

# ETSI TS 102 281 V2.4.0 (2015-01)



## **Railways Telecommunications (RT); Global System for Mobile communications (GSM); Detailed requirements for GSM operation on Railways**

**STANDARD PREVIEW**  
(stamp from iteh.ai)  
Full standard text: <https://standards.iteh.ai/catalog/standards/sist/b8fe444e-88d7-4ead-af1f-d109fb477f0d/etsi-ts-102-281-v2.4.0-2015-01>



---

**Reference**

RTS/RT-0031

---

**Keywords**

GSM, GSM-R, R-GSM, UIC

**ETSI**

650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88

---

**Important notice**

The present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, please send your comment to one of the following services:

[http://portal.etsi.org/chaircor/ETSI\\_support.asp](http://portal.etsi.org/chaircor/ETSI_support.asp)

---

**Copyright Notification**

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2015.

All rights reserved.

**DECT™**, **PLUGTESTS™**, **UMTS™** and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members. **3GPP™** and **LTE™** are Trade Marks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

**GSM®** and the GSM logo are Trade Marks registered and owned by the GSM Association.

---

# Contents

Intellectual Property Rights .....	4
Foreword.....	4
Modal verbs terminology.....	4
1 Scope .....	5
2 References .....	5
2.1 Normative references .....	5
2.2 Informative references.....	5
3 Abbreviations .....	5
4 CRs required for operation of GSM on Railways to be added to the normative references of ETSI EN 301 515 .....	6
4.0 General descriptions of CRs .....	6
4.1 CRs applicable to the TSs already listed as normative references of ETSI EN 301 515.....	6
4.2 CRs applicable to TSs not yet listed as normative references of ETSI EN 301 515 .....	17
<b>Annex A (informative): Bibliography.....</b>	<b>20</b>
History .....	21

**iTeh STANDARD PREVIEW**  
 (standards.iteh.ai)  
 Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/b81e444e-88d7-4ead-af1f-d109fb477f0d/etsi-ts-102-281-v2.4.0>  
 2015-01

---

## Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://ipr.etsi.org>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

---

## Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Railway Telecommunications (RT).

---

## Modal verbs terminology

In the present document "shall", "shall not", "should", "should not", "may", "may not", "need", "need not", "will", "will not", "can" and "cannot" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"must" and "must not" are **NOT** allowed in ETSI deliverables except when used in direct citation.

iTeh STANDARD PREVIEW  
(standards.iteh.ai)  
Full standard:  
https://standards.iteh.ai/catalog/standards/sist/b8fe444e-88d7-4ead-af1f-d109fb477f0d/etsi-ts-102-281-v2.4.0-2015-01

---

# 1 Scope

The present document collects all the 3GPP Change Requests (CRs) required for operation of GSM for Railways. It complements ETSI EN 301 515 [1].

---

## 2 References

### 2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

- [1] ETSI EN 301 515 (V2.3.0): "Global System for Mobile communication (GSM); Requirements for GSM operation on railways".

### 2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable.

---

## 3 Abbreviations

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

3GPP	Third Generation Partnership Project
ASCI	Advanced Speech Call Items
AT	ATtention
BSSAP	Base Station Subsystem Application Protocol
CCWA	Control of Call WAIting
CR	Change Request
DTMF	Dual-Tone Multi-Frequency
FFN	Follow me Function Node
IMSI	International Mobile Subscriber Identity
NCH	Notification CHannel
OTDI	Originator-To-Dispatcher Information
PCH	Paging CHannel
SMS	Short Message Service
SS	Supplementary Service

SSN                      Sub-System Number  
 VGCS                    Voice Group Call Services

## 4 CRs required for operation of GSM on Railways to be added to the normative references of ETSI EN 301 515

### 4.0 General descriptions of CRs

GSM on Railways is fully specified by all the GSM/3GPP TSs listed as normative references of ETSI EN 301 515 [1], clause 2.1, and by all the CRs listed in the present document.

Clause 4 of the present document lists the CRs as well as a short description of each CR.

Table 1 contains the CRs applicable to the TSs already listed as normative references of ETSI EN 301 515 [1], while table 2 contains the CRs applicable to TSs not (yet) listed as normative references of ETSI EN 301 515 [1].

The CRs listed here are contained in archive ts\_102281v020400p0.zip which accompanies the present document.

NOTE: The 3GPP/SMG CR database is the authoritative repository of the status of CRs presented in SMG/3GPP groups. This database can be found at: [ftp://ftp.3gpp.org/Information/Databases/Change\\_Request/](ftp://ftp.3gpp.org/Information/Databases/Change_Request/).

### 4.1 CRs applicable to the TSs already listed as normative references of ETSI EN 301 515

For each TS listed as a normative reference of ETSI EN 301 515 [1], table 1 lists the CRs necessary for GSM R operation. Where a newer version of the TS was produced from that listed in ETSI EN 301 515 [1], the table also identifies the latest applicable release 99 version of the TS.

The first and second columns (Index and Specification) of table 1 are identical to the table of clause 2.1 in ETSI EN 301 515 [1]. Where the specification has been renumbered in Releases post Rel-99, the corresponding specification for Rel-4 and later is also provided for information.

The third and fourth columns identify the required CRs and their purpose. Where the specification was updated in Release 99 to a later version of that which is listed in ETSI EN 301 515 [1], the latest Release 99 version is shown in column 3/4.

**Table 1: CRs required for GSM R operation that are applicable to the TSs already listed as normative references of ETSI EN 301 515 [1]**

Identification of the specifications as per clause 2.1 of ETSI EN 301 515 [1]		Applicable CRs and/or latest release 99 version	
Index	Specification	Applicable CR	Purpose
[1]	ETSI TS 100 590: "Digital cellular telecommunications system (Phase 2+) (GSM); Mobile-services Switching Centre - Base Station System (MSC - BSS) interface; Layer 3 specification (GSM 08.08 version 8.5.0 Release 1999)". <i>For information, becoming in Rel-4 and later:</i> ETSI TS 148 008: "Digital cellular telecommunications system (Phase 2+); Mobile Switching Centre - Base Station system (MSC-BSS) interface; Layer 3 specification (3GPP TS 48.008)".	ETSI TS 100 590: "Digital cellular telecommunications system (Phase 2+); Mobile-services Switching Centre - Base Station System (MSC - BSS) interface; Layer 3 specification (3GPP TS 08.08 version 8.15.0 Release 1999)". CR 0001 to 48.008 Rel-4 in GP-000034, approved at GP-01 CR 0114r6 to 48.008 Rel-6 in GP-041711, approved at GP-20 CR 0120 to 48.008 Rel-6 in GP-040952, approved at GP-19	VBS/VGCS assignment request message can be piggy-backed in a SCCP Connection Request message VGCS Queuing and Pre-emption Handling Incorrect length of group call reference IE

Identification of the specifications as per clause 2.1 of ETSI EN 301 515 [1]		Applicable CRs and/or latest release 99 version	
Index	Specification	Applicable CR	Purpose
		CR 0149 to 48.008 Rel-6 in GP-050260, approved at GP-23	Group Call Reference handling by the MSC
		CR 0151r3 to 48.008 Rel-6 in GP-050855, approved at GP-24	Correction of VGCS uplink seize description
		CR 0208r2 to 48.008 Rel-7 in GP-061460, approved at GP-30	Release due to BSS generated reason for VGCS/VBS
		CR 0225r1 to 48.008 Rel-7 in GP-070440, approved at GP-33	Correction and addition to Paging Information IE
		CR 0228r1 to 48.008 Rel-7 in GP-070443, approved at GP-33	Queuing procedure clarification
		CR 0229 to 48.008 Rel-7 in GP-070337, approved at GP-33	Definition of BSSAP procedures for release/refusal of VGCS/ VBS call controlling/ resource controlling connections
		CR 0244r3 to 48.008 Rel-7 in GP-080220, approved at GP-37	Circuit Identity Code (CIC) in VGCS/VBS Assignment Result / Request
		CR 0266 to 48.008 Rel-8 in GP-081196, approved at GP-39	Correction to Uplink Request Confirmation
[2]	ETSI TS 100 607-1: "Digital cellular telecommunications system (Phase 2+) (GSM); Mobile Station (MS) conformance specification; Part 1: Conformance specification (GSM 11.10-1 version 8.2.0 Release 1999)". <i>For information, becoming in Rel-4 and later:</i> ETSI TS 151 010-1: " Digital cellular telecommunications system (Phase 2+); Mobile Station (MS) conformance specification; Part 1: Conformance specification (3GPP TS 51.010-1)".	ETSI TS 100 607-1: "Digital cellular telecommunications system (Phase 2+); Mobile Station (MS) conformance specification; Part 1: Conformance specification (3GPP TS 11.10-1 version 8.3.0 Release 1999)".	
		CR 4917 to TS 51.010-1 Rel-11 in GP-140020 approved at GP-61	ER-GSM updates sec26 part 1
		CR 4913 to TS 51.010-1 Rel-11 in GP-140079 approved at GP-61	ER-GSM updates sec00-sec11
		CR 4914 to TS 51.010-1 Rel-11 in GP-140080 approved at GP-61	ER-GSM updates sec12-sec13
		CR 4915 to TS 51.010-1 Rel-11 in GP-140081 approved at GP-61	ER-GSM updates sec14
		CR 4916 to TS 51.010-1 Rel-11 in GP-140082 approved at GP-61	ER-GSM updates sec15-sec20
		CR 4918 to TS 51.010-1 Rel-11 in GP-140083 approved at GP-61	ER-GSM updates sec26 part 2
		CR 4919 to TS 51.010-1 Rel-11 in GP-140084 approved at GP-61	ER-GSM updates sec26part 3
		CR 4920 to TS 51.010-1 Rel-11 in GP-140085 approved at GP-61	ER-GSM updates sec26part 4
		CR 4921 to TS 51.010-1 Rel-11 in GP-140086 approved at GP-61	ER-GSM updates sec52
[3]	ETSI TS 100 929: "Digital cellular telecommunications system (Phase 2+) (GSM); Security related network functions (GSM 03.20 version 8.0.0 Release 1999)".	ETSI TS 100 929: "Digital cellular telecommunications system (Phase 2+); Security-related network functions (3GPP TS 03.20 version 8.6.0 Release 1999)".	



Identification of the specifications as per clause 2.1 of ETSI EN 301 515 [1]		Applicable CRs and/or latest release 99 version	
Index	Specification	Applicable CR	Purpose
[4]	ETSI TS 100 933: "Digital cellular telecommunications system (Phase 2+) (GSM); Voice Group Call Service (VGCS); Stage 2 (GSM 03.68 version 8.2.0 Release 1999)". <i>For information, becoming in Rel-4 and later:</i> ETSI TS 143 068: "Digital cellular telecommunications system (Phase 2+); Voice Group Call Service (VGCS); Stage 2 (3GPP TS 43.068)".	ETSI TS 100 933: "Digital cellular telecommunications system (Phase 2+); Voice Group Call Service (VGCS); Stage 2 (3GPP TS 03.68 version 8.6.0 Release 1999)".	
		CR A023 to TS 03.68 Rel-4 in P-00-255, approved at SMG#32	Introduction of OTDI (Originator-To-Dispatcher Information into VGCS)
		CR 0007 to TS 43.068 Rel-5 in NP-020383, approved at CN#17	ASCI VGCS call termination by dispatchers using DTMF
		CR 0008r4 to TS 43.068 Rel-5 in NP-020675, approved at CN#18	MS late entry notification
		CR 0009r1 to TS 43.068 Rel-4 in NP-030408, approved at CN#21	Correction of uplink release management
		CR 0013r1 to TS 43.068 Rel-5 in NP-030409, approved at CN#21	Correction to MS Late Entry description
		CR 0014r2 to TS 43.068 Rel-6 in NP-030410, approved at CN#21	Dispatcher signalled mute/unmute of talkers downlink and correction and update of incorrect implementation of CR 03.68 A022
		CR 0017 to 43.068 Rel-4 in NP-040373, approved at CN#25	Correction on notification for first talker of VGCS call Correction on notification for first talker of VGCS call Correction on notification for first talker of VGCS call
		CR 0029 to 43.068 Rel-4 in NP-050067, approved at CN#27	Correction of the conditions for establishment of a voice group call
		CR 0036 to 43.068 Rel-6 in NP-050076, approved at CN#27	Inter-PLMN Group Call notification for dispatchers
		CR 0046r1 to 43.068 Rel-6 in CP-050361, approved at CP-29	Clarification of the role of the anchor MSC
		CR 0068 to 43.068 Rel-7 in CP-050549, approved at CP-30	Editorial corrections (corrections of misspelling, grammatical errors, etc.)
		CR 0072r2 to 43.068 Rel-6 in CP-060113, approved at CP-31	Correction of muting/unmuting procedure
		CR 0076r1 to 43.068 Rel-7 in CP-060122, approved at CP-31	Modification of conditions for VGCS call establishment
		CR 0080r1 to 43.068 Rel-7 in CP-060122, approved at CP-31	Corrections and clarifications to the procedures for releasing the calling service subscribers dedicated connection to the anchor MSC
		CR 0081r1 to 43.068 Rel-7 in CP-060122, approved at CP-31	Correction/ clarification of voice group call termination procedures
		CR 0085 to 43.068	Add signalling flow for a



Identification of the specifications as per clause 2.1 of ETSI EN 301 515 [1]		Applicable CRs and/or latest release 99 version	
Index	Specification	Applicable CR	Purpose
		Rel-7 in CP-060272, approved at CP-32	dispatcher originated VGCS
		CR 0094 to 43.068 Rel-7 in CP-060276, approved at CP-32	Correction of Figure 6
		CR 0097r2 to 43.068 Rel-7 in CP-060464, approved at CP-33	Failure cases during VGCS call establishment
		CR 0128 to 43.068 Rel-6 in CP-070131, approved at CP-35	Definition of BSSAP procedure for release of VGCS call controlling connections
		CR 0131r1 to 43.068 Rel-7 in CP-070376, approved at CP-36	Silent (re-)joining dispatcher, immediately talking dispatcher
		CR 0133 to 43.068 Rel-8 in CP-070371, approved at CP-36	Definition of BSSAP procedure for release of VGCS call controlling connections
		CR 0141 to 43.068 Rel-8 in CP-070604, approved at CP-37	Correction to process VGCS_Handling_Relay_MSC
		CR 0145r1 to 43.068 Rel-7 in CP-080123, approved at CP-39	Clean up of the requirement of sending SMS to non established group calls
		CR 0147r1 to 43.068 Rel-8 in CP-080129, approved at CP-39	Clarification of the channel to be used for uplink access
		CR 0150 to 43.068 Rel-8 in CP-080361, approved at CP-40	Clarification of conditions for start and stop of voice inactivity timer
		CR 0003 to 43.068 Rel-4 in NP-000449, approved at NP-09	Identification of Group ID - The longest GID has to be matched
		CR 0004 to 43.068 Rel-4 in NP-000667, approved at NP-10	Call Waiting is not applicable to an originator/talker in dedicated mode
		CR 0005 to 43.068 Rel-4 in NP-000667, approved at NP-10	Wrong Field Name for OTDI
		CR 0006r1 to 43.068 Rel-4 in NP-000667, approved at NP-10	DTMF precision
		CR 0007 to 43.068 Rel-7 in NP-020383, approved at NP-17	ASCI VGCS call termination by dispatchers using DTMF
		CR 0008r4 to 43.068 Rel-7 in NP-020675, approved at NP-18	MS late entry notification
		CR 0011r1 to 43.068 Rel-4 in NP-030407, approved at NP-21	Correction to definition of Group-ID, Group call area ID and Group Call Reference
		CR 0013r1 to 43.068 Rel-7 in NP-030409, approved at NP-21	Correction to MS Late Entry description
		CR 0014r2 to 43.068 Rel-6 in NP-030410, approved at NP-21	Dispatcher signalled mute/unmute of talkers downlink and correction and update of incorrect implementation of CR

Identification of the specifications as per clause 2.1 of ETSI EN 301 515 [1]		Applicable CRs and/or latest release 99 version	
Index	Specification	Applicable CR	Purpose
			03.68 A022
		CR 0016r1 to 43.068 Rel-6 in NP-040203, approved at NP-24	Correction of PCH re-organization notification
		CR 0017r1 to 43.068 Rel-4 in NP-040373, approved at NP-25	Correction on notification for first talker of VGCS call
		CR 0022r2 to 43.068 Rel-6 in NP-040515, approved at NP-26	Group Call Reference handling by the MSC during VGCS call establishment
		CR 0024 to 43.068 Rel-6 in NP-040515, approved at NP-26	Clarification on Immediate Setup procedure
		CR 0029 to 43.068 Rel-4 in NP-050067, approved at NP-27	Correction of the conditions for establishment of a voice group call
		CR 0031 to 43.068 Rel-6 in NP-050067, approved at NP-27	Correction of the conditions for establishment of a voice group call
		CR 0036r1 to 43.068 Rel-6 in NP-050076, approved at NP-27	Inter-PLMN Group Call notification for dispatchers
		CR 0039 to 43.068 Rel-4 in CP-050057, approved at CP-28	Correction on the use of calling subscriber and destination subscriber
		CR 0041 to 43.068 Rel-6 in CP-050057, approved at CP-28	Correction on the use of calling subscriber and destination subscriber
		CR 0047r1 to 43.068 Rel-7 in CP-050361, approved at CP-29	Error correction
		CR 0055 to 43.068 Rel-7 in CP-050365, approved at CP-29	Enhancement on the dedicated channel Assignment procedure
		CR 0073r2 to 43.068 Rel-7 in CP-060113, approved at CP-31	Correction of muting/un-muting procedure
		CR 0082r2 to 43.068 Rel-7 in CP-060122, approved at CP-31	Clarification of the no activity time
		CR 0095 to 43.068 Rel-7 in CP-060272, approved at CP-32	Correction of Figure 6a
		CR 0134 to 43.068 Rel-8 in CP-070387, approved at CP-36	Alignment of SDLs with condition for successful call setup
		CR 0148r1 to 43.068 Rel-8 in CP-080136, approved at CP-39	Warning tone for call termination due to time out of voice inactivity time
		CR 0167 to 43.068 Rel-11 in CP-120808, approved at CP-58	Additional Calling Party Number
[5]	ETSI TS 100 934: "Digital cellular telecommunications system (Phase 2+) (GSM); Voice Broadcast Service (VBS); Stage 2 (GSM 03.69 version 8.2.0 Release 1999)". <i>For information, becoming in Rel-4 and later:</i> ETSI TS 143 069: "Digital cellular telecommunications system (Phase 2+); Voice Broadcast service (VBS); Stage 2 (3GPP TS 43.069)".	ETSI TS 100 934: "Digital cellular telecommunications system (Phase 2+); Voice Broadcast Service (VBS); Stage 2 (3GPP TS 03.69 version 8.5.0 Release 1999)".  CR A016 to TS 03.69 Rel-4 in P-00-255, approved at SMG#32	Introduction of OTDI (Originator-To-Dispatcher Information into VBS)