PRB | Performance review body of the single european sky

# Performance Review Body Monitoring Report 2023

## Annex I – Safety report

The 2023 monitoring consists of three reports:

1. PRB Monitoring Report 2023
2. **Annex I – Safety report**
3. Annex II – Investments report

The 2023 monitoring is complemented by a Digital dashboard, including a detailed analysis per Member State.

September 2024

Performance Review Body of the Single European Sky | Rue de la Fusée 96, Office 50.659, 1130 Brussels
Office Telephone: +32 (0)2 234 7824 | cathy.mannion@prb.eusinglesky.eu / prb-office@prb.eusinglesky.eu | webgate.ec.europa.eu/eusinglesky

TABLE OF CONTENTS

1 INTRODUCTION ..... 2
1.1 Background ..... 2
1.2 Overview of safety KPIs and associated targets for RP3 ..... 3
1.3 Safety performance review ..... 5
1.4 Verification Process of Effectiveness of Safety Management ..... 6
2 SAFETY PERFORMANCE ANALYSIS ..... 7
2.1 ANS-Related Accidents and Serious Incidents ..... 7
2.2 Effectiveness of Safety Management for ANSPs ..... 8
2.3 Interdependencies ..... 12
2.4 Safety Performance Indicators ..... 13
3 NETWORK MANAGER ..... 22
3.1 Effectiveness of Safety Management – Network Manager ..... 23
3.2 Over-deliveries ..... 23
3.3 Top safety risks in the Network ..... 24
4 SUMMARY OF OBSERVATIONS ..... 25

# 1 INTRODUCTION

1 The PRB Annual Monitoring Report 2023 analyses the performance of the air navigation services (ANS) of the Single European Sky (SES) in 2023 against targets which were revised following the COVID-19 pandemic and the related traffic restrictions that heavily impacted European and global aviation. The SES area comprises EU Member States, Norway, and Switzerland (hereafter defined as Member States).

2 The monitoring report is supported by two annexes (in addition to the web-based dashboard):[1]

- Annex I – Safety report (this document); and
- Annex II – Investments report.

3 This "Annex I – Safety Report" provides a detailed review of air navigation services' and network functions' safety performance in 2023. It uses data submitted by Member States and the Network Manager subject to the provisions of the SES performance scheme in RP3, as laid down in Article 1 of Commission Implementing Regulation (EU) No 2019/317 (hereafter the Regulation).[2]

4 This Annex was prepared jointly by the European Union Aviation Safety Agency (EASA) and the Performance Review Body (PRB) of the Single European Sky.

5 This report is organised as follows:

- Section 1 provides an introduction to the safety KPA and a brief reminder of the safety key performance indicators (SKPIs) and associated RP3 targets as well as the safety performance indicators (SPIs). It also describes the process and methods used to collect data from various sources in order to create the review of safety performance in later sections;
- Section 2 presents and analyses in detail the achieved performance in the SKPIs and SPIs during 2023. It also provides a comparison of safety performance against targets where applicable;
- Section 3 provides an assessment of the SKPIs and PIs applicable to the Network Manager's (NM) network functions during 2023; and
- Section 4 provides a summary of the safety performance achieved and observations regarding performance in 2023.

## *1.1 Background*

6 The performance and charging scheme was created to improve the European air transport system in four key performance areas: Safety, environment, capacity, and cost-efficiency. Commission Regulation (EU) No 691/2010 established the principles of the scheme and the provisions of initial implementation during RP1, which ran from 2012 to 2014.[3] RP1 was considered a transitional period during which safety was monitored without targets. Commission Regulation (EU) No 390/2013 introduced additional SKPIs for RP2 (2015 – 2019) with associated targets that were defined in Commission Implementing Decision 2014/132/EU.

7 For RP3 (2020 – 2024) the legal framework was revised through the Regulation. The new performance and charging scheme's safety KPA was streamlined based on an EASA report which aimed to reduce the safety reporting burden while maintaining effective safety performance monitoring. In 2020, EASA updated the supporting material for the measurement of the SKPIs.[4]

8 The Regulation promulgated a single SKPI for RP3, the Effectiveness of Safety Management (EoSM), which applies to ANSPs and the NM. Because of the pandemic, the Commission revised the RP3 targets in Commission Implementing Decision 2021/891/EU; but the target for EoSM remained unchanged as defined in Commission Implementing Decision 2019/903/EU.

[1] For the 2023 AMR, the Member States' factsheet (i.e. previous Annex I) and the Member States' detailed analysis for experts (i.e. previous Annex II) are presented in a revised form as a digital dashboard. The dashboard can be accessed here.
[2] Commission Implementing Regulation (EU) 2019/317 laying down a performance and charging scheme in the single European sky.
[3] Commission Regulation laying down a performance scheme for air navigation services and network functions and amending Regulation (EC) No 2096/2005 laying down common requirements for the provision of air navigation services.
[4] EASA RP3 safety supporting materials (Parts A, B, C) can be accessed here.

## 1.2 Overview of safety KPIs and associated targets for RP3

9 A single SKPI is used to set targets for ANSPs for RP3 by the Regulation: The Effectiveness of Safety Management. At a service provision level, the EoSM measures an air navigation service provider's ability to manage an effective Safety Management System (SMS). The EoSM SKPI was developed based on the CANSO Standard of Excellence measurement tool, which is based on the SMS framework of ICAO. It was adapted to meet the needs of the performance and charging scheme.

10 The EoSM considers five management objectives of a Safety Management System: Safety Policy and Objectives, Safety Risk Management, Safety Assurance, Safety Promotion and Safety Culture and measures the level of maturity for each of these objectives between level A and D (D being the best). The maturity is determined by assessing questionnaires that ANSPs complete and submit to their NSAs for verification.

11 Union-wide performance targets are set for the final year of the reference period. ANSPs are required in the performance plan to define for each calendar year of the reference period their planned level of maturity on each of the five management objectives. These planned levels of maturity are used by the PRB and EASA for monitoring actual progress over the reference period.

12 The performance and charging scheme introduced five additional safety performance indicators (SPIs) which are for monitoring purposes only i.e. do not have associated targets that ANSPs must achieve. These are as follows:

- SPI1a: **Rate of runway incursions (RIs) with a safety impact at Member State level**. SPI1a captures the total number of RIs with a safety impact that occurred at regulated airports in a Member State divided by the total number of IFR and VFR airport movements. It includes all RIs that have been reported under Commission Regulation (EU) No 376/2014 irrespective of the main contributor of the occurrence i.e. individuals, air operators, aerodromes, or ANSPs. As such, this indicator is aggregated at Member State and Union-wide levels.
- SPI1b: **Rate of separation minima infringements (SMIs) at Member State level**. SPI1b captures the total number of separation minima infringements with a safety impact that occurred within the airspace of all air traffic service units in a Member State. It is calculated as the total number of SMIs with a safety impact that occurred in a Member State's airspace divided by the total number of controlled IFR flight hours within the respective airspace. It includes all SMIs that were reported under Commission Regulation (EU) No 376/2014 irrespective of the main contributor of the occurrence i.e. airspace users, or ANSPs. As such, this indicator is aggregated at Member State and Union-wide levels.
- SPI1c: **Rate of runway incursions (RIs) with ATS/CNS contribution at local (airport) level**. SPI1c is calculated as the total number of RIs with a safety impact that have any contribution from air traffic or CNS services at a specific airport divided by the total number of IFR and VFR movements at that airport.[5] It includes only a subset of RIs that have been reported under Commission Regulation (EU) No 376/2014, i.e. only those RIs which an ANSP was identified as having a direct or indirect contribution in causing. This indicator aims to capture trends in RIs that are under the influence of the ATC provider at the airport concerned and thus is aggregated at the airport level only.
- SPI1d: **Rate of separation minima infringements (SMIs) with ATS/CNS contribution at ANSP level**. SPI1d is calculated as the total number of SMIs with a safety impact that have any contribution from air traffic or CNS services divided by the total number of controlled IFR flight hours within the air navigation service provider's controlled airspace. It includes only a subset of SMIs that have been reported under Commission Regulation (EU) No 376/2014, i.e. only those SMIs which an ANSP was identified as having a direct or indirect contribution in causing. This indicator

[5] Occurrences with safety impact should be understood as those occurrences that may represent a risk to aviation. The way to identify these types of occurrences is using the safety risk grade red or amber in the European Risk Classification Scheme (ERCS) matrix when applied to SMIs and RIs, and the ground severity classification A, B, or C after applying the risk analysis tool (RAT) to SMIs and RIs with ATS/CNS contribution.

captures all SMIs that occurred in the airspace where an ANSP provides its ATC services and thus is aggregated at the ANSP level.

- SPI2: **Application by the ANSPs of automated safety data recording systems.** SPI2 captures whether or not ANSPs use automated safety data recording tools to improve the gathering of occurrence data (SMIs and RIs) and analysis by the organisations' SMS.

13 An overview of all SKPIs and SPIs in place in RP3 is presented in Table 1. Table 2 shows the Union-wide targets for the EoSM SKPI as defined in Implementing Decision 2021/891/EU.[6]

| SKPI and SPIs | Target level |
|---|---|
| Effectiveness of Safety Management (EoSM) for ANSPs | Union-wide and local |
| Rate of runway incursions (RIs) with a safety impact at State level | None |
| Rate of separation minima infringements (SMIs) at State level | None |
| Rate of runway incursions (RIs) with ATS/CNS contribution at local (airport) level. | None |
| Rate of separation minima infringements (SMIs) with ATS/CNS contribution occurred within the airspace under control of an ANSP | None |
| Application by the ANSPs of automated safety data recording systems where available, which shall include, as a minimum monitoring of SMIs and RIs. | None |

*Table 1 – List of the safety KPIs and PIs applicable in RP3.*

| Effectiveness of Safety Management (EoSM) | | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| ANSP level | Union-wide target for Safety Risk Management Objective | | | | | D |
| | Union-wide target for all other MOs[7] | | | | | C |

*Table 2 – RP3 target for Effectiveness of Safety Management (EoSM). The target is set for the last year of RP3 only.*

[6] Commission Implementing Decision of 2 June 2021 setting revised Union-wide performance targets for the air traffic management network for the third reference period (2020-2024) and repealing Implementing Decision (EU) 2019/903 (2021/891/EU).

[7] EoSM contains five management objectives or objectives: safety policy and objectives, Safety Risk Management, safety assurance, safety promotion and safety culture. Safety Risk Management is targeted separately while the other four management objectives are targeted as a group.

### 1.3 Safety performance review

14 The safety performance review is based on data submitted by Member States. Through their NSAs, ANSPs submit Performance Monitoring Reports (PMRs) to the European Commission (EC) by 1st June of each year. This enables EASA and the PRB to monitor Member States' safety performance against their performance plans and targets. ANSPs are also required to annually complete and submit EoSM questionnaires to their NSA for verification. This is done before NSAs submit their PMRs, and it provides the European Commission with verified EoSM data. NSAs summarised verified EoSM data in their final PMRs.

15 These questionnaires, together with the PMRs, were assessed by the PRB and EASA resulting in the preparation of this Annex.

#### *Data Sources to Populate Performance Indicators*

16 Two main data sources were used to gather safety data concerning the EoSM SKPI. These two sources are:

- Questionnaires that were completed by ANSPs and the NM concerning their EoSM. EASA did not verify ANSPs' responses to the questionnaires as this was the responsibility of NSAs who have oversight authority. The NSA verification process relied on cross-referencing evidence that is reported with the results of ANSPs' oversight activities. However, EASA did verify the NM's responses as oversight authority.
- SPI1a, SPI1b, SPI1c, SPI1d, and SPI2 were computed using information gathered from the submitted PMRs. This data was taken directly from what Member States reported in their PMRs without further verification against the occurrences reported in the European Central Repository (ECR), as foreseen by the RP3 safety supporting material. Exposure data (i.e. number of IFR flight hours and number of airport movements) were cross-checked against data from the NM and in some cases aligned hereto.

17 For the calculation of the indicators related to SMIs and RIs (SPI1a, SPI1b, SPI1c, and SPI1d), RP3 safety supporting material requires that occurrences data reported in the ECR under Commission Regulation (EU) No 376/2014 is used. ANSPs and NSAs should ensure that the information provided through the ECR reporting contains the information needed to compute the performance indicators for monitoring SMIs and RIs. EASA would extract the information needed to calculate the SPIs which are then sent to Member States for verification and elaboration in their PMRs.

18 However, so far in RP3, EASA has not been able to extract data from the ECR containing all needed information to compute the SPIs. This is because of the overall poor quality of the data uploaded to the ECR: A significant part of occurrences extracted from ECR did not contain information on severity and risk, as required to compute the SPIs, and in many cases basic information was missing. Member States had to extract the occurrences from their own national databases with no further involvement from or verification by EASA.

19 For the calculation of the indicators related to SMIs and RIs (SPI1a, SPI1b, SPI1c, and SPI1d), the occurrences that should be used in the computation of the different rates are only those that have a "safety impact". Whether an occurrence has a safety impact or not should be determined by NSAs using the common European Risk Classification Scheme (ERCS), and by ANSPs through the severity classification using the Risk Analysis Tool (RAT). This information was barely found encoded in the ECR's occurrences. While there has been some improvement, it is not such that the values may be calculated using ECR data as planned.

20 The delegated act that regulates the application of ERCS entered into force as from 1st January 2023, so the application of it was mandatory during 2023, but still a poor quality of data in the ECR is observed. ANSP's use of the RAT was close to 100% at the end of RP2, but its use is not mandated in RP3. Because EASA has not been able to verify the data submitted, this report relies on the correct application of the ERCS and RAT by NSAs and ANSPs.

21 It is likely that some have not applied the ERCS and RAT resulting in greater subjectivity in ANSP and NSA interpretations of what constitutes an occurrence that had a safety impact. Nevertheless, this does not invalidate the analysis, but it should be taken into consideration when interpreting the data. In the last year of RP3, Member States should ensure that both the RAT severity and the ERCS risk score are encoded for each occurrence to allow EASA to compute independently the SPIs.

Otherwise, they will have to extract and submit the occurrences used in the computation of the SPIs themselves.

*Exposure Data*

22 The indicators for monitoring the SPIs related to occurrences are normalised using the following exposure data:

- RIs are normalised by the number of IFR and VFR movements at an airport. It is calculated as the sum of take-offs and landings performed under IFR and VFR rules at an airport. NSAs included these figures in their PMRs. The number of movements derived from PMRs was verified against Network Manager data. Where a discrepancy was found, the higher number of movements was taken into account, consequently giving the lower rates.
- SMIs are normalised by the number of controlled flight hours in the controlled airspace of an ANSP. It is measured as hours of flight under IFR rules that are under the separation control of ANSPs. The Network Manager is best placed to consistently report this for European ANSPs. Since some ANSPs provide cross-border services, the measure of flight hours is based on two different measurements depending on the indicator. The indicator in Article 1 (2) (b) of Annex I (Section 2) of the Regulation is calculated using flight hours within the Member States' boundaries, while the indicator in Article 1 (2) (d) of Annex I (Section II) of the same regulation is calculated using flight hours controlled by a given ANSP. Similarly, the number of flight hours derived from PMRs was verified against Network Manager data. Where a discrepancy was found, the higher number of flight hours was considered, consequently ensuring the lower rates.

## 1.4 Verification Process of Effectiveness of Safety Management

23 The EoSM indicator is measured by the NSA-verified responses to questionnaires completed by ANSPs, which results in a double metric: a numerical score and a maturity level.[8] Each of the 28 questions is scored between 1 and 4 based on the achieved maturity level (A with 1 and D with 4). The sum of the scoring of each question is normalised to be between 1 and 100 (100 being the best).

24 Table 3 provides a brief description of the requirements to reach each maturity level. ANSPs select the maturity level that best describes their organisation and provide evidence in support of the level selected.

25 NSAs verify the evidence submitted and cross-check it with the results of their oversight processes. If necessary, the level of maturity and score is corrected. The resulting maturity levels and score are submitted in the PMRs. The scoring and levels should be determined in accordance with the supporting material published in the ESSKY web portal (EASA RP3 safety supporting materials Parts A, B, C).[9]

| Level A - Informal Arrangements | Level B - Defined | Level C - Managed | Level D - Assured |
|---|---|---|---|
| SMS processes and/or requirements have not been agreed at the organisation level; they are either not routinely undertaken or depend on the individual assigned to the task. | SMS processes and/or requirements are defined but not yet fully implemented, documented or consistently applied. | SMS processes and/or requirements are fully documented and consistently applied. | Evidence is available to provide confidence that SMS processes and/or requirements are being applied appropriately and are delivering positive, measurable results. |

*Table 3 - Generic principles for each implementation level.*

[8] The content of these questionnaires is provided in Part B, Appendix to AMC3 SKPI, GM3 SKPI and GM4 SKPI published in Part C of EASA RP3 safety supporting materials.

[9] EASA RP3 safety supporting materials can be accessed here (Part A), here (Part B), and here (Part C).

# 2 SAFETY PERFORMANCE ANALYSIS

- 18 ANSPs achieved the EoSM targets on all Management Objectives for RP3 in 2023.
- An increasing number of ANSPs are at risk of not meeting the target for RP3.
- Rate of runways incursions and separation minima infringements decreased in 2023 compared to previous years – a continuation of the downward trend.
- Only 12 ANSPs reported using some form of automated safety data recording systems for occurrences.

## *2.1 ANS-Related Accidents and Serious Incidents*

26 This section presents a review of ANS-related accidents and serious incidents, as defined by ICAO Annex 13, covering the eleven years period from 2013 to 2023. The scope of the review includes commercial air transport (CAT) fixed-wing aeroplanes above 2,250 kg maximum take-off mass and covers the 27 EU Member States, Norway, and Switzerland. The data uses information from EASA's Occurrence Database.[10]

27 This analysis is not required by the Regulation, but it brings added value to the performance review of safety as it provides an overview of the ANS related accidents and serious incidents at Union-wide level.[11]

28 Figure 1 (next page) shows the number of accidents and serious incidents with a contribution by ANS per year alongside a rate of accidents and serious incidents calculated using the number of flight hours performed within the EU. 'ANS contribution' means that at least one ANS factor was in the causal chain of events leading to the occurrence, or at least one ANS factor potentially increased the level of risk, or it played a role in the occurrence encountered by the aircraft.

29 The rate of accidents and incidents with ANS contribution is an appropriate metric to directly measure the performance of the ANS safety system, and it shows a remarkable safety record. In the ten-year period analysed, all accidents reported were non-fatal, with the last one recorded in 2018. The data shows a decreasing trend in the rate of accidents and serious incidents in this period with a plateau reached in the last seven years. During the last four years, fewer serious incidents were recorded than in the years before (2013-2019) demonstrating the continued downward trend.[12]

30 This suggests that, overall, safety issues with ANS contribution have improved since the introduction of the performance and charging regulation, even though there is no evidence of a causal effect. This observation should thus be taken cautiously due to the low number of events considered.

[10] The EASA's occurrence database collects accidents and serious incidents reported to EASA by Accident Investigation Authorities worldwide and is augmented by other information collected by EASA. It captures the following: Accidents & serious incidents within EASA Member States (all mass categories); accidents to aircraft with MTOM > 2,250kg (worldwide); serious incidents to aircraft with MTOM > 5,700kg (worldwide).

[11] Note that the final investigation reports for some accidents and incidents may be delayed by more than two years, particularly when the investigation is complex. This may have an impact on the update of some graphics in future publications, or with respect to some graphics of past publications.

[12] For further information, consult the ATM/ANS Safety Risk Portfolio in the European Plan for Aviation Safety 2024, Vol. III.

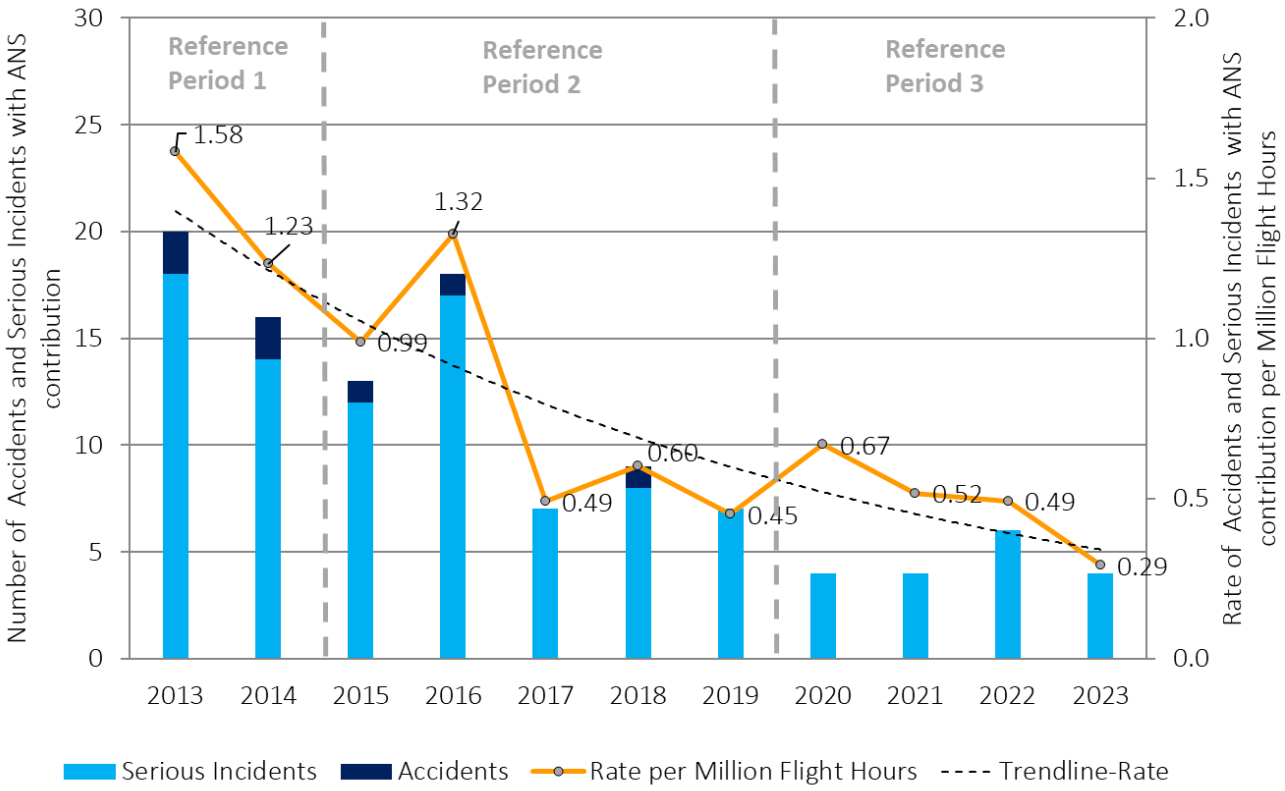


*Figure 1 – ANS contribution accidents and serious incidents (2013-2023) (Source: EASA).*

## 2.2 *Effectiveness of Safety Management for ANSPs*

31 In RP3, the EoSM for ANSPs is measured using a revised set of questions to determine the minimum level of maturity for each management objective compared to RP2. Furthermore, the levels of maturity were rescaled for RP3. Level D in RP3 required a higher level of rigour and increased responsibilities than in RP2 under the change management process as contained in Commission Implementing Regulation (EU) 2017/373.

32 36 ANSPs are included in the scope of the performance scheme in RP3, including MUAC over the airspace of Belgium, Luxembourg, Netherlands, and part of Germany. In addition to the main en-route ANSPs, there are six ANS providers at terminal or approach airports included, namely SkyWAY in Spain, Port Lotniczy Bydgoszcz and Warmia i Mazury Ltd in Poland, and ACR, ARV - Arvidsjaur and SDATS in Sweden.

33 Figure 2 (next page) shows the EoSM results achieved by ANSPs in 2023. The analysis shows that:

- 19 out of 36 ANSPs achieved the 2024 RP3 target level D for Safety Risk Management.
- 31 out of 36 ANSPs achieved the 2024 RP3 target level C for all other MOs (the four management objectives other than Safety Risk Management).
- 18 out of 36 ANSPs achieved the 2024 EoSM targets for RP3 in full.

34 The average EoSM score achieved by all ANSPs is 89. The minimum score achieved by an individual ANSPs is 70, while the maximum EoSM score is 100, which is achieved by five ANSPs, compared to seven ANSPs in 2022.

35 Between 2022 and 2023, five ANSPs improved their minimum maturity level for at least one Management Objective (achieving the RP3 targets in 2023), while three ANSPs showed the minimum maturity level degrading and no longer achieved the target for at least one Management Objective (DSNA for all MOs except Safety Assurance, NAV Portugal for Safety Risk Management, and RO-MATSAfor Safety Risk Management). For all three ANSPs, the NSAs downgraded the EoSM scores based on the verification.

36 19 ANSPs reported achieving level 'D' for the Safety Risk Management objective, however EASA standardisation visits showed that while some improvement has been observed, several ANSPs have difficulties in properly implementing the new change management process required by Commission Implementing Regulation (EU) 2017/373, which also embeds a risk assessment process.

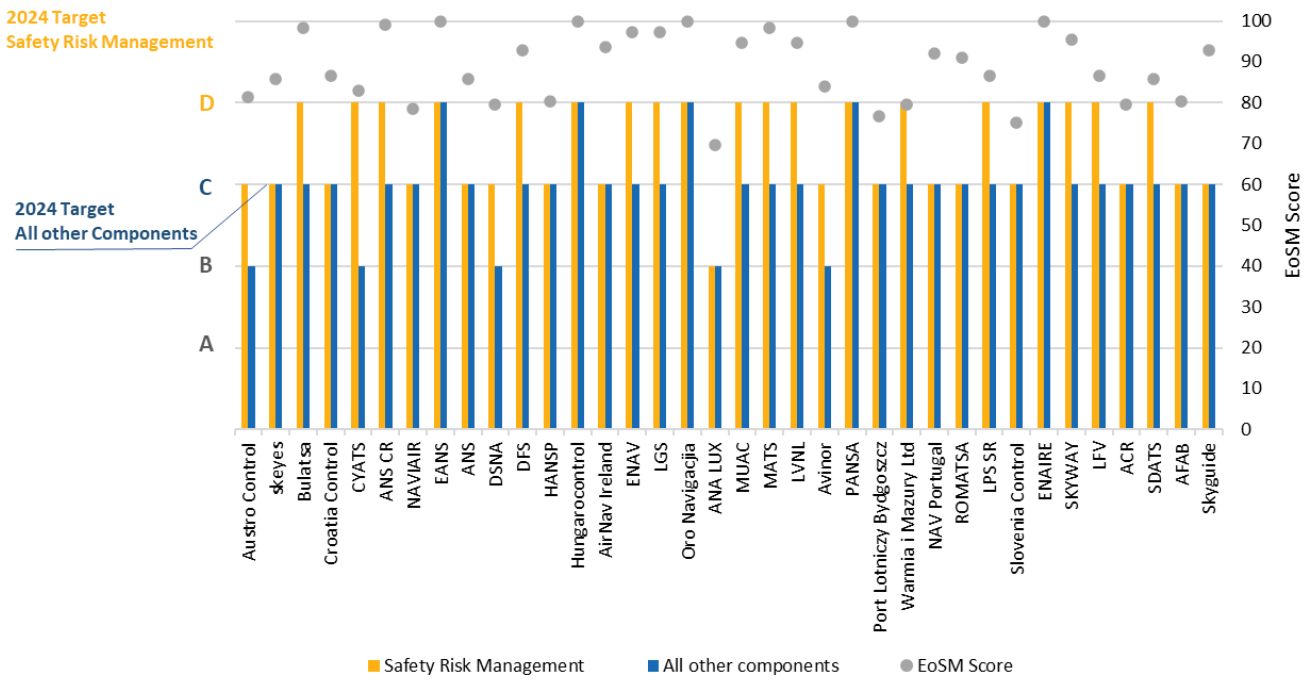


*Figure 2 – 2023 ANSP EoSM responses for risk management and other MOs. Safety Risk Management has a target of level D in 2024 and the other management objectives (MOs) have a target level C in 2024.*

37 Figure 3 shows the aggregated ANSP responses to the EoSM questionnaire per management objective. It reveals that Safety Risk Management must improve the most to achieve the 2024 target level D (improvement in 34 questions needed). For the other management objectives, less effort is required with a maximum of six questions to be improved to achieve the 2024 target level C for safety policy and objectives.

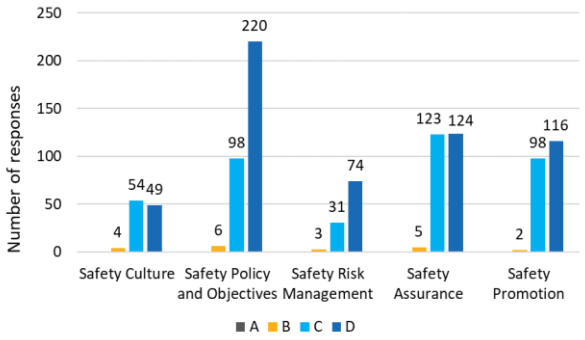


*Figure 3 – ANSP's aggregated EoSM responses per management objective. The target response for risk management is level D while it is level C for the other management objectives.*

38 Figure 4 shows the maturity levels achieved by the ANSPs in each management objective. 17 ANSPs did not reach the target level D for the Safety Risk Management objective, three ANSPs did not reach the safety culture and safety policy and objectives, while two ANSPs did not reach safety assurance and safety promotion management objectives, respectively. Progress compared with 2022 has been limited, in particular in Safety Risk Management, where the performance of one ANSP degraded to level B.

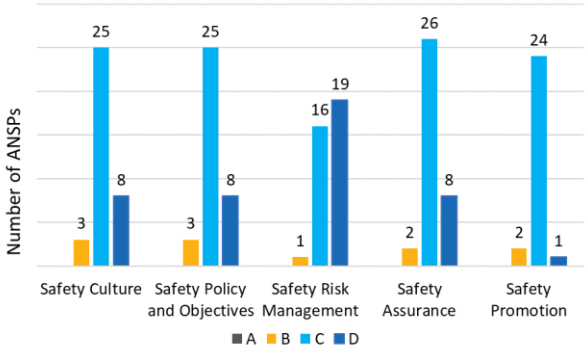


*Figure 4 – Number of ANSPs achieving various EoSM levels per objective. The target for Safety Risk Management is level D while it is level C for the other management objectives.*

39 Figure 5 depicts the number of ANSPs that have achieved RP3 target levels against the number of ANSPs that had planned to achieve the RP3 target levels during that year. The figure shows that while ANSPs up to 2022 overall remained ahead of the planned levels, little overall progress was seen between 2022 and 2023. 15 ANSPs already achieved the RP3 target levels during the first year of RP3 and this number only increased by 6 until 2023. 15 ANSPs planned to achieve the RP3 targets in the last year of RP3, indicating that the actual achievement is not far from the planned achievement, at least when considering ANSPs as a group.

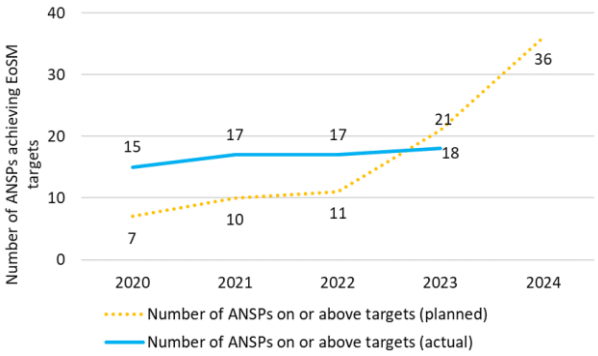


*Figure 5 – Planned and actual performance on EoSM - Number of ANSPs on or above planned target levels.*

40 Figure 6 depicts the number of ANSPs that have achieved maturity levels on or above the targets compared with the planned maturity levels in the performance plans. For both Safety Risk Management objective and all other management objectives, the achieved levels were below what ANSPs had planned for. 21 ANSPs planned to achieve the Safety Risk Management target in 2023, but 19 ANSPs ended up achieving the target levels. Similarly, 34 ANSPs planned to achieve the target levels for all other management objectives but only 31 did.

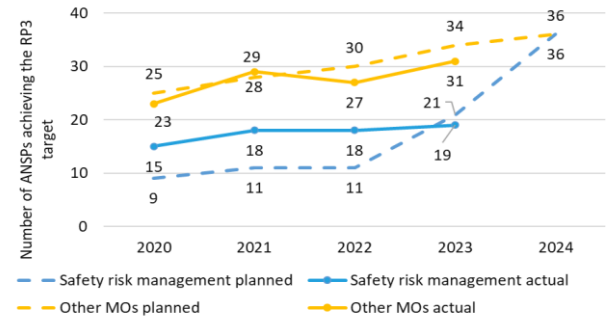


*Figure 6– Planned and actual performance on EoSM - Number of ANSPs on or above planned target levels for Safety Risk Management and other management objectives.*

41 The possible reasons for not meeting the planned level may be many and cannot be extracted directly from the PMRs. ANSPs had a conservative approach to planning and in particular in Safety

Risk Management, where 15 ANSPs planned to achieve the targets during the last year of RP3.

42 Among the remaining 18 ANSPs that have not yet achieved the level of the RP3 targets, the majority of these need to improve in Safety Risk Management; some on all three questions under this Management Objective (indicated in navy blue in Figure 7). The ANSPs need to ensure that their planned measures are implemented in 2024 and make further efforts to review planned measures as appropriate and implement any additional measures needed. Such efforts are essential if all ANSPs are to achieve the targets in 2024, the final RP3 year.

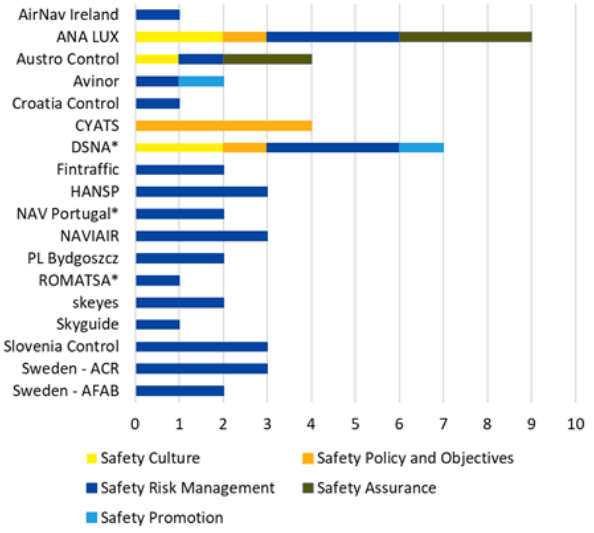


*Figure 7 – Number of questions for specific Management Objectives ANSPs need to improve to achieve the EoSM targets, showing that many ANSPs still have a challenge to meet targets by 2024 (source: PRB elaboration). "*" indicates ANSPs downgrading compared with 2022.*

43 Out of the 18 ANSPs, Nine ANSPs (AirNav Ireland, ANA LUX, CYATS, DSNA, NAVIAIR, skeyes, Skyguide, ACR, and AFAB) plan to achieve RP3 target levels in 2023 or before. The Nine other ANSPs plan to achieve the RP3 targets in 2024 (Austro Control, Avinor, Croatia Control, Fintraffic, HANSP, MATS, NavPortugal, PL Bydgoszcz, and Slovenia Control).

44 Three ANSPs have a greater challenge to achieve the targets as they are behind their plan, or have not seen improvements in particular aspects for a longer time:

- ANA LUX planned to achieve the RP3 target levels in 2023. ANA LUX slightly improved from 2022 and reached the target for Safety Promotion in 2023. Nevertheless, for other Management Objectives either no progress has been shown, or the situation degraded compared to 2022. For Safety Risk Management, ANA LUX needs to improve from level B to level D on all three questions. In this regard, ANA LUX needs to ensure that its planned measures are implemented and that additional measures, as appropriate, are implemented to reach RP3 targets. The NSA notes that needed improvements are covered by a Corrective Action Plan and is confident that these can be implemented in 2024. Such corrective action includes additional staff resources. However, the NSA has indicated that, despite the Corrective Action Plan, there is a potential risk of not meeting the RP3 targets as a significant effort is required.
- CYATS planned to achieve the level of the RP3 targets in 2020. While the situation improved compared to 2022, CYATS is yet to achieve the target for Safety Policy and Objectives. The causes appear to be similar to those noted in 2022 (i.e. no signed Safety Policy, unclear safety accountabilities, and a lack of formalised safety improvement plans). The NSA underlines that the issues are administrative and are not related to safety risks, or to the functioning of the safety management function. CYATS has not indicated a potential risk of not meeting the RP3 targets. The ANSP needs to resolve the issue of accountability and have the appropriate authority to sign the existing Safety Policy. It remains to be seen if the planned level will be achieved by the end of the reference period.
- DSNA reached the RP3 target levels in 2022 as planned but recorded a deterioration in 2023. DSNA needs to recover the maturity levels in four out of five Management Objectives. The NSA verification, combined with the result of NSA oversight, resulted in the downgrading. However, the NSA considers the issues identified manageable, and after implementing additional measures as defined in a Corrective Action Plan, DSNA should be able to meet the RP3 targets by end of 2024.

45 To achieve the targets by end of RP3, ANA LUX, CYATS, and DSNA need to take immediate steps to improve their performance and ensure defined Corrective Action Plans are implemented. Only

the NSA in Luxembourg has signalled that the ANSP may not achieve the RP3 targets.

46 As mentioned above, nine ANSPs are trailing behind their planned maturity levels, including ANA LUX, DSNA, and CYATS. These ANSPs need to ensure that they recover and, where necessary, implement additional measures. All the remaining ANSPs are required to ensure that they implement the measures defined in their performance plans to reach the RP3 targets in 2024. Where additional efforts are required, particularly where actual achievement significantly lags behind planned progress, additional measures should be considered.

47 NSAs in seven Member States (Austria, Belgium, Denmark, Latvia, Lithuania, Luxembourg, and Switzerland) have signalled a possible risk of failure to reach targets by end of 2024. Of these, Latvia and Lithuania already achieved the RP3 target, hence the risk is that these ANSPs cannot retain that level of maturity.

48 The reasons indicated are different:

- Workload on the safety team resulting from the implementation of operational changes;
- Challenges in implementing the measures needed to reach targets due to time and resource constraints;
- The (perceived) prescriptive guidance material in EoSM questionnaire not allowing for alternative means to achieve the objectives and an alternative mean of compliance was not proposed;
- Differences between NSAs and ANSPs in understanding the guidance (i.e. how to achieve a certain maturity level); and
- Missing resources to allow for the necessary training of staff, and an inability to attract qualified staff and ensure continuity.

49 With one year left of RP3, PRB and EASA consider that the risk is increasing that a number of ANSPs will not achieve the RP3 targets, most notably caused by not reaching the required maturity level in Safety Risk Management. Some ANSPs are still to develop and/or effectively implement procedures to satisfy the requirements related to the maturity level. This is typically the case for ANSPs needing to improve on all three questions under Safety Risk Management. Considering that these ANSPs not only have to define the necessary processes but also need to demonstrate to the NSA that the processes are fully implemented, the ANSPs are at risk of not meeting the RP3 target. ANSPs only needing to improve one question should not be at risk, as, in most cases, only the evidence of implementation is missing.

50 When assessing the performance plans for RP3, the PRB and EASA encouraged ANSPs to plan to reach targets in advance of the final year of RP3 and to ensure that the measures were precisely defined to encompass what was required to reach the targets. Safety Risk Management was the Management Objective where many ANSPs planned to reach the target in the last year of RP3, hence not having any contingency. In previous Annual Monitoring Reports, the PRB and EASA have encouraged ANSPs and NSAs to ensure that measures were sufficient and implemented to mitigate the risk of not meeting the targets. As we move into the last year of RP3, the PRB and EASA now see an increased risk that some ANSPs may not meet the RP3 targets.

## *2.3 Interdependencies*

51 The EoSM questionnaire was supplemented with a new management objective in RP3 that aimed to capture how ANSPs manage interdependencies and trade-offs between safety and other business objectives (i.e. how the organisation assigns and distributes resources to ensure safe provision of ATS.) This objective is not targeted in RP3 and not included in the EoSM scoring. Figure 8 (next page) shows the number of ANSPs per achieved maturity level in the management of interdependencies management objective. One ANSP did not report the achieved maturity level.

52 Most ANSPs are at maturity levels C and D for this supplemental management objective. Despite that there is room for improvement since two ANSPs are at level B, no progress has been observed compared with 2022. This management objective is particularly important to ensure ANSPs cope safely with the impacts related to Russia's war of aggression, and the recovery process after the pandemic when the pressures to trade-off resources towards other business objectives of the

organisation are intensified due to loss of traffic and revenues in such period.

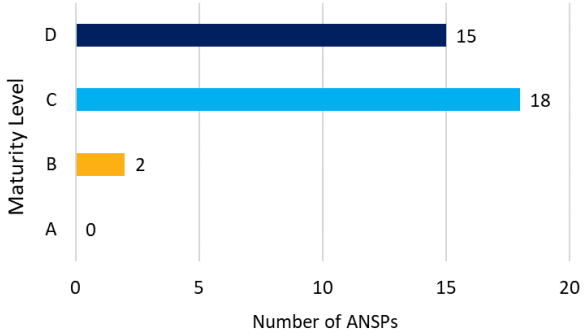


*Figure 8 – Number of ANSPs per achieved maturity level in the management of interdependencies management objective.*

53 ANSPs are required by Commission Implementing Regulation (EU) 2017/373 to define and monitor safety performance through indicators. The EoSM also requires definition of safety indicators to monitor safety performance for the maturity level set as the RP3 target level. The PMR requires the Member States to report on the use of additional safety indicators. For 2023, 11 ANSPs did not reply (i.e. selected a number of indicators used), 13 ANSPs stated that no additional indicators were used. Only three ANSPs reported the use of additional safety indicators (in addition to those prescribed by the Regulation):

- Hungary included indicators related to SMS maturity using the CANSO SoE, Safety Culture (through surveys) and Human Factors (through fatigue surveys);
- Lithuania included indicators for ATM and CNS related occurrences with target rates for different levels (AA, A, B, and C) and information on achieved rates; and
- Slovenia included Airspace Infringements as an additional safety indicator.

54 The use of additional safety indicators, or indicators to monitor the interdependency between the Safety KPA and other KPAs may be limited currently, or at least not reported.

## 2.4 Safety Performance Indicators

55 This section describes the 2023 safety performance as measured by the safety performance indicators (SPIs) defined in Section 1.2.

### *Rates of separation minima infringement and runway incursion occurrences*

56 Four SPIs are used to capture the rates of separation minima infringements and runway incursions per number of flight hours controlled by ACCs and airport movements respectively at regulated airports. The most informative insights that can be derived from these SPIs is the evolution of the metrics across several years. However, only three years of RP3 are available, and a like for like comparison with respect to previous years is not ideal since the occurrences captured by the SPIs in RP2 were different in scope. In RP2, the number of occurrences monitored included all types of occurrences regardless of the level of associated risk and severity. In RP3, only SMIs and RIs with a safety impact are monitored. In addition, two of the SPIs aim to capture occurrences that have an ATS/CNS contribution, and the airports included in the performance plans are also different.

57 Furthermore, benchmarking of rates between ANSPs and Member States is not advisable since there are additional factors that may influence the results that are unrelated to ANSs; i.e. differences in the reporting culture, differences in interpretation of occurrence definitions, use of different tools, or interpretation of results. The identification of occurrences that have ATM/CNS contribution is not a straightforward exercise and is subject to interpretations and subjective judgement that can differ from one ANSP and NSA to another. Potentially, this could also affect the calculation of Union-wide rates, in particular if differences are related to Member States with high number of movements / flight hours. Nevertheless, if Member States applied the same principles each year in RP3, the evolution of the Union-wide rate does provide valuable information on the trend.

58 The limitations described in Section 1.3 must be taken into consideration.

*Union-level view*

59 Table 4 lists the average number of SMIs per 100,000 controlled flight hours in Union-wide airspace and also the average Union-wide number of RIs per 100,000 airport movements. The absolute numbers of each type of occurrences are also provided.

| Occurrence | Union-wide Rate (per 100,00 exposure units)[13] | Number of Occurrences |
|---|---|---|
| SPI1b: SMI | 7.78 | 1072 |
| SPI1a: RI | 3.47 | 496 |

*Table 4 – Union-wide rates of all SMIs and RIs (with safety impact) in 2023.*

60 Figure 9 (next page) provides an overview of the SMI with safety effect, both in absolute numbers and rates per 100,000 controlled hours in the SES airspace. It includes the indicator that considers the SMI with ANS contribution as well (SPI1d). In addition, the figure shows the trend in 2023 compared with 2022 values.

61 Despite the increase in traffic levels in 2023 (ANSPs handled 9.1 million flights compared to 8.3 million flights in 2022, or a 9% increase), the SMI occurrence rate has dropped regardless the factors involved, including those with ANS contribution, by 13% and 22%, respectively. The absolute number of occurrences have experienced a decrease of 4.6% and 12%, respectively.

62 Figure 10 (next page) provides an overview of the RI with safety impact, both in absolute numbers and rates per 100,000 movements at the airports included in the Member States' performance plans. It includes the indicator that considers RIs with ANS contribution as well (SPI1c). In addition, the figure shows the trend in 2023 compared with 2022 values.

63 The increase in traffic levels in 2023 has not resulted in an increase of the rate of RIs. The rate of RIs of all types decreased by 17%, while the rate of RIs with ANS contribution increased by 42%. The absolute number of RIs marginally increased by 1.8%, while the number of RIs with ANS contribution decreased by 30%. Similarly to 2022, in 2023 at Member State level, the management of risks associated to RIs of all types showed improvement. Additionally, with regard to SPI1c and SPI1d (the rates of occurrences, i.e. RIs and SMIs, that only consider occurrences with ANS/CNS contribution), the rates confirmed similar trends with decreases in both the rate of SMIs and the rate of RIs. The proportion of occurrences with ANS contribution over the occurrences of all types is higher in the SMI case than in the case of RIs, suggesting that ANSPs have greater influence and managerial control of ensuring separation between aircraft in the airspace than in preventing the incursionary presence of an aircraft, vehicle, or person on the runway of an airport. Nevertheless, the rate for RIs with ANS contribution decreased more than the rate of SMIs with ANS contribution, indicating that ANSPs may have had a focus on runway incursions. However, this remains a speculation based on expert opinion.

64 Referring to the caveat on the quality of data in the occurrences reported to ECR and the potential difference in applied principles between Member States, the rates of SMIs and RIs with ANS contribution decreased more sharply than the overall rates.

[13] Number of occurrences of certain type per 100,000 exposure unit, i.e. airport movement in the case of RIs rates or IFR controlled hours in case of SMIs rates.

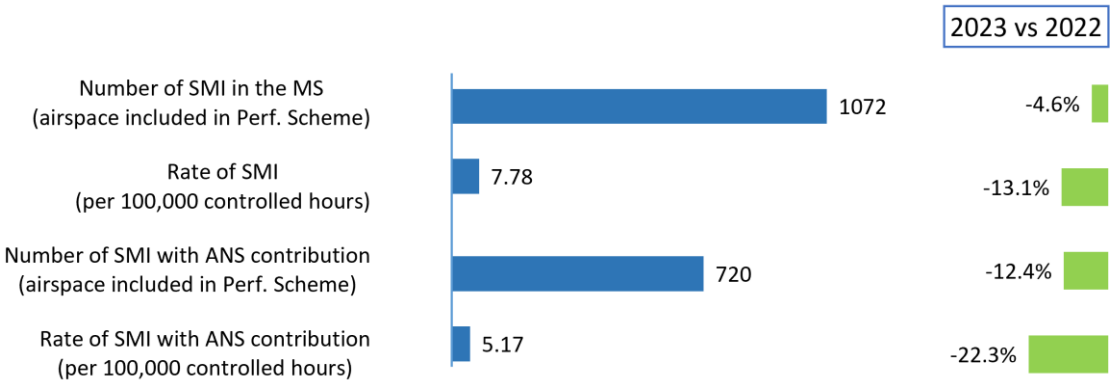


*Figure 9 – Number and rates of SMIs with safety impact in the airspace of Member States where the Performance Scheme applies aggregated at Union-level in 2023 and their trend when compared with 2022 values. Rates are calculated per 100,000 controlled hours.*

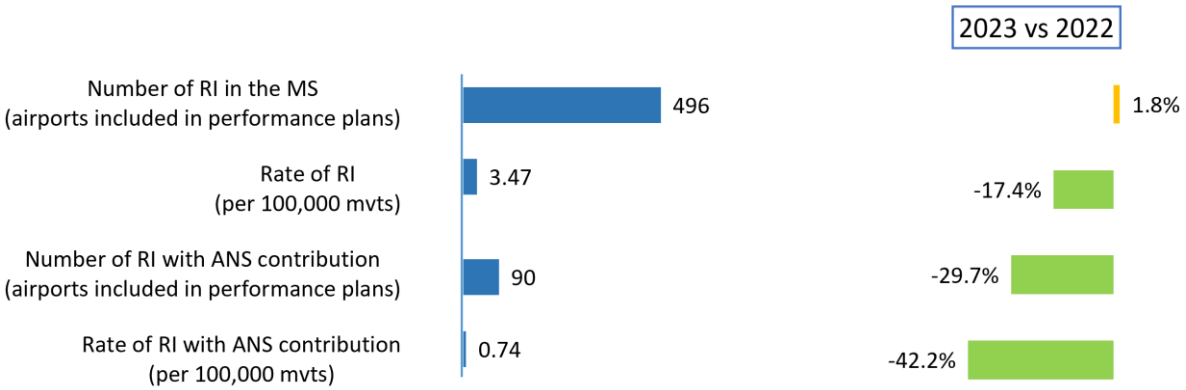


*Figure 10 – Number and rates of RIs with safety impact at the airports included in the performance plans aggregated at Union-level in 2023 and their trend when compared with 2022 values. Rates are calculated per 100,000 movements at those airports.*

*Local-level view*

65 Figure 11 illustrates the rates of SMIs with safety impacts that occurred within the airspace included under the responsibility of each Member State. The rate is reported as the number of occurrences per 100,000 controlled flight hours.

66 The highest rate occurred in Luxembourg (25.8). Because the number of controlled hours is very low in its airspace, any small increase in absolute number of occurrences results in very significant changes in the rate, as it has been the case in 2022.

67 Spain recorded almost a 40% increase in the rate of SMIs in 2023 compared to 2022 (23.2 compared to 16.6). Spain activated an Action Plan at national and local levels to mitigate this type of incidents in 2023 and continuing into 2024.

68 Other Member States showed a sharp decrease in the rate of SMI:

- Norway, where the rate decreased from 17.5 in 2022 to 4.5 in 2023;
- France, where the rate decreased from 15.7 in 2022 to 9.5 in 2023; and
- Sweden, where the rate decreased from 9.6 in 2022 to 3.7 in 2023.

69 Other Member States showed in general a decrease in the rate of SMIs between 2022 and 2023, with some exceptions, indicating an overall improvement across Member States.

70 Bulgaria and Netherlands are missing in the graph as no data was submitted by either of them, despite their reporting obligations.

71 Several Member States (Portugal, Spain, Slovenia, Croatia, and Belgium) reported that SMI is a safety area addressed in their State Safety Plans, and part of monitoring, periodic safety promotion and training efforts. The Slovak NSA notes that SMIs are monitored continuously and has established monitoring through definition of acceptable level of safety (ALS) and tolerable level of safety (TLS).

72 As in previous years, most Member States reported the processes established by NSAs to oversee ANSP performance and their safety management system, as a measure to keep control over the rate of SMIs.

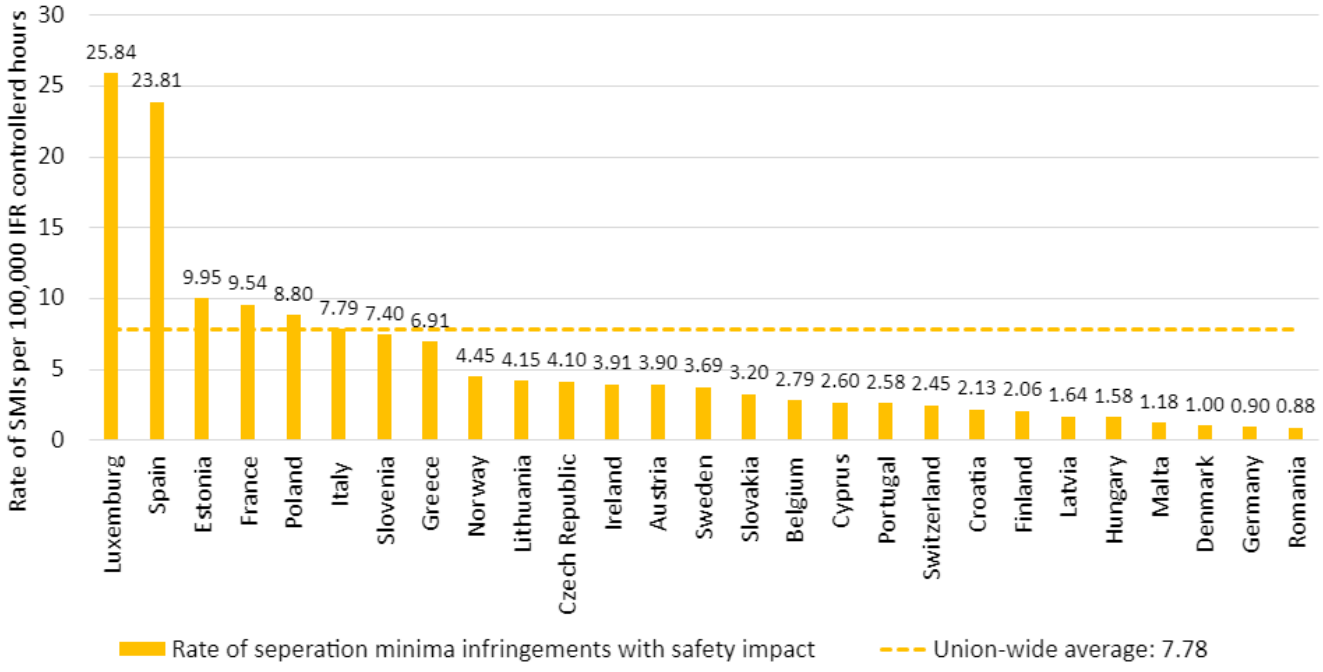


*Figure 11 – Rates of separation minima infringements with safety impact by Member State.*

73 **Error! Reference source not found.** illustrates the rates of RIs with safety impact that occurred at the airports included in the performance plans (grouped by Member State). The rate is reported as the number of occurrences per 100,000 airport movements. Some Member States are not shown in the figure. Bulgaria, Cyprus, Croatia, Lithuania, Slovenia, and Slovakia did not include any airport in their performance plans and so are not obliged to report RIs.

74 The highest rate occurred in Malta (15.2), followed by Sweden (11.40) and Spain (10.6). In 2023, seven Member States were above the Union-wide rate, while only four were above the Union-wide rate in 2022.

75 In general, the picture is the same as for SMIs, except for:

- Malta, where the rate increased from 9.8 in 2022 to 15.2 in 2023, but movements are few and the rate sensitive to just a minor change in the absolute number (2 to 3). Nevertheless, Malta undertook the measures to mitigate the occurrences including specific ATCOs briefings, refresher exercises, and discussions with the aerodrome's operator.
- Ireland, where the rate increased from 2.4 in 2022 to 4.5 in 2023, with an increase in absolute numbers (2 to 12). The NSA has engaged with the Runway Safety Team(s) and a redesign of runway holding points in Dublin is to be implemented in 2024.
- Greece, where the rate increased from 1.1 in 2022 to 4.4 in 2023 (1 to 5). Greece has reported actions taken (ATCOs in Runway Safety Teams, Refresher training, increased oversight, etc.).

76 The greatest improvement was seen in Sweden, where the rate decreased from 26.9 in 2022 to 11.4 in 2023. Poland also showed an improvement in the rate. For the Member States not already mentioned, there was an overall improvement.

77 11 Member States (Belgium, France, Greece, Ireland, Romania Slovenia, the Netherlands, Latvia, Estonia, Spain, and Poland) reported that Local Runway Safety Teams (LRSTs) are established at their airports, and that runway incursions are safety areas addressed in their State Safety Plans, and form part of their periodic safety promotion efforts.

78 Other specific measures to reduce RI were reported as effective, e.g. Spain activated specific action plans for GCLP and LEMG, to mitigate the runway incursions recorded during 2022-2023. All the actions included in these action plans have already been implemented and a gradual decrease of the record of RI occurrences can be observed.

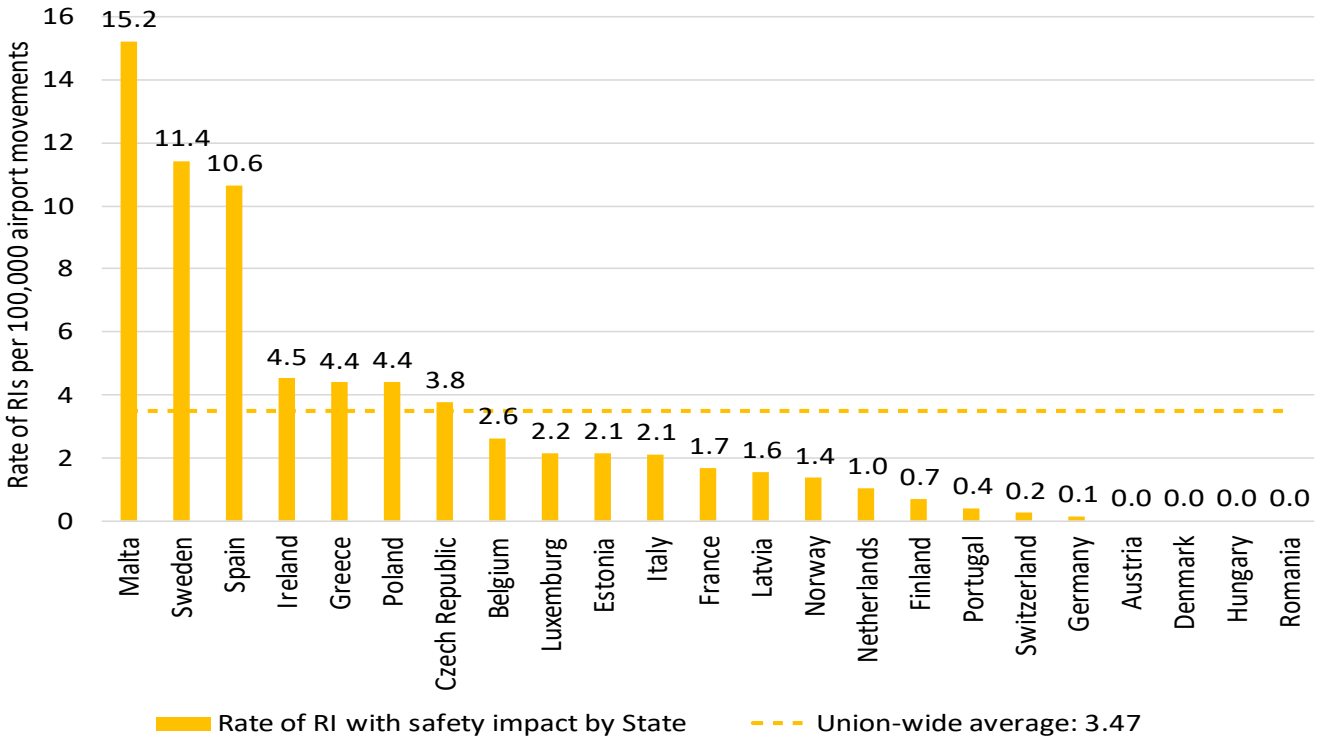


*Figure 12 – Rates of runway Incursions with safety impact by Member State.*

79 **Error! Reference source not found.** shows the rates of SMIs and absolute numbers of SMIs that had an ATS/CNS contribution to the occurrence. The change in the rate value with respect to 2022 is also represented as a percentage. 30 ANSPs reported SMIs, which had an ATS/CNS contribution.

80 The highest rate of SMIs was in the ANA LUX airspace (25.8 SMIs per 100,000 flight hours), but with a very low absolute number of occurrences (3 SMIs). The rate increased by 14% with respect to 2022.

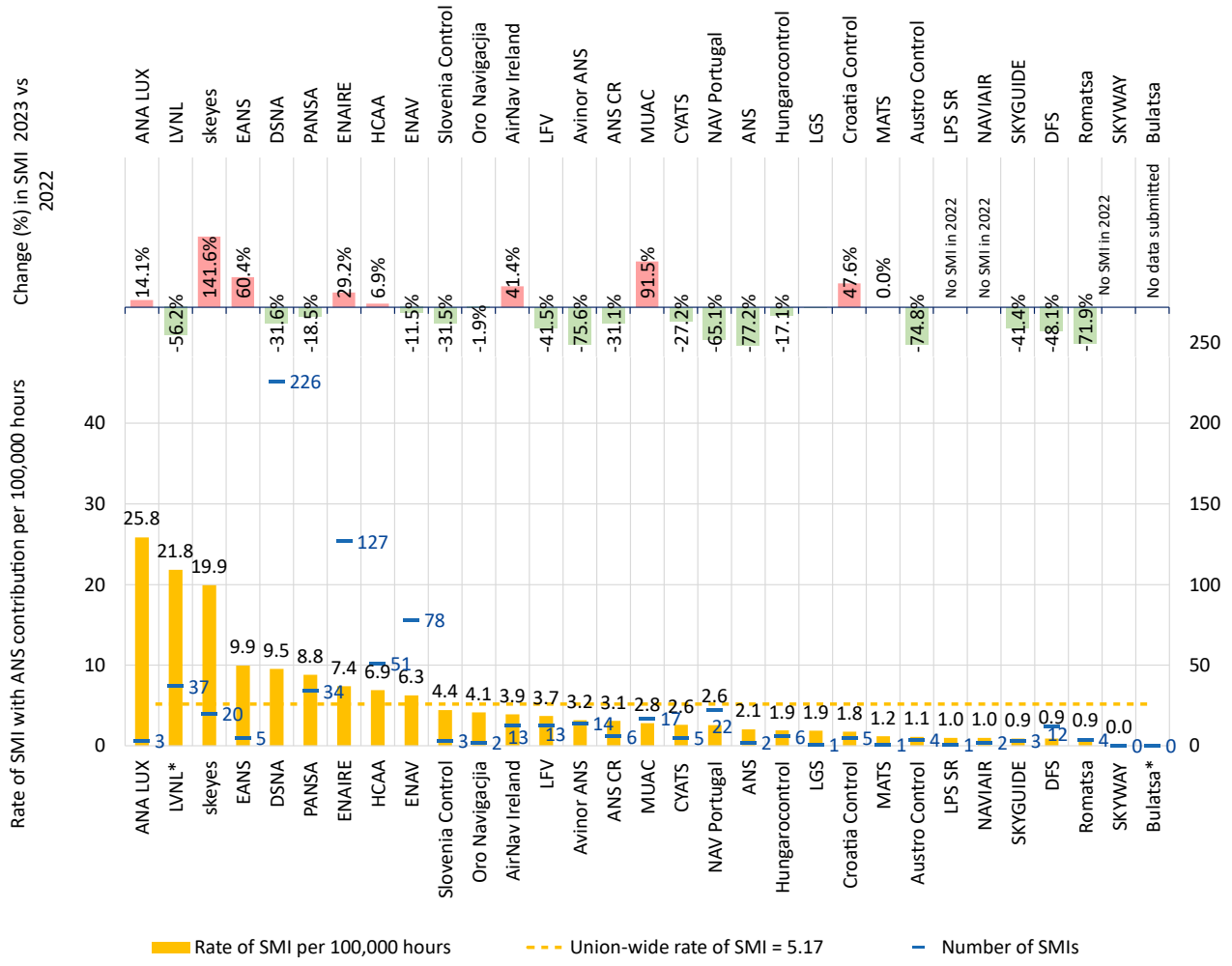


*Figure 13 – Rate of separation minima infringements with ATS/CNS contribution by ANSP. *No data provided for 2023.*

81 The highest number of SMIs with ANS contribution occurred in DSNA´s airspace (226) but the high number of controlled hours resulted in a lower rate (9), despite being well above the Union average. The rate decreased by -31% with respect to 2022, showing continuous improvement. DSNA should continue to assess occurrences and put in place appropriate mitigations according to their SMS, as necessary.

82 Other ANSPs with high rates that experienced a high increase in the last year are skeyes and EANS. In both cases, the number of controlled hours is relatively low, hence the sensitivity of the rate to variations in the numbers of SMIs is high. Both should carefully monitor SMIs during the final year of RP3, looking into the reasons contributing to this rate and take appropriate mitigating actions, as necessary.

83 Figure 14 (page 22) shows the rates of RIs and absolute number of RIs that had an ATS/CNS contribution per airport. Of the 153 airports included in the performance plans, 43 airports reported RIs with ATS/CNS contribution. The 110 airports included in the performance and charging scheme

that reported no RIs are not shown in the figure. The majority of airports reported one or two RIs. This makes the rate of runway incursions at airports with a low number of movements very susceptible to variations in the number of occurrences. For example, of the top ten airports with the highest rates of runway incursions, eight had fewer than 30,000 airport movements (represented in the figure with (*)).[14] To illustrate this fact, the airport with the highest rate of runway incursions (EPRA) had only 1,053 movements and a single RI.

84 Airports with significantly higher traffic figures and with the highest rates of RIs are EPWA (Warsaw) with 5.44 RI per 100,000 movements, followed by EIDW (Dublin) with 4.97 per 100,000 movements. These providers should consider looking into the reasons contributing to these rates and take appropriate mitigating actions, as necessary.

85 Table 5 provides the rate of RIs in 2023 with ANS contribution and changes in the rate of RI compared with 2022. The table includes the 20 airports with the highest rate values in 2023 when compared with 2022 values of the rate. Among them, EPPO (Poznan - Lawica) and LFMI (Istres-Le Tubé) experienced the largest rate reductions.

| Airport | Rate in 2023 | Change in rate |
|---|---|---|
| EPRA (Radom) | 94.97 (1) | no RI* |
| EETU (Tartu) | 25.67 (1) | no RI* |
| EPMO (Warszawa - Modlin) | 23.25 (5) | 79.78% |
| EPBY (Bydgoszcz) | 22.84 (1) | no RI* |
| LFGJ (Dôle-Tavaux) | 10.33 (1) | no RI* |
| EHGG (Groningen) | 10.09 (1) | no RI* |
| ENZV (Stavanger) | 5.64 (4) | -2.50% |
| LFTH (Hyères-Le Palyvestre) | 5.56 (2) | no RI* |
| EPWA (Warsaw) | 5.44 (9) | 23.72% |
| LFMI (Istres-Le Tubé) | 5.22 (1) | -94.13% |
| LMML (Malta International) | 5.07 (3) | 22.85% |
| EIDW (Dublin) | 4.97 (12) | 81.68% |
| EPPO (Poznan - Lawica) | 3.95 (1) | -123.06% |
| EINN (Shannon) | 3.51 (1) | no RI* |
| EPKK (Krakow - Balice) | 3.04 (2) | -14.37% |
| LFLS (Grenoble-Isère) | 2.67 (1) | no RI* |
| LFPN (Toussus-le-Noble) | 2.42 (2) | 56.58% |
| LFMV (Avignon-Caumont) | 2.15 (1) | no RI* |
| LPCS (Cascais) | 2.10 (1) | 19.57% |
| LFBZ (Biarritz-Bayonne-Anglet) | 2.04 (1) | no RI* |

*Table 5 – Rates and absolute numbers in 2023 and changes in the rate of RIs with ANS contribution compared with 2022 (data is presented for the 20 airports with the highest rates in 2023). The numbers within brackets indicate the absolute number of RIs.*No RI were reported in 2022.*

[14] Based on IFR movement data provided by the NM.

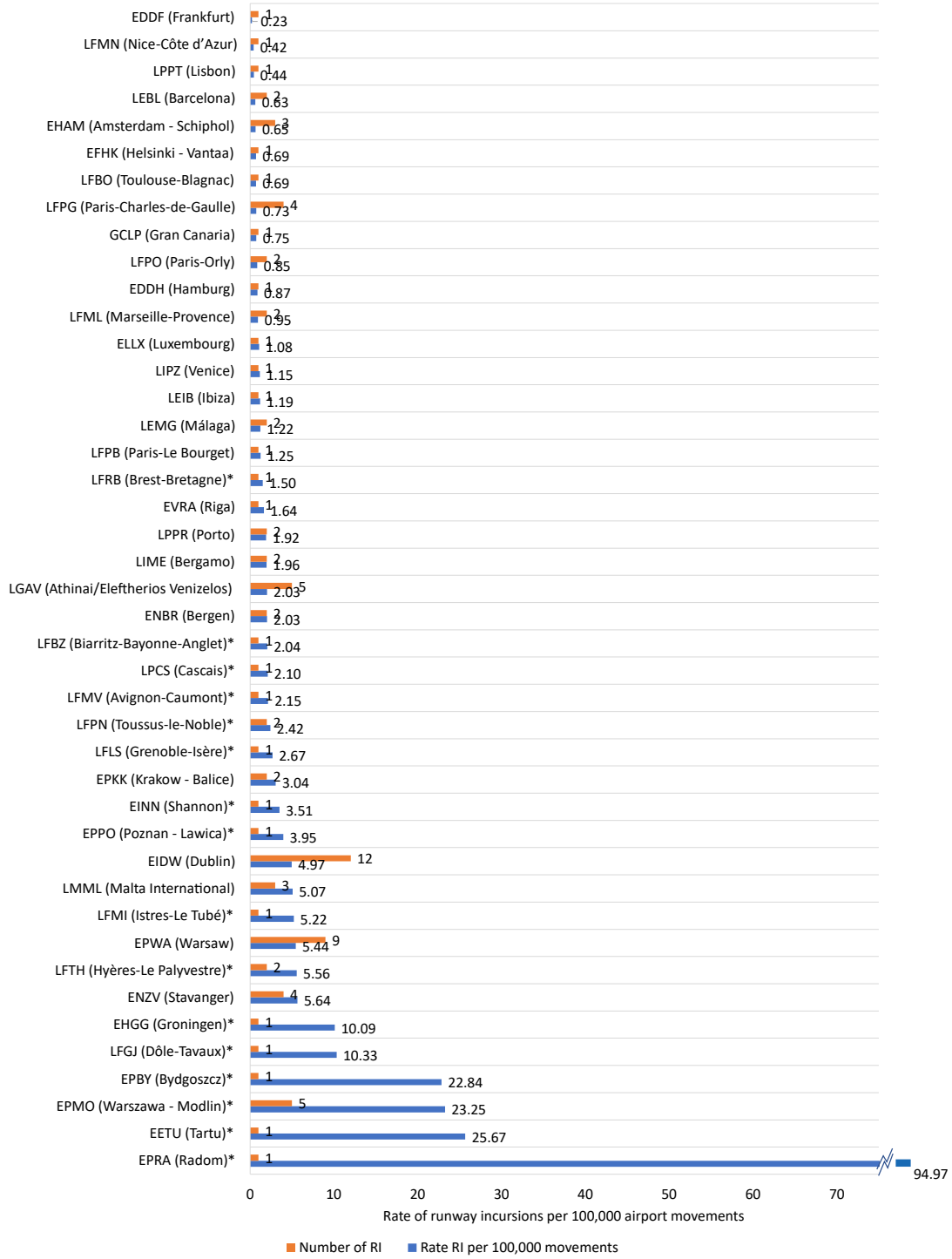


*Figure 14 – Rate of runway incursions with ATS/CNS contribution by airport. *Airports with less than 35,000 movements.*

*Automated Safety Data Recording Systems*

86 This SPI captures the use of automated safety data recording systems (ASDRS) for detecting, recording, analysing, or reporting SMIs and RIs by ANSPs.

87 In 2022, ten ANSPs (Croatia Control, ANS CR, Hungarocontrol, LGS, LPS SR, DSNA, LVNL, MUAC, Skyguide, and ENAIRE) reported the use of some type of ASDRS. Small progress has been reported concerning the use of ASDRS by the ANSPs in 2023 with two additional ANSPs (Oro Navigacjia and SDATS) reporting the installation and use of this tool as specified.

88 All 12 of these ANSPs use automated safety data recording systems to detect SMIs. Four of the 12 ANSPs that reported the use of some type of ASDRS (ANS CR, Croatia Control, LGS, and ENAIRE) collect information on RIs as well.

89 In some cases, the automated safety data recording tool used is the ASMT tool developed by Eurocontrol. Three ANSPs reported using in-house developed tools.

90 Among the ANSPs that provided a definition of the events that trigger the automatic detection of events for further analysis, it is observed that the parameters used were not harmonised. This is not surprising as the use of the tool and the associated processes differ among ANSPs.

91 The ANSPs that use these ASDRS reported that:

- Data captured by the tools is used in support of risk management processes but serve many purposes. ANSPs mentioned the following as main uses: General statistics, hot spot identification, safety and trends analysis, analysis of occurrences, debriefings, monitoring risks and confirmation hazards sufficiently mitigated, monitoring of the safety criteria set in the safety assessment of functional system changes, and identification of occurrences. Use of ASDRS for the identification of occurrences has only been reported by two ANSPs.
- Data are treated by dedicated safety expert departments, applying just culture principles.
- Data gathered are not always regularly disseminated within the organisations but used in an ad-hoc manner by specific groups (e.g. from use exclusively by the safety expert group or disseminated to specific groups such as system designers). In some other instances, the information is disseminated within the safety unit of the ANSP. Several, but not all ANSPs share the information with the NSA.
- No obstacles to using ASRD were identified by most ANSPs. Some ANSPs reported issues such as the definition of safety data (to interpret them properly) or how to visualise them in order to provide a clear and understandable picture. No ANSP has reported issues with operational staff accepting the use of automated tools.

92 The same conclusions about the use of ASDRS can be drawn as last year: the implementation is to some extent limited, and it does not include a harmonised definition of the events that trigger the capture of occurrences as it may serve different purposes in each ANSP. In addition, even when these tools are implemented, in most cases their use seems to be dedicated to operational analysis (e.g. identification of hotspots) and not to complement occurrence reporting.

93 In order to protect the Reporting Culture and for Just Culture considerations, EASA supports this use pattern. Additionally, EASA and the PRB note that the indicator, while updated for RP3, has shown itself to be of little benefit.

# 3 NETWORK MANAGER

- The NM achieved the RP3 target level in 2023.
- The NM over-delivery indicator decreased in 2023 compared to 2022.

94 In accordance with the Regulation, the Network Manager must draw up a network performance plan (NPP) containing performance targets for the NM functions covering all key performance areas, consistent with the Union-wide performance targets. The NPP for RP3 was reviewed considering the changed economic and operating context after the COVID-19 pandemic and was approved by the Commission in May 2022.[15] The safety (key) performance indicators are presented in Table 6 and Table 7.

95 These indicators are assessed in terms of the functions and tasks of the NM. However, the distinction between NM activities and other EUROCONTROL activities is not always evident. This complicates the evaluation of the degree of accomplishment for some of the targets and objectives of the NM. Specifically, this is the case for the activities in the area of safety management, where activities to support operational stakeholders achieve safety performance targets are performed by the NM and the Network Management Directorate/other EUROCONTROL units.

96 The safety performance monitoring reported here is based on the Performance Report 2023 submitted by NM to the PRB in July 2023 and feedback received from EASA after verifying the EoSM questionnaire, as the designated oversight authority of the NM.

| Key Performance Indicators | NM Targets |
|---|---|
| EoSM<br>The minimum level of the effectiveness of safety management | Improving its own management system to reach at least Level C in the safety management objectives (MOs) 'safety culture', 'safety policy and objectives', 'safety assurance', and 'safety promotion' and Level D in the safety management objective 'Safety Risk Management' for its own Safety Management System in line with the RP3 EU-wide targets. |

*Table 6 – NM KPIs in NPP 2020-2024.*

| NM Performance Indicators | | NM Internal Objective |
|---|---|---|
| Over-deliveries | The ATFM over-deliveries (OVD) above the capacity limits of a sector declared by the air navigation service provider where ATFM regulations are imposed | Reduction of over-deliveries |
| Top risks | Top 5 Operational safety risks and priorities | Identification of Network operational safety risks (including for its own operations) |

*Table 7 – NM PIs in NPP 2020-2024.*

[15] Commission Implementing Decision (EU) 2022/785 of 17 May 2022 approving the revised Network Performance Plan for the third reference period of the Single European Sky performance scheme (2020-2024).

## 3.1 Effectiveness of Safety Management – Network Manager

97 The NM applied the questionnaire for the measurement of the EoSM, as it is defined for ATS providers, with a slight adaptation of the questionnaire due to NM nature of services. EASA identified the requirements included in the EoSM questionnaire that were not applicable to NM, and applied the adjustments to the questionnaire, in particular in the areas of safety policy and objectives and Safety Risk Management. The EoSM questionnaire for the NM was sent to EASA for verification and justifications provided by NM were cross-checked with the results of the continuous oversight performed by EASA.

98 The minimum level achieved for any question related to a Management Objective is the minimum level achieved in all safety areas addressed by each question that are contained in that Component, which is determined by the responses to the EoSM questionnaires.

99 Table 8 shows consolidated 2023 EoSM results of NM, after EASA verification. The NM achieved the RP3 target level in all components of the EoSM in 2023. Between 2022 and 2023, the NM increased the achieved maturity level on six questions between 2022 and 2023.

| EoSM component | Maturity |
|---|---|
| Safety Culture | C |
| Safety Policy and Objectives | D |
| Safety Risk Management | D |
| Safety Assurance | C |
| Safety Promotion | C |

*Table 8 – NM's EoSM achieved levels per objective in 2023. The target for risk management is level D while it is level C for the other management objectives.*

Figure 15 shows the aggregated responses of the EoSM questionnaire applied to the NM (marked from Level A to Level D) distributed per EoSM Component.

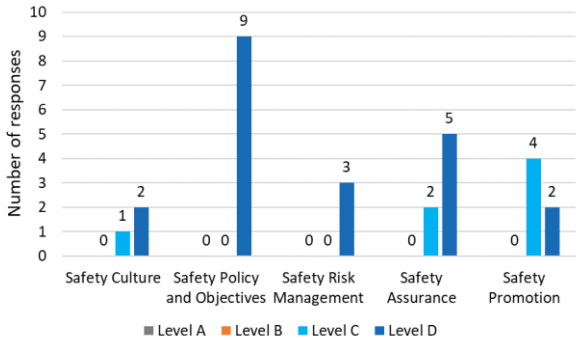


*Figure 15 – EoSM's aggregated responses per management objective.*

## 3.2 Over-deliveries

100 Figure 16 illustrates the evolution of the over-deliveries (OVD) during RP2 and those during RP3. The over-delivery indicator decreased from 11.5% in 2022 to 9.3% in 2023. This is largely due to improvements seen in the following airspace: Reims, Madrid, Bordeaux, Munich, and Vienna ACCs. The over-delivery indicator in 2023 is below the pre-COVID-19 pandemic level of 12.4%. Assuming the continuation of current NM and stakeholder actions to reduce volatility and improve flight planning (including identifying and removing Yo-Yo and sharp-turn-angle flight plans), over-deliveries should remain at the present low-levels.

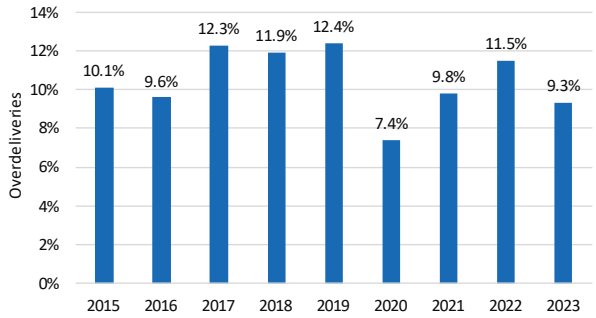


*Figure 16 – Over-deliveries indicator (combined ENR and ADR) since the beginning of RP2.*

101 A set of NM and stakeholder actions described in the Network Strategy Plan, which aim to improve predictability or to handle more efficiently demand-capacity balancing, continue to be under implementation. Among these actions, NM has highlighted:

- Actions to keep airborne flights as close as possible to the flight plans including, as

mentioned above, reducing Yo-Yo and sharp-turn flight plans;
- Actions that reduce time deviations from the plan; and
- Capture all the flights in regulations as early as possible.

### *3.3 Top safety risks in the Network*

102 In 2023, NM conducted a new exercise to identify the top five operation safety priorities at the network level:

1. Controller blind spot;
2. Flight without transponder or with dysfunctional transponder;
3. Restricted airspace infringement;
4. Controlled airspace infringement; and
5. Controller detection of potential runway conflict.

103 In comparison with the safety priorities in 2022, there was one new priority in 2023, "Restricted airspace infringement", and one of the 2022 priorities, "ACAS RA not followed", was transferred to the list of issues to be monitored, as no incident of this type occurred in 2023.

104 Additionally, based on the conclusions of the incident data analysis, it was determined that the risk(s) associated with the following issues would be monitored:

- ACAS RA not followed;
- Altitude deviation;
- On-the-job-training;
- High controller workload;
- Synchronisation of successive arriving to land and of arriving to land and departing aircraft;
- VFR/IFR incidents in TMA/CTR airspace;
- Non-commercial flights in TMA/CTR airspace;
- Inadequate ATC teamwork;
- Pilot/driver induced incorrect entry onto the runway protected area;
- Incorrect presence of non-commercial flight aircraft on the runway protected area;
- Incorrect presence of vehicles on the runway protected area; and
- Incorrect presence on the runway protected area that could have been prevented by stop bars.

# 4 SUMMARY OF OBSERVATIONS

105 There was neither an accident registered with ANS-contribution nor a fatal accident with ANS contribution, involving fix wing commercial air transport operation airplanes above 2,250 kg MTOW, recorded in 2023 or the preceding 10 year period. Four serious incidents with ATM-contribution were recorded in 2023, of which three were related to services provided around or at airports.

106 The number of serious incidents in 2023 slightly decreased when compared with 2022 and is well below 2019 levels. The rates of both accidents and serious incidents were similar to recent years.

107 The analysis of the overall EoSM minimum maturity level achieved by ANSPs in 2023 showed that:

- 19 of the 36 ANSPs have already achieved the RP3 target level D for Safety Risk Management. This means that 53% of ANSPs have reached the target in this objective;
- 31 of the 36 ANSPs have already achieved the RP3 target level C or better on all other MOs, i.e. the four EoSM objectives other than Safety Risk Management. This means that 86% of ANSPs have achieved this target; and
- 18 of the 36 ANSPs have achieved the EoSM targets in full for RP3. This means that 50% of ANSPs have achieved the EoSM targets as a whole. However, 21 ANSPs had planned to achieve the targets in 2023, indicating that some ANSPs are behind their plans.

108 Although a significant proportion of the ANSPs have achieved their planned safety targets, they will still need to meet/maintain the target level at the end of the reference period. There is a risk that their level of achievement could decrease in the intervening time.

109 The average EoSM score achieved by all ANSPs is 89. The minimum score achieved by an individual ANSP is 70, while the maximum EoSM score is 100.

110 The collective Union-wide analysis of aggregated responses of the EoSM ANSP questionnaire per management objective shows that the EoSM objective with the most questions where maturity levels are below target, and therefore needs more improvement overall, is within the Safety Risk Management area, despite 19 ANSPs having achieved maturity level “D”.

111 Several NSAs have raised concerns that their ANSPs may not meet the RP3 targets in 2024. In light thereof and regarding the general progress of ANSPs improving their maturity levels, the PRB and EASA now see that there is an increased risk that some ANSPs may not meet the RP3 targets at the end of RP3.

112 No improvement was observed regarding the additional and untargeted objective that aimed to capture how ANSPs manage interdependencies and trade-offs between safety and other business objectives. The majority of ANSPs (18) are at maturity level C and level D (15), so there is room for improvement with respect to strengthening resilience, particularly given the impacts related to Russia’s war of aggression against Ukraine and recovery from COVID-19 pandemic. Pressures to trade-off resources towards other business objectives of the organisation due to a loss of traffic and therefore revenues may have intensified and must be carefully managed. This point is crucial if ANSPs are to maintain and improve current safety performance levels as assessed through the EoSM and other safety performance indicators.

113 The rates of occurrences (SMIs and RIs) at the EU level in 2023 show an average number of 7.78 SMIs per 100,000 controlled flight hours and an average number of 3.5 RIs per 100,000 airport movements. Both rates have decreased when compared with 2022. If the aggregation is done at Union-wide level with the occurrences where the ANSP was identified as having a contribution, either direct or indirect, the rates are reduced to 5.17 for SMIs, and 0.74 for RIs, respectively, per 100.000 exposure unit. This shows that ANSPs may have greater influence and managerial control of ensuring separation between aircraft in the airspace than in preventing the incursionary presence of an aircraft, vehicle, or person on the runway of an airport.

114 At the local level, the following rates of occurrences were monitored:

- Rates of RIs with a safety impact that occurred at the airports of a Member State also included in the performance and charging scheme showed the highest rate occurring in Malta (15.2 RIs per 100,000 movements), which is higher compared to the 2022

reporting period. This is contrasted with the rate reported by three Member States (Denmark, Hungary, and Romania) where no RIs were reported at their airports. However, smaller airports are more susceptible to variations in the rate of occurrences due to lower levels of traffic.

- Additionally, rates of SMIs with safety impacts that occurred within the airspace covered by the performance and charging scheme showed the highest rate being recorded in Luxembourg (25.84 SMIs per 100,000 controlled flight hours), which is slightly higher than in 2022. Note that the rate is more susceptible to variations due to the low number of flight hours in that Member State. Spain however recorded the highest rate, experiencing a 40% increase in SMIs when compared with rates recorded in 2022;
- Only 43 of 153 airports reported RI occurrences that had ATS/CNS contributions. The majority of these airports reported one or two RIs, and only a handful of them reported three or more RIs. Within the top ten airports with the highest rates of RIs with ATS/CNS contributions, eight had fewer than 35,000 airport movements (the low number of airport movements makes the rate of occurrences highly susceptible to variations with the number of occurrences). The airport with greater than 80,000 movements and the highest rate of RI occurrences was EPWA (Warsaw) with 5.44 RI per 100,000 movements, followed by EIDW (Dublin) with 4.97 per 100,000 movements.
- 30 ANSPs reported SMIs with ATS/CNS contribution, five ANSPs reported no SMIs and one (Bulatsa) did not report the data as required. The highest rate was experienced by ANA LUX (25.84 SMIs per 100,000 flight hours), which results from the low number of flight hours despite the absolute number of occurrences also being very low (3 SMIs). It was followed by LVNL (21.8), with 37 SMIs, and skeyes (19.9), with 20 SMIs. In the previous reporting period, LVNL had the highest rate of SMIs and one of the highest absolute numbers of occurrences but reported 56% reduction in the rate in 2023.

115 12 Member States reported that their ANSPs used some type of automated safety data recording system in 2023, with two additional ANSPs (SE Oro Navigacija and SDATS) when compared to 2022. It can be concluded that the use of automated safety data reporting tools is not widely implemented among ANSPs. The limited implementation does not include a harmonised definition of the events that trigger the capture of occurrences as it may serve different purposes in each ANSP. In addition, even when these tools are implemented, in most cases their use seems to be dedicated to operational analysis (e.g. identification of hotspots) and not to complement occurrence reporting. EASA notes the possible negative effects to the reporting culture and potential just culture issues of using automated tools to complement occurrence reporting other than for training purposes. No ANSP reported issues of acceptance of the tools.

116 The NM achieved the RP3 targets in 2023, one year ahead of the final monitoring year.

117 The NM over-delivery indicator decreased to 9.3%, which is lower rate than the pre-pandemic rate. This decrease was influenced by the reduced volatility of traffic levels, improved flight planning, and other actions.