European Rail Infrastructure Managers EIM
European year of rail 2021

OPERATION AND TRAFFIC MANAGEMENT

COMMISSION IMPLEMENTING REGULATION (EU) 2019/773
ENTRY INTO FORCE: 16/05/2019

WHAT DOES IT CONCERN TO?

This TSI applies to the operation and traffic management subsystem of infrastructure managers and railway undertakings related to the operation of trains on the rail system of the European Union.

ESSENTIAL REQUIREMENTS

- Safety
- Reliability and availability
- Health
- Environmental protection
- Technical compatibility
- Accessibility

WHAT DOES IT CONTAIN?

- Introduction with the technical, risk, and geographical scopes
- Definitions of the subsystem and of the scope
- Essential requirements
- Characteristics of the subsystem, particularly the functional and technical specifications of the subsystem and of the interfaces
- Interoperability constituents
- Assessment of conformity and/or suitability for use of the constituents and verification of the subsystem
- Implementation
- Detailed requirements in the appendixes

GEOGRAPHICAL SCOPE

It applies to high-speed lines, conventional lines (both passenger and freight) and all vehicles likely to travel all or part of the Union's network (locomotives and passenger rolling stock, freight wagons and special vehicles, such as on-track machines).

It does not apply to metros, trams and light rail vehicles, privately owned railway infrastructure, infrastructure and vehicles reserved for a strictly local, historical or touristic use.

WHICH ARE THE TRANSITIONAL DATES?

- Regulation 2015/995 will continue to apply in part until 16th June 2024 when it will be completely replaced;
- Latest version of OPE TSI under regulation 2019/773 TSI applies from 16th June 2021 (2 years transition), this replaces Regulation 2015/995;
- Section 4.2.2.5 (Route compatibility and train composition) and appendix D1 of OPE TSI apply from 16 June 2019 or 16 June 2020, depending on the implementation of Interoperability Directive in the single Member States;
- Appendices A and C apply from 16th June 2024 at the latest (5 years transition).

TECHNICAL SCOPE

The procedures and related equipment permitting coherent operation of the various structural subsystems, during both normal and degraded operation, including in particular train composition and train driving, traffic planning and management.
The professional qualifications which may be required for carrying out any type of railway service except for drivers.

HEALTH AND SAFETY CONDITIONS

For staff performing safety-critical tasks, RUs and IMs shall set up and document the process they put in place to meet the medical, psychological and health requirements for their staff within their safety management system.
The frequency of periodic medical examinations depends on the age of the staff.
The medical requirements needed are divided in general, visual and hearing.

PARTICULAR CASES DEPENDING ON THE COUNTRY

They are divided in 'Permanent' and 'Temporary' cases.
Belgium, Finland, France, Italy, Northern Ireland, Poland, Portugal, Spain and UK.

OPERATING RULES

Operational principles and rules to be applied throughout the EU railway system are specified in Appendices A (ERTMS operational principles and rules) and B (common operational principles and rules). EU Instructions, 1 to 9.

National rules are not compatible with the OPE TSI, except for Appendix I which lists the areas where no common operational principles and rules exist and which may continue to be subject to national rules.

Transition from application of national rules to implementation of this Regulation: during the transition from the application of national rules to the implementation of this Regulation, RUs and IMs shall review their safety management systems to ensure the continuation of safe operations. If necessary, they shall update their safety management systems.

What is a TSI? Is a document that defines the technical and operational standards which must be met by each subsystem or part of subsystem in order to meet the essential requirements and ensure the interoperability of the railway system of the European Union.
For each of those subsystems, the essential requirements need to be specified and the technical specifications determined, particularly in respect of constituents and interfaces, in order to meet those essential requirements. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L0797&from=EN
This document is for information purposes only, for official information go to https://www.era.europa.eu/activities/technical-specifications-interoperability_en

In case of doubt please contact tecteam@eimrail.org

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FUNCTIONAL AND TECHNICAL SPECIFICATIONS OF THE SUBSYSTEM

SPECIFICATIONS RELATED TO STAFF

General requirements

RU staff must undertake the tasks of driving trains (driver), of tasks on-board, forming part of the 'train crew' and of tasks preparing trains.

IMs must undertake the task of authorising the movement of trains, covering documentation and communication.

Documentation for drivers

The railway undertaking operating the train shall supply the driver with all the necessary information and documentation required to carry out her/his duties. This information shall take into account the necessary elements for operation in normal, degraded and emergency situations for the routes to be worked over and the rolling stock used on those routes.

Driver's Rule Book: this document includes all the necessary procedures for the driver and shall state the requirements for all the routes worked and the rolling stock used on those routes according to the situations of normal operation, degraded operation and in emergency situations which the driver may encounter.

It shall describe the set of common rules and procedures (taking into account the contents of Appendices A, B and C) and set out any necessary rules and procedures specific to each IM.

It shall include procedures covering, as a minimum, the following aspects:

- Staff safety and security,
- Signalling and control command,
- Train operation including degraded mode,
- Traction and rolling stock,
- Incidents and accidents.

The RU shall be responsible for this document, which shall include two appendices:

- Appendix 1: Manual of communication procedures;
- Appendix 2: Book of Forms.

Predefined messages and forms shall at least exist in the 'operating' language(s) of IMs.

The IM shall provide the RU with appropriate information in the IM's operating language and shall ensure that the content of the documentation provided to the RUs is complete and accurate.

Description of the line and the relevant line-side equipment associated with the lines worked over: drivers shall be provided with the Route Book, which shall include, as a minimum: general operating characteristics, indication of rising and falling gradients and detailed line diagram. The RU is responsible for the complete and correct compilation of the Route book, using the information supplied by the IMs. The IM shall provide the RU with at least the information for the route book as defined in Appendix D2 through RINF. This information shall include relevant information that shall be taken into account to adapt train operation to line characteristics and vehicle characteristics.

Until RINF provides the relevant parameters in accordance with Article 6 of Commission Implementing Regulation (EU) 2019/777, the infrastructure manager shall provide this information through other 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 IM shall inform the RU of the changes on the information of the route book through RINF and shall ensure that the information provided to the RUs is complete and accurate. For emergency situations or real time information appropriate alternative means of communication of the infrastructure manager shall ensure immediate information to the railway undertaking about Appendix D2 of OPE TSI.

The IM shall inform drivers of any changes to the line or relevant lineside equipment that have not been advised as modifications to information for the Route Book.

Timetables: The RU shall provide drivers with the information, based on the information supplied by the IM, necessary for the normal running of the train and as a minimum include: train identifications and running days, stopping points and their associated activities, other timing points and arrival/departure/passing times at each of those points.

Rolling stock: The RU shall provide the driver with all information relevant to the working of the rolling stock during degraded situations (such as trains requiring assistance). Such documentation shall also focus on the specific interface with the IM's staff.

Documentation for RU staff other than drivers: The RU shall provide all members of its staff (whether on train or otherwise) who undertake safety-critical tasks involving a direct interface with the staff, equipment or systems of the IM with the rules, procedures, rolling stock and route specific information it deems appropriate to such tasks.

Documentation for IM's staff authorising train movement: All the information necessary to ensure safety-related communication between staff authorising the movement of trains and train crews shall be set out in: documents describing the Communications Principles and the document entitled Book of forms.

Safety-related communications between train crew, other railway undertaking staff and staff authorising train movements: The principles for safety-related communication between train crew and staff responsible for authorising the movement of trains are to be found in Appendix C of OPE TSI and the language used for communication shall be the IM's operating language.

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For each of those subsystems, the essential requirements need to be specified and the technical specifications determined, particularly in respect of constituents and interfaces, in order to meet those essential requirements. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L0797&from=EN
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FUNCTIONAL AND TECHNICAL SPECIFICATIONS OF THE SUBSYSTEM

SPECIFICATIONS RELATED TO TRAINS

Train visibility

General requirements: The RU shall ensure that trains are fitted with means of indicating the front and rear of the train.

Front-end: The RU shall ensure that an approaching train is clearly visible and recognisable, by the presence and layout of its lit white front-end lights. The three lights needed shall be fitted in an isosceles triangle.

Rear-end: The RU shall provide the required means of indicating the rear of a train. The rear end signal shall only be exhibited on the rear of the last vehicle of the train. In passenger trains it shall consist of 2 steady red lights and in freight trains of 2 reflective plates.

Train audibility: The RU shall ensure that trains are fitted with an audible warning device to indicate the approach of a train. The activation of the audible warning device shall be possible from all driving positions.

Vehicle identification: Each vehicle shall have a number to uniquely identify it from any other rail vehicle and shall be possible to identify operational restrictions applicable to it.

Safety of passengers: The RU shall ensure that passenger transport is undertaken safely at the departure and during the journey.
Safety of load: The RU shall make sure that freight vehicles are safely and securely loaded and remain so throughout the journey.

Route compatibility: The RU is responsible for ensuring that all vehicles composing its train are compatible with the intended route(s).
The IM shall provide the information for route compatibility as defined in Appendix D1 through RINF.

Train composition: The RU 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 RU may need to consider additional constraints due to the type of braking regime or traction type on a particular train.

Train braking:
Braking performance and maximum speed allowed: The IM shall provide the railway undertaking with all relevant line characteristics for each route through RINF:

- Signalling distances (warning, stopping) containing their inherent safety margins,
- Gradients,
- Maximum permitted speeds, and
- Conditions of use of braking systems possibly affecting the infrastructure such as magnetic, regenerative and eddy-current brake.

The IM may provide the following information:

- For trains able to run at a maximum speed higher than 200 km/h, deceleration profile and equivalent response time on level track;
- For train sets or for fixed train compositions, unable to run at a maximum speed higher than 200 km/h, deceleration (as above) or brake weight percentage;
- For other trains (variable compositions of trains unable to run at a maximum speed higher than 200 km/h): brake weight percentage.

Ensuring that the train is in running order
Pre-departure data: The RU shall ensure that the following data required for safe and efficient operation is made available to the IM(s) prior to the departure of the train:

- The train identification;
- The identity of the railway undertaking responsible for the train;
- The actual length of the train;
- If a train carries passengers or animals when it is not scheduled to do so – any operational restrictions with an indication of the vehicle(s) concerned (gauge, speed restrictions, etc.);
- Information the infrastructure manager requires for the transport of dangerous goods.

The RU shall advise the IM(s) if a train does not occupy its allocated path or is cancelled.

Driver vigilance: A means of on-board monitoring of driver vigilance is necessary. This shall intervene to bring the train to a stand if the driver does not react within a certain time.

SPECIFICATIONS RELATED TO TRAIN OPERATIONS

Train planning: the IM shall advise what data is required when a train path is requested.

Identification of trains: The train running number is given by the IM when allocating a train path.

Train departure: The RU shall carry out checks and tests before departure and inform the IM of the train's operational status.

Traffic management:

General requirements: Traffic management shall ensure the safe, efficient and punctual operation of the railway, including effective recovery from service disruption.

Train reporting: the data required for train position reporting and predicted hand over time is the following: train identification, identity of reporting point, line, schedule, number of minutes early/late, initial explanation of any single delay exceeding 10 minutes or as otherwise required by the performance monitoring regime, indication that a report for a train is overdue and the number of minutes by which it is overdue, train cancelled for a whole or a part of its journey.

Dangerous goods: the RU shall define the procedures to perform their transport.

Operational quality: The IM and the RU shall have processes in place to monitor the efficient operation of all the services concerned.

Data recording: data pertaining to the running of a train shall be recorded and retained. It shall be securely sealed and stored and accessible to authorised bodies.

Degraded operation: There shall be advice to train drivers and other users.

Contingency arrangements: the IM in conjunction with all the RUs operating over its infrastructure, and neighbouring infrastructure managers as appropriate, shall define, publish and make available appropriate contingency measures and assign responsibilities based on the requirement to reduce any negative impact as a result of degraded operation.

Managing an emergency situation: the IM shall define, publish and make available appropriate measures to manage emergency situations and restore the line to normal operation. Additionally, the railway undertaking shall have processes to inform passengers about on-board emergency and safety procedures.

The railway undertaking shall define appropriate procedures to assist the train crew in degraded situations in order to avoid or decrease delays caused by technical or other failures of the rolling stock.