

# 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**

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Reference

RTS/RT-0031

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Keywords

GSM, GSM-R, R-GSM, UIC

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## Foreword

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

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## 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).

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# 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].

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## 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.

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## 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)".	Introduction of OTDI (Originator-To-Dispatcher Information into VBS)

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 0006 to TS 43.069 Rel-5 in NP-020383, approved at CN#17	ASCI VBS call termination by dispatchers using DTMF
		CR 0007r4 to TS 43.069 Rel-5 in NP-020676, approved at CN#18	MS late entry notification
		CR 0009r1 to 43.069 Rel-5 in NP-030407, approved at NP-21	Correction to definition of Group-ID, Group call area ID and Broadcast Call Reference
		CR 0010r1 to TS 43.069 Rel-5 in NP-030409, approved at CN#21	Correction to MS Late Entry description
		CR 0012 to 43.069 Rel-4 in NP-040373, approved at CN#25	Correction on notification procedures for Originator of VBS call
		CR 0013r1 to 43.069 Rel-5 in NP-040373, approved at NP-25	Correction on notification procedures for Originator of VBS call
		CR 0016r1 to 43.069 Rel-6 in NP-040515, approved at NP-26	Broadcast call reference handling by the MSC during VBS call establishment
		CR 0018 to 43.069 Rel-6 in NP-040515, approved at NP-26	Clarification on Immediate Setup procedure
		CR 0023 to 43.069 Rel-6 in NP-050076, approved at CN#27	Inter-PLMN Broadcast Call notification for dispatchers
		CR 0026 to 43.069 Rel-6 in CP-050057, approved at CP-28	Correction on the use of calling subscriber and destination subscriber
		CR 0029r1 to 43.069 Rel-7 in CP-060162, approved at CP-31	Correction/ clarification of voice broadcast call release procedures
		CR 0077r2 to 43.069 Rel-7 in CP-060126, approved at CP-31	Modification of conditions for VBS call establishment
		CR 0079 to 43.069 Rel-7 in CP-060276, approved at CP-32	Add signalling flow for a dispatcher originated VBS
		CR 0081r1 to 43.069 Rel-7 in CP-060276, approved at CP-32	Including IMSI in Send_Group_Call_End_ Signal message for VBS
		CR 0082 to 43.069 Rel-7 in CP-060276, approved at CP-32	Correction to process VBS_Handling_Relay_M SC
		CR 0086r1 to 43.069 Rel-7 in CP-060506, approved at CP-33	Failure cases during VBS call establishment
		CR 0088 to 43.069 Rel-6 in CP-060457, approved at CP-33	Correction of PCH re-organization notification
		CR 0100 to 43.069 Rel-7 in CP-070155, approved at CP-35	Alignment of SDLs with condition for successful call setup
		CR 0101r2 to 43.069 Rel-7 in CP-070387, approved at CP-36	Alignment between VBS and VGCS call establishment
		CR 0104 to 43.069 Rel-6 in CP-070131, approved at CP-35	Definition of BSSAP procedure for release of VBS call controlling connections
		CR 0106 to 43.069	Various corrections to

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-8 in CP-070604, approved at CP-37	the VBS specification
		CR 0120r1 to 43.069 Rel-11 in CP-120808, approved at CP-58	Additional Calling Party Number
		CR 0121r1 to 43.069 Rel-11 in CP-120808, approved at CP-58	Uplink reply procedure
[6]	ETSI TS 100 948: "Digital cellular telecommunications system (Phase 2+) (GSM); Group Call Control (GCC) protocol (GSM 04.68 version 8.1.0 Release 1999)". <i>For information, becoming in Rel-4 and later:</i> ETSI TS 144 068: "Digital cellular telecommunications system (Phase 2+); Group Call Control (GCC) protocol (3GPP TS 44.068)".	CR A025 to TS 04.68 Rel-4 in P-00-255, approved at SMG#32	Introduction of OTDI (Originator-To- Dispatcher Information into VGCS)
		CR 0001 to TS 44.068 Rel-4 in NP-000449, approved at CN#09	The repetition of the priority in the Call Reference IE in the SETUP message
		CR 0002r1 to TS 44.068 Rel-4 in NP-010269, approved at CN#12	Clarification of the coding of OTDI information in IA5 format
		CR 0003r1 to 44.068 Rel-4 in NP-020224, approved at NP-16	Various clean-up of wrong references, e.g. towards 44.018
		CR 0004 to 44.068 Rel- 6 in NP-030486, approved at NP-22	Clarification of the muting and unmuting of the downlink
		CR 0012 to 44.068 Rel- 7 in CP-060506, approved at CP-33	Increase VGCS setup timeout (MS timer TMM- est)
[7]	ETSI TS 100 949: "Digital cellular telecommunications system (Phase 2+) (GSM); Broadcast Call Control (BCC) protocol (GSM 04.69 version 8.1.0 Release 1999)". <i>For information, becoming in Rel-4 and later:</i> ETSI TS 144 069: "Digital cellular telecommunications system (Phase 2+); Broadcast Call Control (BCC) protocol (3GPP TS 44.069)".	CR A022 to TS 04.69 Rel-4 in P-00-255, approved at SMG#32	Introduction of OTDI (Originator-To- Dispatcher Information into VBS)
		CR 0001 to TS 44.069 Rel-4 in NP-000449, approved at CN#9	The repetition of the priority in the Call Reference IE in the SETUP message
		CR 0002 to TS 44.069 Rel-4 in NP-010269, approved at CN#12	Clarification of the coding of OTDI information in IA5 format
		CR 0003 to 44.069 Rel-4 in NP-000667, approved at NP-10	Call Waiting is not applicable to an originator in dedicated mode
		CR 0004 to 44.069 Rel-4 in NP-000667, approved at NP-10	Wrong Field Name for OTDI
		CR 0005 to 44.069 Rel-7 in CP-060506, approved at CP-33	Increase VBS setup timeout (MS timer TMM- est)
		CR 0006 to 44.069 Rel-5 in NP-020383, approved at NP-17	ASCI VBS call termination by dispatchers using DTMF
[8]	ETSI TS 100 977: "Digital cellular telecommunications system (Phase 2+) (GSM); Specification of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface (GSM 11.11 version 8.3.0 Release 1999)".	ETSI TS 100 977: "Digital cellular telecommunications system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface (3GPP TS 11.11 version 8.14.0 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
[9]	ETSI EN 300 918: "Digital cellular telecommunications system (Phase 2+) (GSM); General on supplementary services (GSM 02.04 version 7.1.2 Release 1998)".	ETSI TS 122 004: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); General on Supplementary Services (3GPP TS 22.004 version 3.3.0 Release 1999)". CR010 to TS 22.004 Rel-4 in SP-040283, approved at SA#24	Modification of table A.1 required to remove wrong SS applicability to Voice Group Services
[10]	ETSI TS 122 030: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Man-Machine Interface (MMI) of the User Equipment (UE) (3G TS 22.030 version 3.3.0 Release 1999)".	ETSI TS 122 030: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Man-Machine Interface (MMI) of the User Equipment (UE) (3G TS 22.030 version 3.4.0 Release 1999)".	
[11]	ETSI EN 301 702: "Digital cellular telecommunications system (Phase 2+) (GSM); User-to-User Signalling (UUS); Service description, Stage 1 (GSM 02.87 version 7.1.2 Release 1998)".	ETSI TS 122 087 "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); User-to-User Signalling (UUS); Service description - Stage 1 (3G TS 22.087 version 3.1.0 Release 1999)".	
[12]	ETSI TS 122 094: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Follow Me Service description - Stage 1 (3G TS 22.094 version 3.1.0 Release 1999)".	CR003 to TS 22.094 Rel-6 in SP-030699, approved at SA#22	Notify of forced erasure to initiating subscriber A
[13]	ETSI TS 100 932: "Digital cellular telecommunications system (Phase 2+) (GSM); enhanced Multi-Level Precedence and Pre-emption service (imp); Stage 2 (3GPP TS 03.67 version 7.1.0 Release 1998)".	ETSI TS 123 067: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Enhanced Multi-Level Precedence and Pre-emption Service (EMLPP); Stage 2 (3GPP TS 23.067 version 3.3.0 Release 1999)".	
[14]	ETSI EN 301 710: "Digital cellular telecommunications system (Phase 2+) (GSM); User-to-User Signalling (UUS); Stage 2 (GSM 03.87 version 7.0.2 Release 1998)".	ETSI TS 123 087: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); User-to-user signalling (UUS) Supplementary Service - Stage 2 (3GPP TS 23.087 version 3.1.0 Release 1999)".	
[15]	ETSI TS 123 094: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Follow-Me (FM); Stage 2 (3GPP TS 23.094 version 3.2.0 Release 1999)".	CR003r1 to TS 23.094 Rel-6 in NP-030517, approved at CN#22	Notify of forced erasure to previously registered subscriber of his deregistration
[16]	ETSI EN 300 940: "Digital cellular telecommunications system (Phase 2+) (GSM); Mobile radio interface layer 3 specification (GSM 04.08 version 6.3.1 Release 1997)".	ETSI TS 124 008: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Mobile radio interface Layer 3 specification; Core network protocols; Stage 3 (3GPP TS 24.008 version 3.2.0.0 Release 1999). CR 2469r1 to 24.008 Rel-12 in CP-130762, approved at CP-62	Introduction of ER-GSM band
[17]	ETSI TS 100 950: "Digital cellular telecommunications system (Phase 2+) (GSM); Mobile radio interface layer 3 supplementary services specification; Formats and coding (GSM 04.80 version 7.0.1 Release 1998)".	ETSI TS 124 080: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Mobile radio layer 3; supplementary service specification; Formats and coding (3GPP TS 24.080 V3.7.1 Release 1999)".	
[18]	ETSI EN 301 711: "Digital cellular telecommunications system (Phase 2+) (GSM); User-to-User Signalling (UUS); Stage 3 (GSM 04.87 version 7.0.2 Release 1998)".	ETSI TS 124 087: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); User-to-User Signalling (UUS) Supplementary Service - Stage3 (3G TS 24.087 version 3.0.0 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
[19]	ETSI TS 100 916: "Digital cellular telecommunications system (Phase 2+); AT command set for GSM Mobile Equipment (ME) (3GPP TS 07.07 version 6.5.0 Release 1997)".	ETSI TS 127 007: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; AT command set for User Equipment (UE) (3GPP TS 27.007 V3.14.0 Release 1999)".	
		CR 0043 to TS 27.007 Rel-4 in TP-000144, approved at T#09	Introduction of a new AT command+CUUS1 to manage User-to-User Information element
		CR 0044 to TS 27.007 Rel-4 in TP-000144, approved at T#09	Indication of priority and/or sub-address in the unsolicited result code CCWA
		CR 0045 to TS 27.007 Rel-4 in TP-000144, approved at T#09	eMLPP SIM Commands
		CR 0046 to TS 27.007 Rel-4 in TP-000144, approved at T#09	VBS, VGCS SIM Commands
		CR 0047 to TS 27.007 Rel-4 in TP-000144, approved at T#09	Extension of dial command for VBS and VGCS
[20]	ETSI TS 129 002: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Mobile Application Part (MAP) specification (3G TS 29.002 version 3.5.2 Release 1999)".	ETSI TS 129 002: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Mobile Application Part (MAP) specification (3GPP TS 29.002 version 3.20.0 Release 1999)".	
		CR 0664r1 to 29.002 Rel-6 in NP-030379, approved at NP-21	Correction of encoding description of Group-Id
		CR 0801 to 29.002 Rel-7 in CP-060079, approved at CP-31	Improvements to VGCS Call Establishment
		CR 0814 to 29.002 Rel-7 in CP-060316, approved at CP-32	SSN for FFN
		CR 0876 to 29.002 Rel-8 in CP-070753, approved at CP-38	Clarification on coding of Notification Data
		CR 0891r1 to 29.002 Rel-8 in CP-080467, approved at CP-41	eMLPP Priority in MAP SRI, PRN and PSI request
[21]	ETSI EN 300 925: "Digital cellular telecommunications system (Phase 2+) (GSM); Voice Group Call Service (VGCS) - Stage 1 (GSM 02.68 version 7.0.2 Release 1998)". <i>For information, becoming in Rel-4 and later:</i> ETSI TS 142 068: "Digital cellular telecommunications system (Phase 2+); Voice Group Call Service (VGCS); Stage 1 (3GPP TS 42.068)".	ETSI TS 100 925: "Digital cellular telecommunications system (Phase 2+); Voice Group Call Service (VGCS); Stage 1 (3GPP TS 02.68 version 8.2.1 Release 1999)".	
		CR A013 to TS 02.68 Rel-4 in P-00-304, approved at SMG#32	Introduction of Originator-to-dispatcher information into VGCS
		CR 0019 to 42.068 Rel-7 in SP-060026, approved at SP-31	Modification to setup to remove the need for full conditions
		CR 0022r2 to 42.068 Rel-7 in SP-060306, approved at SP-32	Increasing maximum number of dispatchers to 20 as an optional requirement
		CR 0033 to 42.068 Rel-8 in SP-060774, approved at SP-34	Correction on the use of 'listener' and 'talker'
		CR 0037r1 to 42.068 Rel-8 in SP-070645, approved at SP-37	Clarification of interactions with supplementary and other GSM services

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
[22]	ETSI EN 300 926: "Digital cellular telecommunications system (Phase 2+) (GSM); Voice Broadcast Service (VBS) - Stage 1 (GSM 02.69 version 8.0.1 Release 1999)". <i>For information, becoming in Rel-4 and later:</i> ETSI TS 142 069: "Digital cellular telecommunications system (Phase 2+); Voice Broadcast Service (VBS); Stage 1 (3GPP TS 42.069)".	ETSI TS 100 926: "Digital cellular telecommunications system (Phase 2+); Voice Broadcast Service (VBS); Stage 1 (3GPP TS 02.69 version 8.2.0 Release 1999)". CR A014 to TS 02.69 Rel-4 in P-00-304, approved at SMG#32 CR 0006 to 42.069 Rel-7 in SP-060028, approved at SP-31 CR 0007 to 42.069 Rel-7 in SP-060027, approved at SP-31 CR 0008 to 42.069 Rel-8 in SP-060775, approved at SP-34 CR 0010r1 to 42.069 Rel-8 in SP-070644, approved at SP-37	Introduction of Originator-to-dispatcher information into VBS Modification to setup to remove the need for full conditions Increasing maximum number of dispatchers to 20 as an optional requirement Correction on the use of listening service subscriber Clarification of interactions with supplementary and other GSM services
[23]	ETSI EN 300 904: "Digital cellular telecommunications system (Phase 2+) (GSM); Bearer Services (BS) supported by a GSM Public Land Mobile Network (PLMN) (GSM 02.02 version 6.1.1 Release 1997)".	ETSI TS 122 002: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN) (3GPP TS 22.002 version 3.6.0 Release 1999)".	
[24]	ETSI TS 100 905: "Digital cellular telecommunications system (Phase 2+) (GSM); Teleservices supported by a GSM Public Land Mobile Network (PLMN) (GSM 02.03 version 7.0.0 Release 1998)".	ETSI TS 122 003: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Circuit Teleservices supported by a Public Land Mobile Network (PLMN) (3GPP TS 22.003 v.3.3.0 Release 1999)".	
[25]	ETSI EN 300 919: "Digital cellular telecommunications system (Phase 2+) (GSM); Types of Mobile Stations (MS) (GSM 02.06 version 7.0.1 Release 1998)".		
[26]	ETSI TS 100 906: "Digital cellular telecommunications system (Phase 2+) (GSM); Mobile Stations (MS) features (GSM 02.07 version 7.1.0 Release 1998)". <i>Note: TS 02.07 abandoned in Rel-99: the text was transferred to TS 22.001 and TS 22.101.</i>	ETSI TS 122 101: "Universal Mobile Telecommunication System (UMTS); Service Aspects; Service Principles (3GPP TS 22 101 v.3.17.0 Release 1999)".	
[27]	ETSI EN 300 924: "Digital cellular telecommunications system (Phase 2+) (GSM); enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 1 (GSM 02.67 version 7.0.1 Release 1998)".	ETSI EN 122 067: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); enhanced Multi Level Precedence and Pre-emption service (eMLPP) Stage 1 (3G TS 22.067 version 3.0.1 Release 1999)".	
[28]	ETSI TS 100 625: "Digital cellular telecommunications system (Phase 2+) (GSM); Unstructured Supplementary Service Data (USSD) - Stage 1 (GSM 02.90 version 7.0.0 Release 1998)".	ETSI TS 122 090: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Unstructured Supplementary Service Data (USSD) - Stage 1 (3G TS 22.090 version 3.1.0 Release 1999)".	
[29]	ETSI TS 100 522: "Digital cellular telecommunications system (Phase 2+) (GSM); Network architecture (GSM 03.02 version 7.1.0 Release 1998)".	ETSI TS 123 002: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Network Architecture (3GPP TS 23.002 version 3.6.0 Release 1999)".	
[30]	ETSI TR 101 631: "Digital cellular telecommunications system (Phase 2+) (GSM); Technical performance objectives (GSM 03.05 version 8.0.0 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
[31]	ETSI TS 100549: "Digital cellular telecommunications system (Phase 2+) (GSM); Unstructured Supplementary Service Data (USSD) - Stage 2 (GSM 03.90 version 7.0.0 Release 1998)".	ETSI TS 123 090: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Unstructured Supplementary Service Data (USSD) - Stage 2 (3GPP TS 23.090 V3.2.0 Release 1999)".	
[32]	ETSI EN 300 947: "Digital cellular telecommunications system (Phase 2+) (GSM); enhanced Multi-Level Precedence and Pre-emption service (eMLPP); Stage 3 (GSM 04.67 version 7.0.1 Release 1998)".	ETSI TS 124 067: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); enhanced Multi-Level Precedence and Pre-emption service (eMLPP) - Stage 3 (3GPP TS 24.067 V3.2.0 Release 1999)".	
[33]	ETSI EN 300 957: "Digital cellular telecommunications system (Phase 2+) (GSM); Unstructured Supplementary Service Data (USSD); Stage 3 (GSM 04.90 version 7.0.1 Release 1998)".	ETSI TS 124 090: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Unstructured Supplementary Service Data (USSD) - Stage 3 (3G TS 24.090 version 3.0.0 Release 1999)".	
[34]	ETSI EN 300 952: "Digital cellular telecommunications system (Phase 2+) (GSM); Call Forwarding (CF) supplementary services; Stage 3 (GSM 04.82 version 7.0.2 Release 1998)".	ETSI TS 124 082: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Call Forwarding (CF) supplementary services - Stage 3 (3G TS 24.082 version 3.0.0 Release 1999)".	
[35]	ETSI EN 300 910: "Digital cellular telecommunications system (Phase 2+) (GSM); Radio transmission and reception (GSM 05.05 version 6.7.1 Release 1997)". <i>For information, becoming in Rel-4 and later:</i> ETSI TS 145 005: "Digital cellular telecommunications system (Phase 2+); Radio transmission and reception (3GPP TS 45.005)".	ETSI TS 100 910: "Digital cellular telecommunications system (Phase 2+) (GSM); Radio transmission and reception (3GPP TS 05.05 version 8.20.0 Release 1999)".	
		CR 0548 to 45.005 Rel-11 in GP-130876, approved at GP-59	Introduction of ER-GSM band
[36]	ETSI TS 101 267: "Digital cellular telecommunications system (Phase 2+) (GSM); Specification of the SIM Application Toolkit for the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface (GSM 11.14 version 8.3.0 Release 1999)".	ETSI TS 101 267: "Digital cellular telecommunications system (Phase 2+); Specification of the SIM Application Toolkit for the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface (3GPP 11.14 version 8.18.0 Release 1999)".	



## 4.2 CRs applicable to TSs not yet listed as normative references of ETSI EN 301 515

Table 2 lists the CRs necessary for GSM R operation that are applicable to TSs not (yet) listed in ETSI EN 301 515 [1].

**Table 2: CRs required for GSM R applicable to TSs not yet listed as normative references of ETSI EN 301 515**

Identification of the specifications impacted by RT-specific CRs not (yet) listed in clause 2.1 of EN 301 515 [1]		Additional CRs or new version of release 99 specification required	
Index	Specification	CR identification in addition to the TS	Purpose
[51]	ETSI TS 100 930: "Digital cellular telecommunications system (Phase 2+); Functions related to Mobile Station (MS) in idle mode and group receive mode; (3GPP TS 03.22 v.8.7.0 Release 1999)". <i>For information, becoming in Rel-4 and later:</i> ETSI TS 143 022: "Digital cellular telecommunications system (Phase 2+); Functions related to Mobile Station (MS) in idle mode and group receive mode (3GPP TS 43.022)".	CR 0024r4 to 43.022 Rel-8 in GP-071519, approved at GP-35	Enhanced Cell Reselection for VGCS
[52]	ETSI TS 101 503: "Digital cellular telecommunications system (Phase 2+) Mobile radio interface layer 3 specification; Radio Resource Control (RRC) Protocol (3GPP TS 04.18 v.8.27.0 Release 1999)". <i>For information, becoming in Rel-4 and later:</i> ETSI TS 144 018: "Digital cellular telecommunications system (Phase 2+); Mobile radio interface layer 3 specification; Radio Resource Control (RRC) protocol (3GPP TS 44.018)".	CR 0685 to 44.018 Rel-8 in GP-081194, approved at GP-39 CR 0031r1 to 44.018 Rel-4 in GP-000828, approved at GP-02 CR 0032 to 44.018 Rel-4 in GP-000500, approved at GP-02 CR 0033 to 44.018 Rel-4 in GP-000501, approved at GP-02 CR 0034 to 44.018 Rel-4 in GP-000502, approved at GP-02 CR 0035 to 44.018 Rel-4 in GP-000503, approved at GP-02 CR 0036 to 44.018 Rel-4 in GP-000504, approved at GP-02 CR 0269r1 to 44.018 Rel-6 in GP-031996, approved at GP-16 CR 0301r2 to 44.018 Rel-4 in GP-040131, approved at GP-18 CR 0316r3 to 44.018 Rel-6 in GP-041287, approved at GP-20 CR 0333 to 44.018 Rel-4 in GP-041290, approved at GP-20 CR 0357 to 44.018 Rel-4 in GP-041839, approved at GP-21 CR 0360 to 44.018 Rel-4 in GP-041843, approved at GP-21 CR 0401 to 44.018 Rel-6 in GP-050106, approved at GP-23	Correction to format of SI10ter message Mandatory use of SYSTEM INFORMATION TYPE 10 Support of reduced NCH monitoring Sending of NLN and NLN status Indication of no VGCS or VBS calls active in a cell Action in group receive mode on entering new cell Provision of NLN on SACCH Editorial corrections for ASCI services Lack of FH parameters during VGCS handover Release dedicated channel of talker in Voice Group Call Correction of the CSN.1 coding of the SI10 Rest Octets to be used for ASCI VGCS Target Mode Indication IEI Correction to Group Channel Description IE Correction to channel mode modify

Identification of the specifications impacted by RT-specific CRs not (yet) listed in clause 2.1 of EN 301 515 [1]		Additional CRs or new version of release 99 specification required	
Index	Specification	CR identification in addition to the TS	Purpose
		CR 0409r1 to 44.018 Rel-6 in GP-050566, approved at GP-23	Transmission of Notifications for VGCS on PCH
		CR 0438r1 to 44.018 Rel-6 in GP-050860, approved at GP-24	Removal of length restrictions for some VGCS messages
		CR 0442r3 to 44.018 Rel-6 in GP-051153, approved at GP-24	Inconsistency of Group Channel Description
		CR 0453 to 44.018 Rel-6 in GP-051408, approved at GP-25	Correction to Notification/FACCH
		CR 0986 to 44.018 Rel-11 in GP-121315, approved at GP-56	Uplink reply procedure
[53]	ETSI TS 122 081 "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Line identification Supplementary Services; Stage 1 (3G TS 22.081 version 3.2.0 Release 1999)"		
[54]	ETSI TS 122 082 "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Call Forwarding (CF) Supplementary Services; Stage 1 (3GPP TS 22.082 version 3.0.2 Release 1999)"		
[55]	ETSI TS 122 083 "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Call Waiting (CW) and Call Holding (HOLD) Supplementary Services - Stage 1 (3G TS 22.083 version 3.0.1 Release 1999)"		
[56]	ETSI TS 122 084 "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); MultiParty (MPTY) Supplementary Services - Stage 1 (3G TS 22.084 version 3.0.1 Release 1999)"		
[57]	ETSI TS 122 085 "Digital cellular telecommunications system (Phase 2+) (GSM) ;Universal Mobile Telecommunications System (UMTS); Closed User Group (CUG) Supplementary Services - Stage 1 (3G TS 22.085 version 3.1.0 Release 1999)"		
[58]	ETSI TS 122 086 "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Advice of Charge (AoC) Supplementary Services - Stage 1 (3G TS 22.086 version 3.1.0 Release 1999)"		
[59]	ETSI TS 122 088 "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Call Barring (CB) Supplementary Services - Stage 1 (3GPP TS 22.088 version 3.0.2 Release 1999)"		
[60]	ETSI TS 122 091 "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Explicit Call Transfer (ECT) (3GPP TS 22.091 version 3.1.0 Release 1999)"		
[61]	ETSI TS 122 093 "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Completion of Calls to Busy Subscriber (CCBS);Service description, Stage 1 (3G TS 22.093 version 3.0.1 Release 1999)"		
[62]	ETSI TS 123 003 "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Numbering, addressing and identification (3GPP TS 23.003 version 3.15.0 Release 1999)"		

Identification of the specifications impacted by RT-specific CRs not (yet) listed in clause 2.1 of EN 301 515 [1]		Additional CRs or new version of release 99 specification required	
Index	Specification	CR identification in addition to the TS	Purpose
[63]	ETSI TS 123 014 "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Support of Dual Tone Multi Frequency (DTMF) signalling (3GPP TS 23.014 version 3.2.0 Release 1999)"		
[64]	ETSI TS 100 909 "Digital cellular telecommunications system (Phase 2+); Channel coding (3GPP TS 05.03 version 8.9.0 Release 1999) <i>For information, becoming in Rel-4 and later:</i> ETSI TS 145 003: "Digital cellular telecommunications system (Phase 2+); Channel coding (3GPP TS 45.003)".	CR 0131 to 45.003 Rel-11 in GP-121314, approved at GP-56	Uplink reply procedure
[65]	ETSI TS 100 573 "Digital cellular telecommunications system (Phase 2+); Physical Layer on the Radio Path (General Description) (3GPP TS 05.01 version 8.9.0 Release 1999)" <i>For information, becoming in Rel-4 and later:</i> ETSI TS 145 001: "Digital cellular telecommunications system (Phase 2+); Physical layer on the radio path; General description (3GPP TS 45.001)".	CR 0076 to 45.001 Rel-11 in GP-130857, approved at GP-59	Introduction of ER-GSM band
[66]	ETSI TS 100 921 "Digital cellular telecommunications system (Phase 2+); Radio subsystem link control (3GPP TS 05.08 version 8.23.0 Release 1999)" <i>For information, becoming in Rel-4 and later:</i> ETSI TS 145 008: "Digital cellular telecommunications system (Phase 2+); Radio subsystem link control (3GPP TS 45.008)".	CR 0618 to 45.008 Rel-11 in GP-130884, approved at GP-59	Introduction of ER-GSM band
[67]	ETSI TS 101 087 "Digital cellular telecommunications system (Phase 2+); Base Station System (BSS) equipment specification; Radio aspects (3GPP TS 11.21 version 8.11.0 Release 1999)" <i>For information, becoming in Rel-4 and later:</i> ETSI TS 151 021: "Digital cellular telecommunications system (Phase 2+); Base Station System (BSS) equipment specification; Radio aspects (3GPP TS 51.021)".	CR 0271 to 51.021 Rel-11 in GP-140194r3, approved at GP-61 CR 0272 to 51.021 Rel-12 in GP-140340, approved at GP-62	Introduction of ER-GSM band Introduction of ER-GSM band
[68]	ETSI TS 100 607-2: "Digital cellular telecommunications system (Phase 2+) (GSM); Mobile Station (MS) conformance specification; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification (GSM 11.10-2 version 4.16.0)". <i>For information, becoming in Rel-4 and later:</i> ETSI TS 151 010: " Digital cellular telecommunications system (Phase 2+); Mobile Station (MS) conformance specification; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification (3GPP TS 51.010-2)".	CR to TS 51.010-2 Rel-11 in GP-140025 approved at GP-61	ER-GSM updates Part2

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## Annex A (informative): Bibliography

ETSI TR 121 900: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Technical Specification Group working methods (3GPP TR 21.900)".

ETSI TR 145 050: "Digital cellular telecommunications system (Phase 2+); Background for Radio Frequency (RF) requirements (3GPP TR 45.050)".

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## History

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V1.0.0	September 2004	Publication as ETSI TR 102 281
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V2.1.0	June 2010	Publication
V2.2.0	December 2011	Publication
V2.2.1	October 2012	Publication
V2.3.0	July 2013	Publication
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