CN Plenary #7 **Tdoc xx-xx-xxx**
March 2000

Subject: VGCS Downlink Muting

Source: ASCI rapporteurs / STF 139/ UIC / Nortel / Siemens / Kapsch / Sagem, GSM-R SPECIAL TASK FORCE

The ASCI rapporteurs would like CN plenary to consider for approval the following group of CRs that have already been approved by all relevant manufacturing companies that are involved in the GSM-Railways project, and need further approval from ETSI.

The CRs have only impact on equipment implementing the ASCI feature Voice Group Call Service (VGCS). Companies currently implementing these features are Nortel, Siemens, Kapsch and Sagem.

The CRs to 03.68 have been distributed onto the CN distribution list and will be presented to CN#7.

The CRs (Releases 97 – category C3 – 98, 99) indicates that DTMF tones is recommended to be used for muting/ un-muting of the downlink of the talking subscriber in VGCS, CR applied to 03.68. Due to difficulties and lack of reliability with Voice Activated Detection (VAD) to mute and un-mute the dispatcher, it is recommended that DTMF tones are used.
The CR could not be presented to a subgroup before CN plenary as it is not clear under which group 03.68 is. For sure it is under the responsibility of SMG3, and thus for this reason should be presented to the SMG part of the CN plenary meeting.

Hopefully SMG 3 plenary will take some time in considering these CRs that are need for the progress of the GSM-R project and the ASCI services standardisation.

End of document

ETSI SMG3 ASCI

Tdoc U-00-078

Sophia Antipolis, STF139 & ASCI rapporteurs meeting
29 Feb – 3 March 2000

CHANGE REQUEST No : *Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.*

Technical Specification GSM 03.68 Version: 6.1.0

Submitted to SMG *list SMG plenary meeting no. here ↑* for approval [ ] for information [ ] without presentation ("non-strategic") [ ] with presentation ("strategic") [ ]

PT SMG CR cover form is available from: http://docbox.etsi.org/tech-org/smg/Document/smg/tools/CR_form/crf28_1.zip

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

Work item: ASCI

Source: STF 139 **Date:** 09.03.00

Subject: Recommendation to use DTMF tones for VGCS talking subscriber downlink un-muting.

Category: *(one category and one release only 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	[X]
Release 98	[ ]
Release 99	[ ]

Reason for change: Category C3.

Due to difficulties and lack of reliability with Voice Activated Detection (VAD) to mute and un-mute the dispatcher, it is recommended that DTMF tones are used.

Clauses affected: 4.2.2.1 and 7.1.

Other specs Affected:

Other releases of same spec	[X]	→ List of CRs: R98 and R99
Other core specifications	[ ]	→ List of CRs:
MS test specifications / TBRs	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

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<--------- double-click here for help and instructions on how to create a CR.

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.

DTMF tones should be used to mute and un-mute the downlink of the talking subscriber (the use of other means such as Voice Activity Detection (VAD) is for further study).

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 respond to the notification 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 on the voice group call channel downlink when no talking service subscriber is present. Mobile stations receiving such a request shall 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.

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7 Transmission

7.1 Transmission architecture

A conference bridge is required to connect the transmission paths of the nominated cells. The bridge is to be located within the group call anchor MSC. The group call anchor MSC is responsible for setting up all connections, both to the nominated cells (voice group call channels) in the group call anchor MSC and in any related group call relay MSC, and to the dispatchers. There shall be one link towards every relay MSC and a distribution function in the relay MSCs and from there one link per cell within the group call relay MSC which is involved in the voice group call, i.e. there shall be no secondary bridges in BSCs or group call relay MSCs (the distribution function is not a secondary bridge).

NOTE 1: The conference bridge shall not mute the uplink speech.

NOTE 2: As GSM Phase2+ evolves, distribution functions may be realised in the BSC.

A mechanism is required to indicate the downlink muting and uplink busy when the dispatcher is talking. ~~This~~ DTMF should be used for this mechanism~~ is for further study~~.

ETSI SMG3 ASCI

Tdoc U-00-0xx

Sophia Antipolis, STF139 & ASCI rapporteurs meeting
29 Feb – 3 March 2000

CHANGE REQUEST No : *Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.*

Technical Specification GSM 03.68 Version: 7.0.0

Submitted to SMG *list SMG plenary meeting no. here ↑* for approval [ ] for information [ ] without presentation ("non-strategic") [ ] with presentation ("strategic") [ ]

PT SMG CR cover form is available from: http://docbox.etsi.org/tech-org/smg/Document/smg/tools/CR_form/crf28_1.zip

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

Work item: ASCI

Source: STF 139 **Date:** 09.03.00

Subject: Recommendation to use DTMF tones for VGCS talking subscriber downlink un-muting.

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

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

Release:

Phase 2	
Release 96	
Release 97	
Release 98	X
Release 99	

Reason for change: Due to difficulties and lack of reliability with Voice Activated Detection (VAD) to mute and un-mute the dispatcher, it is recommended that DTMF tones are used.

Clauses affected: 4.2.2.1 and 7.1.

Other specs Affected:

Other releases of same spec	X	→ List of CRs:	R97 and R99
Other core specifications		→ List of CRs:	
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BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

help.doc

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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.

DTMF tones should be used to mute and un-mute the downlink of the talking subscriber (the use of other means such as Voice Activity Detection (VAD) is for further study).

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.

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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 respond to the notification 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.

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ETSI SMG3 ASCI

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Sophia Antipolis, STF139 & ASCI rapporteurs meeting
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Technical Specification GSM 03.68 Version: 8.0.0

Submitted to SMG *list SMG plenary meeting no. here ↑* for approval [ ] for information [ ] without presentation ("non-strategic") [ ] with presentation ("strategic") [ ]

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B	Addition of feature	[ ]		Release 97	[ ]
C	Functional modification of feature	[ ]		Release 98	[ ]
D	Editorial modification	[ ]		Release 99	[X]

Reason for change: Due to difficulties and lack of reliability with Voice Activated Detection (VAD) to mute and un-mute the dispatcher, it is recommended that DTMF tones are used.

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