EUROPEAN UNION AGENCY FOR RAILWAYS

Moving Europe towards a sustainable and safe railway system without frontiers.

OPINION

ERA/OPI/2025-7

OF THE EUROPEAN UNION AGENCY FOR RAILWAYS

for THE EUROPEAN COMMISSION regarding

New standards or new standards versions released since the publication of TSI package 2023 (Acceptable means of compliance) - repealing ERA/OPI/2024-5 and ERA/OPI/2025-5

1. General Context

On 20 August 2024, the European Commission (EC) requested a technical opinion from the European Union Agency for Railways (the Agency) (see annex I) pursuant to Article 10 (2) Regulation (EU) 2016/796. In accordance also with Multi-annual TSI revision framework, the Agency was mandated to monitor the evolution of standards quoted in TSIs and to propose technical opinions where new version of standards will be assessed and, where appropriate, declared as an alternative acceptable means of compliant toward TSIs.

According to Article 10 (2) Regulation (EU) 2016/796, "*The Agency shall issue opinions at the request of the Commission on amendments to any act adopted on the basis of Directive (EU) 2016/797 or Directive (EU) 2016/798, especially where any alleged deficiency is signalled*."

According to Article 4 (f), the Agency shall issue opinions constituting acceptable means of compliance pursuant to Article 19.

Article 19 (1) (d) Regulation (EU) 2016/796, empowers the Agency to issue opinions which constitute acceptable means of compliance concerning deficiencies in TSIs, in accordance with Article 6(4) of Directive (EU) 2016/797, and provide those opinions to the Commission.

Article 6 (4) Directive 2016/797 sets out that any member of the network of representative bodies referred to in Article 38(4) of Regulation (EU) 2016/796 may make the Commission aware of possible TSI deficiencies.

2. Analysis

2.1. Scope

This technical opinion is issued in accordance with Article 19 (1) (d) Regulation (EU) 2016/796.

This technical opinion is applicable only to the following TSIs:

- TSI CCS: Regulation (EU) No 2023/1695
- TSI OPE: Regulation (EU) No 2019/773 amended by Regulation (EU) No 2020/778 amended by Regulation (EU) 2021/2238 amended by Regulation (EU) 2023/1693
- TSI LOC&PAS: Regulation (EU) No 1302/2014 amended by Regulation (EU) No 2016/919 amended by Regulation (EU) 2018/868 amended by Regulation (EU) 2019/776 amended by Regulation (EU) 2020/387 amended by Regulation (EU) 2023/1694
- TSI LOC&PAS: Regulation (EU) No 1302/2014 amended by Regulation (EU) No 2016/919 amended by Regulation (EU) 2018/868 amended by Regulation (EU) 2019/776 amended by Regulation (EU) 2020/387 amended by Regulation (EU) 2023/1694 amended by Regulation (EU) 2025/675
- TSI WAG: Regulation (EU) No 321/2013 amended by Regulation (EU) No 1236/2013 amended by Regulation (EU) 2015/924 amended by Regulation (EU) 2019/776 amended by Regulation (EU) 2020/387 amended by Regulation (EU) 2023/1694
- TSI NOI: Regulation (EU) No 1304/2014 amended by Regulation (EU) 2019/774 amended by Regulation (EU) 2023/1694
- TSI PRM: Regulation (EU) No 1300/2013 amended by Regulation (EU) No 2019/72 amended by Regulation (EU) 2022/721 amended by Regulation (EU) 2023/62 amended by Regulation (EU) 2023/1694
- TSI INF: Regulation (EU) No 1299/2014 amended by Regulation (EU) 2019/776 amended by Regulation (EU) 2023/1694
- TSI ENE: Regulation (EU) No 1301/2014 amended by Regulation (EU) 2018/868 amended by Regulation (EU) 2019/776 amended by Regulation (EU) 2023/1694

- TSI SRT: Regulation (EU) No 1303/2014 amended by Regulation (EU) 2016/912 amended by Regulation (EU) 2019/776
- TSI TAF: Regulation (EU) No 1305/2014 amended by Regulation (EU) No 2018/278 amended by Regulation (EU) 2019/778 amended by Regulation (EU) 2021/541
- TSI TAP: Regulation (EU) No 454/2011 amended by Regulation (EU) No 665/2012 amended by Regulation (EU) 1273/2013 amended by Regulation (EU) 2015/302 amended by Regulation (EU) 2016/527 amended by Regulation (EU) 2019/775

2.2. Process followed

Through the topical working group on standardisation (TWG STA), the Agency monitored the new versions of standards published since the publications of the TSI package 2023.

This technical opinion is limited to the standards resulted of the analysis performed and considers the results of previous technical opinions ERA/OPI/2024-5 and ERA/OPI/2025-5.

In the Technical Opinion ERA/OPI/2024-5, published 10 October 2024 were included:

- Change request 640, approved by the Working party on 18/04/2024.
- Change request 652, approved by the Working party on 03/07/2024.

In the Technical Opinion ERA/OPI/2025-5, published on 08 September 2025 were included:

- Change request 687, approved by the Working party on 17/12/2024.
- Change request 699, approved by the Working party on 20/05/2025.
- Change request 732, approved by the Working party on 20/05/2025.

Regarding change request 699, after the publication of technical opinion ERA/OPI/2025-5 an issue was raised during the activities related to the digital automatic coupler which requires further analysis before allowing the use of EN 15227:2020+A1:2024. The updated standard extends the relaxed requirements for scenario 1 and 2 limited for locomotives with heavy duty couplers to any locomotive fitted with a central coupling system, including DAC. As the objective is to retrofit locomotives with DAC, this has a clear potential of degrading the current safety level. Therefore, this standard is removed from this opinion and the use of EN 15227:2020+A1:2024 is not allowed pending further notice. The concrete requirements for crashworthiness of locomotives fitted with DAC will be covered by a dedicated technical opinion.

The present technical opinion ERA/OPI/2024-7 aims to correct this issue by removing EN 15227:2020+A1:2024 from the list of voluntary applicable standards.

2.3. Detailed analysis

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Standard reference	Title	Version quoted in TSI	TSI Appendix	New version to be quoted	TSI modification proposal
EN 12663-2	Railway applications - Structural requirements of railway vehicle bodies - Part 2: Freight wagons	2010 (TSI Loc&Pas) 2010 (WAG TSI)	TSI Loc&pas Appendix J-1 index : [51] TSI WAG Appendix D.1 index : [1]	2010+A1:2023	TSI Loc&pas Appendix J-1 index :[51] :EN 12663-2:2010+A1:2023 TSI WAG Appendix D.1 index :[1] :EN 12663-2:2010+A1:2023
EN 13232-3	Railway applications – Track – Switches and crossings – Part 3: Requirements for wheel/rail interaction	2003 (TSI INF)	TSI INF Appendix T index : [17]	2023	Appendix S table 48, row 53 replaced by "Unguided length is the portion of obtuse crossing where there is no guidance of the wheel described as 'unguided distance' in the specification referenced in Appendix T, Index [17]. appendix T index 17 : EN 13232-3:2023 [17.1] : clause of the standard 5.3.6
EN 15085-2	Railway applications - Welding of railway vehicles and components - Part 2: Requirements for welding manufacturer	2020 (WAG TSI)	TSI WAG Appendix D.1 index : [51]	2020+A1:2023	TSI WAG Appendix D.1 index :[51] EN 15085-2:2020+A1:2023
EN 15085-3	Railway applications - Welding of railway vehicles and components - Part 3: Design requirements	2022 (WAG TSI)	TSI WAG Appendix D.1 index : [52]	2022+A1:2023	TSI WAG Appendix D.1 index :[52] : EN 15085-3:2022+A1:2023
EN 15085-4	Railway applications - Welding of railway vehicles and components - Part 4: Production requirements	2007 (WAG TSI)	TSI WAG Appendix D.1 index : [53]	2023	TSI WAG Appendix D.1 index :[53] : EN 15085-4:2023
EN 15085-5	Railway applications - Welding of railway vehicles and components - Part 5: Inspection, testing and documentation	2007 (WAG TSI) ;	TSI WAG Appendix D.1 index : [54]	2023	TSI WAG Appendix D.1 index :[54] : EN 15085-5:2023
EN 15595	Railway applications - Braking - Wheel slide protection	2018+AC :2021 (TSI Loc&Pas) 2018+AC :2021 (WAG TSI)	TSI Loc&pas Appendix J-1 index : [15] TSI WAG Appendix D.1 index : [49]	2018+A1 :2023	TSI Loc&pas Appendix J-1 index : [15] : EN 15595:2018+A1 :2023 TSI WAG Appendix D.1 index : [49]
EN 45545-2	Railway applications - Fire protection on railway vehicles -Part 2: Requirements for fire behaviour of materials and components	2020 (TSI Loc&Pas) 2020 (WAG TSI)	TSI Loc&pas Appendix J-1 index : [30] TSI WAG Appendix D.1 index : [22]	2020+A1:2023	TSI Loc&pas Appendix J-1 index :[30] EN 45545-2:2020+A1:2023 TSI WAG Appendix D.1 index :[22] EN 45545-2:2020+A1:2023

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Standard reference	Title	Version quoted in TSI	TSI Appendix	New version to be quoted	TSI modification proposal
EN 12663-1	Railway applications - Structural requirements of railway vehicle bodies - Part 1: Locomotives and passenger rolling stock (and alternative method for freight wagons)	2010+A1:2014 (TSI Loc&Pas) 2010+A1:2014 (WAG TSI)	TSI Loc&pas Appendix J-1 index : [1] TSI WAG Appendix D.1 index : [3]	2010+A2:2023	TSI Loc&pas Appendix J-1 index :[1] : EN 12663-1:2010+A2:2023 TSI WAG Appendix D.1 index :[3]EN 12663-1:2010+A2:2023
EN 13103-1	Railway applications - Wheelsets and bogies - Part 1: Design method for axles with external journals	2017 (TSI Loc&Pas) 2017+A1:2022 (WAG TSI)	TSI Loc&pas Appendix J-1 index : [47] TSI WAG Appendix D.1 index : [12]	2017+A1:2022	TSI Loc&pas Appendix J-1 index :[47] : EN 13103-1 : 2017+A1:2022
EN 13749	Railway applications - Wheelsets and bogies - Method of specifying the structural requirements of bogie frames	2021 (TSI Loc&Pas) 2021 (WAG TSI)	TSI Loc&pas Appendix J-1 index : [11] TSI WAG Appendix D.1 index : [9]	2021+A1:2023	TSI Loc&pas Appendix J-1 index :[11] EN 13749:2021+A1:2023 TSI WAG Appendix D.1 index :[9]EN 13749:2021+A1:2023
EN 13979-1	Railway applications - Wheelsets and bogies - Monobloc wheels - Technical approval procedure - Part 1: Forged and rolled wheels	2020 (TSI Loc&Pas) 2020 (WAG TSI) 2020 (TSI NOI)	TSI Loc&pas Appendix J-1 index : [40] TSI WAG Appendix D.1 index : [11] TSI NOI Appendix B index : [3]	2023	TSI Loc&pas Appendix J-1 index :[40] : EN 13979-1:2023 TSI WAG Appendix D.1 index :[11] EN 13979-1:2023 TSI NOI Appendix B index : [3] EN 13979-1:2023 TSI Point : 6.2.3 – table 7 (Simplified evaluation. clauses of the standard : Annex I
EN 15085-1	Railway applications -Welding of railway vehicles and components -Part 1: General	2007+A1:2013 (WAG TSI)	TSI WAG Appendix D.1 index : [50]	2023	TSI WAG Appendix D.1 index : [50] EN 15085-1:2023
EN 15152	Railway applications - Front windscreens for train cabs	2019 (TSI Loc&Pas)	TSI Loc&pas Appendix J-1 index : [28]	2019+A1:2023	TSI Loc&pas Appendix J-1 index : [28] : EN 15152:2019+A1:2023
EN 15437-1	Railway applications – Axle box condition monitoring – Interface and design requirements - Part 1: Track side equipment and rolling stock axle box	2009 (TSI Loc&Pas) 2009+A1:2022 (WAG TSI)	TSI Loc&pas Appendix J-1 index : [8] TSI WAG Appendix D.1 index : [6]	2009+A1:2022	TSI Loc&pas Appendix J-1 index :[8] EN 15437-1 :2009+A1:2022
EN 16235	Railway application - Testing for the acceptance of running characteristics of railway vehicles - Freight wagons - Conditions for dispensation of freight wagons with defined characteristics from on-track tests in accordance with EN 14363	2013 (WAG TSI)	TSI WAG Appendix D.1 index : [8]	2023	TSI WAG Appendix D.1 index : [8] : EN 16235:2023

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Standard reference	Title	year quoted in TSI&AG	TSI Appendix	New version to be quoted	TSI modification proposal
EN 13103-1	Railway applications - Wheelsets and bogies - Part 1: Design method for axles with external journals	2017 (TSI Loc&Pas) ; 2017+A1:2022 (WAG TSI) ;	TSI Loc&pas Appendix J-1 index : [47] TSI WAG Appendix D.1 index : [12]	2017+A1:2022	TSI Loc&pas Appendix J-1 index :[47] : EN 13103-1 : 2017+A1:2022
EN 14067-4	Railway applications - Aerodynamics - Part 4: Requirements and test procedures for aerodynamics on open track	2013+A1:2018 (TSI Loc&Pas) ;	TSI Loc&pas Appendix J-1 index : [49]	2024	TSI loc&pas point 4.2.6.2.1 (2) changed to : not used table 4 : not used TSI loc&pas point 4.2.6.2.1 (3) replaced by : The specification referenced in Appendix J-1, index [49] specifies: - the reference train to be tested for fixed/predefined formations - the formation to be tested for single units for general operation and capable of running in leading position and - the formation to be tested for single units for general operation and not capable of running in leading position. TSI loc&pas point 4.2.6.2.2 (2) replaced by : Units with a maximum design speed higher than 160 km/h running in the open air at their reference speed Vtr,ref shall not cause the maximum peak-to-peak pressure to exceed the maximum permissible pressure change defined in specification referenced in Appendix J-1, index [49] assessed over the measurement positions defined in the same specification. TSI loc&pas point 4.2.6.2.2 (3) changed to : not used delete table 4.a TSI loc&pas point 4.2.6.2.2 (2) replaced by : The formation to be verified by a test is specified below for different types of rolling stock: — Unit assessed in fixed or predefined formation: — A single unit of the fixed formation or any configuration of the predefined formation.
					— Unit assessed for use in general operation (train formation not defined at design stage): — Unit capable of running in leading position shall be assessed alone. — Other units: Requirement not applicable.TSI Loc&pas Appendix J-1 index :[49] TSI Point : 4.2.6.2.1 (1) (Slipstream effects – Definition of measurement points and limit values). clauses of the standard : 5.2.2.1, Table 5 TSI Point : 4.2.6.2.1 (3) (Reference train for fixed/predefined formations). clauses of the standard : 5.2.2.2 TSI Point : 4.2.6.2.1 (3) (Reference train for units for general operation and capable of running in leading position). clauses of the standard : 5.2.2.3 TSI Point : 4.2.6.2.1 (3) (Reference train for units for general operation and not capable of running in leading position). clauses of the standard : 5.2.2.4 TSI Point : 4.2.6.2.2 (2) (Head pressure pulse – Maximum peak-to-peak pressure (Δp95 %,max)). clauses of the standard : Table 2 TSI Point : 4.2.6.2.2 (2) (Head pressure pulse – Measurement positions). clauses of the standard : 5.1.2 TSI Point : 6.2.3.13 (1) (Slipstream effect – full scale tests). clauses of the standard : 7.2.2.1 TSI Point : 6.2.3.13 (2) (Slipstream effect – simplified assessment). clauses : 4.2.4 and limits in table 7 TSI Point : 6.2.3.14 (1) (Head pressure pulse – method of verification). clauses of the standard : 7.1.2.1 TSI Point : 6.2.3.14 (1) (Head pressure pulse – CFD). clauses of the standard : 7.1.2.4 TSI Point : 6.2.3.14 (1) (Head pressure pulse – moving model). clauses of the standard : 7.1.2.2 TSI Point : 6.2.3.14 (2) (Head pressure pulse – simplified assessment method). clauses of the standard : 5.1.4 and limits in table 4

Standard reference	Title	year quoted in TSI&AG	TSI Appendix	New version to be quoted	TSI modification proposal
EN 14478	Railway applications - Braking - Generic vocabulary	2017 (TSI Loc&Pas) ; X (TSI CCS subsets) ;	TSI Loc&pas Appendix J-1 index : [66]	EN ISO 24478:2024	index 66 replaced by EN ISO 24478:2024 Railway applications - Braking - Generic vocabulary
EN 15328	Railway applications - Braking - Brake pads	2020 (TSI Loc&Pas)	TSI Loc&pas Appendix J-1 index : [67]	2020+A1:2024	TSI Loc&pas Appendix J-1 index :[67] : EN 15328:2020+A1:2024
EN 15877-1	Railway applications - Marking on railway vehicles - Part 1: Freight wagons	2012+A1:2018 (WAG TSI)	TSI WAG Appendix D.1 index : [2]	2024	TSI WAG Appendix D.1 index :[2] : EN 15877-1:2024 TSI Point : 4.2.2.2 (Lifting and jacking position marking). clauses of the standard : Figure 15 — Lifting and jacking point TSI Point : 4.2.3.5.3.4 (Marking of DDAF). clauses of the standard : Figure 127 — Wagon equipped with a derailment detector TSI Point : Appendix C, point 1 (Marking for combined automatic and screw coupler). clauses of the standard : Figure 101 — Automatic coupler
EN 16116-2	Railway applications - Design requirements for steps, handrails and associated access for staff - Part 2: Freight wagons	2021 (WAG TSI)	TSI WAG Appendix D.1 index : [28]	2024	TSI WAG Appendix D.1 index : [28] : EN 16116-2:2024
EN 16207	Railway applications - Braking - Functional and performance criteria of Magnetic Track Brake systems for use in railway rolling stock	2014+A1 :2019 (ERA/ERTMS/033281 V5.0) ; 2014+A1 :2019 (TSI Loc&Pas)	TSI Loc&pas Appendix J-1 index : [16]	2024	TSI loc& pas Clause 4.2.4.8.2 (3) (3) The geometrical characteristics of the end elements of the magnet in contact with the rail shall be as specified for one of the types described in the specification referenced in Appendix J-1, index [16]. It is permissible to use geometries of end elements of the magnet that are not listed in Appendix J-1, index [16] provided that the compatibility with switches and crossings is demonstrated in accordance with the procedure referred to inAppendix J-1, index [16] Appendix J-1, index [16] : [16.1] Magnetic track brake : end pieces TSI points 4.2.4.8.2 (3) : standardized end pieces clause of the standard : Annex C [16.2] Magnetic track brake : end pieces TSI points 4.2.4.8.2 (3) : new end pieces clause of the standard : Annex D annex K removed.
EN 50463-1	Railway applications - Energy measurement on board trains - Part 1: General	2017 (TSI Loc&Pas)	TSI Loc&pas Appendix J-1 index : [57]	2017/A1:2024	TSI Loc&pas Appendix J-1 index :[57] EN 50463-1:2017/A1:2024
EN 50463-2	Railway applications - Energy measurement on board trains - Part 2: Energy measuring	2017/AC :2018-10 (TSI Loc&Pas)	TSI Loc&pas Appendix J-1 index : [56]	2017/A1:2024	TSI Loc&pas Appendix J-1 index : [56] EN 50463-2:2017/A1:2024
EN 50463-3	Railway Applications – Energy measurement on board trains – Part 3: Data handling	2017 (TSI ENE) ; 2017 (TSI Loc&Pas)	TSI ENE Appendix E index : [6] TSI Loc&pas Appendix J-1 index : [55]	2017/A1:2024	TSI ENE Appendix E index :[6] EN 50463-3:2017/A1:2024 TSI Loc&pas Appendix J-1 index : [55] EN 50463-3:2017/A1:2024
EN 50463-5	Railway applications - Energy measurement on board trains - Part 5: Conformity assessment	2017 (TSI Loc&Pas)	TSI Loc&pas Appendix J-1 index :[59]	2017/A1:2024	TSI Loc&pas Appendix J-1 index : [59] EN 50463-5:2017/A1:2024

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Standard reference	Title	year quoted in TSI&AG	TSI Appendix	Latest version	TSI modification proposal
EN 14067-6	Railway applications - Aerodynamics - Part 6: Requirements and test procedures for cross wind assessment	2018 (TSI Loc&Pas)	TSI Loc&pas Appendix J-1 index :[19]	2018+A1:2022	TSI Loc&pas Appendix J-1 index :[19] : EN 14067-6:2018+A1:2022
~~EN 15227~~	~~Railway applications - Crashworthiness requirements for railway vehicle bodies~~	~~2020 (TSI Loc&Pas)~~	~~TSI Loc&pas Appendix J-1 index :[3]~~	~~2020+A1:2024~~	~~TSI Loc&pas Appendix J-1 index :[3] EN 15227:2020+A1:2024~~
EN 15355	Railway applications - Braking - Distributor valves and distributor-isolating devices	2019 (WAG TSI)	TSI WAG Appendix D.1 index :[34]	2019+A1:2023	TSI WAG Appendix D.1 index :[34] EN 15355:2019+A1:2023
EN 15839	Railway applications - Testing and simulation for the acceptance of running characteristics of railway vehicles - Running safety under longitudinal compressive force	2012+A1:2015 (WAG TSI)	TSI WAG Appendix D.1 index :[33]	2024	TSI WAG Appendix D.1 index :[33] : EN 15839:2024 TSI Point : Appendix C, point 8 (Tests concerning longitudinal compressive forces). clauses of the standard : 5.1, 5.2
EN 16286-1	Railway applications - Gangway systems between vehicles - Part 1: Main applications	2013 (TSI Loc&Pas)	TSI Loc&pas Appendix J-1 index :[54]	2024	TSI Loc&pas Appendix J-1 index :[54] EN 16286-1:2024 TSI Point : 7.1.1.5.2 (6) (Rubber tube gangways). clauses of the standard : Annexes A and B
EN 50343	Railway applications -Rolling stock -Rules for installation of cabling	2014/A1:2017 (WAG TSI)	TSI WAG Appendix D.1 index :[25]	2024	TSI WAG Appendix D.1 index :[25] EN 50343:2024

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Standard reference	Title	year quoted in TSI&AG	TSI Appendix	New version to be quoted	TSI modification proposal
EN 12464-2	Light and lighting - Lighting of work places - Part 2: Outdoor work places	2014 (TSI PRM)	TSI PRM Appendix A index : [3]	2024	Proposal to limit the reference to the lines relevant for passenger plateforms with the same limitation as per previous version. TSI PRM Appendix A index :[3] EN 12464-2:2024 clauses TSI Point : 4.2.1.9 (3) (Lighting on platforms). clauses of the standard : table 22 points 22.1, 22.2, 22.3, 22.5,22.6, 22.7
EN 15624	Railway applications - Braking - Empty-loaded changeover devices	2021 (WAG TSI)	TSI WAG Appendix D.1 index : [38]	2021+A1:2024	TSI WAG Appendix D.1 index :[38] EN 15624:2021+A1:2024
EN 15663	Railway applications - Vehicle reference masses	2017+A1 :2018 (TSI INF) ; 2017+A1 :2018 (TSI Loc&Pas) ; 2017+A1 :2018 (TSI OPE) ;	TSI Loc&pas Appendix J-1 index : [6] TSI INF Appendix T index :[1] TSI OPE Appendix D1 index :no index	2017+A2/2024	TSI Loc&pas Appendix J-1 index :[6] EN 15663:2017+A2/2024 TSI INF Appendix T index :[1] EN 15663:2017+A2/2024 TSI OPE Appendix D1 index :no index EN 15663:2017+A2/2024

2.4. Impact assessment

3. The opinion

The Agency is of the opinion that the new version of the standards referred in change requests listed below can be declared as alternative means of compliance for the relevant TSIs.

The applicant for EC verification is allowed to use, on a voluntary basis the following standards:

With the same clauses number as the ones quoted in TSI:

- EN 13103-1:2017+A1:2022 instead of EN 13103-1:2017 (TSI Loc&Pas),
- EN 12663-1:2010+A2:2023 instead of EN 12663-1:2010+A1:2014,
- EN 12663-2:2010+A1:2023 instead of EN 12663-2:2010,
- EN 13103-1:2017+A1:2022 instead of EN 13103-1:2017,
- EN 13749:2021+A1:2023 instead of EN 13749:2021,
- EN 14067-6:2018+A1:2022 instead of EN 14067-6:2018,
- EN ISO 24478:2024 instead of EN 14478:2017,
- EN 15085-1:2023 instead of EN 15085-1:2007+A1:2013,
- EN 15085-2:2020+A1:2023 instead of EN 15085-2:2020,
- EN 15085-3:2022+A1:2023 instead of EN 15085-3:2022,
- EN 15085-4:2023 instead of EN 15085-4:2007,
- EN 15085-5:2023 instead of EN 15085-5:2007,
- EN 15152:2019+A1:2023 instead of EN 15152:2019,
- ~~EN 15227:2020+A1:2024 instead of EN 15227:2020,~~
- EN 15328:2020+A1:2024 instead of EN 15328:2020,
- EN 15355:2019+A1:2023 instead of EN 15355:2019
- EN 15437-1:2009+A1:2022 instead of EN 15437-1:2009,
- EN 15595:2018+A1:2023 instead of EN 15595:2018+AC:2021,
- EN 15624:2021+A1:2024 instead of EN 15624:2021,
- EN 15663:2017+A2/2024 instead of EN 15663:2017+A1:2018,
- EN 16116-2:2024 instead of EN 16116-2:2021,
- EN 16235:2023 instead of EN 16235:2013,
- EN 45545-2:2020+A1:2023 instead of EN 45545-2:2020,
- EN 50343:2024 instead of EN 50343:2014/A1:2017
- EN 50463-1:2017/A1:2024 instead of EN 50463-1:2017,
- EN 50463-2:2017/A1:2024 instead of EN 50463-2:2017,
- EN 50463-3:2017/A1:2024 instead of EN 50463-3:2017,
- EN 50463-5:2017/A1:2024 instead of EN 50463-5:2017

With deviations in the mandatory clauses:

- EN 12464-2:2024 instead of EN 12464-2:2014 SI PRM Appendix A index:[3] clauses
  TSI Point: 4.2.1.9 (3) (Lighting on platforms); clauses of the standard: table 22 points 22.1, 22.2, 22.3, 22.5,22.6, 22.7
- EN 13232-3:2023 instead of EN 13232-3:2003: TSI INF Appendix S table 48, row 54 replaced by "*Unguided length is the portion of obtuse crossing where there is no guidance of the wheel described as 'unguided distance' in the specification referenced in Appendix T, Index [17]"*
- *EN 13979-1:2023 instead of EN 13979-1:2020: Same clauses for TSI Loc&Pas and WAG.TSI NOISE appendix B index [3.1] clauses of the standard: Annex I. Appendix [3.2] : same clause.*
- EN 15839:2024 instead of EN 15839:2012+A1:2015: TSI WAG Appendix D.1 index:[33]
  TSI Point: Appendix C; point 8 (Tests concerning longitudinal compressive forces); clauses of the standard: 5.1, 5.2

- EN 15877-1:2024 instead of EN 15877-1:2012+A1:2018: TSI WAG Appendix D.1 index: [2]:
  TSI Point: 4.2.2.2 (Lifting and jacking position marking); clauses of the standard: Figure 15 — Lifting and jacking point
  TSI Point: 4.2.3.5.3.4 (Marking of DDAF); clauses of the standard: Figure 127 — Wagon equipped with a derailment detector
  TSI Point: Appendix C, point 1 (Marking for combined automatic and screw coupler); clauses of the standard: Figure 101 — Automatic coupler
  Version 2012+2018 quoted in clause 7.1.2 remains mandatory.
- EN 16207:2024 instead of EN 16207:2014+A1:2019: TSI Loc& Pas:
  4.2.4.8.2 (3) replaced by (3) The geometrical characteristics of the end elements of the magnet in contact with the rail shall be as specified for one of the types described in the specification referenced in Appendix J-1, index [16]. It is permissible to use geometries of end elements of the magnet that are not listed in Appendix J-1, index [16] provided that the compatibility with switches and crossings is demonstrated in accordance with the procedure referred to in Appendix J-1, index [16]
  [16.1] Magnetic track brake: end pieces; TSI points 4.2.4.8.2 (3): standardized end pieces; clause of the standard: Annex C
  [16.2] Magnetic track brake: end pieces; TSI points 4.2.4.8.2 (3): new end pieces; clause of the standard: Annex D
  annex K removed.
- EN 16286-1:2024 instead of EN 16286-1:2013: TSI Loc&Pas Appendix J-1 index:[54]
  TSI Point: 7.1.1.5.2 (6) (Rubber tube gangways); clauses of the standard: Annexes A and B,
- EN 14067-4:2024 instead of EN 14067-4:2013+A1:2018 TSI Loc&Pas:
  point 4.2.6.2.1 (2) changed to: not used
  table 4: not used
  TSI Loc&Pas point 4.2.6.2.1 (3) replaced by:
  The specification referenced in Appendix J-1; index [49] specifies:
  the reference train to be tested for fixed/predefined formations
  the formation to be tested for single units for general operation and capable of running in leading position and
  the formation to be tested for single units for general operation and not capable of running in leading position.
  TSI Loc&Pas point 4.2.6.2.2 (2) replaced by:
  Units with a maximum design speed higher than 160 km/h running in the open air at their reference speed Vtr,ref shall not cause the maximum peak-to-peak pressure to exceed the maximum permissible pressure change defined in specification referenced in Appendix J-1, index [49] assessed over the measurement positions defined in the same specification.
  TSI Loc&Pas point 4.2.6.2.2 (3) changed to: not used
  Table 4.a deleted
  TSI Loc&Pas point 4.2.6.2.2 (2) replaced by:
  The formation to be verified by a test is specified below for different types of rolling stock:
  - Unit assessed in fixed or predefined formation: A single unit of the fixed formation or any configuration of the predefined formation.

  TSI Loc&Pas Appendix J-1 index:[49]
  TSI Point: 4.2.6.2.1 (1) (Slipstream effects – Definition of measurement points and limit values); clauses of the standard: 5.2.2.1, Table 5
  TSI Point: 4.2.6.2.1 (3) (Reference train for fixed/predefined formations); clauses of the standard: 5.2.2.2

TSI Point: 4.2.6.2.1 (3) (Reference train for units for general operation and capable of running in leading position); clauses of the standard: 5.2.2.3
TSI Point: 4.2.6.2.1 (3) (Reference train for units for general operation and not capable of running in leading position); clauses of the standard: 5.2.2.4
TSI Point: 4.2.6.2.2 (2) (Head pressure pulse – Maximum peak-to-peak pressure (Δp95 %,max); clauses of the standard: Table 2
TSI Point: 4.2.6.2.2 (2) (Head pressure pulse – Measurement positions); clauses of the standard: 5.1.2
TSI Point: 6.2.3.13 (1) (Slipstream effect – full scale tests); clauses of the standard: 7.2.2.1
TSI Point: 6.2.3.13 (2) (Slipstream effect – simplified assessment); clauses: 4.2.4 and limits in table 7
TSI Point: 6.2.3.14 (1) (Head pressure pulse – method of verification); clauses of the standard: 7.1.2.1
TSI Point: 6.2.3.14 (1) (Head pressure pulse – CFD); clauses of the standard: 7.1.2.4
TSI Point: 6.2.3.14 (1) (Head pressure pulse – moving model); clauses of the standard: 7.1.2.2
TSI Point: 6.2.3.14 (2) (Head pressure pulse – simplified assessment method).; clauses of the standard: 5.1.4 and limits in table 4

The notified bodies in charge of the EC verification process should accept the possibility to use the new version of standards without further justifications to be provided by the Applicants.

The Agency is of the opinion that the technical opinion could be used as an acceptable means of compliance, as foreseen in Article 6 (3) of Directive (EU) 2016/797 and may therefore be used for the assessment of projects, pending the adoption of revised TSIs.

This technical opinion is valid for the TSIs versions listed in chapter 2.1 only.

Valenciennes,
Oana GHERGHINESCU
Executive Director

Annex 1: European Commission's request

EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR MOBILITY AND TRANSPORT

Directorate C – Land
C.4 – Rail Safety & Interoperability

Brussels, 20 August 2024

Request of the Commission to the Agency for an Opinion

Requesting Organisation (name, address)	DG MOVE C4	
Contact information		
Legal base	**Opinion**	*Agency Regulation Art. 10.2*
	Advice	
Objective	Technical opinion	
Scope	All TSIs: • TSI ENE Reg (EU) No 1301/2014 amended by Reg (EU) 2018/868 amended by Reg (EU) 2019/776 amended by Reg (EU) 2023/1694 • TSI INF Reg (EU) No 1299/2014 amended by Reg (EU) 2019/776 amended by Reg (EU) 2023/1694 • TSI Loc&Pas Reg (EU) No 1302/2014 amended by Reg (EU) No 2016/919 amended by Reg (EU) 2018/868 amended by Reg (EU) 2019/776 amended by Reg (EU) 2020/387 amended by Reg (EU) 2023/1694 • TSI NOI Reg (EU) No 1304/2014 amended by Reg (EU) 2019/774 amended by Reg (EU) 2023/1694 • TSI WAG Reg (EU) No 321/2013 amended by Reg (EU) No 1236/2013 amended by Reg (EU) 2015/924 amended by Reg (EU) 2019/776 amended by Reg (EU) 2020/387 amended by Reg (EU) 2023/1694 • TSI SRT Reg (EU) No 1303/2014 amended by Reg (EU) 2016/912 amended by Reg (EU) 2019/776 amended by Reg (EU) 2024/191 (for BG, DE, PL, PT and SI) and Reg (EU) No 1303/2014 amended by Reg (EU) 2016/912 amended by Reg (EU) 2019/776 (for other EU member states) • TSI CCS Reg (EU) No 2023/1695 • TSI PRM Reg (EU) No 1300/2013 amended by Reg (EU) No 2019/72 amended by Reg (EU) 2022/721 amended by Reg (EU) 2023/62 amended by Reg (EU) 2023/1694	

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	• TSI OPE Reg (EU) No 2019/773 amended by Reg (EU) No 2020/778 amended by Reg (EU) 2021/2238 amended by Reg (EU) 2023/1693 • TSI TAF Reg (EU) No 1305/2014 amended by Reg (EU) No 2018/278 amended by Reg (EU) 2019/778 amended by Reg (EU) 2021/541 • TSI TAP Reg (EU) No 454/2011 amended by Reg (EU) No 665/2012 amended by Reg (EU) 1273/2013 amended by Reg (EU) 2015/302 amended by Reg (EU) 2016/527 amended by Reg (EU) 2019/775
Task Description	Technical opinion. The Agency's opinion shall constitute an acceptable means of compliance.
Key input documents	*Background information and justification for the request* In the EC request - Multi-annual TSI revision framework in topic BR-03, the European Commission has given the agency the mandate to monitor the evolution of standards quoted in TSIs to propose: 1) change requests to be integrated in the next TSI(s) release; 2) technical opinions where new version of standards will be assessed and, where appropriate, declared as an alternative acceptable means of compliant toward TSI, Based on the input provided by the Topical Working Group on Standardisation, the agency should write the opinion referred to in point 2 above.

Annex 2: Impact Note

New standards or new standards versions released since the publication of TSI package 2023

Issued as per Art. 8(1) of Regulation (EU) 2016/796 and the Impact Assessment procedure adopted by the ERA Management Board (Decision n.290, 16/03/2022)

1. Context and assessment of impacts

1.1. Scope

The European Commission has requested the Agency (see annex I) to issue Technical Opinions where new versions of standards will be assessed and, where appropriate, declared as an alternative acceptable means of compliance.

Since the introduction of the last TSI revision, several new standards have been published. Those standards within scope of change requests (CR) CR640, CR652, CR687, CR699 and CR732 are assessed in this Opinion.

1.2. Assessment of impacts

Based on the analysis, the Agency is of the opinion that the new versions of the standards referred to in CR640, CR652, CR687, CR699 and CR732 are alternative means of compliance. At the same time, it remains possible to use the previous version of the applicable standards.

As such, the Opinion provides greater flexibility in the application for a vehicle authorisation to demonstrate compliance with the TSIs currently in force. The Opinion thus generates benefits for the railway sector by offering more flexibility concerning the design of rolling stock.

1.3. Stakeholders affected

Railway undertakings (RU)	☐	Member States (MS)	☐
Infrastructure managers (IM)	☐	Third Countries	☐
Manufacturers	☒	National safety authorities (NSA)	☒
Keepers	☐	European Commission (EC)	☐
Entity Managing the Change (EMC)	☐	European Union Agency for Railways (ERA)	☒
Notified Bodies (NoBo)	☒	Shippers	☐
Associations	☐	Other (Please specify) …	☐

2. Preferred option

2.1. Conclusion

This impact note concludes that the Opinion provides greater flexibility to the sector without any or negligible negative impacts.