

Annex 1: Amendments to the technical specification for interoperability relating to the ‘rolling stock — locomotives and passenger rolling stock’ subsystem of the rail system in the European Union (Annex to Commission Regulation (EU) No 1302/2014)

1. In chapter 4 ‘Characterisation of the rolling stock subsystem’, a new point is added below point (3) of clause 4.2.12.1 ‘General’ as follows:

‘(3a) This documentation is provided immediately to the entity in charge of maintenance assigned for the maintenance of the unit by the applicant or by any entity authorised by the applicant (e.g. a keeper).’
2. In chapter 4 ‘Characterisation of the rolling stock subsystem’, points (2) and (3) of clause 4.2.12.3 ‘Documentation related to Maintenance’ are replaced by the following:

‘(2) The maintenance design justification file: explains how maintenance activities are defined and designed in order to ensure that the rolling stock characteristics will be kept within acceptable limits of use during its lifetime.

The maintenance design justification file shall give input data in order to determine the criteria for inspection and the periodicity of maintenance activities.

(3) The maintenance description file: explains how maintenance activities should be performed.’
3. In chapter 4 ‘Characterisation of the rolling stock subsystem’, a new point is added below point (1) of clause 4.2.12.3.1 ‘The maintenance design justification file’ as follows:

‘(1a) Precedents, principles and methods used to identify the safety critical components and their specific operational, servicing, maintenance and traceability requirements.’
4. In chapter 4 ‘Characterisation of the rolling stock subsystem’, a new point is added below point (6) of clause 4.2.12.3.2 ‘The Maintenance description file’ as follows:

‘(6a) Safety critical components list: The safety critical components list shall contain the specific servicing, maintenance and servicing/maintenance traceability requirements.’
5. In chapter 4 ‘Characterisation of the rolling stock subsystem’, a new point is added below point (3) of clause 4.2.12.4 ‘Operating documentation’:

‘(3a) Safety critical components list: The safety critical components list shall contain the specific operational and operational traceability requirements.’
6. In chapter 4 ‘Characterisation of the rolling stock subsystem’, a new point is added below point (3) of section 4.4 ‘Operating Rules’:

‘(3a) For the safety critical components, the specific operational and operational traceability requirements are developed by the designers/manufacturers at design phase and through a collaboration between designers/manufacturers and the concerned railway undertakings after vehicles have entered into operation.’
7. In chapter 4 ‘Characterisation of the rolling stock subsystem’, the section 4.5 ‘Maintenance Rules’ is replaced by the following:

‘4.5. Maintenance rules

(1) In light of the essential requirements mentioned in Section 3, the provisions for maintenance of the rolling stock in the scope of this TSI:

 - Clause 4.2.11 “Servicing”

- Clause 4.2.12 “Documentation for Operation and Maintenance”.

(2) Other provisions in the section 4.2 (clauses 4.2.3.4 and 4.2.3.5) specify for particular characteristics the limit values that have to be verified during maintenance activities

(2a) The safety critical components and their specific servicing, maintenance and maintenance traceability requirements are identified by the designers/manufacturers at design phase and through a collaboration between designers/manufacturers and the concerned entities in charge of maintenance after vehicles have entered into operation.

(3) From the information mentioned above and provided in the clause 4.2, the appropriate tolerances and intervals to ensure compliance with the essential requirements throughout the lifetime of the rolling stock are defined at maintenance operational level by and under the sole responsibility of entities in charge of maintenance (not in the scope of the assessment against this TSI); this activity includes:

- The definition of the in-service values where they are not specified in this TSI, or where operating conditions allow the use of different in-service limit values than those specified in this TSI.
- The justification of the in-service values, by providing the equivalent information to those required in clause 4.2.12.3.1 ‘The maintenance design justification file’.

(4) On the basis of the information mentioned above in this clause, a maintenance plan is defined at maintenance operational level by and under the sole responsibility of the entities in charge of maintenance (not in the scope of the assessment against this TSI), consisting in a structured set of maintenance tasks that include the activities, tests and procedures, means, maintenance criteria, periodicity, working time required to carry out the maintenance tasks.

(5) For on-board software, the designer/manufacture shall specify, for any on-board software modification, all maintenance requirements and procedures (including health monitoring, diagnosis of events, test methods and tools and also the required professional competence) necessary for achieving essential requirements and values quoted in the mandatory requirements of this TSI throughout the life-cycle (Installation, normal operation, failures, repair work, checking and maintenance, decommissioning, etc.).’

8. In chapter 4 ‘Characterisation of the rolling stock subsystem’, a new section 4.9 ‘Route compatibility checks before the use of authorised vehicles’ is added as follows:

‘4.9 Route compatibility checks before the use of authorised vehicles

(1) The parameters of the rolling stock subsystem to be used by the railway undertaking, for the purpose of route compatibility check, are described in Appendix D1 of OPE TSI.’

9. In chapter 7 ‘Implementation’, clause 7.1.2 is replaced by the clause below:

‘7.1.2 Changes to an existing rolling stock or rolling stock type

7.1.2.1 Introduction

- (1) This clause 7.1.2 defines the principles to be applied by the applicants and authorising entities in line with the EC verification procedure described in Article 15(9), Article 21(12) and Annex IV of Directive (EU) 2016/797. This procedure is further developed in Article 13, 15 and 16 of Commission Implementing Regulation (EU) 2018/545 and in Decision 2010/713/EC.
- (2) This clause 7.1.2 applies in case of any change(s) to an existing rolling stock or rolling stock type, including renewal or upgrade. It does not apply in case of changes covered by Article 15(1)(a) of Commission Implementing Regulation (EU) 2018/545.

7.1.2.2 Rules to manage changes in both rolling stock and rolling stock type

- (1) Parts and basic parameters of the rolling stock that are not affected by the change(s) are exempt from conformity assessment against the provisions in this TSI.
- (2) A new assessment against the requirements of this TSI, the TSI Noise (Commission Regulation No 1304/2014) and the TSI PRM (Commission Regulation No 1300/2014) shall only be needed for the basic parameters in this TSI which may be affected by the change(s).
 - For requirements specified in the TSI Noise see also clause 7.2 of that TSI.
 - For requirements specified in the TSI PRM see also clause 7.2.3 of that TSI.
- (3) National migration strategies related to the implementation of other TSIs (e.g. TSIs covering fixed installations) shall be taken into account when defining to what extent the TSIs covering rolling stock needs to be applied.
- (4) In accordance with Articles 15 and 16 of Commission Implementing Regulation (EU) 2018/545 and Decision 2010/713/EU and by application of modules SB, SD/SF or SH1 for the EC verification, and if relevant Article 15(5) of Directive (EU) 2016/797, the applicant shall inform a notified body of all changes affecting the conformity of the subsystem with the requirements of the relevant TSI(s) requiring new checks. This information shall be provided by the applicant with corresponding references to the technical documentation relating to the existing EC type or design examination certificate.
- (5) The changes impacting the basic design characteristics of the rolling stock are defined in Table 17 and Table 17a. These changes shall be classified as 15(1)(c) or 15(1)(d) of Commission Implementing Regulation (EU) 2018/545.
- (6) Changes not covered by point 7.1.2.2(5) above are deemed not to have any impact on the basic design characteristics and will be classified as 15(1)(a) or 15(1)(b) of Commission Implementing Regulation (EU) 2018/545.
Note: The classification of the changes set out in points 7.1.2.2(5) and 7.1.2.2(6) above is performed by the applicant without prejudice of the safety judgement mandated in Article 21(12)(b) of Directive (EU) 2016/797.
- (7) All changes shall remain compliant with the applicable TSIs regardless its classification.
- (8) The replacement of a whole unit or (a) vehicle(s) within a unit (e.g. a replacement after a severe damage; see also clause 6.2.9) 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. Such units must be traceable and certified in accordance with any national or international rule, or any code of practice widely acknowledged in the railway domain.

Table 17

Basic design characteristics related to basic parameters set out in the LOC&PAS TSI

1. TSI clause	2. Related basic design characteristic(s)	3. Changes impacting the basic design characteristic and not classified as 21(12)(a) of Directive (EU) 2016/797	4. Changes impacting the basic design characteristic and classified as 21(12)(a) of Directive (EU) 2016/797
4.2.2.2.3 End coupling	Type of end coupling	Change of end coupler type	N/A
	Design mass in working order		
	Design mass under normal payload		

4.2.2.10 Load conditions and weighed mass 4.2.3.2.1 Axle load parameter	Design mass under exceptional payload	Change in any of the corresponding basic design characteristics resulting in a change of the line category(ies) the vehicle is compatible with in accordance with EN 15528:2015 or the equivalent rule used for its categorisation	N/A
	Maximum design speed (km/h)		
	Static axle load in working order		
	Static axle load under exceptional payload		
	Vehicle length		
	Static axle load under normal payload		
	Position of the axles along the unit (axle spacing)		
4.2.3.1 Gauging	Reference profile	N/A	Change of reference profile the vehicle is conform to
4.2.3.3.1 Rolling stock characteristics for the compatibility with train detection systems	Compatibility with train detection systems	N/A	Change of compatibility with one or more of the three following train detection systems: <ul style="list-style-type: none"> • Track circuits • Axle counters • Loop equipment
4.2.3.3.2 Axle bearing condition monitoring	On-board detection system (for units of maximum design speed lower than 250 km/h)	Fitting on-board detection system	Removal of on-board detection system
4.2.3.4. Rolling stock dynamic behaviour	Combination of maximum speed and maximum cant deficiency for which the vehicle was assessed	Increase in maximum speed of more than 15 km/h	Increase in maximum speed of more than 20 km/h or change of more than $\pm 10\%$ in maximum admissible cant deficiency
4.2.3.5.2.1. Mechanical and geometric characteristics of wheelsets	Wheelset gauge	N/A	Change of track gauge the wheelset is compatible with

4.2.3.5.2.2 Characteristics of wheels	Minimum required in-service wheel diameter	Change of minimum required in-service diameter of more than ± 10 mm	N/A
4.2.3.5.2.3 Variable gauge wheelsets	Wheelset gauge changeover facility	Change in the vehicle leading to a change in the changeover facility(ies) the wheelset is compatible with	Change of track gauge(s) the wheelset is compatible with
4.2.3.6. Minimum curve radius	Minimum horizontal curve radius capability	Increase of minimum horizontal curve radius of more than 5 m	N/A
4.2.4.5.1 Braking performance - General requirements	Maximum average deceleration	Change of more than $\pm 10\%$ on the maximum average brake deceleration	N/A
4.2.4.5.2 Braking performance – Emergency braking	Stopping distance and deceleration profile for each load condition per design maximum speed.	Change of stopping distance of more than $\pm 10\%$	N/A
	<i>For vehicles intended for general operation only:</i> Brake weight percentage (lambda)	Change of lambda of more than $\pm 10\%$	N/A
	<i>For vehicles intended for general operation only:</i> Braked mass	Change of braked mass of more than $\pm 10\%$	N/A
4.2.4.5.3 Braking performance – Service braking	Stopping distance and maximum deceleration for the load condition 'design mass under normal payload' at the design maximum speed	Change of stopping distance of more than $\pm 10\%$	N/A
4.2.4.5.4 Braking performance – Thermal capacity	Thermal capacity expressed in terms of: <ul style="list-style-type: none"> Speed 	New reference case declared	N/A

	<ul style="list-style-type: none"> • Gradient • Brake distance 		
4.2.4.5.5 Braking performance – Parking brake	Maximum gradient on which the unit is kept immobilized by the parking brake alone (if the vehicle is fitted with it)	Change of declared maximum gradient of more than $\pm 10\%$	N/A
4.2.4.6.2. Wheel slide protection system	Wheel slide protection system	N/A	Fitting/removal of WSP function
4.2.4.8.2 Magnetic track brake	Magnetic track brake	N/A	Fitting/removal of magnetic track brake function
	Possibility of preventing the use of the magnetic track brake	N/A	Fitting/removal of the brake control allowing the activation/deactivation of magnetic track brake
4.2.4.8.3 Eddy current track brake	Eddy current track brake	N/A	Fitting/removal of the eddy current track brake function
	Possibility of preventing the use of the eddy current track brake	N/A	Fitting/removal of the brake control allowing the activation/deactivation of eddy current track brake
4.2.6.1.1 Temperature	Temperature range	Change of temperature range (T1, T2, T3)	N/A
4.2.6.1.2 Snow, ice and hail	Snow, ice and hail conditions	Change of the selected range 'snow, ice and hail' (nominal or severe)	N/A
4.2.8.2.2 Operation within range of voltages and frequencies	Energy supply system (voltage and frequency)	N/A	Change of voltage(s)/frequency(ies) of the energy supply system (AC 25kV-50Hz, AC 15kV-16.7Hz, DC 3kV, DC 1.5kV, DC 750V, third rail, others)
4.2.8.2.3 Regenerative brake with energy to the overhead contact line	Regenerative brake	N/A	Fitting/removal of regenerative brake function

4.2.8.2.4 Maximum power and current from the overhead contact line	<u>Applicable to Electric units with power higher than 2 MW only:</u> Power or current limitation function	Power or current limitation function fitted/removed	N/A
4.2.8.2.5 Maximum current at standstill for DC systems	Current limitation function (to be indicated for each DC systems the vehicle is equipped for)	Current limitation function fitted/removed	N/A
4.2.8.9.1.1 Height of interaction with contact wires (RST level)	Height of interaction of pantograph with contact wires (over top of rail)	Change of height of interaction allowing/no longer allowing mechanical contact with one of the contact wires at heights above rail level between: 4 800 mm and 6 500 mm 4 500 mm and 6 500 mm 5 550 mm and 6 800 mm 5 600 mm and 6 600 mm	N/A
4.2.8.2.9.2 Pantograph head geometry (IC level)	Pantograph head geometry	N/A	Change of pantograph head geometry to or from one of the types defined in clauses 4.2.8.2.9.2.1, 4.2.8.2.9.2.2 or 4.2.8.2.9.2.3
4.2.8.2.9.4.2 Contact strip material	Contact strip material	New contact strip as per 4.2.8.2.9.4.2(3)	N/A
4.2.8.2.9.7 Arrangement of pantographs (RST level)	Number of pantograph and shortest distance between two pantographs	N/A	Where the spacing of 2 consecutive pantographs in fixed or predefined formations of the assessed unit is reduced by means of removing a vehicle
4.2.10.1. General and categorisation	Fire safety category	N/A	Change of fire safety category
4.2.12.2. General documentation	Maximum number of trainsets or locomotives coupled together in multiple operation.	N/A	Change of maximum allowed number of trainsets or locomotives coupled together in multiple operation

Table 17a

Basic design characteristics related to basic parameters set out in the PRM TSI

1. TSI clause	2. Related basic design characteristic(s)	3. Changes impacting the basic design characteristic and not classified as 21(12)(a) of Directive (EU) 2016/797	4. Changes impacting the basic design characteristic and classified as 21(12)(a) of Directive (EU) 2016/797
4.2.2.11. Step position for vehicle access and egress	Platform heights for which the vehicle is designed	N/A	Change of platform height the vehicle is compatible with

(9) In order to establish the EC type or design examination certificate, the notified body is permitted to refer to:

- The original EC type or design examination certificate for parts of the design that are unchanged or those that are changed but do not affect the conformity of the subsystem, as far as it is still valid (during 7 years phase B period).
- Additional EC type or design examination certificate (amending the original certificate) for modified parts of the design that affect the conformity of the subsystem with the latest revision of this TSI in force at that time.

(10) In any case, the applicant shall ensure that the technical documentation which is relating to the EC type or design examination certificate is updated accordingly.

(11) The updated technical documentation, related to the EC type or design examination certificate is referred to in the technical file accompanying the EC declaration of verification issued by the applicant for rolling stock declared as conformant to the modified type.'

Particular rules for existing rolling stock not covered by an EC declaration of verification

(12) The following rules apply to existing rolling stock which is either not covered by an EC declaration of verification, or is covered partially by an EC declaration of verification but the scope of the change has an impact on basic parameters not covered by the EC declaration

(13) The changes classified as 15(1)(d) of Commission Implementing Regulation (EU) 2018/545 shall be accepted by the Member State(s) within one month if a basic parameter is improved in the direction of the TSI defined performance. In this case, the applicant shall demonstrate that the corresponding essential requirements are respected and the safety level is maintained or improved by means of the procedure set out in Article 13 of Commission Implementing Regulation (EU) 2018/545.

(14) In case of vehicles not covered by an EC type or design examination certificate, the original technical documentation will be used instead of the technical file accompanying the original EC type or design examination certificate.'

10. In chapter 7 'Implementation', the text 'Modifications to a type or design already bearing an EC certificate of verification' in clause 7.1.3.1 is deleted.

11. In chapter 7 'Implementation', point 7.1.3.1(8) is deleted.

12. In chapter 7 'Implementation', the following clause 7.3.2.27 is added:

'7.3.2.27. Rules to manage changes in both rolling stock and rolling stock type (7.1.2.2)
Specific case the United Kingdom (Great Britain) ('P')

Any change to a vehicle swept envelope as defined in the national technical rules notified for the gauging process (for example as described in RIS-2773-RST) will result in a new version.'