

Notified National Technical Rules (NNTRs)

ID	CH-TSI CCS-003	State:	Switzerland	Status	Applicable	from:	July 2016																											
Title:	Activation / Deactivation of transfer of packet 44 to SIGNUM/ZUB																																	
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 TSI CCS.																																	
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2																																	
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input checked="" type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI																																	
Full description:	Title:	Activation / Deactivation of transfer of packet 44 to SIGNUM/ZUB																																
	Type of requirement	Safety	Reliability / Availability	Health	Environment	Technical compatibility																												
		X	-	-	-	X																												
	Applicability	ETCS on-board unit																																
	Requirement	<p>When the ETCS on-board switches the ETCS level or mode, transmission of packet 44 with NID_XUSER=2 read from the ETCS balise to ZUB and SIGNUM (ETM or ZUB 262) shall be activated or deactivated according to the following table.</p> <p>Transmission shall be activated or deactivated within 1700 milliseconds.</p> <p>Tolerated unavailability: $10^{-4}/h$</p> <p>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 shall be activated.</p> <p><u>Abbreviations in the table</u></p> <p>Y: Transmission activated</p> <p>N: Transmission deactivated</p> <p>N/A: Not applicable</p> <p>Remaining abbreviations according to SRS (SUBSET-026)</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th>Mode</th> <th>Level 0</th> <th>Level 1</th> <th>Level 2</th> </tr> </thead> <tbody> <tr> <td>UN</td> <td>Y</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> <tr> <td>SH</td> <td>Y</td> <td>Y</td> <td>Y</td> </tr> <tr> <td>SL</td> <td>Y</td> <td>Y</td> <td>Y</td> </tr> </tbody> </table>						Mode	Level 0	Level 1	Level 2	UN	Y	N/A	N/A	SR	N/A	N	N	FS	N/A	N	N	OS	N/A	N	N	SH	Y	Y	Y	SL	Y	Y
Mode	Level 0	Level 1	Level 2																															
UN	Y	N/A	N/A																															
SR	N/A	N	N																															
FS	N/A	N	N																															
OS	N/A	N	N																															
SH	Y	Y	Y																															
SL	Y	Y	Y																															

		NL	Y	Y	Y	
		NP	Y	Y	Y	
		IS	Y	Y	Y	
		SF	Y	Y	Y	
		SE	N/A	N/A	N/A	
		SN	N/A	N/A	N/A	
		SB	Y	Y	Y	
		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 must not enter a ETCS level 2 line. For this reason a balise group sends packet 44 stop information beyond the level 0 → level 2 border. In order to prevent leading vehicles that have switched to ETCS level 2 from being tripped by the national train control system, the ETCS on-board unit must prevent transmission of packet 44 with 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.				
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0	
	X	X	-	-		
Regulation classification	Group C					
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:						
Test specification for certificate of conformity:						

Notified National Technical Rules (NNTRs)

ID	CH-TSI CCS-005	State:	Switzerland	Status	Applicable	from:	July 2016
Title:	GSM-R Proof of Quality of Service						
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 TSI CCS.						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input checked="" type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						
Full description:	Title:	GSM-R Proof of Quality of Service					
	Type of requirement	Safety	Reliability / availability	Health	Environment	Technical compatibility	
		-	X	-	-	X	
	Scope of application	ETCS on-board unit					
	Requirement	The ETCS data channel shall meet the QoS parameters in Subset-093 V2.3.0 "GSM-R Interfaces Class 1 Requirements". Version 3.0 shall be used for document O-2475 "ERTMS/GSM-R Quality of Service Test Specification" referenced in Subset-093. For on-board units with SRS version 3.6.0 (ETCS Baseline 3 Release 2) or higher, the respectively valid version shall be met.					
	Reasons/ explanation	Compliance with required QoS parameters for GSM-R in order to ensure reliable operation on ETCS Level 2 lines in Switzerland.					
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		X	X	X	X		
	Regulation classification	Group C					
	Validity period	unlimited					
Current applicable norms in Switzerland:							
Test specification for certificate of conformity:							

Notified National Technical Rules (NNTRs)

ID	CH-TSI CCS-006	State:	Switzerland	Status	Applicable	from:	July 2016
Title:	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:	For Baseline 2: ETCS System Requirement Specification (SRS), 4.6.3, Condition [46] and no corresponding requirements in TSI CCS (Subset-034). For Baseline 3: Subset-034, Version 3.1.0, 2.2.3.3.1 b)						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						
Full description:	Title:	Non Leading mode					
	Type of Requirement	Safety	Reliability / availability	Health	Environment	Technical compatibility	
		X	-	-	-	-	
	Scope of application	ETCS on-board unit					
	Requirement	1) The ETCS on-board unit shall only switch to Non Leading mode when <ul style="list-style-type: none"> the driver selects Non Leading AND the train is at standstill AND the "Non-leading permitted" input value is received. 2) When the ETCS on-board unit is in Non Leading mode and it is not receiving the "Non-leading permitted" input value from the train interface, the ETCS on-board unit shall display the text message according to point 3). 3) The following text shall be displayed on the DMI depending on the selected language: <ul style="list-style-type: none"> EN: NL not allowed DE: Betriebsart NL unzulässig FR: NL pas valable IT: NL non valido 					
	Reasons/ explanation	Requirement 1) corresponds to condition [46] in the SRS of Baseline 3, which hereby is also required for Baseline 2 on-board units. Due to the text message the driver can react immediately when the "Non-leading permitted" input value is lost. Requirement relates to CH-TSI LOC&PAS-019.					
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		X	X	X	X		
	Regulation classification	Group C					
	Validity period	unlimited					

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

Notified National Technical Rules (NNTRs)

ID	CH-TSI CCS-007	State:	Switzerland	Status	Applicable	from:	July 2016
Title:	Braking curve requirements for ERTMS/ETCS Baseline 2						
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:	Open point for Baseline 2 in TSI CCS.						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input checked="" type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						
Full description:	Title:	Braking curve requirements for ERTMS/ETCS Baseline 2					
	Type of Requirement	Safety	Reliability / availability	Health	Environment	Technical compatibility	
		X	-	-	-	-	
	Scope of application	ETCS on-board unit					
	Requirement	See document "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 1.0.					
	Reasons/ explanation	Requirement relates to CH-TSI LOC&PAS-035.					
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		X	X	-	-		
	Regulation classification	Group C					
	Validity period	unlimited					
Current applicable norms in Switzerland:							
Test specification for certificate of conformity:							

Notified National Technical Rules (NNTRs)

ID	CH-TSI CCS-008	State:	Switzerland	Status	Applicable	from:	July 2016								
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 TSI CCS.														
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2														
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input checked="" type="checkbox"/> 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) shall be implemented in addition to the ETCS on-board unit's SRS version. The footnotes shall be taken into account.													
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">CR</th> <th style="width: 15%;">SRS 2.2.2+</th> <th style="width: 15%;">SRS 2.3.0d</th> </tr> </thead> <tbody> <tr> <td>16, 34, 35, 46, 50, 55, 63, 88, 91, 94, 95, 102, 115, 138¹, 143, 144, 154², 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, 458³, 460, 470, 476, 477, 499, 500⁴, 512, 525, 532, 556, 600⁵, 616, 620, 645, 688, 744, 781, 787, 788, 796</td> <td style="text-align: center; vertical-align: middle;">X</td> <td></td> </tr> <tr> <td>336, 907, 917, 1019</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> </tr> </tbody> </table>							CR	SRS 2.2.2+	SRS 2.3.0d	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
CR	SRS 2.2.2+	SRS 2.3.0d													
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													

¹ CR 138 shall be implemented at least as follows:

- It shall be possible to release the brakes in Reversing mode when the vehicle is at standstill.
- In Reversing mode at standstill, brakes shall never be applied, even when the remaining reversing distance is 0 m or the permitted reversing distance has been exceeded.

Note: The amendment to SRS section 4.4.18.1.3 by CR 138 shall be ignored, as CR 907 shall be fully implemented.

² CR 154: At least the part relevant for Reversing mode shall be implemented.

³ It is only necessary to implement CR 458 if conditions are possible (e.g. due to odometry problems) under which the ETCS on-board unit sends packet 1, even though there are no single balise

		groups installed on the track. ⁴ CR 500: At least the change to SRS section 3.18.3.4 shall be implemented. ⁵ CR 600: At least the part regarding the sending of position reports according to position report parameters in mode UN shall be implemented.				
	Reasons/ explanation	See problem description in the relevant CRs.				
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0	
		X	X	-	-	
	Regulation classification	Group C				
	Validity period	unlimited				
Current applicable norms in Switzerland:						
Test specification for certificate of conformity:						

Notified National Technical Rules (NNTRs)

ID	CH-TSI CCS-011	State:	Switzerland	Status	Applicable	from:	July 2016
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:	TSI CCS, Cap. 4.2.2 (1) (b) "Euroloop data transmission"						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input checked="" type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input type="checkbox"/> 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 shall be able to read and process telegrams sent by Euroloop.					
	Reasons/ explanation	<p>In many stations the overlap at departure signals is very short or non-existent. If a train departs despite the departure signal indicating stop, a hazardous situation could arise.</p> <p>In such situations a Euroloop is used to send an infill movement authority with release speed = 0 km/h to prevent that the signal is being passed. The reading and processing of Euroloop by the ETCS on-board unit therefore is safety relevant.</p> <p>It should be noted that the Euroloop transmits restrictive supervision data when it registers an error.</p> <p>If the departure signal indicates a movement authority, the Euroloop telegram allows the signal to be passed.</p> <p>Euroloops are also installed on line sections with high capacity requirements.</p> <p>In order to ensure the efficient and safe operation of the railway network, the ETCS on-board unit must therefore be able to read and process telegrams sent by Euroloop in both of the above cases.</p>					
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		-	-	X	X		
	Regulation classification	Group C					
	Validity period	unlimited					
Current applicable norms in Switzerland:							

Test specification for certificate of conformi- ty:	
--	--

Notified National Technical Rules (NNTRs)

ID	CH-TSI CCS-015	State:	Switzerland	Status	Applicable	from:	July 2016
Title:	Simultaneous handling of two GSM-R data channels						
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 TSI CCS.						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input checked="" type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						
Full description:	Title:	Simultaneous handling of two GSM-R data channels					
	Type of Requirement	Safety	Reliability / availability	Health	Environment	Technical compatibility	
		-	X	-	-	-	
	Scope of application	ETCS on-board unit					
	Requirement	For the RBC handover, the ETCS on-board unit shall be capable of handling two communication sessions simultaneously.					
	Reasons/ explanation	For capacity reasons, an ETCS on-board unit needs to be able to establish a data connection with both RBCs during an RBC handover. Requirement relates to CH-TSI LOC&PAS-024.					
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		X	X	X			
	Regulation classification	Group C					
	Validity period	unlimited					
Current applicable norms in Switzerland:							
Test specification for certificate of conformity:							

Notified National Technical Rules (NNTRs)

ID	CH-TSI CCS-016	State:	Switzerland	Status	Applicable	from:	July 2016
Title:	Application of country-specific parameterisation						
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 TSI CCS.						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input checked="" type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						
Full description:	Title:	Application of country-specific parameterisation					
	Type of Requirement	Safety	Reliability / availability	Health	Environment	Technical compatibility	
		X	X	-	-	X	
	Scope of application	ETCS on-board unit					
	Requirement	When an ETCS on-board unit has non-Swiss parameter values available in addition to Swiss parameter values, it shall be assured by technical means that only the Swiss parameter values are used on Swiss ETCS lines. This requirement applies only for parameters that are not transmitted by ETCS trackside equipment.					
	Reasons/ explanation	E.g. this applies for parameters for braking curve calculation on Baseline 2 on-board units, for the use of pantographs, for switching on/off eddy-current brakes, etc.. The application of the correct parameter values is either safety relevant (e.g. braking curve parameters) or necessary for technical compatibility (e.g. use of correct pantograph), which has an indirect impact on track availability.					
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		X	X	X	X		
	Regulation classification	Group C					
	Validity period	unlimited					
Current applicable norms in Switzerland:							
Test specification for certificate of conformity:							

Notified National Technical Rules (NNTRs)

ID	CH-TSI CCS-018	State:	Switzerland	Status	Applicable	from:	July 2016
Title:	Prohibition of level STM/NTC "SIGNUM/ZUB"						
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 TSI CCS.						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input checked="" type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						
Full description:	Title:	Prohibition of level STM/NTC "SIGNUM/ZUB"					
	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 shall not offer level STM "SIGNUM/ZUB" (Baseline 2) or level NTC "SIGNUM/ZUB" (Baseline 3).					
	Reasons/ explanation	The Swiss standard gauge network is designed so that ETCS vehicles outside of ETCS level 2 lines run in level 0 (Baseline 2 vehicles) or level 1 (Baseline 3 vehicles). STM and NTC levels are not supported.					
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		X	X	X	X		
	Regulation classification	Group C					
	Validity period	unlimited					
Current applicable norms in Switzerland:							
Test specification for certificate of conformity:							

Notified National Technical Rules (NNTRs)

ID	CH-TSI CCS-019	State:	Switzerland	Status	Applicable	from:	July 2016
Title:	Automatic 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:	Subset-026, Section 3.18.3.2.1 and Section 5.17; Subset-034, Section 2.6. The requirements listed are not exhaustive.						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1; IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input checked="" type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						
Full description:	Title:	Automatic 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 train sets					
	Requirement	The ETCS on-board unit shall be able to receive train data via the train interface. Train data shall be displayed on the DMI so that the train driver can modify them if necessary and confirm them.					
	Reasons/ explanation	The automatic transfer of train data reduces the risk of the driver entering incorrect train data. Requirement relates to CH-TSI LOC&PAS-034.					
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		X	X	X	X		
	Regulation classification	Group C					
	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	Status	Applicable	from:	July 2016
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:	ETCS System Requirements Specification (SRS), Cap. 4.5.2 "Reverse Movement Protection"						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input checked="" type="checkbox"/> 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					
	Requirement	On vehicles that are newly equipped with ETCS the 'Reverse movement protection' function shall be active in Unfitted mode . In vehicles with only one control panel for both directions, it shall be technically ensured that the orientation with respect to the mode and the driving direction can be clearly and easily defined.					
	Reasons/ explanation	A vehicle must be prevented from driving backwards over a level border in Unfitted mode without changing the level.					
	Applies to (please tick as appropriate)	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		X	X	-	-		
	Regulation classification	Group C					
	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	Status	Applicable	from:	July 2016
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 TSI CCS.						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input checked="" type="checkbox"/> 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 shall be possible to display on the DMI text messages of up to 40 characters sent from trackside without scrolling.					
	Reasons/ explanation	The driver must be able to see, identify and read text messages quickly and easily.					
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		X	X	-	-		
	Regulation classification	Group C					
	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	Status	Applicable	from:	July 2016
Title:	Train data: NC_TRAIN, M_AXLELOAD, V_MAXTRAIN.						
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 TSI CCS.						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input checked="" type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						
Full description:	Title:	Train data: NC_TRAIN, M_AXLELOAD, V_MAXTRAIN.					
	Type of Requirement	Safety	Reliability / availability	Health	Environment	Technical compatibility	
		X	X	-	-	X	
	Scope of application	ETCS on-board unit					
	Requirement	<p>Train data entry shall allow the ETCS train data NC_TRAIN, M_AXLELOAD and V_MAXTRAIN to be set to values that allow to run in the optimum Swiss operational train category. Example: It shall be possible to enter ETCS train data according to Swiss operational train category R, A and D on a locomotive that can run in R, A or D.</p> <p>On tilting trains train data entry shall allow the ETCS train data NC_TRAIN, M_AXLELOAD and V_MAXTRAIN to be set to values that also allow the train to run in Swiss operational train category $R_{\leq 18t}$.</p> <p>Table 1 shows to which values the ETCS train data shall be set to be able to run in the corresponding Swiss operational train category.</p> <p>On internationally operated trains, NC_TRAIN shall be set by selecting the 'label' according to Baseline 3 (see Table 41 in ERA_ERTMS_015560 v340) or by selecting the train type / brake position according to Table 2. It shall not be necessary to enter or select a cant deficiency (e.g. '150 mm'). Train data entry that conforms to Baseline 3 is preferred.</p> <p>On internationally operated trains, M_AXLELOAD shall be set by selecting the axle load category according to Baseline 3 (see Figure 121 in ERA_ERTMS_015560 v340) or by entering the value in tons. Train data entry that conforms to Baseline 3 is preferred.</p> <p>On trains operating exclusively in Switzerland, NC_TRAIN and M_AXLELOAD shall be entered in the same way as on internationally operated trains or by selecting the Swiss operational train category e.g. R, A or D.</p> <p>When showing that this requirement has been met, it shall be demonstrated to which values the ETCS train data (at least NC_TRAIN, M_AXLELOAD, V_MAXTRAIN and L_TRAIN) are set depending on the input on the DMI.</p>					

M_AXLELOAD, NC_TRAIN and V_MAXTRAIN shall not be set to values that allow to run in a Swiss operational train category or at a top speed for which the train is not authorised. The values shall correspond to the actual characteristics of the train as permitted in Switzerland.

Further requirements and exceptions to Table 1:

The entry of V_MAXTRAIN according to Table 1 is only necessary for operation on the Mattstetten-Rothrist and Solothurn-Wanzwil lines.

The 'x' in NC_TRAIN indicates that this bit may be set to 1 or 0. Trains conforming to Baseline 3 set this bit to 1.

Concerning N and N_{≤17t}: Based on the homologation test runs, it shall be decided in accordance with the ETCS system manager for Switzerland which M_AXLELOAD value is to be used on a tilting train.

The value 000 0000 0000 0000 for NC_TRAIN (according to Baseline 2) is only permissible for ETCS on-board units according to SRS 2.2.2+.

On some lines with maximum speed above 160 km/h, the combination NC_TRAIN = 000 x001 0000 0000 and M_AXLELOAD ≤ 16 t (axle load category A) leads to a speed profile intended for test drives at overspeed. This combination shall therefore not be used in normal operation.

The NC_TRAIN value 000 1000 0000 0000 leads to a speed profile according to 275 mm cant deficiency. The NC_TRAIN values 000 0100 000x 0000 and 000 0010 000x 0000 lead to a speed profile according to 150 mm cant deficiency with a top speed of 160 km/h. Depending on the M_AXLELOAD value, the speed profile is further restricted.

If NC_TRAIN values not listed in this table are used, the ETCS system manager for Switzerland shall be consulted concerning the resulting speed supervision and if this is acceptable.

Because Swiss Rail Service Regulations calculate brake-weights in brake position P, 'FP x' (see column headed 'Label') shall be selected for freight trains. NC_TRAIN values corresponding to Label 'FG x' shall therefore not be used under normal circumstances.

Table 1:

Swiss operational train category	NC_TRAIN according to SRS 2.3.0d	Label according to Baseline 3	M_AXLELOAD according to SRS 2.3.0d [t]	Axle load category according to Baseline 3	V_MAXTRAIN [km/h]
N	000 x001 0000 0000 000 x000 0000 0001	TILT 7 TILT 6	17.5, 18	B1, B2	≤ 250
N _{≤17t}	000 x001 0000 0000 000 x000 0000 0001	TILT 7 TILT 6	≤ 17	A, HS17	≤ 250
W	001 x000 0000 0000	TILT 5	≤ 20	≤ C4	≤ 200

	000 x000 1000 0000 010 x000 0000 0000	TILT 4 TILT 3			
R	000 x000 0100 0000 000 x000 0010 0000 000 x000 0001 0000 000 0x00 0001 0000 000 00x0 0001 0000	TILT 2 TILT 1 PASS 3 FG 4 FP 4	≤ 20	≤ C4	≤ 200
R _{≤18t}	000 x000 0100 0000 000 x000 0010 0000 000 x000 0001 0000	TILT 2 TILT 1 PASS 3	≤ 18	≤ B2	≤ 250
A	000 0x00 0000 1000 000 00x0 0000 1000 000 0000 0000 0000	FG 3 FP 3 n/a	≤ 20	≤ C4	≤ 140
D	000 0x00 0001 0000 000 00x0 0001 0000 000 0x00 0000 1000 000 00x0 0000 1000 000 0000 0000 0000	FG 4 FP 4 FG 3 FP 3 n/a	20 < x ≤ 22.5	D2, D3, D4, D4xL	≤ 100
E	000 0x00 0001 0000 000 00x0 0001 0000 000 0x00 0000 1000 000 00x0 0000 1000 000 0000 0000 0000	FG 4 FP 4 FG 3 FP 3 n/a	> 22.5	E4, E5	≤ 60

Table 2:

Selected train type / brake position	NC_TRAIN according to SRS 2.3.0d
Passenger train (PASS 3)	000 1000 0001 0000
Freight train in brake position P (FP 3)	000 0010 0000 1000
Freight train in brake position G (FG 3)	000 0100 0000 1000

**Reasons/
explanation**

Parameterisation of ETCS static speed profiles is based on this requirement.

It is not acceptable that trains run slower simply because ETCS train data input is not flexible enough.

Tilting trains shall be able to run in Swiss operational train category R_{≤18t} depending on the line or when their tilting mechanism is inactive.

For obvious reasons, the harmonised train data input in Baseline 3 is preferred.

Note: ETCS on-board units in accordance with Baseline 3 shall already meet some of these requirements owing to the TSI.

	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0	
		X	X	X	X	
	Regulation classification	Group C				
	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	Status	Applicable	from:	July 2016
Title:	Online on-board monitoring of trackside 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 TSI CCS.						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input checked="" type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						
Full description:	Title:	Online on-board monitoring of trackside equipment					
	Type of Requirement	Safety	Reliability / Availability	Health	Environment	Technical compatibility	
		X	X	-	-	X	
	Scope of application	ETCS on-board unit					
	Requirement	Vehicles equipped with ETCS shall meet the requirements for trackside availability monitoring according to the system manager generic specification catalogue on online monitoring on ETCS vehicles [Generisches Lastenheft Online Monitoring auf ETCS Fahrzeugen], version 1.2 or above. (the data) has been replaced by the corrected version 1.2.1					
	Reasons/ explanation	Meet and ensure high availability of the trackside equipment. Higher availability reduces safety risks resulting from the failure of trackside components.					
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		X	X	X	X		
	Regulation classification	Group C					
	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	Status	Applicable	from:	July 2016
Title:	One-time train running number entry for the ETCS on-board unit and the GSM-R CabRadio						
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 TSI CCS. GSM-R Functional Requirements Specification (FRS, Version 7.4.0), 5.2.3.28i. GSM-R System Requirements Specification (SRS), 5.8.1.						
Reference in Swiss regulation:	IP-RailO IP 38.3 para. 1.1 IP-RailO IP 47.1 para. 3.2						
Current NNTR classification:	<input type="checkbox"/> NNTR on an 'open point' in the TSI <input type="checkbox"/> NNTR due to difference between Swiss regulation and corresponding requirements in the TSI <input checked="" type="checkbox"/> NNTR due to additional requirements in Swiss regulation without equivalent in the TSI						
Full description:	Title:	One-time train running number entry for the ETCS on-board unit and the GSM-R CabRadio					
	Type of Requirement	Safety	Reliability / availability	Health	Environment	Technical compatibility	
		X	X	-	-	-	
	Scope of application	ETCS on-board unit					
	Requirement	It shall be technically ensured that the train running number has to be entered only once and that it shall be available to the ETCS on-board unit and to the GSM-R CabRadio (GSM-R voice) so that both use the same train running number. The ETCS on-board unit and the GSM-R CabRadio shall have the necessary interface and functional features.					
	Reasons/ explanation	The train driver can be reached by CabRadio using the train running number (functional addressing). In particular in long tunnels it must be ensured that the driver can be reached immediately (e.g. due to an incident). This can be done if the same train running number is used. Requirement relates to CH-TSI LOC&PAS-021.					
	Applies to	2.2.2 +	2.3.0d	3.4.0	3.6.0		
		X	X	X	X		
	Regulation classification	Group C					
	Validity period	unlimited					
Current applicable norms in Switzerland:							
Test specification for certificate of conformity:							

