

Main table containing parameters (e.g., Documentation, General documentation, Maintenance instructions, Track side tests), explanation of detailed list, and national rules for Austria, Czech Republic, Germany, Hungary, The Netherlands, and Poland.

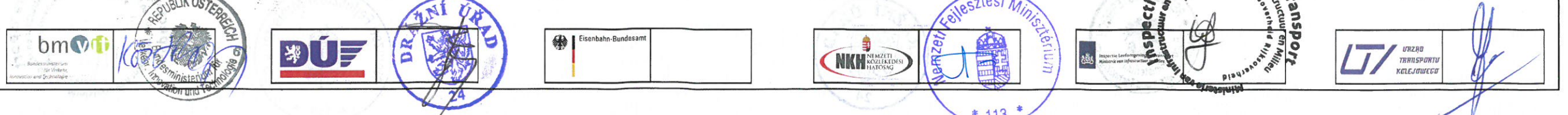
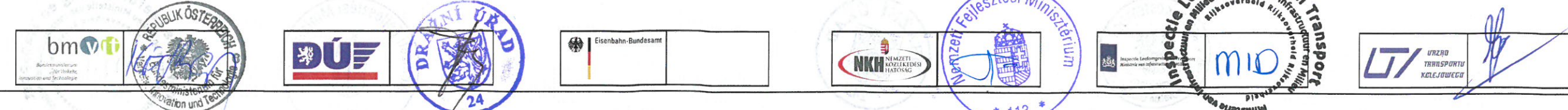
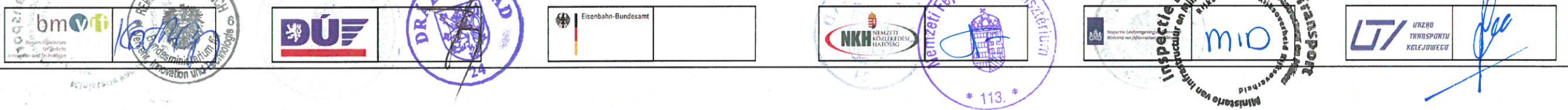




Table with 15 columns: Parameter of detailed list, Explanation acc. to detailed list, Explanation for classification, Austria National rules, Austria Regulations, guidelines, standards, Czech Republic National rules, Czech Republic Regulations, guidelines, standards, Germany National rules, Germany Regulations, guidelines, standards, Hungary National rules, Hungary Regulations, guidelines, standards, The Netherlands National rules, The Netherlands Regulations, guidelines, standards, Poland National rules, Poland Regulations, guidelines, standards. Rows include 2.2.6 Draw hook, 2.2.7 Gangways, 2.3 Passive safety, 3 Track interaction and gauging, 3.1 Vehicle gauge, 3.1.1 Vehicle gauge, 3.1.2 Specific case, 3.2 Vehicle dynamics, 3.2.1 Running safety and dynamics.

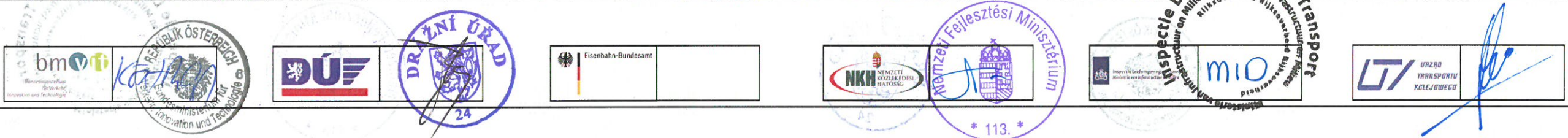


Main table with columns for Parameter of detailed list, Explanation acc. to detailed list, Explanation for classification, and various national rules for Austria, Czech Republic, Germany, Hungary, The Netherlands, and Poland. Rows include 3.2.2 Equivalent country, wheel profile and limits; 3.2.3 Track loading; 3.2.4 Vertical accelerations; 3.3 Bogies / running gear; 3.3.1 Bogies; 3.3.2 Wheelset (Axle + wheels); 3.3.3 Wheel; 3.3.4 Wheel/rail interface (including wheel flange lubrication and sanding); 3.3.5 Bearings on the wheelset; 3.3.6 Minimum curve radius to be negotiated.





Parameter of detailed list as agreed by RISC 12/06/2009	Explanation acc. to detailed list as agreed by RISC 12/06/2009	Explanation for classification	Austria National rules	Austria Regulations, guidelines, standards	Czech Republic National rules	Czech Republic Regulations, guidelines, standards	Germany National rules	Germany Regulations, guidelines, standards	Hungary National rules Regulations, guidelines, standards	The Netherlands National rules	The Netherlands Regulations, guidelines, standards	Poland National rules Regulations, guidelines, standards
4.4.4 Dynamic braking command	DE: B for Aktuelle Beschleunigung der Eigenantriebsregelungen on the internet			UC 541.1 RSI 0137 RFI II Section 46(1) ANVO		UC 541.2 UC 541.2	Tired wheel Braking installation - electric brakes - Contribution electrical brake according to 4.2.4.1.4 - Feasibility braking energy recovery  http://www.aha-bund.de/dok_031/m_778190/SharedDoc/Publicationen/DEF/Infotext/Fahrzeuge/Bedienanweisung_AV..._BG(A)hang)06..._Bremseinrichtung_..._pdf?template=new_property-publicationFile.pdf/06..._Bremseinrichtung_..._pdf	TSI RST EN 50163:2004, 4.1	UC 541-1 UC 544 UC 541-63 UC 512 series	UC 541-03 pt 1.6 UC 541-1 UC 451 pt 4.3.2	UC 541-03 UC 541-1 UC 451	UC 544-1 UC 544-2 UC 541-03
4.4.5 Parking braking command	B for missing requirements for DE			Section 46(1) ANVO UC 544-1	UC 543	UC 544-1 UC 543	http://www.aha-bund.de/dok_031/m_778190/SharedDoc/Publicationen/DEF/Infotext/Fahrzeuge/Bedienanweisung_AV..._BG(A)hang)06..._Bremseinrichtung_..._pdf?template=new_property-publicationFile.pdf/06..._Bremseinrichtung_..._pdf	UC 543 UC 544-1 UC 4331-1 UC 512 series	Article 3 For a homologation of railway vehicles apply appendix 1, where for each category of railway vehicles the corresponding requirements are specified. Brake system high capacity brake	UC 543 UC 544-1	UC 544-1 UC 543 PB-K-08177	
4.5 Brake performance							4.5 - Braking installation - braking performance - Minimum braking performance - Train's guaranteed braking performance and braking properties - Limit value for wheel-rail adhesion during braking  See Annex...  Detailed requirement... Additional information: Certificate of conformity: - EC Inspection Certificate - Technical dossier inspection is based on EC Certificate of Conformity according to: a) TSI CCS b) TSI RST c) TSI EBO Test report: Test report with test specifications by a recognized testing body Calculation: Calculations report with input variables	TSI CCS Annex B TSI RST TSI EBO UC 544-1 UC 551-1 EN 14331-1 EN 14331-2 EN 15663				
4.5.1 Emergency braking	A for performance verification C for network compatibility Required braking distances should be compatible with the infrastructure.			Braking diagram (mechanical) and demonstrable mathematical determination of braking performance (braking percentages) in the EBO (see Annex 3) and for passenger rail under 160 km/h and other passenger categories, minimum 195 trainprozent erforderlich (EBOwert K = 100). Determination of the braking performance actually produced in accordance with UC 544-1. The test must also include the response of the various safety systems (wheel slide protection, Driver's Safety Device system (Eichenhaferbremsung (EFA) etc.). (in Anhangung 3 32 EBO	UC 544-1 UC 544-2 EN 14331-1 EN 14331-2 EN 15663 Section 32a EBO	UC 541-3 UC 541-6 UC 544-1	4.5.1 Braking installation - emergency braking Requirement relating to braking system Emergency braking (triggered by the driver's brake valve or by an additional emergency braking control unit) as well as by the monitoring and speed control system must have the following immediate and simultaneous effects: - a fast drop in pressure to <math>= 2 \text{ bar}</math> in the main brake pipe - for redundancy purposes, the driver's cab must be equipped with both a brake valve for the driver as well as with an additional emergency braking control unit - an interrupt mechanism for the refilling of the main brake pipe - a trigger for the electric emergency brake (see Annex), if installed - the release of the full braking force pursuant to the output defined in 4.2.4.1.1 - an option to switch traction off.  Rules and regulations and references to additional national test: "Regulations pertaining to the braking assessment of rail vehicles as a part of the approval procedure in accordance with section 32 EBO (German Federal Regulations governing the Construction and Operation of Railways)" VOV 727 for locomotive cross-trains (EN 15663)	TSI RST HD Section 32 EBO Highway Regulation 8002 and 8007	UC 544-1 UC 544-2 EN 14331-1 EN 14331-2 EN 15663	Regulation for inspection of railway vehicles Article 3 For a homologation of railway vehicles, as intended in article 2, apply appendix 1, where for each category of railway vehicles the corresponding requirements are specified. Appendix 1 1. Electric Installation k. Compliance with the USC 6-68 (connections between vehicles)	UC 540 UC 544-1 Kamerentwurf en ontwerp van de elektrische installatie van 1 juli 1985.	UC 544-1
4.5.2 Service braking				Braking diagram (mechanical) and demonstrable mathematical determination of braking performance (braking percentages) in the EBO (see Annex 3) and for passenger rail under 160 km/h and other passenger categories, minimum 195 trainprozent erforderlich (EBOwert K = 100). Determination of the braking performance actually produced in accordance with UC 544-1. The test must also include the response of the various safety systems (wheel slide protection, Driver's Safety Device system (Eichenhaferbremsung (EFA) etc.). (in Anhangung 3 32 EBO	UC 544-1 UC 544-2 EN 14331-1 EN 14331-2 EN 15663 Section 32a EBO	UC 541-3 UC 541-6 UC 544-1	4.5.2 Braking installation - service braking performance In addition to the specifications defined in the section "Minimum braking performance", trains in operation must reach the average delay defined in this clause. Full service braking (only for HS) - Definition full service braking - Switching off traction power during full service braking  Rules and regulations and references to additional national test: braking characteristics supplemental rule Br. 8007 "adhesion use" Requirements to be met: TSI (EC Certificate "HS RST" or EC Certificate "CCS")	TSI RST TSI CCS Annex B TSI EBO TSI CR AG UC 544-1 UC 551-1 EN 15663	UC 544-1 UC 544-2 EN 14331-1 EN 14331-2 EN 15663	UC 540 UC 544-1	UC 544-1	
4.5.3 Calculations related to thermal capacity	AT: A* - an assessment is requested for specific conditions of the network			Brake disc Temperatur- und Festigkeitsberechnung Bremscheibe	UC 541-3 UC 544-1	UC 541 series UC 544 series	4.5.3 Thermics - braking behaviour on steep inclines  The thermal design of the brakes must be such that they permit a train to operate on a line with maximum inclines (pursuant to section 4.2.2.2 in TSI 2006 "Infrastructure maximum speed") at a speed equaling at least 90% of the train's maximum service speed. Based on this thermal efficiency rating, the limit value must be calculated for the gradients on which the train can travel at maximum speed.  Notes: 1. Thermal calculation (determining the temperature development at/in the braking components convert energy that for each agreed upon operation scenario); 2. Stop braking (HS emergency braking) using a fully functioning braking system from maximum speed at the braking technology's maximum weight (EN 15663) immediately after the other on the level track); 3. The requirements from the gradient rules and the breakdown scenario (brake failure) must be taken into account, if they have not yet been covered by the most unfavourable operation scenario agreed upon; Typical reference route for regional traffic in Germany is the route Aachen - Gießen.  Calculation report with input variables (thermal simulation report) Requirements to be met: TSI (EC Certificate resp EC Certificate "CCS") + add. national)	TSI INF TSI RST EN 15663 UC 541-3 UC 544-1	UC 541-3 UC 544-1	UC 541-4 UC 544-1 (3rd edition) EN 14389 (TSI HS)	UC 544-1	
4.5.4 Parking brake	There must be a possibility of deactivating the parking brake in the event of a breakdown. Furthermore it must be ensured that traction power can be delivered if the parking brake is deactivated. It must be possible to underlay drag shoes without first disassembling any components. (Note: It is not permitted to underlay drag shoes inside the bogie) Electrically-controlled decoupling of pulled vehicles from the driver's control panel may only be possible if at least 50% of the parking brake force is present on the pulled vehicles. In the course of the brake test, the applied and released brake positions must be recognizable beyond doubt. (These tested vehicles are assumed to be locked)			UC 543	UC 543	UC 543	4.5.4 Braking installation - parking brake Safety of the train when parked in the event of a breakdown (only HS) - On an incline of 40%, a train with a normal load must be able to be parked for an unlimited amount of time, if the parking brake shoe is not enough for the purpose, in order to secure the train, additional means must be available. - In the event of a fault in the supply of compressed air or in the event of a power outage, it must be possible to stop a train with a normal load only with the aid of the friction brake on a 40% incline and to park it for at least two hours, even if the control valve is shut off.  Notes: a) secure with the total weight (as defined in DIN 25008) 1.1 times against rolling and slipping on 40% inclines while accounting for the failure of the braking force of a spring-based and above the testing segment required by law. b) In addition, it must be demonstrated that the empty vehicle can be secured on 40% inclines with 1.4 times the safety level when air spring-loaded units are affected. c) In addition, it must also be demonstrated up to which incline values at braking maximum weights the vehicle can be secured.  TSI (EC Certificate) + add. national + coherence)	EN 15663 TSI RST SBA Regulation Nr. B 004	UC 543 UC 544-1 EN 14331-1 EN 14331-2	UC 543	UC 544-1 UC 543	
4.6 Braking adhesion management												



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			Regulations, guidelines, standards	National rules	Regulations, guidelines, standards	National rules	Regulations, guidelines, standards	National rules	Regulations, guidelines, standards	National rules	Regulations, guidelines, standards	National rules	Regulations, guidelines, standards	
4.6.1 Limit of wheel rail adhesion profile	DE: B for different adhesion limit values for different vehicle categories NL: B for Trainset/Multiple Units and the sliding performance													
4.6.2 Wheel slide protection system														
4.7 Braking force production	Requirement on equipment creating the brake force per type of brake													
4.7.1 Braking force production	Including material properties, e.g. for composite brake blocks makes no sense to have one subparameter													
4.7.2 Friction brake														
4.7.2.1 Brake blocks														
4.7.2.2 Brake discs														
4.7.2.3 Brake pads	AT: C for need of demonstration of thermal performance of the brake adhesion elements													
4.7.3 Dynamic brake linked to traction														
4.7.4 Magnetic track brake	DE: C for low-mounted magnetic track brakes (EMC reasons), A for others													









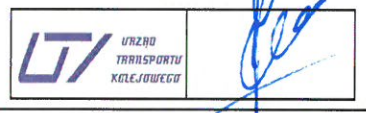
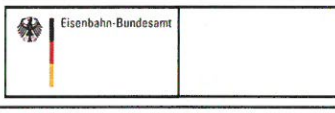




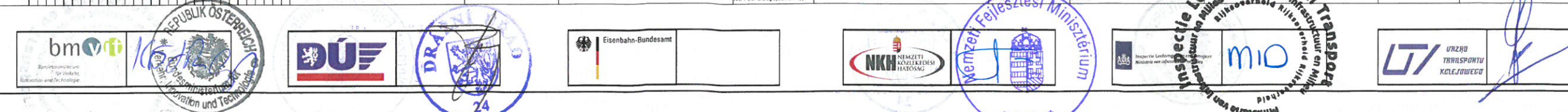
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Table with columns for Parameter of detailed list, Explanation, Austria National rules, Austria Regulations, Czech Republic National rules, Czech Republic Regulations, Germany National rules, Germany Regulations, Hungary National rules, The Netherlands National rules, The Netherlands Regulations, and Poland National rules. Rows include sections 8.4.2, 8.4.3, 8.4.4, 8.5, 8.6, 8.7, 8.7.1, 8.7.2, 8.7.3, 8.7.4, 8.7.5, and 8.7.6.



Parameter of detailed list as agreed by RISC 12/06/2009	Explanation acc. to detailed list as agreed by RISC 12/06/2009	Explanation for classification	Austria		Czech Republic		Germany		Hungary		The Netherlands		Poland	
			Regulations, guidelines, standards	National rules	Regulations, guidelines, standards	National rules	Regulations, guidelines, standards	National rules	Regulations, guidelines, standards	National rules	Regulations, guidelines, standards	National rules	Regulations, guidelines, standards	
9.1.1 Interior layout	E.g. space availability, cab arrangement and ergonomic requirements	AT: A for TSI conformity, B for others (there has to be a written assessment on health and safety) PL: A for UIC 651 and EN 13272, B for others or for faster than 130 km/h (2nd seat with signal visibility required)	A	A	A	A	A	A	A	A	A	A	A	A
9.1.2 Desk ergonomics			A	A	A	A	A	A	A	A	A	A	A	A
9.1.3 Drivers seat		AT: A for TSI conformity, B for others (there has to be a written assessment on health and safety)	A	A	A	A	A	A	A	A	A	A	A	A
9.1.4 Means for the driver to exchange documents			A	A	A	A	A	A	A	A	A	A	A	A
9.1.5 Other facilities to control operation of the train		under parameter - not to be considered	-	-	-	-	-	-	-	-	-	-	-	-
9.1.2 Access to Driver's cab			A	A	A	A	A	A	A	A	A	A	A	A
9.1.3 Access, egress and Doors		AT: A* for required assessment	A	A	A	A	A	A	A	A	A	A	A	A
9.1.2 Driver's cab emergency exits			A	A	A	A	A	A	A	A	A	A	A	A
9.1.3 Windscreen in Driver's cab			A	A	A	A	A	A	A	A	A	A	A	A
9.1.3.1 mechanical characteristics		DE: B de Penetrationstest (Beschusstest) nachgelesen werden muss mit Penetrationstestgeschwindigkeit +max. Geschwindigkeit de Fig. 2 200km/h B for penetration test with counter speed of 200 km/h due to passenger coaches allowed to open windows.	A	A	A	A	A	A	A	A	A	A	A	A
9.1.3.2 optical characteristics			A	A	A	A	A	A	A	A	A	A	A	A
9.1.3.3 equipment		E.g. de-cng, de-misting, external cleaning devices, etc. Schiefeld?	A	A	A	A	A	A	A	A	A	A	A	A
9.1.3.4 front visibility			A	A	A	A	A	A	A	A	A	A	A	A
9.2 Working conditions			A	A	A	A	A	A	A	A	A	A	A	A
9.2.1 Environmental conditions			A	A	A	A	A	A	A	A	A	A	A	A
9.2.1.1 Heating, Ventilation and Air condition systems in driver cabs		proper English! Airconditioning systems AT: A* means including fulfilling requirements health and safety	A	A	A	A	A	A	A	A	A	A	A	A
9.2.1.2 Noise in driver cabs		Including how level inside the cab A* - Temporary solution-revealing parameter list PL: Near future according to TSI will be accepted	A	A	A	A	A	A	A	A	A	A	A	A
9.2.1.3 Lighting in driver cabs			A	A	A	A	A	A	A	A	A	A	A	A
9.2.2 Others		PL: C for requirements regarding vibrations	A	A	A	A	A	A	A	A	A	A	A	A
9.3 Driver machine interface		Equipment in driver's cab to supervise and control safe operation of the train	A	A	A	A	A	A	A	A	A	A	A	A
9.3.1 Driver machine interface			A	A	A	A	A	A	A	A	A	A	A	A
9.3.1.1 speed indication		Recording of speed covered by R 4 only (M), not technical speed for Ruock-feldern??	A	A	A	A	A	A	A	A	A	A	A	A
9.3.1.2 driver's display unit and screens			A	A	A	A	A	A	A	A	A	A	A	A



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			Austria	Austria	Czech Republic	Czech Republic	Germany	Germany	Hungary	The Netherlands	The Netherlands	Poland																												
9.3.1.2 controls and indicators			A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
9.3.2 Driver supervision	Driver activity control function, e.g. vigilance		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
9.3.3 rear and side view		AT: A* for TSI conformity, B for others	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
9.4 Marking in Driver cabs	Static display of basic information for the driver		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
9.5 Equipment and other facilities onboard for staff																																								
9.5.1 Facilities onboard for staff																																								
9.5.1.1 Staff access for coupling /uncoupling			A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
9.5.1.2 External steps and handrails for shunting staff			A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
9.5.1.3 Storage facilities for use by staff			A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
9.5.1.4 Other facilities			A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
9.5.2 Staff and freight Access doors	Doors equipped with security device for opening only by staff including latching		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
9.5.3 On board tools and portable equipment	E.g. equipment needed by driver or staff in emergency situation	AT: A* for escape hood	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
9.5.4 Audible communication system	E.g. for communication between the train crew, the train crew and people inside/outside of the train For train staff only or also for public announcements Public announcement is already dealt with another parameter? Today only GSM, no equipment on vehicle needed anymore, should it be removed?	PL: A for vehicle based solution in accordance to UIC 558 and UIC 558.B for others	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
9.6 Recording device	For the purpose of monitoring the behaviour of driver and train not a good wording!!!	A for TSI compliant, B for others	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A









