

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 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)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community, and in particular Article 6(1) thereof<sup>(1)</sup>,

Whereas:

- (1) Article 12 of Regulation (EC) No 881/2004 of the European Parliament and of the Council<sup>(2)</sup> requires the European Railway Agency (the Agency) to ensure that the technical specifications for interoperability (TSIs) are adapted to technical progress, market trends and social requirements, and to propose to the Commission any amendments to the TSIs which it considers necessary.
- (2) By Decision C(2010) 2576 of 29 April 2010, the Commission gave the Agency a mandate to develop and review the TSIs with a view to extending their scope to the whole rail system in the Union, and to carry out a study on the pertinence of merging the noise requirements for high-speed and conventional rolling stock (‘HS’ and ‘CR’ RST). The conclusion of the study ERA/REP/13-2011/INT was that one TSI should cover both CR and HS RST. In consequence, noise requirements for CR and HS RST should be merged.
- (3) Section 7.2 of the Annex to Commission Decision 2011/229/EU<sup>(3)</sup> provides for a comprehensive review and updating by the Agency of the TSI relating to noise based on which a report and, if necessary, a proposal should be submitted to the Commission.
- (4) On 3 September 2013 the Agency submitted recommendation ERA/REC/07-2013/REC on the adoption of the TSI relating to noise.
- (5) In order to adapt to technological progress and encourage modernisation, innovative solutions should be promoted and their implementation should, under certain conditions, be accepted. Where an innovative solution is proposed, the manufacturer or his authorised representative should state in what way it deviates from or how it

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complements the relevant provision of the TSI. The innovative solution should be assessed by the Commission. If this assessment is positive, the Agency should develop the appropriate functional and interface specifications of the innovative solution, as well as the relevant assessment methods.

- (6) In a mid-term, an analysis should be made with a view to reducing noise emitted by existing vehicles while taking into account the competitiveness of the rail sector. It concerns especially freight wagons and is important in order to increase acceptance of rail freight traffic among the citizens.
- (7) In accordance with Article 17(3) of Directive 2008/57/EC, Member States are to notify the Commission and the other Member States the conformity assessment and verification procedures to be used for specific cases as well as the bodies responsible for carrying out those procedures.
- (8) Rolling stock currently operates under existing national, bilateral, multilateral or international agreements. It is important that those agreements do not hinder current and future progress towards interoperability. The Member States should therefore notify such agreements to the Commission.
- (9) Decision 2011/229/EU should therefore be repealed.
- (10) Commission Decision 2008/232/EC<sup>(4)</sup> should be amended accordingly as regards the limits for stationary noise, the interior noise levels and the boundary characteristics linked to exterior noise.
- (11) The measures provided for in this Regulation are in accordance with the opinion of the Committee established in accordance with Article 29(1) of Directive 2008/57/EC,

HAS ADOPTED THIS REGULATION:

*Article 1*

This Regulation lays down the technical specification for interoperability (TSI) relating to the ‘rolling stock — noise’ subsystem of the rail system in the Union, as set out in the Annex.

*Article 2*

The TSI shall apply to the rolling stock which falls within the scope of Commission Regulation (EU) No 1302/2014<sup>(5)</sup> and Commission Regulation (EU) No 321/2013<sup>(6)</sup>.

*Article 3*

Within six months of the entry into force of this Regulation, Member States shall notify the Commission of all agreements containing requirements relating to noise emission limits, provided they were not already notified under Commission Decisions 2006/66/EC<sup>(7)</sup> or 2011/229/EU.

The agreements to be notified shall be:

- (a) national agreements between the Member States and railway undertakings or infrastructure managers, agreed on either a permanent or a temporary basis and necessitated by the specific or local nature of the intended transport service;

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- (b) bilateral or multilateral agreements between railway undertakings, infrastructure managers or safety authorities which deliver significant levels of local or regional interoperability;
- (c) international agreements between one or more Member States and at least one third country, or between railway undertakings or infrastructure managers of Member States and at least one railway undertaking or infrastructure manager of a third country which deliver significant levels of local or regional interoperability.

#### Article 4

The procedures for assessment of conformity, suitability for use and EC verification set out in Section 6 of the Annex to this Regulation shall be based on the modules defined in Commission Decision 2010/713/EU<sup>(6)</sup>.

#### Article 5

[<sup>F1</sup> With regard to specific cases listed in point 7.3.2 of the Annex, the conditions to be met for the verification of the essential requirements set out in Annex III to Directive (EU) 2016/797 shall be those laid down in point 7.3.2 of the Annex or by national rules in force in the Member State which is part of the area of use of the vehicles covered by this Regulation.]

2 Within six months of the entry into force of this Regulation, each Member State shall inform the Commission and the Member States about:

- a the technical rules referred to in paragraph 1;
- b the conformity assessment and verification procedures to be carried out in application of the technical rules referred to in paragraph 1;
- [<sup>F1</sup>c the bodies designated to carry out the conformity assessment and verification procedures with respect to the national rules relating to the specific cases set out in point 7.3.2 of the Annex.]

#### Textual Amendments

- F1** Substituted by [Commission Implementing Regulation \(EU\) 2019/774 of 16 May 2019 amending Regulation \(EU\) No 1304/2014 as regards application of the technical specification for interoperability relating to the subsystem rolling stock — noise to the existing freight wagons \(Text with EEA relevance\)](#).

#### [<sup>F2</sup>Article 5a

From 8 December 2024, wagons within the scope of Regulation (EU) No 321/2013 which are not covered by point 7.2.2.2 of the Annex to this Regulation shall not be operated on the quieter routes.

#### Textual Amendments

- F2** Inserted by [Commission Implementing Regulation \(EU\) 2019/774 of 16 May 2019 amending Regulation \(EU\) No 1304/2014 as regards application of the technical specification for interoperability relating to the subsystem rolling stock — noise to the existing freight wagons \(Text with EEA relevance\)](#).

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### Article 5b

A ‘quieter route’ means a part of the railway infrastructure with a minimum length of 20 km on which the average number of daily operated freight trains during the night-time as defined in national legislation transposing Directive 2002/49/EC of the European Parliament and of the Council<sup>(9)</sup> was higher than 12. The freight traffic in the years 2015, 2016 and 2017 shall be the basis for the calculation of that average number. In case the freight traffic due to exceptional circumstances diverges in a given year from that average number by more than 25 %, the Member State concerned can calculate the average number on the basis of the remaining two years.

#### Textual Amendments

- F2** Inserted by [Commission Implementing Regulation \(EU\) 2019/774 of 16 May 2019 amending Regulation \(EU\) No 1304/2014 as regards application of the technical specification for interoperability relating to the subsystem rolling stock — noise to the existing freight wagons \(Text with EEA relevance\)](#).

### Article 5c

1 Member States shall designate quieter routes in accordance with Article 5b and the procedure set out in Appendix D.1 of the Annex. They shall provide the European Union Agency for Railways (‘the Agency’) with a list of quieter routes six months after the date of publication of this Regulation at the latest. The Agency shall publish those lists on its website.

2 Member States shall update the list of quieter routes at least every five years after 8 December 2024, following the procedure set out in Appendix D.2 of the Annex.

#### Textual Amendments

- F2** Inserted by [Commission Implementing Regulation \(EU\) 2019/774 of 16 May 2019 amending Regulation \(EU\) No 1304/2014 as regards application of the technical specification for interoperability relating to the subsystem rolling stock — noise to the existing freight wagons \(Text with EEA relevance\)](#).

### Article 5d

By 31 December 2028, the Commission shall evaluate the implementation of the quieter routes, in particular regarding the progress of retrofitting of wagons and the impact of the introduction of quieter routes on the overall noise exposure of the population and competitiveness of the rail freight sector.

#### Textual Amendments

- F2** Inserted by [Commission Implementing Regulation \(EU\) 2019/774 of 16 May 2019 amending Regulation \(EU\) No 1304/2014 as regards application of the technical specification for interoperability relating to the subsystem rolling stock — noise to the existing freight wagons \(Text with EEA relevance\)](#).

### Article 5e

By 30 June 2020, the Commission shall issue a report regarding operations with wagons equipped with composite brake blocks in Nordic winter conditions, based on evidence

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gathered by the Agency, national safety authorities and rail companies. In particular, this report shall contain an assessment of the safety and braking performance of such wagons and existing or potential operational and technical measures applicable in Nordic winter conditions. The report shall be made public.

If the report provides evidence that the use of such wagons in Nordic winter conditions poses safety issues that cannot be addressed by operational and technical measures without severe adverse impact on rail freight operations, the Commission shall propose amendments to this TSI to address those issues while preserving cross border freight traffic to and from affected Nordic regions. In particular, the proposal may if necessary include an exemption permitting the continued operation on quieter routes throughout the Union of a limited number of wagons used frequently in such cross border freight traffic, and any operational restrictions appropriate to limit the impact of the use of such wagons on quieter routes, which are compatible with the purpose of preserving the above-mentioned cross-border freight traffic.

If the revision set out in the paragraph above takes place, the Commission shall report annually thereafter on the progress on technical and operational solutions for the operation of freight wagons in winter conditions. It shall provide an estimation of the number of wagons equipped with cast iron brake blocks necessary to ensure continued cross border traffic to and from such Nordic regions, with a view to ending the exemption in 2028 at the latest.]

#### **Textual Amendments**

- F2** Inserted by [Commission Implementing Regulation \(EU\) 2019/774 of 16 May 2019 amending Regulation \(EU\) No 1304/2014 as regards application of the technical specification for interoperability relating to the subsystem rolling stock — noise to the existing freight wagons \(Text with EEA relevance\)](#).

#### *Article 6*

Compliance with the lower exposure action values set out in Article 3 of Directive 2003/10/EC of the European Parliament and of the Council<sup>(10)</sup> shall be ensured by compliance with the driver's cabin interior noise level, as set out in point 4.2.4 of the Annex to this Regulation as well as by appropriate operational conditions to be defined by the railway undertaking.

#### *Article 7*

1 In order to adapt to technological progress, innovative solutions may be proposed by the manufacturer or its authorised representative which do not comply with the specifications set out in the Annex and/or for which the assessment methods set out in the Annex cannot be applied.

2 Innovative solutions may be related to the rolling stock subsystem, its parts and its interoperability constituents.

3 Where an innovative solution is proposed, the manufacturer or his authorised representative established within the Union shall state in what way it deviates from or how it complements the relevant provisions of this TSI and shall submit the deviations to the Commission for analysis. The Commission may request the opinion of the Agency on the proposed innovative solution.

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4 The Commission shall deliver an opinion on the proposed innovative solution. If this opinion is positive, the appropriate functional and interface specifications and the assessment method, which need to be included in the TSI in order to allow the use of this innovative solution, shall be developed by the Agency and subsequently integrated into the TSI during the revision process pursuant to <sup>[F1]</sup>Article 5 of Directive (EU) 2016/797]. If the opinion is negative, the proposed innovative solution shall not be used.

5 Pending the review of the TSI, a positive opinion delivered by the Commission shall be considered as an acceptable means of compliance with the essential requirements of <sup>[F1]</sup>Directive (EU) 2016/797] and may therefore be used for the assessment of the subsystem.

#### Textual Amendments

- F1** Substituted by [Commission Implementing Regulation \(EU\) 2019/774 of 16 May 2019 amending Regulation \(EU\) No 1304/2014 as regards application of the technical specification for interoperability relating to the subsystem rolling stock — noise to the existing freight wagons \(Text with EEA relevance\)](#).

#### Article 8

The declaration of verification and/or conformity to type of a new vehicle established in accordance with Decision 2011/229/EU shall be considered valid:

- for locomotives, EMUs, DMUs and coaches until the type or design certificate needs to be renewed as stated in Decision 2011/291/EU for cases where the latter decision was applied, or until 31 May 2017 for other cases,
- for wagons until 13 April 2016.

The declaration of verification and/or conformity to type of a new vehicle established in accordance with Decision 2008/232/EC shall be considered valid until the type or design certificate needs to be renewed as stated in this Decision.

#### Article 9

1 Decision 2011/229/EU is repealed with effect from 1 January 2015.

2 In the Annex to Decision 2008/232/EC, points 4.2.6.5, 4.2.7.6 and 7.3.2.15 are deleted with effect from 1 January 2015.

3 The provisions referred to in paragraphs 1 and 2 shall however continue to apply in relation to projects authorised in accordance with the TSI annexed to those Decisions and, unless the applicant requests to apply this Regulation, to projects relating to new vehicles and to the renewal or upgrading of existing vehicles which are at an advanced stage of development, are the subject of a contract in force on the date of publication of this Regulation or cases referred to in Article 8 of this Regulation.

#### Article 10

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

It shall apply from 1 January 2015. However, an authorisation for placing into service may be granted in application of the TSI as set out in the Annex to this Regulation, before 1 January 2015.

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This Regulation shall be binding in its entirety and directly applicable in the Member States in accordance with the Treaties.

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## ANNEX

### 1. INTRODUCTION

In general Technical Specifications for Interoperability (TSI) lay down for each subsystem (or part of it) the optimal level of harmonised specifications in order to ensure the interoperability of the rail system. Therefore TSIs harmonise only the specifications concerning parameters which are critical to interoperability (basic parameters). The specifications of the TSIs must meet the essential requirements as set out in Annex III of [F<sup>1</sup>Directive (EU) 2016/797].

In line with the proportionality principle this TSI sets out the optimal level of harmonisation related to specifications on the rolling stock subsystem as defined in Section 1.1 intended to limit the noise emission of the rail system within the Union.

#### [F<sup>1</sup>1.1. Technical scope

##### 1.1.1. *Scope related to rolling stock*

This TSI applies to all rolling stock within the scope of Regulation (EU) No 1302/2014 (LOC&PAS TSI) and Regulation (EU) No 321/2013 (WAG TSI);

##### 1.1.2. *Scope related to operational aspects*

Alongside with Commission Decision 2012/757/EU<sup>(11)</sup> (OPE TSI), this TSI applies to the operation of freight wagons which are used on railway infrastructure designated as ‘quieter routes’.]

#### 1.2. Geographical scope

The geographical scope of this TSI corresponds to the scopes defined in Section 1.2 of Regulation (EU) No 1302/2014 and in Section 1.2 of Regulation (EU) No 321/2013, each for their rolling stock (RST) concerned.

#### [F<sup>1</sup>2. DEFINITION OF THE SUBSYSTEM

A ‘unit’ means the rolling stock which is subject to the application of this TSI, and therefore subject to the ‘EC’ verification procedure. Chapter 2 in the annex to Regulation (EU) No 1302/2014 and chapter 2 in the annex to Regulation (EU) No 321/2013 describe what a unit can consist of.

The requirements of this TSI apply to the following categories of rolling stock set out in section 2 in Annex I of Directive (EU) 2016/797:

- (a) Locomotives and passenger rolling stock including thermal or electric traction units, self-propelling thermal or electric passenger trains, and passenger coaches. This category is further defined in chapter 2 in the annex to Regulation (EU) No 1302/2014 and shall be referred to in this TSI as locomotives, electric multiple units (EMU), diesel multiple units (DMU) and coaches;
- (b) Freight wagons, including low-deck vehicles designed for the entire network and vehicles designed to carry lorries. This category is further defined in chapter 2 in the annex to Regulation (EU) No 321/2013 and shall be referred to in this TSI as wagons;
- (c) Special vehicles, such as on-track machines. This category is further defined in chapter 2 in the annex to Regulation (EU) No 1302/2014 and consists of on-track machines (referred to in this TSI as OTMs) and infrastructure inspection vehicles, which belong to the categories in points (a) or (b) depending on their design.]

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### [<sup>F</sup>13. ESSENTIAL REQUIREMENTS

All basic parameters set out in this TSI shall be linked to at least one of the essential requirements as set out in Annex III of Directive (EU) 2016/797. Table 1 indicates the allocation.

TABLE 1

#### Basic parameters and their link to the essential requirements

Point	Basic parameter	Essential requirements					
		Safety	Reliability and availability	Health	Environmental protection	Technical compatibility	Accessibility
4.2.1	Limits for stationary noise				1.4.4		
4.2.2	Limits for starting noise				1.4.4		
4.2.3	Limits for pass-by noise				1.4.4		
4.2.4	Limits for driver's cab interior noise				1.4.4		]

## 4. CHARACTERISATION OF THE SUBSYSTEM

### 4.1. Introduction

This Chapter sets out the optimal level of harmonisation related to specifications on the rolling stock subsystem intended to limit the noise emission of the Union rail system and to achieve interoperability.

### 4.2. Functional and technical specifications of the subsystems

The following parameters have been identified as critical for the interoperability (basic parameters):

- (a) 'stationary noise';
- (b) 'starting noise';
- (c) 'pass-by noise';
- (d) 'driver's cab interior noise'.

The corresponding functional and technical specifications allocated to the different categories of rolling stock are set out in this section. In case of units equipped with both thermal and electric power the relevant limit values under all normal operation modes shall be respected. If one of these operation modes foresees the use of both thermal and electric power at the same time the

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less restrictive limit value applies. In accordance with [F1 Articles 4(5) and 2(13) of Directive (EU) 2016/797], provision may be made for specific cases. Such provisions are indicated in Section 7.3.

The assessment procedures for the requirements in this section are defined in the indicated points and sub points of Chapter 6.

#### 4.2.1. Limits for stationary noise

The limit values for the following sound pressure levels under normal vehicle conditions concerning the stationary noise allocated to the categories of the rolling stock subsystem are set out in Table 2:

- (a) the A-weighted equivalent continuous sound pressure level of the unit ( $L_{pAeq,T[unit]}$ );
- (b) the A-weighted equivalent continuous sound pressure level at the nearest measuring position  $i$  considering the main air compressor ( $L_{pAeq,T}^i$ ); and
- (c) the AF-weighted sound pressure level at the nearest measuring position  $i$  considering impulsive noise of the exhaust valve of the air dryer ( $L_{pAFmax}^i$ ).

The limit values are defined at a distance of 7,5 m from the centre of the track and 1,2 m above top of rail.

TABLE 2

#### Limit values for stationary noise

Category of the rolling stock subsystem	$L_{pAeq,T[unit]}$ [dB]	$L_{pAeq,T}^i$ [dB]	$L_{pAFmax}^i$ [dB]
Electric locomotives and OTMs with electric traction	70	75	85
Diesel locomotives and OTMs with diesel traction	71	78	
EMUs	65	68	
DMUs	72	76	
Coaches	64	68	
Wagons	65	n.a.	n.a.

The demonstration of conformity is described in point 6.2.2.1.

#### 4.2.2. Limits for starting noise

The limit values for the AF-weighted maximum sound pressure level ( $L_{pAF,max}$ ) concerning the starting noise allocated to the categories of the rolling stock subsystem are set out in Table 3. The limit values are defined at a distance of 7,5 m from the centre of the track and 1,2 m above top of rail.

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TABLE 3

**Limit values for starting noise**

<b>Category of the rolling stock subsystem</b>	<b><math>L_{pAF,max}</math> [dB]</b>
Electric locomotives with total tractive power $P < 4\,500$ kW	81
Electric locomotives with total tractive power $P \geq 4\,500$ kW OTMs with electric traction	84
Diesel locomotives $P < 2\,000$ kW at the engine output shaft	85
Diesel locomotives $P \geq 2\,000$ kW at the engine output shaft OTMs with diesel traction	87
EMUs with a maximum speed $v_{max} < 250$ km/h	80
EMUs with a maximum speed $v_{max} \geq 250$ km/h	83
DMUs $P < 560$ kW/engine at the engine output shaft	82
DMUs $P \geq 560$ kW/engine at the engine output shaft	83

The demonstration of conformity is described in point 6.2.2.2.

4.2.3. *Limits for pass-by noise*

The limit values for the A-weighted equivalent continuous sound pressure level at a speed of 80 km/h ( $L_{pAeq,Tp,(80\text{ km/h})}$ ) and, if applicable, at 250 km/h ( $L_{pAeq,Tp,(250\text{ km/h})}$ ) concerning the pass-by noise allocated to the categories of the rolling stock subsystem are set out in Table 4. The limit values are defined at a distance of 7,5 m from the centre of the track and 1,2 m above top of rail.

Measurements at speeds higher than or equal to 250 km/h shall also be made at the ‘additional measurement position’ with a height of 3,5 m above top of rail in accordance with Chapter 6 of EN ISO 3095:2013 and assessed against the applicable limit values of Table 4.

TABLE 4

**Limit values for pass-by noise**

<b>Category of the rolling stock subsystem</b>	<b><math>L_{pAeq,Tp}</math> (80 km/h) [dB]</b>	<b><math>L_{pAeq,Tp}</math> (250 km/h) [dB]</b>
Electric locomotives and OTMs with electric traction	84	99
Diesel locomotives and OTMs with diesel traction	85	n.a.
EMUs	80	95

<sup>a</sup> APL: the number of axles divided by the length over the buffers ( $m^{-1}$ )

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DMUs	81	96
Coaches	79	n.a.
Wagons (normalised to APL = 0,225) <sup>a</sup>	83	n.a.

<sup>a</sup> APL: the number of axles divided by the length over the buffers (m<sup>-1</sup>)

The demonstration of conformity is described in point 6.2.2.3.

#### 4.2.4. Limits for the driver's cab interior noise

The limit values for the A-weighted equivalent continuous sound pressure level ( $L_{pAeq,T}$ ) concerning the noise within the driver's cab of electric and diesel locomotives, OTMs, EMUs, DMUs and coaches fitted with a cab are set out in Table 5. The limit values are defined in the vicinity of the driver's ear.

TABLE 5

#### Limit values for driver's cab interior noise

Noise within the driver's cab	$L_{pAeq,T}$ [dB]
At standstill with horns sounding	95
At maximum speed $v_{max}$ if $v_{max} < 250$ km/h	78
At maximum speed $v_{max}$ if $250$ km/h $\leq v_{max} < 350$ km/h	80

The demonstration of conformity is described in point 6.2.2.4.

#### [<sup>F1</sup>4.3. Functional and technical specifications of the interfaces

This TSI has the following interfaces with the rolling stock subsystem:

Interface with subsystems of points (a), (b), (c) and (e) of chapter 2 (dealt with in Regulation (EU) No 1302/2014) with regard to:

- stationary noise,
- starting noise (not applicable to coaches),
- pass-by noise,
- interior noise within the driver's cab, where applicable.

Interface with subsystems of point (d) of chapter 2 (dealt with in Regulation (EU) No 321/2013) with regard to:

- pass-by noise,
- stationary noise.

This TSI has the following interface with the operation and traffic management subsystem (dealt with in Decision 2012/757/EU) with regard to:

- pass-by noise.]

#### [<sup>F1</sup>4.4. Operating rules

Requirements concerning the operating rules for the subsystem rolling stock are set out in section 4.4 of the Annex of Regulation (EU) No 1302/2014 and in section 4.4 of the Annex of Regulation (EU) No 321/2013.

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#### 4.4.1. *Specific rules for the operation of wagons on quieter routes in case of degraded operation*

The contingency arrangements as defined in point 4.2.3.6.3 of the Annex of Decision 2012/757/EU include the operation of wagons not compliant with point 7.2.2.2 on quieter routes.

This measure can be applied to address capacity restrictions or operational constraints caused by rolling stock failures, extreme weather conditions, accidents or incidents and infrastructure failures.

#### 4.4.2. *Specific rules for the operation of wagons on quieter routes in case of infrastructure works and wagons maintenance*

The operation of wagons not compliant with point 7.2.2.2 on quieter routes shall be possible in case of wagons maintenance activities where only a quieter route is available in order to access the maintenance workshop.

Contingency arrangements set out in point 4.4.1 are applicable in case of infrastructure works where a quieter route is the only suitable alternative.]

#### [<sup>F1</sup>4.5. **Maintenance rules**

Requirements concerning the maintenance rules for the subsystem rolling stock are set out in section 4.5 of the Annex of Regulation (EU) No 1302/2014 and in section 4.5 of the Annex of Regulation (EU) No 321/2013.]

#### 4.6. **Professional qualifications**

Not applicable.

#### 4.7. **Health and safety conditions**

See Article 6 of this Regulation.

#### 4.8. **European register of authorised types of vehicles**

The data of the rolling stock that must be recorded in the ‘European register of authorised types of vehicles (ERATV)’ are set out in Decision 2011/665/EU.

### 5. INTEROPERABILITY CONSTITUENTS

There is no interoperability constituent specified in this TSI.

### 6. CONFORMITY ASSESSMENT AND EC VERIFICATION

#### 6.1. **Interoperability constituents**

Not applicable.

#### 6.2. **Subsystem rolling stock regarding noise emitted by rolling stock**

##### 6.2.1. *Modules*

The EC verification shall be performed in accordance with the module(s) described in Table 6.

*TABLE 6*

#### **Modules for EC verification of subsystems**

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SB	EC-Type Examination
SD	EC verification based on quality management system of the production process
SF	EC verification based on product verification
SH1	EC verification based on full quality management system plus design examination

These modules are specified in detail in Decision 2010/713/EU.

### 6.2.2. EC verification procedures

The applicant shall choose one of the following assessment procedures consisting of one or more modules for the EC verification of the subsystem:

- (SB+SD),
- (SB+SF),
- (SH1).

Within the application of the chosen module or module combination the subsystem shall be assessed against the requirements defined in Section 4.2. If necessary, additional requirements concerning the assessment are given in the following points.

#### 6.2.2.1. Stationary noise

The demonstration of conformity with the limit values on stationary noise as set out in point 4.2.1 shall be carried out in accordance with Sections 5.1, 5.2, 5.3, 5.4, 5.5 (without clause 5.5.2), 5.7 and clause 5.8.1 of EN ISO 3095:2013.

For the assessment of the main air compressor noise at the nearest measuring position  $i$ , the  $L_{pAeq,T}^i$  indicator shall be used with  $T$  representative of one operating cycle as defined in Section 5.7 of EN ISO 3095:2013. Only the train systems that are required for the air compressor to run under normal operating conditions shall be used for this. The train systems which are not needed for the operation of the compressor may be switched off to prevent contribution to the noise measurement. The demonstration of conformity with the limit values shall be carried out under the conditions solely necessary for operation of the main air compressor at the lowest rpm.

For the assessment of the impulsive noise sources at the nearest measuring position  $i$ , the  $L_{pAFmax}^i$  indicator shall be used. The relevant noise source is the exhaust from the valves of the air dryer.

#### 6.2.2.2. Starting noise

The demonstration of conformity with the limit values on starting noise as set out in point 4.2.2 shall be carried out in accordance with Chapter 7 (without clause 7.5.1.2) of EN ISO 3095:2013. The maximum level method referring to Section 7.5 of EN ISO 3095:2013 shall apply. Deviating from clause 7.5.3 of EN ISO 3095:2013 the train shall accelerate from standstill up to 30 km/h and then maintain the speed.

In addition the noise shall be measured at a distance of 7,5 m from the centre of the track and a height of 1,2 m above top of rail. The ‘averaged level method’ and the ‘maximum level method’ in accordance with Section 7.6 and 7.5 respectively of EN ISO 3095:2013 shall apply and the train shall accelerate from standstill up to 40 km/h and then maintain the speed. The measured values are not assessed against any limit value and shall be recorded in the technical file and communicated to the Agency.

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For OTMs the starting procedure shall be performed without additional trailer loads.

#### 6.2.2.3. Pass-by noise

The demonstration of conformity with the limit values on pass-by noise as set out in point 4.2.3 shall be carried out in accordance with points 6.2.2.3.1 and 6.2.2.3.2.

##### 6.2.2.3.1. Test track conditions

The tests shall be performed on a reference track as defined in Section 6.2 of EN ISO 3095:2013.

However, it is permitted to carry out the test on a track that does not comply with the reference track conditions in terms of acoustic rail roughness level and track decay rates as long as the noise levels measured in accordance with point 6.2.2.3.2 do not exceed the limit values set out in point 4.2.3.

The acoustic rail roughness and the decay rates of the test track shall be determined in any case. If the track on which the tests are performed does meet the reference track conditions, the measured noise levels shall be marked 'comparable', otherwise they shall be marked 'non-comparable'. It shall be recorded in the technical file whether the measured noise levels are 'comparable' or 'non-comparable'.

The measured acoustic rail roughness values of the test track remain valid during a period starting 3 months before and ending 3 months after this measurement, provided that during this period no track maintenance has been performed which influences the rail acoustic roughness.

The measured track decay rate values of the test track shall remain valid during a period starting 1 year before and ending 1 year after this measurement, provided that during this period no track maintenance has been performed which influences the track decay rates.

Confirmation shall be provided in the technical file that the track data related to the type's pass-by noise measurement were valid during the day(s) of testing, e.g. by providing the date of last maintenance having an impact on noise.

Furthermore, it is permitted to carry out tests at speeds equal to or higher than 250 km/h on slab tracks. In this case the limit values shall be 2 dB higher than those set out in point 4.2.3.

##### 6.2.2.3.2. Procedure

The tests shall be carried out in accordance with the provision in Sections 6.1, 6.3, 6.4, 6.5, 6.6 and 6.7 (without 6.7.2) of EN ISO 3095:2013. Any comparison against limit values shall be carried out with results rounded to the nearest integer decibel. Any normalisation shall be performed before rounding. The detailed assessment procedure is set out in points 6.2.2.3.2.1, 6.2.2.3.2.2 and 6.2.2.3.2.3.

##### 6.2.2.3.2. EMU, DMUs, locomotives and coaches

For EMU, DMUs, locomotives and coaches three classes of maximum operational speed are distinguished:

- (1) If the maximum operational speed of the unit is lower than or equal to 80 km/h, the pass-by noise shall be measured at its maximum speed  $v_{\max}$ . This value shall not exceed the limit value  $L_{pAeq, Tp(80 \text{ km/h})}$  as set out in point 4.2.3.
- (2) If the maximum operational speed  $v_{\max}$  of the unit is higher than 80 km/h and lower than 250 km/h, the pass-by noise shall be measured at 80 km/h and at its maximum speed. Both measured pass-by noise values  $L_{pAeq, Tp(v_{\text{test}})}$  shall be normalised to the

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reference speed of 80 km/h  $L_{pAeq, Tp(80 \text{ km/h})}$  using formula (1). The normalised value shall not exceed the limit value  $L_{pAeq, Tp(80 \text{ km/h})}$  as set out in point 4.2.3.

*Formula (1):*

$$L_{pAeq, Tp(80 \text{ km/h})} = L_{pAeq, Tp(v_{test})} - 30 * \log(v_{test}/80 \text{ km/h})$$

$$[^{F1}v_{test}] = \text{Actual speed during the measurement}$$

- (3) If the maximum operational speed  $v_{max}$  of the unit is equal to or higher than 250 km/h, the pass-by noise shall be measured at 80 km/h and at its maximum speed with an upper test speed limit of 320 km/h. The measured pass-by noise value  $L_{pAeq, Tp(v_{test})}$  at 80 km/h shall be normalised to the reference speed of 80 km/h  $L_{pAeq, Tp(80 \text{ km/h})}$  using formula (1). The normalised value shall not exceed the limit value  $L_{pAeq, Tp(80 \text{ km/h})}$  as set out in point 4.2.3. The measured pass-by noise value at maximum speed  $L_{pAeq, Tp(v_{test})}$  shall be normalised to the reference speed of 250 km/h  $L_{pAeq, Tp(250 \text{ km/h})}$  using formula (2). The normalised value shall not exceed the limit value  $L_{pAeq, Tp(250 \text{ km/h})}$  as set out in point 4.2.3.

*Formula (2):*

$$L_{pAeq, Tp(250 \text{ km/h})} = L_{pAeq, Tp(v_{test})} - 50 * \log(v_{test}/250 \text{ km/h})$$

$$[^{F1}v_{test}] = \text{Actual speed during the measurement}$$

#### 6.2.2.3.2. Wagons

For wagons two classes of maximum operational speed are distinguished:

- (1) If the maximum operational speed  $v_{max}$  of the unit is lower than or equal to 80 km/h, the pass-by noise shall be measured at its maximum speed. The measured pass-by noise value  $L_{pAeq, Tp(v_{test})}$  shall be normalised to a reference APL of  $0,225 \text{ m}^{-1}$   $L_{pAeq, Tp(APL_{ref})}$  using formula (3). This value shall not exceed the limit value  $L_{pAeq, Tp(80 \text{ km/h})}$  as set out in point 4.2.3.

*Formula (3):*

$$L_{pAeq, Tp(APL_{ref})} = L_{pAeq, Tp(v_{test})} - 10 * \log(APL_{wag}/0,225 \text{ m}^{-1})$$

$$APL_{wag} = \text{Number of axles divided by the length over the buffers}$$

$$[^{F1}v_{test}] = \text{Actual speed during the measurement}$$

- (2) If the maximum operational speed  $v_{max}$  of the unit is higher than 80 km/h, the pass-by noise shall be measured at 80 km/h and at its maximum speed. Both measured pass-by noise values  $L_{pAeq, Tp(v_{test})}$  shall be normalised to the reference speed of 80 km/h and to a reference APL of  $0,225 \text{ m}^{-1}$   $L_{pAeq, Tp(APL_{ref}, 80 \text{ km/h})}$  using formula (4). The normalised value shall not exceed the limit value  $L_{pAeq, Tp(80 \text{ km/h})}$  as set out in point 4.2.3.

*Formula (4):*

$$L_{pAeq, Tp(APL_{ref}, 80 \text{ km/h})} = L_{pAeq, Tp(v_{test})} - 10 * \log(APL_{wag}/0,225 \text{ m}^{-1}) - 30 * \log(v_{test}/80 \text{ km/h})$$

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$APL_{\text{wag}}$	=	Number of axles divided by the length over the buffers [m <sup>-1</sup> ]
$[^F]_{V_{\text{test}}}$	=	Actual speed during the measurement

#### 6.2.2.3.2. OTMs

For OTMs the same assessment procedure as set out in 6.2.2.3.2.1 applies. The measuring procedure shall be performed without additional trailer loads.

OTMs are deemed to comply with the pass-by noise level requirements in point 4.2.3 without measuring when they are:

- solely braked by either composite brake blocks or disc brakes, and
- equipped with composite scrubbers, if scrubber blocks are fitted.

#### 6.2.2.4. Driver's cab interior noise

The demonstration of conformity with the limit values on the driver's cab interior noise as set out in point 4.2.4 shall be carried out in accordance with EN 15892:2011. For OTMs the measuring procedure shall be performed without additional trailer loads.

#### 6.2.3. Simplified evaluation

Instead of the test procedures as set out in point 6.2.2, it is permitted to substitute some or all of the tests by a simplified evaluation. The simplified evaluation consists of acoustically comparing the unit under assessment to an existing type (further referred to as the reference type) with documented noise characteristics.

The simplified evaluation may be used for each of the applicable basic parameters 'stationary noise', 'starting noise', 'pass-by noise' and 'driver's cab interior noise' autonomously and shall consist of providing evidence that the effects of the differences of the unit under assessment do not result in exceeding the limit values set out in Section 4.2.

For the units under simplified evaluation, the proof of conformity shall include a detailed description of the noise relevant changes compared to the reference type. From this description, a simplified evaluation shall be performed. The estimated noise values shall include the uncertainties of the applied evaluation method. The simplified evaluation can either be a calculation and/or simplified measurement.

A unit certified on the basis of the simplified evaluation method shall not be used as a reference unit for a further evaluation.

If the simplified evaluation is applied for pass-by noise, the reference-type shall comply with at least one of the following:

- Chapter 4 and for which the pass-by noise results are marked 'comparable'
- Chapter 4 of Decision 2011/229/EU and for which the pass-by noise results are marked 'comparable'
- Chapter 4 of Decision 2006/66/EC
- Chapter 4 of Decision 2008/232/EC.

In case of a wagon whose parameters remain, compared to the reference type, within the permitted range of Table 7 it is deemed without further verification that the unit complies with the limit values on pass-by noise as set out in point 4.2.3.

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TABLE 7

**Permitted variation of wagons for the exemption from verification**

<b>Parameter</b>	<b>Permitted variation (compared to the reference unit)</b>
Max. unit speed	Any speed up to 160 km/h
Type of wheel	Only if equally or less noisy (acoustic characterisation i. a. w. Annex E of EN 13979-1:2011)
Tare weight	Only within the range of +20 %/- 5 %
Brake block	Only if variation does not result in higher noise emission.

7. IMPLEMENTATION

7.1. **Application of this TSI to new subsystems**

See Article 8 of this Regulation.

[<sup>F1</sup>7.2. **Application of this TSI to existing subsystems**

The principles to be applied by the applicants and authorising entities in case of change(s) to an existing rolling stock or rolling stock type are defined in point 7.1.2 of the Annex to Regulation (EU) No 1302/2014 and section 7.2 of the Annex to Regulation (EU) No 321/2013.

7.2.1. *Provisions in case of changes to existing rolling stock or rolling stock type*

The applicant shall ensure that the noise levels of rolling stock subject to change(s) remain below the limits set out in the TSI, which was applicable when the rolling stock in question was first authorised. If no TSI existed at the time of the first authorisation, the applicant shall ensure that the noise levels of the rolling stock subject to change(s) are either not increased or remain below the limits set out in Decision 2006/66/EC or Decision 2002/735/EC.

If an assessment is required, it shall be limited to the basic parameters affected by the change(s).

If the simplified evaluation is applied, the original unit may represent the reference unit in accordance with the provisions of point 6.2.3.

The replacement of a whole unit or (a) vehicle(s) within a unit (e.g. a replacement after a severe damage) does not require a conformity assessment against this TSI, as long as the unit or the vehicle(s) are identical to the ones they replace.

7.2.2. *Additional provisions for the application of this TSI to existing wagons*

The restriction of the operation set out in Article 5a of this Regulation shall not apply to wagons mostly operated on lines with a gradient of more than 40 ‰, wagons with a maximum operating speed higher than 120 km/h, wagons with a maximum axle load higher than 22,5 t, wagons exclusively operated for infrastructure works and wagons used in rescue trains.

If a wagon is being equipped with quieter brake blocks as defined in point 7.2.2.1 and no noise sources are added to the wagon, then it shall be assumed that the requirements of point 4.2.3 are met without further testing.

7.2.2.1. **Quieter brake blocks**

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A quieter brake block is a brake block belonging to one of the following categories:

- Brake block listed in Appendix G of Regulation (EU) No 321/2013;
- Brake block assessed in accordance with the procedure set out in Appendix F of this TSI.

#### 7.2.2.2. *Wagons operated on quieter routes*

Wagons belonging to one of the categories below can be operated on the quieter routes within their area of use:

- Wagons holding an EC declaration of verification against Commission Decision 2006/66/EC concerning the technical specification for interoperability relating to the subsystem ‘rolling stock — noise’ of the trans-European conventional rail system;
- Wagons holding an EC declaration of verification against Commission Decision 2011/229/EU concerning the technical specifications of interoperability relating to the subsystem ‘rolling stock – noise’ of the trans-European conventional rail system;
- Wagons holding an EC declaration of verification against this TSI;
- Wagons fitted with quieter brake blocks as defined in point 7.2.2.1 or brake discs for the service brake function;
- Wagons fitted with composite brake blocks listed in Appendix E for the service brake function. The operation of these wagons on the quieter routes shall be limited in accordance with the conditions described in this appendix.]

### 7.3. **Specific cases**

#### 7.3.1. *Introduction*

The specific cases, as listed in point 7.3.2, are classified as

- (a) ‘P’ cases : ‘permanent’ cases;
- (b) ‘T’ cases : ‘temporary’ cases.

#### 7.3.2. *List of specific cases*

##### [<sup>F1</sup>7.3.2.1] *Specific cases*

- (a) Specific case Estonia, Finland, Latvia, Lithuania, Poland and Slovakia

(‘P’) For units, which are in shared use with third countries, the track gauge of which is different from that of the main rail network within the Union, the application of national technical rules instead of the requirements in this TSI shall be permitted.

- (b) Specific case Finland

(‘T’) Decision 2011/229/EU may continue to apply for freight wagons to be used only on the territory of Finland and until the relevant technical solution in relation to severe winter conditions is found, but in any case not later than until 31 December 2032. This shall not prevent freight wagons from other Member States to operate on the Finnish network.]

#### 7.3.2.2. *Limits for stationary noise (point 4.2.1)*

- (a) Specific case Finland

(‘T’) For coaches and wagons equipped with a diesel generator for electrical power supply higher than 100 kW and intended to operate solely on the railway network of Finland the limit value for stationary noise  $L_{pAeq,T}$  [unit] in Table 2 may be raised up to 72 dB.

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[<sup>F3</sup> .....

(b) Specific case UK for Great Britain

(‘P’) For DMUs intended to operate solely on the railway network of Great Britain the limit value for stationary noise  $L_{pAeq,T}$  [unit] in Table 2 may be raised up to 77 dB.

This specific case does not apply to DMUs intended to operate solely on the High Speed 1 railway network.

(c) Specific case UK for Great Britain

(‘T’) For units intended to operate solely on the railway network of Great Britain the limit values  $L_{pAeq,T}^1$  in Table 2 considering the main air compressor do not apply. The measured values shall be submitted to the NSA UK.

This specific case does not apply to units intended to operate solely on the High Speed 1 railway network.

**Textual Amendments**

**F3** Deleted by [Commission Implementing Regulation \(EU\) 2019/774 of 16 May 2019 amending Regulation \(EU\) No 1304/2014 as regards application of the technical specification for interoperability relating to the subsystem rolling stock — noise to the existing freight wagons \(Text with EEA relevance\)](#).

7.3.2.3. *Limits for starting noise (point 4.2.2)*

(a) Specific case Sweden

(‘T’) For locomotives with total tractive power of more than 6 000 kW and a maximum axle load of more than 25 t the limit values for starting noise  $L_{pAF,max}$  in Table 3 may be raised up to 89 dB.

(b) Specific case UK for Great Britain

(‘P’) For units specified in Table 8 intended to operate solely on the railway network of Great Britain the limit value for starting noise  $L_{pAF,max}$  in Table 3 may be raised up to the values set out in Table 8.

TABLE 8

**Limit values for starting noise regarding a specific case UK for Great Britain**

Category of the rolling stock subsystem	$L_{pAF,max}$ [dB]
Electric locomotives with total tractive power $P < 4\,500$ kW	83
Diesel locomotives $P < 2\,000$ kW at the engine output shaft	89
DMUs	85

This specific case does not apply to units intended to operate solely on the High Speed 1 railway network.

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[<sup>F1</sup>7.3.2.4] *Limits for pass-by noise (point 4.2.3)*

(a) Specific case Channel Tunnel

(‘P’) For the Channel Tunnel, the limits for pass-by noise shall not apply to wagons dedicated to the transport of heavy goods vehicles between Coquelles (France) and Folkestone (United Kingdom).

(b) Specific case Sweden

(‘T’) For locomotives with total tractive power of more than 6 000 kW and a maximum axle load of more than 25 t the limit values for pass-by noise  $L_{pAeq,Tp}$  (80 km/h) in Table 4 may be raised up to 85 dB.]

[<sup>F2</sup>7.4. **Particular implementation rules**

7.4.1. *Particular implementation rules for the application of this TSI to existing wagons (point 7.2.2)*

(a) Particular implementation rules for the application of this TSI to existing wagons in the Channel Tunnel

(‘P’) For the calculation of the annual average daily operated freight trains during night-time the freight trains composed of wagons dedicated to the transport of heavy goods vehicles confined in the Coquelles (France) - Folkestone (United Kingdom) line shall not be taken into account.

(b) Particular implementation rules for the application of this TSI to existing wagons in Finland and Sweden

(‘T’) The concept of quieter routes shall not apply on the Finnish and Swedish networks due to uncertainties related to the operation in severe winter conditions with composite brake blocks until 31 December 2032. This shall not prevent freight wagons from other Member States to operate on the Finnish and Swedish network.

7.4.2. *Particular implementation rules for wagons operated on quieter routes (point 7.2.2.2)*

(a) Particular implementation rules for wagons operated on quieter routes of Belgium

(‘T’) On top of the wagons listed in point 7.2.2.2, the following existing wagons can be operated on quieter routes in the territory of Belgium:

- Wagons with tyred wheels until 31 December 2026
- Wagons which require the fitting of a kink valve in order to replace the cast iron block with composite brake blocks until 31 December 2026
- Wagons fitted with cast iron blocks which require the replacement of wheels with wheels compliant with the requirements set out in EN 13979-1:2003+A2:2011 in order to be retrofitted with composite brake blocks until 31 December 2026

(b) Particular implementation rules for wagons operated on quieter routes of Channel Tunnel

(‘P’) On top of the wagons listed in point 7.2.2.2, the following existing wagons can be operated on quieter routes in the Channel Tunnel concession:

Wagons dedicated to the transport of heavy goods vehicles between Coquelles (France) and Folkestone (United Kingdom)

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(c) Particular implementation rules for wagons operated on quieter routes of Czechia

(‘T’) On top of the wagons listed in point 7.2.2.2, the following existing wagons can be operated on quieter routes in the territory of Czechia:

- Wagons with tyred wheels, until 31 December 2026
- Wagons with 59V type bearings until 31 December 2034
- Wagons which require the fitting of a kink valve in order to replace the cast iron block with composite brake blocks, until 31 December 2034
- Wagons with 1Bg or 1Bgu brake configuration fitted with cast iron brake blocks until 31 December 2036
- Wagons fitted with cast iron blocks which require the replacement of wheels with wheels compliant with the requirements set out in EN 13979-1:2003+A2:2011 in order to be retrofitted with composite brake blocks until 31 December 2029

Furthermore, it shall not be mandatory to use composite brake blocks on quieter routes for existing wagons not covered by the five dashes above and for which there exists no one-to-one-solution for replacement of cast iron brake blocks until 31 December 2030.

(d) Particular implementation rules for wagons operated on quieter routes of France

(‘T’) On top of the wagons listed in point 7.2.2.2, the following existing wagons can be operated on quieter routes in the territory of France:

- Wagons with 1Bg or 1Bgu brake configuration fitted with cast iron brake blocks until 31 December 2030
- Wagons fitted with small wheels (diameter under 920 mm) until 31 December 2030

(e) Particular implementation rules for wagons operated on quieter routes of Italy

(‘T’) On top of the wagons listed in point 7.2.2.2, the following existing wagons can be operated on quieter routes in the territory of Italy:

- Wagons with tyred wheels until 31 December 2026
- Wagons which require the fitting of a kink valve in order to replace the cast iron block with composite brake blocks until 31 December 2026
- Wagons fitted with cast iron blocks which require the replacement of wheels with wheels compliant with the requirements set out in EN 13979-1:2003+A2:2011 in order to be retrofitted with composite brake blocks until 31 December 2026

Furthermore, it shall not be mandatory to use composite brake blocks on quieter routes for existing wagons not covered by the three dashes above and for which there exists no one-to-one-solution for replacement of cast iron brake blocks until 31 December 2030.

(f) Particular implementation rules for wagons operated on quieter routes of Poland

(‘T’) On top of the wagons listed in point 7.2.2.2, the following existing wagons can be operated on quieter routes in the territory of Poland until 31 December 2036:

- Wagons with tyred wheels
- Wagons with 1Bg or 1Bgu brake configuration fitted with cast iron blocks
- Wagons designed for ‘S’ traffic equipped with ‘SS’ brake fitted with cast iron blocks

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- Wagons fitted with cast iron blocks and designed for ‘SS’ traffic for which retrofitting with LL brake blocks would require fitting with wheels complying with EN 13979-1:2003+A2:2011 and a kink valve
- (g) Particular implementation rules for wagons operated on quieter routes of Slovakia
- (‘T’) On top of the wagons listed in point 7.2.2.2, the following existing wagons can be operated on quieter routes in the territory of Slovakia:
- Wagons with tyred wheels until 31 December 2026
  - Wagons with bogies of type 26-2.8 fitted with cast iron blocks P10 until 31 December 2036
  - Wagons, which require the fitting of a kink valve in order to replace the cast iron block with composite brake blocks until 31 December 2036.
- (‘P’) Wagons with bogies 2TS intended for circulation between Slovakia and third countries by means of exchange of bogies in the border station
- (h) Particular implementation rules for wagons operated on quieter routes of UK for Great Britain
- (‘P’) For units intended to operate solely on the GB Network, where existing wagons are equipped with composite brake blocks published in GMGN 2688 it shall be permitted to operate on quieter routes
- (‘T’) The following types of existing wagons equipped with cast iron brake blocks intended to operate on the GB Network shall be permitted to operate on quieter routes:
- Wagons equipped with a non-UIC braking system for which there are no compatible silent brake blocks available for retrofitting until 31 December 2030.
  - Wagons with a designed braking distance of 810m or less from 60 mph in brake mode G (goods timing)/75 mph in brake mode P (passenger timing), where those wagons are operated in trains with other wagons which have stopping distances in accordance with the relevant UK(GB) national technical rules, until 31 December 2030
  - Wagons used exclusively for the transport of nuclear products until 31 December 2050.]

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## Appendix A

### Open points

[ <sup>F1</sup> Element of the rolling stock subsystem	Clause of this TSI	Technical aspect not covered by this TSI	Comments
Quieter brake block	7.2.2.1 and Appendix F	Assessment of the acoustic properties of the brake blocks	Alternative technical solutions available (see point 7.2.2)]

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## Appendix B

### Standards referred to in this TSI

TSI		Standard	
Characteristics to be assessed		References to mandatory standards	Chapter
Stationary noise	4.2.1	—	—
	6.2.2.1	EN ISO 3095:2013	5
Starting noise	4.2.2	—	—
	6.2.2.2	EN ISO 3095:2013	7
Pass-by noise	4.2.3	EN ISO 3095:2013	6
	6.2.2.3	EN ISO 3095:2013	6
Driver's cab interior noise	4.2.4	—	—
	6.2.2.4	EN 15892:2011	all
Simplified evaluation	6.2.3	EN 13979-1:2011	Annex E

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## Appendix C

### Assessment of the rolling stock subsystem

Characteristics to be assessed, as specified in Section 4.2		Design review	Type Test	Routine Test	Particular assessment procedure
Element of the rolling stock sub-system	Point				
Stationary noise	4.2.1	X <sup>a</sup>	X	n.a.	6.2.2.1
Starting noise	4.2.2	X <sup>a</sup>	X	n.a.	6.2.2.2
Pass-by noise	4.2.3	X <sup>a</sup>	X	n.a.	6.2.2.3
Driver's cab interior noise	4.2.4	X <sup>a</sup>	X	n.a.	6.2.2.4

**a** Only if the simplified evaluation in accordance with point 6.2.3 is applied.

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## [<sup>F2</sup>Appendix D

### Quieter routes

#### D.1 Identification of quieter routes

In accordance with Article 5c(1) of this Regulation the Member States shall provide the European Union Agency for Railways ('the Agency') with a list of quieter routes in a format allowing further processing by the users with IT-tools. The list shall contain at least the following information:

- Start and end points of the quieter routes and their corresponding sections, using geographical code location as defined in the register set out in Commission Implementing Decision 2014/880/EU<sup>(12)</sup> (RINF). If one of these points is at the border of the Member State, it shall be reflected.
- Identification of the sections making up the quieter route

The list shall be provided using the template below:

Quieter route	Sections in the route	Unique section ID	Quieter route starts/finishes at the border of the Member State
Point A — Point E	Point A — Point B	201	Yes POINT E (Country Y)
	Point B — Point C	202	
	Point C — Point D	203	
	Point D — Point E	204	
Point F — Point I	Point F — Point G	501	No
	Point G — Point H	502	
	Point H — Point I	503	

In addition, the Member States may provide maps illustrating the quieter routes on a voluntary basis. All lists and maps shall be published on the Agency website (<http://www.era.europa.eu>) no later than 9 months after 27.5.2019.

By the same date the Agency shall inform the Commission of the lists and maps of quieter routes. The Commission shall inform the Member States accordingly through the committee referred to in Article 51 of Directive (EU) 2016/797.

#### D.2 Update of quieter routes

The freight traffic data used for the update of quieter routes in accordance with Article 5c(2) of this Regulation shall refer to the last three years preceding the update for which the data is available. In case the freight traffic due to exceptional circumstances diverges in a given year from that average number by more than 25 %, the Member State concerned can calculate the average number on the basis of the remaining two years. Member States shall provide the Agency with the updated quieter routes.

The routes designated as quieter routes shall remain as such following the update unless during the period concerned the volume of traffic has decreased by more than 50 % and the average number of daily operated freight trains during the night-time is lower than 12.

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In case of new and upgraded lines, the expected volume of traffic shall be used for the designation of those lines as quieter routes.

The Agency shall publish the updated quieter routes on its website (<http://www.era.europa.eu>) no later than 3 months after their reception and they shall apply from the next December timetable change following one year after their publication.

The Agency shall inform the Commission of any changes to the quieter routes. The Commission shall inform the Member States of these changes through the committee referred to in Article 51 of Directive (EU) 2016/797.

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## Appendix E

### Historic composite brake blocks

#### E.1 Historic composite brake blocks for international use

Existing wagons equipped with the brake blocks listed below are allowed to be used on the quieter routes within their area of use, until the relevant date set out in Appendix N of UIC 541-4.

Manufacturer/name of product	Designation/type of block	Type of friction coefficient
Valeo/Hersot Wabco/Cobra	693 W554	K
Ferodo	I/B 436	K
Abex	229	K (Fe — sintered)
Jurid	738	K (Fe — sintered)

Wagons equipped with historic composite brake blocks not listed in the table above but already authorised for international traffic in conformity with the provisions of Decision 2004/446/EC or Decision 2006/861/EC can still be used without any deadline within the area of use covered by their authorisation.

#### E.2 Historic composite brake blocks for national use

Existing wagons equipped with the brake blocks listed below are only allowed to be used on the railway networks, including quieter routes, of the corresponding Member States within their area of use.

Manufacturer/ name of the product	Designation/type of block	Member State	Remarks
Cobra/Wabco	V133	Italy	
Cofren	S153	Sweden	
Cofren	128	Sweden	
Cofren	229	Italy	
ICER	904	Spain, Portugal	
ICER	905	Spain, Portugal	
Jurid	838	Spain, Portugal	

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## Appendix F

### **Assessment of acoustic performance of a brake block**

The purpose of this procedure is to demonstrate the acoustic performance of a composite brake block at interoperability constituent level.

This procedure shall be an open point in accordance with Article 4(6) of Directive (EU) 2016/797.]

*Status: Point in time view as at 16/06/2019.*

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- (1) [OJ L 191, 18.7.2008, p. 1.](#)
- (2) Regulation (EC) No 881/2004 of the European Parliament and of the Council of 29 April 2004 establishing a European Railway Agency (Agency Regulation) ([OJ L 220, 21.6.2004, p. 3.](#))
- (3) Commission Decision 2011/229/EU of 4 April 2011 concerning the technical specifications of interoperability relating to the subsystem 'rolling stock — noise' of the trans-European conventional rail system ([OJ L 99, 13.4.2011, p. 1.](#))
- (4) Commission Decision 2008/232/EC of 21 February 2008 concerning a technical specification for interoperability relating to the rolling stock sub-system of the trans-European high-speed rail system ([OJ L 84, 26.3.2008, p. 132.](#))
- (5) 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 (See page 228 of this Official Journal).
- (6) 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 ([OJ L 104, 12.4.2013, p. 1.](#))
- (7) Commission Decision 2006/66/EC of 23 December 2005 concerning the technical specification for interoperability relating to the subsystem rolling stock — noise of the trans-European conventional rail system ([OJ L 37, 8.2.2006, p. 1.](#))
- (8) Commission Decision 2010/713/EU of 9 November 2010 on modules for the procedures for assessment of conformity, suitability for use and EC verification to be used in the technical specifications for interoperability adopted under Directive 2008/57/EC of the European Parliament and of the Council ([OJ L 319, 4.12.2010, p. 1.](#))
- (9) [<sup>F2</sup>Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise ([OJ L 189, 18.7.2002, p. 12.](#))]
- (10) Directive 2003/10/EC of the European Parliament and of the Council of 6 February 2003 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise) (Seventeenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) ([OJ L 42, 15.2.2003, p. 38.](#))
- (11) [<sup>F1</sup>Commission Decision 2012/757/EU of 14 November 2012 concerning the technical specification for interoperability relating to the operation and traffic management subsystem of the rail system in the European Union and amending Decision 2007/756/EC ([OJ L 345, 15.12.2012, p. 1.](#))]
- (12) [<sup>F2</sup>Commission Implementing Decision 2014/880/EU of 26 November 2014 on the common specifications of the register of railway infrastructure and repealing Implementing Decision 2011/633/EU ([OJ L 356, 12.12.2014, p. 489.](#))]

#### Textual Amendments

- F1** Substituted by [Commission Implementing Regulation \(EU\) 2019/774 of 16 May 2019 amending Regulation \(EU\) No 1304/2014 as regards application of the technical specification for interoperability relating to the subsystem rolling stock — noise to the existing freight wagons \(Text with EEA relevance\).](#)
- F2** Inserted by [Commission Implementing Regulation \(EU\) 2019/774 of 16 May 2019 amending Regulation \(EU\) No 1304/2014 as regards application of the technical specification for interoperability relating to the subsystem rolling stock — noise to the existing freight wagons \(Text with EEA relevance\).](#)

**Status:**

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