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ERTMS/GSM-R OPERATORS GROUP	Document Nos. O-2120 E-2333 Change Control Reference No. _____

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Source:	**ARCOR AG**
Author:	**Klaus-Dieter Masur**
Date:	**13 June 2001**
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Specification:	EIRENE SRS V 13.0
Subject:	9 Numbering Plan
Reason for change:	Inconsistency between paragraph 9.10.1 (table 9-12: 902-999) and table 9B-1
Other remarks:	Approved by GSM-R Industry Group

9.10 Access to external networks

9.10.1 Access to other GSM-R networks and private networks shall be performed by using a Breakout Code (BC), defined in table 9-12, followed by the full national or international number of the called party. (M)

Breakout Code	Network
900	other GSM-R network (International EIRENE Numbering plan as defined in subsection 9.6)

901	gateway to private railway network (private numbering plan)
902 - 9909	***Reserved for national ~~use~~breakout codes***

Table 9-12: ~~Private network~~ Breakout Codes

Note: according to table 9-1 of paragraph 9.5.4 all other CT9 numbers are for national use

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ERTMS/GSM-R OPERATORS' GROUP	Document No. O-2135 Change Control reference No. _____
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Source:	**Operators' Group**
Author:	**Simon Wootton**
Date:	**20 August 2001**
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Specification:	EIRENE SRS V 13.0
Subject:	14 Shunting Mode
Reason for change:	Area ID should be 5 digits
Other remarks:	None

14.2 System requirements: Operational Radio

Enter shunting mode

14.2.1 On entering shunting mode, the operational radio shall determine if any shunting group ID is already activated on the SIM. (M)

14.2.2 If a shunting group ID is activated, the operational radio shall proceed to re-establish the group call. (M)

14.2.3 If no shunting group ID is activated, the operational radio shall initiate a "regular shunting mode ON" procedure as detailed in table 14-1. (M)

User Action	Application action
Select shunting mode. Dial area ID (~~4~~ 5 digits).	Store area ID in non-volatile memory.
	Display selection list: – leader; – member; – exit (leave shunting mode).

	Activate group ID 500 (Common Shunting Group)*. Activate group ID 599 (Shunting Emergency)*. De-activate train emergency. Assign emergency button to shunting emergency number.
	Join the Common Shunting Group call (ID 500).

* "Activate group ID" means to activate voice group call reception on the mobile for these groups.

Table 14-1: Operational radio "regular shunting mode ON" procedure

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ERTMS/GSM-R OPERATORS' GROUP	Document No: O-2136 ~~SRS2001-2~~ Change Control Reference No.
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Author:	Simon Wootton
Date:	20 August 2001
Pages:	~~1~~2
Status:	APPROVED: ..... (date) 11.06.02 Robert Sarfati, Chairman, UIC ERTMS/GSM-R Operators Group ..... (date) 31.05.02 Klaus Konrad, UIC ERTMS/GSM-R Project Manager

Specification:	EIRENE SRS V 13.0
Subject:	14 Shunting Mode
Reason for change:	Area ID should be 5 digits
Other remarks:	None

14.3 System requirements: Cab radio

Enter shunting mode

14.3.1 On entering shunting mode, the Cab radio shall determine if any shunting group ID is already activated on the SIM. (M)

14.3.2 If a shunting group ID is activated, the Cab radio shall proceed to re-establish the group call. (M)

14.3.3 If no shunting group ID is activated, the Cab radio shall initiate a "regular shunting mode ON" procedure as shown in table 14-7. (M)

User Action	Application action
Select shunting mode. Dial area ID (54 digits).	Store area ID in non-volatile memory.
	Activate group ID 500 (Common Shunting Group). Activate group ID 599 (Shunting Emergency).

	De-activate train emergency and assign emergency button to shunting emergency number.
	Join the Common Shunting Group call (ID 500).
Wait for information (via Common Shunting Group) regarding which dedicated group call to switch to. Dial shunting group number (2 digits).	Register to the related Functional number. If unsuccessful, indicate this to the user and remain in the Common Shunting Group. Allow repetition.
	If successful, deactivate group ID 500. Activate dedicated group ID and join the group call.

Table 14-7: Cab radio "regular shunting mode ON" procedure

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ERTMS/GSM-R OPERATORS' GROUP	**Document No. O-2137** **Change Control Reference No._____**
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Source:	**Operators' Group**
Author:	**Simon Wootton**
Date:	**20 August 2001**
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Specification:	EIRENE SRS V 13.0
Subject:	6 General Purpose Radio
Reason for change:	Temperature range should be in line with GSM TW.09
Other remarks:	None

Electrical

6.4.5 General purpose radios shall be equipped with rechargeable batteries capable of providing a minimum of eight hours operation over the temperature range -~~10~~+18°C to +~~55~~+25°C from a single charge, based on the following cycle (see section 4.5.21): (M)

- point-to-point calls 20%;
- group calls 5%;
- standby 75%.

6.4.6 Changing the battery shall not result in the loss of data stored in the radio. (M)

6.4.7 The General purpose radio shall be suitable for use with a car adapter kit. (M)

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ERTMS/GSM-R OPERATORS' GROUP	Document No. O-2138 Change Control Reference No. _____
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Specification:	EIRENE SRS V 13.0
Subject:	9 Numbering Plan
Reason for change:	Add reference to ITU-T E.164
Other remarks:	Also added to references section (see next CR)

9.6.4 The fields of an International Functional Number shall be defined as follows: (M)

1) International Code (IC)

The International Code field shall consist of three digits and shall be based on the [ITU-T E.164] country code (XCC or CCC), allocated by the UIC on a network-by-network basis.

2) National EIRENE Number (NEN)

The format of the National EIRENE Number field shall be as defined in subsection 9.5.

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ERTMS/GSM-R OPERATORS' GROUP	Document No. O-2139 Change Control Reference No. _____
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Specification:	EIRENE SRS V 13.0
Subject:	References
Reason for change:	Add reference to ITU-T E.164
Other remarks:	Also added to references section (see SCR 01-290.1)

A.2 List of informative references

Specification	Title
CEPT 25-09	CEPT Recommendation T/R 25-09 E (Chester 1990, revised at Budapest 1995), 'Designation of frequencies in the 900 MHz band for railway purposes'
ERTMS COMMS	'Summary of ERTMS communications requirements', EEIG document number: 97E7377-v7, 31 July 1998
ETS 300 086	'Radio Equipment and Systems, Land Mobile Service, Technical characteristics and test conditions for radio equipment with an internal or external RF connector intended primarily for analogue speech'
ITU-T E.164	'The international public telecommunication numbering plan', May 1997
MORANE FFFIS MTI	'FFFIS for Mobile Terminal interface of the EIRENE Mobile Station', MORANE F 12 T 7003 2
MORANE SM FFFIS	'FFFIS for Shunting Mode', MORANE I 13/2 T 7001 2
MORANE SSRS	'Sub System Requirements Specification', MORANE A 04/22 T 6002 3
UIC 438-1	'Standard numerical marking of hauled passenger stock', UIC Fiche 438-1, 2nd edition, 1 January 1988, one amendment included.
UIC 438-3	'Identification marking for tractive stock', UIC Fiche 438-3, 1st edition, 1

	January 1971, three amendments included.
UIC 558-1	'Remote control and data cable – Standard technical features for the equipping of RIC coaches', UIC Fiche 558, 1st edition, 1 January 1996
UIC 568-3	'Loudspeaker and telephone systems in RIC coaches – Standard technical characteristics', UIC Fiche 568, 3rd edition, 1 January 1996
UIC 651	'Layout of cabs in locomotives, railcars, multiple units and driving trailers', UIC Fiche 651 (1st Edition), January 1986

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ERTMS/GSM-R OPERATORS' GROUP	Document No. O-2140 Change Control Reference No. _____
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Specification:	EIRENE SRS V 13.0
Subject:	9 Numbering Plan
Reason for change:	Add reference to ITU-T E.164
Other remarks:	Also added to references section (see SCR 01-289.1)

9.10 Access to external networks

9.10.1 Access to other GSM-R networks and private networks shall be performed by using a Breakout Code (BC), defined in table 9-12, followed by the full national or international number of the called party. (M)

Breakout Code	Network
900	other GSM-R network (International EIRENE Numbering plan as defined in subsection 9.6)
901	gateway to private railway network (private numbering plan)
902 - 999	***Reserved for national use***

Table 9-12: Private network Breakout Codes

9.10.2 The GSM-R network shall allow users direct access to public networks, subject to call barring restrictions. (M)

9.10.3 Where access to public networks is allowed, this shall be performed by using an Access Code (AC), defined in table 9-13, followed by the national or international number of the called subscriber as defined in ~~the~~ [ITU-T E.164] ~~Recommendations~~. (M)

9.10.4 The Access Code shall be presented to the public network as part of the called number. (M)

Access Code	Network
00	International PSTN calls
01 - 09	National PSTN calls

Table 9-13: PSTN Access Codes

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ERTMS/GSM-R OPERATORS' GROUP	Document No: O-2148 SRS2001-8 Change Control Reference No.

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Author:	**Simon Wootton**
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Specification:	EIRENE SRS V 13.0
Subject:	5 Cab Radio
Reason for change:	Inconsistent with FRS 5.3.5
Other remarks:	

Electrical

5.7.13 The Cab radio shall comply with draft European standard [prEN 50124 part 1] concerning insulation co-ordination with reference to clearances and creepages. (M)

5.7.14 An emergency power supply ~~shall~~ should be provided for Cab radios which will enable the driver's radio to continue to operate for a period of 6 hours in the event of failure of the train's main power supply, based on the following cycle (see section 4.5.21): (~~M~~O)

- point-to-point calls 20%;
- group calls 5%;
- standby 75%.

5.7.15 The Cab radio equipment shall be capable of withstanding the following changes to the main and backup power supplies without interrupting normal operation: (M)

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ERTMS/GSM-R OPERATORS' GROUP	Document No: O-2156 Change Control Reference No. _____
Title:	**SCR 01-294.1**
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Author:	**Simon Wootton**
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Specification:	EIRENE SRS V 13.0
Subject:	5A Handling of calls
Reason for change:	Requires elaboration
Other remarks:	

5A.3 Call termination of incoming calls table

Type of call	Replacing handset	Clearing call	Notes
Point to point	Call terminated	Call terminated	(1)
Multi-party call (normal)	Leave the call (call still remains ongoing between other parties if more than one user remains in the call)	Leave call (call still remains ongoing between the other parties if more than one user remains in the call)	(1)
Voice Broadcast call (normal)	Voice to loudspeaker	Leave call	(1)
Voice Group call (normal)	Voice to loudspeaker	Leave call	(1)
Multi-party call (other drivers same train)	Voice to loudspeaker	No change (*)	(2)
Voice Broadcast call (emergency)	Voice to loudspeaker	No change (*)	(2)

Group call (emergency)	Voice to loudspeaker	No change (*)	(2)

(*) Leave call is acceptable too, if easier to achieve. In the case of emergency calls, the information of the action shall be reported by the confirmation message.

(1) Action by the driver on using the "Emergency", "Intercom" or "Public Address" functions has the same effect as activating the 'Call clear' procedure

(2) If the driver activates the "Intercom" or "Public Address" procedures, the emergency call is transferred to the loudspeaker.

Table 5A-3: Effect of handset replacement/call clearing - incoming calls

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ERTMS/GSM-R OPERATORS' GROUP	Document No: O-2157 Change Control Reference No. _____
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Author:	**Simon Wootton**
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Specification:	EIRENE SRS V 13.0
Subject:	5A Handling of calls
Reason for change:	Incorrectly specified
Other remarks:	

5A.2 Call termination of outgoing calls table

Type of call	Replacing handset	Clearing call	Notes
Point-to-point	Call terminated	Call terminated	(1)
Multi-party call (normal)	Call terminated	Call terminated	(1)
Voice Broadcast call (normal)	Call terminated	Call terminated	(1)
Group call (normal)	Call terminated	Call terminated	(1)
Multi-party call (other drivers same train)	Voice to loudspeaker	Call terminated	(2)
~~Voice Broadcast call (emergency)~~	~~Call terminated~~	~~Call terminated~~	~~(2) (3)~~
Voice Group call (emergency)	Voice to loudspeaker	Call terminated	(2) (3)

(1) Action by the driver on using the "Emergency", "Intercom" or "Public Address" functions has the same effect as activating the 'Call clear' procedure

(2) If the driver activates the "Intercom" or "Public Address" procedures, the emergency call is transferred to the loudspeaker.
(3) Call can also be cleared by the Controller.

Table 5A-2: Effect of handset replacement/call clearing - outgoing calls

5A.3 Call termination of incoming calls table

Type of call	Replacing handset	-Clearing call	Notes
Point to point	Call terminated	Call terminated	(1)
Multi-party call (normal)	Leave call	Leave call	(1)
Voice Broadcast call (normal)	Voice to loudspeaker	Leave call	(1)
Voice Group call (normal)	Voice to loudspeaker	Leave call	(1)
Multi-party call (other drivers same train)	Voice to loudspeaker	No change (*)	(2)
Voice Broadcast call (emergency)	Voice to loudspeaker	No change (*)	(2)
Group call (emergency)	Voice to loudspeaker	No change (*)	(2)

(*) Leave call is acceptable too, if easier to achieve. In the case of emergency calls, the information of the action shall be reported by the confirmation message.
(1) Action by the driver on using the "Emergency", "Intercom" or "Public Address" functions has the same effect as activating the 'Call clear' procedure
(2) If the driver activates the "Intercom" or "Public Address" procedures, the emergency call is transferred to the loudspeaker.

Table 5A-3: Effect of handset replacement/call clearing - incoming calls

UNION INTERNATIONALE DES CHEMINS DE FER
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ERTMS/GSM-R OPERATORS' GROUP	Document No: O-2158 Change Control Reference No. _____

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Specification:	EIRENE SRS V 13.0
Subject:	5A Handling of calls
Reason for change:	Incorrectly specified
Other remarks:	

5A.1 Call arbitration table

On-going call	New call	Result	Comment
Emergency (Railway emergency call)	Emergency (driver initiated)	No change *	(*) At least displayed to the controller
	Intercom (driver initiated)	Intercom connected (2)	
	PA (driver initiated)	PA connected (2)	
	Call chief conductor (driver initiated)	Emergency call maintained, new call sent by UIC Intercom link (3)	
	Other incoming calls (including other emergency calls)	Emergency is kept Incoming call is indicated	
Other drivers same area (group call)	Emergency (driver initiated)	On-going call is released and emergency call established	
	Public Address (driver initiated)	PA connected (2)	

On-going call	New call	Result	Comment
	Call chief conductor (driver initiated)	Call sent by UIC Intercom link (3)	
	Intercom (driver initiated)	Intercom connected (2)	
	Emergency (controller initiated)	Call is released Emergency call connected	
	Other incoming calls	On-going call is maintained and incoming call is clearly indicated.	

On-going call	New call	Result	Comment
Controller (all types)	Emergency (driver initiated)	On-going call is released and emergency call established	
	Public Address (driver initiated)	PA connected Controller is released	
	Call chief conductor (driver initiated)	Call sent by UIC Intercom link (3)	
	Intercom (driver initiated)	Intercom connected (2) Controller is released	
	Other outgoing calls (driver initiated)	New call connected On-going call put on hold	
	Emergency (controller initiated)	On-going call is released and emergency call established	
	Other drivers in same area	On-going call is released and incoming call established	
	Other incoming calls	On-going call is maintained and incoming call is clearly indicated	
Other drivers same train (multiple driver communications by radio link) (7)	Emergency (driver initiated)	On-going call is released and emergency call established	Leading driver may re-establish call to non leading drivers at the end of emergency call
	Public Address (driver initiated)	PA connected (2)	
	Call chief conductor (driver initiated)	Call sent by UIC Intercom link (3)	
	Emergency (controller initiated)	On-going call is released and emergency call established	
	Intercom (driver initiated)	Intercom connected (2)	
	Other outgoing calls (driver initiated)	New call connected Multi-driver communication put on hold	
	Call to controller (driver initiated)	Call connected	Multi-driver communications placed on hold or driver may add controller to multi-driver communication
	Other drivers same area (incoming)	On-going call is released and incoming call established	
	Other incoming calls from controller	On-going call is maintained and the controller is added	
	Other incoming calls	On-going call is maintained and incoming call is clearly indicated	

On-going call	New call	Result	Comment
Public Address (over radio link)	Emergency (driver initiated)	PA call is released and emergency call established	
	Public Address (driver initiated)	No change (6)	
	Call chief conductor (driver initiated)	Call sent (by PA or radio)	
	Intercom (driver initiated)	PA releasedretained Intercom connected	
	Call controller (all types)	PA released Call sent	
	Intercom (controller initiated) Emergency (controller initiated) Other drivers in same area and Controller (all types)	PA released Incoming call received	
	Other calls	PA call is maintained, incoming call is indicated	
PA (not radio link)	Emergency (driver initiated)	PA call is released and emergency call established	
	Call controller (all types)	PA released Call sent	
	Public Address (driver initiated)	No change (6)	
	Call chief conductor (driver initiated)	Call sent (by PA or radio)	
	Intercom (driver initiated)	PA released Intercom connected	
	Other calls	PA kept (4) Incoming call received (5)	

On-going call	New call	Result	Comment
Intercom (over radio link)	Emergency (driver initiated)	Intercom released Emergency sent	
	Public Address (driver initiated)	Intercom released PA connected	
	Call chief conductor (driver initiated)	Call sent (by PA or radio)	
	Intercom (driver initiated)	No change	
	Call controller (all types)	Intercom released Call sent	
	Other calls	Intercom released Call received	
Intercom (not over radio link)	Emergency (driver initiated)	Intercom released Emergency sent	
	Public Address (driver initiated)	Intercom released PA connected	
	Call chief conductor (driver initiated)	Call sent (by PA or radio)	
	Intercom (driver initiated)	No change	
	Other calls	Intercom kept (4) Incoming call received (5)	

Key:

1. Except broadcast
2. Radio call transferred to the loudspeaker
3. No change if no UIC Intercom link
4. On handset
5. On loudspeaker
6. No access if PA is busy by other
7. Lead driver only

Note: Change Network and Registration/Deregistration are not possible during a call.

Table 5A-1: Call arbitration rules

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ERTMS/GSM-R OPERATORS' GROUP	Document Nos: O-2267 F-0070 Change Control Reference No. _____

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Specification:	EIRENE SRS V13.0 & EIRENE FRS V5.0
Subject:	List of definitions
Reason for change:	Primary and Secondary Controller definitions need improving

Primary controller

The location and direction of movement of any particular train permits the unique identification of a Primary Controller. The Primary Controller is currently the co-ordinator of train emergency calls. The Primary Controller is normally responsible for the operation of a designated area of track. The exact responsibilities of the Primary Controller are determined on a national basis.

~~The location and direction of movement of any particular train permits the identification of a unique controller who has primary responsibility for that train (eg the controller who is the first point of contact in an emergency). This controller is termed the primary controller.~~

Secondary controller

A Secondary Controller is a train controller who holds responsibility for the safe running of trains on a designated area of track (e.g. a signaller). Secondary Controllers require the facility to communicate with trains in all situations in order to perform their function. The split of responsibilities between Primary Controllers and Secondary Controllers is determined on a national basis.

~~Any controller who is not a primary controller. A given train and its location and direction will uniquely define a secondary controller.~~