



EA MLA Signatory
Český institut pro akreditaci, o.p.s.
(Czech Accreditation Institute)
Hájkova 2747/22, Žižkov, 130 00 Praha 3

issues

according to section 16 of Act No. 22/1997 Coll., on technical requirements for products and on changes and amendments to some Acts, as amended

CERTIFICATE OF ACCREDITATION

No. 688/2025

Výzkumný Ústav Železniční, a.s.
with registered office Novodvorská 1698/138b, Braník, 142 00 Praha 4
Company Registration No. 27257258

for the Testing Laboratory No. **1462**
VUZ Testing Laboratory

Scope of accreditation:

Tests in the field of rolling stock, infrastructure and equipment, their parts and materials to the extent as specified in the appendix to this Certificate.

This Certificate of Accreditation is a proof of accreditation issued on the basis of assessment of fulfillment of the accreditation criteria in accordance with

ČSN EN ISO/IEC 17025:2018

In its activities performed within the scope and for the period of validity of this Certificate, the abovementioned Accredited Body is entitled to refer to this Certificate, provided that the accreditation is not suspended and the Accredited Body meets the specified accreditation requirements in accordance with the relevant regulations applicable to the activity of an accredited conformity assessment body.

This Certificate of Accreditation replaces, to the full extent, Certificate No.: 125/2025 of 13/03/2025, and/or any administrative acts building upon it.

The Certificate of Accreditation is valid until: 18/10/2029

Prague: 22/12/2025



Signed in the Czech original:
Jan Velíšek on 22/12/2025

Jan Velíšek
Director of the Department
of Testing and Calibration Laboratories
Czech Accreditation Institute

This translation of the Czech original has been issued by: Andrea Muzikářová

**The Appendix is an integral part of
Certificate of Accreditation No: 688/2025 of 22/12/2025**

Accredited entity according to ČSN EN ISO/IEC 17025:2018:

Výzkumný Ústav Železniční, a.s.
CAB number 1462, VUZ Testing Laboratory
Novodvorská 1698/138b, Braník, 142 00 Praha 4

Testing laboratory locations:

1. **Prague** (Not carrying out the tests) Novodvorská 1698/138b, 142 00 Praha 4
2. **VUZ Test Centre in Velim** Za Dráhou 373, 281 02 Cerhenice

The laboratory applies a flexible approach to the scope of accreditation.

The current list of activities carried out within the flexible scope is available on the laboratory's website <https://www.cdvuz.cz/service/zkousky-draznich-vozidel/> in the form of the „List of activities within the flexible scope of accreditation“.

The laboratory provides opinions and interpretations of the test results.

2. VUZ Test Centre in Velim

Tests:

Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
1	EMC tests			
1.1*	EMC tests with track circuits	ZL-01-11 (TSI LOC&PAS, chap. 4.2.3.3.1.1; ERA/ERTMS/033281, chap. 3.2.2; ČSN CLC/TS 50238-2; ČSN 34 2613 ed. 3, chap. 7.6 to 7.9, annexes A, B; STN 34 2613, chap. 7.6 to 7.9, annexes A, B; EN 50728)	Rolling stock and their components	-
1.2*	EMC tests with axle counters	ZL-01-21 (TSI LOC&PAS, chap. 4.2.3.3.1.2; ERA/ERTMS/033281, chap. 3.2.1; ČSN CLC/TS 50238-3; ČSN EN 50592)	Rolling stock and their components	-
1.3*	Determination of signal-to-noise ratio for train protection system	ZL-01-31 (ČSN EN 50121-3-1, chap. 6.1; ČSN 34 2613 ed. 3, chap. 7.6.1, 7.6.2)	Rolling stock and their components	-
1.4*	Measurement of external electromagnetic fields	ZL-01-41 (ČSN EN 50121-3-1; ČSN EN 50121-2; ČSN 30 0250, chap. 4.1.9, 5.3.11)	Rolling stock and railway systems	-

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
2	Electric hazards protection			
2.1*	Safety tests for personnel protection - impedance measurement	ZL-02-11 (TSI LOC&PAS, chap. 4.2.8.4; ČSN EN 50153, chap. 5.3, 6.2, 6.4; ČSN EN IEC 61133, chap. 8.8; UIC 533, chap. 3; ČSN 28 1310, chap. 9.6.2; ČSN 34 2613 ed. 3, chap. 7.5)	Rolling stock	-
3	Traction tests			
3.1	Traction performance and power supply tests			
3.1.1*	Traction performance measurement using hook force measurement method	ZL-03-11 (TSI LOC&PAS, chap. 4.2.8.1, 4.2.8.2.2; ČSN EN IEC 61133, chap. 9.2, 9.5; ČSN 28 1300, chap. 5.3.12; ČSN 28 1310, chap. 9.4.1, 9.4.2, 9.4.5; ČSN 30 0250, chap. 5.3.9)	Rolling stock	-
3.1.2*	Traction performance measurement using acceleration measurement method	ZL-03-12 (TSI LOC&PAS, chap. 4.2.8.1, 4.2.8.2.2; ČSN EN IEC 61133, chap. 9.2, 9.5; ČSN 28 1300, chap. 5.3.12; ČSN 28 1310, chap. 9.4.1, 9.4.2, 9.4.5; ČSN 30 0250, chap. 5.3.9)	Rolling stock	-
3.1.3*	Traction performance measurement using – journey time checking	ZL-03-13 (TSI LOC&PAS, chap. 4.2.8.1; ČSN EN IEC 61133, chap. 9.3, 9.5; ČSN 28 1300, chap. 5.3.12; ČSN 28 1310, chap. 9.4.8; ČSN 30 0250, chap. 5.3.9)	Rolling stock	-
3.1.4*	Dynamic brake performance measurement	ZL-03-14 (TSI LOC&PAS, chap. 4.2.8.2.2 to 4.2.8.2.3; ČSN EN IEC 61133, chap. 9.4.1.9, 9.5; ČSN EN 50388-1, chap. 12; ČSN 28 1300, chap. 5.4.6; ČSN 28 1310, chap. 9.4.1, 9.4.2, 9.4.5; ČSN 30 0250, chap. 5.3.9)	Rolling stock	-
3.1.5*	Speed regulating system tests	ZL-03-15 (TSI LOC&PAS, chap. 4.2.11.2.2; ČSN EN IEC 61133, chap. 9.7)	Rolling stock	-
3.1.6*	Energy consumption measurement	ZL-03-16 (ČSN EN IEC 61133, chap. 9.3; ČSN 28 1300, chap. 5.3.15; ČSN 28 1310, chap. 9.4.7; ČSN 30 0250, chap. 5.3.10)	Rolling stock	-

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Novodvorská 1698/138b, Braník, 142 00 Praha 4

Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
3.2	Acceleration, running resistance, and rotation mass coefficient measurement			
3.2.1*	Acceleration measurement	ZL-03-21 (TSI LOC&PAS, chap. 4.2.8.1.2; ČSN EN IEC 61133, chap. 9.2 to 9.4; ČSN 28 1300, chap. 5.3.13; ČSN 28 1310, chap. 9.4.6; ČSN 30 0250, chap. 5.4.14, 5.4.15)	Rolling stock	-
3.2.2*	Running resistance measurement	ZL-03-22 (TSI LOC&PAS, chap. 4.2.8.1; ČSN EN IEC 61133, chap. 9.6; ČSN EN 14067-4+A1, chap. 6.4; ČSN 28 1310, chap. 9.4.3)	Rolling stock	-
3.2.3*	Rotating mass coefficient measurement	ZL-03-23 (TSI LOC&PAS, chap. 4.2.8.1; ČSN 28 1310, chap. 9.4.4; ČSN 30 0250, chap. 5.4.16)	Rolling stock	-
3.3	Measurement of power and energy parameters			
3.3.1*	Power parameters measurement	ZL-03-31 (TSI ENE, chap. 4.2.8; TSI LOC&PAS, chap. 4.2.8.2.4; 4.2.8.2.5; ČSN EN IEC 61133, chap. 9.2, 9.3 ČSN EN 50163, chap. 4; ČSN EN 50367, chap. 7.2; ČSN EN 50388-1, chap. 7)	Rolling stock, traction substation and their components	-
3.3.2*	Power factor measurement	ZL-03-32 (TSI LOC&PAS, chap. 4.2.8.2.6; ČSN EN 50163, chap. 4; ČSN EN 50388-1, chap. 6)	Rolling stock, traction substation and their components	-
3.3.3*	Harmonics and dynamic effects measurement	ZL-03-33 (TSI LOC&PAS, chap. 4.2.8.2.7; ČSN EN 50388-1, chap. 10)	Rolling stock, traction substation and their components	-
3.4	Electrical equipment testing by supply voltage changes			
3.4.1*	Voltage variation testing	ZL-03-41 (ČSN EN IEC 61133, chap. 9.16; ČSN EN 50163, chap. 4; UIC 550, chap. 4; ČSN EN 50388-1, chap. 12)	Rolling stock, traction substation and their components	-

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
3.4.2*	Sudden voltage changes testing	ZL-03-42 (UIC 550, chap. 4; ČSN EN IEC 61133, chap. 9.16; ČSN 28 1300, chap. 5.3.7; ČSN 28 1310, chap. 9.3.7; ČSN 30 0250, chap. 5.3.4; ČSN EN 50388-1, chap. 11, 12)	Rolling stock	-
3.4.3*	Short-circuit testing on the traction power supply	ZL-03-43 (ČSN EN IEC 61133, chap. 9.16; ČSN EN 50123-2, chap. 8.3.5, 8.3.8; ČSN EN IEC 60077-3 ed. 2, chap. 5.3.4 to 5.3.5; ČSN EN IEC 60077-4, chap. 5.3.6; ČSN EN 50388-1, chap. 11, 12; ČSN 28 1300, chap. 5.3.8; ČSN 28 1310, chap. 9.3.8; ČSN 30 0250, chap. 5.3.5)	Rolling stock, traction substation and their components	-
3.4.4*	Short-circuit and overload testing	ZL-03-44 (ČSN EN 50388-1, chap. 11; ČSN EN IEC 61133, chap. 9.16; ČSN 28 1300, chap. 5.3.9, 5.3.10; ČSN 28 1310, chap. 9.3.9, 9.3.10; ČSN 30 0250, chap. 5.3.6, 5.3.7)	Rolling stock	-
4	Testing of the electrical supply systems			
4.1*	Power supply system testing	ZL-04-11 (UIC 550, chap. 2 to 10; UIC 550-2, chap. 1.1 to 1.7; UIC 550-3, chap. 2 to 4; UIC 552, chap. 2 to 7; ČSN EN IEC 61133, chap. 8.13)	Rolling stock	-
4.2*	Battery charging system testing	ZL-04-21 (TSI LOC&PAS chap. 4.2.10.4.1, 4.2.5.2; UIC 550, chap. 2; UIC 550-2, chap. 1.3 to 1.4; ČSN EN IEC 61133 chap. 8.14; ČSN 28 1300, chap. 5.4.3; ČSN 28 1310, chap. 9.4.9; ČSN 30 0250, chap. 5.4.4)	Rolling stock	-

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
5	Current collectors testing			
5.1	Static testing			
5.1.1*	Measurement of the dimensional properties of the current collector	ZL-05-11 (TSI CR LOC&PAS, chap. 4.2.8.2.9.1 to 4, 4.2.8.2.9.7; ČSN EN 50206-1, chap. 6.2; ČSN EN 50206-2, chap. 6.2; ČSN EN 50367, chap. 5.3, 6.3; UIC 608, chap. 4, 5; ČSN EN IEC 61133, chap. 8.2.2.4, 9.13; ČSN 28 1310, chap. 9.3.6; ČSN 30 0250, chap. 5.2.13; ČSN EN 50502, chap. B.4.2)	Rolling stock and their components	-
5.1.2*	Static contact force measurement	ZL-05-12 (TSI LOC&PAS, chap. 4.2.8.2.9.5; ČSN EN 50206-1, chap. 6.3.1, 6.3.4, 6.6, 6.9; ČSN EN 50206-2, chap. 6.3.1, 6.6; ČSN EN 50367, chap. 7.2; UIC 608, chap. 6; ČSN EN IEC 61133, chap. 9.13; ČSN 28 1310, chap. 9.3.6; ČSN 30 0250, chap. 5.2.13; ČSN EN 50502, chap. B.4.3.1)	Rolling stock and their components	-
5.1.3*	Current collector control system functionality testing	ZL-05-13 (TSI LOC&PAS, chap. 4.2.8.2.9.10; ČSN EN 50206-1, chap. 6.2.5 to 6.2.6, 6.3.2 to 6.3.3, 6.7; ČSN EN 50206-2, chap. 6.2.5, 6.3.2 to 6.3.3, 6.7; ČSN EN IEC 61133, chap. 9.13; UIC 608, chap. 10; ČSN 28 1300, chap 4.3.3; ČSN EN 50502, annex B.4.3.2 to 4.3.6)	Rolling stock and their components	-
5.2	Dynamic testing			
5.2.1*	Aerodynamic behavior verification of the current collector	ZL-05-21 (TSI LOC&PAS, chap. 4.2.8.2.9.6; ČSN EN 50367, chap. 7.3; ČSN EN 50317, chap. 6; ČSN EN IEC 61133, chap. 9.13; UIC 608, chap. 7)	Rolling stock	-

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
5.2.2*	Verification of collector-trolley interaction	ZL-05-22 (TSI LOC&PAS, chap. 4.2.8.2.9.6, 5.3.10; TSI ENE, chap. 4.2.11, 4.2.12; ČSN EN 50206-1, chap. 6.10 to 6.12; ČSN EN 50206-2, chap. 6.9; ČSN EN 50367, chap. 5.2.6, 7.3; ČSN EN 50317, chap. 7, 8; ČSN EN IEC 61133, chap. 9.13)	Rolling stock, traction catenary lines	-
5.2.3*	Running through phase or system separation sections tests	ZL-05-23 (TSI LOC&PAS, chap. 4.2.8.2.9.8; ČSN EN IEC 61133, chap. 9.13; ČSN EN 50367, chap. 5.2.7, 8.2.3; ČSN EN 50388-1, chap. 5)	Rolling stock	-
6	Brake system testing			
6.1	Brake testing			
6.1.1*	Brake tests of traction and hailed vehicles	ZL-06-11 (TSI LOC&PAS, chap. 4.2.4; TSI WAG, Annex C9; EN 17065:2018)	Rolling stock	D
6.1.2*	Brake tests of multiple units	ZL-06-12 (TSI LOC&PAS, chap. 4.2.4; EN 16185-2:2014+A1:2019)	EMU, DMU, non- powered trainsets	D
6.1.3*	Brake tests of high-speed trains	ZL-06-13 (TSI LOC&PAS, chap. 4.2.4; EN 15734-2:2010+A1:2021)	High-speed trains	D
6.1.4*	Brake tests	ZL-06-14 (EN 14033:2017, chap. 9.2.2)	On-track machines	D
6.1.5*	Brake performance determination	ZL-06-15 (TSI LOC&PAS, chap. 4.2.4; TSI WAG, chap. 4.2.4; UIC 544-1; EN 16834:2019; GMRT 2045, 4 th edition, chap. 2.3)	Rolling stock	-

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
6.1.6*	Brake equipment type testing	ZL-06-16 (UIC 541-01, 1 st edition; UIC 541-03, 1 st edition; UIC 541-08, 4 th edition; UIC 541-1, 9 th edition; UIC 541-5, 4 th edition; UIC 541-6, 1 st edition; UIC 547, 4 th edition; EN 14601:2005+A2:2021; EN 15220:2016; EN 15355:2019+A1:2023; EN 15611:2020+A1:2022; EN 15612:2020; EN 15624:2021; EN 15625:2021; EN 15807:2021; EN 16207:2024; EN 16241:2014+A1:2022)	Brake components of rolling stock	D
6.2*	Wheel slide protection tests	ZL-06-21 (TSI LOC&PAS, chap. 4.2.4.6; TSI WAG, chap. 4.2.4.3.4; UIC 541-05, 3 rd edition; EN 15595:2018+A1:2023)	Rolling stock, components of WSP system,	D
6.3*	Tests of brake blending and brake deceleration testing	ZL-06-31 (ČSN EN 50215, chap. 8.12, 9.4; ČSN EN IEC 61133, chap. 8.12, 9.4; ČSN 28 1300, chap. 5.3.14; ČSN 28 1310, chap. 9.2.21; ČSN 30 0250 chap. 5.4.15; ČSN EN 13452-1; ČSN EN 13452-2; Decree No. 173/1995 Coll.) ČSN EN 15746-1, ČSN EN 15746-2	Rolling stock	D
7	Safety against derailment			
7.1*	Static wheel loads determination	ZL-07-11 (ČSN EN 14363+A2, chap. 5.3.3; ČSN EN 15654-2; ČSN 28 1300, chap. 5.2.1; ČSN 28 1310, chap. 9.2.2)	Rolling stock	-

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
7.2*	Determination of safety against derailment on twisted tracks	ZL-07-21 (ERRI B55/RP8; ČSN EN 14363+A2, chap. 6.1 except for 6.1.5.1; ČSN 28 1300, chap. 5.2.6; ČSN 28 1310, chap. 9.2.8, 9.2.9) ČSN EN 15746-1, chap. 5.5.3 and chap. 5.5.4	Rolling stock	-
7.3*	Torsional stiffness measurement	ZL-07-31 (ČSN EN 14363+A2, chap. 6.3; ERRI B12/RP17; ERRI B12/DT135, Annex E)	Rolling stock and their parts	-
7.4*	Determination of running safety and running behavior	ZL-07-41 (ČSN EN 14363+A2, chap. 7 except for 7.5.3; UIC 518; ČSN 28 1300, chap. 5.2.7; ČSN 28 1310, chap. 9.2.10)	Rolling stock	-
7.5*	Determination of flexibility coefficient and tilt pole height	ZL-07-51 (UIC 505-5; ČSN EN 14363 + A2, chap. 6.4)	Rolling stock	-
7.6	Tests of passage through limit shapes of a track			
7.6.1*	Test of passage through minimum radius curve	ZL-07-61 (ERRI B12/DT135, Annex B)	Rolling stock	-
7.6.2*	Test of shunting onto a ferry	ZL-07-62 (ERRI B12/DT135, Annex B)	Rolling stock	-
7.6.3*	Test of shunting onto a traverser	ZL-07-63 (ERRI B12/DT135, Annex B)	Rolling stock	-
7.6.4*	Test of passage over a hump	ZL-07-64 (ERRI B12/DT135, Annex B)	Rolling stock	-
7.7	Lifting test	ZL-07-71 (TSI Loc&Pas, chap. 4.2.2.6, p. 9; ČSN EN 12663-1, chap. 6.3.2, 6.3.3)	Rolling stock	-
8	Hygiene tests			
8.1	Measurement of acoustic parameters			

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
8.1.1*	Internal noise measurement	ZL-08-11 (TSI NOI; TSI LOC&PAS, chap. 4.2.9.3.4, p. 5; TSI PRM, chap. 4.2.2.3.2; ČSN EN ISO 3381; ČSN EN 17285; UIC 643; EHK OSN No. 51; ČSN ISO 5128; ČSN 28 1300, chap. 4.1.5, 5.2.9; ČSN 28 1310, chap. 4.12, 9.2.14; ČSN 30 0250, chap. 4.1.5, 5.4.10)	Rolling stock	-
8.1.2*	External noise measurement	ZL-08-12 (TSI NOI; TSI LOC&PAS, chap. 4.2.7.2; TSI PRM, chap. 4.2.2.3.2; ČSN EN 15153-2, chap. 5.2, 6; ČSN EN 15153-4; ČSN EN ISO 3095; ČSN EN 17285; UIC 644; EHK OSN No. 51; ČSN ISO 362-1; IRS-75718; ČSN 28 1300, chap. 4.1.5, 5.2.9; ČSN 28 1310, chap. 4.12, 9.2.14; ČSN 30 0250, chap. 4.1.5, 5.4.10)	Rolling stock	-
8.1.3*	Intelligibility measurement	ZL-08-13 (ČSN EN IEC 60268-16; ČSN EN 16584-2; TSI PRM, chap. 4.2.1.11, 4.2.2.7.4, chap. 5; ČSN 28 1300, chap. 4.3.5; ČSN 28 1310, chap. 7.5; ČSN 30 0250, chap. 4.3.5)	Rolling stock and railway infrastructure	-
8.2	Measurement of rail and track parameters			
8.2.1*	Measurement of acoustic roughness of rail surface	ZL-08-21 (ČSN EN 15610, chap. 5)	Rail	-
8.2.2*	Determination of track decay rate	ZL-08-22 (ČSN EN 15461+A1)	Track	-

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
8.3*	Measurement of vibrations	ZL-08-31 (ČSN ISO 2631-1; ČSN ISO 2631-2; ČSN EN ISO 5349-1; ČSN 28 1300, chap. 4.1.6, 5.2.10; ČSN 28 1310, chap. 9.2.15; ČSN 30 0250, chap. 4.1.6, 5.4.11)	Rolling stock	-
8.4*	Determination of dynamic running characteristics	ZL-08-41 (ČSN EN 12299; UIC 513; ERRI B153/RP21; ČSN 28 1300, chap. 5.2.7; ČSN 28 1310, chap. 9.2.10)	Rolling stock	-
8.5	Measurement of artificial lighting			
8.5.1*	Internal lighting measurement	ZL-08-51 (UIC 555; ČSN EN 13272-1, chap. 4.1.2, 4.1.3, 4.1.5 to 4.1.7, 4.3.3 to 4.3.5, 4.3.9, 4.3.10, 5.1.2 to 5.1.4, 5.3.3 to 5.3.5, 6 except for 6.8; ČSN EN 13272-2, chap. 4.1.2 to 4.1.4, 4.2.3 to 4.2.5, 4.2.9, 4.2.10, 5.1.1 to 5.1.3, 5.2.3, 5.2.4, 6.5; TSI LOC&PAS, chap. 4.2.7, 4.2.10.4.1; TSI PRM, chap. 4.2.2.4; ČSN 28 1300, chap. 4.3.4, chap. 5.4.8; ČSN 28 1310, chap. 4.11.1, 9.5.6; ČSN 30 0250)	Rolling stock, railway infrastructure	-
8.5.2*	External lighting measurement	ZL-08-52 (UIC 555; ČSN EN 15153-1, chap. 5.3.3, 5.3.4, 5.4.3, 5.4.4, 5.5.3, 5.5.4; ČSN EN 15153-3, chap. 5.2.2.2.2.3, 5.2.2.2.2.4, 5.2.2.2.3.3, 5.2.2.2.3.4, 5.2.2.2.4.3, 5.2.2.2.4.4; TSI LOC&PAS, chap. 4.2.7; ČSN 28 1300, chap. 4.3.4, 5.4.8; ČSN 28 1310, chap. 4.11.2, 9.5.6; ČSN 30 0250)	Rolling stock and their parts	-
8.6	Tests of door systems			

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CAB number 1462, VUZ Testing Laboratory
Novodvorská 1698/138b, Braník, 142 00 Praha 4

Ordinal number¹	Test procedure / method name	Test procedure / method identification²	Tested subject	Degrees of freedom³
8.6.1*	Measurement of door width	ZL-08-61, chap. 5.4.1.1 (ČSN EN 14752+A1, chap. 4.1.1.1; ČSN 28 1300, chap. 5.4.9, p. a); ČSN 28 1310, chap. 5.2.3.2, 5.2.3.8, 9.2.17 bod a); ČSN 30 0250, chap. 5.4.9 p. a))	Door systems of rolling stock	D
8.6.2*	Measurement of door height	ZL-08-61, chap. 5.4.1.2 (ČSN EN 14752+A1, chap. 4.1.1.2; ČSN 28 1300, chap. 5.4.9 p. a); ČSN 28 1310, chap. 9.2.17 p. a); ČSN 30 0250, chap. 5.4.9, p. a))	Door systems of rolling stock	D
8.6.3*	Measurement of passenger retention forces	ZL-08-61, chap. 5.4.1.3 (ČSN EN 14752+A1, chap. 4.2.1.1; ČSN 28 1300, chap. 5.4.9, p. b); ČSN 28 1310, chap. 9.2.17 p. b); ČSN 30 0250, chap. 5.4.9 p. b))	Door systems of rolling stock	D
8.6.4*	Measurement of steps mechanical strength	ZL-08-61, chap. 5.4.1.4 (ČSN EN 14752+A1, chap. 4.2.2)	Door systems of rolling stock	D
8.6.5*	Verification of passenger door button location	ZL-08-61, chap. 5.4.1.5 (ČSN EN 14752+A1, chap. 4.3.1.4)	Door systems of rolling stock	D
8.6.6*	Verification of quantity and location of emergency egress devices	ZL-08-61, chap. 5.4.1.6 (ČSN EN 14752+A1, chap. 4.3.2.1)	Door systems of rolling stock	D
8.6.7*	Measurement of audible signal	ZL-08-61, chap. 5.4.1.7 (ČSN EN 14752+A1, chap. 5.2.1.3.2; ČSN 28 1300, chap. 5.4.9 p. b); ČSN 28 1310, chap. 9.2.17 p. b); ČSN 30 0250, chap. 5.4.9 p. b))	Door systems of rolling stock	A, D
8.6.8*	Verification of sensitivity of obstacle detection	ZL-08-61, chap. 5.4.1.8 (ČSN EN 14752+A1, chap. 5.2.1.4.1)	Door systems of rolling stock	D
8.6.9*	Measurement of closing force	ZL-08-61, chap. 5.4.1.9 (ČSN EN 14752+A1, chap. 5.2.1.4.2.2; ČSN 28 1310, chap. 5.2.3.6, 9.2.17 bod b); ČSN 30 0250, chap. 5.4.9 p. b))	Door systems of rolling stock	D
8.6.10*	Verification of non-contact obstacle detection	ZL-08-61, chap. 5.4.1.10 (ČSN EN 14752+A1, chap. 5.2.1.4.2.4)	Door systems of rolling stock	D
8.6.11*	Measurement of obstacle removal force	ZL-08-61, chap. 5.4.1.11 (ČSN EN 14752+A1, chap. 5.2.1.4.3)	Door systems of rolling stock	D
8.6.12*	Verification of static and dynamic anti-drag	ZL-08-61, chap. 5.4.1.12 (ČSN EN 14752+A1, chap. 5.2.1.5)	Door systems of rolling stock	D

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Ordinal number¹	Test procedure / method name	Test procedure / method identification²	Tested subject	Degrees of freedom³
8.6.13*	Verification of emergency egress conditions	ZL-08-61, chap. 5.4.1.13 (ČSN EN 14752+A1, chap. 5.5.1.2; ČSN 28 1300, chap. 5.4.9 p. b); ČSN 28 1310, chap. 9.2.17 p. b); ČSN 30 0250, chap. 5.4.9 p. b))	Door systems of rolling stock	D
8.6.14*	Measurement of operating force of emergency egress device	ZL-08-61, chap. 5.4.1.14 (ČSN EN 14752+A1, chap. 5.5.1.3; ČSN 28 1300, chap. 5.4.9 p. b); ČSN 28 1310, chap. 9.2.17 p. b); ČSN 30 0250, chap. 5.4.9 p. b))	Door systems of rolling stock	D
8.6.15*	Measurement of impact of load on a door leaf	ZL-08-61, chap. 5.4.1.15 (ČSN EN 14752+A1, chap. 5.5.1.4; ČSN 28 1300, chap. 5.4.9 p. b); ČSN 28 1310, chap. 9.2.17 p. b); ČSN 30 0250, chap. 5.4.9 p. b))	Door systems of rolling stock	D
8.6.16*	Measurement of manual force to open the door	ZL-08-61, chap. 5.4.1.16 (ČSN EN 14752+A1, chap. 5.5.1.5; ČSN 28 1300, chap. 5.4.9 p. b); ČSN 28 1310, chap. 9.2.17 p. b); ČSN 30 0250, chap. 5.4.9 p. b))	Door systems of rolling stock	D
8.6.17*	Verification of protection against accidental operation	ZL-08-61, chap. 5.4.1.17 (ČSN EN 14752+A1, chap. 5.5.1.8)	Door systems of rolling stock	D
8.6.18*	Measurement of operating force of access device	ZL-08-61, chap. 5.4.1.18 (ČSN EN 14752+A1, chap. 5.5.3.2.2; ČSN 28 1300, chap. 5.4.9, p. b); ČSN 28 1310, chap. 9.2.17, p. b); ČSN 30 0250, chap. 5.4.9, p. b))	Door systems of rolling stock	D
8.6.19*	Verification of design of door buttons	ZL-08-61, chap. 5.4.1.19 (ČSN EN 14752+A1, chap. A.2)	Door systems of rolling stock	D

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Novodvorská 1698/138b, Braník, 142 00 Praha 4

Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
8.6.20*	Verification function of door systems	ZL-08-61, chap. 5.4.2 (TSI LOC&PAS, chap. 4.2.5.5.3. cl. 1 to 5), chap. 4.2.5.5.4. cl. 1, 2, chap. 4.2.5.5.5. cl. 1 to 5, chap. 4.2.5.5.6. cl. 1, 3, 4, chap. 4.2.5.5.7. cl. 1, 2, chap. 4.2.5.5.9. cl. 1 to 3, 5, 6, chap. 4.2.5.6 cl. 1 to 5; TSI PRM, chap. 4.2.2.3.1. cl. 1 to 5, chap. 4.2.2.3.2. cl. 1 to 6, 11, 13 to 16, chap. 4.2.2.3.3. cl. 1 to 4, chap. 5.3.2.1. cl. 1, 2; ČSN 28 1300, chap. 5.4.9, p. b); ČSN 28 1310, chap. 5.2.3.1, 5.2.3.3 to 5.2.3.5, 5.2.3.7, chap. 9.2.17 p. b); ČSN 30 0250, chap. 5.4.9 p. b))	Door systems of rolling stock	D
8.6.21*	Measurement of door/gate dimensions	ZL-08-61, chap. 5.4.3.1 (ČSN EN 17168, chap. 4.1.7.6, 4.1.13.1)	Platform barrier systems	D
8.6.22*	Measurement of stress force induced by passengers	ZL-08-61, chap. 5.4.3.2 (ČSN EN 17168, chap. 4.1.13.4)	Platform barrier systems	D
8.6.23*	Measurement of release and operating forces	ZL-08-61, chap. 5.4.3.3 (ČSN EN 17168, chap. 4.1.7.4)	Platform barrier systems	D
8.6.24*	Measurement of audible alerts	ZL-08-61, chap. 5.4.3.4 (ČSN EN 17168, chap. 4.2.5)	Platform barrier systems	D
8.6.25*	Verification of obstacle detection sensitivity	ZL-08-61, chap. 5.4.3.5 (ČSN EN 17168, chap. 4.1.13.3)	Platform barrier systems	D
8.6.26*	Measurement of closing forces	ZL-08-61, chap. 5.4.3.6 (ČSN EN 17168, chap. 4.1.13.2)	Platform barrier systems	D
8.6.27*	Verification of emergency escape conditions	ZL-08-61, chap. 5.4.3.7 (ČSN EN 17168, chap. 4.1.13.6)	Platform barrier systems	D
8.7	Air conditioning tests			
8.7.1*	Measurement of temperature – cooling and heating	ZL-08-71 (ČSN EN 14750; ČSN EN 14813-1+A1; ČSN EN 14813-2+A1; ČSN EN 13129; ČSN 30 0250, chap. 5.4.8; ČSN 28 1300, chap. 5.4.9; ČSN 28 1310, chap. 9.5.7, 9.6.1; UIC 553-1)	Rolling stock	-

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Novodvorská 1698/138b, Braník, 142 00 Praha 4

Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
8.7.2*	Determination of heat transfer coefficient K	ZL-08-72 (ČSN EN 14750; ČSN EN 14813-1+A1; ČSN EN 14813-2+A1, chap. 9.1.2, 9.1.3; ČSN EN 13129, chap. 14.1; ČSN 30 0250, chap. 5.4.8; ČSN 28 1300, chap. 5.4.9; ČSN 28 1310, chap. 9.5.7, 9.6.1; UIC 553-1, chap. 7.2)	Rolling stock	-
8.7.3*	Tests of ventilation systems	ZL-08-73 (TSI LOC&PAS, chap. 4.2.5.8, 4.2.9.1.7; ČSN EN 14750; ČSN EN 14813-1+A1; ČSN EN 14813-2+A1; ČSN EN 13129; ČSN 30 0250, chap. 5.4.8; ČSN 28 1300, chap. 5.4.9; ČSN 28 1310, chap. 9.5.7, 9.6.1; UIC 553-1)	Rolling stock and their parts	-
8.8	Aerodynamic tests			
8.8.1*	Measurement of aerodynamic effects of crosswind	ZL-08-81 (ČSN EN 14067-6+A1; TSI LOC&PAS)	Rolling stock	D
8.8.2*	Measurement of aerodynamic effects on open track	ZL-08-82 (ČSN EN 14067-4+A1; TSI LOC&PAS)	Rail vehicles	D
8.8.3*	Measurement of aerodynamic effects in tunnels	ZL-08-83 (ČSN EN 14067-3; ČSN EN 14067-5; ČSN EN 17168; TSI LOC&PAS)	Rail vehicles	D
9	Strength and fatigue tests of railway vehicle components			
9.1	Strength tests of bogies and their components			
9.1.1	Strength test of the bogie frame: static, fatigue and on-track test	ZL-09-11 (UIC 615-4; UIC 515-4; ČSN EN 13749)	Bogies of rolling stock and their components	B, D
9.1.2	Strength test of bearing housing	ZL-09-12 (UIC 615-4; UIC 515-4; ČSN EN 13749)	Bearing housings of rolling stock and their components	B, D

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Novodvorská 1698/138b, Braník, 142 00 Praha 4

Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
9.2	Seat tests			
9.2.1	Strength tests	ZL-09-21 (UIC 566, chap. 2.1.1.2, 4.2.1.3, annex no. 7)	Seats of transport vehicles	B, D
9.3	Brake components tests			
9.3.1	Strength tests	ZL-09-31 (UIC 833, chap. 2)	Brake triangles	B, D
9.4	Spring tests			
9.4.1	Static and dynamic tests	ZL-09-41 (UIC 822; ČSN EN 13298)	Helical coil springs	B, D
9.4.2	Static and dynamic tests	ZL-09-42 (UIC 517; UIC 820; UIC 821; ČSN EN 14200)	Leaf springs	B, D
9.5	Draw gear and buffer tests			
9.5.1	Fatigue and static tests	ZL-09-51 (ČSN EN 15566, annex A, chap. E.3.5, E.6.3.4, F.8.5.2.6, F.4.2 tab. F.2 a F.3, F.4.4, F.8.5.3, G.1.4, G.1.5, G.2.2, G.2.3)	Draw gear and its suspensions, draw hook and screwcouple	B, D
9.5.2	Static, fatigue and mechanical tests	ZL-09-52 (ČSN EN 15551, Annex B, D, F, C, G.1, G.2.2)	Buffers and their suspensions	B, D
9.6	Bearing tests			
9.6.1	Performance test	ZL-09-61 (ČSN EN 12082+A1)	Axle boxes of vehicles	B, D
9.7	Wheelsets tests			
9.7.1	Fatigue test	ZL-09-71 (ČSN EN 13262, chap. 4.2.4, annex B, D 4.4)	Railway wheels	B, D
9.7.2	Fatigue test	ZL-09-72 (ČSN EN 13103-1, annex D; ČSN EN 13260, annex B; ČSN EN 13261, chap. 4.2.3.1.3, 4.2.3.3 to 4.2.3.4, 4.6)	Axles	B, D
9.7.3*	Thermomechanical test	ZL-09-73 (ČSN EN 13979-1, chap. 7, annex A, B)	Railway wheels	B, D

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Ordinal number ¹	Test procedure / method name	Test procedure / method identification ²	Tested subject	Degrees of freedom ³
10	Railway infrastructure components tests			
10.1	Static, dynamic and fatigue tests	ZL-10-11 (ČSN EN 13230-1, chap. 7; ČSN EN 13230-2, chap. 4; ČSN EN 13230-3, chap. 4; ČSN EN 13230-4+A1, chap 5; ČSN EN 13230-5, chap. 5)	Concrete sleepers	B, D
10.2	Tests of fastening systems	ZL-10-21 (ČSN EN 13146-1; ČSN EN 13146-2; ČSN EN 13146-3; ČSN EN 13146-4; ČSN EN 13146-5; ČSN EN 13146-6; ČSN EN 13146-7; ČSN EN 13146-9, chap. 6.1, 6.2, 7.1, 7.2; ČSN EN 13146-10)	Rail fastening systems	B, D
10.3	Weld tests	ZL-10-31 (ČSN EN 14587-1, annex A to F; ČSN EN 14587-2, annex A to F; ČSN EN 14587-3, annex B to F)	Rails	B, D
11	Non-destructive testing			
11.1*	Non-destructive testing – penetrant testing (PT)	ZL-11-11 (ČSN EN ISO 3452-1)	Rolling stock and infrastructure	B, D
11.2*	Non-destructive testing – magnetic particle testing (MT)	ZL-11-21 (ČSN EN ISO 9934-1; ČSN EN ISO 17638)	Rolling stock and infrastructure	B, D

¹ asterisk at the ordinal number identifies the tests, which the laboratory is qualified to carry out outside the permanent laboratory premises

² if the document identifying the test procedure is dated, only these specific procedures are used. If the document identifying the test procedure is not dated, the latest valid edition of the specified procedure is used (including any changes)

³ degrees of freedom: A – Flexibility concerning materials/products (subject of the test), B – Flexibility concerning components/parameters/characteristics, C – Flexibility concerning the performance of the method, D – Flexibility concerning the method

The laboratory can modify the test procedures with the specified degree(s) of freedom in the scope of accreditation while maintaining the principle of measurement. If no degree of freedom is specified, the laboratory cannot apply a flexible approach to the scope of accreditation for the test.

Explanations:

ZL-xx-yy

Identification of VUZ Testing Laboratory methods

Bxx/RPyy

designation of ERRI reports (European Rail Research Institute, Utrecht, Netherlands) –

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TNŽ	Technical standard of Railways
UICxxx (UICxxx-x)	designation of UIC regulations (Union Internationale des Chemins de fer, Paris), xxx (xxx-x) – Regulation Number
IRSxxxxx (IRSxxxxx-x)	designation of UIC regulations (Union Internationale des Chemins de fer, Paris), xxx (xxx-x) – Regulation Number
ERA/ERTMS/xxxxxx	document of European Railway Agency/ European Rail Traffic Management System
DID0000336569	Set noise from safety equipment (TSI CR NOI, UIC 644, UIC 643)
TSI WAG	Commission Regulation (EU) No 321/2013 of 13 March 2013 concerning the technical specification for interoperability relating to the subsystem rolling stock — freight wagons of the rail system in the European Union and repealing Decision 2006/861/EC (Text with EEA relevance). Commission Implementing Regulation (EU) 2023/1694 of 10 August 2023 amending Regulations (EU) No 321/2013, (EU) No 1299/2014, (EU) No 1300/2014, (EU) No 1301/2014, (EU) No 1302/2014, (EU) No 1304/2014 and Implementing Regulation (EU) 2019/777 (Text with EEA relevance)
TSI LOC&PAS	Commission Regulation (EU) No 1302/2014 of 18 November 2014 concerning a technical specification for interoperability relating to the ‘rolling stock — locomotives and passenger rolling stock’ subsystem of the rail system in the European Union (Text with EEA relevance). Commission Implementing Regulation (EU) 2023/1694 of 10 August 2023 amending Regulations (EU) No 321/2013, (EU) No 1299/2014, (EU) No 1300/2014, (EU) No 1301/2014, (EU) No 1302/2014, (EU) No 1304/2014 and Implementing Regulation (EU) 2019/777 (Text with EEA relevance)
TSI ENE	Commission Regulation (EU) No 1301/2014 of 18 November 2014 on the technical specifications for interoperability relating to the energy subsystem of the rail system in the Union (Text with EEA relevance). Commission Implementing Regulation (EU) 2023/1694 of 10 August 2023 amending Regulations (EU) No 321/2013, (EU) No 1299/2014, (EU) No 1300/2014, (EU) No 1301/2014, (EU) No 1302/2014, (EU) No 1304/2014 and Implementing Regulation (EU) 2019/777 (Text with EEA relevance)
TSI NOI	Commission Regulation (EU) No 1304/2014 of 26 November 2014 on the technical specification for interoperability relating to the subsystem ‘rolling stock — noise’ amending Decision 2008/232/EC and repealing Decision 2011/229/EU (Text with EEA relevance). Commission Implementing Regulation (EU) 2023/1694 of 10 August 2023 amending Regulations (EU) No 321/2013, (EU) No 1299/2014, (EU) No 1300/2014, (EU) No 1301/2014, (EU) No 1302/2014, (EU) No 1304/2014 and Implementing Regulation (EU) 2019/777 (Text with EEA relevance)
TSI PRM	Commission Regulation (EU) No 1300/2014 of 18 November 2014 on the technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility (Text with EEA relevance). Commission Implementing Regulation (EU) 2023/1694 of 10 August 2023 amending Regulations (EU) No 321/2013, (EU) No 1299/2014, (EU) No 1300/2014, (EU) No 1301/2014, (EU) No 1302/2014, (EU) No 1304/2014 and Implementing Regulation (EU) 2019/777 (Text with EEA relevance)
CLC/TS	CENELEC / Technical Specification
GMRT	Railway Group Standard
IRS	International Railway Solution
EMU	Electric multiple unit
DMU	Diesel multiple unit

"This document is an appendix to the certificate of accreditation. In case of any discrepancies between the English and Czech versions, the Czech version shall prevail, both for the certificate appendix and the certificate itself. "