EUROPEAN UNION AGENCY FOR RAILWAYS

Making the railway system
work better for society.

ACCOMPANYING REPORT N. 006REC1025 TO THE RECOMMENDATION OF THE EUROPEAN UNION AGENCY FOR RAILWAYS

on

the amendment of LOC&PAS TSI, WAG TSI, OPE TSI and ERA TV Decision

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Contents

1. Executive summary 4
2. Introduction 5
3. Workgroups 7
3.1. Composition of the working party 7
3.2. Working party meetings participation 7
4. Working methods 10
5. Main aspects covered 11
5.1. Route compatibility 11
5.1.1. Introduction 11
5.1.2. Summary on the analysis and conclusions regarding 'complex parameters' 12
5.1.3. Conclusion 15
5.2. Management of changes 16
5.2.1. Background and legal base 16
5.2.2. Basic design characteristics 16
5.2.2.1. Defining the basic design characteristics 16
5.2.2.2. Agreeing a methodology to identify the basic design characteristics in the TSIs 17
5.2.2.3. Clarifying the concept of impact to a basic design characteristic 17
5.2.2.4. Defining the conditions for new authorisations when changing a vehicle or a vehicle type. 18
5.2.3. Introducing the necessary flexibility for non-TSI compliant vehicles 18
5.3. Amendment of Annex II of ERATV (decision 2011/665) 19
5.3.1. Background 19
5.3.2. Section 0 - Identification of the type 19
5.3.3. Section 1 - General information 19
5.3.4. Section 2 - Conformity with TSIs 19
5.3.5. Section 3 - Authorisations 20
5.3.5.1. New parameters 20
5.3.5.2. Amended parameters 20
5.3.6. Section 4 - Technical characteristics of the vehicle 20
5.4. Amendments related to the update of ECM Regulation 20
6. Proposed amendments 21
6.1. Proposed amendment to LOC&PAS TSI 21
6.2. Proposed amendments to WAG TSI 21
6.3. Proposed amendments to ERATV 21
6.4. Proposed amendment to OPE TSI 21
7. Aspects to be considered in future revisions of the Rolling Stock TSIs 22
8. Annex 1: Definitions and abbreviations 23
8.1. Definitions 23
8.2. Abbreviations 23
9. Annex 2: Reference documents 26
10. Annex 3: Reference legislation 27

11. Annex 5: treacability of modification on table refered in annex II of ERATV decision 29

1. Executive summary

This accompanying report complements the recommendation N. 006REC1025 of the European Union Agency for Railways on the amendment of the following legal acts:

- 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. (LOC&PAS TSI) [13]
- Commission Regulation (EU) No 321/2013 of 13 March 2013 concerning a technical specification for interoperability relating to the subsystem 'rolling stock — freight wagons', amended by Commission Regulation (EU) No 1236/2013 of 2 December 2013 and Commission Regulation (EU) 2015/924 of 8 June 2015. (WAG TSI) [14]
- Commission Regulation 2015/995/EU of 8 June 2015 concerning the technical specification for interoperability relating to the subsystem 'operation and traffic management' amending Decision 2012/757/EU of 14 November 2012 and repealing Decision 2013/710/EU of 2 December 2013. (OPE TSI) [15]
- Commission Implementing Decision of 4 October 2011 on the European register of authorised types of railway vehicles (ERATV Decision) [16]

It details the legal basis for the revision of these legal acts, the workgroup, the working methods, the main aspects covered, the points of disagreement and the aspects to be considered in a future revision of the LOC&PAS and WAG TSIs. It also contains the reasoning behind each recommended text change in the legal acts above.

The target of this amendment is to align the legal acts above with the new provisions of the Directive (EU) 2016/797 [10], in order to take into account changes in the procedure for placing mobile subsystems on the market, including the checks before the first use of authorised vehicles and provisions applicable to existing subsystems and vehicles, in particular in the event of their upgrading and renewal.

2. Introduction

This accompanying report complements the recommendation N. 006REC1025 of the European Union Agency for Railways on the amendment of the following legal acts:

- 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 (LOC&PAS TSI) [13]
- Commission Regulation (EU) No 321/2013 of 13 March 2013 concerning a technical specification for interoperability relating to the subsystem 'rolling stock — freight wagons', amended by Commission Regulation (EU) No 1236/2013 of 2 December 2013 and Commission Regulation (EU) 2015/924 of 8 June 2015 (WAG TSI) [14]
- Commission Regulation 2015/995/EU of 8 June 2015 concerning the technical specification for interoperability relating to the subsystem 'operation and traffic management' amending Decision 2012/757/EU of 14 November 2012 and repealing Decision 2013/710/EU of 2 December 2013.
- Commission Implementing Decision of 4 October 2011 on the European register of authorised types of railway vehicles (ERATV Decision) [16]

It deals with the technical and organisational aspects, which lead to the text of the recommendation whereas another accompanying document to the recommendation - impact assessment - deals with the related economic aspects.

Delegated Decision (EU) 2017/1474 [11] sets out the specific objectives applicable to all TSIs and to specific TSIs. Its Article 4(5) states that: *'The LOC&PAS TSI shall take into account changes in the procedure for placing mobile subsystems on the market, as provided for in Articles 20 to 26 of Directive (EU) 2016/797, including the checks before the first use of authorised vehicles mentioned in Articles 4(3)(i) and 23 of that Directive*.'

The Article 5(6) of the Delegated Decision [11] above states the same for the WAG TSI [14].

The whereas 13 of the Delegated Decision [11] above states that: *'Article 4(3)(h) of Directive (EU) 2016/797 allows TSIs to include provisions applicable to existing subsystems and vehicles, in particular in the event of their upgrading and renewal. Those provisions can give rise to legal uncertainty in case of authorisations which are already issued, therefore there should be particular attention to the preliminary analysis of the related costs and benefits and to the definition of the modification works which require an application for a new authorisation.'*

The whereas 14 of the Delegated Decision [11] above states that: *'In order to ensure efficiency in the processes of placing on the market and placing in service of vehicles, the TSIs should provide certainty as to which parameters of a vehicle should be checked as part of the authorisation procedures in accordance with Articles 21 and 24 of Directive (EU) 2016/797 and which parameters should be checked by the railway undertakings after the delivery of the vehicle authorisation for placing on the market and before the first use of the vehicle to ensure compatibility between vehicles and the routes on which they are to be operated. The TSIs should also clarify the procedures to be followed by the railway undertakings to ensure compatibility between complete trains, including intermodal transport units, and the routes on which they are to be operated as well as, to the extent possible, the information to be provided by the infrastructure managers and the conditions under which railway undertakings should be granted network access to carry out related tests.'*

A letter from the European Commission to the European Union Agency for Railways entitled '*Request for recommendations to the Commission pursuant to Article 5 paragraph 2 of the Directive (EU) 2016/797*', ref. MOVE/C.4/BC/tg [1], mandates the European Union Agency for Railways *'the integration of additional chapters as required in Article 4 of the Interoperability Directive (EU) 2016/797'* plus specific objectives set out in 4(5) and 5(6) of the Delegated Decision [11] above with a deadline of September 2018.

On top of the changes brought to the LOC&PAS TSI [13] and the WAG TSI [14], the fulfilment of this mandate required further amendments to the OPE TSI [15] and the ERATV Decision [16].

The legal base for the European Union Agency for Railways to issue the recommendation is Article 4(a) of Directive (EU) 2016/797 [10]: *'The Agency may address recommendations to the Commission concerning the application of Articles 13, 15, 17, 19, 35, 36 and 37.'* as well as Article 19(1)(a): *'The Agency shall address recommendations to the Commission on the TSIs and their revision, in accordance with Article 5 of Directive (EU) 2016/797.'*

3. Workgroups

3.1. Composition of the working party

The invitation to participate to the working party was sent to the 12 representative bodies and to the national safety authorities of the Member States. From other organisations, the OTIF Secretariat was invited to participate as an observer. Based on this invitation, the Agency received nominations of the interested stakeholders.

For practical reasons, the working party was split in 2 subgroups:

- Subgroup 1, covering route compatibility issues
- Subgroup 2, covering change management (including basic design characteristics)

Working party meetings were organised, to which participants came from 9 representative bodies, 17 national safety authorities and the OTIF Secretariat.

The European Commission participated to meetings of the working party as they deemed necessary.

3.2. Working party meetings participation

The tables 1 and 2 below summarise the attendance of all representative bodies, national safety authorities and other organisations, which replied to the Agency's invitation and appointed their representatives to the working party, per subgroup.

Table 1 : Working party meetings participation in Subgroup 1 – route compatibility

Organisation	*Kick-off meeting 26/09/2017*	*Meeting N°2 13/12/2017*	*Meeting N°3 22/02/2018*	*Workshop Interface RST – INF 10/04/2018*	*Meeting N°4 11/04/2018*	*Workshop Interface RST - ENE 17/04/2018*	*Meeting N°5 07/06/2018*
ALE	Y	Y			Y		Y
CER	Y	Y	Y	Y	Y	Y	Y
EIM	Y	Y	Y	Y	Y	Y	Y
EPTTOLA	Y	Y	Y		Y		Y
ETF	Y	Y	Y		Y		Y
NB-Rail AISBL	Y	Y	Y	Y	Y	Y	Y
NSA AT	Y	Y		Y			
NSA BE	Y	Y	Y	Y	Y	Y	Y
NSA BG	Y						
NSA CH	Y	Y	Y		Y		Y
NSA DE	Y	Y	Y	Y	Y		Y
NSA DK	Y		Y	Y	Y		Y
NSA ES	Y	Y	Y	Y	Y	Y	Y
NSA FI	Y	Y	Y				Y

Organisation	*Kick-off meeting 26/09/2017*	*Meeting N°2 13/12/2017*	*Meeting N°3 22/02/2018*	*Workshop Interface RST – INF 10/04/2018*	*Meeting N°4 11/04/2018*	*Workshop Interface RST - ENE 17/04/2018*	*Meeting N°5 07/06/2018*
NSA FR	Y	Y	Y	Y	Y	Y	Y
NSA IE	Y	Y	Y	Y	Y		
NSA IT	Y	Y	Y				Y
NSA LU	Y	Y	Y		Y		Y
NSA NO	Y	Y	Y	Y	Y		
NSA RO				Y			
NSA SE	Y	Y	Y	Y	Y		Y
NSA SL	Y	Y	Y		Y		
NSA UK	Y	Y	Y	Y			
OTIF Secretariat	Y	Y	Y				
UIP	Y	Y	Y		Y		
UNIFE	Y	Y	Y	Y	Y	Y	Y

Table 2: Working party meetings participation in Subgroup 2 – change management

Organisation	*Kick-off meeting 26/09/2017*	*Meeting N°2 07/11/2017*	*Meeting N°3 12/12/2017*	*Meeting N°4 21/02/2018*	*Meeting N°5 12/04/2018*	*Meeting N°6 03/05/2018*	*Meeting N°7 05-06/06/2018*
ALE	Y						
CER	Y	Y	Y	Y	Y	Y	Y
EIM	Y	Y	Y	Y	Y	Y	Y
EPTTOLA	Y	Y	Y	Y	Y		Y
ETF	Y	Y	Y	Y	Y	Y	Y
NB-Rail AISBL	Y	Y	Y	Y	Y	Y	Y
NSA AT	Y	Y	Y				
NSA BE	Y		Y	Y	Y		
NSA BG							
NSA CH	Y	Y	Y	Y	Y		Y
NSA DE	Y	Y	Y	Y	Y	Y	Y
NSA DK	Y	Y	Y	Y	Y		Y

Organisation	*Kick-off meeting 26/09/2017*	*Meeting N°2 07/11/2017*	*Meeting N°3 12/12/2017*	*Meeting N°4 21/02/2018*	*Meeting N°5 12/04/2018*	*Meeting N°6 03/05/2018*	*Meeting N°7 05-06/06/2018*
NSA ES	Y	Y	Y	Y	Y	Y	Y
NSA FI	Y	Y	Y	Y			Y
NSA FR	Y	Y	Y	Y	Y	Y	Y
NSA IE	Y		Y	Y	Y		Y
NSA IT	Y	Y		Y	Y	Y	Y
NSA LU		Y	Y	Y	Y	Y	Y
NSA NO	Y	Y	Y	Y	Y	Y	
NSA PL					Y		
NSA SE	Y	Y	Y	Y			Y
NSA SI	Y		Y	Y	Y		Y
NSA UK	Y	Y	Y	Y	Y	Y	Y
OTIF Secretariat	Y		Y	Y			
UIP	Y	Y	Y	Y	Y	Y	Y
UITP							
UNIFE	Y	Y	Y	Y	Y	Y	Y

4. Working methods

The Agency chaired, managed and coordinated the WP. It ensured interface with its other activities and tasks. It applied relevant internal procedures and guidelines (e.g. procedure on issuing a recommendation or guide for drafting TSIs). It took into account the final output of the WP; however, it had the right to deviate from it, when justified (such deviations needed to be recorded in the minutes of the WP meetings and in this report).

The represented organisations were required to ensure continuity of their representative members for the duration of the WP. Whenever possible, the representative members were required to express their organisation's position in advance of the WP meetings through written methods, such as commenting on the draft documents or the draft minutes of the WP meetings. Representative members were also required to express the view of their organisation during the WP meetings. If this opinion has not been validated by their represented organisation, it should have been indicated as such. In order to achieve a common and agreed position of their organisation, the members should have shared pre- and post- meeting information within their organisations. The organisations were expected to facilitate the internal exchange of opinions and the elaboration of their position, for instance through 'mirror groups'.

The text of the recommendations was prepared by the Agency based on a working document, which gathered together the current legal texts and the amendments to them needed to align it with the new provisions of the Directive (EU) 2016/797 [10].

The working documents was thoroughly discussed during every WP meeting. Before each WP meeting, the Agency prepared a new version and set a deadline for receiving comments to it from the WP members. After this deadline, the Agency incorporated all comments received and this document formed the basis for the discussions during the WP meeting. Based on these discussions, the Agency prepared a new version for a next WP meeting. The impact assessment was also discussed during every WP meeting.

To facilitate exchange of documents, an Extranet workspace of the project was established at:

https://extranet.era.europa.eu/LOC-PAS-WAG/SitePages/Home.aspx.

This workspace gathers all documents of the project and is accessible to the working party members and their deputies as well as to all experts involved in other working parties organised by the Agency.

5. Main aspects covered

5.1. Route compatibility

5.1.1. Introduction

It is important to explain differences between:

- Technical compatibility between a vehicle and the network(s) in the area of use that is demonstrated by an applicant at **authorisation level** (article 21.3(d) of ID [10]) and,
- Route compatibility check, done **after authorisation** and before the use of a vehicle, (article 23 of ID [10]) between a vehicle and an intended route checked by a railway undertaking on the basis of :
    - Vehicle characteristics (as authorised);
    - Route characteristics using RINF and information from Infrastructure manager(e.g. when RINF is not yet populated);

Once authorised, the technical compatibility check with the networks of the vehicle's Area of Use shall not be repeated by the railway undertaking or the infrastructure manager at the time of the route compatibility check.

The railway undertaking performs the route compatibility check by comparing the characteristics of vehicle/train with the intended route(s). The procedure for this comparison will be described in the Application Guide of the OPE TSI [15] and must be as simple as possible. In most of the cases, the procedure consists in a 'paper check' between the vehicle characteristics and the route characteristics contained in RINF; this is based in the fact that the route compatibility check is not a part of the VA process neither a repetition of the assessments already done at the VA.

For the purpose of route compatibility check (article 23 of ID [10]) and the amendment of TSIs (article 4(i) of ID [10]), the Agency prepared a **list of parameters table** structured according to RST TSIs (LOC&PAS, WAG, PRM, NOISE) to analyse the interfaces between the vehicle and the fixed installations (INF, ENE and TDS) in a structured way.

Each TSI parameter was:

- Cross referred to :
    - List of parameters (decision 2299/2015/EU) [23], Fixed installation TSIs parameters and OPE TSI [15] parameters (including existing annex D),
    - Existing registers : ERATV and RINF
- Assessed to know if it is relevant for:
    - Technical compatibility between vehicle and the network(s) of area of use,
    - Conditions for use of the vehicle and other restrictions.
- Assessed to know if it is relevant for route compatibility check or not,
- Assessed to know whether it is relevant not only for the route compatibility check but also for the train composition. The RCC is done once an authorised vehicle is intended to operate in a specific route. For this specific route, with its characteristics kept, this check is done only once except if the train composition is changed, in this case only the parameters relevant for train composition are expected to be checked again.

The output of the review with the working party are referred in the columns:

- Output of the analysis and
- Preliminary conclusion on the procedure to be used by a railway undertaking for the route compatibility check

This output was used for the proposal of the appendix D1 and the associated application guide.

The members of the working party provided comments on the elements mentioned above, the comments were discussed and also formally answered in the mentioned working table, as can be found below attached to this report:

Route compatibility check _table SG1.xls

On the basis of the work development as explained above **a set of 41 parameters was considered relevant for the Route compatibility checks**, to be performed by the RU and the procedures to be applied to check those parameters after the delivery of the vehicle authorisation for placing on the market and before the first use of the vehicle to ensure compatibility between vehicles and the routes on which they are to be operated.

From the referred set of 41 parameters, 31 are related to the compatibility of the RST part of the vehicle with the route and 10 relate to the compatibility of the CCS part of the vehicle with the route. The present report does not cover the part related to CCS on-board, as this work was developed within the CCS TSI WP, therefore it is covered in the Accompanying Report of the Recommendation 011REC1028 [6], on the CCS TSI revision.

5.1.2. Summary on the analysis and conclusions regarding 'complex parameters'

This section of the report covers a summary on the discussions and conclusions taken, on the parameters subject to the most complex analysis.

- **Traffic loads and load carrying capacity of infrastructure**

This parameter covers two different aspects, as they are subdivided and explained below:

- **Static compatibility check between traffic loads and load carrying capacity of infrastructure**

This RC check is proposed, in the OPE TSI application guide, to be covered by following EN 15528 [4] for rolling stock and infrastructure.

LOC&PAS TSI [13] does not mandate the categorisation of RST following EN 15528 [4] but the collection of data necessary to perform such categorisation. Possible modifications to LOC&PAS TSI [13] requirements for EN 15528 [4] categorisation will be discussed in further LOC&PAS TSI [13] working party.

National procedures, in duly justified situations, can be used. The procedure shall be made available by the IM to the RU**.**

- **Dynamic compatibility check between traffic loads and load carrying capacity of bridges**

The methodology to perform this check is not harmonised nowadays and the EN 15528 [4] is not mature yet to address this harmonisation. The EN check methodology is quite accepted for static analysis but not yet for the dynamic analysis. Therefore, there are different national practices. The methodology proposed by the EN 15528 [4] can be considered valid, but it will remain voluntary and is only one of the possible options to perform the task.

Therefore, it was agreed that the dynamic compatibility check is also performed according to the rules provided by the IM.

Conclusion:

Taking into account the present context, on the basis of the existing TSIs and current practices, it was found difficult to 'adopt' a harmonized procedure.

Therefore it is required that these checks shall be performed in accordance with the procedures provided by the IM.

However, until a proper discussion within the sector leads us to an agreed harmonised procedure, we intend to suggest one in the application guide of OPE TSI [15].

- **Gauging**

Today a wide part of MS assess the gauging by the methodologies proposed on EN 15273 [5]. The TSIs also adopt such approach.
The comparison with reference profiles is the most common approach, as the networks normally have reference profiles addressed to each line. However there are cases, where this approach doesn't apply (e.g. UK specific case) and other methodologies should be accepted.

The proposal part of this REC covers the mentioned aspects.

Additionally, it is also common that existing lines, classified as compatible with a certain reference profile, have "critical" points where the declared reference profile does not correspond to the reality, in such point. To deal with it, it was found necessary to promote specific discussion between RU and IM, when such situation can occur.
So, the following note, is added to the proposal of amendment: "*It is expected that geometry of particular points (e.g. section of tunnel, bridges) is covered by the reference profile declared in RINF. In duly justified cases, discussion between Infrastructure Manager and Railway Undertaking might be needed for checking these specific points.*"

- **Train detection systems**

During the work development the TDS experts confirmed the vehicle's compatibility with the TDS within a network is assessed at VA, but the applicant might chose to which type(s) of TDS the vehicle is compatible (track circuits, axle counters or loop).
So, the parameter to be checked at RC is only the type of TDS the vehicle is compatible with.

However, it might happen that some networks have specificities which don't allow such approach.
Due to it, the following note is added to the proposal of amendment: "*In duly-justified cases, tests and/ or checks could be done after authorisation, involving Railway Undertaking and Infrastructure Manager.*"

- **Hot axle box detection**

The RCC related to this parameters concerns HABD track side and not to on-board HABD.

Several MS have their networks composed of only on type. For such cases there is no RC check to be performed, as it should be completely covered at VA phase.

For the cases the networks of a MS are composed of more than one 'type', the RC is performed by comparing the 'types' of HABD the vehicle is compatible with (this compatibility assessment is done at VA).

Members of WP were requested to provide the parameters relevant for the mentioned comparison. One answer was received, regarding the FR case, mentioning the following parameters:

- Localization of HABD;
- Identification of HABD;
- Generation of HABD – predefined list;
- Direction of measurement of HABDC.

Those were included in the proposal.

- **Running characteristics**

Today, the acceptance of vehicles in this subject is mostly done on the basis of EN 14363. This referential defines reference conditions harmonised for the following parameters:

- The combination of maximum speed and equivalent conicity;
- The track geometry and quality.

Regarding rail inclination:

- Assessment made under the EN 14363:2016 [2] covers contact conditions including all rail inclination (if profiles representatives for the operation of the vehicle are used during testing, i.e. the range of contact conditions varies sufficiently).
- Assessment made by other referential (e.g. UIC 518 [3] or previous version of EN14363) are valid for a specific rail inclination, therefore the rail inclination for these cases is also part of area of use.

The acceptance of the vehicle, assessed under the referred harmonised reference conditions, for the maximum speed chosen by the applicant and the maximum cant deficiency of the area of use intended to the vehicle, is covered at vehicle authorisation. This combination of maximum speed and maximum cant deficiency, together with the rail inclination (if relevant) to which the vehicle is assessed are the “values” to be used for the route compatibility check.

Note: The maximum speed and maximum cant deficiency are nowadays declared in RINF independently and not as a combination, therefore it is possible that the ‘RCC scenario’ does not correspond to the reality. So, in case the RC check reveals “non-compatible” then the RU should request the exact combination for specific points in which the compatibility might be compromised, and re-check on the basis of the exact combination present in the line.

As referred by experts in this field, even doing this rough 1st verification it is expected that in the most of the cases the result is “positive”. Like this, we avoid to request exhaustive data to the IM, in order to populate in RINF a possible parameter covering the real combination.

- **Braking**

Regarding the braking, the tendency of the WP was to consider it as an operational subject, relevant for the route book and train composition, covered by the RU SMS and not for RCC. This means that the RU, within its SMS, based in the information provided by the IM defines the train operation.

After several discussions, it was understood this parameter in a complex border between route compatibility, train composition and safe operation.

So, it might be understood as not relevant for RC (art 23.1 (b) of ID [10]) but related to operational aspects covered by art 23.1.(c) of ID [10].

However, if the Unit is authorised in pre-defined or fixed formation, this check against a route is done once, if the unit is authorised for general operation the check is done each time the composed train is changed.
By that, the WP agrees that, if fixed or pre-defined formation, at route compatibility phase it is done a comparison of the declared stopping distance and maximum train deceleration between Rolling Stock and the intended route, for each load condition per design maximum speed.

The WP agrees also to remove emergency brake from RC parameters, keeping only maximum service brake.

For General operation: covered by RU safety management system using the CSM on risk assessment. See clause 4.2.2.6 and OPE TSI application guide clause 6.

- **Voltages and frequencies**

It was agreed within the WP, also based in the ENE experts input that this check is done as following:

- For TSI conform line: only check of the of the traction supply system (nominal voltage and frequency) and type of contact line system;
- For non TSI conform line: traction supply system (nominal voltage and frequency), type of contact line system and Umin2 - Umax2, until the MS specificities are represented by means of specific cases.

The ENE experts consider that this should be covered at VA, however they are not sure that all the specificities are covered in the TSIs (including specific cases) and NRs, So, it was agreed by the group to consider Umin2, Umax2 as relevant for the route compatibility check, for lines not TSI compliant.

- **Pantograph - Height of interaction of pantograph with contact wires (over top of rail) for each energy supply system the vehicle is equipped for**

A part of the experts consider this as fully covered at VA. However the ENE experts are not sure that all the specificities are covered in the TSIs (including specific cases) and NRs.

Based on it, it was agreed to keep the item for route compatibility check, on the basis of the values declared in RINF.

- **Platform height and Access and egress**

The Platform height is an item relevant for the route compatibility checks and it is covered/verified by the comparison of values between the height of the platform (RINF) and the platform heights for which the vehicle is designed.

On the other hand, the Platform offset is already properly covered by the route compatibility item Gauging, therefore it is not considered as an independent item for the route compatibility checks. Regarding the access and egress, the SMS of RU/IM shall consider the impact of the gaps and shall cover it with the appropriate provisions to guarantee the safe operation of vehicles.

5.1.3. Conclusion

As agreed in the beginning of the project and referred to in the Kick-off meeting, the main purpose of subgroup 1 was to agree in the technical parameters and procedures for the route compatibility check to be done by the railway undertaking.

However, it was clarified that structural TSIs are not the suitable place for providing requirements on the procedures to be applied by RU for route compatibility check, taking into account that these procedures are in the scope of the relationship between the RU and the IM, which is normally regulated by the OPE TSI [15]. Therefore, this part of the output, as in Annex 4 of this report, amends the Appendix D of OPE TSI [15].

The aim of the WP – SG1 was to identify/ describe the parameters and describe the procedures to check those parameters, at technical level, as in Article 4.3 (i) of ID [10].

It was not in the scope of the WP – SG1 to discuss the practical arrangements related to ID [10] and the basic structure of responsibilities to be taken into account in the “administrative”, contractual and legal point of view (e.g. what type of templates should be used by the RU to demonstrate that the RC was properly done, is it possible for the RU to subcontract other entities to perform such checks, …)

The main discussions raised at the WP – SG1 were related with the basic principles of the article 23 of the ID [10]. There are still doubts, on the implementation of the Article 23.1 of ID [10], concerning general procedures and responsibilities (as new role for RU).

The RCC parameters and the corresponding procedures were agreed, almost with unanimity, among the sector represented at the WP, with few exceptions mostly related to the different levels of harmonization within the EU network, leading to the different points of view (a parameter fully harmonised within a network of the Area of Use of a vehicle does not require a RC check as it is fully covered at VA. If this parameter is not fully harmonised within the network then a route compatibility check should be necessary).

In addition, in some particular parameters there is a thin border between the checks performed at the level of RC and pure operational aspects, which raises doubts if the parameter should be or not considered for RC. For such cases and based in the discussions at WP level, the proposal represents the reached consensus.

The sector considered the time available for the discussion on this project quite limited. However this condition was clearly identified in the beginning of the project.

5.2. Management of changes

5.2.1. Background and legal base

On top of the mandate received by the Agency and outlined in Chapter 2, the Agency took into account the Articles 13, 15 and 16 of the Commission Implementing Regulation (EU) 2018/545 [12] plus Decision 2010/713/EC [25].

Management of changes in the context of the TSI was already covered by Recommendation on 'Amendments for closure of the remaining open points, improvement of implementation rules and technical update in the TSI WAG' (ERA-REC-117-2016-REC [7]), and to some extent, in the current LOC&PAS and WAG TSIs. Its findings have been taken into account as far as possible.

During the workshop on vehicle authorization, some criteria were agreed to define a basic design characteristics. This is further explained in point 5.2.2.1 of this report. The methodology adopted to identify the basic design characteristics take into account this and is further explained in point 5.2.2.2.

The working party identified the need to clarify the concept of change impacting to a basic design characteristics as set out in the Commission Implementing Regulation (EU) 2018/545 [12]. This is explained in point 5.2.2.3.

Changes to a basic design characteristic requiring a new authorization in accordance with Art. 21.12(a) and 21.12(c) of the Directive 2016/797 [10] are further explained in point 5.2.2.4.

Additional requirements for non-TSI compliant vehicles already outlined in the LOC&PAS and WAG TSIs plus ERA-REC-117-2016-REC [7] and were considered. These are further explained in point 5.2.3.

5.2.2. Basic design characteristics

5.2.2.1. Defining the basic design characteristics

During the workshop for vehicle authorisation held on 26.06.2017, the following fundamental principles were agreed:

- Basic design characteristic in the context of the TSI is a subset of the vehicle design describing the important/significant elements of the design, either needed for technical compatibility, for operation or describing limits and conditions for use resulting from conformity to TSI requirements.
- Other basic design characteristics derived for national technical rules, CCS TSI [20], other legal acts and procedures/standards of voluntary application are not part of this recommendation and will be covered at a later stage.

Therefore, the scope of the work to be covered in this recommendation is limited to the first bullet point above for all requirements related to the subsystem rolling stock of LOC&PAS TSI [13], WAG TSI [14], PRM TSI [18], NOI TSI [26] and SRT TSI [19]. All identified basic design characteristics will be listed in LOC&PAS TSI [13] and WAG TSI [14].

All NSAs and Representative bodies agreed with the principles and the work done in the management of changes, with the sole exception of NSA IT. Detailed information on NSA IT disagreement is explained in the points below. Several NSAs and Representative Bodies complained about the tight schedule for this revision cycle.

5.2.2.2. Agreeing a methodology to identify the basic design characteristics in the TSIs

Basic design characteristics are not linked with safety. Safety when introducing a change to a vehicle or vehicle type is already ensured by article 21.12(b) of the Directive [10] and the corresponding provisions of Commission Implementing Regulation (EU) 2018/545 [12].

Requirements related to basic parameters interfaced with OPE TSI [15] or needed for route compatibility or limits and conditions of use were analysed at a first place. Most of them were identified as basic design characteristics.

The Agency also requested the national rules managing changes in case there was something similar to the concept of basic design characteristic. Only Germany replied.

On top of the parameters above, the following methodology was agreed and applied to all requirements of the TSIs:

Step 1: Is the TSI requirement fixed, with no possibility for alternative values? - If yes, it is not a basic design characteristic.

Step 2 (if the answer to the step 1 is no): Could a change of the parameter change the value of the technical parameter used for technical compatibility check with the area of use? If yes, it is a basic design characteristic. If no, it is not a basic design characteristic in case the answer to the step 3 is also no.

Step 3 (if the answer to the step 2 is no): Could a change of the parameter lead to a different condition for use/operational restriction? - If yes, it is a basic design characteristic.

NSA IT considered that the list of basic design characteristic didn't take into account many parameters that the TSIs indicate as relevant with respect to the essential requirement "Technical Compatibility". The Agency explained that the interface table NSA IT referred to contained many parameters which in practice were not needed, such as external lights. Therefore, the findings of the 'route compatibility' subgroup were to be applied. The Agency further proposed to update the interface with the relevant essential requirements in the next revision cycle of the TSIs.

Apart from NSA IT, there was no disagreement in the identification of the basic design characteristics. However, the corresponding thresholds for which a change of the basic design characteristics triggers a version or a variant were not unanimously supported in the case of the basic design characteristics associated to the following requirements:

- Running dynamic behaviour
- Brake performance

The Agency proposed a consensus among the diverging positions of Representative bodies and NSAs.

5.2.2.3. Clarifying the concept of impact to a basic design characteristic

Once identified the relevant basic design characteristics, it was essential in order to make the concept of 'version' something applicable to determine which changes are deemed to have an 'Impact to the basic design characteristic' as defined in article 15(1) of Commission Implementing Regulation (EU) 2018/545 [12], thus triggering a new version.

A column was then added to the table containing the basic design characteristics identifying such thresholds, so there is a common understanding on which degree of modification triggers a version due to a change in the associated basic design characteristics.

NSA IT considered that the work covered in this point was not needed and allowed anyone to introduce a change impacting a basic design characteristic and not declaring a version. The Agency explained that the concept of impact had to be developed. Otherwise, any change no matter how small it is, would have an impact to at least a basic design characteristic and trigger a new version, making the concept of version unworkable.

5.2.2.4. Defining the conditions for new authorisations when changing a vehicle or a vehicle type.

Conditions for new authorisation are defined in article 22(12) of the Directive 2016/797 [10]:

'[..] a new vehicle authorisation for placing on the market shall be required if:

(a) Changes are made to the values of the parameters referred to in point (b) of paragraph 10 which are outside the range of acceptable parameters as defined in the TSIs;

(b) The overall safety level of the vehicle concerned may be adversely affected by the works envisaged; or

(c) It is required by the relevant TSIs'

An additional column was added to the table containing the basic design characteristics identifying the changes to these basic design characteristics covering both 21.12(a).

The conditions set out in 21.12(b) are outside the scope of this working party.

The Working Party found no requirements related to 21.12(c).

5.2.3. Introducing the necessary flexibility for non-TSI compliant vehicles

Pre-TSI vehicles were considered during the drafting of the basic design characteristics and corresponding thresholds as defined in points 5.2.2.3 and 5.2.2.4.

However, two additional points were agreed in order to grant some flexibility when changes are introduced in vehicles which were not assessed against any TSI:

1. The changes requiring a new authorization 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 [12].
2. 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

The two points above were already present in the LOC&PAS TSI [13] and the Recommendation ERA-REC-117-2016-REC [7] amending the WAG TSI [14] and the Working party agreed to keep them.

5.3. Amendment of Annex II of ERATV (decision 2011/665)

5.3.1. Background

The annex II of the decision 2011/665 [16] related to the vehicle type data to be registered in ERATV is amended in order to take into account the evolution of the legal background and especially the documents listed below:

- Interoperability Directive (EU) 2016/797 [10],
- Implementing Regulation (EU) 2018/545 [12] practical arrangements for the railway vehicle authorisation and railway vehicle type authorisation process,
- Agency proposal for an implementing Acts on 'EC' declaration of verification of subsystems and templates,
- Agency recommendation for the rationalisation of vehicle-related registers,
- Agency recommendations amending chapters 7 and defining the basic design characteristics related to basic parameters set out in the LOC&PAS TSI [13], WAG TSI [14] and CCS TSI [20].

The following sections of the annex II are amended:

- Section 0 - Identification of the type
- Section 1 - General information
- Section 2 - Conformity with TSIs
- Section 3 - Authorisations
- Section 4 - Technical characteristics of the vehicle

The next sections provide a summary and justification of the amendment performed.

5.3.2. Section 0 - Identification of the type

To take into account the concept of vehicle type version and variant as described in the regulation 2018/845, new ERATV parameters are amended / created:

- Variant,
- Version,
- The type identification will be defined as below :

Type number	*Variant*	*Version*
XX-XXX-XXXX-X	XXX	XXX

Example of a Vehicle type variant 1 with 2 Vehicle type versions:

- 13-013-001-6-001-001
- 13-013-001-6-001-002

5.3.3. Section 1 - General information

New ERATV parameters related to the identification of the manufacturer have been added, as proposed in the recommendation for the rationalisation of vehicle-related registers.

5.3.4. Section 2 - Conformity with TSIs

ERATV parameter 2.2 has been updated to "EC certificate of validation" to be aligned with the implementing Acts on 'EC' declaration of verification of subsystems and templates.

5.3.5. Section 3 - Authorisations

5.3.5.1. New parameters

- Area of use: composed of Member State and Networks, from a pre-defined list. The parameter is created to cover article 21.10 of the Interoperability Directive 2016/797 [10],
- "Reference to the written declaration by the proposer referred to in Article 3(11) of Regulation (EU) 402/2013",
- Parameters related to the identification of the authorisation holder have been added, as proposed in the recommendation for the rationalisation of vehicle-related registers.

5.3.5.2. Amended parameters

- Status: the pre-defined list is updated to cover the new status used in the Interoperability Directive [10] such as in Article 26 of Directive (EU) 2016/797 [10].
- Coded and non-coded restriction name updated to :
  - Coded conditions for use and other restrictions,
  - Non-coded conditions for use and other restrictions.
- National certificate references (if applicable) replaced by Certificate of verification: in accordance to the Implementing Acts on 'EC' declaration of verification of subsystems and templates.

5.3.6. Section 4 - Technical characteristics of the vehicle

The section 4 was aligned with the Basic design characteristics as proposed in the recommendations amending chapter 7 set out in the LOC&PAS TSI [13], WAG TSI [14] and CCS TSI [20].

To identify the parameter related to technical compatibility between a vehicle and network, a new column named "Parameters for technical compatibility between Vehicle and the network(s) of area of use" is added.

The following table provides an overview of changes in section 4 :

Parameters Status	*Number*	*Comments*
Total number of parameters (including headings)	**163**	
No change	53	
Updated	19	
New	18	
Deleted	73	Not considered as basic design characteristics by the working parties (LOC&PAS TSI, WAG TSI and CCS TSI). Among the 73 deleted parameters : - 5 relate to Noise, - 12 relate to PRM, - 20 relate to train detection systems

The attached annex 5 provide the traceability of the modification performed to the table referred in the annex II of ERATV decision [16].

5.4. Amendments related to the update of ECM Regulation

Due to the ECM Regulation [24] update carried out on the project 007REC1004 [8], the LOC&PAS TSI [13] and the WAG TSI [14] were amended accordingly, taking into account the impact of the mentioned project in the referred TSIs.

The explanation for such amendments can be found on the accompanying report N° 007REC1004 of the recommendation 007REC1004 [8].

6. Proposed amendments

6.1. Proposed amendment to LOC&PAS TSI

The proposed amendments on the LOC&PAS TSI [13] are presented in Annex 1 of the present Recommendation and listed as following:

- Points 1 to 7: amendments related to the update of the ECM Regulation [24];
- Point 8: amendment related to Route Compatibility;
- Points 9 to 12: amendments related to Basic Design Characteristics.

6.2. Proposed amendments to WAG TSI

The proposed amendments on the WAG TSI [14] are presented in Annex 2 of the present Recommendation and listed as following:

- Points 1 to 2: amendments related to the update of the ECM Regulation [24];
- Point 3: amendment related to Route Compatibility;
- Points 4 to 5: amendments related to Basic Design Characteristics.

6.3. Proposed amendments to ERATV

The proposed amendments on the ANNEX II 'DATA TO BE REGISTERED AND FORMAT' of ERATV [16] are presented in Annex 3 of the present Recommendation.

6.4. Proposed amendment to OPE TSI

The proposed amendments on the Appendix D 'Elements the infrastructure manager has to provide to the railway undertaking for the Route Book and for the train compatibility over the route intended for operation' of OPE TSI [15] are presented in Annex 4 of the present Recommendation.

7. Aspects to be considered in future revisions of the Rolling Stock TSIs

This Recommendation will be presented in the RISC meeting of November 2018 and the opinion will be requested in RISC meeting of January 2019.
The final WP meeting of this project will be held on the 2nd October 2018 (SG1) and 3rd October 2018 (SG2). The objective of this final meeting is to discuss and draft the Application Guides related to the amendments, proposed in this Recommendation.

The present project will continue its activities, within the specific WP (LOC&PAS TSI [13] and WAG TSI [14]) discussing different technical issues, including proposals done by the sector, for the improvement an technical update of the LOC&PAS TSI [13] and WAG TSI [14], based in the provisions of Articles 3, 4 and 5 of the Commission Delegated Decision (EU) 2017/1474 [11].
These activities will be organised in 2 subgroups: the subgroup SG3 (for the specific technical subjects of LOC&PAS TSI [13]) and the subgroup SG4 (for the specific technical subjects of WAG TSI [14]).
In order to manage the functioning of these subgroups, the Agency will launch the corresponding call for experts; it is expected to send this call to the sector by end July 2018 and the related meetings and activities are intended to start in October/ November 2018.

8. Annex 1: Definitions and abbreviations

8.1. Definitions

Table 3 : Table of definitions

Definition	*Description*
The Agency	European Union Agency for Railways
LOC&PAS TSI	Technical specification for interoperability relating to the 'rolling stock — locomotives and passenger rolling stock' subsystem [12]
OPE TSI	Technical specification for interoperability relating to the 'operation and traffic management' subsystem [15]
WAG TSI	Technical specification for interoperability relating to the subsystem 'rolling stock — wagons' [14]

8.2. Abbreviations

Table 4 : Table of abbreviations

Abbreviation	*Description*
4RP	4th Railway Package
AT	Austria
BE	Belgium
BG	Bulgaria
CCS	Control-Command and Signalling subsystem
CER	Community of European Railway and Infrastructure Companies
CH	Switzerland
CSM	Common Safety Methods
DE	Germany
DK	Denmark
EC	European Commission
ECM	Entities in Charge of Maintenance
EIM	European Rail Infrastructure Managers
EN	European Standard
ENE	Energy subsystem
ERA	European Union Agency for Railways
ERATV	European register of authorised types of railway vehicles referred to in COMMISSION IMPLEMENTING DECISION 2011/665/EU [16] of 4 October 2011 on the European register of authorised types of railway vehicles

Abbreviation	*Description*
ERTMS	European Rail Traffic Management System
ETCS	European Train Control System
ES	Spain
ETF	European Transport Workers' Federation
EU	European Union
FI	Finland
FR	France
GSM-R	Global System for Mobile Communication - Railway
HABD	Hot Axle Box Detection
ID	Interoperabilty Directive [10]
IE	Irland
IM	Infrastructure Manager
INF	Infrastructure subsystem
IT	Italy
LOC&PAS	Locomotives and Passenger Rolling Stock
MS	EU and EFTA Member State
NA	Not Applicable
NB-Rail AISBL	Notified Bodies Association
NO	Norway
NOI	Subsystem Rolling Stock — Noise
NRs	National Rules
NSA	National Safety Authority
OPE	Operation and Traffic Management subsystem of the rail system in the European Union
OTIF	Intergovernmental Organisation for International Carriage by Rail
PL	Poland
PRM	Accessibility of the Union's rail system for Persons with Disabilities and Persons with Reduced Mobility
RC	Route Compatibility
RCC	Route Compatibility Check (s)

Abbreviation	*Description*
REC	Recommendation
RINF	Register of Railway Infrastructure referred to in COMMISSION IMPLEMENTING DECISION 2014/880/EU [17]of 26 November 2014 on the common specifications of the register of railway infrastructure and repealing Implementing Decision 2011/633/EU
RISC	Railway Safety and Interoperability Committee
RST	Rolling Stock
RU	Railway Undertaking
SE	Sweden
SI	Slovenia
SMS	Safety Management System
SRT	Safety in Railway Tunnels of the rail system of the European Union
TDS	Train Detection Systems
TSI	Technical Specification for Interoperability
VA	Vehicle Authorisation
UK	United Kingdom
UIC	International Union of Railways
UIP	International Union of Wagon Keepers
UNIFE	The European Rail Industry
WAG	Freight Wagons rolling stock
WP	Working Party

9. Annex 2: Reference documents

Table 5 : Table of reference documents

N°	*Title*	*Reference*	*Version*
[1]	Request for recommendations to the Commission pursuant to Article 5 paragraph 2 of the interoperability Directive (EU) 2016/797	MOVE/C.4/BC/tg	22/09/2017
[2]	EN 14363: 2016 Railway applications - Testing and Simulation for the acceptance of running characteristics of railway vehicles - Running Behaviour and stationary tests	EN 14363:2016	2016
[3]	UIC 518 Testing and approval of railway vehicles from the point of view of their dynamic behaviour - Safety - Track fatigue - Running behaviour	UIC 518	NA
[4]	EN 15528: 2015 Railway applications - Line categories for managing the interface between load limits of vehicles and infrastructure	EN 15528	2015
[5]	EN 15273: 2013 Railway applications - Gauges	EN 15273	2013
[6]	Recommendation for the amendment of TSI CCS	011REC1028	NA
[7]	Recommendation N. ERA-REC-117-2016-REC of the European Railway Agency on 'Amendments for closure of the remaining open points, improvement of implementation rules and technical update' amending 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 as amended by Commission Regulation (EU) No 1236/2013 and Commission Regulation (EU) 2015/924.	ERA-REC-117	18/04/2016
[8]	Recommendation of The European Union Agency For Railways on Extension/Revision of Commission Regulation (EU) No 445/2011 on a system of certification of entities in charge of maintenance for freight wagons.	007REC1004	NA

10. Annex 3: Reference legislation

Table 6 : Table of reference legislation

N°	*Title (*)*	*Reference*	*Official Journal*
[9]	Regulation (EU) 2016/796 of the European Parliament and of the Council of 11 May 2016 on the European Union Agency for Railways and repealing Regulation (EC) No 881/2004	Agency Regulation	OJ L 138, 26.5.2016, p. 1–43
[10]	Directive (EU) 2016/797 of the European Parliament and of the Council of 11 May 2016 on the interoperability of the rail system within the European Union (recast)	Directive (EU) 2016/797 or Interoperability Directive	OJ L 138, 26.5.2016, p. 44–101
[11]	Commission Delegated Decision (EU) 2017/1474 of 8 June 2017 supplementing Directive (EU) 2016/797 of the European Parliament and of the Council with regard to specific objectives for the drafting, adoption and review of technical specifications for interoperability	Delegated Decision for TSIs	OJ L 210, 15.8.2017, p. 5–15
[12]	Commission Implementing Regulation (EU) 2018/545 of 4 April 2018 establishing practical arrangements for the railway vehicle authorisation and railway vehicle type authorisation process pursuant to Directive (EU) 2016/797 of the European Parliament and of the Council	Implementing Regulation on Practical Arrangements for Vehicle Authorisation	OJ L 90, 6.4.2018, p. 66–104
[13]	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	LOC&PAS TSI	OJ L 356, 12.12.2014, p. 228–393
[14]	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	WAG TSI	OJ L 104, 12.4.2013, p. 1–56
[15]	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	OPE TSI	OJ L 345, 15.12.2012, p. 1–76
[16]	Commission Implementing Decision 2011/665/EU of 4 October 2011 on the European register of authorised types of railway vehicles	ERATV Decision	OJ L 264, 8.10.2011, p. 32–54
[17]	Commission Implementing Decision 2014/880/EU [12]of 26 November 2014 on the common specifications of the register of railway infrastructure and repealing Implementing Decision 2011/633/EU	RINF Decision	OJ L 356, 12.12.2014, p. 489–519

N°	*Title (*)*	*Reference*	*Official Journal*
[18]	Commission Regulation (EU) No 1300/2014 of 18 November 2014 on the technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility	PRM TSI	OJ L 356, 12.12.2014, p. 110–178
[19]	Commission Regulation (EU) No 1303/2014 of 18 November 2014 concerning the technical specification for interoperability relating to 'safety in railway tunnels' of the rail system of the European Union	SRT TSI	OJ L 356, 12.12.2014, p. 394–420
[20]	Commission Regulation (EU) 2016/919 of 27 May 2016 on the technical specification for interoperability relating to the 'control-command and signalling' subsystems of the rail system in the European Union	CCS TSI	OJ L 158, 15.6.2016, p. 1–79
[21]	Commission Regulation (EU) No 1299/2014 of 18 November 2014 on the technical specifications for interoperability relating to the 'infrastructure' subsystem of the rail system in the European Union	INF TSI	OJ L 356, 12.12.2014, p. 1–109
[22]	Commission Regulation (EU) No 1301/2014 of 18 November 2014 on the technical specifications for interoperability relating to the 'energy' subsystem of the rail system in the Union	ENE TSI	OJ L 356, 12.12.2014, p. 179–227
[23]	Commission Implementing Decision (EU) 2015/2299 of 17 November 2015 amending Decision 2009/965/EC as regards an updated list of parameters to be used for classifying national rules	List of Parameters	OJ L 324, 10.12.2015, p. 15–34
[24]	Commission Regulation (EU) No 445/2011 of 10 May 2011 on a system of certification of entities in charge of maintenance for freight wagons and amending Regulation (EC) No 653/2007	ECM Regulation	OJ L 122, 11.5.2011, p. 22–46
[25]	2010/713/EU: Commission Decision 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	Modules Decision	OJ L 319, 4.12.2010, p. 1–52
[26]	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	NOI TSI	OJ L 356, 12.12.2014, p. 421–437

(*) and subsequent amendments, if any.

11. Annex 5: treacability of modification on table refered in annex II of ERATV decision

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
0	**Identification of the type**	**Heading (no data)**						No change
0.1	TYPE ID	[number] XX-XXX-XXXX-X (according to Annex III)	Y	Y	Y	Y		No change
0.2	~~Versions~~ Variant included in this type (according to Article 2(13) of Regulation (EU) 2018/545)	[~~number~~ alphanumeric] XXX ~~+ [character string] (according to Annex III)~~	Y	Y	Y	Y		Update of parameter name and data format
0.4	Versions included in this type. (according to Article 2(14) of Regulation (EU) 2018/545)	[alphanumeric] XXX	Y	Y	Y	Y		New
0.3	Date of record in ERATV	[date] DD-MM-YYYY	Y	Y	Y	Y		No change
1	**General information**	**Heading (no data)**						No change
1.1	Type name	[character string] (max 256 characters)	O	O	O	O		No change
1.2	Alternative type name	[character string] (max 256 characters)	O	O	O	O		No change
1.3	**Manufacturer's name**	~~[character string] (max 256 characters) Selection from a predefined list, possibility to add new manufacturers~~ **Heading (no data)**	~~¥~~	~~¥~~	~~¥~~	~~¥~~		Update of data format and applicability
1.3.1	**Manufacturer identification data**	**Heading (no data)**						New
1.3.1.1	Name of organisation	[character string] (max 256 characters) Selection from a predefined list, possibility to add new organisations	Y	Y	Y	Y		New
1.3.1.2	Registered business number	Text	O	O	O	O		New
1.3.1.3	Organisation code	Alphanumeric code	O	O	O	O		New
1.3.2	**Manufacturer contact data**	**Heading (no data)**						New
1.3.2.1	Address of organisation, street and number	Text	O	O	O	O		New
1.3.2.2	Town	Text	O	O	O	O		New
1.3.2.3	Country code	Code as in EC interistitutional Style Guide	O	O	O	O		New
1.3.2.4	Post code	Alphanumeric code	O	O	O	O		New
1.3.2.5	E-mail address	E-mail	O	O	O	O		New
1.4	Category	[character string] Selection from a predefined list (according to Annex III)	Y	Y	Y	Y		No change

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
1.5	Subcategory	[character string] Selection from a predefined list (according to Annex III)	Y	Y	Y	Y		No change
2	**Conformity with TSIs**	**Heading (no data)**						No change
2.1	Conformity with TSI	For each TSI: [character string] Y/N/Partial/Not applicable Selection from a predefined list of vehicle related TSIs (both in force and those that were previously in force) (multiple selection possible)	Y	Y	Y	Y		No change
2.2	EC certificate of verification : Reference of 'EC type examination certificates' (if module SB applied) and/or 'EC design examination certificates' (if module SH1 applied)	[character string] (possibility to indicate several certificates, e.g. certificate for rolling stock subsystem, certificate for CCS, etc.)	Y	Y	Y	Y		Update of parameter name
2.3	Applicable specific cases (specific cases conformity with which has been assessed)	[character string] Selection from a predefined list (multiple selection possible) based on TSIs (for each TSI marked as Y or P)	Y	Y	Y	Y		No change
2.4	Sections of TSI not complied with	[character string] Selection from a predefined list (multiple selection possible) based on TSIs (for each TSI marked as P)	Y	Y	Y	Y		No change
3	**Authorisations**	**Heading (no data)**						No change
3.0	Area of use	[character string] Selection from a predefined list : MS - Network	Y	Y	Y	Y		New
3.1	**Authorisation in**	**Heading (no data)**						No change
3.1.1	Member State of authorisation	[character string] Selection from a predefined list ~~Codes are those officially published and updated on the European website in the Interinstitutional style guide~~	Y	Y	Y	Y		Update of data format
3.1.2	**Current status**	**Heading (no data)**						No change

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
3.1.2.1	Status	[character string] + [date] ~~Field automatically filled in by the system~~. Possible options: ~~Active~~ Valid, Suspended DD-MM-YYYY, ~~Withdrawn~~ Revoked DD-MM-YYYY, ~~Expired~~ to be renewed DD-MM-YYYY	Y	Y	Y	Y		Update of data format
3.1.2.2	Validity of authorisation (if defined)	[date] DD-MM-YYYY	Y	Y	Y	Y		No change
3.1.2.3	Coded ~~restrictions~~ conditions for use and other restrictions	[character string] Code assigned by the Agency	Y	Y	Y	Y		Update of parameter name
3.1.2.4	Non-coded conditions for use and other restrictions	[character string]	Y	Y	Y	Y		Update of parameter name
3.1.3	**Historical**	**Heading (no data)**						No change
3.1.3.1	**Original authorisation**	**Heading (no data)**	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Update of applicability
3.1.3.1.1	Date of the original authorisation	[date] DD-MM-YYYY	Y	Y	Y	Y		Update of parameter name
3.1.3.1.2	**Authorisation holder**	**Heading (no data)** ~~[character string] (max 256 characters) Selection from a predefined list, possibility to add new organisations~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Update of data format
3.1.3.1.2.1	**Authorisation holder identification data**	**Heading (no data)**						New
3.1.3.1.2.1.1	Name of organisation	[character string] (max 256 characters) Selection from a predefined list, possibility to add new organisations	Y	Y	Y	Y		New
3.1.3.1.2.1.2	Registered business number	Text	Y	Y	Y	Y		New
3.1.3.1.2.1.3	Organisation code	Alphanumeric code	O	O	O	O		New
3.1.3.1.2.2	**Authorisation holder contact data**	**Heading (no data)**						New
3.1.3.1.2.2.1	Address of organisation, street and number	Text	Y	Y	Y	Y		New
3.1.3.1.2.2.2	Town	Text	Y	Y	Y	Y		New
3.1.3.1.2.2.3	Country code	Code as in EC interistitutional Style Guide	Y	Y	Y	Y		New
3.1.3.1.2.2.4	Post code	Alphanumeric code	Y	Y	Y	Y		New
3.1.3.1.2.2.5	E-mail address	E-mail	Y	Y	Y	Y		New
3.1.3.1.3	Authorisation document reference	[character string] (EIN)	Y	Y	Y	Y		No change

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
3.1.3.1.4	~~National certificate references (if applicable)~~Certificate of verification : Reference of type examination or design examination type	[character string] (Possibility to indicate several certificates, e.g. certificate for rolling stock subsystem, certificate for CCS, etc.)	Y	Y	Y	Y		Update of parameter name and data format
3.1.3.1.7	Reference to the written declaration by the proposer referred to in Article 3(11) of Regulation (EU) 402/2013	[character string]	Y	Y	Y	Y		New
3.1.3.1.5	Parameters for which conformity to applicable national rules has been assessed	[character string] Selection from a predefined list (multiple selection possible) based on Commission Decision ~~2009/965/EC~~ 2015/2299/EU	Y	Y	Y	Y		Update of data format
3.1.3.1.6	Comments	[character string] (max 1 024 characters)	O	O	O	O		No change
3.1.3.1.7	Reference to the written declaration by the proposer referred to in Article 3(11) of Regulation (EU) 402/2013	[character string]	Y	Y	Y	Y		New
3.1.3.X	**Modification of authorisation**	**Heading (no data) (X is progressive from 2 onwards, as many times as modifications of the authorisation of type have been issued)**	**Y**	**Y**	**Y**	**Y**		No change
3.1.3.X.1	Type of modification	[character string] Text from a predefined list ~~(modification, suspension, reactivation, withdrawal)~~	Y	Y	Y	Y		Update of data format
3.1.3.X.2	Date	[date] DD-MM-YYYY	Y	Y	Y	Y		No change
3.1.3.X.3	Authorisation holder (if applicable)	[character string] (max 256 characters) Selection from a predefined list, possibility to add new organisations	Y	Y	Y	Y		No change
3.1.3.X.3.1	**Authorisation holder identification data**	**Heading (no data)**						New
3.1.3.X.3.1.1	Name of organisation	[character string] (max 256 characters) Selection from a predefined list, possibility to add new organisations	Y	Y	Y	Y		New
3.1.3.X.3.1.2	Registered business number	Text	Y	Y	Y	Y		New
3.1.3.X.3.1.3	Organisation code	Alphanumeric code	O	O	O	O		New
3.1.3.X.3.2	**Authorisation holder contact data**	**Heading (no data)**						New
3.1.3.X.3.2.1	Address of organisation, street and number	Text	Y	Y	Y	Y		New
3.1.3.X.3.2.2	Town	Text	Y	Y	Y	Y		New

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
3.1.3.X.3.2.3	Country code	Code as in EC interistitutional Style Guide	Y	Y	Y	Y		New
3.1.3.X.3.2.4	Post code	Alphanumeric code	Y	Y	Y	Y		New
3.1.3.X.3.2.5	E-mail address	E-mail	Y	Y	Y	Y		New
3.1.3.X.4	Authorisation modification document reference	[character string]	Y	Y	Y	Y		No change
3.1.3.X.5	~~National certificate references (if applicable)~~Certificate of verification: Reference of type examination or design examination type	[character string] (possibility to indicate several certificates, e.g. certificate for rolling stock subsystem, certificate for CCS, etc.)	Y	Y	Y	Y		Update of parameter name
3.1.3.X.6	Applicable national rules (if applicable)	[character string] Selection from a predefined list (multiple selection possible) based on Commission Decision ~~2009/965/EC~~ 2015/2299/EU	Y	Y	Y	Y		No change
3.1.3.X.7	Comments	[character string] (max 1 024 characters)	O	O	O	O		No change
3.1.3.X.8	Reference to the written declaration by the proposer referred to in Article 3(11) of Regulation (EU) 402/2013	[character string]	Y	Y	Y	Y		New
3.X	**Authorisation in**	**Heading (no data) (X is progressive incremented by one unit from 2 onwards each time an authorisation for this type has been granted ~~(including the suspended and withdrawn ones)~~. This Section contains same fields as 3.1**	**Y**	**Y**	**Y**	**Y**		Update of data format
4	**Technical characteristics of the vehicle**	**Heading (no data)**						No change
4.1	**General technical characteristics**	**Heading (no data)**						No change
4.1.1	Number of driving cabs	[Number] 0/1/2	Y	Y	Y	Y	N	No change
4.1.2	**Speed**	**Heading (no data)**						No change
4.1.2.1	Maximum design speed	[Number] km/h	Y	Y	Y	Y	N	No change
~~4.1.2.2~~	~~Maximum speed when empty~~	~~[Number] km/h~~	~~N~~	~~N~~	~~Y~~	~~N~~		Deleted
4.1.3	Wheel set gauge	[character string] Selection from predefined list	Y	Y	Y	Y	Y	No change
4.1.11	Changeover facility	[character string] Selection from predefined list	Y	Y	Y	Y	Y	New
~~4.1.4~~	~~Conditions of use regarding train formation~~	~~[character string] Selection from a predefined list~~	~~Y~~	~~Y~~	~~N~~	~~Y~~		Deleted
4.1.5	Maximum number of trainsets or locomotives coupled together in multiple operation.	[number]	Y	N	N	N	N	No change

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
~~4.1.6~~	~~Number of elements in the rake of freight wagons (only for subcategory 'rake of freight wagons')~~	~~[number]~~	~~N~~	~~N~~	~~Y~~	~~N~~		Deleted
~~4.1.7~~	~~Letter marking~~	~~[character string] Selection from a predefined list (according to Annex P of OPE TSI)~~	~~N~~	~~N~~	~~Y~~	~~N~~		Deleted
~~4.1.8~~	~~Type meets the requirements necessary for validity of the vehicle authorisation granted by one Member State in other Member States~~	~~[character string] Selection from a predefined list~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.1.9~~	~~Dangerous goods for which the vehicle is suitable (tank code)~~	~~[character string] Tank code~~	~~N~~	~~N~~	~~Y~~	~~N~~		Deleted
~~4.1.10~~	~~Structural category~~	~~[character string] Selection from a predefined list~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
4.2	**Vehicle ~~kinematic~~ gauge**	**Heading (no data)**						Update of parameter name
4.2.1	~~Vehicle kinematic gauge (interoperable gauge)~~ Reference profile	[character string] Selection from predefined list (more than one possible) (the list will be different for different categories depending on the applicable TSI)	Y	Y	Y	Y	Y	Update of parameter name
~~4.2.2~~	~~Vehicle kinematic gauge (other gauges assessed using the kinematic method)~~	~~[character string] Selection from predefined list (more than one possible)~~	~~O~~	~~O~~	~~O~~	~~O~~		Deleted
4.3	**Environmental conditions**	**Heading (no data)**						No change
4.3.1	Temperature range	[character string] Selection from a predefined list (more than one possible)	Y	Y	Y	Y	N	No change
~~4.3.2~~	~~Altitude range~~	~~[character string] Selection from a predefined list~~	~~Y~~	~~Y~~	~~N~~	~~Y~~		Deleted
4.3.3	Snow, ice and hail conditions	[character string] Selection from a predefined list	Y	Y	N	Y	N	No change
~~4.3.4~~	~~Ballast pick up (for v ≥ 190 km/h vehicles only)~~	~~Open point~~	~~OP~~	~~OP~~	~~N~~	~~N~~		Deleted
4.4	**Fire safety**	**Heading (no data)**						No change
4.4.1	Fire safety category	[character string] Selection from a predefined list	Y	Y	N	Y	Y	No change
4.5	**Design mass and loads**	**Heading (no data)**						No change
4.5.1	Permissible payload for different line categories	[number] t for line category [character string]	OP	OP	Y	OP	Y	No change
4.5.2	**Design mass**	**Heading (no data)**						No change

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
4.5.2.1	Design mass in working order	[number] kg	Y	Y	O	Y	Y	No change
4.5.2.2	Design mass under normal payload	[number] kg	Y	Y	O	Y	Y	No change
4.5.2.3	Design mass under exceptional payload	[number] kg	Y	Y	N	Y	Y	No change
4.5.3	**Static axle load**	**Heading (no data)**						No change
4.5.3.1	Static axle load in working order	[number] kg	Y	Y	O	Y	Y	No change
4.5.3.2	Static axle load under normal payload~~/maximum payload for freight wagons~~	[number] kg	Y	Y	Y~~O~~	Y	Y	Update of parameter name and applicability
4.5.3.3	Static axle load under exceptional payload	[number] kg	Y	Y	N	Y	Y	No change
4.5.3.4	Position of the axles along the unit (axle spacing) : a: Distance between axles b: Distance from end axle to the end of the nearest coupling plane c: distance between two inside axles	a [number] m b [number] m c [number] m	Y	Y	Y	Y	Y	New
~~4.5.4~~	~~Quasi-static guiding force (if exceeds the limit defined in TSI or not defined in the TSI)~~	~~[number] kN~~	~~Y~~	~~Y~~	~~N~~	~~Y~~		Deleted
4.6	**Rolling stock dynamic behaviour**	**Heading (no data)**						No change
~~4.6.1~~	~~Cant deficiency (maximum uncompensated lateral acceleration) for which the vehicle has been assessed~~	~~[number] mm For dual gauge vehicles, values for each gauge shall be indicated~~	~~Y~~	~~Y~~	~~O~~	~~Y~~		Deleted
~~4.6.2~~	~~Vehicle equipped with a cant deficiency compensation system (tilting vehicle)~~	~~[Boolean] Y/N~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.6.3~~	~~In service limits of equivalent conicity (or worn wheel profile) for which the vehicle has been tested~~	~~Open point~~	~~OP~~	~~OP~~	~~OP~~	~~OP~~		Deleted
4.6.4	Combination of maximum speed and maximum cant deficiency for which the vehicle was assessed	[number] km/h - [number] mm	Y	Y	Y	Y	Y	New
4.6.5	Rail inclination.	[character string] from a predefined list	Y	Y	Y	Y	Y	New
4.7	**Braking**	**Heading (no data)**						No change
4.7.1	Maximum ~~train~~ average deceleration	[number] m/s2	Y	N	N	Y	N	Update of parameter name
4.7.2	**~~Service braking~~ Thermal capacity**	**Heading (no data)**						Update of parameter name
4.7.2.1	**Brake performance on steep gradients with normal payload**	**Heading (no data)**						No change
4.7.2.1.1	Reference case of TSI	[character string] from a predefined list	Y	Y	Y	Y	N	No change
4.7.2.1.2	Speed (if no reference case is indicated)	[number] km/h	Y	Y	Y	Y	N	No change
4.7.2.1.3	Gradient (if no reference case is indicated)	[number] ‰ (mm/m)	Y	Y	Y	Y	N	No change
4.7.2.1.4	Distance (if no reference case is indicated)	[number] km	Y	Y	Y	Y	N	No change

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
4.7.2.1.5	Time (if distance is not indicated) (if no reference case is indicated)	[number] min	Y	Y	Y	Y	N	No change
4.7.3	**Parking brake**	**Heading (no data)**						No change
~~4.7.3.1~~	~~All vehicles of this type must be equipped with a parking brake (parking brake mandatory for vehicles of this type)~~	~~[Boolean] Y/N~~	~~N~~	~~N~~	~~Y~~	~~Y~~		Deleted
~~4.7.3.2~~	~~Parking brake type (if the vehicle is fitted with it)~~	~~[character string] from a predefined list~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
4.7.3.3	Maximum gradient on which the unit is kept immobilised by the parking brake alone (if the vehicle is fitted with it)	[number] ‰ (mm/m)	Y	Y	Y	Y	N	No change
4.7.3.4	Parking brake	[Boolean] Y/N	N	N	Y	N	N	New
4.7.4	**Braking systems fitted on the vehicle**	**Heading (no data)**						No change
4.7.4.1	**Eddy current brake**	**Heading (no data)**						No change
4.7.4.1.1	Eddy current track brake fitted	[Boolean] Y/N	Y	Y	N	Y	Y	Update of parameter name
4.7.4.1.2	Possibility of preventing the use of the eddy current track brake (only if fitted with eddy current track brake)	[Boolean] Y/N	Y	Y	N	Y	Y	Update of parameter name
4.7.4.2	**Magnetic brake**	**Heading (no data)**						No change
4.7.4.2.1	Magnetic track brake fitted	[Boolean] Y/N	Y	Y	N	Y	Y	Update of parameter name
4.7.4.2.2	Possibility of preventing the use of the magnetic track brake (only if fitted with magnetic brake)	[Boolean] Y/N	Y	Y	N	Y	Y	Update of parameter name
4.7.4.3	**Regenerative brake (only for vehicles with electrical traction)**	**Heading (no data)**						No change
4.7.4.3.1	Regenerative brake fitted	[Boolean] Y/N	Y	N	N	Y	Y	No change
~~4.7.4.3.2~~	~~Possibility of preventing the use of the regenerative brake (only if fitted with regenerative brake)~~	~~[Boolean] Y/N~~	~~Y~~	~~N~~	~~N~~	~~Y~~		Deleted
4.7.5	Emergency brake : Stopping distance and deceleration profile for each load condition per design maximum speed	[number] m [number] m/s2	Y	Y	N	Y	N	New
4.7.6	For general operation : Brake weight percentage (lambda) or Braked mass	Lambda (%) [number] tonnes	Y	Y	Y	Y	N	New
4.7.7	Service brake: At maximum service brake: Stopping distance, Maximum deceleration, for the load condition 'design mass under normal payload' at the design maximum speed.	[number] m [number] m/s2	Y	Y	Y	Y	N	New
4.7.8	~~Fitted with WSP~~ Wheel slide protection system	[Boolean] Y/N	Y	Y	Y	Y	N	New
4.8	**Geometrical characteristics**	**Heading (no data)**						No change
4.8.1	Vehicle length	[number] m	Y	Y	Y	Y	N	No change
4.8.2	Minimum in-service wheel diameter	[number] mm	Y	Y	Y	Y	Y	No change
~~4.8.3~~	~~Shunting restrictions~~	~~[Boolean] Y/N~~	~~N~~	~~N~~	~~Y~~	~~N~~		Deleted
4.8.4	Minimum horizontal curve radius capability	[number] m	Y	Y	N~~Y~~	Y	Y	Update of applicability

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
~~4.8.5~~	~~Minimum vertical convex curve radius capability~~	~~[number] m~~	~~O~~	~~O~~	~~O~~	~~O~~		Deleted
~~4.8.6~~	~~Minimum vertical concave curve radius capability~~	~~[number] m~~	~~O~~	~~O~~	~~O~~	~~O~~		Deleted
~~4.8.7~~	~~Height of loading platform (for flat wagons and combined transport)~~	~~[number] mm~~	~~N~~	~~N~~	~~Y~~	~~N~~		Deleted
~~4.8.8~~	~~Suitability for transport on ferries~~	~~[Boolean] Y/N~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
4.9	**Equipment**	**Heading (no data)**						No change
4.9.1	Type of end coupling	[Character string] From a predefined list (multiple selection possible)	Y	Y	Y	Y	N	Update of parameter name
~~4.9.2~~	~~Axle bearing condition monitoring (hot axles box detection)~~	~~[Character string] From a predefined list (multiple selection possible)~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.9.3~~	~~Flange lubrication~~	~~Heading (no data)~~						Deleted
~~4.9.3.1~~	~~Flange lubrication fitted~~	~~[Boolean] Y/N~~	~~Y~~	~~Y~~	~~N~~	~~Y~~		Deleted
~~4.9.3.2~~	~~Possibility of preventing the use of the lubrication device (only if fitted with flange lubrication)~~	~~[Boolean] Y/N~~	~~Y~~	~~N~~	~~N~~	~~Y~~		Deleted
4.9.4	On-board detection system	[Boolean] Y/N	Y	Y	Y	Y	Y	New
4.10	**Energy supply**	**Heading (no data)**						No change
4.10.1	Energy supply system (voltage and frequency)	[Character string] From a predefined list (multiple selection possible)	Y	Y	N	Y	Y	Update of the parameter name
~~4.10.2~~	~~Maximum power (to be indicated for each energy supply system the vehicle is equipped for)~~	~~[Number] kW for [energy supply system automatically prefilled in]~~	~~O~~	~~O~~	~~N~~	~~O~~		Deleted
~~4.10.3~~	~~Maximum rated current from the catenary (to be indicated for each electrical energy supply system the vehicle is equipped for)~~	~~[Number] A for [Voltage automatically prefilled in]~~	~~Y~~	~~Y~~	~~N~~	~~Y~~		Deleted
4.10.4	Maximum current at standstill per pantograph (to be indicated for each DC systems the vehicle is equipped for)	[Number] A for [Voltage automatically prefilled in]	Y	Y	N	Y	N	No change
4.10.5	Height of interaction of pantograph with contact wires (over top of rail) (to be indicated for each energy supply system the vehicle is equipped for)	[Number] From [m] to [m] (with two decimals)	Y	Y	N	Y	Y	No change
4.10.6	Pantograph head geometry (to be indicated for each energy supply system the vehicle is equipped for)	[Character string] for [energy supply system automatically prefilled in] From a predefined list (multiple selection possible)	Y	Y	N	Y	Y	Update of parameter name
4.10.7	Number of pantographs in contact with the overhead contact line (OCL) (to be indicated for each energy supply system the vehicle is equipped for)	[Number]	Y	Y	N	Y	Y	No change

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
4.10.8	Shortest distance between two pantographs in contact with the OCL (to be indicated for each energy supply system the vehicle is equipped for; to be indicated for single and, if applicable, multiple operation) (only if number of raised pantographs is more than 1)	[Number] [m]	Y	Y	N	Y	Y	No change
~~4.10.9~~	~~Type of OCL used for the test of current collection performance (to be indicated for each energy supply system the vehicle is equipped for) (only if number of raised pantographs is more than 1)~~	~~[Character string] for [energy supply system automatically prefilled in]~~ ~~From a predefined list (multiple selection possible)~~	~~Y~~	~~N~~	~~N~~	~~Y~~		Deleted
4.10.10	Material of pantograph contact strip the vehicle may be equipped with (to be indicated for each energy supply system the vehicle is equipped for)	[Character string] for [energy supply system automatically prefilled in] From a predefined list (multiple selection possible)	Y	Y	N	Y	Y	No change
~~4.10.11~~	~~Automatic dropping device (ADD) fitted (to be indicated for each energy supply system the vehicle is equipped for)~~	~~[Boolean] Y/N~~	~~Y~~	~~Y~~	~~N~~	~~Y~~		Deleted
~~4.10.12~~	~~TSI conform energy meter for billing purposes installed on board~~	~~[Boolean] Y/N~~	~~Y~~	~~Y~~	~~N~~	~~Y~~		Deleted
4.10.14	Electric units equipped with power or current limitation function (Y/N)	[Boolean] Y/N	Y	N	N	Y	Y	New
~~**4.11**~~	~~**Noise related characteristics**~~	~~**Heading (no data)**~~						Deleted
~~4.11.1~~	~~Pass-by noise level (dB(A))~~	~~[Number] (dB(A))~~	~~O~~	~~O~~	~~O~~	~~O~~		Deleted
~~4.11.2~~	~~Pass-by noise level was measured under reference conditions~~	~~[Boolean] Y/N~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.11.3~~	~~Stationary noise level (dB(A))~~	~~[Number] (dB(A))~~	~~O~~	~~O~~	~~O~~	~~O~~		Deleted
~~4.11.4~~	~~Starting noise level (dB(A))~~	~~[Number] (dB(A))~~	~~O~~	~~N~~	~~N~~	~~O~~		Deleted
4.12	**Passenger related characteristics**	**Heading (no data)**						No change
~~**4.12.1**~~	~~**General passenger related characteristics**~~	~~**Heading (no data)**~~						Deleted
~~4.12.1.1~~	~~Number of fixed seats~~	~~From [Number] to [Number]~~	~~O~~	~~O~~	~~N~~	~~N~~		Deleted
~~4.12.1.2~~	~~Number of toilets~~	~~[Number]~~	~~O~~	~~O~~	~~N~~	~~N~~		Deleted
~~4.12.1.3~~	~~Number of sleeping places~~	~~From [Number] to [Number]~~	~~O~~	~~O~~	~~N~~	~~N~~		Deleted
~~4.12.2~~	~~PRM related characteristics~~	~~Heading (no data)~~						Deleted
~~4.12.2.1~~	~~Number of priority seats~~	~~From [Number] to [Number]~~	~~Y~~	~~Y~~	~~N~~	~~N~~		Deleted
~~4.12.2.2~~	~~Number of wheelchair spaces~~	~~From [Number] to [Number]~~	~~Y~~	~~Y~~	~~N~~	~~N~~		Deleted
~~4.12.2.3~~	~~Number of PRM accessible toilets~~	~~[Number]~~	~~Y~~	~~Y~~	~~N~~	~~N~~		Deleted
~~4.12.2.4~~	~~Number of wheelchair accessible sleeping places~~	~~From [Number] to [Number]~~	~~Y~~	~~Y~~	~~N~~	~~N~~		Deleted
~~**4.12.3**~~	~~**Passenger access and egress**~~	~~**Heading (no data)**~~						Deleted
4.12.3.1	Platform heights for which the vehicle is designed.	[Number] from predefined list (multiple selection possible)	Y	Y	N	N	Y	No change

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
~~4.12.3.2~~	~~Description of any integrated boarding aids (if provided)~~	~~[Character string] Selection from a predefined list (multiple selection possible)~~	~~Y~~	~~Y~~	~~N~~	~~N~~		Deleted
~~4.12.3.3~~	~~Description of any portable boarding aids if considered in the design of the vehicle for meeting the PRM TSI requirements~~	~~[Character string] Selection from a predefined list (multiple selection possible)~~	~~Y~~	~~Y~~	~~N~~	~~N~~		Deleted
4.13	**On-board CCS equipment (for vehicles with a driving cab only)**	**Heading (no data)**						No change
4.13.1	**Signalling**	**Heading (no data)**						No change
4.13.1.1	ETCS equipment on-board and the set of specifications from CCS TSI Annex A	[Character string] From a predefined list	Y	N	N	Y	Y	Update of parameter name and applicability
~~4.13.1.2~~	~~ETCS baseline.version (x.y). If the version is not fully compatible it shall be indicated in brackets~~	~~[Character string] From a predefined list~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.13.1.3~~	~~ETCS on-board equipment for reception of infill function information via loop or GSM-R~~	~~[Character string] From a predefined list (more than one option possible)~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.13.1.4~~	~~ETCS national applications implemented (NID_XUSER of Packet 44)~~	~~[Number] From a predefined list according to the List of ETCS Variables (more than one option possible)~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
4.13.1.5	Class B or other train protection, control and warning systems installed (system and, if applicable, version)	[Character string] From a predefined list (more than one option possible)	Y	N	N	Y	Y	Update of applicability
4.13.1.6	Special conditions implemented on-board to switch over between different train protection, control and warning systems.	[Character string] From combination of systems installed on board ('System XX'/'System YY') (more than one option possible)	Y	~~Y~~N	~~Y~~N	Y		Update of applicability
4.13.7	ETCS on-board implementation	[Character string]	Y	N	N	Y	Y	New
4.13.8	ETCS System Compatibility	[Character string] From a predefined list (more than one option possible)	Y	N	N	Y	Y	New
4.13.2	**Radio**	**Heading (no data)**						No change
4.13.2.1	GSM-R Radio voice on board and its Baseline	[Character string] From a predefined list	Y	~~Y~~N	~~Y~~N	Y	Y	Update of parameter name and applicability
~~4.13.2.2~~	~~Number of GSM-R mobile sets in driving cab for data transmission~~	~~[Number]: 0, 1, 2 or 3~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
4.13.2.3	Class B or other radio systems installed (system and, if applicable, version)	[Character string] From a predefined list (more than one option possible)	Y	~~Y~~N	~~Y~~N	Y	Y	Update of applicability

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
4.13.2.4	Special conditions implemented on-board to switch over between different radio systems.	[Character string] From combination of systems installed on board ('System XX'/'System YY') (more than one option possible)	Y	~~Y~~N	~~Y~~N	Y		Update of applicability
4.13.2.5	Radio Voice System Compatibility	[Character string] From a predefined list (more than one option possible)	Y	N	N	Y	Y	New
4.13.2.6	Voice and operational communication implementation	[Character string]	Y	N	N	Y	Y	New
4.13.3.1	GSM-R Radio Data communication on board and its Baseline	[Character string] From a predefined list	Y	N	N	Y	Y	New
4.13.3.2	Radio Data System Compatibility	[Character string] From a predefined list (more than one option possible)	Y	N	N	Y	Y	New
4.13.3.3	Data communication application for ETCS implementation	[Character string]	Y	N	N	Y	Y	New
4.14	**Compatibility with train detection systems**	**Heading (no data)**						No change
4.14.1	Type of train detection systems for which the vehicle has been designed and assessed	[Character string] From a predefined list (more than one option possible)	Y	Y	Y	Y	Y	No change
~~4.14.2~~	~~Detailed vehicle characteristics related to compatibility with train detection systems~~	~~Heading (no data)~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.1~~	~~Maximum distance between consecutive axles~~	~~[Number] mm~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.2~~	~~Minimum distance between consecutive axles~~	~~[Number] mm~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.3~~	~~Distance between the first and the last axle~~	~~[Number] mm~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.4~~	~~Maximum length of the vehicle nose~~	~~[Number] mm~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.5~~	~~Minimum wheel rim width~~	~~[Number] mm~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.6~~	~~Minimum wheel diameter~~	~~[Number] mm~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.7~~	~~Minimum flange thickness~~	~~[Number] mm~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.8~~	~~Minimum flange height~~	~~[Number] mm~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.9~~	~~Maximum flange height~~	~~[Number] mm~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.10~~	~~Minimum axle load~~	~~[Number] t~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.11~~	~~Metal and inductive components free space between wheels~~	~~Open point~~	~~OP~~	~~OP~~	~~OP~~	~~OP~~		Deleted
~~4.14.2.12~~	~~Wheel material is ferromagnetic~~	~~[Boolean] Y/N~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.13~~	~~Maximum sanding output~~	~~[Number] g per [Number] s~~	~~Y~~	~~N~~	~~N~~	~~Y~~		Deleted
~~4.14.2.14~~	~~Possibility of preventing the use of sanding~~	~~Y/N~~	~~Y~~	~~N~~	~~N~~	~~Y~~		Deleted
~~4.14.2.15~~	~~Vehicle metal mass~~	~~Open point~~	~~OP~~	~~OP~~	~~OP~~	~~OP~~		Deleted
~~4.14.2.16~~	~~Maximum impedance between opposite wheels of a wheelset~~	~~[Number] Ω~~	~~Y~~	~~Y~~	~~Y~~	~~Y~~		Deleted
~~4.14.2.17~~	~~Minimum vehicle impedance (between wheels and pantograph) (only for vehicles equipped for 1 500 V or 3 000 V DC)~~	~~[Number] Ω for [Number] Hz (more than one line is possible)~~	~~Y~~	~~N~~	~~N~~	~~Y~~		Deleted
~~4.14.2.18~~	~~Electromagnetic interferences caused by return current in the rails~~	~~Open point~~	~~OP~~	~~OP~~	~~OP~~	~~OP~~		Deleted

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of	Parameter status
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
~~4.14.2.19~~	~~Electromagnetic emission of the train with respect to compatibility with train detection systems~~	~~Open point~~	~~OP~~	~~OP~~	~~OP~~	~~OP~~		Deleted