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Report

Assessment of achievement of safety targets – 2022

	<i>Drafted by</i>	<i>Validated by</i>	<i>Approved by</i>
<i>Name</i>	Mitchell van Balen	Torben Holvad	Anna Gigantino
<i>Position</i>	Economic Evaluation Officer	Team Leader	Head of Unit
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2. Reference documents

<i>N°</i>	<i>Description</i>	<i>Reference</i>
[1]	Commission Decision of 5 June 2009 on the adoption of a common safety method for assessment of achievement of safety targets, as referred to in Article 6 of Directive 2004/49/EC of the European Parliament and of the Council	2009/460/EC (CSM CST)
[2]	Commission Decision of 23 April 2012 on the second set of common safety targets as regards the rail system	2012/226/EU
[3]	Commission implementing decision of 11 December 2013 amending Decision 2012/226/EU on the second set of common safety targets for the rail system	2013/753/EU
[4]	Directive 2004/49/EC of the European Parliament and of the Council on safety on the Community's railways and amending Council Directive 95/18/EC on the licensing of railway undertakings and Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification (Railway Safety Directive). (In force until 31 October 2020)	2004/49/EC
[5]	Directive (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway safety (recast of the Railway Safety Directive)	(EU) 2016/798

3. List of terms and abbreviations

<i>Term / Abbreviation</i>	<i>Definition</i>
Agency	European Union Agency for Railways (formerly European Railway Agency, ERA)
CSI	Common Safety Indicator
CSM	Common Safety Method
CST	Common Safety Target
EC	European Commission
Eurobase	Eurostat dissemination database
EU	European Union
MS	Member State
MWA	Moving Weighted Average
NSA	National Safety Authority
NRV	National Reference Value
OBS	Annual observation

4. Executive summary

This report presents the thirteenth assessment of achievement of safety targets carried out by the Agency in accordance with the Common Safety Method (CSM) as defined in Commission Decision 2009/460/EC [1]. It is the eleventh assessment using the second set of Common Safety Targets (CSTs) and National Reference Values (NRVs) [2][3]. The assessment uses CSI data for the years 2016-2020 for the 25 EU Member States that have a railway system plus Norway.

The results of the assessment indicate a possible deterioration of safety performance in the following Member States (by risk category):

- › Czechia (Others);
- › Germany (Others);
- › Spain (Others);
- › France (Trespassers);
- › Netherlands (Others);
- › Portugal (Others);
- › Slovakia (Employees);
- › Sweden (Employees).

The assessment shows that railway safety performance remains acceptable at the EU level for all categories of railway users.

In accordance with Article 5 of the Method [1], the Member States for which there is a 'possible deterioration of safety performance' in any category of railway user shall send to the Commission a report explaining the likely causes of the results obtained.

The Agency refers the readers of this report to the recent ex-post evaluation¹ of the CSM CST to better interpret the results and to find several recommendations to improve the Method. Notably, an update of the NRVs is recommended.

¹ https://www.era.europa.eu/sites/default/files/library/docs/report_ex-post_csm_cst_final_public_en.pdf
120 Rue Marc Lefrancq | BP 20392 | FR-59307 Valenciennes Cedex
Tel. +33 (0)327 09 65 00 | era.europa.eu

5. Introduction

Common safety targets ('CSTs') and CSMs have been gradually introduced to ensure that safety is maintained at a high level and, when and where necessary and reasonably practicable, improved. They should provide tools for the assessment of the safety and performance of operators at Union level as well as in the Member States. Common safety indicators ('CSIs') have been established in order to assess whether systems comply with the CSTs and to facilitate the monitoring of railway safety performance.²

This report presents the results of the annual assessment of achievement of NRVs and CSTs as set out in Article 7 of the Railway Safety Directive (EU) 2016/798 [5] and in accordance with the CSM defined in Decision 2009/460/EC (hereafter referred to as the Method)[1].

The current assessment is the eleventh carried out by the Agency using the second set of NRVs/CSTs [2][3].

6. Method for assessing achievement of safety targets

6.1. Data

According to point 3.1.4 of the Annex to the Method [1], the assessment shall be carried out annually by the Agency taking into consideration the most recent five preceding reported years. Therefore, the current assessment uses Eurostat and CSI data for the years 2016-2020.

Until 2015, the CSI data was compared to the Eurostat data derived from Eurostat's Common Questionnaire, and the latter would have precedence. As from 2016, Eurostat extracts rail safety data directly from the CSI dataset, meaning that there is one single data source.

Concerning the Eurostat data it is noted that the numbers for the categories 'Level crossing users', 'Unauthorised persons' and 'Others' were inferred³, as they were not directly available in Eurobase. The NRVs for 2004-2009 should be interpreted in the light of such data limitations (for more details see the aforementioned ex-post evaluation by ERA).

6.2. Definitions

The following definitions are used in the assessment:

- › **'fatalities and weighted serious injuries (FWSIs)'** means a measurement of the consequences of significant accidents combining fatalities and serious injuries, where 1 serious injury is considered statistically equivalent to 0.1 fatalities;
- › **'passengers'** means all persons, excluding members of the train crew, who make a trip by rail, including passengers trying to embark onto or disembark from a moving train for accident statistics only;
- › **'staff including employees or contractors'** means any persons whose employment is in connection with a railway and is at work at the moment of the accident; it includes the crew of the train and persons handling rolling stock and infrastructure installations;
- › **'level crossing users'** means all persons using a level crossing to cross the railway line by any means of transportation or by foot;
- › **'others'** means all persons not defined as 'passengers', 'staff including employees or contractors', 'level crossing users' or 'trespassers';
- › **'trespassers'** means any persons present on railway premises where such presence is forbidden, with the exception of level crossing users, and

² (EU) 2016/798 Recital 11 [2]

³ As described in the Annex to the "Report on the development of the second set of CSTs"

120 Rue Marc Lefrancq | BP 20392 | FR-59307 Valenciennes Cedex

Tel. +33 (0)327 09 65 00 | era.europa.eu

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- › **'societal risks'** means the collective risk to all categories of persons listed in Article 7(4)(a) of Directive 2004/49/EC [4] and Article 7 (1)(a) of Directive (EU) 2016/798 [5].

6.3. Four-step assessment procedure

The four-step assessment procedure described in chapter 3 of the Annex to the Method [1] was applied to each of the six risk categories⁴:

- › Passengers (1.1 and 1.2);
- › Staff including employees or contractors (2);
- › Level crossing users (3.1)⁵;
- › Others (4)⁶;
- › Trespassers (5);
- › Societal risk (6).

The four steps of the assessment procedure are described in the flowchart in Figure 1, adapted from Appendix 2 to the Method [1]. The positive decisional arrows correspond to a passed result and the negative decisional arrows correspond to a failed result of the different assessment steps.

The first step and first part of the second step are performed autonomously by the Agency using CSI data. In the second part of the second step, the Agency contacts the national safety authority of the concerned Member States to retrieve information on the single highest-consequence accident in the five most recently reported years and asks whether that accident was more severe than the most severe single accident included in the data used for setting the NRVs/CSTs (period 2004-2009). If so, that recent single event shall be excluded from the calculations.

The third and fourth steps are carried out autonomously by the Agency with CSI data and the outcomes of previous assessments. A detailed description of the content of each step is available in section 3.2 of the Annex to the Method [1].

⁴ This report uses the risk categories' names defined in (EU) 2016/798. Annex 2 provides the correspondence of risk categories' names across the applicable legislation.

⁵ The NRVs and CSTs for the risk category 3.2 were not established in the second set of NRVs/CSTs due to the lack of reliable data.

⁶ This includes the CSIs 'other person at a platform' and 'other person not at a platform'.

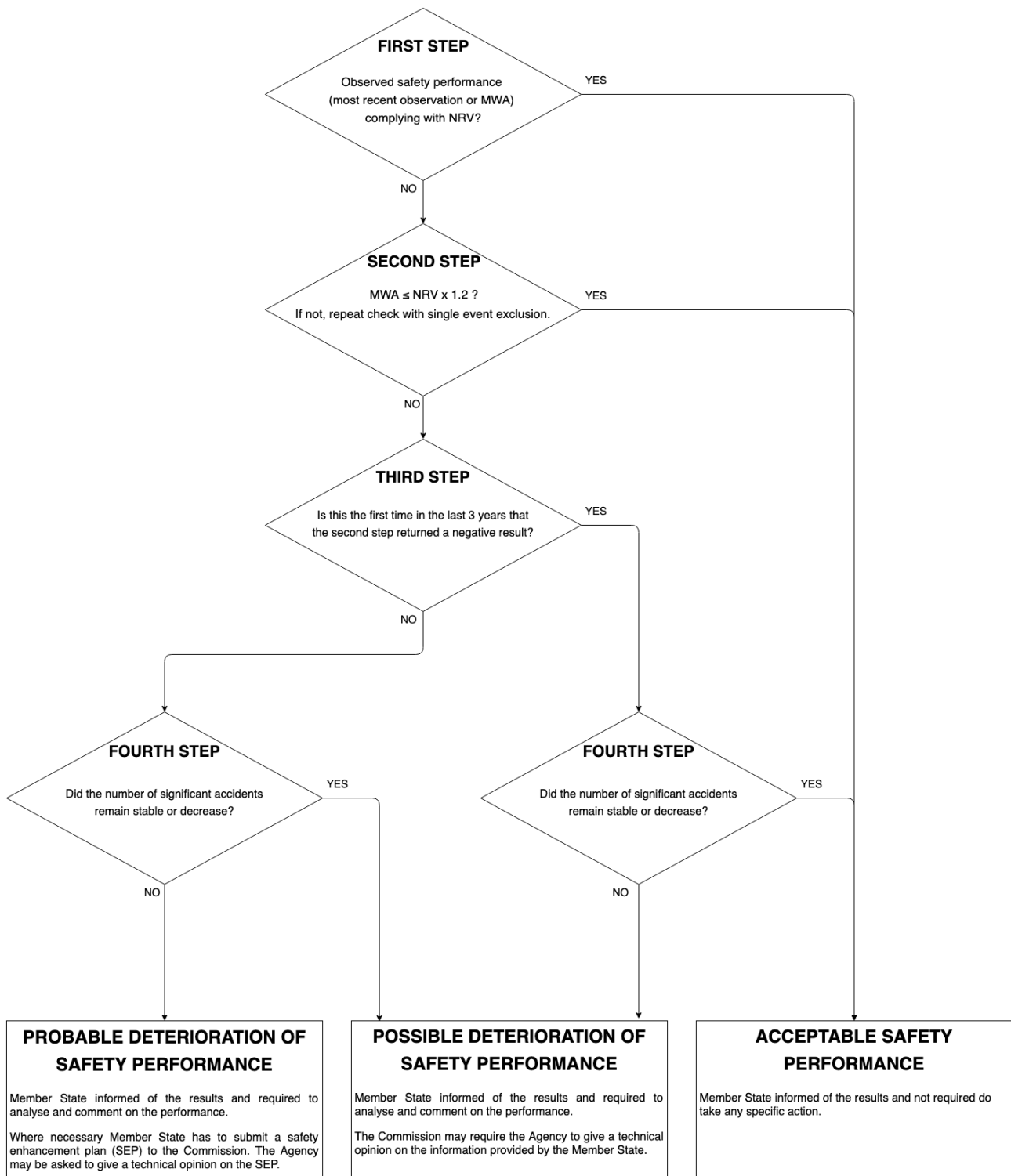


Figure 1 : Decision flowchart for assessing achievement of NRVs and CSTs. (adapted from Appendix 2 to the Method [1])

7. Results of the assessment

7.1. First and second steps of the assessment procedure

The majority of Member States achieved a ‘passed’ result at either the first or second steps of the assessment for all risk categories considered, indicating acceptable safety performance. As shown in Table 1, for seven Member States there was a ‘failed’ result in one specific risk category in the first part of the second step, while one Member State ‘failed’ in two specific risk categories.

Table 1 : Intermediate results of the assessment: Member States failing after the first part of the second step (i.e. after applying the 20% tolerance)

Risk category						
Passengers		Staff including employees or contractors	Level crossing users	Others	Trespassers	Societal risk
1.1	1.2	2	3.1	4	5	6
-	-	Slovakia Sweden	-	Czechia Germany Spain Netherlands Portugal Slovakia	France	-

According to the Annex to the Method [1], if the 20 % tolerance is not met, the Agency shall ask the national safety authority (NSA) of the Member State concerned to provide the specifics of the single highest-consequence accident (in terms of FWSIs) in the five most recent years of observation, here the period 2016-2020. This accident shall be excluded if it is more severe, in terms of consequences, than the most severe single accident included in the data used for setting the NRVs/CSTs (period 2004-2009).

The concerned NSAs were contacted to identify the single highest-consequence accident. None of the contacted NSAs indicated that any of the relevant accidents in the 2016-2020 period was more severe than the ones that occurred between 2004 and 2009. As such, there were no intermediate changes because of the exclusion of an accident.

The detailed results of the second step of the assessment are summarized in Annex 3.

Annex 4 provides an overview of the Member States that had a negative result after the second step in the past years.

7.2. Third and fourth steps of the assessment procedure

The application of the third step identified that in the case of Slovakia it was the first time in the last three years that the second step returned a negative result in the risk category ‘Others’. For all the other Member States, and for Slovakia in the risk category ‘staff including employees or contractors’, it was either the second or third time with a negative result for that specific risk category in the last three years.

The fourth step of the assessment procedure was applied to examine the data on the number of significant accidents. There was not a single country for which a statistically significant increase in the number of relevant significant accidents per train-km was noted.

The final results of the assessment are summarised in Table 2.

Table 2 : Result of the assessment after applying all four steps of the assessment method – showing countries with a ‘Possible deterioration of safety performance’

<i>Risk category</i>						
<i>Passengers</i>		<i>Staff including employees or contractors</i>	<i>Level crossing users</i>	<i>Others</i>	<i>Trespassers</i>	<i>Societal risk</i>
<i>1.1</i>	<i>1.2</i>	<i>2</i>	<i>3.1</i>	<i>4</i>	<i>5</i>	<i>6</i>
-	-	Slovakia Sweden	-	Czechia Germany Spain Netherlands Portugal	France	-

This completes the assessment of achievement of safety targets.

Annex 5 provides an overview of the Member States that had a negative result after the final step in the past years.

7.3. Analysis of the results

This annual assessment of achievements of safety targets identified the acceptable safety performance in the categories ‘Passengers’ (both 1.1 and 1.2), ‘Level crossing users’ and ‘Societal risks’ in all Member States. For the category ‘Level crossing users’ it was the third time since the 2013 assessment that no country showed a possible deterioration.

The assessment also shows that railway safety performance remains acceptable at the EU level for all categories of railway users.

A “possible deterioration of safety performance” was identified in two Member States for the category ‘Staff including employees or contractors’, in five Member States for the category ‘Others’, and one Member State for the category ‘Trespassers’.

7.3.1. Data limitations

The second set of NRVs was established using 2004-2009 safety data. The accuracy of the data from that period is lower than that of more recent years. Notably, for years 2004 and 2005 the safety data in some categories were not fully harmonised and there have been cases of underreporting in the category ‘Others’.

It is also noted that railway safety data available in Eurobase was used in the assessments for the years until 2015. CSI data is used for the years as of 2016. Whilst the differences in data from these sources are generally small, an effect on the results has been observed, notably on the number of deteriorations under the category ‘Others’.

7.3.2. Method limitations

The 2022 assessment confirms that negative results are more likely to be obtained when the FWSI has a low value (e.g. in the category of ‘staff’ or ‘others’). This points to a particular limitation of the method, which would become more pertinent if a new set of NRVs (using more recent and generally lower FWSI values) were to be used.

8. Conclusions

This assessment of the achievement of safety targets identified a “possible deterioration of safety performance” in eight EU Member States for three categories of railway users. In not a single EU Member State a “probable deterioration of safety performance” was observed.

It was found that railway safety in the EU remains acceptable for all categories of users. The Agency emphasizes nevertheless the enduring need to improve safety performance across the EU.

In accordance with Article 5 of the Method, the Member States with a possible deterioration of safety performance shall send to the Commission a report explaining the likely causes of the results obtained.

The Agency refers the readers of this report to the recent ex-post evaluation of the CSM CST to better interpret the results and to find several recommendations to improve the Method. In order to resolve issues related to outdated NRVs (particularly concerning the category ‘Others’) the Agency recommends a revision of the NRVs.

Annex 1 Overview of annual assessments

This is the thirteenth assessment of achievement of CSTs carried out by the Agency. The table below provides an overview of the specificities of all previous assessments made by the Agency.

CST report	Publication year	Year																		
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020		
1	2010	1st set of CSTs/NRVs																		
		MWA (4 years)				OBS														
2	2011	1st set of CSTs/NRVs																		
		MWA (4 years)				OBS														
3	2012	2nd set of CSTs/NRVs																		
		MWA (5 years)				OBS														
4	2013	2nd set of CSTs/NRVs																		
		MWA (5 years)				OBS														
5	2014	2nd set of CSTs/NRVs (amended)																		
		MWA (5 years)				OBS														
6	2015	2nd set of CSTs/NRVs (amended)																		
		MWA (5 years)				OBS														
7	2016	2nd set of CSTs/NRVs (amended)																		
		MWA (5 years)				OBS														
8	2017	2nd set of CSTs/NRVs (amended)																		
		MWA (5 years)				OBS														
9	2018	2nd set of CSTs/NRVs (amended)																		
		MWA (5 years)				OBS														
10	2019	2nd set of CSTs/NRVs (amended)																		
		MWA (5 years)				OBS														
11	2020	2nd set of CSTs/NRVs (amended)																		
		MWA (5 years)				OBS														
12	2021	2nd set of CSTs/NRVs (amended)																		
		MWA (5 years)				OBS														
13	2022	2nd set of CSTs/NRVs (amended)																		
		MWA (5 years)				OBS														

Annex 2 Names of risk categories across the relevant legislation

<i>Risk Category</i>	<i>2004/49/EC</i>	<i>2009/460/EC</i>		<i>2012/226/EU</i>	<i>2013/753/EU</i>	<i>(EU)2016/798</i>
	<i>Art.7</i>	<i>Art. 3</i>	<i>Appendix 1</i>	<i>Annex</i>	<i>Annex</i>	<i>Art. 7</i>
1.1	Passengers					
1.2						
2	Staff including the staff of contractors	'Staff' or 'employees including the staff of contractors'	Employees			Staff including employees or contractors
3.1	Level crossing users					
4	Others	Others (third parties)	Others	Persons classified as "others"	Persons classified as "others"	Others
5	Unauthorised persons on railway premises					Trespassers
6	Societal risks	Risk to the society as a whole	Whole society	Societal risks		

Annex 3 Results after the 2nd step of the assessment.

<i>Member State</i>	<i>Risk category 1.1 – ‘Passengers’</i>				
	<i>NRV (*10⁻⁹) [2004-2009]</i>	<i>OBS (*10⁻⁹) [2020]</i>	<i>OBS ≤ NRV (Yes/No)</i>	<i>MWA (*10⁻⁹) [2016-2020]</i>	<i>MWA ≤ NRV*1.2 (Yes/No)</i>
Belgium (BE)	37.26	0.00	Yes	8.58	Yes
Bulgaria (BG)	207.00	19.32	Yes	40.37	Yes
Czechia (CZ)	46.49	23.98	Yes	16.57	Yes
Denmark (DK)	9.03	0.00	Yes	8.35	Yes
Germany (DE)	8.13	0.20	Yes	4.85	Yes
Estonia (EE)	78.18	0.00	Yes	6.92	Yes
Ireland (IE)	2.74	0.00	Yes	0.00	Yes
Greece (EL)	54.67	0.00	Yes	36.76	Yes
Spain (ES)	29.19	2.40	Yes	10.30	Yes
France (FR)	22.53	8.75	Yes	5.85	Yes
Croatia (HR)	176.90	7.81	Yes	5.28	Yes
Italy (IT)	38.10	0.38	Yes	18.45	Yes
Latvia (LV)	78.18	0.00	Yes	15.00	Yes
Lithuania (LT)	97.16	0.00	Yes	0.00	Yes
Luxembourg (LU)	23.81	0.00	Yes	0.00	Yes
Hungary (HU)	170.18	45.06	Yes	39.80	Yes
Netherlands (NL)	7.43	0.00	Yes	0.77	Yes
Austria (AT)	26.25	2.70	Yes	9.34	Yes
Poland (PL)	116.13	0.63	Yes	9.61	Yes
Portugal (PT)	41.82	7.49	Yes	5.82	Yes
Romania (RO)	57.40	19.42	Yes	10.26	Yes
Slovenia (SI)	25.27	0.00	Yes	24.49	Yes
Slovakia (SK)	62.05	5.86	Yes	34.69	Yes
Finland (FI)	9.03	3.02	Yes	0.88	Yes
Sweden (SE)	3.54	0.00	Yes	0.05	Yes
Norway (NO)	2.83	0.00	Yes	1.47	Yes
Scaling basis – Passenger train-km per year.					

<i>Member State</i>	<i>Risk category 1.2 – ‘Passengers’</i>				
	<i>NRV (*10⁻⁹) [2004-2009]</i>	<i>OBS (*10⁻⁹) [2020]</i>	<i>OBS ≤ NRV (Yes/No)</i>	<i>MWA (*10⁻⁹) [2016-2020]</i>	<i>MWA ≤ NRV*1.2 (Yes/No)</i>
Belgium (BE)	0.32	0.00	Yes	0.06	Yes
Bulgaria (BG)	1.91	0.33	Yes	0.60	Yes
Czechia (CZ)	0.82	0.48	Yes	0.24	Yes
Denmark (DK)	0.11	0.00	Yes	0.10	Yes
Germany (DE)	0.08	0.00	Yes	0.04	Yes
Estonia (EE)	0.67	0.00	Yes	0.08	Yes
Ireland (IE)	0.03	0.00	Yes	0.00	Yes
Greece (EL)	0.50	0.00	Yes	0.30	Yes
Spain (ES)	0.27	0.03	Yes	0.07	Yes
France (FR)	0.11	0.04	Yes	0.03	Yes
Croatia (HR)	1.14	0.22	Yes	0.00	Yes
Italy (IT)	0.26	0.00	Yes	0.12	Yes
Latvia (LV)	0.67	0.00	Yes	0.14	Yes
Lithuania (LT)	0.76	0.00	Yes	0.00	Yes
Luxembourg (LU)	0.18	0.00	Yes	0.00	Yes
Hungary (HU)	1.65	0.08	Yes	0.46	Yes
Netherlands (NL)	0.09	0.00	Yes	0.01	Yes
Austria (AT)	0.29	0.04	Yes	0.08	Yes
Poland (PL)	0.85	0.01	Yes	0.08	Yes
Portugal (PT)	0.31	0.08	Yes	0.04	Yes
Romania (RO)	0.61	0.28	Yes	0.12	Yes
Slovenia (SI)	0.36	0.00	Yes	0.36	Yes
Slovakia (SK)	0.88	0.09	Yes	0.33	Yes
Finland (FI)	0.11	0.04	Yes	0.01	Yes
Sweden (SE)	0.03	0.00	Yes	0.00	Yes
Norway (NO)	0.03	0.00	Yes	0.02	Yes
Scaling basis – Passenger-km per year.					

<i>Member State</i>	<i>Risk category 2 - 'Staff including employees or contractors'</i>				
	<i>NRV (*10⁻⁹) [2004-2009]</i>	<i>OBS (*10⁻⁹) [2020]</i>	<i>OBS ≤ NRV (Yes/No)</i>	<i>MWA (*10⁻⁹) [2016-2020]</i>	<i>MWA ≤ NRV*1.2 (Yes/No)</i>
Belgium (BE)	24.63	0.00	Yes	8.91	Yes
Bulgaria (BG)	20.40	0.64	Yes	27.61	No
Czechia (CZ)	16.45	14.63	Yes	8.18	Yes
Denmark (DK)	9.10	16.37	No	1.51	Yes
Germany (DE)	12.56	8.28	Yes	7.80	Yes
Estonia (EE)	64.83	0.00	Yes	2.45	Yes
Ireland (IE)	5.22	0.00	Yes	0.32	Yes
Greece (EL)	77.87	10.99	Yes	72.30	Yes
Spain (ES)	8.81	7.97	Yes	6.85	Yes
France (FR)	6.06	3.67	Yes	4.06	Yes
Croatia (HR)	73.65	0.00	Yes	2.90	Yes
Italy (IT)	18.85	13.96	Yes	9.04	Yes
Latvia (LV)	64.83	0.00	Yes	19.36	Yes
Lithuania (LT)	41.01	6.43	Yes	36.00	Yes
Luxembourg (LU)	11.99	0.00	Yes	7.25	Yes
Hungary (HU)	9.31	0.00	Yes	4.41	Yes
Netherlands (NL)	5.97	6.59	No	3.88	Yes
Austria (AT)	20.29	1.27	Yes	3.66	Yes
Poland (PL)	17.18	18.41	No	11.78	Yes
Portugal (PT)	53.09	96.95	No	28.85	Yes
Romania (RO)	22.30	57.92	No	14.64	Yes
Slovenia (SI)	40.88	0.00	Yes	12.72	Yes
Slovakia (SK)	2.71	22.39	No	19.22	No
Finland (FI)	9.21	0.00	Yes	1.44	Yes
Sweden (SE)	2.86	13.53	No	9.72	No
Norway (NO)	2.82	0.00	Yes	1.27	Yes
Scaling basis - Train-km per year.					

<i>Member State</i>	<i>Risk category 3.1 - 'Level crossing users'</i>				
	<i>NRV (*10⁻⁹) [2004-2009]</i>	<i>OBS (*10⁻⁹) [2020]</i>	<i>OBS ≤ NRV (Yes/No)</i>	<i>MWA (*10⁻⁹) [2016-2020]</i>	<i>MWA ≤ NRV*1.2 (Yes/No)</i>
Belgium (BE)	138.00	59.80	Yes	64.95	Yes
Bulgaria (BG)	141.60	43.26	Yes	131.96	Yes
Czechia (CZ)	237.76	153.31	Yes	146.39	Yes
Denmark (DK)	65.43	0.00	Yes	15.54	Yes
Germany (DE)	67.76	27.00	Yes	33.44	Yes
Estonia (EE)	399.88	166.67	Yes	308.23	Yes
Ireland (IE)	23.57	0.00	Yes	0.00	Yes
Greece (EL)	710.26	21.98	Yes	327.59	Yes
Spain (ES)	108.72	21.93	Yes	37.12	Yes
France (FR)	78.72	44.06	Yes	54.92	Yes
Croatia (HR)	611.30	226.82	Yes	280.58	Yes
Italy (IT)	42.87	13.33	Yes	14.69	Yes
Latvia (LV)	239.16	8.65	Yes	281.15	Yes
Lithuania (LT)	521.65	64.31	Yes	137.21	Yes
Luxembourg (LU)	95.90	0.00	Yes	16.64	Yes
Hungary (HU)	274.20	168.24	Yes	197.03	Yes
Netherlands (NL)	126.54	28.35	Yes	42.20	Yes
Austria (AT)	160.16	100.51	Yes	71.30	Yes
Poland (PL)	277.30	203.40	Yes	208.18	Yes
Portugal (PT)	460.58	221.17	Yes	213.69	Yes
Romania (RO)	542.00	306.17	Yes	253.13	Yes
Slovenia (SI)	364.15	136.09	Yes	158.33	Yes
Slovakia (SK)	309.00	181.16	Yes	181.91	Yes
Finland (FI)	163.75	49.17	Yes	98.36	Yes
Sweden (SE)	63.98	8.80	Yes	26.47	Yes
Norway (NO)	21.61	17.89	Yes	16.85	Yes
Scaling basis - Train-km per year.					

<i>Member State</i>	<i>Risk category 4 - 'Others'</i>				
	<i>NRV (*10⁻⁹) [2004-2009]</i>	<i>OBS (*10⁻⁹) [2020]</i>	<i>OBS ≤ NRV (Yes/No)</i>	<i>MWA (*10⁻⁹) [2016-2020]</i>	<i>MWA ≤ NRV*1.2 (Yes/No)</i>
Belgium (BE)	2.86	1.27	Yes	9.53	No
Bulgaria (BG)	35.47	6.36	Yes	36.69	Yes
Czechia (CZ)	2.41	20.36	No	14.07	No
Denmark (DK)	14.15	16.37	No	1.51	Yes
Germany (DE)	3.05	6.30	No	6.82	No
Estonia (EE)	11.64	0.00	Yes	0.00	Yes
Ireland (IE)	7.00	0.00	Yes	0.00	Yes
Greece (EL)	4.51	0.00	Yes	0.00	Yes
Spain (ES)	5.54	28.57	No	16.04	No
France (FR)	7.71	9.04	No	5.89	Yes
Croatia (HR)	7.28	0.00	Yes	0.28	Yes
Italy (IT)	6.70	0.00	Yes	0.30	Yes
Latvia (LV)	11.64	0.00	Yes	66.93	No
Lithuania (LT)	11.64	0.00	Yes	0.00	Yes
Luxembourg (LU)	5.46	0.00	Yes	0.00	Yes
Hungary (HU)	4.51	0.00	Yes	3.11	Yes
Netherlands (NL)	4.70	6.59	No	8.12	No
Austria (AT)	11.09	0.64	Yes	2.14	Yes
Poland (PL)	11.64	4.19	Yes	1.10	Yes
Portugal (PT)	5.54	33.33	No	32.45	No
Romania (RO)	2.83	0.00	Yes	0.00	Yes
Slovenia (SI)	14.48	0.00	Yes	0.00	Yes
Slovakia (SK)	2.41	22.39	No	7.02	No
Finland (FI)	14.15	0.00	Yes	1.26	Yes
Sweden (SE)	14.15	0.68	Yes	1.30	Yes
Norway (NO)	14.15	0.00	Yes	0.00	Yes
Scaling basis - Train-km per year.					

<i>Member State</i>	<i>Risk category 5 - 'Trespassers'</i>				
	<i>NRV (*10⁻⁹) [2004-2009]</i>	<i>OBS (*10⁻⁹) [2020]</i>	<i>OBS ≤ NRV (Yes/No)</i>	<i>MWA (*10⁻⁹) [2016-2020]</i>	<i>MWA ≤ NRV*1.2 (Yes/No)</i>
Belgium (BE)	72.64	36.26	Yes	41.27	Yes
Bulgaria (BG)	900.20	96.69	Yes	243.97	Yes
Czechia (CZ)	301.26	45.80	Yes	45.73	Yes
Denmark (DK)	116.24	67.12	Yes	64.88	Yes
Germany (DE)	113.08	94.64	Yes	91.78	Yes
Estonia (EE)	1547.95	166.67	Yes	191.12	Yes
Ireland (IE)	85.23	63.33	Yes	60.56	Yes
Greece (EL)	722.94	263.74	Yes	748.21	Yes
Spain (ES)	167.83	36.55	Yes	53.58	Yes
France (FR)	67.16	67.79	No	86.79	No
Croatia (HR)	676.30	320.51	Yes	422.56	Yes
Italy (IT)	119.25	113.94	Yes	126.89	Yes
Latvia (LV)	1314.28	536.05	Yes	448.99	Yes
Lithuania (LT)	2045.34	340.86	Yes	533.07	Yes
Luxembourg (LU)	79.92	12.82	Yes	0.75	Yes
Hungary (HU)	588.06	119.90	Yes	558.60	Yes
Netherlands (NL)	15.93	13.18	Yes	12.68	Yes
Austria (AT)	119.03	15.27	Yes	58.31	Yes
Poland (PL)	1213.09	411.40	Yes	495.17	Yes
Portugal (PT)	834.33	505.97	Yes	417.01	Yes
Romania (RO)	1388.20	758.53	Yes	709.10	Yes
Slovenia (SI)	236.44	0.00	Yes	6.18	Yes
Slovakia (SK)	1758.00	368.42	Yes	398.19	Yes
Finland (FI)	248.74	42.75	Yes	29.58	Yes
Sweden (SE)	94.83	7.44	Yes	41.01	Yes
Norway (NO)	91.81	0.00	Yes	28.19	Yes
Scaling basis - Train-km per year.					

<i>Member State</i>	<i>Risk category 6 – ‘Societal risks’</i>				
	<i>NRV (*10⁻⁹) [2004-2009]</i>	<i>OBS (*10⁻⁹) [2020]</i>	<i>OBS ≤ NRV (Yes/No)</i>	<i>MWA (*10⁻⁹) [2016-2020]</i>	<i>MWA ≤ NRV*1.2 (Yes/No)</i>
Belgium (BE)	275.05	97.33	Yes	140.31	Yes
Bulgaria (BG)	1440.00	149.49	Yes	535.25	Yes
Czechia (CZ)	591.22	254.45	Yes	233.15	Yes
Denmark (DK)	217.92	99.86	Yes	106.24	Yes
Germany (DE)	203.16	137.72	Yes	141.57	Yes
Estonia (EE)	2107.86	333.33	Yes	484.54	Yes
Ireland (IE)	114.43	63.33	Yes	61.13	Yes
Greece (EL)	1535.77	296.70	Yes	1187.85	Yes
Spain (ES)	322.57	97.02	Yes	124.44	Yes
France (FR)	179.94	131.91	Yes	152.53	Yes
Croatia (HR)	1467.00	552.27	Yes	689.59	Yes
Italy (IT)	230.95	144.41	Yes	166.83	Yes
Latvia (LV)	1658.79	544.70	Yes	857.04	Yes
Lithuania (LT)	2587.94	411.60	Yes	787.91	Yes
Luxembourg (LU)	209.70	12.82	Yes	61.66	Yes
Hungary (HU)	1020.00	323.46	Yes	834.19	Yes
Netherlands (NL)	148.17	54.71	Yes	71.51	Yes
Austria (AT)	329.01	119.59	Yes	135.64	Yes
Poland (PL)	1590.22	637.81	Yes	722.26	Yes
Portugal (PT)	1361.81	863.48	Yes	693.92	Yes
Romania (RO)	1704.36	1136.41	Yes	1001.14	Yes
Slovenia (SI)	697.89	136.09	Yes	228.23	Yes
Slovakia (SK)	1131.08	598.42	Yes	630.29	Yes
Finland (FI)	416.98	94.06	Yes	133.35	Yes
Sweden (SE)	169.19	30.44	Yes	80.25	Yes
Norway (NO)	50.87	17.89	Yes	56.78	Yes
Scaling basis - Train-km per year.					

Annex 4 Overview of 'fail' results after the 2nd step of past assessments (2010 – 2021)

<i>Risk category</i>	<i>Passengers</i>		<i>Staff including employees or contractors</i>	<i>Level crossing Users</i>	<i>Others</i>	<i>Trespassers</i>	<i>Societal risks</i>
	<i>1.1⁷</i>	<i>1.2⁸</i>	<i>2</i>	<i>3.1</i>	<i>4</i>	<i>5</i>	<i>6</i>
2010 Assessment 2008 Data	Greece Slovakia	Greece Slovakia	Lithuania Romania	Romania	n.a.	Romania Slovakia	Romania Slovakia
2011 Assessment 2009 Data	Slovakia Slovenia	Slovakia Slovenia	Belgium Finland Lithuania Romania	Estonia Romania Slovenia	n.a.	Romania Slovakia	Romania Slovakia
2012 Assessment 2010 Data	Belgium Greece Spain Slovakia	Belgium Greece Slovakia	Bulgaria Estonia Romania Slovakia	Ireland Romania	n.a.	Romania Slovakia Sweden	Ireland Romania Slovakia
2013 Assessment 2011 Data	Slovakia	Slovakia	Bulgaria Finland Romania Slovakia		Romania	Romania Slovakia Sweden	[Norway] Romania
2014 Assessment 2012 Data			Bulgaria Lithuania Romania Slovakia Slovenia Sweden	Bulgaria	Croatia Netherlands Romania	Italy	[Norway] Slovakia

⁷ Scaling base: passenger train-km per year.⁸ Scaling base: passenger-km per year.

Risk category	Passengers		Staff including employees or contractors	Level crossing Users	Others	Trespassers	Societal risks
	1.1 ⁹	1.2 ¹⁰	2	3.1	4	5	6
2015 Assessment 2013 Data	Spain	Spain	Romania Slovakia	Bulgaria [Norway]	Belgium	Croatia France Italy [Norway]	[Norway] Slovakia
2016 Assessment 2014 Data			Hungary Romania Slovakia Sweden	[Norway] Bulgaria	Hungary	France Italy [Norway]	Slovakia
2017 Assessment 2015 Data			Austria Bulgaria Slovakia Sweden	[Norway]		Italy [Norway]	[Norway] Slovakia
2018 Assessment 2016 Data			Bulgaria Hungary Slovakia	Bulgaria	Hungary	Italy	
2019 Assessment 2017 Data			Slovakia	[Norway]	Czechia Latvia Portugal	France	

⁹ Scaling base: passenger train-km per year.

¹⁰ Scaling base: passenger-km per year.

120 Rue Marc Lefrancq | BP 20392 | FR-59307 Valenciennes Cedex

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Risk category	Passengers		Staff including employees or contractors	Level crossing Users	Others	Trespassers	Societal risks
	1.1 ¹¹	1.2 ¹²	2	3.1	4	5	6
2020 Assessment 2018 Data			Bulgaria Slovakia Sweden		Belgium Czechia Germany Latvia Hungary Netherlands Portugal	France	
2021 Assessment 2019 Data			Sweden	Latvia	Belgium Czechia Germany Spain Netherlands Portugal	France	

Notes: [] refer to the fact that Norway is not a MS.

¹¹ Scaling base: passenger train-km per year.

¹² Scaling base: passenger-km per year.

Annex 5 Overview of final results of past assessments (2010 – 2021)

<i>Risk category</i>	<i>Passengers</i>		<i>Staff including employees or contractors</i>	<i>Level crossing Users</i>	<i>Others</i>	<i>Trespassers</i>	<i>Societal risks</i>
	<i>1.1¹³</i>	<i>1.2¹⁴</i>	<i>2</i>	<i>3.1</i>	<i>4</i>	<i>5</i>	<i>6</i>
2010 Assessment 2008 CSI Data			(Romania)	(Romania)	n.a.	(Romania)	(Romania)
2011 Assessment 2009 CSI Data	Slovakia	Slovakia	Lithuania Romania	Romania	n.a.	Romania Slovakia	Romania Slovakia
2012 Assessment 2010 CSI Data					n.a.	Sweden	
2013 Assessment 2011 CSI Data	Slovakia	Slovakia	Bulgaria Romania Slovakia		Romania	Romania Slovakia Sweden	Romania
2014 Assessment 2012 CSI Data			Bulgaria Romania Slovakia Sweden	Bulgaria	(Croatia ¹⁵) (Romania)		[Norway]
2015 Assessment 2013 CSI Data			Romania Slovakia	Bulgaria		Italy [Norway]	Slovakia [Norway]
2016 Assessment 2014 CSI Data			Hungary Romania Slovakia Sweden	Bulgaria [Norway]	Hungary	France Italy [Norway]	Slovakia

Risk category	Passengers		Staff including employees or contractors	Level crossing Users	Others	Trespassers	Societal risks
	1.1	1.2	2	3.1	4	5	6
2017 Assessment 2015 CSI Data			Bulgaria Slovakia Sweden	[Norway]		Italy [Norway]	Slovakia [Norway]
2018 Assessment 2016 CSI Data			Bulgaria Hungary Slovakia	Bulgaria	Hungary	Italy	
2019 Assessment 2017 CSI Data			Slovakia	[Norway]		France	
2020 Assessment 2018 CSI Data			Bulgaria Slovakia		Czechia Latvia Hungary Portugal	France	
2021 Assessment 2019 CSI Data			Sweden		Belgium Czechia Germany Netherlands Portugal	France	

Notes: [] refer to the fact that Norway is not a MS. () mean that the result cannot be fully relied upon due to data quality issues. For countries in **bold** “probable deterioration of safety performance” and for the other cases “possible deterioration of safety performance”. The assessment result for countries excluded from the table was “acceptable safety performance”.

¹³ Scaling base: passenger train-km per year.

¹⁴ Scaling base: passenger-km per year.

¹⁵ Assessment carried out retrospectively for 2010 and 2011.

120 Rue Marc Lefrancq | BP 20392 | FR-59307 Valenciennes Cedex

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