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Zwischenstaatliche Organisation für den internationalen Eisenbahnverkehr
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Proposal for the adoption of the Uniform Technical Prescription applicable to "train composition and route compatibility checks"

(UTP TCRC)

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1. INTRODUCTION

In accordance with Article 20 § 1 b) of COTIF and Article 6 of the APTU Uniform Rules (Appendix F to COTIF), the Committee of Technical Experts is competent to take decisions about the adoption of a Uniform Technical Prescription (UTP) or a provision amending a UTP.

The proposal concerns the adoption of the Uniform Technical Prescription applicable to "train composition and route compatibility checks" (UTP TCRC).

The proposal has been developed on the basis of COTIF as last amended on 1 March 2019, in particular Article 8 of the APTU Uniform Rules (Appendix F to COTIF).

2. CONTEXT AND SUBSTANCE OF THE PROPOSAL

The proposed UTP TCRC is different from most other UTPs, as it is not based on one single European Union Technical Specification for Interoperability (TSI). Instead, it combines a select number of parameters from two different EU legal texts, namely the Technical Specifications for Interoperability concerning operation and traffic management (OPE TSI[1]) and the specifications for the register of infrastructure (RINF[2]).

The parameters in the proposed UTP TCRC are necessary for the harmonised implementation and correct application of the ATMF provisions, in particular Article 6 § 2 and Article 15a, which lay down responsibilities for railway undertakings when using vehicles in international traffic.

The proposed UTP TCRC covers two different subjects:

- Train composition, which is the process in which, based on the technical file of each vehicle, the railway undertaking prepares the train for operation and ensures that all vehicles in the train and the train as a whole meet the essential requirements, and
- Route compatibility checks, in which, based on route information provided by the infrastructure manager, the railway undertaking ascertains that the train is compatible with the route on which it intends to run the train.

Although the main substance in the proposed UTP TCRC is taken over from the OPE TSI, not all matters dealt with by the OPE TSI have been taken over, as some matters are not relevant in the scope of the ATMF Uniform Rules (Appendix G to COTIF). For example, the proposed UTP TCRC does not deal with the actual operation of trains or safety certification and licencing of railway undertakings and infrastructure managers, as these subjects do not fall within the scope of the APTU or ATMF Uniform Rules and therefore remain subject to the law applicable in each Contracting State.

3. PREPARATORY WORK

The proposal has been prepared by the OTIF Secretariat in coordination with WG TECH. The first draft version was prepared for review by WG TECH at its 40th session (remote meeting, 17-18 June 2020). Revised drafts were subsequently reviewed at the 41st session of WG TECH (remote meeting, 9-10 September 2020) and at the 42nd session of WG TECH (remote meeting, 17-18 November 2020).

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1 Commission Implementing Regulation (EU) No 2019/773 of 16 May 2019:

- 4.2.2.5 Route compatibility and train composition
- 4.2.2.6 Train braking
- 4.2.2.7 Ensuring that the train is in running order

2 Table 1 of the Annex to Commission Implementing Regulation (EU) 2019/777 of 16 May 2019

4. JUSTIFICATION FOR DRAFTING A NEW UTP

The development of rules concerning train composition and route compatibility checks has some history in OTIF.

The 5th session of the Committee of Technical Experts held in 2012 concluded that it was necessary to develop OTIF regulations in the domain of safety management. On its initiative, the 17th session of the standing working group technology (WG TECH) established the ad-hoc subgroup for safety, which convened for three sessions in 2012-2013. The aim of the subgroup was to analyse the requirements and possibilities in terms of developing certain safety management principles in OTIF's regulations. The ad-hoc subgroup for safety wrote in its conclusions:

> *The functionality and compatibility of the interfaces between wagons, such as the coupling system and the brake system, are not mandatorily harmonised in the draft revised UTP/TSI WAG. The UTP/TSI fully covers the safety of these interfaces, in the sense that it is possible to operate the wagon safely when using it in accordance with the conditions and limits of use as defined in the technical file. This does not mean that every wagon can be operated in combination with every other wagon. During train composition and loading, the conditions and limits of use of each individual vehicle must be clear and must be respected and the requirements applicable to the train must be complied with.*

The ad-hoc subgroup for safety recommended:

- As a first step, to revise the UTP WAG, including provisions relating to train composition and the use of wagons.
- Secondly, to consider any necessary amendments to ATMF and its explanatory notes.
- Thirdly, to consider the development of a UTP OPE.

The Committee of Technical Experts endorsed the conclusions and recommendations of the ad-hoc subgroup for safety. The implementation of the recommendations resulted in the actions as follows:

Firstly, Appendix I to the UTP WAG, which entered into force on 1 January 2014, set out provisions relating to train composition and the use of wagons. Subsequently, the UTP LOC&PAS, which entered into force on 1 January 2015, also contained similar provisions in its Appendix K. Both Appendices to the UTPs were based on the OPE TSI (Commission Decision 2012/757/EC of 14 November 2012).

Secondly, ATMF was revised, most notably by adding Article 15a Train composition and operation. The revised version entered into force on 1 July 2015.

Subsequently, APTU was also revised, and entered into force on 1 March 2019, adding in Article 8 § 4 the requirement that UTPs should:

> *"indicate the parameters of the vehicles and fixed subsystems to be checked by the railway undertaking and the procedures to be applied to check those parameters to ensure compatibility between vehicles and the routes on which they are to be operated."*

In effect therefore, the proposed UTP TCRC implements the third and final recommendation of the ad-hoc subgroup for safety.

In addition to the above, at its 11th session (Bern, 12 and 13 June 2018), CTE requested the WG TECH, in close partnership with ERA, to develop the parameters of the vehicles and infrastructure to be checked by railway undertakings and the procedures to be applied to check these parameters to ensure compatibility between vehicles and the routes on which they are to be operated. In terms of the process, these compatibility parameters should first be developed within the EU and, as a second step, they should be checked by non-EU states to decide whether additional parameters are necessary in order to take into account specific situations on their networks.

Lastly, the UTP WAG and the UTP LOC&PAS contain references to route compatibility checks, in which railway undertakings check all relevant parameters of vehicles or trains to ensure their compatibility with the route on which they will be used. The provisions of the proposed UTP TCRC are intended to replace both Appendix I to the UTP WAG and Appendix K to the UTP LOC&PAS.

Consequently, Appendix I to the UTP WAG in the version adopted by the Committee of Technical Experts on 30 September 2020, with a date of entry into force of 1 April 2021, and Appendix K to the UTP LOC&PAS of 1 January 2015[3] should be repealed upon entry into force of the UTP TCRC.

PROPOSAL FOR DECISION

In accordance with Article 20 § 1 b) and Article 35 of COTIF and Article 6 of the APTU Uniform Rules, the Committee of Technical Experts:

1. Adopts the Uniform Technical Prescription concerning train composition and route compatibility checks (UTP TCRC), as set out in the Annex (reference: TECH-20039 Annex).
2. Repeals Appendix I to the UTP WAG of 1 April 2021 with effect from the date of entry into force of the UTP TCRC.
3. Repeals Appendix K to the UTP LOC&PAS of 1 January 2015 with effect from the date of entry into force of the UTP TCRC.
4. Instructs the Secretary General to publish the UTP TCRC and the amended UTP WAG and UTP LOC&PAS on the Organisation's website.

[3] The UTP WAG and UTP LOC&PAS are also subject to other, concurrent proposals for modification by the Committee of Technical Experts. However, the deletion of Appendix I to the UTP WAG and Appendix K to the UTP LOC&PAS is conditional on the entry into force of the new UTP TCRC. Therefore, the deletion of these Appendices is dealt with separately from the other modifications.

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Uniform Technical Prescription

Subsystem: Operation and traffic management

TRAIN COMPOSITION AND ROUTE COMPATIBILITY CHECKS

UTP TCRC

Applicable from Click here to enter a date.

APTU Uniform Rules (Appendix F to COTIF 1999)

Uniform Technical Prescription applicable to: "TRAIN COMPOSITION AND ROUTE COMPATIBILITY CHECKS"

(UTP TCRC)

This UTP has been developed in accordance with COTIF in the version of 1 March 2019 and in particular with Articles 3, 4, 6, 7, 7a and 8 of the APTU Uniform Rules (Appendix F to COTIF).

For definitions, see also Article 2 of the APTU Uniform Rules and Article 2 of the ATMF Uniform Rules (Appendix G to COTIF).

Explanatory note:

The texts of this UTP which appear across two columns are identical in substance to corresponding texts of the European Union regulations. Texts which appear in two columns differ; the left-hand column contains the UTP text, the right-hand column shows the text in the corresponding EU regulations. The text in the right-hand column is for information only and is not part of the OTIF regulations.

0. EQUIVALENCE

(1) Owing to the complexity of interfaces between trains and the routes on which trains are intended to run, it is necessary that:

- Trains are composed and checked before departure according to common rules and
- The interfaces between trains, including all vehicles in the trains, and the routes on which the trains are intended to run, are checked according to common rules and
- That procedures and responsibilities for performing these tasks are harmonised.

(2) As required by Article 8 § 4 letter i) of APTU, this UTP indicates the parameters of the vehicles and fixed subsystems to be checked by the railway undertaking and the procedures to be applied to check those parameters to ensure compatibility between vehicles and the routes on which they are to be operated.

As this UTP is based on multiple texts from European Union law and as there is not just a single corresponding TSI, this UTP does not follow the standard structure for UTPs as referred to in APTU Article 8 § 4.

(3) Following their adoption by the Committee of Technical Experts, the provisions in this UTP are equivalent to the corresponding European Union regulations within the meaning of Article 13 § 4 letter b) of APTU.

The relevant parameters listed in this document are equivalent to the following provisions at European Union level:

a) Chapters 1 to 4 are equivalent to the following provisions of the European Union OPE TSI (Commission Implementing Regulation (EU) No 2019/773 of 16 May 2019):

- 4.2.2.5 Route compatibility and train composition;
- 4.2.2.6 Train braking;
- 4.2.2.7 Ensuring that the train is in running order.

b) The Annex to this UTP is equivalent to Appendix D1 of OPE TSI (Commission Implementing Regulation (EU) No 2019/773 of 16 May 2019);

Table 1 of the Annex to the European Union common specifications for the register of railway infrastructure – RINF (Commission Implementing Regulation (EU) 2019/777 of 16 May 2019) was considered in preparing the Annex to this UTP.

(4) The objectives and scope of COTIF and the EU law concerning railways are not identical and it has therefore been necessary to use different terminology for concepts that have a similar, but not identical meaning. The following table lists the terms used in this UTP and the corresponding terms used in the relevant TSI:

This UTP	EU law
Uniform Technical Prescription (UTP)	Technical Specification for Interoperability (TSI)

(5) Footnotes provide explanations and are not part of the rules.

1. SCOPE AND PURPOSE

(1) For the purpose of the composition of trains for use in international traffic and for the purpose of checking compatibility between trains and the routes on which they are intended to be used, this UTP lays down detailed provisions concerning the responsibilities of railway undertakings and infrastructure managers as defined in Article 6 § 2 and Article 15a of ATMF.

(2) In particular, this UTP prescribes:

- The responsibilities of infrastructure managers to provide information and facilitate the procedures applied by railway undertakings;
- The procedures to be applied to check those parameters to ensure compatibility between vehicles and the routes on which they are to be operated;
- The responsibilities of railway undertakings for the composition and preparation of trains and pre-departure checks of trains intended to be operated in international transport;
- The parameters of the vehicles and fixed subsystems to be checked by the railway undertaking.

(3) For any other matters, including, but not limited to, the operation of trains, safety certification and licencing, railway undertakings and infrastructure managers are subject to the law applicable in each Contracting State.

2. ROUTE COMPATIBILITY

2.1. Obligations of the Railway Undertaking

(1) In accordance with Articles 6 § 2 and 15a of ATMF, it is the responsibility of the railway undertaking to ensure that trains are correctly prepared so that all vehicles of which the train is composed are only operated on compatible infrastructure.

To this end, a railway undertaking shall apply a process to check that all vehicles it uses are admitted to international traffic,

European Union OPE TSI point 4.2.2.5.1, Route Compatibility, letter A:

The railway undertaking is responsible for ensuring that all vehicles composing its train are compatible with the intended route(s).

The railway undertaking shall have a process in its SMS to ensure that all vehicles it uses are authorised,

registered and compatible with the intended route(s) including the requirements to be followed by its staff. The route compatibility process shall not duplicate

checks that have been performed as part of the vehicle admission process

processes performed as part of the vehicle authorisation under Commission Implementing Regulation (EU) 2018/545

to ensure technical compatibility between the vehicle and the network(s).

Parameters

set out in the Annex to this UTP which have already been verified and checked during vehicle admission according to ATMF or authorisation in accordance with EU law

of Appendix D 1 already verified and checked during vehicle authorisation

or other similar processes shall not be reassessed in the framework of route compatibility check.

(2) The relevant vehicle data related to the parameters listed in the Annex to this UTP shall be provided by the holder of the Certificate of Operation to the railway undertaking upon request, when such information is not already available to the railway undertaking through the

For vehicle authorised under Directive (EU) 2016/797, the relevant vehicle data related to the parameters listed in Appendix D1, already checked during the authorisation process, being part of:

– the file referred to in Article 21 (3) of Directive (EU) 2016/797, and

		– the vehicle authorisation as referred to in Article 21 (10) of Directive (EU) 2016/797, shall be provided by the applicant referred to in Article 2 (22) of Directive (EU) 2016/797 or the keeper to the railway undertaking upon request, when such information is not available in ERATV or other registers for rail vehicles. For vehicles authorised before Directive (EU) 2016/797, the relevant vehicle data related to the parameters listed in Appendix D1 shall be provided to the railway undertaking by the holder of the vehicle authorisation documentation or the keeper upon request, when such information is not available in ERATV or other registers for rail vehicles.
(3)	The process to be applied by the railway undertaking	The processes for route compatibility in the SMS of the railway undertaking

shall include the following checks, which may be performed in parallel at any appropriate time or in any appropriate sequence:

a) each vehicle is

admitted according to ATMF or authorised in accordance with EU law and registered in the vehicle register which is used by the state(s) concerned;	authorised and registered;

b) each vehicle in the train is compatible with the route;

c) the composition of the train is compatible with the route and the path;

d) the preparation of the train ensuring that the train is correctly formed and complete.

2.2. Obligations of the Infrastructure Manager

(1)		European Union OPE TSI point 4.2.2.5.1, Route Compatibility, letter B:
	The infrastructure manager shall provide the information for route compatibility as defined	
	in the Annex to this UTP.	in Appendix D1 through RINF.
(2)	The Annex sets out all the parameters where the infrastructure manager must provide relevant data or information to the railway undertaking before a vehicle or train configuration is first used on a particular route, so as to enable the railway undertaking to check that all vehicles comprising a train, and the train as a whole, are compatible with	Appendix D1 sets out all the parameters that shall be used in the process of the railway undertaking before the first use of a vehicle or train configuration in order to ensure all vehicles composing a train are compatible with the route(s) the train is planned to operate on including, where appropriate, deviation routes and routes to workshops. Modifications

	the route(s) on which the train is intended to be operated. In most cases the parameters in the Annex should be sufficient to support the assessment of route compatibility. Any additional technical checks should only be required in exceptional circumstances where the party requiring the checks provides reasonable justification.	of the route and changes of infrastructure characteristics have to be taken into account. When a parameter of Appendix D1 is harmonised at network(s) level of an area of use, conformity with that parameter may be presumed for any vehicle authorised for that area of use. National rules or additional national requirements for network access in respect of route compatibility are in principle considered incompatible with Appendix D1. The infrastructure manager shall not require additional technical checks for the purpose of route compatibility beyond the list laid down in Appendix D1.
(3)	The infrastructure manager shall provide railway undertakings with all the relevant route information listed in the Annex to this UTP free of charge, as soon as possible and in an electronic format. The information may be made available by providing access to an electronic register containing the information.	As required by Article 23 (1) (b) of Directive (EU) 2016/797, until RINF provides all necessary information in respect of the relevant parameters, the infrastructure manager shall provide this information through other means free of charge as soon as possible and in electronic format to railway undertakings, authorized applicants for path requests and, where applicable, for the applicant referred to in Article 2 (22) of Directive (EU) 2016/797. The first submission of route compatibility information by the infrastructure manager through other mean than RINF shall be delivered at the request of the railway undertaking as soon as reasonably possible and in any event within 15 days unless the infrastructure manager and the railway undertaking agree a longer deadline.

The infrastructure manager shall ensure that the information provided to the railway undertaking(s) is complete and accurate.

The infrastructure manager shall inform the railway undertaking of the changes on characteristics of the route

whenever such information becomes available. The information may be made available by providing access to an electronic register containing the information.	through RINF whenever such information becomes available or through other means until RINF allows for such functionality.

For emergency situations or real time information, the infrastructure manager shall ensure immediate information is given to the railway undertaking through appropriate means of communication.

2.3. Additional elements for route compatibility

	European Union OPE TSI point 4.2.2.5.1, Route Compatibility, letter C:

Additional elements for route compatibility shall be checked when relevant:

a) transport of dangerous goods;

as referred in point 4.2.3.4.3;

b) quieter route as referred in UTP Noise;

c) exceptional transport

i.e. a vehicle and/or the load carried which, because of construction/design, dimensions or weight does not meet the parameters of the route and requires special authority for the movement and may require special conditions over part of or all of its journey;

as referred in Appendix I;

d) access conditions to underground stations for diesel and other thermal traction systems as referred to in clause 4.2.8.3 of UTP LOC&PAS.

3. TRAIN COMPOSITION

European Union OPE TSI point 4.2.2.5.2, Train composition:

Train composition requirements shall take into account the following elements according to the allocated path:

a) all vehicles composing a train including their loads:

- shall be compatible with all the requirements applicable on the routes over which the train shall run;
- shall be fit to run at the maximum speed at which the train is scheduled to run;

b) all vehicles on the train shall remain within their specified maintenance interval for the duration (in terms of both time and distance) of the journey being undertaken;

c) the train composed of vehicles including their loads, shall comply with the technical and operational constraints of the route concerned and be within the maximum length permissible for forwarding and receiving terminals;

d) the railway undertaking is responsible for ensuring that all vehicles composing the train including their load are technically fit for the journey to be undertaken and remains so throughout the journey.

The railway undertaking may need to consider additional constraints due to the type of braking regime or traction type on a particular train.

(see point 4.2.2.6).

4. TRAIN BRAKING

4.1. Minimum requirements of the braking system

European Union OPE TSI point 4.2.2.6.1:

All vehicles in a train shall be connected to the continuous automatic braking system as defined in the UTP LOC&PAS and UTP WAG. The first and last vehicles (including any traction units)

in any train shall have the automatic brake operative. In the case of a train becoming accidentally divided into two parts, both sets of detached vehicles shall come automatically to a stand as a result of a maximum application of the brake.

4.2. Braking performance and maximum speed allowed

European Union OPE TSI point 4.2.2.6.2:

(1) The infrastructure manager shall provide the railway undertaking with all relevant line characteristics

for each route: | for each route through RINF:

a) Signalling distances (warning, stopping) containing their inherent safety margins,

b) gradients,

c) maximum permitted speeds, and

d) conditions of use of braking systems possibly affecting the infrastructure such as magnetic, regenerative and eddy-current brake.

The infrastructure manager shall provide this information free of charge and as soon as reasonably possible. | Until RINF provides the relevant parameters, the infrastructure manager shall provide this information through others means free of charge and as soon as reasonably possible and in any event within 15 days for the first submission unless the railway undertaking agrees a longer deadline.

The infrastructure manager shall inform the railway undertaking of the changes on the line characteristics

whenever such information becomes available. The information may be made available by providing access to an electronic register containing the information. | through RINF whenever such information becomes available or through other means until RINF allows for such functionality.

The infrastructure manager shall ensure that the information provided to the railway undertaking(s) is complete and accurate.

(2) The infrastructure manager may provide the following information:

a) For trains able to run at a maximum speed higher than 200 km/h, deceleration profile and equivalent response time on level track;

b) For trainsets or for fixed train compositions, unable to run at a maximum speed higher than 200 km/h, deceleration (as above in (i)) or brake weight percentage;

c) For other trains (variable compositions of trains unable to run at a maximum speed higher than 200 km/h): brake weight percentage.

If the infrastructure manager provides the above mentioned information, it shall be made available to all railway undertakings who intend to operate trains on its network in a non-discriminatory way.

Other relevant information, such as braking charts, shall also be made available.	The braking tables already in use and accepted for the existing non TSI conform lines at the date of entry into force of the present Regulation shall also be made available.

(3) The railway undertaking shall, in the planning stage, determine the braking capability of the train and corresponding maximum speed taking into account:

a) the relevant line characteristics as expressed in point (1) above and, if available, the information provided by the infrastructure manager in accordance to point (2) above; and

b) the rolling stock-related margins derived from reliability and availability of the braking system.

Furthermore, the railway undertaking shall ensure that during operation each train achieves at least the necessary braking performance.

Corresponding rules shall be set up in accordance with the provisions in force in the state concerned and shall be implemented by the railway undertaking. In particular, there shall be rules	The railway undertaking shall set up and implement corresponding rules and shall manage them within its safety management system. In particular the railway undertaking has to set up rules

to be used if a train does not reach the necessary braking performance during operation. In this case, the railway undertaking shall immediately inform the infrastructure manager. The infrastructure manager may take appropriate measures to reduce the impact on the overall traffic on its network.

5. ENSURING THAT THE TRAIN IS IN RUNNING ORDER

5.1. General requirement

	European Union OPE TSI point 4.2.2.7.1:
The railway undertaking shall	The railway undertaking shall define the process to

ensure that all safety-related on-train equipment is in a fully functional state and that the train is safe to run.

The railway undertaking shall inform the infrastructure manager of any modification to the characteristics of the train affecting its performance or any modification that might affect the ability to accommodate the train in its allocated path.

Procedures to be applied to trains running in degraded mode, including the conditions under which these trains shall be operated, shall be established and kept up-to-date.	The infrastructure manager and the railway undertaking shall define and keep up to date conditions and procedures for train running temporarily in degraded mode.

5.2. Pre-departure data

	European Union OPE TSI point 4.2.2.7.2:

The railway undertaking shall ensure that the following data required for safe and efficient operation is made available to the infrastructure manager(s) prior to the departure of the train:

a) the train identification

b) the identity of the railway undertaking responsible for the train

c) the actual length of the train

d) if a train carries passengers or animals when it is not scheduled to do so

e) any operational restrictions with an indication of the vehicle(s) concerned (gauge, speed restrictions, etc.)

f) information the infrastructure manager requires for the transport of dangerous goods.

The railway undertaking shall advise the infrastructure manager(s) if a train does not occupy its allocated path or is cancelled.

ANNEX: LIST OF PARAMETERS FOR VEHICLE AND TRAIN COMPATIBILITY OVER THE ROUTE INTENDED FOR OPERATION

Explanation:

- The following tables are based on table D1 in Appendix D to the European Union OPE TSI (Commission Implementing Regulation (EU) No 2019/773 of 16 May 2019).
- In table D1 in Appendix D to the OPE TSI there are references to European Union RINF (Commission Implementing Regulation (EU) 2019/777 of 16 May 2019 on the common specifications for the register of railway infrastructure and repealing Implementing Decision 2014/880/EU). There are no COTIF provisions comparable with RINF and therefore the references to RINF in table D1 in Appendix D to the OPE TSI could not be taken over as references to COTIF texts. The relevant texts from RINF have therefore been included in the following tables (between brackets and in italic in the second column).
- The texts under some of the tables are explanatory and are based on ERA´s Guide on the application of the common specifications of the RINF version 1.5 of 29 July 2019.

Guiding notes for application:

1. Following the requirements of *route compatibility*, the railway undertaking may cover route compatibility checks of certain parameters during earlier stages (i.e. during the procedure for the admission to international traffic, or during the vehicle authorisation in accordance with European Union law).

2. All parameters must be checked at vehicle level: this is indicated by an “X” in the column “Vehicle level”. Some parameters need to be checked when the train composition changes, as defined in the section on train composition; these parameters are indicated by an “X” under the column “Train level”.

3. With a view to avoiding duplication of testing, in relation to the parameters for “Traffic loads and load carrying capacity of infrastructure” and “Train detection systems”, the infrastructure managers shall provide the list of vehicle types or vehicles compatible with the route for which they have already verified route compatibility, where such information is available.

1. TRAFFIC LOADS AND LOAD CARRYING CAPACITY OF INFRASTRUCTURE

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Static axle loads and design and operational masses in the following load cases: - design mass as defined in UTP LOC&PAS o in working order; o under normal payload; o under exceptional payload; - Where relevant operational mass in accordance with EN 15663: 2017- A1 2018: o in working order; o under normal payload. Maximum design speed; Vehicle length; The position of the axles along the unit (axle spacing). Static compatibility check for Wagons: Permissible payload for different line categories according to UTP WAG.	Load capability *(A combination of the line category and speed at the weakest point of the track).*	**X**	**X**	The static compatibility checks for vehicles and, when necessary in accordance with the information provided by the infrastructure manager, the dynamic compatibility checks for trains shall be performed according to the procedure(s) or relevant information provided by the infrastructure manager. For freight wagons: The static compatibility check is performed according to the following sections of EN 15528:2015: 4 to 7, Annex A, Annex D or in accordance with applicable national technical requirements, provided these are notified in accordance with Article 12 of the APTU Uniform Rules.
	National classification for load capability	**X**	**X**	
	Compliance of structures with the High Speed Load Model (HSLM) *(For sections of line with a maximum permitted speed of 200 km/h or more.* *Information regarding the procedure to be used to perform the dynamic compatibility check.)*	**X**	**X**	
	Railway location of structures requiring specific checks *(Localisation of structures requiring specific checks)*	**X**	**X**	
	Document(s) with the procedure(s) for static and dynamic route compatibility checks *(Information from the* infrastructure manager *with:* - *precise procedures for the static and dynamic route compatibility checks;* *Or* - *relevant information for carrying out the checks for specific structures.)*	**X**	**X**	

General explanation for load capability:

The load capability describes the weakest point of this track within this section of line (which is normally a bridge or other sub-track structure). It is expressed as a combination of the line category and speed permitted for trains exerting loads defined for this line category.

The result of the classification process for freight wagons is set out in EN 15528:2008 (Annex A) and referred to in that standard as “Line Category”.

It represents the ability of the infrastructure to withstand the vertical loads imposed by vehicles on the track for regular service as a combination of Line Category with a permitted speed according to EN 15528:2008.

2. GAUGING

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Vehicle gauge: - Reference profiles for which the vehicle was authorised; - other gauges assessed.	Gauging *(Gauges as defined in standards, or specific national gauges, including lower or upper part)*	**X**	**X**	Comparison of the declared reference profiles between vehicle/train and the intended route. For the specific cases referred to in: - UTP LOC&PAS sections 7.3.2.1, 7.3.2.2 and 7.3.2.3. - European Union LOC&PAS TSI 1302/2014 section 7.3.2.2 and - European Union INF TSI 1299/2014 sections 7.7.17.2 and 7.7.17.9 and, if available, the equivalent UTP. And if national technical requirements apply, a specific procedure for route compatibility check can be applied. For such purpose, the infrastructure manager shall make available the relevant information. The infrastructure manager shall identify particular points which deviate from the declared reference profile in parameter: gauging. Note: Additional discussion between the infrastructure manager and railway undertaking might be required to check these specific points.
	Railway location of particular points requiring specific checks *(due to deviations from gauging referred to in previous (first) parameter)*	**X**	**X**	
	Document with the transversal section of the particular points requiring specific checks *(Information provided by the* infrastructure manager *with the transversal section of the particular points requiring specific checks due to deviations from gauging referred to in first parameter. Where relevant, guidance for the check with the particular point may be attached to the document with the transversal section)*	**X**	**X**	

General explanation for vehicle gauge:

This parameter covers gauges mentioned in EN or gauges included in national regulations. The list of national gauges should express information about the gauge as precisely as possible.

Gauges from BE1 to W6 are mentioned in EN; all others are according to national rules. For example, S is for 1520 track gauge system, FS for Italy, IRL 1-3 for Ireland, etc.

3. VERTICAL RADIUS AT SIDINGS

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Minimum vertical: - convex curve radius capability; - concave curve radius capability.	Minimum radius of vertical curve at siding. *(Radius of the smallest vertical curve expressed in metres)*	**X**		Comparison of the declared minimum radius of vertical curve between vehicle and the intended route.

4. TRAIN DETECTION SYSTEMS

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Type of train detection systems for which the vehicle has been designed and assessed	Type of train detection system *(Indication of types of train detection systems installed)*	**X**		Comparison of the declared type of train detection system(s) between vehicle and the intended route. Note: At vehicle admission, based on UTPs and national rules, the technical compatibility between the vehicle and all train detection system(s) of the network(s) in the area of use is verified. If required to ascertain detection (e.g. problems of non-detection of the vehicle occurring during operation), tests and/or checks could be carried out after vehicle admission, involving the railway undertaking and infrastructure manager.
	Type of track circuits or axle counters for which specific checks are needed. *(Indication of types of train detection systems for which specific checks are needed)*	**X**		
	Document with the procedure(s) related to the type of train detection systems declared in previous parameter. *(Information from the infrastructure manager with precise procedures for the specific checks to be performed to ascertain compatibility of the vehicle with the train detection systems)*	**X**		
	Section with train detection limitation *(Specific route compatibility checks or requirements for particular sections of the network.)*	**X**		

5. HOT AXLES BOX DETECTION

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	Route information provided by the Infrastructure manager	Vehicle level	Train level	Procedure to check the vehicle and train compatibility over the route intended for operation
Axle bearing condition monitoring	Existence of trackside hot axle box detection (HABD)	X		**For existing non-UTP compliant vehicle:** Comparison of the declared compliance with trackside HABD between vehicle and the intended route, when the network(s) of the area of use are composed of more than one 'type' of trackside HABD. If the network(s) of the area of use are fitted with only one type of trackside hot axle box detector, no route compatibility check is required. Note: For UTP compliant vehicle: compatibility with tracksides for network(s) of an area of use is verified before admission to international traffic. Any specificity of the network has to be covered by a specific case.
	Information from the infrastructure manager on whether all the trackside hot axle box detection units are compatible with vehicles which have a detection area in compliance with the UTP. If part of the route is fitted with a trackside HADB system which is not compatible with vehicles which have a detection area in compliance with the UTP, the infrastructure manager must inform the railway undertakings of the interfaces of this HABD system with vehicles and the locations where these HABD units are fitted.	X		

6. RUNNING CHARACTERISTICS

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	Route information provided by the Infrastructure manager	Vehicle level	Train level	Procedure to check the vehicle and train compatibility over the route intended for operation
Combination(s) of maximum speed and maximum cant deficiency of a vehicle (operational envelope that the vehicle has been assessed for); Rail inclination.	Cant deficiency *(Maximum cant deficiency expressed in millimetres defined as difference between the applied cant and a higher equilibrium cant the line has been designed for)*	X		Comparison of the combination of maximum speed, maximum cant deficiency and rail inclination(s), for which the vehicle is assessed, with the cant deficiency, speed and rail inclination(s) declared in information provided by the infrastructure manager. If vehicle characteristics do not match infrastructure characteristics and compatibility between the vehicle and the route might be compromised, the infrastructure
	Maximum permitted speed *(Nominal maximum operational speed on the line as a result of infrastructure, energy and control, command and signalling subsystem characteristics expressed in kilometres/hour)*	X		

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
	Rail inclination *(An angle defining the inclination of the head of a rail relative to the running surface)*	**X**		manager shall provide the exact combination of speed and cant deficiency for the specific points in which compatibility might be compromised, if possible within one month, free of charge and in an electronic format. Note: The output of the check should be taken into account by the railway undertaking for the route book preparation. Operational conditions might be imposed as a result of this check (e.g. speed restriction for a section of line).

General explanation for the rail inclination:

The rail inclination is in most cases expressed by one value for entire networks. However, to ascertain compatibility with specific sections it is required to check the compatibility of the vehicle with these sections of line in detail, including in the event that one section of line has several different values. Rail inclination is an angle defining the inclination of the head of a rail when installed in the track relative to the plane of the rails (running surface), equal to the angle between the axis of symmetry of the rail (or of an equivalent symmetrical rail having the same rail head profile) and the perpendicular to the plane of the rails.

7. WHEELSET

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Wheel set gauge	Nominal track gauge *(A single value expressed in millimetres that identifies the track gauge)*	**X**		Comparison of the wheelset gauge with track gauge of the intended route.
Minimum in-service wheel diameter	Minimum wheel diameter for fixed obtuse crossings *(Maximum unguided length of fixed obtuse crossings is based on a minimum wheel diameter in service expressed in millimetres)*	**X**		Comparison of the minimum wheel diameter between vehicle and the intended route.
Type of changeover facilities which the vehicle is designed for	Geographical location of Operational Point	**X**		

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
	(Geographical coordinates in decimal degrees normally given for the centre of the Operational Point)			Comparison of the type(s) of changeover facilities for which the vehicle is designed with the type(s) of track gauge changeover facilities of the intended route.
	Type(s) of track gauge changeover facility (ies) *(Type of track gauge changeover facility)*	**X**		

General explanations for nominal track gauge:

In case of multi-rail track, a set of data is to be published separately for each pair of rails to be operated as separate track (it should be clear to which pair of rails the set of parameters refers).

The minimum wheel diameter value is 330 mm and this shall be used as a default value unless indicated otherwise.

8. MINIMUM CURVE

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Minimum horizontal curve radius capability	Minimum radius of horizontal curve *(Radius of the smallest horizontal curve, expressed in metres)*	**X**	**X**	Comparison of the minimum horizontal curve radius between vehicle and the intended route.

9. BRAKING

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Emergency braking and maximum service brake: stopping distance, maximum deceleration, for the load condition 'design mass under normal payload' at the design maximum speed.	Maximum braking distance requested *(The maximum value of the braking distance [in metres] of a train shall be given for the maximum line speed)*	**X**	**X**	For pre-defined formation (as referred to in section 2.2.1 of UTP LOC&PAS): Comparison of the declared stopping distance and maximum train deceleration between rolling stock and
	Gradient profile *(Sequence of gradient values and locations of change in gradient)*	**X**	**X**	

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
For general operation[1], in addition to the above data: brake weight percentage (lambda)	Maximum permitted speed *(Nominal maximum operational speed on the line as a result of infrastructure, energy and control, command and signalling subsystem characteristics expressed in kilometres/hour)*	**X**	**X**	the intended route for each load condition per design maximum speed. For general operation[1]: No specific suggested procedure, to be covered by railway undertaking safety management system.
	Maximum train deceleration *(Limit for longitudinal track resistance given as a maximum allowed train deceleration and expressed in metres per square second)*	**X**	**X**	
	Additional information provided by the infrastructure manager *(Availability of additional information as defined in 4.2 (2) of this UTP: (Y/N)* *If yes:* *Reference to the information(s) relating to the braking performance provided by the infrastructure manager)*	**X**	**X**	
Thermal capacity: - Reference case of UTP; - if no reference case is indicated, thermal capacity expressed in terms of: ○ Speed; ○ Gradient; ○ Distance; ○ Time (if distance is not indicated)	Gradient profile *(Sequence of gradient values and locations of change in gradient)*	**X**		Comparison of the vehicle reference case with the intended route characteristics. Note: Information provided by IM indicates location of change in km; gradient length can be calculated by extracting data.
	Maximum permitted speed *(Nominal maximum operational speed on the line as a result of infrastructure, energy and control, command and signalling subsystem characteristics expressed in kilometres/hour)*	**X**		
	Gradient profile *(Sequence of gradient values and locations of change in gradient)*	**X**	**X**	Comparison of the declared maximum gradient profile between vehicle and the intended route.

[1] General operation: a unit is designed for general operation when the unit is intended to be coupled with other unit(s) in a train formation which is not defined at design stage

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Maximum gradient on which the unit is kept stationary by the parking brake alone (if the vehicle is fitted with it)	Gradient for stabling tracks *(Maximum value of the gradient expressed in millimetres per metre)*	**X**	**X**	Note: The output of the comparison should be taken into account by the safety management system of the RU (e.g. use of additional means)

General explanation of "gradient" (data on the values of gradient along a section of line is given as a chain of information):

Gradient (location). The first location corresponding to the start of the first value of the gradient is the centre point of the start operational point. If there are different values of the gradient, the parameter will be repeated. The last location will correspond to the point where the last value of the gradient starts. This value will be available until the centre point of the end operational point.

Gradient is expressed in mm/m; location is expressed in km of the line. Positive gradient (uphill) is marked with '+' and negative gradient (downhill) is marked by '-'. The order in the sequence shall be determined by the normal running direction on the specific track. If it is both directions, then the sequence shall follow the increasing kilometres of the line.

Changes in gradient shall be registered only as far as necessary for train running calculations (minimum length of constant gradient shall be 500 m, the minimum change of gradient value shall be 0.5 mm/m).

The required precision for gradient value is 0.5 mm/m, the required precision of location of the points of change of gradient is 10 m. The points of change of gradient are the points of vertical intersection of each vertical curve.

10. MAGNETIC TRACK BRAKE

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Possibility of preventing the use of the magnetic brake (only if fitted with magnetic brake)	Use of magnetic brakes *(Indication of limitations on the use of magnetic brakes)*	**X**		Verification if use of magnetic track brake is allowed on the intended route. Notes: Where magnetic brake is allowed, the IM shall provide the conditions of its use. The output of the check should be taken into account by the safety management system of the RU (e.g.
	Document with the conditions of use of magnetic track brake. *(Information from the IM with conditions for the use of magnetic brakes identified in previous point)*	**X**		

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
				preventing the use of magnetic track brake on the section of line).

11. EDDY CURRENT TRACK BRAKE

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Possibility of preventing the use of the eddy current brake (only if fitted with eddy current brake)	Use of eddy current brakes *(Indication of limitations on the use of eddy current brakes)*	**X**		Verification if use of eddy current track brake is allowed on the intended route. Notes: Where eddy current track brake is allowed, the IM shall provide the conditions of its use. The output of the check should be taken into account by the safety management system of the RU (e.g. preventing the use of eddy current track brake on the section of line).
	Document with the conditions of use of eddy current brake. *(Information from the IM with conditions for the use of eddy current brakes identified in previous point)*	**X**		

12. WEATHER CONDITIONS

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Temperature range	Temperature range *(Temperature range for unrestricted access to the line according to UTP LOC&PAS point 4.2.6.1.1)*	**X**		Comparison of the declared temperature range between vehicle and the intended route. Note:

				The safety management system of the RU shall consider any possible restrictions when the compared temperature ranges diverge.
Snow, ice and hail condition	Existence of severe climatic conditions *(Climatic conditions on the line are severe according to UTP LOC&PAS point 4.2.6.1.2)*	**X**		Comparison of the declared vehicle "Snow, ice and hail condition" (e.g. S1) with, and the "Existence of severe climatic conditions" on the intended route. Note: The safety management system of the RU shall consider any possible restrictions. Discussion between RU and IM to identify the possible restrictions.

13. VOLTAGES AND FREQUENCIES

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Energy supply system: - Nominal voltage and frequency; - Type of contact line system.	Type of contact line system *(Indication of the type of the contact line system)*	**X**		Comparison of the declared voltage between vehicle and the intended route of the traction supply system (nominal voltage and frequency) and type of contact line system.
	Energy supply system (Voltage and frequency) *(Indication of the traction supply system (nominal voltage and frequency))*	**X**		
	Energy supply system TSI compliant (yes/no) Concerns EU Member States only	**X**		

14. REGENERATIVE BRAKE

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Possibility of preventing use of the regenerative brake (only if fitted with regenerative brake)	Permission for regenerative braking *(Indication whether regenerative braking is permitted, not permitted, or permitted under specific conditions)*	**X**		Verification if use of the regenerative brake is allowed on the intended route or under specific conditions. Note: The output of the check should be taken into account by the safety management system of the RU (e.g. preventing use of the regenerative brake on the section of line).

15. CURRENT LIMITATION

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Electric units equipped with power or current limitation function.	Current or power limitation on board *(Indication of whether an on board current or power limitation function on vehicles is required)*	**X**		Verification if the intended route requires the vehicle to be equipped with a current or power limitation. Note: UTP-compliant rolling stock with a maximum power higher than 2MW are equipped with current or power limitation.

16. PANTOGRAPH

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Maximum current at standstill per pantograph for each DC system the vehicle is equipped for	Maximum current at standstill per pantograph *(Indication of the maximum allowable train current at standstill for DC systems expressed in amperes)*	**X**		Comparison of the declared maximum current at standstill per pantograph for each DC systems, between vehicle and the intended route.

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Height of interaction of pantograph with contact wires (over top of rail) for each energy supply system the vehicle is equipped for	Maximum contact wire height *(Indication of the maximum contact wire height expressed in metres with precision of 0.01 m)*	**X**		Comparison of the height of interaction of pantograph with contact wires, for each energy supply system, between the vehicle and the intended route.
	Minimum contact wire height *(Indication of the minimum contact wire height expressed in metres with precision of 0.01 m)*	**X**		
Pantograph head for each energy supply system the vehicle is equipped for	Accepted UTP compliant pantograph heads *(Indication of UTP compliant pantograph heads which are allowed to be used)*	**X**		Comparison of the pantograph head geometry (including insulated or non-insulated horns for 1950 mm), for each energy supply system, between the vehicle and the intended route.
	Accepted other pantograph heads *(Indication of pantograph heads which are allowed to be used)*	**X**		
Material of pantograph contact strip the vehicle may be equipped with for each energy supply system the vehicle is equipped for	Permitted contact strip material *(Indication of which contact strip materials are permitted to be used)*	**X**		Comparison of material of pantograph contact strip, for each energy supply system, between the vehicle and the intended route.
Mean contact force curve	Contact force permitted *(Indication of contact force allowed expressed in newton)*	**X**		Comparison of mean contact force between the vehicle and the intended route: For UTP-compliant vehicles intended to operate on non-UTP conform line(s): comparison of mean contact force between the vehicle and the intended route, for each voltage. For existing non UTP-compliant vehicles: comparison of the mean contact between vehicle and the intended route, for each voltage. Note: A UTP-compliant vehicle is authorised with a mean contact force within limits values defined in EN 50367:2012 Table 6.

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Number of pantographs in contact with the overhead contact line (OCL) (for each energy supply system the vehicle is equipped for); Shortest distance between two pantographs in contact with the OCL (for each energy supply system the vehicle is equipped for; for single and, if applicable, multiple operation) (only if number of raised pantographs is more than 1); Type of OCL used for the test of current collection performance (for each energy supply system the vehicle is equipped for) (only if number of raised pantographs is more than 1).	Requirements for number of raised pantographs and spacing between them, at the given speed *(Indication of maximum number of raised pantographs per train allowed and minimum spacing centre line to centre line of adjacent pantograph heads, expressed in metres, at the given speed)*	**X**	**X**	For pre-defined formation (as referred in section 2.2.1 of UTP LOC&PAS): For each energy supply system: - Comparison of number of vehicle pantographs in contact with the OCL and the intended route; - Comparison of the vehicle's shortest distance between two pantographs in contact with the OCL and the intended route. For general operation[2]: Covered by RU safety management system, considering the conditions imposed by the IM. Note: The output of the comparison concerning a minimum distance between two raised pantographs might result in operational constraints on the vehicle to be considered by the safety management system of the RU (e.g. a two pantographs raised Electrical Multiple Unit is forced to lower one pantograph).
Automatic dropping device (ADD) fitted (for each energy supply system the vehicle is equipped for)	Automatic dropping device required *[Indication of whether an automatic dropping device (ADD) required on the vehicle]*	**X**		Verification if the intended route(s) require the vehicle to be equipped with an automatic dropping device.
Distance between cab and pantograph for reverse or multiple unit	Distance between signboard and phase separation ending		**X**	Compatibility to be checked only on routes where this parameter is relevant, e.g. on the basis of a specific case. Verification if the positioning of signboards identifying the place where driver is allowed to raise pantographs or close circuit breakers again on the intended route(s) is

[2] General operation: a unit is designed for general operation when the unit is intended to be coupled with other unit(s) in a train formation which is not defined at design stage

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
				compatible with the distance between cab and pantograph for reverse or multiple unit. Where there is incompatibility, the signboard is to be moved and settled far enough to ensure drivers do not raise pantographs too early.

Explanation on Definition of maximum current at standstill per pantograph: Parameter related to current taken by the vehicle when it is not in a traction or regenerative mode, e.g. preheating, air-conditioning, etc.

The parameter concerning a pantograph head can contain more than one pantograph defined in UTP LOC&PAS. Presentation of these pantographs is done by repetition of the parameter with a single selection. If declaring acceptance of pantograph heads 1950 (type 1), both insulated and conductive horns shall be accepted.

The parameter concerning a permitted contact force is either given as a value of the static force and of the maximum force expressed in Newton, or as a formula for function of the speed. The formula of the function shall represent the curve describing the value of the contact force in relation to the speed. Static and maximum forces are given only for the maximum permitted line speed.

17. COMPATIBILITY WITH TUNNELS

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Fire safety category	Fire category of rolling stock required *(Categorisation of how a passenger train with a fire on board will continue to operate for a defined time period)*	**X**		Comparison between fire safety category of vehicle and intended route.
	National fire category of rolling stock required *(Categorisation of how a passenger train with a fire on board will continue to operate for a defined time period — according to national rules if they exist)*	**X**		

General explanation of “tunnel”:

“Tunnel” should be understood as a section of a line with special conditions. If there are several tracks in the same tunnel, data related to this tunnel will be repeated in the description of each track. On the other hand, if a track passes through several tunnels, in the description of the track each of the tunnels should be described separately.

18. TRAIN LENGTH

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Train length	Usable length of siding *(Total length of the siding/stabling track expressed in metres where trains can be parked safely)*	**X**	**X**	For fixed and pre-defined formation (as referred to in section 2.2.1 of UTP LOC&PAS): Comparison of unit(s) length (single or multiple operation) with the "siding and platform" length(s) of the intended route. For general operation[3]: Verification of the composed train length with the "siding and platform" length(s) of the intended route. Note: The output of the check should be taken into account by the RU in its safety management system. Operational conditions might be imposed as a result of this check.
	Usable length of platform *[The maximum continuous length (expressed in metres) of that part of platform in front of which a train is intended to remain stationary in normal operating conditions for passengers to board and alight from the train, making appropriate allowance for stopping tolerances]*	**X**	**X**	

19. PLATFORM HEIGHTS AND ACCESS AND EGRESS

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Platform heights for which the vehicle is designed	Height of platform *(Distance between the upper surface of platform and running surface of the neighbouring track. It is the nominal value expressed in millimetres)*	**X**		Comparison of platform heights between the vehicle and the intended route. Note: The output of the check should be taken into account by the RU in its safety management system. Operational conditions might be imposed as a result of this check.

[3] General operation: a unit is designed for general operation when the unit is intended to be coupled with other unit(s) in a train formation which is not defined at design stage

Platform dimensions are always related to one neighbouring track at a time. So, if two tracks are along a platform, this platform should be divided into two or more to have precise description of each.

20. ETCS

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
ETCS System Compatibility	ETCS System Compatibility *(ETCS requirements used for demonstrating technical compatibility)*	**X**		Comparison of ETCS System Compatibility value provided by the IM is included in the vehicle admission or authorisation.
Train Integrity	Train integrity confirmation from on-board necessary for line access *(Indication whether train confirmation from on-board is required to access the line for safety reasons)*	**X**	**X**	Comparison that vehicle/train is able to confirm the train integrity if required by trackside.

With regard to the ETCS System Compatibility value, the IM, with the support of their suppliers, shall make available to the RU(s) the definition of the set of checks to demonstrate technical compatibility and the corresponding value(s) of ETCS system compatibility requirements on its network.

21. GSM-R

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Radio System Compatibility Voice	Radio System Compatibility Voice *(Radio requirements used for demonstrating technical compatibility voice)*	**X**		Comparison of Radio System Compatibility voice value provided by the IM is included in the vehicle admission or authorisation.
Radio System Compatibility Data	Radio System Compatibility data *(Radio requirements used for demonstrating technical compatibility data)*	**X**		Comparison of Radio System Compatibility data value provided by the IM is included in the vehicle admission or authorisation.
SIM Card GSM-R Home Network	GSM-R networks covered by a roaming agreement *(List of GSM-R networks which are covered by a roaming agreement)*	**X**		Comparison that the SIM Card GSM-R Home Network is in the list of GSM-R networks with roaming agreement for all sections of the route. This has to be performed for all SIM Cards in the vehicle (Voice and Data).

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Sim card support of group ID 555	Use of Group 555 *(Indication if group 555 is used)*	**X**		Check that the Group ID 555 is used trackside. If this is not configured on-board, alternative operational procedures should be established beforehand with the IM.

With regard to the Radio System Compatibility data and voice values, the IM, with the support of their suppliers, shall make available to the RU(s) the definition of the set of checks to demonstrate technical compatibility and the corresponding value(s) of radio system compatibility requirements for voice and/or data on its network.

With regard to the SIM card GSM-R Home Network, the IM shall make available to the RU(s) the list of GSM-R networks which are covered by a roaming agreement. For Route Compatibility purposes and simplicity, the IM must declare its own network in this list, so the RUs can systematically check the compatibility. For voice services, roaming for circuit switches is applicable. For ETCS, as long as roaming for circuit switches is ensured, interoperability will be guaranteed. There is a list of GSM-R networks which are covered by a roaming agreement managed by UIC. IM members of UIC should ensure the consistency of both lists.

22. CLASS B

Vehicle information (either from ERATV, the technical file, or any other appropriate means of information)	**Route information provided by the Infrastructure manager**	**Vehicle level**	**Train level**	**Procedure to check the vehicle and train compatibility over the route intended for operation**
Class B train protection legacy system	Train protection legacy systems *(Indication of which class B system is installed)*	**X**		Comparison of name and version of the Class B train protection legacy system.
Class B radio legacy system	Radio legacy system *(Indication of radio legacy systems installed)*	**X**		Comparison of name and version of the Class B radio legacy system.