This GCR interrogation after call initiation also determines whether the MSC shall act as anchor- or as relay MSC. If the MSC is not the anchor-MSC then the call will be "forwarded" from the relay to the respective anchor-MSC (information also delivered by GCR) and further "call-establishment" is done by the anchor-MSC as described in the following.

When a calling subscriber initiates a voice broadcast call, one voice broadcast channel shall be established in each cell of the group call area and notifications for that call shall be sent in each of these cells. As an alternative, voice broadcast channels may only be established in cells in reaction to responses received from mobile stations on the notifications. At the same time standard connections to dispatchers in the mobile network or in an external network shall be established. If originator-to-dispatcher information has been received in the signalling for call setup from the mobile station to the network and if the originating MSC supports processing of originator-to-dispatcher information, this information is transformed into originator-to-user information and sent to the dispatchers as UUS1 when setting up the standard connections.

The calling subscriber shall have an dedicated standard uplink/downlink. All mobile stations of the listening service subscribers in one cell shall only listen to the same common downlink (voice broadcast channel).

Only one voice broadcast channel shall be established in each cell for any given voice broadcast call, although there may be a number of simultaneous voice broadcast calls within the same cell.

Service subscribers shall be notified on the voice broadcast call in each cell. These voice broadcast call notification messages shall be broadcast on the notification channel (NCH).

The notification messages use the group ID rather than individual TMSIs/IMSIs. Additionally, a group call area identity (group call area ID) shall be included in order to enable a resolution in the case of overlapping group call areas. A service subscriber's mobile station needs to be able to recognize notification messages for those group IDs subscribed to and presently activated.

The network may also send messages on appropriate voice broadcast channel FACCHs, in order to notify voice broadcast call members who may participate in other voice broadcast calls. In addition , also paging information messages for standard calls may be sent in order to inform voice broadcast call members on actually paged point-to-point calls.

Further the network may provide notification on the voice group call to service subscribers who have subscribed to the paged group ID and which are in dedicated mode.

The process of broadcasting messages on NCHs is to be carried out throughout the call in order to provide the "late entry" facility whereby group members entering the area can join the call.

On receiving notification of a voice broadcast call a voice broadcast call member's mobile station shall adjust to the nominated channel to receive the broadcast call if this channel was received in the notification message and receive the information on the downlink. Whilst receiving, the mobile station shall not transmit on the uplink SACCH. This group receive mode is different to the normal idle mode or dedicated mode. If no channel description was provided in the notification message, the mobile station shall establish a dedicated connection in order to respond to the notification. The network may then provide the mobile station with a channel description for the voice broadcast call.

As a further mobile station option, the mobile station may read its paging subchannel in the current cell while in group receive mode or in group transmit mode in order to receive paging messages for mobile terminated calls.

4.2.7 Processing of originator-to-dispatcher information

The originating service subscriber may include originator-to-dispatcher information during call setup. If the originating MSC supports processing of originator-to-dispatcher information, it transforms the received originator-to-dispatcher information into UUS1, and sends it

- if the originating MSC is not the voice broadcast call anchor MSC: to the voice broadcast call anchor MSC;
- if the originating MSC is the voice broadcast call anchor MSC: to the dispatchers to be attached to the voice broadcast call during call setup of the connections to these dispatchers.

The anchor MSC receiving UUS1 in a voice broadcast call setup from an originating relay MSC forwards this UUS1 to the dispatchers to be attached to the voice broadcast call during call setup of the connections to these dispatchers.

Transformation of originator-to-dispatcher information: Originator-to-dispatcher information can be compressed or uncompressed.

- Decompression of compressed originator-to-dispatcher information is specified in GSM 04.69.
- The transformation of uncompressed originator-to-dispatcher information into UUS1 is the UUS1 containing the same user-user IE as the originator-to-dispatcher information.
- The transformation of compressed originator-to-dispatcher information into UUS1 is the UUS1 resulting from transforming the decompressed originator-to-dispatcher information into UUS1.

5 General architecture

5.1 Group Call Register (GCR)

The general architecture of GSM is maintained. In addition, a network function is required which is used for registration of the broadcast call attributes, the Group Call Register (GCR).

The GCR function is mainly a database function, holding information about voice broadcast calls.

NOTE 1: The GCR implementation is not specified. It may be realized e.g. as a new network node, in a PABX directly attached to an MSC, inside an MSC or as an HLR. The interface between the GCR function and other functions is not specified in the GSM technical specifications. As a consequence, the functional split between MSC and GCR as developed in this specification is only indicative, and other functional splits can be implemented.

The GCR data for a specific voice broadcast call is set at the creation of the broadcast call attributes, and can be subsequently modified. No support for these functions is specified in the GSM technical specifications.

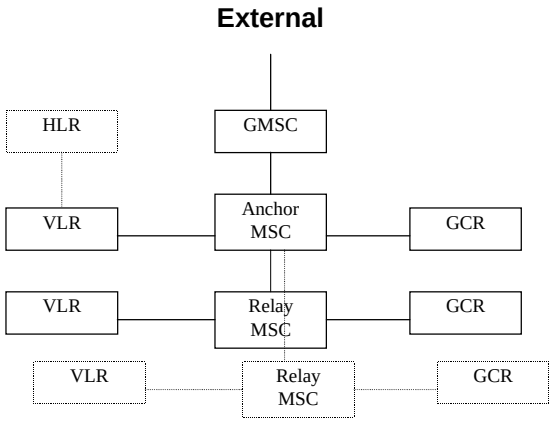

Figure 1: Functional architecture with a Group Call Register

The signalling between the entities shown in figure 1, for the two cases of service subscriber and dispatcher originated calls, shall be as defined in the following.

Service subscriber originated: The MSC containing the cell within which this voice broadcast call is initiated shall perform subscription checking against VLR records. It shall then consult its GCR to determine the broadcast call attributes related to its MSC area and whether it is the group call anchor MSC for that voice broadcast call. If it is not, the GCR shall provide with the broadcast call reference and the routing information identifying the group call anchor MSC to the originating MSC. The originating MSC shall then route the voice broadcast call to the anchor MSC; if the initiation of the voice broadcast call had specified originator-to-dispatcher information and processing of originator-to-dispatcher information is supported by the originating MSC, the originator-to-dispatcher information is transformed by the originating MSC into UUS1 and sent to the anchor MSC . If the originating MSC is the group call anchor MSC, along with the broadcast call attributes, the GCR shall provide information on all group call relay MSCs to be involved.

The group call anchor MSC shall set up links to all group call relay MSCs. It shall also initiate setup of point-to-point connections to the dispatchers associated to the voice group call (see clause 8.1.2.2); if UUS1 information has been received in the signalling for call setup from the originating MSC, this UUS1 information is included in the setup of point-to-point connections to the dispatchers. Each MSC involved in a voice broadcast call obtains its proper broadcast call attributes from the GCR related to the MSC.

Dispatcher originated: In the case of dispatchers calling from an external network, the call request, in the form of an ISDN number, shall be received at a GMSC. The number shall be analysed and the call shall be directly routed to the

group call anchor MSC by the GMSC based on the called identity without requesting an HLR. The group call anchor MSC shall interrogate the GCR and obtain the broadcast call attributes. If an identical voice broadcast call is currently in progress, the dispatcher shall be connected to this call and no new call shall be initiated. When interrogating the GCR, the identity of the dispatcher is compared with the list of dispatchers which are allowed to initiate the call. If the dispatcher is not in the list, or an identity is not provided, the network shall reject the call.

NOTE 2: Optionally dispatchers may also be user of the GSM network in which the VBS service is provided or may directly be connected to a PABX containing the GCR. Dispatcher which are registered for a certain voice broadcast call and which have also a subscription for VBS with the same group ID as the voice broadcast call for which they are dispatcher shall deactivate this group ID when they are located in the corresponding group call area in order to avoid conflicts between paging for the dispatcher and notifications for the group ID.

11.3 Call management

11.3.1 Call establishment

A voice broadcast call can be established by either a service subscriber or by a dispatcher.

11.3.1.1 Service subscriber call establishment

11.3.1.1.1 Initial stage

~~In the initial stages (between the MS and the MSC), service subscriber originated voice broadcast call establishment shall proceed as for a standard call.~~ The initial signalling from the originating service subscriber~~or~~ informs the network that a voice broadcast call is required and details the group ID; it may specify originator-to-dispatcher information. No information relative to the group call area is given by the caller.

The network shall perform a number of checks in order to determine how to handle the call:

- Check of the ability of the subscriber to establish the call;
- Check whether the call can be initiated from the cell;
- Check of the existence of an on-going call of the same broadcast call reference.

The MSC shall check the VLR records for the ability of the subscriber to start the call. If the service subscriber has no subscription for the voice broadcast service with the indicated group ID, the call shall be released. In addition, the VLR shall return barring and identity presentation restriction checks to the MSC.

The MSC shall then request information from the GCR by giving the group ID and the originating cell ID as defined in subclause 9.2. The GCR first derives the group call area ID from the group ID and the originating cell ID. If no group call area ID is related to the group ID and originating cell ID, the call shall be released. If a group call area ID is related to the group ID and originating cell ID, the GCR shall transfer the corresponding broadcast call attributes to the MSC. From that moment until the MSC indicates the contrary, the call shall be considered as on-going by the GCR.

If the MSC is not the group call anchor MSC for the voice broadcast call as indicated in the GCR, then the voice broadcast call request shall be passed to the group call anchor MSC.; in that case, if the initiation of the voice broadcast call had specified originator-to-dispatcher information and processing of originator-to-dispatcher information is supported by the MSC, the originator-to-dispatcher information is transformed by the originating MSC into UUS1 and sent to the anchor MSC

It is possible that two service subscribers or a service subscriber and a dispatcher or two dispatchers may attempt to establish a call using the same group ID and corresponding to the same group call area ID. If the two voice broadcast calls are established with the same group ID but for different group call areas, then separate voice broadcast calls shall be established. If the group call areas overlap, it is up to receiving mobile station to determine which call to participate in. If more than one call is made to identical group ID and group call area, the network shall reject all but one of the call attempts.

If the GCR receives a new interrogation related to a broadcast call reference where the call is indicated as on-going in the GCR, the GCR shall provide the on-going status together with the broadcast call reference back to the MSC. The MSC shall then release the call with cause user busy in case of a service subscriber originated call request. The mobile station of the service subscriber shall then look for notifications of the respective group ID on the NCH and join the voice broadcast call. In case of a dispatcher originated voice broadcast call request, the MSC shall join the dispatcher to the distribution function of the voice broadcast call.

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 as defined in subclause 9.1 in case of roaming. In case of roaming, the mobile station shall only react on notifications for supra-PLMN group IDs.

Because of the possibility of overlapping group call areas, each call requires an unique reference, assigned by the group call anchor MSC at the point of call initiation. The broadcast call reference shall be composed of the group ID and a group call area ID (see clause 9).

Authentication of the calling subscriber can be performed by the network as for normal calls.

3GPP-CN1/SMG3WPA Meeting #12
Oahu/Hawaii, USA. 22-26 May, 2000

***Document* N1-000679**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

GSM 04.69 **CR** **A025** Current Version: 8.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: SMG#32 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

strategic [X] non-strategic [ ] *(for SMG use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [X]

Source: STF 139 **Date:** 18 May 2000

Subject: Introduction of Originator-to-dispatcher information into VBS

Work item: ASCI

Category: *(only one category shall be marked with an X)*

F	Correction	[ ]
A	Corresponds to a correction in an earlier release	[ ]
B	Addition of feature	[X]
C	Functional modification of feature	[ ]
D	Editorial modification	[ ]

Release:

Phase 2	[ ]
Release 96	[ ]
Release 97	[ ]
Release 98	[ ]
Release 99	[ ]
Release 00	[X]

Reason for change: It is a requirement of GSM Railways to present information from the originator of a call (functional number) to the dispatchers at call setup. The information should be included in the VBS call setup and mapped in the originating MSC into UUS1. For fast call setup, compression and a restriction in length is necessary to meet time requirements.

Clauses affected: 8.5, 9.3, new clauses 8.x and 9.4.x

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[X]	→ List of CRs: GSM 03.69-A016, GSM 02.69-Axxx
MS test specifications	[X]	→ List of CRs: in preparation
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments: The use of bits 7 and 8 of the Message Types IE were redefined in 24.007 and 24.008 of R99. Corresponding changes to GSM 04.68 and GSM 04.69 had not been carried out. This aspect is however not dealt with in this CR, but is the matter of an independent CR to 04.69.

ETSI EN 300 949 V8.1.0 (2000-04)

European Standard (Telecommunications series)

Digital cellular telecommunications system (Phase 2+); Broadcast Call Control (BCC) protocol (GSM 04.69 version 8.1.0 Release 1999)

GLOBAL SYSTEM FOR
MOBILE COMMUNICATIONS

8.x IMMEDIATE SETUP 2

This message is sent by the MS to the network in order to set-up a group call immediately, i.e. without previous establishment of an MM connection, and to include compressed originator-to dispatcher information. The message shall only be used if the MS has a valid TMSI. See table 8.x.

Message type: IMMEDIATE SETUP 2;

Significance: dual

Direction: MS to network.

Table 8.3: IMMEDIATE SETUP 2 message content

IEI	Information element	Type / Reference	Presence	Format	Length
	Protocol discriminator	Protocol discriminator 9.1	M	V	1/2
	Transaction identifier	Transaction identifier 9.2	M	V	1/2
	Message type	Message type 9.3	M	V	1
	Spare half octet	Spare half octet 9.4.6	M	V	½
	Ciphering key sequence number	Ciphering key sequence number GSM 04.08, 10.5.1.2	M	V	½
	Mobile station classmark	Mobile station classmark 2 GSM 04.08, 10.5.1.6	M	LV	4
	TMSI	TMSI/P-TMSI GSM 04.18, 10.5.2.42	M	V	4
	Group identity	Call reference 9.4.1	M	V	4
	Compressed otdi	Compressed otdi 9.4.x	M	V	5

8.x.1 TMSI

The *TMSI* information element indicates the Temporary Mobile Subscriber Identity of the MS.

8.x.2 Compressed otdi

This information element contains compressed originator-to-dispatcher information.

8.5 SETUP

This message is sent by the MS to the network in order to set-up a broadcast call after establishment of an MM connection.

See table 8.5.

Message type: SETUP

Significance: dual

Direction: MS to network

Table 8.5: SETUP message content

IEI	Information element	Type / Reference	Presence	Format	Length
	protocol discriminator	protocol discriminator 9.1	M	V	1/2
	transaction identifier	transaction identifier 9.2	M	V	1/2
	message type	message type 9.3	M	V	1
	Broadcast identity	Call reference 9.4.1	M	V	4
7E	Originator-to-dispatcher information	User-user 3G 24.008 section10.5.4.25	O	TLV	3-35

8.5.1 Originator-to-dispatcher information

The *Originator-to-dispatcher* IE specifies originator-to-dispatcher information. The coding of the IE is equal to the coding of User-user information defined in 3G 24.008 section 10.5.4.25.

9.3 Message Type

The message type IE and its use are defined in GSM 04.07. Table 9.1 define the value part of the message type IE used in the BCC protocol.

Table 9.1: Message types for BCC

8	7	6	5	4	3	2	1	
0	x	1	1	0	0	0	1	IMMEDIATE SETUP
0	x	1	1	0	0	1	0	SETUP
0	x	1	1	0	0	1	1	CONNECT
0	x	1	1	0	1	0	0	TERMINATION
0	x	1	1	0	1	0	1	TERMINATION REQUEST
0	x	1	1	0	1	1	0	TERMINATION REJECT
0	x	1	1	1	0	0	0	STATUS
0	x	1	1	1	0	0	1	GET STATUS
0	x	1	1	1	0	1	0	SET PARAMETER
0	x	1	1	1	0	1	1	IMMEDIATE SETUP 2

Bit 8 is reserved for possible future use as an extension bit, see GSM 04.07.

Bit 7 is reserved for the send sequence number in BCC messages sent from the MS. In BCC messages sent from the network an, bit 7 is coded with a "0". See GSM 04.07.

9.4.x Compressed otdi

The *Compressed utdi* information element specifies an integer N in 40 bit binary representation; bit 8 of octet 1 is the most significant bit and bit 1 of octet 5 is the least significant bit. The integer denotes compressed originator-to-dispatcher information. The corresponding decompressed user-to-dispatcher information is given by the following attributes:

- User-user protocol discriminator: IA5 characters
- User-user information: The user-user information is a string of 12 digits which are the decimal representation of the integer N with leading zeros.

3GPP-CN1/SMG3WPA Meeting #12
Oahu/Hawaii, USA. 22-26 May, 2000

***Document* N1-000767**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

03.68	CR	A027	Current Version:	8.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG CN#8	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME	X	UTRAN / Radio		Core Network	X

Source: Nortel Networks **Date:** 25.05.00

Subject: VGCS service accessibility

Work item: ASCI

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	
				Release 00	X

Reason for change: Precise that if no NCH is defined on the cell, mobiles shall assume that VBS and VGCS services are not supported on this cell.

Clauses affected: 4.1

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications	X	→ List of CRs:	03.69 CR A018
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

4.1 Group definition

Service subscribers can become group members on a PLMN wide basis to one or more groups pre-defined in the network by a corresponding group identification (group ID). The membership enables them to initiate or receive voice group calls associated with that group ID. Certain dispatchers connected to external networks also require the capability to initiate or receive voice group calls.

In addition to subscriber details in the HLR, it is necessary for the mobile station to be aware of its group membership by storing details on the SIM. This is required because it shall respond to notification messages which include only the group ID (i.e. no IMSI or TMSI details).

Having become a group member, each service subscriber can set to active state or deactive state the group ID or any one out of his several group IDs on the SIM. In active state the subscriber can initiate voice group calls to that group. When in deactive state the subscriber can not make voice group calls to the group and the mobile station ignores any notification for that group.

If no NCH is defined in the cell, mobiles shall assume VGCS service is not available on that cell.

3GPP-CN1/SMG3WPA Meeting #12
Oahu/Hawaii, USA. 22-26 May, 2000

***Document* N1-000768**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

03.69	CR	A018	Current Version:	8.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG CN#8 *list expected approval meeting # here ↑*	for approval	X	strategic		*(for SMG use only)*
	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME	X	UTRAN / Radio		Core Network	X

Source: Nortel Networks **Date:** 25.05.00

Subject: VBS service accessibility

Work item: ASCI

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2
A	Corresponds to a correction in an earlier release			Release 96
B	Addition of feature			Release 97
C	Functional modification of feature			Release 98
D	Editorial modification			Release 99
				Release 00 X

Reason for change: Precise that if no NCH is defined on the cell, mobiles shall assume that VBS and VGCS services are not supported on this cell.

Clauses affected: 4.1

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications	X	→ List of CRs:	03.68 CR A027
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

4.1 Group definition

Service subscribers can become group members on a PLMN wide basis to one or more groups pre-defined in the network by a corresponding group identification (group ID). The membership enables them to receive voice broadcast calls associated with that group ID. In addition, certain group members are entitled by their subscription to initiate voice broadcast calls. Certain dispatchers connected to external networks also require the capability to initiate or receive voice broadcast calls.

In addition to subscriber details in the HLR, it is necessary for the mobile station to be aware of its group membership by storing details on the SIM. This is required because it shall respond to notification messages which include only the group ID (i.e. no IMSI or TMSI details).

Having become a group member, each service subscriber can set to active state or deactive state the group ID or any one out of his several group IDs on the SIM. In active state the subscriber can initiate voice broadcast calls to that group ID. When in deactive state the subscriber can not make voice broadcast calls to the group and the mobile station ignores any notification for that group ID.

If no NCH is defined in the cell, mobiles shall assume VBS service is not available on that cell.

3GPP-CN1/SMG3WPA Meeting #12
Oahu/Hawaii, USA. 22-26 May, 2000

Document* *N1-000769
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

03.68	**CR**	**A028**	Current Version:	8.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG CN#8	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]
(at least one should be marked with an X)

Source: Nortel Networks **Date:** 25.05.00

Subject: talker outside Group Call Area

Work item: ASCI

Category: *(only one category shall be marked with an X)*

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature	X		Release 98	
D	Editorial modification			Release 99	
				Release 00	X

Reason for change: Currently, the uplink is released if the talker leaves the GCA. If the talker is leaving the GCA the handover procedure shall be MSC controlled.

Clauses affected: 11.3.5.2

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications	X	→ List of CRs:	03.69 CR A019
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

11.3.5.2 Talking subscriber

Standard mobile station assisted handover shall be used for the cell change of the talking service subscriber as defined in GSM 05.08.

If the talking subscriber leaves the group call area or enters a BSC area not belonging to the service area, the uplink shall not be maintained by the network.

If the BSS does not know if one or more of the target cells are outside the group call area, the BSS shall use the MSC controlled handover procedure. The MSC shall reject the handover in the case that all target cells are outside the GCA and as an option release the uplink.

3GPP-CN1/SMG3WPA Meeting #12
Oahu/Hawaii, USA. 22-26 May, 2000

***Document* N1-000770**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

03.69	CR	A019	Current Version:	8.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG CN#8	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: (U)SIM [ ] ME [ ] UTRAN / Radio [ ] Core Network [X]
(at least one should be marked with an X)

Source: Nortel Networks **Date:** 25.05.00

Subject: Originator outside Group Call Area

Work item: ASCI

Category: *(only one category shall be marked with an X)*

F	Correction		**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature	X		Release 98	
D	Editorial modification			Release 99	
				Release 00	X

Reason for change: Currently, the call is released if originator leaves the GCA. If the originator is leaving the GCA the handover procedure shall be MSC controlled.

Clauses affected: 11.3.5.2

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications	X	→ List of CRs:	03.68 CR A028
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

11.3.5 Cell change

11.3.5.1 Listening subscriber

In all cases change of cell shall be initiated and performed by the service subscriber's mobile station. In order for the service subscribers changing from one cell to another within the group call area a cell list for the neighbouring cells belonging to this broadcast call area is periodically broadcast on the downlink SACCH of the voice broadcast call. In this case, mobile stations entering a new cell shall perform cell change according to the algorithm C2, see GSM 05.08 and GSM 03.22.

Mobile stations which want to enter a cell shall listen to the BCCH and to the NCH to determine which channel they shall retune to so that they can continue with the voice broadcast call if available in that cell.

NOTE: Mobile stations may require an additional receiver to read the BCCH and NCH of the neighbour cells in order to ensure a higher probability of receiving the relevant messages without degradation of the received speech quality. The additional receiver may be the same as used in subclause 11.3.1.3.

Mobile stations entering a new location area shall perform location updating as normal.

11.3.5.2 Calling subscriber

Standard mobile station assisted handover shall be used for the cell change of the calling subscriber as defined on GSM 05.08.

If the BSS does not know if one or more of the target cells are outside the group call area, the BSS shall use the MSC controlled handover procedure. The MSC shall reject the handover in the case that all target cells are outside the GCA and as an option release the call.

3GPP-CN1/SMG3WPA Meeting #12
Oahu/Hawaii, USA. 22-26 May, 2000

***Document* N1-000771**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

03.68	CR	A029	Current Version:	8.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG CN#8	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME	X	UTRAN / Radio		Core Network	X

Source: Nortel Networks **Date:** 25.05.00

Subject: Notification response & uplink reply procedure definition

Work item: ASCI

Category: *(only one category shall be marked with an X)*

F	Correction	X	**Release:**	Phase 2	
A	Corresponds to a correction in an earlier release			Release 96	
B	Addition of feature			Release 97	
C	Functional modification of feature			Release 98	
D	Editorial modification			Release 99	
				Release 00	X

Reason for change: Precise Uplink Reply and Notification Response Use and uplink freeing

Clauses affected: 4.2.1.1, 4.2.2.1

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications	X	→ List of CRs:	03.69 CR A020
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

4.2.1 Group call initiation

4.2.1.1 Normal operation with successful outcome

A group call area can be restricted to a single MSC area or can exceed one MSC area ~~(implementation option)~~.

A voice group call shall be initiated by a calling subscriber by a related MMI action for the service selection and the group ID dialled.

The MSC in which a voice group call is initiated obtains (by requesting the Group Call Register (GCR, see clause 5) the group call attributes.

This GCR interrogation after call initiation also determines whether the MSC shall act as anchor or as relay MSC. If the MSC is not the MSC then the call will be "forwarded" from the relay to the respective MSC (information also delivered by GCR) and further "call-establishment" is done by the anchor MSC as described in the following.

When a calling subscriber initiates a voice group call, one voice group call channel shall be established in each cell of the group call area and notifications for that call shall be sent in each of these cells. As an alternative, voice group call channels may only be established in cells in reaction to responses received from mobile stations on the notifications using notification response procedure. At the same time standard connections to dispatchers in the mobile network or in an external network shall be established.

A voice group call channel shall consist of a combined uplink/downlink. The uplink will be used exclusively by the presently talking service subscriber. All mobile stations of the listening service subscribers in one cell shall only listen to the same common downlink.

The calling subscriber shall have its dedicated standard ~~uplink/downlink~~ connection during call establishment and for the first period when he will be the talking service subscriber up to the time when the network decides that he shall join the voice group call channel. The mobile station of the calling subscriber shall then go to the voice group call channel and the dedicated standard ~~uplink/downlink~~connection shall be released. ~~From that moment on the calling subscriber shall be treated as all the other services subscribers.~~

Only one voice group call channel shall be established in each cell for any given voice group call, although there may be a number of simultaneous voice group calls within the same cell.

Service subscribers shall be notified on the voice group call in each cell. These voice group call notification messages shall be broadcast on the notification channel (NCH).

The notification messages use the group ID rather than individual TMSIs/IMSIs. Additionally, a group call area identification shall be included in order to enable a resolution in the case of overlapping group call areas. A service subscriber's mobile station needs to be able to recognise notification messages for those group IDs subscribed to and presently activated.

The network may also send messages on appropriate voice group call channel FACCHs, in order to notify group call members who may participate in other voice group calls. In addition, also paging information messages for standard calls may be sent in order to inform group call members on actually paged point-to-point calls.

Further the network may provide notification on the voice group call to service subscribers who have subscribed to the paged group ID and which are in dedicated mode. The process of broadcasting messages on NCHs is to be carried out throughout the call in order to provide the "late entry" facility whereby group members entering the area can join the call.

On receiving notification of a voice group call a group call member's mobile station shall adjust to the nominated channel to receive the voice group call if this channel was described in the notification message and receive the information on the downlink. Whilst receiving, the mobile station shall not transmit on the uplink SACCH. This group receive mode is different to the normal idle mode or dedicated mode. If no channel description was provided in the notification message, the mobile station shall establish a dedicated connection- by use of the notification response procedure in order to respond to the notification. The network may then provide the mobile station with a channel description for the voice group call.

As a further mobile station option, the mobile station may read its paging subchannel in the current cell while in group receive mode or in group transmit mode in order to receive paging messages for mobile terminated calls.

4.2.1.2 Exceptional procedures

Completion of links into congested cells where pre-emption did not occur is required.

On receiving details of a voice group call the user may choose to move to the notified call or the mobile station may automatically move to the notified call if the new call is of higher priority than the existing call and automatic acceptance applies for this priority level.

4.2.2 On-going group calls

4.2.2.1 Normal operation with successful outcome

Within each voice group call starting from the instant where the calling subscriber first becomes a listening service subscriber, one service subscriber has the access at any one time to the uplink of the voice group call channel and his speech is then broadcast on all voice group call channel downlinks accordingly. The mobile station of the talking service subscriber shall mute the downlink speech to avoid non intelligible echo's.

If more than one service subscriber apply to the uplink, contention resolution shall be performed in the network. Contention resolution shall be performed in the group call anchor MSC.

Additionally, in order to speed up the uplink access procedure, the BSS may grant the uplink prior to contention resolution being performed by the group call anchor MSC. This would mean that more than one service subscriber may access to the uplink and the respective speech may be combined in the group call bridge and broadcast onto all voice group call downlink channels during a transitional period. The anchor MSC shall then select one of the talking subscribers and pre-empt the uplink use of the other talking subscribers.

Dispatchers voice involved shall be broadcast on the voice group call channel downlink at any time. Mobile dispatchers are provided with a standard link and thus with an dedicated permanent uplink different from the voice group call channel.

All non-dispatcher group call members are provided with an indication on the voice group call channel of whether the uplink is in use. When the uplink is not in use, any non-dispatcher group call member can request access to the uplink. Any speech from dispatchers is combined with any speech from a talking service subscriber.

In case of one talking service subscriber plus a parallel talking dispatcher, the talking service subscriber's mobile station shall receive an indication by means of signalling from the network so that it can unmute the downlink.

The release of the uplink is triggered by the user and indicated by the mobile station to the network. The network shall then indicate to the listening mobile stations that the uplink is free.

Mobile stations in group receive mode use the group receive mode procedure (see GSM 03.22) to "camp-on" in a new cell to be able to listen to the group call channel. The mobile station may find the voice group call channel details of a new cell on the related NCH.

A network may decide not to establish voice group call channels in all cells. Instead, notifications containing no channel description may be provided. If a mobile station moves to such a cell, it must establish a dedicated connection and respond to the notification by use of the notification response procedure in order to receive the voice group call. The network may then establish a voice group call channel and inform the mobile station on the channel position.

A network may obtain knowledge on whether mobile stations are listening in a cell by sending an uplink access request in an uplink free message on the voice group call channel downlink when no talking service subscriber is present. Mobile stations receiving such a request shall use uplink reply procedure and send uplink access bursts on the voice group call channel uplink with the establishment cause "reply on uplink access request". If no uplink access bursts are received by the network, the network may decide to release the voice group call channel in that cell and then provide notifications containing no channel description.

NOTE: Concerning security aspects, whilst authentication and membership checking of mobile call originators and of mobile uplink users can be carried out, it is not possible to authenticate service subscribers in group receive mode if they have not before established a dedicated connection to responded to a notification. No equivalent of a group "TMSI" is provided to protect the "identity" of established voice group calls.

3GPP-CN1/SMG3WPA Meeting #12
Oahu/Hawaii, USA. 22-26 May, 2000

***Document* N1-000772**
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

03.69	CR	A020	Current Version:	8.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: TSG CN#8 *list expected approval meeting # here ↑*	for approval	X	strategic		*(for SMG use only)*
	for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME	X	UTRAN / Radio		Core Network	X

Source: Nortel Networks **Date:** 25.05.00

Subject: Notification response & uplink reply procedure definition

Work item: ASCI

Category: *(only one category shall be marked with an X)*			**Release:**	
F	Correction	X	Phase 2	
A	Corresponds to a correction in an earlier release		Release 96	
B	Addition of feature		Release 97	
C	Functional modification of feature		Release 98	
D	Editorial modification		Release 99	
			Release 00	X

Reason for change: Precise Uplink Reply and Notification Response Use

Clauses affected: 4.2.1.1, 4.2.2.1

Other specs affected:				
Other 3G core specifications		→ List of CRs:	03.68 CR A029
Other GSM core specifications	X	→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

4.2.1.1 Normal operation with successful outcome

A group call area ~~can be restricted to a single MSC area or~~ can exceed one MSC area ~~(implementation option)~~.

A voice broadcast call shall be initiated by a calling subscriber by a related MMI action for the service selection and the group ID dialled.

The MSC in which the voice broadcast call is initiated obtains (by requesting the Group Call Register (GCR, see clause 5) the group call attributes.

This GCR interrogation after call initiation also determines whether the MSC shall act as anchor- or as relay MSC. If the MSC is not the anchor-MSC then the call will be "forwarded" from the relay to the respective anchor-MSC (information also delivered by GCR) and further "call-establishment" is done by the anchor-MSC as described in the following.

When a calling subscriber initiates a voice broadcast call, one voice broadcast channel shall be established in each cell of the group call area and notifications for that call shall be sent in each of these cells. As an alternative, voice broadcast channels may only be established in cells in reaction to responses received from mobile stations on the notifications using notification response procedure. At the same time standard connections to dispatchers in the mobile network or in an external network shall be established.

The calling subscriber shall have an dedicated standard uplink/downlink. All mobile stations of the listening service subscribers in one cell shall only listen to the same common downlink (voice broadcast channel).

Only one voice broadcast channel shall be established in each cell for any given voice broadcast call, although there may be a number of simultaneous voice broadcast calls within the same cell.

Service subscribers shall be notified on the voice broadcast call in each cell. These voice broadcast call notification messages shall be broadcast on the notification channel (NCH).

The notification messages use the group ID rather than individual TMSIs/IMSIs. Additionally, a group call area identity (group call area ID) shall be included in order to enable a resolution in the case of overlapping group call areas. A service subscriber's mobile station needs to be able to recognize notification messages for those group IDs subscribed to and presently activated.

The network may also send messages on appropriate voice broadcast channel FACCHs, in order to notify voice broadcast call members who may participate in other voice broadcast calls. In addition , also paging information messages for standard calls may be sent in order to inform voice broadcast call members on actually paged point-to-point calls.

Further the network may provide notification on the voice group call to service subscribers who have subscribed to the paged group ID and which are in dedicated mode.

The process of broadcasting messages on NCHs is to be carried out throughout the call in order to provide the "late entry" facility whereby group members entering the area can join the call.

On receiving notification of a voice broadcast call a voice broadcast call member's mobile station shall adjust to the nominated channel to receive the broadcast call if this channel was received in the notification message and receive the information on the downlink. Whilst receiving, the mobile station shall not transmit on the uplink SACCH. This group receive mode is different to the normal idle mode or dedicated mode. If no channel description was provided in the notification message, the mobile station shall establish a dedicated connection by use of notification response procedure in order to respond to the notification. The network may then provide the mobile station with a channel description for the voice broadcast call.

As a further mobile station option, the mobile station may read its paging subchannel in the current cell while in group receive mode or in group transmit mode in order to receive paging messages for mobile terminated calls.

4.2.1.2 Exceptional procedures

Completion of links into congested cells where pre-emption did not occur is required.

If the cell in which the calling service subscriber is located is reset, the voice broadcast call shall be released.

On receiving details of a voice broadcast call the user may choose to move to the notified call or the mobile station may automatically move to the notified call if the new call is of higher priority than the existing call and automatic acceptance applies for this priority level.

4.2.2 On-going broadcast calls

4.2.2.1 Normal operation with successful outcome

Within each voice broadcast call only the voice of the calling subscriber shall be transmitted on the voice broadcast downlink channel.

Mobile stations in group receive mode use the group receive mode procedure (see GSM 03.22) to "camp-on" in a new cell to be able to listen to the voice broadcast channel. The mobile station may find the voice broadcast channel details of a new cell on the related NCH.

A network may decide not to establish voice broadcast channels in all cells. Instead, notifications containing no channel description may be provided. If a mobile station moves to such a cell, it must ~~must~~ establish a dedicated connection and respond to the notification by use of the notification response procedure in order to receive the voice broadcast call. The network may then establish a voice broadcast channel and inform the mobile station on the channel position.

A network may obtain knowledge on whether mobile stations are listening in a cell by sending an uplink access request in an uplink free message on the broadcast call channel downlink. Mobile stations receiving such a request shall use uplink reply procedure and send uplink access bursts on the broadcast call channel uplink with the establishment cause "reply on uplink access request". If no uplink access bursts are received by the network, the network may decide to release the broadcast call channel in that cell and then provide notifications containing no channel description.

NOTE: Concerning security aspects, whilst authentication and membership checking of mobile call originators can be carried out, it is not possible to authenticate service subscribers in group receive mode if they have not before established a dedicated connection to responded to a notification. No equivalent of a group "TMSI" is provided to protect the "identity" of established voice broadcast calls.

4.2.2.2 Exceptional procedures

If a mobile station in group receive mode indicates a failure due to radio link time-out, the mobile station shall behave as specified in GSM 05.08 and go back to idle mode, possibly in another cell, as determined by the cell re-selection algorithm. If a notification is received for the same cell, the mobile station shall try to reconnect.

3GPP-CN1/SMG3WPA Meeting #12
Oahu/Hawaii, USA. 22-26 May, 2000

Document ***N1-000773***
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

03.68	**CR**	**A030**	Current Version:	8.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG CN#8	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [X]

Source: Nortel Networks **Date:** 25.05.00

Subject: Release dataFlow correction

Work item: ASCI

Category: *(only one category shall be marked with an X)*

F	Correction	X
A	Corresponds to a correction in an earlier release	
B	Addition of feature	
C	Functional modification of feature	
D	Editorial modification	

Release:

Phase 2	
Release 96	
Release 97	
Release 98	
Release 99	
Release 00	X

Reason for change: Wrong message name on MS-BSS and ISUP interface

Clauses affected: 11.3.8

Other specs affected:

Other 3G core specifications		→ List of CRs:	
Other GSM core specifications	X	→ List of CRs:	03.69 CR A021
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

11.3.8 Overview of signalling

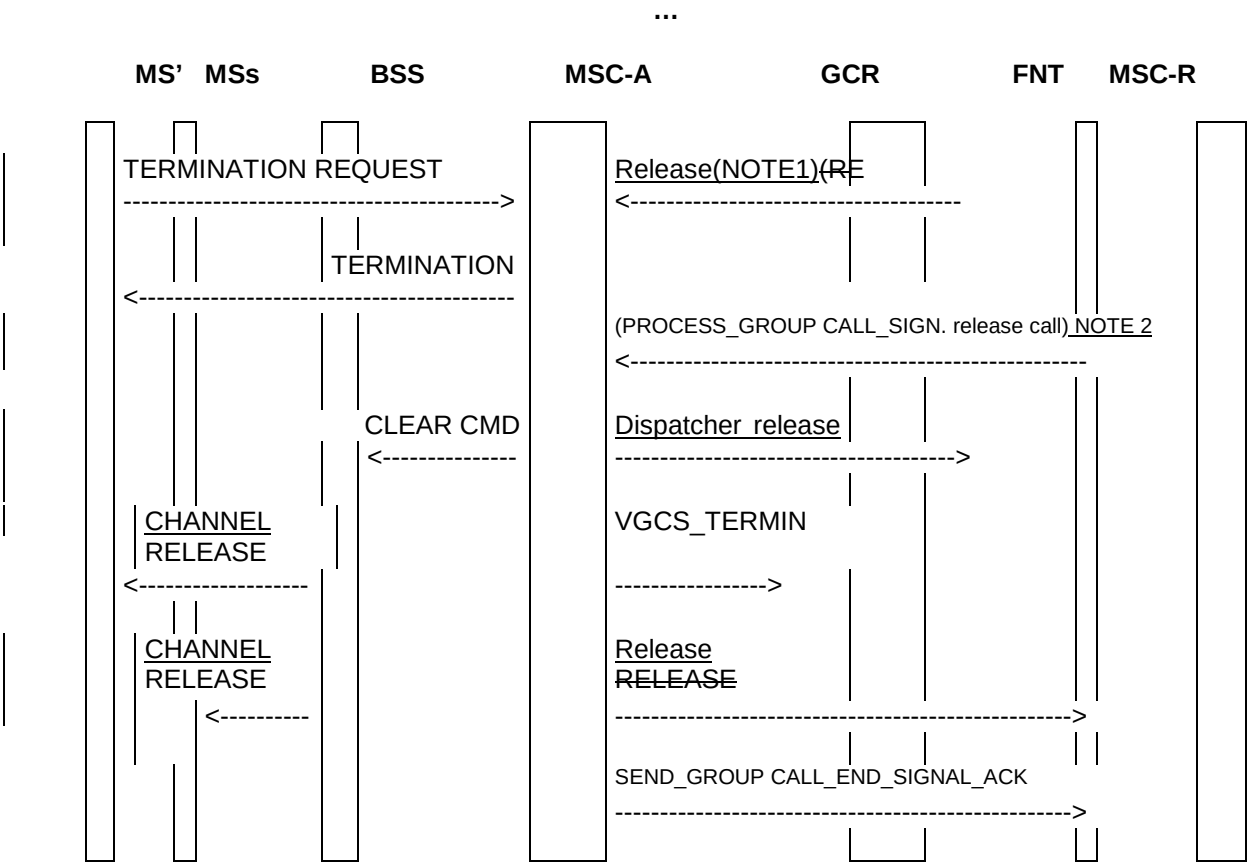

Figure 7: Signalling required to disconnect the group call

TERMINATION REQUEST: An authorized mobile station can send a TERMINATION REQUEST message to clear down the entire voice group call. To do this, the mobile station must have access to the uplink. The network has to check the IMSI to verify the calling subscriber. If the IMSI of the mobile station which has uplink access is presently not known to the network, the network shall send an identity request to the mobile station.

NOTE 1 : Alternatively an authorized dispatcher can terminate the voice group call in which case a ~~(RELEASE)~~release message is received from the external network.

NOTE 2 : Alternatively an authorized mobile station currently served by a relay MSC can clear down the entire group call in which case a PROCESS_GROUP CALL_SIGNALLING message indicating call release is received from the relay MSC.

CLEAR CMD: This message is sent from the MSC to all related cells to disconnect calls from the conference bridge and stop all periodic notifications for the voice group call to be released.

VGCS_TERMIN: The MSC informs the GCR that the voice group call with the related group call reference is terminated.

CHANNEL RELEASE: CHANNEL RELEASE messages are sent on all downlink FACCH to the service subscribers. The CHANNEL RELEASE messages shall be repeated for a predefined period in order to provide a high probability that the listening mobile stations receive the message.

CHANNEL RELEASE message is sent using I frame for the talker.

CHANNEL RELEASE messages are sent using UI frames for listeners.

In addition, ~~RELEASE~~ release messages are sent to all related dispatchers and relay MSCs.

SEND_GROUP CALL_END_SIGNAL_ACK: The dialogues to all relay MSCs are closed.

3GPP-CN1/SMG3WPA Meeting #12
Oahu/Hawaii, USA. 22-26 May, 2000

Document ***N1-000774***

e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

03.69	**CR**	**A021**	Current Version:	8.1.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG CN#8	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME	X	UTRAN / Radio		Core Network	X

Source:	Nortel Networks		**Date:**	25.05.00		
Subject:	Release dataFlow correction					
Work item:	ASCI					

Category: *(only one category shall be marked with an X)*				**Release:**		
	F	Correction	X		Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
	B	Addition of feature			Release 97	
	C	Functional modification of feature			Release 98	
	D	Editorial modification			Release 99	
					Release 00	X

Reason for change:	Wrong message name on MS-BSS interafce RELEASE is not an ISUP message then should not be capital letter
Clauses affected:	11.3.8

Other specs affected:				
	Other 3G core specifications		→ List of CRs:	
	Other GSM core specifications	X	→ List of CRs:	03.68 CR A0230
	MS test specifications		→ List of CRs:	
	BSS test specifications		→ List of CRs:	
	O&M specifications		→ List of CRs:	

Other comments:	

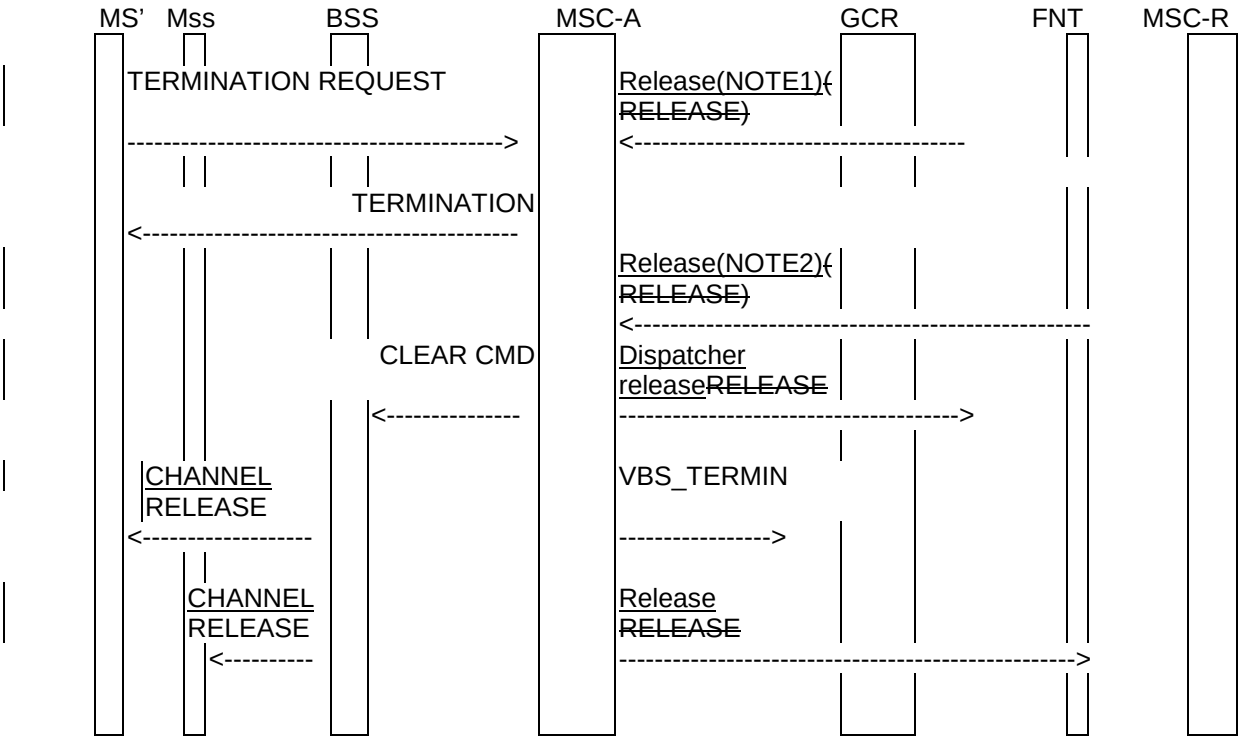

Figure 4: Signalling required to disconnect the voice broadcast call

TERMINATION REQUEST: The calling subscriber's mobile station can send a TERMINATION REQUEST message to clear down the entire voice broadcast call.

NOTE 1 : Alternatively an authorized dispatcher can terminate the voice broadcast call in which case a release~~(RELEASE)~~ message is received from the external network.

NOTE 2 : Alternatively the calling subscriber currently served by the relay-MSC can terminate the call in which case a release~~(RELEASE)~~ message is received from the relay MSC on the dedicated connection.

CLEAR CMD: This message is sent from the MSC to all related BSC to disconnect calls from the distribution function and stop all periodic notifications for the voice broadcast call to be released.

VBS_TERMIN: The MSC informs the GCR that the voice broadcast call with the related broadcast call reference is terminated.

CHANNEL RELEASE: CHANNEL RELEASE messages are sent to the calling subscriber and on all downlink FACCH to the service subscribers. The CHANNEL RELEASE messages shall be repeated for a predefined period in order to provide a high probability that the listening mobile stations receive the message.

CHANNEL RELEASE message is sent using I frame for the calling subscriber.

CHANNEL RELEASE messages are sent using UI frames for listeners.

In addition, release~~RELEASE~~ messages are sent to all related dispatchers and relay MSCs.