MORANE Project Team

Title: Change Request

CHANGE REQUEST		MCR Number: *MCR 00-07.1*
MORANE Document		*FFFIS FOR SHUNTING MODE* *Ref. I 13/2 T 7001 2*
Status	Approved ☑ Rejected [ ] Postponed [ ]	
Source	*MORANE Project Team*	
Date	*26/10/00*	
Subject	Functional number for shunting	
Reason for change	Change of EIRENE numbering plan impacts this specification	
Consequence of not accepting this change	The MORANE shunting specification will not be aligned with the EIRENE requirements	
Details of change and sections affected	The length of the group call area ID is changed from 4 digits to 5 digits	
The following pages with the proposed changes marked are annexed	Section 5.1 ; 5.3 ; 6.1 and 6.3	
Impact on other specifications	*None*	
Impact on trials	*None*	
Other comments	*None*	

5 MAIN CONCEPTS

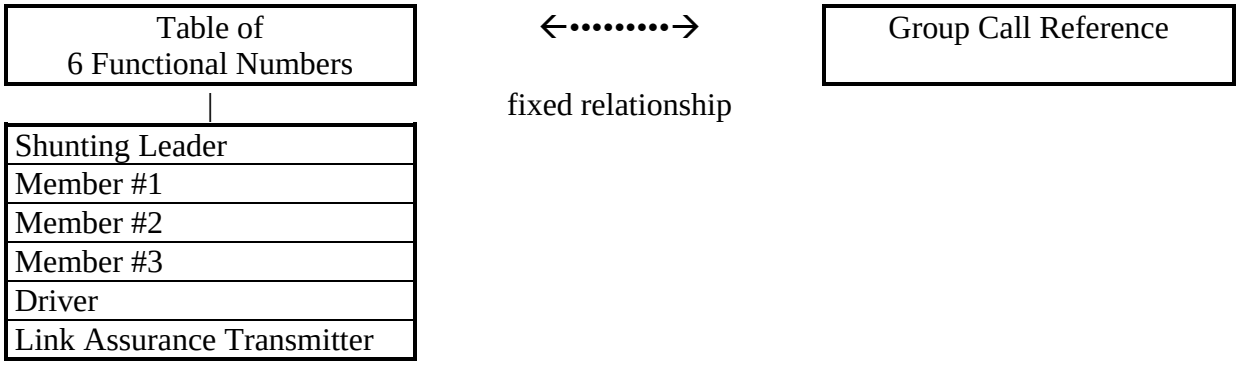
5.1 General

As a matter of principle for GSM-group calls (VGCS), the actual composition of groups is not known by the system. Activation of stored Group IDs on SIM allows listening to an actual Group Call. This is well suited for emergency calls but not for the envisaged use of group calls in shunting mode.
Shunting group calls need to be closed groups under control of the shunting leader who participates in the group call.
To overcome this problem and to provide the shunting leader with full control over the composition of his shunting team, the mechanism of functional addressing (FA) shall be used in parallel to the group call service.

For the GSM network this two services (VGCS and FA) are independent services. A fixed relationship of functional numbers and group call reference numbers is defined in the following chapters as a part of the railway numbering plan.

With this relationship of numbers, the application-part of the mobile equipment shall perform a procedure which is described in the following of this document.

Definition of relationship between Group Call Reference Numbers and Functional Numbers:



The complete number for a group call, the so called GROUP CALL REFERENCE is composed of two parts, the GROUP CALL AREA ID and the GROUP ID.
On the SIM only the GROUP ID is stored. The mobile (and its user) only references to this GROUP ID when joining a call thus making this kind of calls location dependent. VBS calls for link assurance signal interruption will carry the same GROUP CALL REFERENCE as given for the dedicated shunting group call.

Group Call Reference	=	Group Call Area ID	Group ID
max. 8 digits (qty. defined in GSM 03.68) (values defined by network-operator)		5 digits (qty. Defined in MORANE numbering plan) (values defined by network-operator)	3 digits (qty. Defined in MORANE numbering plan) (values defined in MORANE numbering plan)

When the shunting mode is invoked, a set of functional numbers is deduced from the group call reference number of the specific region. The amount of necessary functional number entries in the HLR_f of a network used for shunting can be figured out with the following formula:

Qty. of FNs	=	Qty. of shunting areas	**X**	Qty. of dedicated group IDs (20)	**x**	6

------- NEXT SECTION -------

5.3 Numbering scheme for functional numbers for shunting

The structure of functional numbers used for shunting as defined in the MORANE numbering plan is the following:

6 YYYYY S M XX

where

YYYYY is the 5 digit working area this shall equal the **GROUP CALL AREA ID** (defined here),

S is the team type = **5** (defined here)

M is the member with the following values (defined here)

0 **Shunting leader**
1 **Shunting member 1**
2 **Shunting member 2**
3 **Shunting member 3**
4 **Driver**
5 **Link Assurance Transmitter**
6 reserved
7 reserved
8 reserved
9 reserved

XX is the team number which is equal the last two digits of the group ID s of the Dedicated Shunting Groups (XX=01...20).

6 FUNCTIONAL DESCRIPTION

6.1 Procedure on operational radio

Every activation or de-activation of Group IDs mentioned in the following tables are to be performed on SIM.

If no shunting group ID is present on SIM, the shunting mode shall be unavailable.

6.1.1 Enter shunting mode

user action	application action – progress	Remarks
switch on mobile	Determine if any VGCS and VBS Group ID for shunting is already activated on SIM	necessary e.g. after battery change
	if any Shunting Group ID (VBS) is activated: de-activate VBS GID on SIM card and proceed with next step in this table	
	if any Shunting Group ID (VGCS) is activated: proceed with 'shunting-mode ON after interruption' procedure	
	if no such VGCS Group ID is activated: proceed with 'regular shunting-mode ON' procedure	

'regular shunting-mode ON' procedure

user action	application action progress	Remarks
select shunting mode dial area ID (5 digits)	Store area ID in non-volatile memory	
	Display selection list: * leader * member * exit - (leave shunting mode)	
	Activate VGCS Group ID 500 (common ID) Activate VGCS Group ID 599 (shunting emergency) de-activate Train emergency assign emergency button to shunting emergency number	
	Join to VGCS 500	

Shunting leader

user action	application action - progress	remarks
select leader + dial team number + dial amount of members	Register functional number of leader for selected team, store team-number and leader function-code in non-volatile memory, register spare members	
tell members to dial team-number plus member-number		using common group call VGCS 500
	Display selection list: * ID 500 * ID 5<team-number> * Leave Shunting Mode	
switch to team-ID	Originate Dedicated Group Call	start of conversation on dedicated group

Shunting member

user action	application action - progress	remarks
select member		wait for information (via Common Group ID) which Dedicated Group call to switch to
dial team number and member number (3 digits)	Register to related functional number	information given by shunting leader
	if unsuccessful: indicate this to user (error message) remain in Group 500, allow repetition	
	if successful: store the team-number plus the member-functional code on non volatile memory de-activate group ID 500 activate group ID related to team number	

'shunting-mode ON after interruption' procedure

user action	Application action - progress	remarks
	Return to previous state (performing the necessary checks)	

6.1.2 Leave shunting mode

'shunting-mode OFF' procedure for leader

user action	Application action - progress	remarks
leave shunting mode	Display selection list: * release group call * maintain group call * abort - (stay in shunting mode)	

release group call

user action	Application action - progress	remarks
select release	Release Dedicated Group call	the leader should inform his group members to de-register their member functional numbers before releasing the call
	de-activate all active shunting Group Ids excluding ID 599 (shunting emergency) deregister as leader activate train emergency Group ID assign emergency button to train emergency number de-activate shunting Group ID 599 (shunting emergency)	

maintain group call

user action	Application action - progress	remarks
select maintain		
	de-activate all active shunting Group Ids excluding ID 599 (shunting emergency) activate train emergency Group ID assign emergency button to train emergency number de-activate shunting Group ID 599 (shunting emergency)	leader remains registered to Dedicated Group call

'shunting-mode OFF' procedure for member

user action	Application action - progress	remarks
leave shunting mode	de-activate all active shunting Group IDs excluding ID 599 (shunting emergency) de-register as member activate train emergency Group ID assign emergency button to train emergency number de-activate shunting Group ID 599 (shunting emergency)	

6.2 Procedure on cab radio

Every activation or de-activation of Group IDs mentioned in the following tables are to be performed on SIM.

6.2.1 Enter shunting mode

user action	Application action - progress	remarks
power on	Determine if any of Group IDs for shunting is already activated on SIM	necessary e.g. after engine battery change
	if any Shunting Group ID (VBS) is activated: de-activate VBS GID on SIM card and proceed with next step in this table	
	if any shunting Group ID (VGCS) is active: proceed with 'shunting-mode ON after interruption' procedure	
	if no shunting Group ID is active: proceed with 'regular shunting-mode ON' procedure	

'regular shunting-mode ON' procedure

user action	Application action - progress	remarks
select shunting mode dial area ID (5 digits)	Store area ID in non-volatile memory	driver is never shunting leader
	Activate Group ID 500 (common ID) activate Group ID 599 (shunting emergency) de-activate Train emergency assign emergency button to shunting emergency number	
	join to Group call 500	
		wait for information (via Common Group ID) which Dedicated Group call to switch to
dial team number (2 digits)	register to related functional number	information given by shunting leader
	if unsuccessful: indicate this to user (error message) remain in Group 500, allow repetition	
	if successful: de-activate group ID 500 activate Dedicated Group ID related to team number	
	join Dedicated Group Call	

'shunting-mode ON after interruption' procedure

user action	application action – progress	remarks
	return to previous state (performing the necessary checks)	