Schweizerische Eidgenossenschaft
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Federal Department of the Environment
Transport, Energy and Communications DETEC

Federal Office of Transport FOT
Infrastructure Division

CCS NNTRs as at: June 2021

NNTR CH-TSI CCS	Title	Version[1]	Date[2]
CH-TSI CCS-003	Activation / Deactivation of transfer of Packet 44 to SIGNUM/ZUB	2.0	June 2019
CH-TSI CCS-006	Loss of 'Non leading permitted' in 'Non leading' mode	2.1	June 2021
CH-TSI CCS-007	Braking curve requirement for ERTMS/ETCS Baseline 2	2.1	June 2021
CH-TSI CCS-008	Minimally implemented change requests	3.0	June 2021
CH-TSI CCS-011	Euroloop functionality	2.0	June 2019
CH-TSI CCS-016	Application of country-specific ETCS parameter values and functions	3.0	June 2021
CH-TSI CCS-019	Acceptance and display of train data	3.0	June 2021
CH-TSI CCS-022	Reversing in 'Unfitted' mode	2.1	June 2021
CH-TSI CCS-023	Text message display	2.0	June 2019
CH-TSI CCS-024	Flexible train data entry	3.0	June 2021
CH-TSI CCS-026	Online on-board monitoring of line equipment	2.1	June 2021
CH-TSI CCS-032	Unique number for ETCS on-board equipment and GSM-R voice cab radio	2.1	June 2021
CH-TSI CCS-033	GSM-R Voice functionality	2.0	June 2021
CH-TSI CCS-034	'Non-leading' mode	1.0	June 2019
CH-TSI CCS-038	Disclosure of large odometry confidence interval	1.1	June 2021

[1] The version indication consists of two figures separated by a point: x.y; x indicates the actual version; y indicates corrections and editorial changes.

[2] The date is updated when changes are made to either x or y.

Version history

Date	Change
June 2021	General improvements, updates and clarifications made. CH-TSI CCS-001 repealed as the referenced document no longer contains relevant requirements (for international vehicles). CH-TSI CCS-005 repealed as it is now regulated as RSC (via ERA document TD/011REC1028 and «Sicherheitsnachweiskonzept für die Erlangung einer ETCS-Zulassung in der Schweiz (inkl. Testkonzept)»). CH-TSI CCS-006 Note added. CH-TSI CCS-007 Text clarified. CH-TSI CCS-008 Update of referenced Change Requests (CR) for Baseline 3 and further CRs made mandatory. CH-TSI CCS-015 repealed, as in the meantime regulated in the CCS TSI. CH-TSI CCS-016 text clarified and additions made. CH-TSI CCS-018 repealed as the development of an STM/NTC is considered unlikely and the prohibition of SIGNUM/ZUB on vehicles with ERTMS/ETCS Baseline 3 is now regulated in the ERA document 'List of CCS Class B systems' (ERA/TD/2011-11). CH-TSI CCS-019 Text clarified and additions made. CH-TSI CCS-022 Text clarified and additions made. CH-TSI CCS-024 Requirements with trackside reference removed. The requirement for flexible train data entry remains. CH-TSI CCS-026: New version of 'Generischen Lastenheft Online Monitoring auf ETCS Fahrzeugen'. Reason / explanation clarified. CH-TSI CCS-032 Note added. CH-TSI CCS-033 The first part of the requirement is now regulated in an RSC (via ERA document TD/011REC1028 and «Sicherheitsnachweiskonzept für die Erlangung einer ETCS-Zulassung in der Schweiz (inkl. Testkonzept)»). Reason / explanation clarified. CH-TSI CCS-035 repealed. A uniform European solution is being sought. CH-TSI CCS-036 repealed and included in the document 'Voraussetzungen für den Einsatz von Fahrzeugen auf ETCS-Strecken' (SF ETCS CH document). CH-TSI CCS-037 repealed and included in the document 'Voraussetzungen für den Einsatz von Fahrzeugen auf ETCS-Strecken' (SF ETCS CH document). CH-TSI CCS-038: Existing notes clarified and a note added.

Notified National Technical Rules (NNTRs)

<table>
<tr><td>ID:</td><td>CH-TSI CCS-003</td><td>State:</td><td>Switzerland</td><td>Version:</td><td>2.0</td><td>Date:</td><td>June 2019</td></tr>
<tr><td>Title:</td><td colspan="7">Activation / Deactivation of transfer of Packet 44 to SIGNUM/ZUB</td></tr>
<tr><td>Office responsible:</td><td colspan="4">Federal Office of Transport FOT
Approvals and Rules Section</td><td>Address:</td><td colspan="2">3003 Bern
Switzerland</td></tr>
<tr><td>E-mail:</td><td colspan="7">_BAV-WeiterentwicklungRegelwerke@bav.admin.ch</td></tr>
<tr><td colspan="2">Referenced TSI article:</td><td colspan="6">No corresponding requirements in CCS TSI.
Basic parameter (2015/2299/EU), Clause 12.2.3</td></tr>
<tr><td colspan="2">Reference in Swiss regulation:</td><td colspan="6">IP-RailO IP 38.3, Section 1.1
IP-RailO IP 47.1, Section 3.2</td></tr>
<tr><td colspan="2">Current NNTR classification:</td><td colspan="6">☐ NNTR on an ‘open point’ in the TSI
☐ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI
☒ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI</td></tr>
<tr><td colspan="2" rowspan="4">Full description:</td><td>Title</td><td colspan="5">Activation / Deactivation of transfer of Packet 44 to SIGNUM/ZUB</td></tr>
<tr><td>Type of Requirement</td><td>Safety</td><td>Reliability/ availability</td><td>Health</td><td>Environment</td><td>Technical compatibility</td></tr>
<tr><td></td><td>X</td><td>-</td><td>-</td><td>-</td><td>X</td></tr>
<tr><td>Scope of application</td><td colspan="5">ETCS on-board unit</td></tr>
<tr><td>Requirement</td><td colspan="5">When the ETCS on-board unit is switched to another ETCS level or mode, transmission to the Integra SIGNUM and/or ZUB systems of packets 44 with NID_XUSER=2 read from the ETCS balise by means of the ETM must be activated or deactivated according to the following table.

Transmission must be activated or deactivated within 1,700 milliseconds.

Tolerated unavailability: 10^{-4}/h

When the interface between the ETCS on-board unit and ETM or ZUB 262 is interrupted (e.g. in the event of an error), transmission must be activated.

<u>Abbreviations in the table</u>
J: Transmission activated
N: Transmission deactivated
N/A: Not applicable
Other abbreviations according to SRS (SUBSET-026)

<table>
<tr><td>Mode</td><td>Level 0</td><td>Level 1</td><td>Level 2</td></tr>
<tr><td>UN</td><td>J</td><td>N/A</td><td>N/A</td></tr>
<tr><td>SR</td><td>N/A</td><td>N</td><td>N</td></tr>
<tr><td>FS</td><td>N/A</td><td>N</td><td>N</td></tr>
<tr><td>OS</td><td>N/A</td><td>N</td><td>N</td></tr>
</table>
</td></tr>
</table>

		SH J J J SL J J J NL J J J NP J J J IS J J J SF J J J SE N/A N/A N/A SN N/A N/A N/A SB J J J TR N/A N N PT N/A N N RV N/A N N
	Reasons/ explanation	For safety reasons, leading vehicles not equipped with ETCS may not enter ETCS level 2 track. For this reason a balise group sends packet 44 stop information beyond the level 0 → level 2 limit. In order to prevent leading vehicles that have switched to ETCS level 2 from being automatically stopped by the national train control system, the ETCS on-board equipment must prevent transmission of packets 44 (NID_XUSER=2) read from the ETCS balises to the ZUB and SIGNUM systems (ETM or ZUB 262). When a vehicle switches from ETCS level 2 to level 0, transmission of packet 44 information must be reactivated.
	Applicable to SRS version	2.2.2 + | 2.3.0d | 3.4.0 | 3.6.0 | X | X | - | - |
	Validity period	This requirement applies for as long as the vehicle is equipped with the SIGNUM / ZUB / ETM or SIGNUM / ZUB 262 train control systems and ETCS.
Current applicable norms in Switzerland: diesbezüglich geltende Normen:		
Test specification for certificate of conformity:		

Notified National Technical Rules (NNTRs)

ID:	**CH-TSI CCS-006**	**State:**	Switzerland	**Version:**	2.1	**Date:**	June 2021
Title:	**Loss of "Non leading permitted" in "Non leading" mode**						
Office responsible:	Federal Office of Transport FOT Approvals and Rules Section				**Address:**	3003 Bern Switzerland	
E-mail:	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
Referenced TSI article:	CCS TSI, SUBSET-026, Clause 4.4.15 CCS TSI, SUBSET-034, Versions 3.1.0 and 3.2.0, Clause 2.2.3.3.1 b) Basic parameter (2015/2299/EU), Clauses 12.2.5.4 and 12.2.5.6						
Reference in Swiss regulation:	IP-RailO IP 38.3, Section 1.1 IP-RailO IP 47.1, Section 3.2						
Current NNTR classification:	☐ NNTR on an 'open point' in the TSI ☒ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI ☐ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						

Full description:

Title	Loss of "Non leading permitted" in "Non leading" mode					
Type of Requirement	Safety	Reliability/ availability	Health	Environment	Technical compatibility	
	X	-	-	-	-	
Scope of application	ETCS on-board unit					
Requirement	When the ETCS on-board unit is in non-leading mode and the non leading input signal does not display "non leading permitted" at the TI, the ETCS on-board unit must display the message "NL not permitted" in the language selected on the DMI.					
Reasons/explanation	This message allows the driver to react immediately when the "non-leading permitted" signal is lost. Requirement relates to CH-TSI LOC&PAS-019. Note: See CR 1374, CR1383 and CR:TSI_C00000220.					
Applicable to SRS version	2.2.2 +	2.3.0d	3.4.0	3.6.0		
	X	X	X	X		
Validity period	unlimited					

Current applicable norms in Switzerland:	
Test specification for certificate of conformity:	

Notified National Technical Rules (NNTRs)

<table>
<tr><td>ID:</td><td>CH-TSI CCS-007</td><td>State:</td><td>Switzerland</td><td>Version:</td><td>2.1</td><td>Date:</td><td>June 2021</td></tr>
<tr><td>Title:</td><td colspan="7">Braking curve requirement for ERTMS/ETCS Baseline 2</td></tr>
<tr><td>Office responsible:</td><td colspan="3">Federal Office of Transport FOT
Approvals and Rules Section</td><td>Address:</td><td colspan="2">3003 Bern
Switzerland</td></tr>
<tr><td>E-mail:</td><td colspan="7">_BAV-WeiterentwicklungRegelwerke@bav.admin.ch</td></tr>
<tr><td colspan="2">Referenced TSI article:</td><td colspan="6">Open point for Baseline 2 in CCS TSI
Basic parameter (2015/2299/EU), Clause 12.2.5.2</td></tr>
<tr><td colspan="2">Reference in Swiss regulation:</td><td colspan="6">IP-RailO IP 38.3, Section 1.1
IP-RailO IP 47.1, Section 3.2</td></tr>
<tr><td colspan="2">Current NNTR classification:</td><td colspan="6">☒ NNTR on an ‘open point’ in the TSI
☐ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI
☐ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI</td></tr>
<tr><td colspan="2" rowspan="8">Full description:</td><td>Title</td><td colspan="5">Braking curve requirement for ERTMS/ETCS Baseline 2</td></tr>
<tr><td>Type of Requirement</td><td>Safety</td><td>Reliability/ availability</td><td>Health</td><td>Environment</td><td>Technical compatibility</td></tr>
<tr><td></td><td>X</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Scope of application</td><td colspan="5">ETCS on-board unit</td></tr>
<tr><td>Requirement</td><td colspan="5">Document for Baseline 2 – Braking curve “Anforderungen an die Parametrisierung und Validierung der Bremskurven für ETCS Level 2” (Requirements for parameterisation and validation of braking curves for ETCS level 2) Version 1.1 (SF ETCS CH baseline).</td></tr>
<tr><td>Reasons/explanation</td><td colspan="5">In the case of concrete projects, it is recommended to contact the SF ETCS CH for any new information.

Requirement relates to CH-TSI LOC&PAS-035.</td></tr>
<tr><td rowspan="2">Applicable to SRS version</td><td>2.2.2 +</td><td>2.3.0d</td><td>3.4.0</td><td>3.6.0</td><td></td></tr>
<tr><td>X</td><td>X</td><td>-</td><td>-</td><td></td></tr>
<tr><td>Validity period</td><td colspan="5">unlimited</td></tr>
<tr><td colspan="2">Current applicable norms in Switzerland:</td><td colspan="6"></td></tr>
<tr><td colspan="2">Test specification for certificate of conformity:</td><td colspan="6"></td></tr>
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Notified National Technical Rules (NNTRs)

ID:	CH-TSI CCS-008	State:	Switzerland	Version:	3.0	Date:	June. 2021

Title:	**Minimally implemented change requests**
Office responsible:	Federal Office of Transport FOT Approvals and Rules Section
Address:	3003 Bern Switzerland
E-mail:	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch
Referenced TSI article:	No corresponding requirements in CCS TSI. Basic parameter (2015/2299/EU), Clause 12.2.5.7
Reference in Swiss regulation:	IP-RailO IP 38.3, Section 1.1 IP-RailO IP 47.1, Section 3.2
Current NNTR classification:	☐ NNTR on an 'open point' in the TSI ☐ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI ☒ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI

Full description:

Title: Minimally implemented change requests

Type of Requirement	Safety	Reliability/ availability	Health	Environment	Technical compatibility
	X	X	-	-	X

Scope of application: ETCS on-board unit

Requirement:

An 'X' in the following table indicates which change requests (CRs) must be implemented in addition to the ETCS on-board unit's SRS version. Please pay attention to the footnotes.

CR	SRS 2.2.2+	SRS 2.3.0d	SRS 3.4.0	SRS 3.6.0
16, 34, 35, 46, 50, 55, 63, 88, 91, 94, 95, 102, 115, 138[1], 143, 144, 154[2], 155, 197, 209, 218, 223, 226, 231, 248, 252, 253, 268, 375, 379, 387, 389, 396, 398, 417, 419, 421, 436, 441, 445, 449, 454, 458[3], 460, 470, 476, 477, 499, 500[4], 512, 525, 532, 556, 600[5], 616, 620, 645, 688, 744, 781, 787, 788, 796	X			
336, 907, 917, 1019	X	X		
1091			X	
782[6], 1306, 1312 item 3b[7], 1326, 1382			X	X

In case of uncertainties or questions, please contact the SF ETCS CH.

<table>
<tr><td rowspan="4"></td><td></td><td colspan="5">[1] CR 138 must be implemented at least as follows:
- It must be possible to reset a braking comand in reversing mode when the vehicle is stationary.
- When the vehicle is in reversing mode and stationary, monitoring of the resetting distance may never lead to a comand of the brake, even when the remaining resetting distance is 0m or the permitted resetting distance has been exceeded.
NB: The amendment to SRS section 4.4.18.1.3 by CR 138 should be ignored, as CR 907 must be fully implemented.
[2] CR 154: Only the part relevant to reversing mode must be implemented.
[3] CR 458 must only be implemented if conditions are possible (e.g. owing to odometry problems) under which the ETCS on-board unit sends Packet 1, even though no single balise groups are located on the track.
[4] CR 500: Only the amendment to SRS section 3.18.3.4 must be implemented.
[5] CR 600: Only the part regarding the sending of position reports according to position report parameters in operating mode UN must be implemented.
[6] NB: CR 782 has been adopted for SRS versions 3.4.0 and 3.6.0. It has been shown that the adopted functionality leads to restrictions and risks (DAT 358). The EU is currently investigating this matter.
[7] CR 1312: The CR must be implemented at least to the extent that an operating mode must be confirmed before a message is sent.</td></tr>
<tr><td>Reasons/explanation</td><td colspan="5">See description of problem in the relevant CRs.</td></tr>
<tr><td rowspan="2">Applicable to SRS version</td><td>2.2.2 +</td><td>2.3.0d</td><td>3.4.0</td><td>3.6.0</td><td></td></tr>
<tr><td>X</td><td>X</td><td>X</td><td>X</td><td></td></tr>
<tr><td>Validity period</td><td colspan="5">unlimited</td></tr>
<tr><td>Current applicable norms in Switzerland:</td><td colspan="6"></td></tr>
<tr><td>Test specification for certificate of conformity:</td><td colspan="6"></td></tr>
</table>

Notified National Technical Rules (NNTRs)

ID:	**CH-TSI CCS-011**	**State:**	Switzerland	**Version:**	2.0	**Date:**	June 2019
Title:	**Euroloop functionality**						
Office responsible:	Federal Office of Transport FOT Approvals and Rules Section			**Address:**	3003 Bern Switzerland		
E-mail:	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
Referenced TSI article:	CCS TSI, Clause 4.2.2 (1) (b) "Euroloop-data transmission" Basic parameter (2015/2299/EU), Clause 12.2.5.7						
Reference in Swiss regulation:	IP-RailO IP 38.3, Section 1.1 IP-RailO IP 47.1, Section 3.2						
Current NNTR classification:	☐ NNTR on an 'open point' in the TSI ☒ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI ☐ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						

Full description:

Title	Euroloop functionality					
Type of Requirement	Safety	Reliability/ availability	Health	Environment	Technical compatibility	
	X	X	-	-	X	
Scope of application	ETCS on-board unit					
Requirement	The ETCS on-board unit must be able to read and process telegrams sent by Euroloop.					
Reasons/ explanation	In many stations the overlap at departure signals is very short or entirely absent. If a train departs despite the departure signal indicating stop, a hazard situation may ensue. In such situations Euroloop is activated at a departure signal indicating stop in order to transmit infill movement authority with release speed = 0km/h. The transmitted Euroloop telegram thus prevents a train crossing a signal indicating stop. It should be noted that Euroloop transmits restrictive monitoring data when it registers an error. If the departure signal sends movement authority, the Euroloop telegram permits the signal to be passed. Euroloop is also applied on routes with critical capacity. In order to ensure the efficient and safe operation of the railway network, ETCS on-board unit must therefore be able to read and process telegrams sent by Euroloop in both of the above cases.					
Applicable to SRS version	2.2.2 +	2.3.0d	3.4.0	3.6.0		
	-	-	X	X		
Validity period	unlimited					

Current applicable norms in Switzerland:	

Test specification for certificate of conformity:	

Notified National Technical Rules (NNTRs)

<table>
<tr><td>ID:</td><td>CH-TSI CCS-016</td><td>State:</td><td>Switzerland</td><td>Version:</td><td>3.0</td><td>Date:</td><td>June 2021</td></tr>
<tr><td>Title:</td><td colspan="7">Application of country-specific ETCS parameter values and functions</td></tr>
<tr><td>Office responsible:</td><td colspan="3">Federal Office of Transport FOT
Approvals and Rules Section</td><td>Address:</td><td colspan="2">3003 Bern
Switzerland</td></tr>
<tr><td>E-mail:</td><td colspan="7">_BAV-WeiterentwicklungRegelwerke@bav.admin.ch</td></tr>
<tr><td colspan="2">Referenced TSI article:</td><td colspan="6">No corresponding requirements in CCS TSI.
Basic parameter (2015/2299/EU), Clause 12.2.4.5</td></tr>
<tr><td colspan="2">Reference in Swiss regulation:</td><td colspan="6">IP-RailO IP 38.3, Section 1.1
IP-RailO IP 47.1, Section 3.2</td></tr>
<tr><td colspan="2">Current NNTR classification:</td><td colspan="6">☐ NNTR on an ‘open point’ in the TSI
☐ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI
☒ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI</td></tr>
<tr><td colspan="2" rowspan="8">Full description:</td><td>Title</td><td colspan="5">Application of country-specific ETCS parameter values and functions</td></tr>
<tr><td rowspan="2">Type of Requirement</td><td>Safety</td><td>Reliability/ availability</td><td>Health</td><td>Environment</td><td>Technical compatibility</td></tr>
<tr><td>X</td><td>X</td><td>-</td><td>-</td><td>X</td></tr>
<tr><td>Scope of application</td><td colspan="5">ETCS on-board unit</td></tr>
<tr><td>Requirement</td><td colspan="5">It must be assured by technical means that only the ETCS parameter values and functions valid in Switzerland are used.</td></tr>
<tr><td>Reasons/explanation</td><td colspan="5">This requirement only applies to parameters that cannot be transmitted by lineside ECTS equipment.

The application of the correct parameter values is either important from a safety aspect (e.g. braking curve parameters) or necessary for technical compatibility (e.g. use of correct pantograph). This has an indirect impact on track availability.

If a ETCS on-board equipment deviates (additional as well as fewer) from the TSI and national rules (including ESC/RSC), these must be stated so that they can be addressed in the «Sicherheitsnachweiskonzept für die Erlangung einer ETCS-Zulassung in der Schweiz (inkl. Testkonzept)» for safe integration. Safe integration is understood to mean both the integration of the ETCS on-board equipment into a vehicle and the integration of a vehicle with the trackside system. Essential specifications for this are set out in the «Sicherheitsnachweiskonzept für die Erlangung einer ETCS-Zulassung in der Schweiz (inkl. Testkonzept)», referenced with CH-CSM-RA-001.</td></tr>
<tr><td rowspan="2">Applicable to SRS version</td><td>2.2.2 +</td><td>2.3.0d</td><td>3.4.0</td><td>3.6.0</td><td></td></tr>
<tr><td>X</td><td>X</td><td>X</td><td>X</td><td></td></tr>
<tr><td>Validity period</td><td colspan="5">unlimited</td></tr>
<tr><td colspan="2">Current applicable norms in Switzerland:</td><td colspan="6"></td></tr>
</table>

Test specification for certificate of conformity:	

Notified National Technical Rules (NNTRs)

ID:	CH-TSI CCS-019	State:	Switzerland	Version:	3.0	Date:	June 2021
Title:	**Acceptance and display of train data**						
Office responsible:	Federal Office of Transport FOT Approvals and Rules Section			**Address:**	3003 Bern Switzerland		
E-mail:	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
Referenced TSI article:	CCS TSI, SUBSET-026, Clause 3.18.3.2.1 CCS TSI, ERA_ERTMS_015560, Clause 11.7.3 CCS TSI, SUBSET-034, Clause 2.6 Basic parameter (2015/2299/EU), Clause 12.2.5.4						
Reference in Swiss regulation:	IP-RailO IP 38.3, Section 1.1 IP-RailO IP 47.1, Section 3.2						
Current NNTR classification:	☐ NNTR on an 'open point' in the TSI ☐ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI ☒ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						

Full description:

Title	Acceptance and display of train data					
Type of Requirement	Safety	Reliability/ availability	Health	Environment	Technical compatibility	
	X	-	-	-	-	
Scope of application	ETCS on-board units on multiple units					
Requirement	The following implementation is permitted if the train driver initiates a change of the train data: The display of proposed values from a source other than ETCS is also possible, in case of a manually requested train data entry, if the stored ETCS values are valid.					
Reasons/explanation	For new train data to become valid, the train driver must carry out an intentional action. Implementations are permitted that neither lead to an automatic change in ETCS train data nor automatically launch a process requiring the train driver to confirm changed ETCS train data. However, the train data from an external source should be displayed as default values when the train driver initiates a change in the train data. Note: See also CR 1381.					
Applicable to SRS version	2.2.2 +	2.3.0d	3.4.0	3.6.0		
	X	X	X	X		
Validity period	unlimited					

Current applicable norms in Switzerland:	
Test specification for certificate of conformity:	

Notified National Technical Rules (NNTRs)

ID:	**CH-TSI CCS-022**	**State:**	Switzerland	**Version:**	2.1	**Date:**	June 2021

Title:	**Reversing in 'Unfitted' mode**		
Office responsible:	Federal Office of Transport FOT Approvals and Rules Section	**Address:**	3003 Bern Switzerland
E-mail:	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch		

Referenced TSI article:	CCS TSI, SUBSET-026, Clause 4.5.2 'Reverse Movement Protection' Basic parameter (2015/2299/EU), Clause 12.2.5.8
Reference in Swiss regulation:	IP-RailO IP 38.3, Section 1.1 IP-RailO IP 47.1, Section 3.2
Current NNTR classification:	☐ NNTR on an 'open point' in the TSI ☐ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI ☒ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI

Full description:

Title	Reversing in 'Unfitted' mode					
Type of Requirement	Safety	Reliability/ availability	Health	Environment	Technical compatibility	
	X	-	-	-	-	
Scope of application	ETCS on-board unit (maintenance vehicles/yellow fleet)					
Requirement	Reverse movement must be prevented in 'Unfitted' mode. The tolerance for reverse movement is a distance of 10m (D_NVROLL value selected in Switzerland). This requirement only applies to maintenance vehicles (yellow fleet) with one driver's cab (with either single or dual control stand) for both directions.					
Reasons/explanation	A vehicle must be prevented from driving backwards over a level crossing in 'Unfitted mode' without switching level (P41). NB: The possible solution is open.; For example, it may be a solution in the vehicle or the 'reverse movement protection' function is activated in 'Unfitted' mode.					
Applicable to SRS version	2.2.2 +	2.3.0d	3.4.0	3.6.0		
	X	X	X	X		
Validity period	unlimited					

Current applicable norms in Switzerland:	
Test specification for certificate of conformity:	

Notified National Technical Rules (NNTRs)

ID:	CH-TSI CCS-023	State:	Switzerland	Version:	2.0	Date:	June 2019
Title:	**Text message display**						
Office responsible:	Federal Office of Transport FOT Approvals and Rules Section			**Address:**	3003 Bern Switzerland		
E-mail:	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						

Referenced TSI article:	No corresponding requirements in CCS TSI. Basic parameter (2015/2299/EU), Clause 12.2.5.5
Reference in Swiss regulation:	IP-RailO IP 38.3, Section 1.1 IP-RailO IP 47.1, Section 3.2
Current NNTR classification:	☐ NNTR on an 'open point' in the TSI ☐ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI ☒ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI

Full description:

Title	Text message display					
Type of Requirement	Safety	Reliability/ availability	Health	Environment	Technical compatibility	
	X	X	-	-	X	
Scope of application	ETCS on-board unit					
Requirement	It must be possible to display on the DMI text messages of up to 40 characters sent from the route without scrolling.					
Reasons/explanation	The driver must be able to see, identify and read text messages quickly and easily.					
Applicable to SRS version	2.2.2 +	2.3.0d	3.4.0	3.6.0		
	X	X	-	-		
Validity period	unlimited					

Current applicable norms in Switzerland:	
Test specification for certificate of conformity:	

Notified National Technical Rules (NNTRs)

ID:	**CH-TSI CCS-024**	**State:**	Switzerland	**Version:**	3.0	**Date:**	June 2021

Title:	**Flexible train data entry**		
Office responsible:	Federal Office of Transport FOT Approvals and Rules Section	**Address:**	3003 Bern Switzerland
E-mail:	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch		
Referenced TSI article:	ERA_ERTMS_015560 v340 or v360, 11.3.9.6 and Table 39		
Reference in Swiss regulation:	IP-RailO IP 38.3, Section 1.1 IP-RailO IP 47.1, Section 3.2 RSR R 300.5 Section 3.7.4		
Current NNTR classification:	☐ NNTR on an 'open point' in the TSI ☐ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI ☒ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI		

Full description:

Title	**Flexible train data entry**					
Type of Requirement	Safety	Reliability/ availability	Health	Environment	Technical compatibility	
	X	X	-	-	X	
Scope of application	ETCS on-board unit					
Requirement	Train data input must allow optimised operation according to train categories (RSR) (applies to all train data NC_TRAIN, M_AXLELOAD, V_MAXTRAIN etc.).					
Reasons/ explanation	It is unacceptable that trains cannot run with the appropriate train category (too slow or too fast) owing to inflexible train data entry. Example: On a trainset with fixed train data entry (train types according to ERA_ERTMS_015560 v340 or v360, 11.3.9.6 and Table 39), which can run with the Swiss W or R series, the selectable train types must permit the entry of ETCS train data corresponding to the W or R series. Example: On a locomotive with flexible train data entry (with entry fields as in ERA_ERTMS_015560 v340 or v360, 11.3.9.6 and Table 40), which can run with Swiss R, A or D series depending on the composition of the train, the input fields must allow ETCS train data to be entered which corresponds to the operational series R, A or D respectively according the RSR.					
Applicable to SRS version	2.2.2 +	2.3.0d	3.4.0	3.6.0		
	X	X	X	X		
Validity period	unlimited					

Current applicable norms in Switzerland:	
Test specification for certificate of conformity:	

Notified National Technical Rules (NNTRs)

ID:	**CH-TSI CCS-026**	**State:**	Switzerland	**Version:**	2.1	**Date:**	June 2021
Title:	**Online on-board monitoring of line equipment**						
Office responsible:	Federal Office of Transport FOT Approvals and Rules Section			**Address:**	3003 Bern Switzerland		
E-mail:	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						

Referenced TSI article:	No corresponding requirements in CCS TSI. Basic parameter (2015/2299/EU), Clause 12.2.5.8
Reference in Swiss regulation:	IP-RailO IP 38.3, Section 1.1 IP-RailO IP 47.1, Section 3.2
Current NNTR classification:	☐ NNTR on an 'open point' in the TSI ☐ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI ☒ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI

Full description:

Title	Online on-board monitoring of line equipment					
Type of Requirement	Safety	Reliability/ availability	Health	Environment	Technical compatibility	
	X	X	-	-	X	
Scope of application	ETCS on-board unit					
Requirement	The ETCS on-board equipment must be able to register and transmit information for online monitoring. The requirements set out in the document 'Generisches Lastenheft Online Monitoring auf ETCS Fahrzeugen' (generic specification catalogue on online monitoring on ETCS vehicles) Version 1.3.3 (SF ETCS CH baseline) must be met.					
Reasons/explanation	This meets and ensure high availability on track. Greater availability reduces safety risks resulting from the failure of lineside components. In the case of actual projects, the SF ETCS CH should be consulted over the current status. Note: See CR 1362.					
Applicable to SRS version	2.2.2 +	2.3.0d	3.4.0	3.6.0		
	-	-	X	X		
Validity period	unlimited					

Current applicable norms in Switzerland: diesbezüglich geltende Normen:	
Test specification for certificate of conformity:	

Notified National Technical Rules (NNTRs)

ID:	CH-TSI CCS-032	State:	Switzerland	Version:	2.1	Date:	June 2021
Title:	**Unique number for ETCS on-board equipment and GSM-R voice cab radio**						
Office responsible:	Federal Office of Transport FOT Approvals and Rules Section			**Address:**	3003 Bern Switzerland		
E-mail:	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						

Referenced TSI article:	No corresponding requirements in CCS TSI. GSM-R Functional Requirements Specification (FRS, Version 8.0.0), 5.2.3.28i. GSM-R System Requirements Specification (SRS), 5.8.1 and 5.10.2.
Reference in Swiss regulation:	IP-RailO IP 38.3, Section 1.1 IP-RailO IP 47.1, Section 3.2
Current NNTR classification:	☐ NNTR on an 'open point' in the TSI ☐ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI ☒ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI

Full description:

Title	Unique number for ETCS on-board equipment and GSM-R voice cab radio				
Type of Requirement	Safety	Reliability/availability	Health	Environment	Technical compatibility
	X	X	-	-	-
Scope of application	ETCS on-board unit				
Requirement	If the train number is entered at the ETCS-DMI, it must be ensured by technical means that the unique number is available to both the ETCS on-board equipment and the GSM-R voice CabRadio. If the train number is adopted from a subsystem outside of CCS, it must be ensured that this train number is available to both the ETCS on-board equipment and the GSM-R voice cab radio. ETCS on-board unit (OBU) and GSM-R cab radio must share an interface and have the necessary functional components.				
Reasons/explanation	The train driver can be reached by train radio (GSM-R voice cab radio) using the train number (functional addressing). In particular in long tunnels it must be ensured that the train driver can be reached immediately (e.g. in the event of an incident). This is possible when the same train number is used. Note: See also CR 372.				
Applicable to SRS version	2.2.2 +	2.3.0d	3.4.0	3.6.0	
	X	X	X	X	
Validity period	unlimited				

Current applicable norms in Switzerland:	
Test specification for certificate of conformity:	

Notified National Technical Rules (NNTRs)

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<tr><td>ID:</td><td>CH-TSI CCS-033</td><td>State:</td><td>Switzerland</td><td>Version:</td><td>2.0</td><td>Date:</td><td>June 2021</td></tr>
<tr><td>Title:</td><td colspan="7">GSM-R Voice Functionalities</td></tr>
<tr><td>Office responsible:</td><td colspan="3">Federal Office of Transport FOT
Approvals and Rules Section</td><td>Address:</td><td colspan="2">3003 Bern
Switzerland</td></tr>
<tr><td>E-mail:</td><td colspan="7">_BAV-WeiterentwicklungRegelwerke@bav.admin.ch</td></tr>
<tr><td colspan="2">Referenced TSI article:</td><td colspan="6">No corresponding requirements in CCS TSI.
Basic parameter (2015/2299/EU), Clause 12.1.2.2</td></tr>
<tr><td colspan="2">Reference in Swiss regulation:</td><td colspan="6">IP-RailO IP 38.3, Section 1.1
IP-RailO IP 47.1, Section 3.2</td></tr>
<tr><td colspan="2">Current NNTR classification:</td><td colspan="6">☐ NNTR on an ‘open point’ in the TSI
☐ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI
☒ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI</td></tr>
<tr><td colspan="2" rowspan="6">Full description:</td><td>Title</td><td colspan="5">GSM-R Voice Functionalities</td></tr>
<tr><td rowspan="2">Type of requirement</td><td>Safety</td><td>Reliability/ availability</td><td>Health</td><td>Environment</td><td>Technical compatibility</td></tr>
<tr><td>-</td><td>X</td><td>-</td><td>-</td><td>X</td></tr>
<tr><td>Scope of application</td><td colspan="5">ERTMS/GSM-R for speech applications (CabRadio)</td></tr>
<tr><td>Requirement</td><td colspan="5">GSM-R terminals on shunting vehicles must meet the following requirements:
1. Support cell change in group calls (as talker and listener) with SI10bis/ter implementation and processing at terminals with resulting cell change times of less than 500 ms.
2. Support PtP calls in ER-GSM bands.
3. Support shunting group call (VGCS) incl. shunting emergency call (SEC) in ER-GSM bands.
4. Support additional SBB Enhanced Automatic Conferencing (eAC) service in SBB's Swisscom Public and GSM-R network.
Proof of compliance must be provided by a recognised or certified laboratory that maps the Swiss GSM-R network.</td></tr>
<tr><td>Reasons/ explanation</td><td colspan="5">There are CabRadio technical requirements for GSM-R terminals on shunting vehicles. These allow the greatly limited GSM-R capacities to be used efficiently. For example, a. short cell change time of 500ms guarantees an uninterrupted voice connection incl. transmission of the connection monitoring tone, thereby avoiding an unintentional stop during shunting.
Shunting vehicles are termed ‘shunters’ in the LOC&PAS TSI. These may include maintenance vehicles, depending on their use.</td></tr>
<tr><td rowspan="2">Applicable to SRS version</td><td>2.2.2 +</td><td>2.3.0d</td><td>3.4.0</td><td>3.6.0</td><td></td></tr>
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	Validity period	unlimited
Current applicable norms in Switzerland:		
Test specification for certificate of conformity:		

Notified National Technical Rules (NNTRs)

<table>
<tr><td>ID:</td><td>CH-TSI CCS-034</td><td>State:</td><td>Switzerland</td><td>Version:</td><td>1.0</td><td>Date:</td><td>June 2019</td></tr>
<tr><td>Title:</td><td colspan="7">‘Non-leading’ mode</td></tr>
<tr><td>Office responsible:</td><td colspan="3">Federal Office of Transport FOT
Approvals and Rules Section</td><td>Address:</td><td colspan="2">3003 Bern
Switzerland</td></tr>
<tr><td>E-mail:</td><td colspan="7">_BAV-WeiterentwicklungRegelwerke@bav.admin.ch</td></tr>
<tr><td colspan="2">Referenced TSI article:</td><td colspan="6">For Baseline 2: CCS TSI, SUBSET-026, Clause 4.6.3, Condition [46] and no corresponding requirements in the CCS TSI, SUBSET-034.</td></tr>
<tr><td colspan="2">Reference in Swiss regulation:</td><td colspan="6">IP-RailO IP 38.3, Section 1.1
IP-RailO IP 47.1, Section 3.2</td></tr>
<tr><td colspan="2">Current NNTR classification:</td><td colspan="6">☐ NNTR on an ‘open point’ in the TSI
☒ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI
☐ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI</td></tr>
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<tr><td rowspan="2">Type of Requirement</td><td>Safety</td><td>Reliability/ availability</td><td>Health</td><td>Environment</td><td>Technical compatibility</td></tr>
<tr><td>X</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Scope of application</td><td colspan="5">ETCS on-board unit</td></tr>
<tr><td>Requirement</td><td colspan="5">The ETCS on-board unit may only switch to ‘non-leading’ mode when
• the train driver selects ‘Non-leading’ AND
• the vehicle is stationary AND
• the non-leading input signal displays the status ‘Non-leading permitted’.</td></tr>
<tr><td>Reasons/explanation</td><td colspan="5">The requirements corresponds to Condition [46] in Baseline-3-SRS, which is also required herewith for ETCS on-board units with Baseline 2.
Requirement relates to CH-TSI LOC&PAS-019.</td></tr>
<tr><td rowspan="2">Applicable to SRS version</td><td>2.2.2 +</td><td>2.3.0d</td><td>3.4.0</td><td>3.6.0</td><td></td></tr>
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<tr><td colspan="2">Test specification for certificate of conformity:</td><td colspan="6"></td></tr>
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Notified National Technical Rules (NNTRs)

ID:	**CH-TSI CCS-038**	**State:**	Switzerland	**Version:**	1.1	**Date:**	June 2021
Title:	**Disclosure of large odometry confidence interval**						
Office responsible:	Federal Office of Transport FOT Approvals and Rules Section			**Address:**	3003 Bern Switzerland		
E-mail:	_BAV-WeiterentwicklungRegelwerke@bav.admin.ch						
Referenced TSI article:	CCS TSI, SUBSET-041 (Index 14)						
Reference in Swiss regulation:	IP-RailO IP 38.3, Section 1.1 IP-RailO IP 47.1, Section 3.2						
Current NNTR classification:	☐ NNTR on an 'open point' in the TSI ☐ NNTR due to difference between Swiss regulation and corresponding requirements in the TSI ☒ NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						
Full description:	**Title**	Disclosure of large odometry confidence interval					
	Type of Requirement	Safety	Reliability/ availability	Health	Environment	Technical compatibility	
		X	-	-	-	-	
	Scope of application	ETCS on-board unit					
	Requirement	If there are deviations from the specifications in SUBSET-041 (CCS TSI) clause 5.3.1.1, the train driver must be fully informed. The resulting action to be taken by the train driver is determined by the on-board integrator. NB: The implementation of this requirement is described in more detail in the FOT's letter dated 30 September 2019 to the sector explaining the NNTR updates and publications of July and September 2019 (BAV-421.14-00001/00035/00005/00002).					
	Reasons/explanation	It must be clear to the train driver that the path measurement deviates from the odometric accuracy required in the specification. Note: See CR 1389.					
	Applicable to SRS version	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		X	X	X	X		
	Validity period	unlimited					
Current applicable norms in Switzerland:							
Test specification for certificate of conformity:							