

Plan of measures to ensure the safety of operation of the national and regional railways and rail transport on these railways

In connection with the entry into force of Act No. 426/2021 Coll., amending Act No. 266/1994 Coll., the Act to Regulate Railways and Other Guided Transport Systems, as amended, and Act No. 634/2004 Coll, 426/2021 Coll., the Administrative Fees Act, as amended (hereinafter referred to as "Act No. 426/2021 Coll."), a new obligation for the Rail Authority and the Ministry of Transport was introduced in Section 55 (5) with effect from 1 February 2022. *"The Rail Authority, in cooperation with the Ministry of Transport, annually prepares a plan of measures to ensure the safety of operation of the national and regional railways and rail transport on these railways. The measures contained in the plan must be aimed at meeting the common safety targets in accordance with the European Union legislation governing common safety targets as regards the rail system. This plan shall be published by the Rail Authority in a manner allowing remote access."*

The explanatory memorandum to Act No 426/2021 states, inter alia: *"Article 4 (1) (f) of the Safety Directive requires that Member States develop and publish annual safety plans setting out the measures envisaged to achieve the common safety targets... At the same time, it is expressly stipulated that the measures contained in the plan of measures to ensure the safety of operation of the national and regional railways and rail transport on these railways must be aimed at meeting common safety targets set out by Commission Decision 2012/226/EU on the second set of common safety targets as regards the rail system as amended."*

Common safety targets have been progressively introduced at EU level to ensure that safety is maintained at a high level and improved where reasonably practicable. Therefore, common safety indicators have also been established to assess whether individual systems comply with the common safety targets and to facilitate the monitoring of railway safety performance.

Commission Decision 2012/226/EU of 23 April 2012 on the second set of common safety targets as regards the rail system, as amended, set out the national reference values and maximum tolerable levels of risk for categories:

- passengers
- staff
- level crossing users
- others
- unauthorized persons on railway premises
- the society as a whole.

In 2023, an evaluation of the achievement of the safety targets was carried out by the EU Railway Agency in accordance with the common safety method defined in Commission Decision 2009/460/EC. The outcome of the evaluation shows that the level of railway safety remains acceptable at EU level for all categories of rail users. However, the Czech Republic shows a possible deterioration in safety in the area of risks for persons falling under the category "others".

Table: Safety performance based on the assessment of the implementation of the safety targets by the Czech Republic

Risk category	NRV (*10⁻⁹)¹	MWA (*10⁻⁹)²	MWA ≤ NRV*1,2	Safety performance
passengers	46.49	12.49	yes	acceptable
	0.82	0.21	yes	acceptable
staff	16.45	12.56	yes	acceptable
level crossing users	237.76	136.16	yes	acceptable
others	2.41	13.17	no	deteriorated
unauthorized persons	301.26	47.91	yes	acceptable

¹ National reference value

² Weighted average between 2017 and 2021

society	591.22	226.24	yes	acceptable
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Preparing this plan, the Rail Authority, in cooperation with the Ministry of Transport, referred to the final reports on the results of the investigations and safety recommendations contained in these reports, which were received by the Rail Authority between 26 May 2017 and 9 January 2023. The analysis covered a total of 90 safety recommendations. Within the framework of the analysis, the Rail Authority, in cooperation with the Ministry of Transport, came to the following plan of measures to ensure the safety of operation of the national and regional railways and rail transport on these railways:

Measures related to the risk for passengers

Although the results shown in the table indicate that the safety performance is acceptable, there is still room for systematic improvement or reduction in the likelihood of this risk. It is desirable that railway undertakings introduce the following into their safety systems:

- procedures to prevent a situation allowing the boarding door of a hauled railway vehicle not to be closed/not to be closed completely before the automatic boarding door locking device is activated,
- sufficient inspection and maintenance of the external doors of selected railway vehicles, so that any unsatisfactory technical condition would manifest itself by a seemingly well-closed door.

Measures concerning the risk to staff

In the context of the analysis of safety recommendations from recent years, it seems advisable to introduce measures aimed primarily at risk management in the area of driving railway vehicles. Attention should be focused in particular on the training and management of the following operational situations:

- Collision of a rail rolling stock with a vehicle at a level crossing, function of the level crossing signals - correct standardised procedures after the emergency, safety management, necessary actions; train driver’s reaction to the signals, procedure in case of open barriers. This training can also be modified in case of other obstacles on the line (e.g. a fallen tree in the track profile).

- Shunting between operational points - with one shunting part, with multiple shunting parts, driving for a stranded train.
- Driving and braking in degraded adhesion conditions - shunting and climbing onto the train, driving and braking of the traction vehicle/train.
- Passing a "Stop" (or "Shunting prohibited") signal - correct standardised procedures after this emergency, safety management, necessary actions.
- Shunting - following correct procedures, radio communication, checking the functionality of the radio connection.

As part of this measure, a monitoring process is necessary to verify the correct application and effectiveness of the processes and procedures set up. In the event that deficiencies in the established procedure are identified in the training situations mentioned above, corrective or preventive measures must be put in place.

In the context of training and handling the above-mentioned operational situations, it seems desirable to introduce a system whereby the scope and content of the knowledge and skills and procedures necessary to demonstrate special professional competence to drive a railway vehicle on a national and regional railway line will be extended to include verification of the practical ability of the person driving the railway vehicle on a locomotive simulator.

In particular, the ability to deal adequately with situations that may arise only rarely should be verified, including the ability to watch the signalling, interpret it correctly and act accordingly, the driving method and maximum speed in relation to the characteristics of the track and variables such as speed limits or weather conditions. Improving 'non-technical' skills such as stress management, decision making, regular skills maintenance and teamwork can also be an integral part of this measure.

Measures concerning the risk to level crossing users

Infrastructure managers must make an analysis and assessment of the critical points on the network where it intersects with roads. The purpose is to map the level crossings with the highest probability of risk and identify the measures that are considered appropriate to reduce the probability of the occurrence of the risk of an emergency. The basis for the risk reduction

may be the adoption of measures consisting in securing level crossings with signalling lights supplemented by gate arms (these, in terms of optical barrier, will reduce the probability of the driver entering the level crossing in case he does not react to the warning light signal). For level crossings secured only by warning crossbucks, it is necessary to evaluate the effectiveness and degree of use of the level crossing and then consider the possibility of removing it or increasing the level of its safety. Risk mapping should be continuously updated, e.g. on the basis of emergencies, and the results should be reflected in investment plans, safety or corrective measures.

Measures related to the risk to persons falling under the category 'others'

In order to eliminate the above-mentioned risk and increase the level of safety performance, or to regain an acceptable level of safety performance, one solution may be, for example, to reduce the probability of an obstacle falling into the loading gauge. It is thus necessary and desirable for infrastructure managers to incorporate in their internal regulations the procedure pursuant to Section 10 (3) of Act No 266/1994 Coll., the Act to Regulate Railways and Other Guided Transport Systems, as amended, and to apply this procedure primarily and consistently.

It also seems desirable for infrastructure managers and railway undertakings to include in their safety management system a method of assessing risks and taking measures to manage risks, so that their established procedures and methods can be applied more effectively not only to specific operational situations, but also in cases where technical, operational and organisational changes occur as part of the modernisation, optimisation or reconstruction of infrastructure.

Measures concerning the risk to unauthorized persons on railway premises

Infrastructure managers must analyse and assess critical points on the network at railway stations or stops with no underpass or overpass and identify appropriate preventive measures, in particular:

- impeding unauthorized access to premises not open to the public,
- making unused buildings and structures inaccessible to unauthorised persons,

- encouraging the construction of overpasses or underpasses to replace level crossings.

Measures related to the risk to the society as a whole

- Ensuring the definition of all processes necessary to manage, control and verify the effectiveness of maintenance in accordance with the provisions of the Common Safety Methods, ensuring compliance with specific requirements, both when the activity is performed in-house and when it is outsourced.
- Ensuring the competence of staff with safety tasks, monitoring the correct performance of tasks, analysing risks arising from human and organisational factors (workload, fatigue or adequacy of safety management system procedures).
- Analysis of accidents and incidents. It is essential to ensure that the results of accident and incident investigations and safety recommendations are used on an ongoing basis to review risk assessments and take corrective or improvement actions where appropriate.

The risk monitoring and risk elimination measures listed above, including areas for improvement, aim to meet the common safety targets as set out in Commission Decision 2012/226/EU on the second set of common safety targets as regards the rail system as amended. Both the Rail Authority and the Ministry of Transport recommend that infrastructure managers and railway undertakings adopt the above measures identified within the safety recommendation analyses into their safety plans (including setting annual deadlines for their ongoing monitoring and evaluation). The approach to the measures will be subject to supervision by the Rail Authority.