



EUROPEAN RAILWAY AGENCY
Safety Unit

2014 REPORT ON THE ASSESSMENT OF ACHIEVEMENT OF SAFETY TARGETS

Reference:
Version: 1.1
Date: 31 March 2014
Status: Final Report
Author: ERA, Safety Unit, Regulation and Safety Monitoring Sector



Version Control

| | |
|---------------------|--|
| Document issued by: | European Railway Agency 120 rue Marc Lefrancq F-59300 Valenciennes France |
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| Version: | 1.1 |
| Date: | 31 March 2014 |
| Type of document: | Final report (with corrections to Annex I+III) |
| Status of document: | Final to EC |

Amendment records

| Version | Issued by | Modified sections | Distribution |
|---------|-----------|--|----------------|
| 0.1 | VE | First draft, without input from NSAs | ERA |
| 1.0 | CC | Final report | EC |
| 1.1 | CC | Final report with corrections to Annex I+III | RISC, NSAs, EC |

Reference:
Version: 1.1
Date: 31 March 2014
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References

| N° | Description | Reference | Version |
|-----|--|--------------------------|--|
| [1] | 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) | Railway Safety Directive | Amended by Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community and by Directive 2008/110/EC of the European Parliament and of the Council of 23 December 2008 amending the Railway Safety Directive and by Commission Directive 2009/149/EC of 27 November 2009 amending Directive 2004/49/EC of the European Parliament and of the Council as regards Common Safety Indicators and common methods to calculate accident costs |
| [2] | Commission Decision 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 | OJ L 150/11, 5 June 2009 |
| [3] | Regulation (EC) No 91/2003 of the European Parliament and of the Council on rail transport statistics | (EC) 91/2003 | Amended by Commission Regulation (EC) 1192/2003 |
| [4] | Commission implementing decision of 22.7.2011 on a mandate to the European Railway Agency on the revision of common safety targets and related common safety method for period 2011-2015 | C(2011) 5158 | 22 July 2011 |
| [5] | Commission Decision on the second set of common safety targets as regards the rail system | 2012/226/EU | 23 April 2012 |
| [6] | Commission implementing decision of 11 December amending Decision 2012/226/EU on the second set of common safety targets for the rail system | 2013/753/EU | 11 December 2013 |



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List of abbreviations:

| Abbreviation | Term |
|--------------|-----------------------------|
| Agency | European Railway Agency |
| CSM | Common Safety Method |
| CST | Common Safety Target |
| MWA | Moving Weighted Average |
| NRV | National Reference Value |
| OSP | Observed Safety Performance |



0. Executive Summary

This report presents the third assessment of achievement of the second set of Common Safety Targets (CSTs) and National Reference Values (NRVs) carried out in accordance with the Common Safety Method (CSM) defined in the Commission Decision 2009/460/EC [2], and in particular the Article 4 of the Decision. The assessment concern 26 of 28 EU Member States that have a railway system, plus Norway. For the first time, the assessment was carried out for Croatia, which joined the EU in 2013.

The NRVs and the second set of CSTs were established using Eurostat data for the years 2004-2009 and published as the Commission Decision 2012/226/EU [5] in 2012, which was later amended by the Commission Implementing Decision 2013/753/EU [6]. This assessment is based on Eurostat data for the years 2008-2012 that were retrieved from Eurobase on 10 March 2014.

For all railway user categories, the respective National Reference Value (NRV) was lower than the corresponding CST; the NRVs represented the maximum tolerable level of the risk to which it refers for this assessment. As with the assessments carried out in the past, NRVs represented the safety targets that were subject to the assessment of achievements as described in the CSM.

In general, the results of the assessment indicate that the railway safety performance remains acceptable at the EU level for all categories of railway users under consideration.

The results of the assessment of achievements of NRVs indicate other than acceptable safety performance in five Member States with “possible deterioration of safety performance” as follows:

- Bulgaria (Employees, Level crossing users)
- Croatia (Others)
- Romania (Employees, Others)
- Slovakia (Employees)
- Sweden (Employees)

Whereas, the results determined for the category of Others (Croatia and Romania) are judged unreliable by the Agency. This is due to the poor quality of data used for the assessment.

Despite the continuous limitation in data used for the assessment of safety targets, the results obtained through this assessment should be considered as valid and a further investigation shall be made to identify causes of the negative results obtained.

Here, notably, the Member States for which there is a possible deterioration in safety performance in any category of user, shall, in accordance with Article 5 of the Method [2], send to the Commission a report explaining the likely causes of the results obtained.



1. Introduction

This report presents the results of the annual assessment of achievement of National Reference Values (NRVs) and Common Safety Targets (CSTs) in accordance with the requirements of the Commission Decision 2009/460/EC [2], Article 3.1.3.

No later than 31 March each year the Agency shall report to the Commission on the overall results of the assessment of achievement of NRVs and CSTs.

The Common Safety Method (CSM) for assessing the achievement of CSTs and of NRVs is set out in Commission Decision 2009/460/EC [2] (hereafter also referred to as the Method).

This 2014 annual assessment, fifth annual assessment carried out by the Agency so far, concerns the assessment of the achievement of the second set of NRVs and of CSTs with reference to the data available for the period 2008-2012. The second set of NRVs/CSTs has been introduced in the Commission Decision of 23 April 2012 on the second set of CSTs as regards the rail system. It was amended in 2014 in the Commission Implementing Decision 2013/753/EU.

The values for the second set of CSTs were calculated on the basis of the data from 2004 to 2009, which have been supplied to Eurostat by Member States in accordance with Regulation (EC) No 91/2003 of the European Parliament and of the Council of 16 December 2002 on rail transport statistics /3/. They have been calculated using the methodology set out in points 2.1.1 and 2.3.1 of the Annex of the Method [2].

NRVs and CSTs were calculated for each Member State and for each of the following risk categories: Passengers (1.1 and 1.2), Employees (2), Level crossing users (3.1), Others (4), Unauthorized persons on railway premises (5) and Whole society (6). Similarly to the past assessments, the assessment was not done for the category of level crossing users (3.2) due to the absence of relevant data in the Eurostat database.



2. Method for assessing achievement of safety targets

The Methodology to assess the achievement of NRVs as described in the Annex to the Commission Decision on the CSM has been thoroughly applied in this assessment.

2.1. Data

To assess the achievement of NRVs, the Agency has used the Eurostat data for the five most recently reported years (2008-2012), in accordance with point 3.1.4 of the Annex of the Method /2/. The data of 2012 is the latest observed safety performance (OSP), as referred to in the first step of the assessment procedure.

The data was extracted from the Eurostat database on 10 March 2014 after the consultation with the Eurostat. The data were sent by Statistical Offices of MSs within five months after the end of the reference period and for the 2012 datasets. According to the information from Eurostat, the data in datasets “rail_ac_catvict_extr” and “rail_ac_catnubr_extr” there were last updated on 02 December 2013 and the data in dataset “rail_tf_trainmv” was updated on 05 March 2014. The consistency of data was verified by ERA for year 2012 by comparing the Eurostat data with CSI data. In case of major differences, the NSA was requested to verify and eventually correct the data reported to Eurostat. This resulted in update some in values for Ireland that was taken into account for this assessment.

In some instances, data were not available in the Eurostat database by 24 March 2014; in these cases the CSI data were used instead. The CSI data were extracted on the 24 March 2014 from the Agency’s ERAIL-CSI database. In some instances, the Eurostat database contained mistype value, as confirmed with Eurostat after analysing CSI data. In these cases, the CSI data were used instead. The Annex III to this report shows the overview of instances in which the CSI data had to be used in place of Eurostat values. The data for carrying out the assessment for the categories level crossing users, unauthorised persons and others were inferred as described in the Annex of the report on the development of the second set of CST, as they are not directly available in Eurobase.

2.2. Four-step assessment procedure

The four-step assessment procedure described in chapter 3 of the Annex of the Method has been applied for each of the six risk categories:

- passengers (1.1 and 1.2)
- employees (2)
- level crossing users (3.1)
- others (4)
- unauthorised persons on railway premises (5)
- whole society (6).

There are four steps in the procedure for assessing the achievement of NRVs; these are described in the flowchart in Figure 1, which is taken from the Appendix 2 to the Annex to the Method. The yes-arrows correspond to a passed result and the no-arrows to a failed result at each step.

The first step and first part of the second step are performed autonomously by the Agency using the Eurostat data. In the second part of the second step, the Agency has to use the input of the MSs concerned for the specifics of the single highest-consequence accident in the most recent years excluding the years used to set NRV.

The third and fourth steps are carried out by the Agency autonomously with the Eurostat data.



The detailed description of the content of the each step is available in chapter 3.2 of the Annex to the Method.

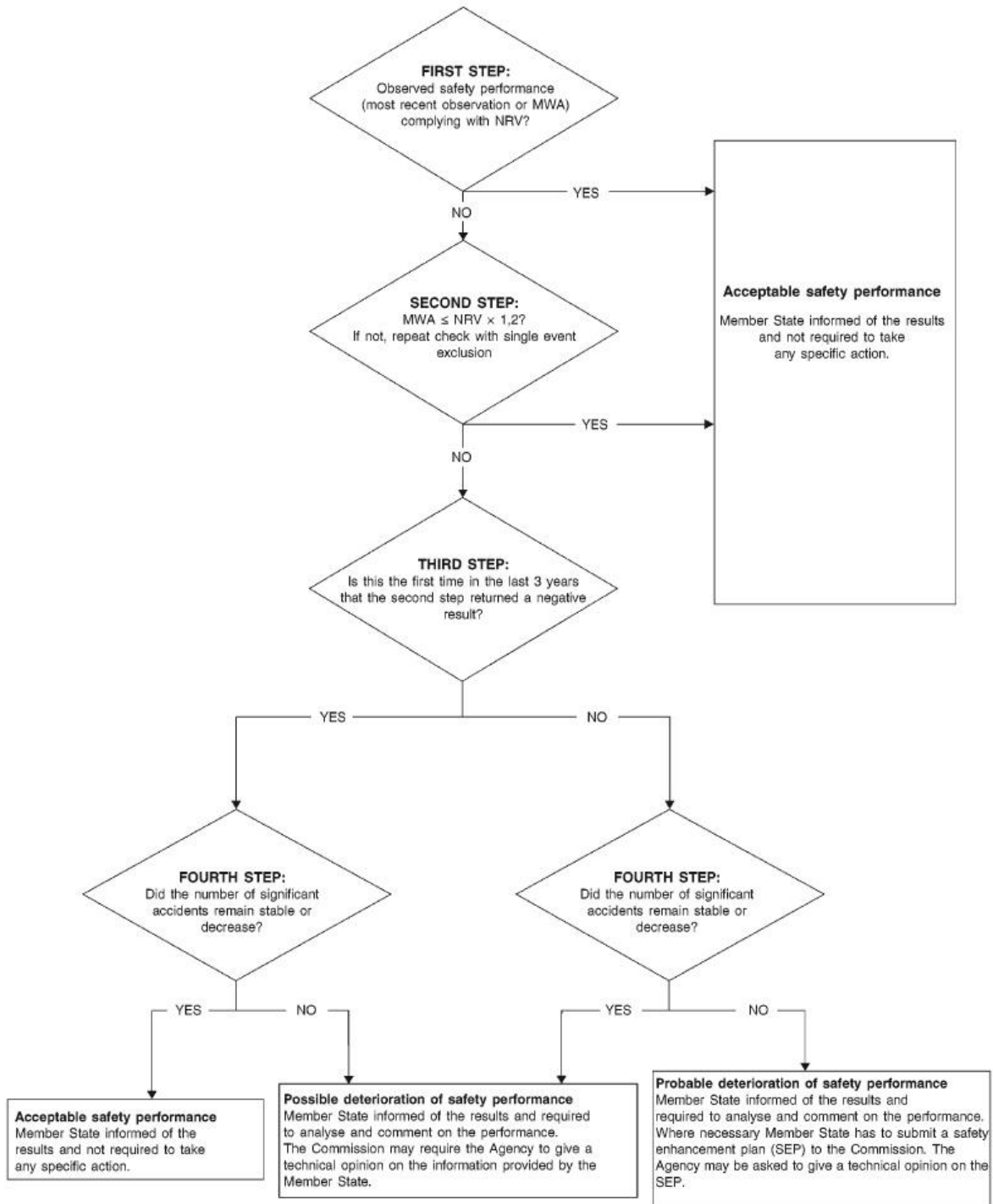


Figure 1: Decision flowchart for the assessment procedure of CSTs



3. Results of the assessment

3.1. First and second step of the assessment procedure

The majority of Member States achieved a ‘passed’ result at either first or second step of the assessment for all risk categories considered indicating acceptable safety performance (see Figure 1). For 11 Member States and Norway, there was a ‘failed’ result for one or more specific risk categories in the intermediate second step (see Annex and Table 1)¹.

| Risk category | Passengers | | Employees | Level crossing users | Others | Unauthorised persons | Whole society |
|--|------------------|------------------|---|-----------------------------|--|----------------------|-----------------------------|
| | 1.1 ² | 1.2 ³ | 2 | 3.1 | 4 | 5 | 6 |
| <i>Failing after 2nd step</i> | <i>none</i> | <i>none</i> | <i>Bulgaria Lithuania Poland Romania Slovenia Slovakia Sweden</i> | <i>Bulgaria Norway*</i> | <i>Croatia Netherlands Romania</i> | <i>Italy</i> | <i>Slovakia Norway*</i> |

Table 1: Intermediate results of the 2014 assessment: Member States failing after two steps of the assessment method - after applying the 20 % tolerance.

According to the Annex of the Method [2] describing assessment method, if the tolerance of 20 % is not met, the Agency shall ask the safety authority of the Member State concerned to provide the specifics of the single highest-consequence accident in the most recent years excluding the years used to set NRV, here namely in the period 2010-2012.

The single highest-consequence accidents were identified in cooperation with Member States (Table 2). Only if this single accident occurring in the period 2010-2012 was more severe, in terms of consequences, than the most severe single accident included in the data used for setting the NRV (years 2004-2009), it could have been excluded from the statistics for the revised calculation. The overview in Table 2 shows whether this was the case.

| MS | NRV | Accident specifics (relevant highest-consequence accident in 2010-2012) | Excluded |
|----|-----|--|----------|
| BG | 2 | 15/10/2010 – Level crossing accident near Sofia leading to one fatality and one serious injury among employees. | Yes |
| BG | 3.1 | 15/10/2010 – Level crossing accident near Sofia leading to one killed level crossing user. | No |
| HR | 4 | N/A (Croatian NSA informed the Agency that it was not possible to identify the relevant accident in the given time frame.) | No |
| IT | 5 | 19/10/2012 - Accident to person near to Viareggio station, resulting in three fatalities (others) | No |
| LT | 2 | 26/01/2012 - Accident to person at Vaidotai Railway Station, resulting in one employee fatality | No |

¹ The NRVs and CST for the risk category 3.2 were not established in the second set due to the lack of data reliability.

² Scaling base: passenger train-km per year.

³ Scaling base: passenger-km per year.



| | | | |
|-----|-----|---|-----|
| NL | 4 | 30/06/2012 - Accident to person at platform in Baarn, resulting in one fatality (other) | Yes |
| PL | 2 | 03/03/2012 - Collision of trains near Szczekociny, resulting in 5 killed and 2 seriously injured employees | Yes |
| RO | 2 | 09/12/2010 – Train collision between stations Bacău and Valea Seacă resulting in 7 seriously injured employees | No |
| RO | 4 | No significant accident resulting in casualties among others reported to NSA and to the Agency in this period. | No |
| SI | 2 | 10/08/2010 – Other accident - electrocution at Brezice railway station, resulting in one employee fatality 08/08/2012 – Accident to person at Brezovica railway station, one employee fatality | No |
| SK | 2 | 01/04/2010 – Train collision in Spisska Nova Ves station, resulting in one killed and two seriously injured employees | Yes |
| SK | 6 | 26/10/2012 – Train collision near Bratislava-Vinohrady, resulting in two seriously injured employees and 11 seriously injured passengers | No |
| SE | 2 | 04/06/2010 – Accident to persons near Karlberg, resulting in one killed one seriously injured employee | No |
| NO* | 3.1 | 29/04/2010 – Level crossing accident near Skoppum resulting in one fatality and one seriously injured level crossing users | Yes |
| NO* | 6 | 24/03/2010 – Accident to person in Sjørøya, resulting in three fatalities and four serious injuries (other person not at a platform) | Yes |

Table 2: Single highest-consequence accidents in the period 2010-2012 for Member States failing after two steps of the assessment

The MWA were recalculated for NRVs of MSs where the single highest-consequence accident could have been excluded from the dataset. The final results of the second assessment step are summarised in Table 3.

| Risk category | Passengers | | Employees | Level crossing users | Others | Unauthorised persons | Whole society |
|--|------------------|------------------|--|----------------------|--|----------------------|-----------------------------|
| | 1.1 ⁴ | 1.2 ⁵ | 2 | 3.1 | 4 | 5 | 6 |
| <i>Failing after 2nd step</i> | <i>none</i> | <i>none</i> | <i>Bulgaria Lithuania Romania Slovenia Slovakia Sweden</i> | <i>Bulgaria</i> | <i>Croatia Romania Netherlands</i> | <i>Italy</i> | <i>Norway* Slovakia</i> |

Table 3: Intermediate results of the assessment: Member States failing after two steps of the assessment method (after exclusion of the single highest-consequence accident).

The values and the result of the second step are summarized in the Annex I.

⁴ Scaling base: passenger train-km per year.

⁵ Scaling base: passenger-km per year.



3.2. Third and fourth step of the assessment procedure

Third and fourth assessment steps were applied to the above cases leading to a ‘passed’ result – acceptable safety performance – for the majority of cases, except the ones summarized in Table 4. Since the number of significant accident did not increase for any case in Table 3, the final result of the assessment is “possible” and not “probable” deterioration of safety performance.

| Risk category | Passengers | | Employees | Level crossing users | Others | Unauthorised persons | Whole society |
|---|------------------|------------------|---|----------------------|--|----------------------|-----------------|
| | 1.1 ⁶ | 1.2 ⁷ | 2 | 3.1 | 4 | 5 | 6 |
| <i>Result after 4th step: possible deterioration</i> | <i>none</i> | <i>none</i> | <i>Bulgaria Romania Slovakia Sweden</i> | <i>Bulgaria</i> | <i>(Croatia⁸) (Romania)</i> | <i>none</i> | <i>[Norway]</i> |

Notes: (MS) means that the result cannot be fully relied upon due to data quality issues; [Norway] refers to the fact that it is not a MS so the CSM does not formally apply to it.

Table 4: Final result of the assessment after applying all four steps of the assessment method.

For **Bulgaria**, it was for the third time in the past three years that the second step returned negative result in the category of Employees (2) and Level crossing users (3.1); it was for the second time for the category of Others (4). Since the number of relevant significant accidents has decreased, the result of the assessment is possible deterioration of safety performance in the category of Employees (2), Level crossing users (3.1) and Others (4).

For **Croatia**, it was for the third time in the past three years that the second step returned negative result in the category of Others (4). Since the number of accidents has decreased, the result of the assessment is possible deterioration of safety performance in the category of Others (4).

For **Romania**, it was for the third time in the past three years that the second step returned negative result in the category of Employees (2) and Others (6). Since the number of accidents has decreased, the result of the assessment is possible deterioration of safety performance in the category of Employees (2) and Others (4).

For **Slovakia**, it was for the third time in the past three years that the second step returned negative result in the category of employees (2). Since the number of accidents has decreased, the result of the assessment is possible deterioration of safety performance in the category of Employees (2). It was for the first time in the past three years that the second step returned negative result in the category of Whole society (6); the result of the assessment for this category is thus acceptable safety performance.

For **Sweden**, it was for the second time in the past three years that the second step returned negative result for the category of employees. Since the number of accident has decreased, the result of the assessment process for Sweden is: Possible deterioration of safety performance in the category of Employees (2).

The results of the application of all steps of the Method are also available for Norway:

⁶ Scaling base: passenger train-km per year.

⁷ Scaling base: passenger-km per year.

⁸ The assessment was carried out retrospectively for 2010 and 2011 for Croatia and these results considered here.



For **Norway**, it was for the second time in the past three years that the second step returned negative result for the category of Whole society (6). Since the number of accident has decreased, the result of the assessment process for Norway is: Possible deterioration of safety performance in the category of Whole society (6).

This completes the second assessment on the achievement of the second set of CSTs and NRVs.

3.3. Analysis of the results

The fifth annual assessment of achievements of safety targets lead to acceptable safety performance in the category of passenger (1), unauthorized persons (5) and whole society (6) in all MSs. The result in the categories of passenger and whole society is particularly positive. At the same time, the possible deterioration of railway safety in the category of employees (2) in four MSs is a source of concern. The result of the assessment in the category of others should be taken with certain distance, since there is a continuous discrepancy in data submitted to Eurostat and to ERA for some Member States. This is notably the case of Romania.

In case of Romania, the number of fatalities and serious injuries in the category Others reported to ERA under CSI data for past five years is zero. Their use in this assessment would had led to “acceptable safety performance” in the category of Others. We therefore suggest considering the results of the assessment in this category as unreliable.

In case of Croatia, there is a doubt about the reliability of the national data collected and reported before the accession of the country to the EU in 2013. Therefore the result of the assessment achieved for Croatia in 2014 cannot be fully relied upon.

3.3.1.1. Trend in significant accidents

As an exercise, the Agency used the procedure to give information to the Member States on the possible trends in the number of significant accidents. The third and fourth step of the assessment procedure was applied to examine the data for a trend in the number of significant accidents, which might suggest that safety performance should be looked at more closely in the future. The Agency applied these steps to the data for those Member States and risk categories, which had passed either the first or the second step. The results indicated a ‘passed’ outcome in all Member States for all risk categories. This is due to the general slight decrease of number of accidents in 2012, compared to the previous years.

| Type of accident | All significant accidents | Level crossing accidents | Accidents caused by rolling stock in motion |
|---------------------------|---------------------------|--------------------------|---|
| <i>Test result failed</i> | <i>none</i> | <i>none</i> | <i>none</i> |

Table 5: The hypothetical intermediate results of the assessment: Member States failing after four steps of the assessment method (trend in significant accidents).



4. Conclusion

The Agency finds that it is still not always possible to draw firm conclusions on trends in safety performance in all individual Member States in the framework of safety targets. The major limitation represents the reliance on the Eurostat data used for the establishment of the second set of CSTs/NRVs and for this evaluation, as they are in some cases inconsistent with the data collected by the NSAs and reported to ERA (CSIs).

This 2014 assessment of achievements of safety targets identified “possible deterioration of safety performance” in three categories of railway users in five EU Member States, whereas the result of the assessment achieved for Croatia and Romania in the category Others (5) cannot be fully relied upon due to inconsistencies in data.

In accordance with the Article 5 of the Method [2], the Member States that achieved a negative result in this assessment (with a possible deterioration of railway safety in one or more categories) “shall send to the Commission the likely causes of the results obtained”. Such explanation should include an analysis of the datasets reported to Eurostat and ERA.

The Commission may consider specifying the deadline and format of the report, since these are not specified in the Article 5.



ANNEXES



Annex I: Intermediate results of the assessment (after second step)

| | Risk to passengers (1.1) | | | | |
|---------------------|-----------------------------|------------------------|---|-----------------------------|----------------------------|
| | NRV (*10e-9) [2004-2009] | OSP (*10e-9) [2012] | OSP [2012] < NRV [2004-2009] Yes/No | MWA (*10e-9) [2008-2012] | MWA ≤ NRV*1,2 Yes/No |
| Belgium (BE) | 37.3 | 1.17 | Yes | | |
| Bulgaria (BG) | 207.00 | 89.95 | Yes | | |
| Czech Republic (CZ) | 46.5 | 21.42 | Yes | | |
| Denmark (DK) | 9.04 | 14.66 | No | 7.36 | Yes |
| Germany (DE) | 8.13 | 6.25 | Yes | | |
| Estonia (EE) | 78.2 | 0.00 | Yes | | |
| Ireland (IE) | 2.74 | 0.00 | Yes | | |
| Greece (EL) | 54.7 | 0.00 | Yes | | |
| Spain (ES) | 29.2 | 34.61 | No | 26.20 | Yes |
| France (FR) | 22.5 | 6.11 | Yes | | |
| Croatia (HR) | 176.9 | 27.50 | Yes | | |
| Italy (IT) | 38.1 | 9.47 | Yes | | |
| Latvia (LV) | 78.2 | 0.00 | Yes | | |
| Lithuania (LT) | 97.2 | 0.00 | Yes | | |
| Luxembourg (LU) | 23.8 | 0.00 | Yes | | |
| Hungary (HU) | 170 | 86.27 | Yes | | |
| Netherlands (NL) | 7.43 | 22.46 | No | 6.54 | Yes |
| Austria (AT) | 26.3 | 9.13 | Yes | | |
| Poland (PL) | 116.1 | 160.75 | No | 103.16 | Yes |
| Portugal (PT) | 41.8 | 6.82 | Yes | | |
| Romania (RO) | 57.4 | 30.31 | Yes | | |
| Slovenia (SI) | 25.3 | 0.00 | Yes | | |
| Slovakia (SK) | 62.1 | 70.13 | No | 58.55 | Yes |
| Finland (FI) | 9.04 | 0.00 | Yes | | |
| Sweden (SE) | 3.54 | 0.94 | Yes | | |
| United Kingdom (UK) | 2.73 | 0.00 | Yes | | |
| Norway (NO) | 2.83 | 0.00 | Yes | | |



| | Risk to passengers (1.2) | | | | |
|---------------------|-----------------------------|------------------------|---|-----------------------------|----------------------------|
| | NRV (*10e-9) [2004-2009] | OSP (*10e-9) [2012] | OSP [2012] < NRV [2004-2009] Yes/No | MWA (*10e-9) [2008-2012] | MWA ≤ NRV*1,2 Yes/No |
| Belgium (BE) | 0.318 | 0.010 | Yes | | |
| Bulgaria (BG) | 1.911 | 0.963 | Yes | | |
| Czech Republic (CZ) | 0.817 | 0.372 | Yes | | |
| Denmark (DK) | 0.110 | 0.169 | No | 0.088 | Yes |
| Germany (DE) | 0.081 | 0.055 | Yes | | |
| Estonia (EE) | 0.665 | 0.000 | Yes | | |
| Ireland (IE) | 0.028 | 0.000 | Yes | | |
| Greece (EL) | 0.503 | 0.000 | Yes | | |
| Spain (ES) | 0.270 | 0.289 | No | 0.218 | Yes |
| France (FR) | 0.110 | 0.031 | Yes | | |
| Croatia (HR) | 1.135 | 0.161 | Yes | | |
| Italy (IT) | 0.256 | 0.058 | Yes | | |
| Latvia (LV) | 0.665 | 0.000 | Yes | | |
| Lithuania (LT) | 0.757 | 0.000 | Yes | | |
| Luxembourg (LU) | 0.176 | 0.000 | Yes | | |
| Hungary (HU) | 1.650 | 0.910 | Yes | | |
| Netherlands (NL) | 0.0889 | 0.182 | No | 0.052 | Yes |
| Austria (AT) | 0.292 | 0.092 | Yes | | |
| Poland (PL) | 0.849 | 1.312 | No | 0.789 | Yes |
| Portugal (PT) | 0.309 | 0.053 | Yes | | |
| Romania (RO) | 0.607 | 0.465 | Yes | | |
| Slovenia (SI) | 0.362 | 0.000 | Yes | | |
| Slovakia (SK) | 0.883 | 0.898 | No | 0.784 | Yes |
| Finland (FI) | 0.110 | 0.000 | Yes | | |
| Sweden (SE) | 0.033 | 0.008 | Yes | | |
| United Kingdom (UK) | 0.028 | 0.000 | Yes | | |
| Norway (NO) | 0.033 | 0.000 | Yes | | |



| Member State | Risk to employees (2) | | | | |
|---------------------|-----------------------------|------------------------|---|-----------------------------|---------------------------------|
| | NRV (*10e-9) [2004-2009] | OSP (*10e-9) [2012] | OSP [2012] < NRV [2004-2009] Yes/No | MWA (*10e-9) [2008-2012] | MWA \leq NRV*1,2 Yes/No |
| Belgium (BE) | 24.6 | 13.10 | Yes | | |
| Bulgaria (BG) | 20.40 | 116.71 | No | 41.24 | No |
| Czech Republic (CZ) | 16.5 | 19.67 | No | 19.67 | Yes |
| Denmark (DK) | 9.10 | 1.59 | Yes | | |
| Germany (DE) | 12.6 | 9.63 | Yes | | |
| Estonia (EE) | 64.8 | 0.00 | Yes | | |
| Ireland (IE) | 5.22 | 0.00 | Yes | | |
| Greece (EL) | 77.9 | 17.10 | Yes | | |
| Spain (ES) | 8.81 | 0.96 | Yes | | |
| France (FR) | 6.06 | 13.93 | No | 4.77 | Yes |
| Croatia (HR) | 73.65 | 21.09 | Yes | | |
| Italy (IT) | 18.9 | 5.69 | Yes | | |
| Latvia (LV) | 64.8 | 5.30 | Yes | | |
| Lithuania (LT) | 41.0 | 75.01 | No | 62.40 | No |
| Luxembourg (LU) | 12.0 | 0.00 | Yes | | |
| Hungary (HU) | 9.3 | 9.51 | No | 9.83 | Yes |
| Netherlands (NL) | 5.97 | 4.67 | Yes | | |
| Austria (AT) | 20.3 | 19.16 | Yes | | |
| Poland (PL) | 17.2 | 49.08 | No | 19.99 | Yes |
| Portugal (PT) | 53.1 | 0.00 | Yes | | |
| Romania (RO) | 22.3 | 34.40 | No | 39.82 | No |
| Slovenia (SI) | 40.9 | 53.98 | No | 52.32 | No |
| Slovakia (SK) | 2.71 | 27.35 | No | 9.11 | No |
| Finland (FI) | 9.21 | 0.00 | Yes | | |
| Sweden (SE) | 2.86 | 15.10 | No | 11.78 | No |
| United Kingdom (UK) | 5.17 | 2.21 | Yes | | |
| Norway (NO) | 2.82 | 6.88 | No | 2.77 | Yes |



| Member State | Risk to level crossing users (3.1) | | | | |
|---------------------|------------------------------------|------------------------|---|-----------------------------|---------------------------------|
| | NRV (*10e-9) [2004-2009] | OSP (*10e-9) [2012] | OSP [2012] < NRV [2004-2009] Yes/No | MWA (*10e-9) [2008-2012] | MWA \leq NRV*1,2 Yes/No |
| Belgium (BE) | 138 | 136.0 | Yes | | |
| Bulgaria (BG) | 142 | 330.7 | No | 207.22 | No |
| Czech Republic (CZ) | 238 | 137.7 | Yes | | |
| Denmark (DK) | 65.4 | 38.1 | Yes | | |
| Germany (DE) | 67.8 | 60.8 | Yes | | |
| Estonia (EE) | 400 | 14.3 | Yes | | |
| Ireland (IE) | 23.6 | 0.0 | Yes | | |
| Greece (EL) | 710 | 624.2 | Yes | | |
| Spain (ES) | 109 | 50.8 | Yes | | |
| France (FR) | 78.7 | 71.7 | Yes | | |
| Croatia (HR) | 611.3 | 409.1 | Yes | | |
| Italy (IT) | 42.9 | 68.2 | No | 36.53 | Yes |
| Latvia (LV) | 239 | 281.2 | No | 259.29 | Yes |
| Lithuania (LT) | 522 | 218.2 | Yes | | |
| Luxembourg (LU) | 95.9 | 0.0 | Yes | | |
| Hungary (HU) | 274 | 253.2 | Yes | | |
| Netherlands (NL) | 127 | 92.8 | Yes | | |
| Austria (AT) | 160 | 111.2 | Yes | | |
| Poland (PL) | 277 | 314.5 | No | 303.34 | Yes |
| Portugal (PT) | 461 | 226.7 | Yes | | |
| Romania (RO) | 542 | 521.5 | Yes | | |
| Slovenia (SI) | 364 | 248.3 | Yes | | |
| Slovakia (SK) | 309 | 512.9 | No | 360.40 | Yes |
| Finland (FI) | 164 | 129.7 | Yes | | |
| Sweden (SE) | 64 | 52.8 | Yes | | |
| United Kingdom (UK) | 23 | 11.8 | Yes | | |
| Norway (NO) | 21.6 | 22.9 | No | 23.16 | Yes |



| Member State | Risk to 'others' (4) | | | | |
|---------------------|-----------------------------|------------------------|---|-----------------------------|----------------------------|
| | NRV (*10e-9) [2004-2009] | OSP (*10e-9) [2012] | OSP [2012] < NRV [2004-2009] Yes/No | MWA (*10e-9) [2008-2012] | MWA ≤ NRV*1,2 Yes/No |
| Belgium (BE) | 2.86 | 0.00 | Yes | | |
| Bulgaria (BG) | 35.47 | 38.90 | No | | |
| Czech Republic (CZ) | 2.41 | 0.00 | Yes | | |
| Denmark (DK) | 14.2 | 1.59 | Yes | | |
| Germany (DE) | 3.05 | 4.62 | No | 1.44 | Yes |
| Estonia (EE) | 11.6 | 0.00 | Yes | | |
| Ireland (IE) | 7.00 | 11.97 | No | 3.59 | Yes |
| Greece (EL) | 4.51 | 0.00 | Yes | | |
| Spain (ES) | 5.54 | 14.85 | No | 5.50 | Yes |
| France (FR) | 7.71 | 4.85 | Yes | | |
| Croatia (HR) | 7.28 | 109.66 | No | 105.79 | No |
| Italy (IT) | 7.71 | 0.00 | Yes | | |
| Latvia (LV) | 11.6 | 0.00 | Yes | | |
| Lithuania (LT) | 11.6 | 0.00 | Yes | | |
| Luxembourg (LU) | 5.46 | 0.00 | Yes | | |
| Hungary (HU) | 4.51 | 17.29 | No | 4.97 | Yes |
| Netherlands (NL) | 4.70 | 9.35 | No | 5.75 | No |
| Austria (AT) | 11.1 | 12.98 | No | 9.84 | Yes |
| Poland (PL) | 11.6 | 0.00 | Yes | | |
| Portugal (PT) | 5.54 | 5.33 | Yes | | |
| Romania (RO) | 2.83 | 14.42 | No | 20.85 | No |
| Slovenia (SI) | 14.48 | 0.00 | Yes | | |
| Slovakia (SK) | 2.41 | 0.00 | Yes | | |
| Finland (FI) | 14.2 | 0.00 | Yes | | |
| Sweden (SE) | 14.2 | 2.06 | Yes | | |
| United Kingdom (UK) | 7.00 | 1.84 | Yes | | |
| Norway (NO) | 14.15 | 0.00 | Yes | | |



| Member State | Risk to unauthorised persons (5) | | | | |
|---------------------|----------------------------------|------------------------|---|-----------------------------|---------------------------------|
| | NRV (*10e-9) [2004-2009] | OSP (*10e-9) [2012] | OSP [2012] < NRV [2004-2009] Yes/No | MWA (*10e-9) [2008-2012] | MWA \leq NRV*1,2 Yes/No |
| Belgium (BE) | 72.6 | 45.3 | Yes | | |
| Bulgaria (BG) | 900.2 | 412.4 | Yes | | |
| Czech Republic (CZ) | 301 | 26.4 | Yes | | |
| Denmark (DK) | 116 | 134.8 | No | 106.15 | Yes |
| Germany (DE) | 113 | 81.2 | Yes | | |
| Estonia (EE) | 1550 | 1101.7 | Yes | | |
| Ireland (IE) | 85.2 | 0.0 | Yes | | |
| Greece (EL) | 723 | 863.6 | No | 717.69 | Yes |
| Spain (ES) | 168 | 100.1 | Yes | | |
| France (FR) | 67.2 | 65.8 | Yes | | |
| Croatia (HR) | 676.3 | 0.0 | Yes | | |
| Italy (IT) | 119 | 183.6 | No | 150.74 | No |
| Latvia (LV) | 1310 | 710.8 | Yes | | |
| Lithuania (LT) | 2050 | 1125.1 | Yes | | |
| Luxembourg (LU) | 79.9 | 0.0 | Yes | | |
| Hungary (HU) | 588 | 357.0 | Yes | | |
| Netherlands (NL) | 15.9 | 0.0 | Yes | | |
| Austria (AT) | 119 | 118.7 | Yes | | |
| Poland (PL) | 1210 | 904.4 | Yes | | |
| Portugal (PT) | 834 | 445.4 | Yes | | |
| Romania (RO) | 1388 | 949.8 | Yes | | |
| Slovenia (SI) | 236 | 0.0 | Yes | | |
| Slovakia (SK) | 1758 | 1053.2 | Yes | | |
| Finland (FI) | 249 | 5.9 | Yes | | |
| Sweden (SE) | 94.8 | 52.8 | Yes | | |
| United Kingdom (UK) | 84.5 | 52.4 | Yes | | |
| Norway (NO) | 91.8 | 0.0 | Yes | | |



| Member State | Societal risks (6) | | | | |
|---------------------|-----------------------------|------------------------|---|-----------------------------|---------------------------------|
| | NRV (*10e-9) [2004-2009] | OSP (*10e-9) [2012] | OSP [2012] < NRV [2004-2009] Yes/No | MWA (*10e-9) [2008-2012] | MWA \leq NRV*1,2 Yes/No |
| Belgium (BE) | 275 | 195.46 | Yes | | |
| Bulgaria (BG) | 1440 | 968.72 | Yes | | |
| Czech Republic (CZ) | 519 | 200.43 | Yes | | |
| Denmark (DK) | 218 | 193.46 | Yes | | |
| Germany (DE) | 203 | 160.97 | Yes | | |
| Estonia (EE) | 2110 | 1101.73 | Yes | | |
| Ireland (IE) | 114 | 311.12 | No | 132.25 | Yes |
| Greece (EL) | 1540 | 1504.92 | Yes | | |
| Spain (ES) | 323 | 197.42 | Yes | | |
| France (FR) | 180 | 161.85 | Yes | | |
| Croatia (HR) | 1467 | 594.69 | Yes | | |
| Italy (IT) | 231 | 265.71 | No | 243.11 | Yes |
| Latvia (LV) | 1660 | 997.29 | Yes | | |
| Lithuania (LT) | 2590 | 1418.34 | Yes | | |
| Luxembourg (LU) | 210 | 0.00 | Yes | | |
| Hungary (HU) | 1020 | 698.35 | Yes | | |
| Netherlands (NL) | 148 | 134.20 | Yes | | |
| Austria (AT) | 329 | 268.21 | Yes | | |
| Poland (PL) | 1590 | 1399.54 | Yes | | |
| Portugal (PT) | 1360 | 682.76 | Yes | | |
| Romania (RO) | 1704 | 1543.41 | Yes | | |
| Slovenia (SI) | 698 | 302.31 | Yes | | |
| Slovakia (SK) | 1130 | 1643.57 | No | 1426.68 | No |
| Finland (FI) | 417 | 135.59 | Yes | | |
| Sweden (SE) | 169 | 115.97 | Yes | | |
| United Kingdom (UK) | 120 | 68.22 | Yes | | |
| Norway (NO) | 51 | 52.74 | No | 76.86 | No |



Annex II: Input data overview

The table below shows the instances in which the CSI data had to be used in place of Eurostat data, as they were not available in Eurobase.

| Data category | Country and year |
|--|--|
| Fatalities and serious injuries (rail_ac_catvict) | LU (2010) |
| Rail accidents (rail_ac_catnubr) | LU (2010) |
| Train movement for all trains Train-km (rail_tf_trainmv) | BE (2010, 2012) DK (2011, 2012) DE (2011, 2012) EL (2012) IT (2012) LU (2012) HU (2009, 2011, 2012) NL (2012) |
| Train movement for passenger trains Passenger train-km (rail_tf_trainmv) | BE (2012) DE (2011, 2012) EL (2012) FR (2011, 2012) IT (2011, 2012) LU (2012) NL (2008, 2009, 2012) |
| Train movement Passenger-km (rail_pa_quartal) | FR (2010, 2011, 2012) AT (2010, 2011, 2012) |



Annex III: Overview of annual assessments

This assessment is the fifth assessment of achievements of CSTs carried out by the Agency. The table below provide an overview of the specificities of all assessments made by the Agency so far in respect to the years considered for these assessments.

| Nr./Data | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---------------|--------------------------------|------|------|------|------|------|------|------|------|
| First (2010) | 1st set of CSTs/NRVs | | | | OSP | | | | |
| | MWA (4 yrs) | | | | | | | | |
| Second (2011) | 1st set of CSTs/NRVs | | | | OSP | | | | |
| | MWA (4 yrs) | | | | | | | | |
| Third (2012) | 2nd set of CSTs/NRVs | | | | | OSP | | | |
| | MWA (5 yrs) | | | | | | | | |
| Fourth (2013) | 2nd set of CSTs/NRVs | | | | | OSP | | | |
| | MWA (5 yrs) | | | | | | | | |
| Fifth (2014) | 2nd set of CSTs/NRVs (amended) | | | | | OSP | | | |
| | MWA (5 yrs) | | | | | | | | |

The results of all assessments carried out by the Agency are summarized in the table below.

| Risk category | Passengers | | Employees | Level crossing users | Others | Unauthorised persons | Whole society |
|---------------|------------------|-------------------|---|----------------------|---|--|------------------|
| | 1.1 ⁹ | 1.2 ¹⁰ | 2 | 3.1 | 4 | 5 | 6 |
| 2010 | | | <i>Romania</i> | <i>Romania</i> | <i>Romania</i> | <i>Romania</i> | |
| 2011 | | | <i>Lithuania</i> | | | <i>Romania</i> <i>Slovakia</i> | |
| 2012 | | | | | | <i>Sweden</i> | |
| 2013 | <i>Slovakia</i> | <i>Slovakia</i> | <i>Romania</i> <i>Slovakia</i> <i>Bulgaria</i> | | <i>Romania</i> | <i>Romania</i> <i>Slovakia</i> <i>Sweden</i> | <i>Romania</i> |
| 2014 | | | <i>Bulgaria</i> <i>Romania</i> <i>Slovakia</i> <i>Sweden</i> | <i>Bulgaria</i> | <i>(Croatia¹¹)</i> <i>(Romania)</i> | | <i>[Norway*]</i> |

Note: For countries in **bold**, the result of “probable deterioration”, for countries in normal “possible deterioration” of safety performance. In all other cases, the result was “acceptable safety performance”.

⁹ Scaling base: passenger train-km per year.

¹⁰ Scaling base: passenger-km per year.

¹¹ The assessment was carried out retrospectively for 2010 and 2011 for Croatia with the results showed here.