Monitoring Report 2022

Poland

Third Reference Period (2020-2024)

Correction as of 26 July 2023

Signatories

Monitoring report details	
Name	Poland
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NSA names	Name, title and signature of representative
Polish Civil Aviation Authority (CAA)	President of Civil Aviation Authority Z upoważnienia Prezesa Urzędu Lotnictwa Cyw[illegible]o Wiceprezes ds. Infrastruktury Lotniczej Michał Kozłowski

Additional comments	Based on the PRB e-mail, dated 24 July 2023, the correction of the Monitoring report 2022 was completed. After the Network Manager validation of the delays submitted as an exceptional event during the period when the European Aviation Crisis Coordination Cell was activated the NM reported to the PRB that the Polish submission is a fair reflection of the ATFM delay incurred in the period; and to adjust (decrease) Polish 2022 delay by 130,727 minutes. The resulting en route KPI value is 1.09 minutes per flight (original being 1.30 minutes per flights). As a result, the following correction was made: • updated Monitoring Report (2.3.1.(a) capacity KPI #1) with the new actual delay per flight value as indicated above. • added to the box in tab 2.3.1.A. KPI#1 "additional information related to Russia's war of aggression against Ukraine" a sentence on the line of "130,727 minutes of delays have been considered as exceptional event during the period when the European Aviation Crisis Coordination Cell was activated after validation with the Network Manager".

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SECTION 1: INTRODUCTION

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1.1 Scope

1.1.1 Background

Period covered by the monitoring report	01 Jan. 2022 - 31 Dec. 2022
NSAs responsible for drawing up the monitoring report	Polish Civil Aviation Authority acting as NSA
Adoption date of final performance plan (or, if not yet adopted, of the most recent draft performance plan)	06/05/2022
Additional comments	

1.1.2 ANSPs

Number of ANSPs	**5**

ANSP name	Polish Air Navigation Services Agency (PANSA)
Services	ANSP (ATS,CNS, AIS, SAR coordination)
Geographical scope	Flight Infromation Region Warszawa, all airports concerned

ANSP name	Institute of Meteorology and Water Management - National Research Institute (IMWM)
Services	METEO
Geographical scope	Flight Infromation Region Warszawa (excluding EPRA TMA and CTR/ATZ, EPSY TMA and CTR/ATZ, EPBY TMA and CTR/ATZ)

ANSP name	AIRPORT METEO (see note below)
Services	METEO
Geographical scope	EPRA TMA and CTR

ANSP name	Warmia i Mazury sp. z o.o.
Services	ATS (AFIS), CNS (COM), METEO
Geographical scope	EPSY METEO: TMA, CTR and ATZ, AFIS: ATZ

ANSP name	Port Lotniczy Bydgoszcz S.A.
Services	ATS (AFIS), METEO
Geographical scope	EPBY METEO: TMA, CTR and ATZ, AFIS: ATZ

1.1.3 Other entities

Number of other entities	**2**

Entity name	Civil Aviation Authority of the Republic of Poland (NSA)
Domain of activity	Supervision

Entity name	EUROCONTROL
Domain of activity	Other/Network

1.1.4 Charging zones

En route:

Number of en route charging zones	**1**

En route charging zone	Poland

Terminal:

Number of terminal charging zones	**2**

Terminal charging zone	Poland zone 1
Terminal charging zone	Poland zone 2

1.1.5 Additional information

From 11 August 2022 the name of the Radom METEO has been changed to the AIRPORT METEO.
No further changes were reported during 2022.

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1.2 List of Airports

1.2.1 Airports

Number of airports	15

Airport name	Chopina w Warszawie
ICAO code	EPWA
Charging zone	Poland zone 1

Airport name	Bydgoszcz
ICAO code	EPBY
Charging zone	Poland zone 2

Airport name	Gdańsk im. Lecha Wałęsy
ICAO code	EPGD
Charging zone	Poland zone 2

Airport name	Kraków-Balice
ICAO code	EPKK
Charging zone	Poland zone 2

Airport name	Katowice-Pyrzowice
ICAO code	EPKT
Charging zone	Poland zone 2

Airport name	Lublin
ICAO code	EPLB
Charging zone	Poland zone 2

Airport name	Łódź
ICAO code	EPLL
Charging zone	Poland zone 2

Airport name	Warszawa/Modlin
ICAO code	EPMO
Charging zone	Poland zone 2

Airport name	Poznań-Ławica
ICAO code	EPPO
Charging zone	Poland zone 2

Airport name	Radom-Sadków
ICAO code	EPRA
Charging zone	Poland zone 2

Airport name	Rzeszów-Jasionka
ICAO code	EPRZ
Charging zone	Poland zone 2

Airport name	Szczecin-Goleniów
ICAO code	EPSC
Charging zone	Poland zone 2

Airport name	Olsztyn-Mazury
ICAO code	EPSY

Charging zone	Poland zone 2

Airport name	Wrocław-Strachowice
ICAO code	EPWR
Charging zone	Poland zone 2

Airport name	Zielona Góra-Babimost
ICAO code	EPZG
Charging zone	Poland zone 2

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1.3 Overview

1.3.1 Economic and operational context and impact on the provisions of ANS

After two years of pandemic, 2022 was another very challenging year for PANSA.
At the beginning of the year the consequences of the pandemic were still visible.
The initial months of 2022 were also influenced by persisting uncertainty regarding the regulatory framework for PANSA in the financial area, as the RP3 PP was still under discussion with the European Commission (over January-February talks were held between the EC, PRB and Polish NSA, which led to changes in the cost-efficiency targets for PANSA for all years of RP3). This impacted PANSA ability to plan on a short term.
Since the end of February 2022 new challenges have emerged - as a consequence of the military aggression of the Russian Federation on Ukraine, a war right behind Poland's eastern border. The resulting closure of Ukrainian airspace and further restrictions imposed on traffic flows on east-western axis (as a consequence of sanctions and reciprocal actions) led to significant changes to traffic flows in the Polish airspace (including drop in overflights and increase in traffic on the north-southern axis along Poland's eastern border). High uncertainty regarding traffic evolution in FIR Warszawa in the coming weeks/months, but also on a longer term, marked the year 2022. At the same time, a direct consequence of the war was significant increase in military activity (including NATO) in FIR Warszawa, what impacted airspace availability for civil traffic and as a consequence, delays. Considering these extraordinary circumstances, Poland wished to exclude the delays related to the war from the 2022 delay indicator in accordance with the definition of the capacity KPI (exclusion of delays resulting from extraordinary events), however, based on legal interpretation provided by the European Commission, the Commission considered this not be acceptable for the period beyond EACCC activation period and suggested to submit revision of the capacity KPI instead (for 2023 and 2024) as the only possible in their opinion way forward.
Further consequences of the war were felt in the economic and financial area. Historically, ca. 70-80% of PANSA revenues from en-route charges stemmed from overflights (flights performed with large aircraft on long routes along the west-eastern axis). With the drop in overflying traffic (IFR MVS in 2022 were 40-50% lower than in 2019), invoiced revenues from ER charges were much lower than assumed in the adopted revised RP3 PP. This drop could not be compensated by steadily recovering arriving/departing traffic. This situation necessitated careful analyses of PANSA liquidity situation. PANSA, with the support of the State bodies and EUROCONTROL, was able to implement solutions allowing to mitigate these negative effects, thanks to which revision of the RP3 PP in the cost-efficiency areas was considered not necessary. Further challenges were linked to changing macroeconomic situation and financial market performance - very high inflation, sharp increase in interest rates (directly impacting PANSA cost of capital), depreciation of PLN against foreign currencies, all this put additional pressure on PANSA costs and investments.
In 1H 2022 PANSA also experienced challenges related to social tensions, resulting from implementation of cost optimisation measures undertaken after the outbreak of the COVID pandemic. This had an impact on operational performance, especially over April.

1.3.2 NSA key observations and highlight per KPA

Please provide the key observations from the monitoring for each KPA :

Safety
Russian military aggression against Ukraine has not affected the safety levels of services provided by the ANSPs. In 2022 the ANSPs successfully implemented a set of measures to achieve goals established in the KPA SAFETY. The data indicate that safety remains a top priority without singalising that it has been affected by consequences caused by a current situation in beyond Poland's eastern border. The ANSPs' management systems prove the ability to be sufficiently robust and adequately efficient to manage the impact of the changed conditions.

Environment
In the KPA Environment – the en-route horizontal flight efficiency indicator (KEA) was below the target set for the year 2022. In Poland the value of KEA was achieved at the level 4,79 % with the planned target value at the level 1.65%. This situation was caused largely by external circumstances linked to geopolitical situation resulting mainly from the war in Ukraine. Airspace users were avoiding airspace of Ukraine. Additionally, a part of Polish airspace wa restricted due to the military activity. It was also observed influence of the airspace users' preference for routes which are different than the shortest route. In relations to terminal traffic the shorter waiting times of aircraft in the holding zones were positively influencing the situation within KPA ENVIRONMENT.

Capacity
The results in the CAPACITY KPA at the end of 2022 year for Poland (PANSA) was 1,30 minutes/flight with a target of 0,12 minutes/flight. In terminal traffic the national target was 0.21 minutes/flight, while the actual result was 0.04 minutes/flight. The aggression of the Russian Federation against Ukraine has a significant impact on the air navigation services in Poland due to the introduction of a number of restrictions in FIR Warszawa. A direct consequence of this situation are significant delays in Polish airspace, especially the en route delays rate. The Polish National Supervisory Authority (NSA) proposed that en-route ATFM delays attributable to extraordinary events marked with the code "O" should not be taken into account for the en-route delay. EC did not accept this solution and presented its legal analisys . The ATCO's industrial action in April and May 2022 had a significant impact on the KPA Capacity. Actions taken by both trade unions and PANSA management resulted in the ceasing of the crisis, but the event resulted in increasing of delays.

Cost-efficiency
In the area of cost-efficiency, in terms of route charges, the total nominal value of costs for 2022 was lower by 2,1% than planned. Total en route costs in real terms were lower by 9.8% compared to the planned ones, SU were by 21.6% lower than planned. DUC for 2022 was by 15.0% higher than planned.

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1.4 Traffic figures

1.4.1 En route

En route charging zone	Poland

Forecast values from the PP	2020	2021	2022	2023	2024
IFR movements (thousands)	377	461	752	863	920
IFR movements (yearly variation in %)		22%	63%	15%	7%
En route service units (thousands)	2 146	2 549	3 991	4 763	5 130
En route service units (yearly variation in %)		19%	57%	19%	8%

Actual values	2020	2021	2022	2023	2024
IFR movements (thousands)	377	473	627		
IFR movements (yearly variation in %)		26%	32%		
En route service units (thousands)	2 146	2 586	3 129		
En route service units (yearly variation in %)		21%	21%		

Differences	2020	2021	2022	2023	2024
IFR movements (thousands)	0	12	-125		
IFR movements (in %)	0%	3%	-17%		
En route service units (thousands)	0	37	-862		
En route service units (in %)	0%	1%	-22%		

1.4.2 Terminal

Terminal charging zone	Poland zone 1

Forecast values from the PP	2020	2021	2022	2023	2024
IFR movements (thousands)	40	52	81	87	92
IFR movements (yearly variation in %)		31%	56%	7%	6%
Terminal service units (thousands)	44	55	87	97	103
Terminal service units (yearly variation in %)		26%	59%	11%	7%

Actual values	2020	2021	2022	2023	2024
IFR movements (thousands)	40	47	72		
IFR movements (yearly variation in %)		18%	52%		
Terminal service units (thousands)	44	53	83		
Terminal service units (yearly variation in %)		22%	56%		

Differences	2020	2021	2022	2023	2024
IFR movements (thousands)	0	-5	-9		
IFR movements (in %)	0%	-9%	-12%		
Terminal service units (thousands)	0	-2	-4		
Terminal service units (in %)	0%	-3%	-5%		

Terminal charging zone	Poland zone 2

Forecast values from the PP	2020	2021	2022	2023	2024
IFR movements (thousands)	57	70	112	118	127
IFR movements (yearly variation in %)		22%	61%	6%	8%
Terminal service units (thousands)	62	76	124	131	142
Terminal service units (yearly variation in %)		22%	62%	6%	8%

Actual values	2020	2021	2022	2023	2024
IFR movements (thousands)	57	71	119		
IFR movements (yearly variation in %)		24%	68%		
Terminal service units (thousands)	62	79	141		
Terminal service units (yearly variation in %)		26%	79%		

Differences	2020	2021	2022	2023	2024
IFR movements (thousands)	0	1	7		
IFR movements (in %)	0%	2%	6%		
Terminal service units (thousands)	0	2	17		
Terminal service units (in %)	0%	3%	14%		

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1.5 Other general information

1.5.1 Cross-border cooperation initiatives

Despite difficulties resulting from unprovoked Russian invasion of Ukraine, PANSA continued cooperation with other ANSPs aiming at improving provision of ATM/ANS in the European Network.
The main streams of cross-border cooperation in 2022 included the following:
• agreements between PANSA and UkSATSE (Ukrainian State Air Traffic Service Enterprise) concerning exchange of radar data (located in Rzeszów in Poland and Lviv in Ukraine) are valid, however practical implementation is suspended due to the war;
• PANSA participated in selected work-stream topics in the Operational Excellence Program (launched by the Network Manager), with further involvement anticipated in 2023 – the cross-border contingency program was endorsed by Baltic FAB governing body in December 2022 and is expected to be elaborated by Polish, Lithuanian and Ukrainian stakeholders together with the NM;
• PANSA actively supported the 2022 Summer measures implemented through collaboration of ANSPs and the Network Manager;
• PANSA contributed to the work of ATM/ANS Environmental Transparency Working Group established by EASA and EUROCONTROL, especially towards the final report for Pillar 1 – "Critical Review of ATM/ANS Environmental Performance Measurements";
• FRA expansion is ongoing, after successful implementation of FRA with Lithuania and Slovakia in 2022, implementation work is underway with Swedish and Czech partners (expected in 2H 2024);
• PANSA continued cooperation with other ANSPs under iTEC Collaboration.

1.5.2 Description of the process and activities implemented by the NSA for the monitoring of performance

The fulfilment of the Polish Performance plan was regularly monitored by the NSA. The process of continuous oversight of all ANSPs was conducted based on the Regulation (EU) 2019/317) and Regulation 2017/373. The monitoring activities were including analysis of the ANSP's business and annual plans and their consistency with the Performance Plan for RP3. They were covering, among the others, the following areas:- investment plan (CAPEX) execution:
- execution of planned costs
- use of public funding, including EU funding
- execution of employment plan
- execution of staff training plan
- ATCO productivity
- implementation of major projects aimed at increasing capacity and enhancing flight efficiency
- implementation of corrective measures in the safety area.

The monitoring of progress in achieving performance targets set in Performance Plan for RP3 was performed also by dedicated Polish NSA inspectors during routine inspections.

SECTION 2: PERFORMANCE

SECTION 2.1: SAFETY KPA

2 - PERFORMANCE AT LOCAL LEVEL

2.1 - Safety

2.1.1 - Key Performance Indicators

2.1.1.(a) - Safety KPI #1: Level of Effectiveness of Safety Management

Please populate the table. The overall score per EoSM component is defined as the lowest score from the questions within a given component. For example, if verified levels for the Safety Culture component for questions 1.1, 1.2 and 1.3 were C, C, A, then the overall score for the component is A.

Polish Air Navigation Services Agency (PANSA)

Effectiveness of Safety Management		2020	2021	2022	2023	2024
(a) safety policy and objectives	Values from PP	C	C	C	C	C
	Actual values	C	D	D		
(b) safety risk management	Values from PP	C	C	C	C	D
	Actual values	D	D	D		
(c) safety assurance	Values from PP	C	C	C	C	C
	Actual values	C	D	D		
(d) safety promotion	Values from PP	C	C	C	C	C
	Actual values	D	D	D		
(e) safety culture	Values from PP	C	C	C	C	C
	Actual values	D	D	D		

Assessment of the achieved level of actual performance

At the end of 2022 PANSA maintained level D in all of the five EoSM areas (safety policy and objectives, safety risk management, safety assurance, safety promotion, safety culture) reached in 2021, thereby exceeding the targets set for 2022. NSA collected evidence proving the EoSM maturity levels declared by PANSA and made no objections to the level D in all five areas.

Main measures put in place to achieve the safety performance targets

Over 2022 PANSA continued implementation of improvements initiated in RP2 and carried out over 2020-2021 and consequently implemented measures listed in internal "SMS development roadmap". The "SMS development roadmap" is subject to ongoing review, based on monitoring results.
The measures implemented in 2022 included, among others:
- ongoing monitoring of effectiveness of safety management, also with the support of CANSO Standard of Excellence (SoE) tool,
- continuation of safety promotion initiatives, including organisation of workshops for local safety experts and inspectors involved in occurrence investigation process, internal safety promotion campaign #safetyfirst and quarterly publication of safety bulletin ("Safe Sky") and bi-annual publication of ATM/ANS Safety Performance Indicators Report,
- update of safety training programme and execution of the training programme, including refreshment SMS trainings, for both, PANSA management as well as external entities,
- review and update of internal policies, safety manual and procedures related to SMS, including Safety Policy and review of Just Culture Policy,
- implementation and development of IT tools allowing improved effectiveness of SMS processes, including Safety Recommendation Register (RZB), Toolkit for ATM Occurrence Investigation (TOKAI), Safety Dashboard (SDB) and Automatic Safety Monitoring Tool (ASMT),
- continuation of best practices exchanges with national and international organisations and entities.

If the targets have not been achieved, please explain the underlying causes or circumstances that let to this situation.

N/A

Is the NSA aware of any circumstances that may cause the SAF performance targets not to be met, either this year or in future years in the reference period?	No

What, if any, remedial actions have been implemented or planned by the ANSP to address this?
N/A

What further measures does the NSA intend to undertake to remedy this situation?
N/A

Port Lotniczy Bydgoszcz S.A.

Effectiveness of Safety Management		2020	2021	2022	2023	2024
(a) safety policy and objectives	Values from PP	C	C	C	C	C
	Actual values	C	C	C		
(b) safety risk management	Values from PP	C	C	C	C	D
	Actual values	C	C	C		
(c) safety assurance	Values from PP	C	C	C	C	C
	Actual values	C	C	C		
(d) safety promotion	Values from PP	C	C	C	C	C
	Actual values	C	C	C		
(e) safety culture	Values from PP	C	C	C	C	C
	Actual values	C	C	C		

Assessment of the achieved level of actual performance
In 2022 Bydgoszcz Airport reached values from the Performance Plan in five safety areas, assessing its advancement and progress in SMS development at level C in all areas. The above levels reflect the assessment made by the NSA.

Main measures put in place to achieve the safety performance targets
In 2022 Bydgoszcz Airport (EPBY) took below measures in order to maintain declared EoSM levels, among others: - implementation of SMS related requirements, documents and procedures, compliant with national and international law, including development and maintenance of Safety Policy and Just Culture Policy, - ensuring SMS training for all staff and contractors, - appointing Safety Manager, Safety Committee and Safety Review Board, - regular organisation of Local Safety Meetings, - development of safety management indicators, - promotion of proactive attitude of the employees regarding safety in the organisation, - conducting internal audit of the SMS and regular safety surveys, - development of annual business plan containing information on safety related investements, - sharing best practices, e.g. via SMS Data Exchange Forum etc.

If the targets have not been achieved, please explain the underlying causes or circumstances that let to this situation.
N/A

Is the NSA aware of any circumstances that may cause the SAF performance targets not to be met, either this year or in future years in the reference period?	No

What, if any, remedial actions have been implemented or planned by the ANSP to address this?
N/A

What further measures does the NSA intend to undertake to remedy this situation?
N/A

Warmia i Mazury sp. z o.o.

Effectiveness of Safety Management		2020	2021	2022	2023	2024
(a) safety policy and objectives	Values from PP	C	C	C	C	C
	Actual values	C	C	C		
(b) safety risk management	Values from PP	C	C	C	C	D
	Actual values	C	C	D		
(c) safety assurance	Values from PP	C	C	C	C	C
	Actual values	C	C	C		
(d) safety promotion	Values from PP	C	C	C	C	C
	Actual values	C	C	C		
(e) safety culture	Values from PP	C	C	C	C	C
	Actual values	C	C	C		

Assessment of the achieved level of actual performance
In 2022 Warmia i Mazury Airport maintained values from the Performance Plan in four safety areas (safety policy and objectives, safety assurance, safety promotion and safety culture) and managed to upgrade level from C to D in the area of safety risk management. The above levels reflect the assessment made by the NSA.

Main measures put in place to achieve the safety performance targets
In 2022 Warmia i Mazury Airport (EPSY) took below measures aimed at maintaining the safety performance targets mentioned in the questionnaire the year before, for example: implementation of SMS related requirements, documents and procedures, compliant with national and international law, including development and maintenance of Safety Policy and Just Culture Policy, ensuring SMS training for all staff and contractors, appointing Safety Manager, Safety Committee and Safety Review Board, regular organisation of Local Safety Meetings, development of safety management indicators, promoting proactive attitude of the employees regarding safety across the organisation, conducting internal audits of the SMS and regular safety surveys, developing annual business plans containing information on safety related investements, sharing best practices. Aditionally, in order to prove maturity in level D in the safety risk management area, the Warmia i Mazury Airport has added below information, supported by appopriate pieces of evidence: - information about reviewing its SMS at least once a year, - information about using not only reactive and proactive, but also predictive measures/methods in its risk management process.

If the targets have not been achieved, please explain the underlying causes or circumstances that let to this situation.
N/A

Is the NSA aware of any circumstances that may cause the SAF performance targets not to be met, either this year or in future years in the reference period?	No

What, if any, remedial actions have been implemented or planned by the ANSP to address this?
N/A

What further measures does the NSA intend to undertake to remedy this situation?
N/A

2.1.2 - Performance Indicators

2.1.2.(a) and (b) - Safety PI: rate of runway incursions and rate of separation minima infringements (Member State level)

Important note:
Please refer to the Supporting Guidance Material for the implementation and measurement of the safety key performance indicator (SKPI) and safety performance indicators (SPIs) for the Third Reference Period (RP3) - AMC3 Safety performance indicators (SPIs) for the monitoring of separation minima infringements (SMIs) and runway incursions (RIs) & GM5 Safety performance indicators (SPIs) for the monitoring of separation minima infringements (SMIs) and runway incursions (RIs). Only airports listed in the Performance Plan (mandatory & voluntary) and their corresponding IFR/ VFR movements should be used to derive the rate of runway incursions. At the State level, with safety impact refers to occurrences that have risk classified using the ERCS that appear in the Amber/ Red zones of the matrix.

Easy Access Rules for Safety (Key) Performance Indicators (S(K)PI) – Third Reference Period (RP3) | EASA (europa.eu)

Poland

Runway Incursions	2020	2021	2022	2023	2024
Total number of runway incursions with a safety impact	10	17	26		
Total number of IFR and VFR movements at the airports	194 403	238 124	382 479		
Rate of Runway Incursions at Airports Located in the Member State	0,00005	0,00007	0,00007		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?

Separation minima	2020	2021	2022	2023	2024
Total number of separation minima infringements with a safety impact that occurred in the airspace	21	15	39		
Total number of controlled flight hours within the airspace	217 134	267 414	355 901		
Rate of separation minima infringements within the airspace of all controlling air traffic services units in the Member State	0,00010	0,00006	0,00011		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend to monitor their effectiveness?

2.1.2.(c) - Safety PI: rate of runway incursions (Airport level)

Important note:
Please refer to the Supporting Guidance Material for the implementation and measurement of the safety key performance indicator (SKPI) and safety performance indicators (SPIs) for the Third Reference Period (RP3) - AMC3 Safety performance indicators (SPIs) for the monitoring of separation minima infringements (SMIs) and runway incursions (RIs) & GM5 Safety performance indicators (SPIs) for the monitoring of separation minima infringements (SMIs) and runway incursions (RIs). Only IFR/VFR movements at airports listed in the Performance Plan should be used to derive the rate. At the airport level, with Safety Impact refers to occurrences with RAT ground severity of A, B and C.

Easy Access Rules for Safety (Key) Performance Indicators (S(K)PI) – Third Reference Period (RP3) | EASA (europa.eu)

EPBY (Bydgoszcz)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	1	1	2		
Total number of IFR and VFR movements at the airports	4 117	2 135	3 451		
Rate of Runway Incursions at the airport	0,00024	0,00047	0,00058		

EPLB (Lublin)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	0	4		
Total number of IFR and VFR movements at the airports	1 684	1 825	3 549		
Rate of Runway Incursions at the airport	0,00000	0,00000	0,00113		

EPSY (Olsztyn-Mazury)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	0	1		
Total number of IFR and VFR movements at the airports	1 023	505	1 414		
Rate of Runway Incursions at the airport	0,00000	0,00000	0,00071		

EPWA (Chopina w Warszawie)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	4	3	6		
Total number of IFR and VFR movements at the airports	79 844	94 666	144 737		
Rate of Runway Incursions at the airport	0,00005	0,00003	0,00004		

EPGD (Gdańsk im. Lecha Wałęsy)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	2	1		
Total number of IFR and VFR movements at the airports	21 607	25 444	40 870		
Rate of Runway Incursions at the airport	0,00000	0,00008	0,00002		

EPKK (Kraków-Balice)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	2	3	2		
Total number of IFR and VFR movements at the airports	27 087	32 925	57 401		
Rate of Runway Incursions at the airport	0,00007	0,00009	0,00003		

EPKT (Katowice-Pyrzowice)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	1	0	0		
Total number of IFR and VFR movements at the airports	17 318	24 570	36 734		
Rate of Runway Incursions at the airport	0,00006	0,00000	0,00000		

EPLL (Łódź)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	3	2		
Total number of IFR and VFR movements at the airports	2 345	3 076	3 542		
Rate of Runway Incursions at the airport	0,00000	0,00098	0,00056		

EPMO (Warszawa/Modlin)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	0	1		
Total number of IFR and VFR movements at the airports	8 614	13 085	21 254		
Rate of Runway Incursions at the airport	0,00000	0,00000	0,00005		

EPPO (Poznań-Ławica)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	1	2	2		
Total number of IFR and VFR movements at the airports	10 833	13 847	22 684		
Rate of Runway Incursions at the airport	0,00009	0,00014	0,00009		

EPRA (Radom-Sadków)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	0	0		
Total number of IFR and VFR movements at the airports	1	0	0		
Rate of Runway Incursions at the airport	0,00000				

EPRZ (Rzeszów-Jasionka)	2020	2021	2022	2023	2024

Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	1	1		
Total number of IFR and VFR movements at the airports	4 011	4 268	14 340		
Rate of Runway Incursions at the airport	0,00000	0,00023	0,00007		

EPSC (Szczecin-Goleniów)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	0	0		
Total number of IFR and VFR movements at the airports	3 236	3 243	5 074		
Rate of Runway Incursions at the airport	0,00000	0,00000	0,00000		

EPWR (Wrocław-Strachowice)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	1	3		
Total number of IFR and VFR movements at the airports	13 661	17 399	26 388		
Rate of Runway Incursions at the airport	0,00000	0,00006	0,00011		

EPZG (Zielona Góra-Babimost)	2020	2021	2022	2023	2024
Total number of runway incursions with any contribution from air traffic services or CNS services with a safety impact that occurred at the airport	0	0	1		
Total number of IFR and VFR movements at the airports	1 030	707	1 041		
Rate of Runway Incursions at the airport	0,00000	0,00000	0,00096		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend to monitor their effectiveness?
NSA monitors the effectiveness of PANSA performance using EoSM and safety oversight programme. On the PANSA side, Performance Indicators (PI), such as Separation Minima Infringement (SMI) and Runway Incursion (RI), as well as others, are continuously monitored. In the case of exceedances of alarm levels, decisions are made at the Safety Review Board meeting regarding the implementation of corrective actions and limiting the occurrence of similar events in the future. In addition PANSA undertakes activities to increase safety awareness by issuing safety bulletins – "Safe Sky", in which articles refer to the areas of identified risk.

2.1.2.(d) - Safety PI: rate of separation minima infringements (ANSP level)

Important note:
Please refer to the Supporting Guidance Material for the implementation and measurement of the safety key performance indicator (SKPI) and safety performance indicators (SPIs) for the Third Reference Period (RP3) - AMC3 Safety performance indicators (SPIs) for the monitoring of separation minima infringements (SMIs) and runway incursions (RIs) & GM5 Safety performance indicators (SPIs) for the monitoring of separation minima infringements (SMIs) and runway incursions (RIs).
When monitoring SMIs ensure that the following has been coded and reported:
— unambiguously identify the safety occurrences that are SMIs;
— when the SMI occurred at the arrival or departure at an airport, the location indicator of the airport where it took place;
— The ATS unit name, airspace type, class and FIR/UIR name;
— information on whether, in the judgement of the investigators of the occurrence, the ATS or CNS contributed to the SMI, either directly or indirectly or none, as appropriate;
— RAT ground severity associated to the SMI, as obtained by the application of the RAT methodology by the ANSP;
— ERCS risk grade associated to the SMI, as obtained by the application of the ERCS methodology by the State.

Easy Access Rules for Safety (Key) Performance Indicators (S(K)PI) – Third Reference Period (RP3) | EASA (europa.eu)

Polish Air Navigation Services Agency (PANSA)	2020	2021	2022	2023	2024
Total number of separation minima infringements with any contribution from air traffic services, or CNS services with a safety impact	8	15	39		
Total number of controlled flight hours within the airspace	217 134	267 414	355 901		
Rate of separation minima infringements within the airspace where the air navigation service provider provides air traffic services	0,00004	0,00006	0,00011		

Port Lotniczy Bydgoszcz S.A.	2020	2021	2022	2023	2024
Total number of separation minima infringements with any contribution from air traffic services, or CNS services with a safety impact	0	0	0		
Total number of controlled flight hours within the airspace	0	0	0		
Rate of separation minima infringements within the airspace where the air navigation service provider provides air traffic services					

Warmia i Mazury sp. z o.o.	2020	2021	2022	2023	2024
Total number of separation minima infringements with any contribution from air traffic services, or CNS services with a safety impact	0	0	0		
Total number of controlled flight hours within the airspace	0	0	0		
Rate of separation minima infringements within the airspace where the air navigation service provider provides air traffic services					

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?

2.1.2.(e) - Safety PI: Application of automated safety data recording systems

Important note:
Please provide details of any automated safety data recording systems that have been implemented, including the use of the systems by the air navigation service provider, as a component of the safety risk management framework, for the purposes of gathering, storing and near-real time analyses of data related to, as a minimum, separation minima infringements and runway incursions
Please refer to the Supporting Material for the implementation and measurement of the safety key performance indicator (SKPI)
https://www.easa.europa.eu/document-library/easy-access-rules/easy-access-rules-safety-key-performance-indicators-skpi-third

Polish Air Navigation Services Agency (PANSA)	Type of automated safety data recording system:	None

(a) What safety data is captured by the automated safety data recording systems?
N/A

(b) How is the data captured used in support of the safety risk management framework?
N/A

(c) How are just-culture organisation principles applied in gathering and using the safety data recorded?
N/A

(d) How is the monitoring of data sources organised and how is it ensured that available data sources are utilised in a coherent way?
N/A

(e) How is the data combined to provide the explanatory power to understand the context that led to safety occurrences and anticipate emerging risks?
N/A

(f) How is the information from safety data analyses fed forward to risk assessment processes and to designers of future systems?
N/A

(g) How is the information disseminated inside and outside the organisation?
N/A

(h) Have obstacles of a technical, operational or cultural nature been identified that prevented the realisation of the full potential of a data-driven safety decision-making process? What are the main issues when using automated safety data recording systems?
N/A

Port Lotniczy Bydgoszcz S.A.	Type of automated safety data recording system:	None

(a) What safety data is captured by the automated safety data recording systems?
N/A

(b) How is the data captured used in support of the safety risk management framework?
N/A

(c) How are just-culture organisation principles applied in gathering and using the safety data recorded?
N/A

(d) How is the monitoring of data sources organised and how is it ensured that available data sources are utilised in a coherent way?
N/A

(e) How is the data combined to provide the explanatory power to understand the context that led to safety occurrences and anticipate emerging risks?
N/A

(f) How is the information from safety data analyses fed forward to risk assessment processes and to designers of future systems?
N/A

(g) How is the information disseminated inside and outside the organisation?
N/A

(h) Have obstacles of a technical, operational or cultural nature been identified that prevented the realisation of the full potential of a data-driven safety decision-making process? What are the main issues when using automated safety data recording systems?
N/A

Warmia i Mazury sp. z o.o.	Type of automated safety data recording system:	None

(a) What safety data is captured by the automated safety data recording systems?
N/A

(b) How is the data captured used in support of the safety risk management framework?
N/A

(c) How are just-culture organisation principles applied in gathering and using the safety data recorded?
N/A

(d) How is the monitoring of data sources organised and how is it ensured that available data sources are utilised in a coherent way?
N/A

(e) How is the data combined to provide the explanatory power to understand the context that led to safety occurrences and anticipate emerging risks?
N/A

(f) How is the information from safety data analyses fed forward to risk assessment processes and to designers of future systems?
N/A

(g) How is the information disseminated inside and outside the organisation?
N/A

(h) Have obstacles of a technical, operational or cultural nature been identified that prevented the realisation of the full potential of a data-driven safety decision-making process? What are the main issues when using automated safety data recording systems?
N/A

2.1.3 - Additional Safety Indicators

Number of additional Safety Indicators	Click to select number of additional Indicators

SECTION 2.2: ENVIRONMENT KPA

2.2 - Environment

2.2.1 - Key Performance Indicators

2.2.1.(a) - Environment KPI #1: Horizontal en-route flight efficiency (KEA)

Poland	2020	2021	2022	2023	2024
Targets as shown in PP	1,85%	1,65%	1,65%	1,65%	1,65%
Actual values	1,67%	2,33%	4,79%		
Difference	-0,18%	0,68%	3,14%		

Assessment of the achieved level of actual performance in the environment KPA
The 2022 target, based on reference value for Poland established by the PRB, was not achieved. This situation was caused by external circumstances, beyond control of either ANSP (PANSA) or NSA (CAA Poland), which occurred after the establishment of Union-wide RP3 targets and related local reference values. Geopolitical situation had the strongest impact on 2022 results. This impact, visible already in 2021, was further exacerbated by 2022 developments. Analysis of the monthly evolution of HFE indicator shows that it significantly increased after the incident with Ryanair flight diverted to Minsk in May 2021. This incident led to recommendations for EU operators to avoid Belarusian airspace, what has directly impacted the KEA indicator for Poland. The impact of the Belarusian situation was still visible over the first months of 2022. The same is valid for users from the Russian Federation avoiding airspace of Ukraine – a phenomenon visible already in RP2. Since the end of February 2022 the HFE/KEA value was further impacted by the military aggression of the Russian Federation on Ukraine, having direct effect in the closure of Ukrainian airspace, as well as sanctions imposed by the European Union with reciprocal sanctions introduced by the Russian Federation consisting in closing Russian airspace for airspace users from European States. This led to significant changes in traffic flows in Central and Eastern Europe. The outbreak of the war had immediate, significant impact on the HFE indicator for the planned and actual route. The value of the indicator jumped from below 3% to above 5%. It further increased following the imposition of the sanctions mentioned above. Other factors influencing KEA indicator for Poland in 2022 were similar as in the preceding years and they included airspace users' preference for certain routes which are different than the shortest route, weather conditions (e.g. storms, visible especially over the summer season) or restricted airspace (also beyond Poland's borders). It needs to be underlined that for the traffic flows affected by the above factors the trajectory offered by PANSA inside Poland is as short as possible, the additional distance is coming from the overall trajectory inefficiency. What also needs to be borne in mind is the significant increase in military activity along Polish Eastern border. Although PANSA, in close cooperation with the military (including Polish Armed Forces and NATO) as well as with partners from ANSPs from neighbouring States, implements actions aimed at minimizing the negative impact of the conflict in Ukraine on civil aviation, it cannot be neglected that Poland is the frontline State and the impact of the war is specifically felt in the Polish airspace.

Has the ANSP implemented any major operational or structural changes (incl. any new fixed assets put into operation) during the calendar year impacting performance in this key performance area? Please outline the relevant changes and their estimated impact
FRA (POLFRA, from FL095, 24H) was implemented by PANSA in Warszawa FIR in February 2019. For information on measures implemented over 2020-2021 please see the respective Annual Monitoring Reports. Over 2022 PANSA continued implementation of further improvements aimed also at offering the shortest possible routes to the airspace users, in line with provisions of ERNIP and adopted RP3 Performance Plan for Poland. RAD restrictions suspended in 2020, following the outbreak of the pandemic and reduction of traffic, were still suspended over 2022 - more than 50 RAD restrictions remained suspended unblocking more than 200 traffic flows. Projects implemented operationally over 2022 included: - Baltic FAB cross border FRA operations with Lithuania and Slovakia (implementation February 2022) – aimed at further improvement of FRA operations and flight efficiency between Warszawa FIR, Vilnius FIR and Bratislava FIR, - Implementation of new FRA significant points at border between POLFRA and FRAU (points AMEDU, DIODA, INFUX between Ukraine and Poland) and change from FRA (E) or FRA (X) to FRA (EX) the existing FRA significant point GOTIX between POLFRA and FRAU (implementation April 2022 but not used due to the war) – aimed at improving FRA FPL options within South East Europe, - Implementation of solutions aimed at minimising the negative impact of the outbreak of the war on ENV performance by streamlining traffic along Poland's eastern border after the outbreak of the war in Ukraine, especially in the southeastern part of the Polish airspace: level change of military areas, RAD and PTR to change EPRZ traffic profiles, new sector configurations in JKZR part since 17.06.2022, coordination with LZBB to unblock PODAN and KEFIR border points (above FL315), - AMC Poland - FMP Warszawa coordination procedures: implementation of new procedures and technologies supporting the management of No Planning Zones under A-FUA, as well as works on development of the CAT system supporting the CDM process between FMP and AMC – these were aimed at reduction (to the possible extent) of the restrictive influence of segregated areas on civil traffic. Over 2022 PANSA was also working on the following projects to be operationally implemented 2023+: - Cross border FRA with Sweden – between FAB DK-SE and Baltic FAB - (initiation of works, planned implementation 2024) – aimed at allowing more efficient flight planning, - Cross border FRA with Czech Republic - between BALTIC FRA and SEE FRA (FRACZECH) - (initiation of works, planned implementation 2024) – aimed at allowing more efficient flight planning, - Reorganisation ACC Warszawa sector configuration – first step of third layer implementation (implemented April 2023).

Implementation of published flight efficiency plans (ERNIP)
See information above. Other initiatives foreseen in ERNIP not mentioned above: - FRA in TMAs (Warszawa TMA, Gdańsk TMA and Kraków TMA) – implementation date postponed due to reprioritisation, currently planned for 2024/2025, - Radom/ EPRA airport – airport reopened in April 2023, new procedures were developed by PANSA.

If the performance target for the calendar year was not met

Identification and analysis by the NSA of the underlying reasons or circumstances having led to the performance target not being achieved
As mentioned above, the non-achievement of the target in 2022 was caused by external circumstances, beyond control of either ANSP (PANSA) or NSA (CAA Poland).

Recommendations to the ANSP to rectify the situation
Looking at the evolution of the HFE indicator since 2021 and considering the factors – purely external, mostly geopolitical – impacting this indicator, it is clear that nothing can be done, neither by PANSA nor by Polish authorities, to improve the value of KEA indicator (as calculated today) in the current geopolitical circumstances. Neither the situation with Belarus following the forced landing in May 2021, nor the war in Ukraine and its impact on flights, were considered in the KEA RP3 reference values for Poland. It is clear that those reference values cannot be met not only as long as the military conflict in Ukraine lasts, but also as long as all the sanctions impacting traffic flows are in place and Ukrainian, Belarusian and Russian airspace is not unconditionally open for all GAT flights with similar reopening of EU airspace for Russian and Belarusian airspace users. It should be taken into account that as an outcome of the war in Ukraine, significantly increased NATO presence in the Polish airspace will last much longer than the active stage of the war in Ukraine. Thus currently implemented NATO restrictions in the Polish airspace will be maintained even after cessation of combat operations in Ukraine. This means that this factor will still highly influence KEA value for Poland in RP3, making it impossible to reach currently assigned KEA reference values for RP3.

Remedial measures have been / will be taken by the ANSP?	No

If no measures will be taken by the ANSP, please explain why
As the deviation from the target is caused by factors beyond the control of PANSA, this situation cannot be rectified by measures taken by PANSA. However, as stated above, PANSA continues to implement measures foreseen in ERNIP and in the adopted RP3 PP.

Follow-up of the measures relating to previous calendar years

Remedial measures have been / will be taken by the ANSP?	No

Is the NSA aware of any significant risks which are likely to lead to performance targets not being achieved during the ongoing calendar year or during the following calendar years of the reference period?	Yes

What has been done by the ANSP in order to address the identified performance issues?
The performance issues (situation related to use of Belarusian airspace, the impact of war in Ukraine and related sanctions) are related directly to geopolitical situation and cannot be addressed by PANSA (are beyond control of PANSA or NSA).

What further measures does the NSA intend to undertake to remedy this situation?
NSA urges PANSA continue implementation of measures foreseen in RP3 PP.

Additional comments
The largest (negative) impact on 2023-2024 results is linked to the war in Ukraine and related sanctions. This risk has already materialised over the first months of 2023. When analysing the monthly HFE evolution over 2022 it is clearly visible that the environmental indicators significantly deteriorated after the outbreak of the war. This is still the case over the past months of 2023. The war in Ukraine increases HFE value in FIR EPWW mainly due to: 1. Closed airspace over Ukraine and related sanctions, 2. Significantly increased number of NATO flights in eastern part of the Polish airspace. A Significant portion of this part of the airspace is reserved for military flights (performed H24) thus unavailable for civil traffic. It is clear that the KEA target will not be met not only as long as the military conflict in Ukraine lasts, but also as long as all the sanctions impacting traffic flows are in place and Ukrainian, Belarusian and Russian airspace is not unconditionally open for all GAT flights with similar reopening of EU airspace for Russian and Belarusian airspace users and the increased military presence of NATO in the Polish airspace is visible.

Additional information related to Russia's war of aggression against Ukraine

Please describe any changes in traffic flows/patterns, and if/how those changes affected the Environment KPA.
As indicated above large part of the airspace behind Poland's eastern border is now closed (due to the war in Ukraine and related sanctions). Therefore, traffic flows over Poland changed very significantly as compared to the situation when Union-wide targets and related reference values for RP3 were established. Flights that cannot operate over the Belarusian and Ukrainian airspace are performed via Polish airspace on the north-south axis with much extended trajectory. The same is valid for flights circumnavigating around the Kaliningrad airspace. Due to the formula of calculating the local KEA indicator value, the route extension beyond Polish airspace negatively impacts the KEA value for Poland (so called network component). Moreover, increased military activity in the Polish airspace, including larger NATO presence, impacts airspace availability – especially in the eastern part of the Polish airspace – also impacting the KEA indicator. Additionally some AOs chose to apply own additional buffer from Ukrainian airspace and perform flights in Polish airspace along longer routings than the shortest available which further increases KEA value for Poland.

Please describe what remedial actions have been taken to mitigate any possible impacts on the Environment KPA, related to Russia's war of aggression against Ukraine.
As indicated above, following the outbreak of the war, PANSA implemented solutions aimed at minimising the negative impact of the outbreak of the war on ENV performance, especially in the south-eastern part of the Polish airspace: level change of military areas, RAD and PTR to change EPRZ traffic profiles, new sector configurations in JKZR part since 17.06.2022, coordination with LZBB to unblock PODAN and KEFIR border points (above FL315). However, considering the formula for the calculation of KEA and taking into consideration the geographical location of Poland, possible influence of PANSA on the value of KEA is almost none. As long as the Ukrainian airspace is closed and traffic flows restrictions are in place, KEA value for Poland will remain high.

2.2.2 - Performance Indicators

2.2.2.(a) - Environment PI #1: Horizontal en-route flight efficiency of last filed flight plan (KEP)

Poland	2020	2021	2022	2023	2024
Actual values	3,07%	3,69%	7,42%		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
In February 2019 PANSA implemented FRA (POLFRA) in Warszawa FIR from FL95, H24. Changes implemented over 2020 and 2021 were listed in respective Performance monitoring reports and changes implemented in 2022 are listed in chapter 2.2.1.(a) of this report and include changes to the airspace as well as coordination between AMC and FMP. Further development of FRA is pursued, including cross border FRA operations with Lithuania (Baltic FAB project) and Slovakia (implementation 2022), as well as other States - Sweden and Czech Republic (planned implementation in 2024). Further Planned vertical split of Warszawa FIR into three layers is expected to reduce risk of negative impact of possible congestion in ACC sectors on KEP. Similarly, as KEA, KEP indicator is also influenced by the geopolitical factors, beyond control of PANSA. As indicated in chapter 2.2.1.(a) of this report, HFE indicators are expected to remain high over 2023-2024 due to the military conflict in Ukraine and related sanctions.

2.2.2.(b) - Environment PI #2: Horizontal en-route flight efficiency of shortest constrained route (KES)

Poland	2020	2021	2022	2023	2024
Actual values	2,42%	2,79%	6,86%		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
In February 2019 PANSA implemented FRA (POLFRA) in Warszawa FIR from FL95, H24. Changes implemented over 2020 and 2021 were listed in respective Performance monitoring reports and changes implemented in 2022 are listed in chapter 2.2.1.(a) of this report and include changes to the airspace as well as coordination between AMC and FMP. Further development of FRA is pursued, including cross border FRA operations with Lithuania (Baltic FAB project) and Slovakia (implementation 2022), as well as other States - Sweden and Czech Republic (planned implementation in 2024). Further Planned vertical split of Warszawa FIR into three layers is expected to reduce risk of negative impact of possible congestion in ACC sectors on KES. Similarly, as KEA, KES indicator is also influenced by the geopolitical factors, beyond control of PANSA. As indicated in chapter 2.2.1.(a) of this report, HFE indicators are expected to remain high over 2023-2024 due to the military conflict in Ukraine and related sanctions.

2.2.2.(c) - Environment PI #3: Additional taxi-out time (>80K movements)

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland *only airports > 80k movements (2016-18)*		2020	2021	2022	2023	2024
EPWA (Chopina w Warszawie)	Actual	1,99	2,11	2,28		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
For information on measures implemented over 2020-2021 please see the respective Annual Monitoring Reports.

If the data at airport level are not available, please explain the reasons why data is missing and describe the measures planned to resolve the situation
N/A

2.2.2.(d) - Environment PI #4: Additional time in terminal airspace (>80K movements)

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland *only airports > 80k movements (2016-18)*		2020	2021	2022	2023	2024
EPWA (Chopina w Warszawie)	Actual	1,21	1,05	1,27		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
For information on measures implemented over 2020-2021 please see the respective Annual Monitoring Reports. Implemented in 2022: RNAV 1 in TMA Operations – RNAV1 SID and STAR is implemented – 1Q 2022

If the data at airport level are not available, please explain the reasons why data is missing and describe the measures planned to resolve the situation
N/A

2.2.2.(e) - Environment PI #5: Share of arrivals applying continuous descent operation

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland *all airports included in the SES PS*		2020	2021	2022	2023	2024
EPBY (Bydgoszcz)	Actual	0,43	0,42	0,39		
EPGD (Gdańsk im. Lecha Wałęsy)	Actual	0,58	0,49	0,51		
EPKK (Kraków-Balice)	Actual	0,53	0,45	0,45		
EPKT (Katowice-Pyrzowice)	Actual	0,49	0,46	0,39		
EPLB (Lublin)	Actual	0,36	0,39	0,37		
EPLL (Łódź)	Actual	0,42	0,35	0,34		
EPMO (Warszawa/Modlin)	Actual	0,66	0,61	0,55		
EPPO (Poznań-Ławica)	Actual	0,42	0,36	0,36		
EPRA (Radom-Sadków)	Actual	n/a	n/a	n/a		
EPRZ (Rzeszów-Jasionka)	Actual	0,52	0,48	0,27		
EPSC (Szczecin-Goleniów)	Actual	0,53	0,58	0,51		
EPSY (Olsztyn-Mazury)	Actual	0,47	0,54	0,39		
EPWA (Chopina w Warszawie)	Actual	0,51	0,49	0,45		
EPWR (Wrocław-Strachowice)	Actual	0,43	0,40	0,35		
EPZG (Zielona Góra-Babimost)	Actual	0,68	0,61	0,63		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?

For information on measures implemented over 2020-2021 please see the respective Annual Monitoring Reports.

RNP 1 in TMA Operations - RNP-1 are already implemented for EPBY, EPRA, EPRZ, EPLL, EPLB, EPSY, EPSC (DEP&ARR) EPZG (ARR). PANSA operational procedures allows the CCO/CDO operations in maximumal possible extent, ATCOs are trained for this kind of operations as one of the work-standards being regularly monitored and assessed.

2.2.2.(f) - Environment PI #6: Effective use of reserved or segregated airspace (per ACC)

Poland	2020	2021	2022	2023	2024
Total number of hours allocated & notified to NM	176 507	174 077	187 451		
Total number of hours used	64 424	62 469	75 171		
Ratio	36%	36%	40%		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
See description below for ACC.

Warsaw (EPWW ACC)	2020	2021	2022	2023	2024
Total number of hours allocated & notified to NM	176 507		187 451		
Total number of hours used	64 424		75 171		
Ratio	36%		40%		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
On strategic airspace management level, all significant exercises and permanent areas are evaluated and analysed taking into account historic civil traffic flows and civil traffic predictions. The impact, depending on the scale, is consulted with the key stakeholders including neighboring states, aerodrome operators, aircraft operators, ATS, military, EUROCONTROL NM. The lateral and vertical limits of the airspace elements published are designated considering the actual needs of users and nature of activities. All airspace elements shall be planned only for the time period necessary to perform the intended task. The user is obliged to specify precisely the period of activity of a selected element and all timely suspensions of activity between these periods. The locations of the activities are designed not to affect the main traffic flows, ATC routes, DCTs and POLFRA connectivity. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of the day. If possible class C TRA airspace is implemented to minimize the impact on civil routing. When the areas excess the set scale they are always divided into smaller modules/segments. Each of these segments is designed in order to fit particular activities without necessity to activate the whole area to perform specific assignments. The shape of these segments is always aligned with main civil traffic flows to minimize the horizontal flight inefficiency. Further measures include: - update of local ASM system/radar data added to visualize military activity in segregated areas. As a result, update of coordination procedures to reduce the time required to release segregated areas back to civil traffic. - implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on the day of the operations. Annual review of the efficiency of airspace utilization is conducted.

2.2.2.(g) - Environment PI #7: Rate of planning via available airspace structures (per ACC)

Poland	2020	2021	2022	2023	2024
Number of aircraft filing flight plans via reserved or segregated airspace and CDRs	130 396	221 868	268 676		
Number of aircraft that could have planned through those airspace structures	216 861	269 735	332 309		
Ratio of planning via available airspace structures	60%	82%	81%		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
See description below for ACC.

Warsaw (EPWW ACC)	2020	2021	2022	2023	2024
Number of aircraft filing flight plans via reserved or segregated airspace and CDRs	130 369	221 868	268 676		
Number of aircraft that could have planned through those airspace structures	216 861	269 735	332 309		
Ratio of planning via available airspace structures	60%	82%	81%		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
The available flight planning options are constantly updated to allow Aircraft Operator (AO) to plan the most horizontally effective trajectory, even when the areas are active. Except ATS network and DCTs, the AOs have the possibility to plan in the Free Route Airspace environment (POLFRA). Implementation of cross-border free route airspace operations within Lithuanian and Polish airspace (BALTIC FRA) and the cross border operations between BALTIC FRA and South East Europe FRA were implemented in 1Q 2022 which could further increase the planning opportunities. The lateral and vertical limits of the airspace elements published are designated considering the actual needs of users and nature of activities. All airspace elements shall be planned only for the time period necessary to perform the intended task. The user is obliged to specify precisely the period of activity of a selected element and all timely suspensions of activity between these periods. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of the day. If possible class C TRA airspace is implemented to minimize the impact on civil routing. Special procedures are prepared including dynamic change of level or segment and creation of new temporary routings for avoidance of military traffic. Further measures include: - update of local ASM system/radar data added to visualize military activity in segregated areas. As a result, update of coordination procedures to reduce the time required to release segregated areas back to civil traffic. - implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on the day of the operations.

2.2.2.(h) - Environment PI #8: Rate of using available airspace structures (per ACC)

Poland	2020	2021	2022	2023	2024
Number of aircraft flying via reserved or segregated airspace and CDRs	261 904	350 244	417 154		
Number of aircraft that could have planned through those airspace structures	216 861	269 735	332 309		
Ratio of using available airspace structures	121%	130%	126%		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
See description below for ACC.

Warsaw (EPWW ACC)	2020	2021	2022	2023	2024
Number of aircraft flying via reserved or segregated airspace and CDRs	261 904	350 244	417 154		
Number of aircraft that could have planned through those airspace structures	216 861	269 735	332 309		
Ratio of using available airspace structures	121%	130%	126%		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
The lateral and vertical limits of the airspace elements published are designated considering the actual needs of users and nature of activities. All airspace elements shall be planned only for the period necessary to perform the intended task. The user is obliged to specify precisely the period of activity of a selected element and all timely suspensions of activity between these periods. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of the day. If possible class C TRA airspace is implemented to minimize the impact on civil routing. Special procedures are prepared including dynamic change of level or area segment. Further measures include: - update of local ASM system/radar data added to visualize military activity in segregated areas. As a result, update of coordination procedures to reduce the time required to release segregated areas back to civil traffic. - implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on the day of the operations.

2.2.3 - Additional Environment Indicators

Number of additional Environment Indicators	0

Does the Member State use internal metrics for measuring environmental performance that are not subject to Commission Implementing Regulation?	

SECTION 2.3: CAPACITY KPA

2.3 - Capacity

2.3.1 - Key Performance Indicators

2.3.1.(a) - Capacity KPI #1: En-route ATFM delay per flight

Poland (PANSA)	2020	2021	2022	2023	2024
Targets as shown in PP	0,30	0,07	0,12	0,12	0,12
Actual values	0,00	0,07	1,09		
Difference	-0,30	0,00	0,97		

Monitoring process
The results in the CAPACITY KPA at the end of 2022 year for Poland (PANSA) was 1,09 minutes/flight with a target of 0,12 minutes/flight. The aggression of the Russian Federation against Ukraine has a significant impact on the air navigation services in Poland due to the introduction of a number of restrictions in FIR Warszawa. A direct consequence of this situation are significant delays in Polish airspace, especially the en route delays rate. The Polish National Supervisory Authority (NSA) proposed that en-route ATFM delays attributable to extraordinary events marked with the code "O" should not be taken into account for he en-route delay. PRB did not accept this proposal and Polish NSA expect detailed explanation of PRB's decision in the further monitoring activity. The ATCO's strike in April and May 2022 had a significant impact on the KPA Capacity. Actions taken by both trade unions and PANSA management resulted in the ceasing of the crisis, but the event resulted in increasing of delays.

Capacity planning
Capacity planning over 2022 focused on mid to long-term planning based on STATFOR forecasts, NM data, PANSA simulations and internal recovery plan prepared by PANSA as well as short term planning (up to 4-6 weeks) under the NOP rolling planning initiative coordinated by the Network Manager. Capacity planning, especially over 1H 2022, was challenging due to the consequences of the war in Ukraine and sanctions for air traffic flows in the Polish airspace and related uncertainty as well as military activity resulting from the geopolitical developments. Similarly, as over 2020-2021, 2022 rostering at PANSA still had to consider implementation of measures aimed at limiting the risk of virus spread among ATCOs. Despite the war and challenges related thereto, PANSA continued to implement initiatives aimed at improving capacity in FIR Warszawa to meet challenges related to traffic increase after the crisis as well as potential changes in traffic flows. These included, among others, the following: - continuation of new ATCOs training (continued training process for trainees employed before the pandemic outbreak and new recruitment process for ATCO trainees, which started in January 2022), - continued adaptation of the air traffic management system (Pegasus_21) to operational needs and modernisation of the ATM system as well as works – under international iTEC cooperation – on new ATM system to be implemented in the future, - development of tools supporting ATCOs and flow management optimisation (including implementation and use of Traffic Complexity Tool and update of Common Airspace Tool system), - continued investments in infrastructure (CNS) and technology allowing for optimisation of airspace structures and optimisation of coverage in the Polish airspace as well as supporting contingency, - preparations for implementation of the first stage of airspace three-layer vertical split (south-eastern part of the Polish airspace – JR sectors – operationally deployed in April 2023), - reorganisation of Kraków TMA – new sectors, new SID/STAR procedures (planned to be operationally deployed in 2023), - continued harmonisation of GAT and OAT traffic leading to implementation of EUROAT, - refreshment trainings for current ATCOs to maintain their competence following the 2020-2021 significant traffic drop, - continuation of flexible rostering

- continuation of flexible rostering,
- evolving ACC sector configurations and management to cope with updated traffic forecasts,
- continued FMP dynamic management and ATFCM techniques including STAM,
- improvement of comprehensive airspace management.

Following the observed negative impact of the war in Ukraine and related increased military activity on capacity, PANSA also implemented solutions aimed at minimising this negative impact, especially in the south-eastern part of the Polish airspace: level change of military areas, RAD and PTR to change EPRZ traffic profiles, new sector configurations in JKZR part since 17.06.2022, coordination with LZBB to unblock PODAN and KEFIR border points (above FL315). PANSA also implemented RAD measures and EU Restrictions that were aimed to reduce ATFCM delays within EPWW FIR sectors with limited capacity due to additional military activity.

PANSA also actively contributed to the implementation of Summer 2023 NM measures aimed at limiting delays in the mostly congested parts of the Network.

Plans for the following years of RP3 include continuation of the above listed initiatives, among others:

- further works on reorganisation of ACC Warszawa sector configuration – three layer vertical division – further stages (planned to be operationally deployed in RP4),
- continuation of training process for new ATCOs (new recruitments), with initiatives supporting increased efficiency of the recruitment and training processes,

ATCOs in OPS

Warsaw (EPWW ACC)	Plan values from the PP				
	2020	2021	2022	2023	2024
Number of additional ATCOs in OPS who have started working in the OPS room (FTEs)		5	10	6	5
Number of ATCOs in OPS who have stopped working in the OPS room (FTEs)		4	0	0	0
Number of ATCOs in OPS operational at year-end (FTEs)		173	183	189	194

	Actual values				
	2020	2021	2022	2023	2024
Number of additional ATCOs in OPS who have started working in the OPS room (FTEs)	1	5	13		
Number of ATCOs in OPS who have stopped working in the OPS room (FTEs)	4	5	7		
Number of ATCOs in OPS operational at year-end (FTEs)	172	172	178		

	Differences				
	2020	2021	2022	2023	2024
Number of additional ATCOs in OPS who have started working in the OPS room (FTEs)		0	3		
Number of ATCOs in OPS who have stopped working in the OPS room (FTEs)		1	7		
Number of ATCOs in OPS operational at year-end (FTEs)		-2	-5		

Additional comments
Number of additional ATCOs in OPS who have started working in the OPS room (FTEs): 13 consists of: 9 - new licenses 4 - shifts to PRU1 (ATCOs in OPS) category from other PRU categories Number of ATCOs in OPS who have stopped working in the OPS room (FTEs): 6,75 consists of: 3 – termination of the contract 3 – shifts from PRU1 (ATCOs in OPS) category to other PRU categories 0,75 – balance of increase and reduction of working time on the request of employee

Identification and analysis by the NSA of the underlying reasons or circumstances having led to the performance target not being achieved
Two main elements impacted the delay indicator over 2022 that resulted in not meeting the target: 1. military aggression of the Russian Federation on Ukraine, 2. social tensions at PANSA. On point 1 – the Russian aggression against Ukraine resulted in the introduction of restrictions in FIR Warszawa (specifically, along Poland's eastern border), impacting availability of the airspace for civil traffic. Much wider military activities are visible, also linked to increased the number of NATO flights in eastern part of the Polish airspace. The significant portion of this part of airspace is reserved for military flights (performed H24) thus unavailable for civil traffic. An immediate consequence of the limited capacity (caused directly by the political circumstances) was significant increase of delays in the Polish airspace. The impact can be especially visible during the period of higher traffic levels (when the traffic demand exceeds the available capacity in the parts of FIR Warszawa which were impacted by the restrictions). On point 2 – following changes to remuneration regulations at PANSA introduced at the end of 2021 and in 2022, social tensions were visible at ACC and some APP units, which impacted the delays. New PANSA Management was running intensive negotiation process with the ATCO Trade Union to solve the issues.

Recommendations to the ANSP to rectify the situation
The situation will be deeply analysed with close cooperation with PANSA.

Remedial measures have been / will be taken by the ANSP?	Yes

Number of measures put in place	3

Title	Description	Timeline for implementation	Status
Change to PANSA remuneration regulations	*Following intensive negotiation process, an agreement was reached between PANSA management and the Social Partners and new provisions in the work and remuneration regulations were introduced.*	*2022, with some provisions of the new rules entering into force in subsequent years*	*Implemented*
Intensified training of new ATCOs	*Increase in the number of ATCOs is considered needed to limit future risks.*	*2022-2029*	*In progress/planned*
Improved sectorisation of ACC	*New sector configurations in JKZR part since 17.06.2022, implementation of first stage of three-layer vertical airspace split.*	*2022-2023*	*Implemented*

Additional information related to Russia's war of aggression against Ukraine

Please describe any changes in traffic flows/patterns, and if/how those changes affected en route capacity performance.
The biggest impact on en-route capacity performance for Poland is linked with increased military activity and related limited capacity available to civil traffic. As indicated above, much wider military activities in the Polish airspace are visible, also linked to increased number of NATO flights in eastern part of the Polish airspace. Significant portion of this part of airspace is reserved for military flights (performed H24), thus unavailable for civil traffic. At the same time, following closure of Ukrainian airspace and very limited possible use of Belarusian airspace, additional traffic flows are observed on the north-southern axis along the eastern Poland's border. The combination of limited airspace available and traffic demand leads to increase in delays. The impact can be especially visible during the period of higher traffic levels (when the traffic demand exceeds the available capacity in the parts of FIR Warszawa which were impacted by the restrictions). For more information, see Annex 1. 130,727 minutes of delays have been considered as exceptional event during the period when the European Aviation Crisis Coordination Cell was activated after validation with the Network Manager

Please indicate if any en route ATFM delays occurred in 2022 exclusively due to Russia's war of aggression against Ukraine. Please provide a monthly breakdown of such en route ATFM delays, per delay reason codes.
Following discussion with the Network Manager, since mid-March 2022 delays caused by the war in Ukraine have been marked as "O" (other) and thus also included in the data published by the Network Manager. Delays marked "O" are only related to the war in Ukraine and do not take into account other causes of delays. At the beginning of the war, before the code "O" started to be used, they were reported under the code "M". The delays coded "O" amounted to 419 394 minutes, while those coded "M" over February-March amounted to 5 712 minutes. The table below (lines 507-520) presents monthly breakdown of delays. In Poland's opinion, these above mentioned delays (all delays reported under "O" as well as delays reported under "M" which were linked to the war) meet the conditions for delays resulting from exceptional events as defined in in article 2 point 9 of the Commission Implementing Regulation (EU) 2019/317 of 11 February 2019 laying down a performance and charging scheme in the single European sky and repealing Implementing Regulations (EU) No 390/2013 and (EU) No 391/2013, and therefore shall be excluded from the calculation of the route delay indicator for PANSA in 2022. Following the outbreak of the war, the EACCC was activated by the Network Manager. Although, for practical reasons, the EACCC was subsequently deactivated in May 2022, the circumstances triggering its activation still pertain and haven't changed. For more information, see Annex 1.

Please describe what remedial actions have been taken to mitigate any possible impacts on en route capacity performance related to Russia's war of aggression against Ukraine.
As indicated above: -PANSA implemented RAD measures and EU Restrictions that were aimed to reduce ATFCM delays within EPWW FIR sectors with limited capacity due to additional military activity. -PANSA also implemented solutions aimed at minimising this negative impact, especially in the south-eastern part of the Polish airspace: level change of military areas, RAD and PTR to change EPRZ traffic profiles, new sector configurations in JKZR part since 17.06.2022, coordination with LZBB to unblock PODAN and KEFIR border points (above FL315). -Further improvements in the sectorisation in the south-eastern part of the Polish airspace were made through introduction of three-layer vertical split (first stage). For more information, see Annex 1

	Total en-route ATFM delay	M - Airspace Management	O - Other
JAN	1 464	0	0
FEB	696	179	0
MAR	14 530	5 533	5 011
APR	295 223	767	54 084
MAY	91 309	108	86 169
JUN	145 465	0	124 901
JUL	99 991	0	83 694
AUG	57 084	0	38 908
SEP	32 631	0	17 492
OCT	43 334	1 182	8 249
NOV	8 341	0	886
DEC	19 737	57	0
Total (pre-ops adjustment)	**809 805**	**7 826**	**419 394**
After post-ops adjustment	**799 668**	**7 826**	**419 394**

2.3.1.(b) - Capacity KPI #2: Terminal and airport ANS ATFM arrival delay per flight

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland		2020	2021	2022	2023	2024
National level *(all airports included in the SES PS)*	PP values	0,45	0,02	0,21	0,24	0,23
	Actual	0,02	0,00	0,04		
	Diff.	-0,43	-0,02	-0,17		
Airport level	***EPBY (Bydgoszcz)*** PP values	0,00	0,00	0,00	0,00	0,00
	EPBY (Bydgoszcz) Actual	0,00	0,00	0,00		
	EPGD (Gdańsk im. Lecha Wałęsy) PP values	0,00	0,00	0,00	0,00	0,00
	EPGD (Gdańsk im. Lecha Wałęsy) Actual	0,00	0,00	0,12		
	EPKK (Kraków-Balice) PP values	0,06	0,02	0,04	0,25	0,23
	EPKK (Kraków-Balice) Actual	0,04	0,00	0,11		
	EPKT (Katowice-Pyrzowice) PP values	0,02	0,00	0,02	0,16	0,11
	EPKT (Katowice-Pyrzowice) Actual	0,00	0,00	0,05		
	EPLB (Lublin) PP values	0,00	0,00	0,00	0,00	0,00
	EPLB (Lublin) Actual	0,00	0,00	0,00		
	EPLL (Łódź) PP values	0,00	0,00	0,00	0,00	0,00
	EPLL (Łódź) Actual	0,00	0,00	0,04		
	EPMO (Warszawa/Modlin) PP values	0,24	0,00	0,37	0,34	0,31
	EPMO (Warszawa/Modlin) Actual	0,01	0,00	0,00		
	EPPO (Poznań-Ławica) PP values	0,08	0,00	0,11	0,10	0,09
	EPPO (Poznań-Ławica) Actual	0,00	0,01	0,00		
	EPRA (Radom-Sadków) PP values	0,00	0,00	0,00	0,00	0,00
	EPRA (Radom-Sadków) Actual	0,00	n/a	0,00		
	EPRZ (Rzeszów-Jasionka) PP values	0,00	0,00	0,03	0,00	0,00
	EPRZ (Rzeszów-Jasionka) Actual	0,00	0,00	0,04		
	EPSC (Szczecin-Goleniów) PP values	0,00	0,00	0,00	0,00	0,00
	EPSC (Szczecin-Goleniów) Actual	0,00	0,00	0,02		
	EPSY (Olsztyn-Mazury) PP values	0,00	0,00	0,00	0,00	0,00
	EPSY (Olsztyn-Mazury) Actual	0,00	0,00	0,00		
	EPWA (Chopina w Warszawie) PP values	0,95	0,04	0,42	0,39	0,38
	EPWA (Chopina w Warszawie) Actual	0,04	0,00	0,02		
	EPWR (Wrocław-Strachowice) PP values	0,00	0,03	0,00	0,00	0,00
	EPWR (Wrocław-Strachowice) Actual	0,00	0,00	0,01		
	EPZG (Zielona Góra-Babimost) PP values	0,00	0,00	0,00	0,00	0,00
	EPZG (Zielona Góra-Babimost) Actual	0,00	0,00	0,00		

Additional comments
The actual performance over 2022 was better than the target set in the adopted RP3 PP. ATC-related delays accounted for 57% of terminal delays in 2022. Weather conditions generated 15% of the terminal delays and aerodrome-related delays 28%.

Follow-up of the measures relating to previous calendar years

Remedial measures have been / will be taken by the ANSP?	No

Is the NSA aware of any significant risks which are likely to lead to performance targets not being achieved during the ongoing calendar year or during the following calendar years of the reference period?	No

Additional comments
N/A

Additional information related to Russia's war of aggression against Ukraine

Please describe any changes in traffic flows/patterns around airports, and if/how those changes affected terminal capacity performance.
The outbreak of the war in Ukraine impacted traffic to/from Rzeszów-Jasionka airport , which became kind of a transportation hub for Ukraine. As a consequence, significant traffic increase at this airport, as compared to both previous ytears as well as the assumptions underlying the adopted RP3 PP, was observed. For more information, see Annex 1.

Please indicate if any airport arrival ATFM delays occurred in 2022 exclusively due to Russia's war of aggression against Ukraine. Please provide a monthly breakdown of such airport arrival ATFM delays, per airports and delay reason codes.
As indicated below in the following question, increased military activity in south-eastern part of Poland, following the outbreak of the war, had some impact on operations in Rzeszów airport over the period March-May 2022. Below are the airport arrival ATFM delays for Rzeszów airport over March-May: MAR: 100 minutes (codes: G, M), APR: 24 minutes (code: G), MAY: 153 minutes (code: C). For more information, see Annex 1.

Please describe what remedial actions have been taken to mitigate any possible impacts on terminal capacity performance related to Russia's war of aggression against Ukraine.
Over March-May period, the increased military activity in Eastern Poland had an impact on flights to/from Rzeszów airport. Following introduction of RAD restrictions that aimed to improve the situation, traffic to/from Rzeszów airport was excluded from JKL sector, allowing for undisturbed traffic to/from that airport. For more information, see Annex 1.

2.3.2 - Performance Indicators

2.3.2.(a) - Capacity PI #1: Adherence to ATFM slots

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland		2020	2021	2022	2023	2024
National level	Actual	95,3%	96,2%	96,5%		
EPBY (Bydgoszcz)	Actual	94,0%	100,0%	97,0%		
EPGD (Gdańsk im. Lecha Wałęsy)	Actual	93,3%	97,0%	96,6%		
EPKK (Kraków-Balice)	Actual	95,9%	97,9%	97,5%		
EPKT (Katowice-Pyrzowice)	Actual	89,6%	92,3%	92,1%		
EPLB (Lublin)	Actual	91,7%	96,2%	98,1%		
EPLL (Łódź)	Actual	100,0%	92,0%	95,6%		
EPMO (Warszawa/Modlin)	Actual	96,4%	98,3%	98,1%		
EPPO (Poznań-Ławica)	Actual	97,9%	97,3%	97,7%		
EPRA (Radom-Sadków)	Actual	n/a	n/a	n/a		
EPRZ (Rzeszów-Jasionka)	Actual	93,3%	98,4%	97,3%		
EPSC (Szczecin-Goleniów)	Actual	95,7%	100,0%	97,6%		
EPSY (Olsztyn-Mazury)	Actual	88,9%	100,0%	97,9%		
EPWA (Chopina w Warszawie)	Actual	97,5%	97,4%	97,1%		
EPWR (Wrocław-Strachowice)	Actual	88,9%	92,1%	93,9%		
EPZG (Zielona Góra-Babimost)	Actual	100,0%	100,0%	89,9%		

Please provide background information on the actual performance:
- If performance improved compared to previous years, please describe the measures that were implemented (if any),
- If performance deteriorated compared to previous years, please explain the reasons which lead to the deterioration, and describe the improvement measures which are planned to improve performance. How does the NSA intend on monitoring their effectiveness on performance

Performance achieved in 2022 should not be compared to previous years. Due to COVID-19 pandemic and Russia's war of aggression against Ukraine and related traffic drop, data for 2022 is not reliable and not comparable to periods before.

If the data at airport level are not available, please explain the reasons why data is missing and describe the measures planned to resolve the situation

EPRA has been closed for civil traffic due to airport extension project.

Additional comments

N/A

2.3.2.(b) - Capacity PI #2: Air traffic control pre-departure delay (>80k movements)

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland *only airports > 80k movements (2016-18)*		2020	2021	2022	2023	2024
EPWA (Chopina w Warszawie)	Actual	n/a	0,59	0,60		

Please provide background information on the actual performance: - If performance improved compared to previous years, please describe the measures that were implemented (if any), - If performance deteriorated compared to previous years, please explain the reasons which lead to the deterioration, and describe the improvement measures which are planned to improve performance. How does the NSA intend on monitoring their effectiveness on performance
Performance achieved in 2022 should not be compared to previous years. Due to COVID-19 pandemic and Russia's aggression against Ukraine and related traffic drop, data for 2022 is not reliable and not comparable to periods before.

If the data at airport level are not available, please explain the reasons why data is missing and describe the measures planned to resolve the situation
Not applicable for 2022.

Additional comments
N/A

2.3.2.(c) - Capacity PI #3: Average time of all cause departure delay per flight (>80K movements)

Important note:
If the data at airport level are not available, the field will show "N/A"

Poland *only airports > 80k movements (2016-18)*		2020	2021	2022	2023	2024
EPWA (Chopina w Warszawie)	Actual	9,32	12,61	21,26		

Please provide background information on the actual performance: - If performance improved compared to previous years, please describe the measures that were implemented (if any), - If performance deteriorated compared to previous years, please explain the reasons which lead to the deterioration, and describe the improvement measures which are planned to improve performance. How does the NSA intend on monitoring their effectiveness on performance
Performance achieved in 2022 should not be compared to previous years. Due to COVID-19 pandemic and Russia's aggression against Ukraine and related traffic drop, data for 2022 is not reliable and not comparable to periods before.

If the data at airport level are not available, please explain the reasons why data is missing and describe the measures planned to resolve the situation
N/A

Additional comments
N/A

2.3.3 - Additional Capacity Indicators

Number of additional Capacity Indicators	0

SECTION 2.4: COST-EFFICIENCY KPA

2.4 - Cost-efficiency

2.4.1 - Key Performance Indicators

List of En-Route Charging Zones and ETNA data references

	Reporting Tables ETNA Reference	Additional Information ETNA Reference
Poland	EP-V0-June2023.xlsx	EP-V0-June2023.docx

List of Terminal Charging Zones and ETNA data references

	Reporting Tables ETNA Reference	Additional Information ETNA Reference
Poland zone 1	EP-CZ1-TNC-V0-June2023.xlsx	EP-CZ1-TNC-V0-June2023.docx
Poland zone 2	EP-CZ2-TNC-V0-June2023.xlsx	EP-CZ2-TNC-V0-June2023.docx

2.4.1.(a) - Cost efficiency KPI: Determined unit cost (DUC) for en-route ANS

1. DUC for en route air navigation services

En route charging zone	RP3 revised cost-efficiency targets (determined 2020-2024)			
Poland	2020/2021 D	2022 D	2023 D	2024 D
Total en route costs in nominal terms (in national currency)	1 602 947 276	875 857 917	914 029 458	950 341 024
Total en route costs in real terms (in national currency at 2017 prices)	1 503 108 131	798 885 838	819 037 945	837 052 160
Total en route Service Units (TSU)	4 695 117	3 990 970	4 762 963	5 129 508
Real en route unit costs (in national currency at 2017 prices) - DUC	320,14	200,17	171,96	163,18

En route charging zone	RP3 actuals			
Poland	2020/2021 A	2022 A	2023 A	2024 A
Total en route costs in nominal terms (in national currency)	1 403 556 665	857 681 296		
Total en route costs in real terms (in national currency at 2017 prices)	1 315 377 467	720 475 683		
Total en route Service Units (TSU)	4 731 739	3 128 964		
Real en route unit costs (in national currency at 2017 prices)	277,99	230,26		

En route charging zone	Difference between actual and plan (in %)			
Poland	2020/2021	2022	2023	2024
Total en route costs in nominal terms (in national currency)	-12,4%	-2,1%		
Total en route costs in real terms (in national currency at 2017 prices)	-12,5%	-9,8%		
Total en route Service Units (TSU)	0,8%	-21,6%		
Real en route unit costs (in national currency at 2017 prices)	-13,2%	15,0%		

a) Assessment of actual performance (actual unit cost), including analysis of differences observed between the determined costs and the actual costs for the year

PANSA:

1 staff costs: the level of actual staff costs was nearly 3% higher than determined costs. The main factor contributing to this overspent is additional cost, which materialized in 2022 and which represents part of the costs related to the unused budget of staff costs from 2021 (time shift of cost materialization from 2022 from 2021, which was communicated to the airspace users during the consultation process in July 2022). These costs were one-off costs related to:

- interim agreement with ATCO Trade Union before entry into force of the Annex to the Remuneration Scheme (see also information below),
- changes in remuneration of some employees resulting from Labour Law provisions (under which during the transitional period employees can benefit from both, old and new provisions of rules of remuneration to the extent that these are more favourable to them),
- court cases initiated by some employees,

These were related to changes in remuneration regulations implemented at PANSA.

It should be noted that there were changes in PANSA remuneration regulations implemented at the turn 2021/2022, which resulted in a significant change in the structure of remuneration costs and also reduced some of the existing remuneration components. This change was not fully accepted by the social partners, which led to the need to conclude an annex. Such annex to the remuneration regulations was implemented in 2022, which restored some previously excluded components of remuneration and determined the level of remuneration for ATCO operational personnel according to the table with the remuneration structure agreed with the social partners. This led to a significant change in the remuneration costs structure, taking into account the division into ER and TNC zones.

2 other operating costs: the actual 2022 other operating cost are lower by 24.8% than determined costs. This is the direct response to traffic and revenue shortfall (resulting from the unforeseen geopolitical situation – the war right behind Poland's eastern border) as well as a consequence of persisting pandemic still visible in Q1 2022 and macroeconomic developments which necessitated review of PANSA plans. Undertaken cost containment measures, comprising mostly one-off initiatives and postponement of certain activities, relate mainly to: IT services, consultancy fees.

Reduction in IT services and technical services is directly linked to postponement or review of some investments. Moreover, some initiatives planned to be executed as costs were finally recognised as CAPEX elements.

Optimalisation of repairs services mainly due to reschedule or using own staff led to considerable reduction in repair services costs. After the COVID-19 period training and business trips did not reach pre-pandemic levels. Savings were also made in relation to promotion activities and PANSA participation in certain events.

3 depreciation: the 4.5 % decrease in depreciation costs in 2022 in comparison to determined costs for this year is mainly result of execution of investment plan, which was lower than foreseen in the RP3 PP. Uncertainty due to global crises and war in Ukraine led to postponement or review of some projects.

Execution of depreciation cost is also related to differences in useful life of some assets, especially those put into operation over 2022, comparing to standard periods assumed in the adopted RP3 PP.

It should be noted that actual depreciation presented in the charges' reporting tables of 2022 does not include effects of implementation of IFRS16 – costs related to leasing are still disclosed under other operating costs.

4 cost of capital: the actual cost of capital for the year 2022 is slightly higher (4.1%) comparing to determined cost. This is mainly the effect of higher WACC due to permanent changes in macroeconomic assumptions leading to an increase in WIBOR 3M reference rate. This is a reason of the huge increase of updated effective annual interest rate for the RP3 period (this relates to 2022 as well as to the following years of RP3 PP).

Decrease od average asset base is mainly a result of actualisation of investment plan.

IMWM:

The difference between the actual and planned costs of the en-route charges was 686.516 PLN and results from:

- higher other operating costs by 3%. The above-mentioned situation is mainly caused by an increase in inflation - the PSD accounted for an inflation of 2,52%, while the actual level of inflation in 2022, according to EUROSTAT data, was 13,20%. The above contributed to the growth of, inter alia, gas, energy and fuel prices;
- higher staff cost due to the increase in the minimum wage in 2022 according to the Remuneration statute of IMWM;
- lower depreciation costs resulting from the failure to complete all planned investment purchases, including purchase of AWOS-R;
- higher cost of capital by 74% resulting from the higher average interest rate on debt - planned at 1,4%, actual level 3,90%.

Airport Meteo:

The actual unit cost was higher than set in PP RP3, mainly due to significantly lower values of actual traffic. AM's actual costs, both in nominal and real terms, were lower than determined values, especially due to insufficient funds received from the inappriopriate distribution of navigation charges among ANSPs. As for the cost by nature, the staff costs were 5% higher than planned (+ 7 kPLN), so did the other operating costs (+16 kPLN, +16%). There was a marginal deviation in depreciation costs and huge drop in cost of capital (-40 kPLN, -86%) stemming from the fact that Airport Meteo did not receive any income from the collected navigation charges by Poland since the beginning of RP3 what has drastically diminished the value of net current assets.

Warmia i Mazury:

The AUC values were above the level determined in PP RP3, which was mainly due to decline in traffic level. WiM managed to achieve lower actual costs in real terms than determined, though in nominal terms costs were higher than set in PP RP3 due to high inflation rate in 2022. WiM was struggling to minimize the consequences of difficult macroeconomic situation in Poland resulting in higher staff (+12 kPLN, +2.6%) and other operating costs (+121 kPLN, +10.0%). Depreciation (-11 kPLN, -23.5%) and cost of capital (-11 kPLN, -37.2%) costs were lower due to unrealised investments due to problems with navigation charges distribution system (for details see point 4).

PL Bydgoszcz:
The AUC has higher values than determined due to significant changes in traffic (actual vs determined). In case of nominal costs, these were slightly higher than determined as a result of high inflation rate, which resulted in achieving the target in real terms. All groups of costs were slightly higher than planned (staff costs: +31 kPLN, +3%; other operating costs: +30 kPLN, +12%; depreciation: +2 kPLN, +2%; cost of capital: +1 kPLN, +2%) as a consequence of macroeconomic situation.

CAA PL:
The actual values were higher than planned as follows: staff costs +8 kPLN, +0,13%; other operating costs (including EUROCONTROL costs) +2 914kPLN, +5,1%; costs +2 922kPLN, +4,6%; unit cost +5,3PLN, +33,5%.

b) Identification and analysis by the NSA of the underlying reasons or circumstances having led to the targets not being achieved
The 2022 target has not been met mainly due to the negative impact of the war in Ukraine on the traffic at FIR Warszawa. As a result of the War, traffic in the Polish airspace collapsed. The deviation from the traffic being the basis in the performance plan was 21,6% lower. The War in Ukraine is an external factor which mainly impacted failure to perform the traffic in FIR Warszawa on which MS has no infuence. Additionally there were significant differences between actual data and general assumptions made in RP3 PP for 2022 regarding i.e. macroeconomic data such as higher inflation rate, exchnage rate PLN/EUR and interest rates i.e. inflation rate planned for 2022 2.52% vs actual 13.20% , exchange rate planned for 2022 4.45 PLN vs actual 4.68 PLN. The above factors had a significant impact on the targets.

c) Recommendations to the ANSP to rectify the situation
Not achieving the performace plan target was caused by the long term influence of war in Ukraine affecting traffic in Poland which is an external factor. CAA PL recommended to continue efforts related to the improvement of cost efficiency in order to ensure conditions for achieving the results close to set goals in this respect.

d) Remedial measures taken or planned to be taken by the ANSP	0

If no measures have been or will be taken by the ANSP, please explain why
As the targets were not achieved due to external factors outside MS control (traffic drop resulting from war in Ukraine, inflation rate, other macroeconomic factors), there is not possible to take any remedial measures.

2. Follow-up of the measures relating to previous calendar years

Were any remedial measures put in place relating to deviations from performance targets in previous calendar years?	No

3. Further observations

Is the NSA aware of any significant risks which are likely to lead to cost-efficiency performance targets not being achieved during the ongoing calendar year or during the following calendar years of the reference period?	Yes

What are those risks ?
The risks are linked to the following factors: - significant drop in en-route traffic (MVS and SU) resulting from war in Ukraine and related sanctions. - increase in inflation rate - the impact of changes to inflation on cost-efficiency target are two-fold: on the one hand the inflation index used for discounting nominal costs and presenting the costs in real terms is higher, but at the same time nominal costs for various items increase; - increase in fuel and energy prices (beyond levels foreseen in the rev RP3 PP) - impacting other operating costs expressed in nominal terms; - huge increase in interest rates, directly impacting cost of debt financing and actual costs. The above factors are expected to impact not only the 2023 results, but also results of 2024.

What has been done by the ANSP in order to address the identified performance issues?
The majority of identified risks are beyond control of ANSP's. In order to maintain the appropriate level of financial liquidity and adjust to current macroeconomic situation, ANSPs: - are in constant dialogue with social partners - appropriate for PL Bydgoszcz, - continue to carefully monitor current financial situation and are constantly looking for possible savings while at the same time performing air navigation services of the highest quality - appropriate for Airport Meteo, - constantly monitor costs to look for possible optimisation - but due to necessity to provide uninterrupted services and be prepared for possible traffic recovery after the war ends and sanctions are lifted as well as increasing prices for main goods and services, cost reductions reflecting the traffic drop cannot be made - appropriate for PANSA.

What further measures does the NSA intend to undertake to remedy this situation?
The situation that takes place is due to external factors, out of the NSAs control. NSA regularly monitors ANSP's financial results (quarterly, semi-annualy and annualy) what will be continued. NSA cannot influence the development of the situation beyond the eastern border of Poland i.e. on war in Ukraine and other makroeconomic factors.

4. Major operational or structural changes

Has the ANSP implemented any major operational or structural changes (incl. any new fixed assets put into operation) during the calendar year enabling current or future cost-efficiency gains? Please outline the relevant changes and their estimated impact on performance.
No major operational or structural changes were implemented in 2022.

5. Verification of actual costs

Findings of the verification of actual costs by the NSA (in accordance with Art. 22(7), Art. 23 and Art. 28(7) of IR 2019/317), and where applicable identification of corrections applied to the reported actual costs as a result of this verification.
Due to the deadline for the submission of financial statements and annual report of activities by ANSPs, verification is ongoing. Up to now no inconsistency were found.

Has the NSA verified that the costs referring to non-ANS activities (U-space, drone detection, satellites,...) or ANS costs provided to third countries are presented separately in the ANSP accounts? If not, has the NSA verified that such costs are not included in the en-route cost base?
PANSA does not provide ANS services at airports outside the scope of RP3 PP for Poland, nor does provide services outside FIR Warszawa (except for the cross-border arrangements for the provision of ANS services listed in chapter 1.1 of RP3 PP). PANSA's cost related to non-ANS activities (i.e. U-space, drone detection, satellites,...) are mariginal and are excluded from the determined costs on base on allocation keys. For activities related to non-ANS U-space services PANSA prepares a seperate financial reports. PANSA Allocation keys for all PANSA activities, identifying also activities allocated to non-ANS area with corresponding allocation key, are oversighted by NSA. Other ANSP's than PANSA do not have costs connected with non-ANS Activities (U-space, drone detection, satellites,...) or ANS costs provided to third countries.

2.4.1.(b) - Cost efficiency KPI: Determined unit cost (DUC) for terminal ANS

1. DUC for terminal air navigation services

Terminal charging zone	RP3 revised cost-efficiency targets (determined 2020-2024)			
Poland zone 1	2020/2021 D	2022 D	2023 D	2024 D
Total terminal costs in nominal terms (in national currency)	81 799 669	48 871 242	50 173 711	52 624 872
Total terminal costs in real terms (in national currency at 2017 prices)	75 884 885	44 037 508	44 320 933	45 668 485
Total terminal Service Units (TNSUs)	98 511	87 356	96 630	103 108
Real terminal unit costs (in national currency at 2017 prices) - DUC	770,32	504,11	458,67	442,92

Terminal charging zone	RP3 actuals			
Poland zone 1	2020/2021 A	2022 A	2023 A	2024 A
Total terminal costs in nominal terms (in national currency)	67 720 764	51 673 666		
Total terminal costs in real terms (in national currency at 2017 prices)	62 687 919	42 256 612		
Total terminal Service Units (TNSUs)	96 933	83 357		
Real terminal unit costs (in national currency at 2017 prices)	646,71	506,93		

Terminal charging zone	Difference between actual and plan (in %)			
Poland zone 1	2020/2021	2022	2023	2024
Total terminal costs in nominal terms (in national currency)	-17,2%	5,7%		
Total terminal costs in real terms (in national currency at 2017 prices)	-17,4%	-4,0%		
Total terminal Service Units (TNSUs)	-1,6%	-4,6%		
Real terminal unit costs (in national currency at 2017 prices)	-16,0%	0,6%		

a) Assessment of actual performance (actual unit cost), including analysis of differences observed between the determined costs and the actual costs for the year

PANSA:

1 staff costs: the level of actual staff costs is 15.5% higher than determined costs.

The main factor contributing to this overspent is change in PANSA remuneration scheme that was implemented in 2022. It should be noted that there were changes in PANSA remuneration regulations implemented at the turn 2021/2022, which resulted in a significant change in the structure of remuneration costs and also reduced some of the existing remuneration components. This change was not fully accepted by the social partners, which led to the need to conclude an annex. Such annex to the remuneration regulations was implemented in 2022, which restored some previously excluded components of remuneration and determined the level of remuneration for ATCO operational personnel according to the table with the remuneration structure agreed with the social partners. This led to increase in salaries for EPWA ATCOs as compared to the assumptions underlying the adopted RP3 PP. These changes to remuneration regulations entailed significant change in the remuneration costs structure, taking into account the division into ER and TNC zones

The second reason for the overspent is additional cost, which materialized in 2022 and which represents part of the costs related to the unused budget of staff costs from 2021 (time shift of cost materialization from 2022 from 2021, which was communicated to the airspace users during the consultation process in July 2022). These costs were one-off costs related to:

- interim agreement with ATCO Trade Union before entry into force of the Annex to the Remuneration Scheme (see also information above),
- changes in remuneration of some employees resulting from Labour Law provisions (under which during the transitional period employees can benefit from both, old and new provisions of rules of remuneration to the extent that these are more favourable to them),
- court cases initiated by some employees.

These were related to changes in remuneration regulations implemented at PANSA.

2 other operating costs: the actual 2022 other operating cost are lower by 29% than determined costs. This is the direct response to traffic and revenue shortfall (resulting from the unforeseen geopolitical situation – the war right behind Poland's eastern border) as well as a consequence of persisting pandemic still visible in Q1 2022 and macroeconomic developments which necessitated review of PANSA plans. Undertaken cost containment measures, comprising mostly one-off initiatives and postponement of certain activities, relate mainly to: IT services, consultancy fees.

Reduction in IT services and technical services is directly linked to postponement or review of some investments. Moreover, some initiatives planned to be executed as costs were finally recognised as CAPEX elements.

Optimalisation of repairs services mainly due to reschedule or using own staff led to considerable reduction in repair services costs. After the COVID-19 period training and business trips did not reach pre-pandemic levels. Savings were also made in relation to promotion activities and PANSA participation in certain events.
3 depreciation: the 2.5% decrease in depreciation costs in 2022 in comparison to determined costs for this year is mainly result of execution of investment plan, which was lower than foreseen in the RP3 PP. Uncertainty due to global crises and war in Ukraine led to postponement or review of some projects (see also more detailed information in Annual Monitoring Report for 2022). Execution of depreciation cost is also related to differences in useful life of some assets, especially those put into operation over 2022, comparing to standard periods assumed in the adopted RP3 PP .
It should be noted that actual depreciation presented in the charges' reporting tables of 2022 does not include effects of implementation of IFRS16 – costs related to leasing are still disclosed under other operating costs.
4 cost of capital: the actual cost of capital for the year 2022 is slightly higher (2.8%) comparing to determined cost. This is mainly the effect of higher WACC due to permanent changes in macroeconomic assumptions leading to an increase in WIBOR 3M reference rate. This is a reason of the huge increase of updated effective annual interest rate for the RP3 period (this relates to 2022 as well as to the following years of RP3).

IMWM:
The difference between the actual and planned costs within the zone I terminal charges was PLN 17.590 and results from:
- higher other operating costs by 3%. The above-mentioned situation is mainly caused by an increase in inflation - the PSD accounted for an inflation of 2,52%, while the actual level of inflation in 2022, according to EUROSTAT data, was 13,20%. The above contributed to the growth of, inter alia, gas, energy and fuel prices;
- lower staff costs resulting from the retirement of one employee from LSM Warsaw Okecie from April 2022.

CAA PL:
The actual values were higher than planned as follows: staff costs +223kPLN, +28,6%; other operating costs (including EUROCONTROL costs) +83kPLN, +28,3%; costs +306kPLN, +28,5%; unit cost +4,3PLN, +33,5%.

b) Identification and analysis by the NSA of the underlying reasons or circumstances having led to the targets not being achieved
The 2022 AUC vs. DUC is 0,6% higher. Actual costs in nominal terms are higher but due to actual higher inflation, actual costs in real terms are lower than determined. The above resulted in slightly higher AUC than DUC. Additionally there were significant differences between actual data and general assumptions made in RP3 PP for 2022 regarding i.e. macroeconomic data such as higher inflation rate, exchnage rate PLN/EUR and interest rates i.e. inflation rate planned for 2022 2.52% vs actual 13.20% , exchange rate planned for 2022 4.45 PLN vs actual 4.68 PLN. The above factors had a significant impact on the targets.

c) Recommendations to the ANSP to rectify the situation
No recommendations as AUC is slightly higher than DUC.

d) Remedial measures taken or planned to be taken by the ANSP	0

If no measures have been or will be taken by the ANSP, please explain why
No measures taken or planned to be taken by ANSPs as AUC is slightly higher than DUC.

2. Follow-up of the measures relating to previous calendar years

Were any remedial measures put in place relating to deviations from performance targets in previous calendar years?	No

3. Further observations

Is the NSA aware of any significant risks which are likely to lead to cost-efficiency performance targets not being achieved during the ongoing calendar year or during the following calendar years of the reference period?	Yes

What are those risks ?
The risks are linked to the following factors: - observed slower recovery of traffic than assumed in the rev RP3 PP, reflected in lower number of service units for EPWA, - increase in inflation rate - the impact of changes to inflation on cost-efficiency target are two-fold: on the one hand the inflation index used for discounting nominal costs and presenting the costs in real terms is higher, but at the same time nominal costs for various items increase; - increase in fuel and energy prices (beyond levels foreseen in the rev RP3 PP) - impacting other operating costs expressed in nominal terms; - huge increase in interest rates, directly impacting cost of debt financing and actual costs. The above factors are expected to impact not only the 2023 results, but also results of 2024.

What has been done by the ANSP in order to address the identified performance issues?
PANSA: the majority of identified risks are beyond control of PANSA's. In order to maintain the appropriate level of financial liquidity and adjust to current macroeconomic situation, PANSA constantly monitors its costs to look for possible optimisation - but due to necessity to provide uninterrupted services and be prepared for possible traffic recovery after the war ends and sanctions are lifted as well as increasing prices for main goods and services, cost reductions reflecting the traffic drop cannot be made.

What further measures does the NSA intend to undertake to remedy this situation?
The situation that takes place is due to external factors, out of the NSAs control. NSA regularly monitors ANSP's financial results (quarterly, semi-annualy and annualy) what will be continued. NSA cannot influence the development of the situation beyond the eastern border of Poland i.e. on war in Ukraine and other makroeconomic factors.

4. Major operational or structural changes

Has the ANSP implemented any major operational or structural changes (incl. any new fixed assets put into operation) during the calendar year enabling current or future cost-efficiency gains? Please outline the relevant changes and their estimated impact on performance.
No major operational or structural changes were implemented in 2022.

5. Verification of actual costs

Findings of the verification of actual costs by the NSA (in accordance with Art. 22(7), Art. 23 and Art. 28(7) of IR 2019/317), and where applicable identification of corrections applied to the reported actual costs as a result of this verification.
Due to the deadline for the submission of financial statements and annual report of activities by ANSPs, verification is ongoing. Up to now no inconsistency were found.

Has the NSA verified that the costs referring to non-ANS activities (U-space, drone detection, satellites,...) or ANS costs provided to third countries are presented separately in the ANSP accounts? If not, has the NSA verified that such costs are not included in the terminal cost base?
Information presented in part for ER cost-efficiency

2.4.1.(b) - Cost efficiency KPI: Determined unit cost (DUC) for terminal ANS

1. DUC for terminal air navigation services

Terminal charging zone	RP3 revised cost-efficiency targets (determined 2020-2024)			
Poland zone 2	2020/2021 D	2022 D	2023 D	2024 D
Total terminal costs in nominal terms (in national currency)	260 288 740	149 058 558	150 166 336	149 863 037
Total terminal costs in real terms (in national currency at 2017 prices)	242 273 070	134 684 632	133 096 739	130 519 058
Total terminal Service Units (TNSUs)	138 720	123 910	131 402	141 942
Real terminal unit costs (in national currency at 2017 prices) - DUC	1 746,49	1 086,95	1 012,90	919,52

Terminal charging zone	RP3 actuals			
Poland zone 2	2020/2021 A	2022 A	2023 A	2024 A
Total terminal costs in nominal terms (in national currency)	222 651 309	166 037 344		
Total terminal costs in real terms (in national currency at 2017 prices)	206 748 553	136 962 975		
Total terminal Service Units (TNSUs)	141 160	140 929		
Real terminal unit costs (in national currency at 2017 prices)	1 464,64	971,86		

Terminal charging zone	Difference between actual and plan (in %)			
Poland zone 2	2020/2021	2022	2023	2024
Total terminal costs in nominal terms (in national currency)	-14,5%	11,4%		
Total terminal costs in real terms (in national currency at 2017 prices)	-14,7%	1,7%		
Total terminal Service Units (TNSUs)	1,8%	13,7%		
Real terminal unit costs (in national currency at 2017 prices)	-16,1%	-10,6%		

a) Assessment of actual performance (actual unit cost), including analysis of differences observed between the determined costs and the actual costs for the year

PANSA:

1 staff costs: the level of actual staff costs is 19.7% higher than determined costs.

The main factor contributing to this overspent are changes in PANSA remuneration scheme that were implemented in at the turn of 2021/2022 and in 2022. The changes in PANSA remuneration regulations implemented at the turn 2021/2022 aimed at, among others, eliminating high disproportions in ATCO remunerations in individual ATC units and review the basic salaries for the units with the lowest level. This led to increase in ATCO salaries at regional TWR units. This resulted in a significant change in the structure of remuneration costs and also reduced some of the existing remuneration components. This change was not fully accepted by the social partners, which led to the need to conclude an annex. This annex to the remuneration regulations was implemented in 2022, which restored some previously excluded components of remuneration and determined the level of remuneration for ATCO operational personnel according to the table with the remuneration structure agreed with the social partners. This also had an impact on salaries disclosed in TCZ2. These changes to remuneration regulations entailed significant change in the remuneration costs structure, taking into account the division into ER and TNC zones.

The second reason for the overspent is additional cost, which materialized in 2022 and which represents part of the costs related to the unused budget of staff costs from 2021 (time shift of cost materialization from 2022 from 2021, which was communicated to the airspace users during the consultation process in July 2022). These costs were one-off costs related to:

- interim agreement with ATCO Trade Union before entry into force of the Annex to the Remuneration Scheme (see also information above),
- changes in remuneration of some employees resulting from Labour Law provisions (under which during the transitional period employees can benefit from both, old and new provisions of rules of remuneration to the extent that these are more favourable to them),
- court cases initiated by some employees.

These were related to changes in remuneration regulations implemented at PANSA.

2 other operating costs: despite the lower traffic levels in ER and TNC – CZ1, the traffic in TNC – CZ2 was higher than the forecast assumed in the adopted RP3 performance plan. This resulted mainly from the faster than expected recovery in the civil aviation traffic volumes, but also more traffic related to the cargo supplies and the military activity, mainly in EPRZ in relation to the war in Ukraine. The higher traffic in CZ2 resulted in a relatively higher than in CZ1 and in ER costs of ANS provision and led to a limited options for cost savings, to maintain the service at the required level – therefore the difference in TNC – CZ2 is lower than in ER and TNC – CZ1 Still, the impact of cost optimisation measures is visible (see details in ER and TNC – CZ1).

3 depreciation: the 24.3% increase in depreciation costs in 2022 in comparison to determined costs for this year is mainly the result of higher traffic in TNC - CZ2 than the forecast assumed in the adopted RP3 performance plan. Higher than planned traffic levels resulted in the increase of cost allocation to TNC - CZ2 related to the use of assets necessary to provide ANS. The traffic volumes and SU-L levels are important factors influencing the calculation and cost allocation process.

4 cost of capital: the actual cost of capital for the year 2022 is slightly higher (25.7%) comparing to determined cost. This results from two elements:

- higher WACC rate due to permanent changes in macroeconomic assumptions leading to an increase in WIBOR 3M reference rate. This is a reason of the huge increase of updated effective annual interest rate for the RP3 period (this relates to 2022 as well as to the following years of RP3),
- higher asset base, stemming from higher fixed asset value. The reason for that is impact of changes in the traffic structure on cost allocation (see description for depreciation cost above).

Warmia i Mazury:

The AUC values were below the level determined in PP RP3, which was mainly due to increase in traffic level. Although WiM's nominal costs were higher than determined, the values in nominal terms costs were lower than set in PP RP3 due to high inflation rate in 2022. WiM was struggling to minimize the consequences of difficult macroeconomic situation in Poland resulting in higher staff (+125 kPLN, +8.7%) and other operating costs (+427 kPLN, +24.1%). Depreciation (-69 kPLN, -44.8%) and cost of capital (-33 kPLN, -47.2%) costs were lower due to unrealised investments due to problems with navigation charges distribution system (for details see point 4).

IMWM:

The difference between the actual costs and the costs planned under the terminal charges, zone II, amounted to PLN 709.027 and results from:

- staff cost was realized as planned. The staff cost increased by 0,36%.
- higher other operating costs by 8%. The above-mentioned situation is mainly caused by an increase in inflation - the PSD accounted for an inflation of 2,52%, while the actual level of inflation in 2022, according to EUROSTAT data, was 13,20%. The above contributed to the growth of, inter alia, gas, energy and fuel prices;
- lower depreciation costs resulting from the failure to complete all planned investment purchases, including purchase of AWOS-R;
- higher cost of capital by 78% resulting from the higher average interest rate on debt - planned at 1,4%, actual level 3,90%.

PL Bydgoszcz:
Although the nominal costs, both of MET and AFIS, were higher than determined - due to higher than planned level of inflation and traffic in 2022, PL Bydgoszcz has achieved the AUC level below determined value due to higher level of cost allocation to VFR and higher actual traffic figures. In terms of MET, all groups of costs were slightly higher than planned as a consequence of macroeconomic situation. In terms of AFIS, the costs tend to be lower due to decline in EPBY Airport operating hours and problems with missing funds from the navigation charges distribution. In total, comparing to determined values: staff costs were lower (-46 kPLN, -2%), other operating costs were higher (+165 kPLN, +29%), depreciation costs were higher (+4 kPLN, +2%), cost of capital were lower (-3 kPLN, -3%).
Airport Meteo:
The actual unit cost was lower than set in PP RP3, mainly due to significantly higher values of actual traffic. AM's actual costs, both in nominal and real terms, were lower than determined values, especially due to insufficient funds received from the inappriopriate distribution of navigation charges among ANSPs. As for the cost by nature, the staff costs were 5% higher than planned (+ 2 kPLN), so did the other operating costs (+16%, +5 kPLN). There was a marginal deviation in depreciation costs and huge drop in cost of capital (-86%, -13 kPLN) stemming from the fact that Airport Meteo did not receive any income from the collected navigation charges by Poland since the beginning of RP3 what has drastically diminished the value of net current assets.
CAA PL:
The actual values were higher than planned as follows: staff costs -219kPLN, -6,5%; other operating costs (including EUROCONTROL costs) -85kPLN, -6,8%; costs -304kPLN, -6,6%; unit cost +7PLN, -17,9%.

b) Identification and analysis by the NSA of the underlying reasons or circumstances having led to the targets not being achieved
The targed was achieved due to observed faster recovery of traffic than assumed in the rev RP3 PP, reflected in number of service units for TNC OTHER.

c) Recommendations to the ANSP to rectify the situation
No recomendations have been made to ANSP's as the target was achieved. Traffic at regional airports is recovering faster than at EPWA Airport.

d) Remedial measures taken or planned to be taken by the ANSP	0

If no measures have been or will be taken by the ANSP, please explain why
The target has been achieved, therefore no measures are planned to be taken.

2. Follow-up of the measures relating to previous calendar years

Were any remedial measures put in place relating to deviations from performance targets in previous calendar years?	No

3. Further observations

Is the NSA aware of any significant risks which are likely to lead to cost-efficiency performance targets not being achieved during the ongoing calendar year or during the following calendar years of the reference period?	Yes

What are those risks ?
The risks are linked to the following factors: - persisting uncertainty related to traffic evolution as compared to the forecast underlying rev RP3 PP; - increase in inflation rate - the impact of changes to inflation on cost-efficiency target are two-fold: on the one hand the inflation index used for discounting nominal costs and presenting the costs in real terms is higher, but at the same time nominal costs for various items increase; - increase in fuel and energy prices (beyond levels foreseen in the rev RP3 PP) - impacting other operating costs expressed in nominal terms; - huge increase in interest rates, directly impacting cost of debt financing and actual costs. The above factors are expected to impact not only the 2023 results, but also results of 2024.

What has been done by the ANSP in order to address the identified performance issues?
As concerns PANSA: the majority of identified risks are beyond control of PANSA's. In order to maintain the appropriate level of financial liquidity and adjust to current macroeconomic situation, PANSA constantly monitors its costs to look for possible optimisation - but due to necessity to provide uninterrupted services and be prepared for possible traffic recovery after the war ends and sanctions are lifted as well as increasing prices for main goods and services, cost reductions reflecting the traffic drop cannot be made.

What further measures does the NSA intend to undertake to remedy this situation?
The situation that takes place is due to external factors, out of the NSAs control. NSA regularly monitors ANSP's financial results (quarterly, semi-annualy and annualy) what will be continued. NSA cannot influence the development of the situation beyond the eastern border of Poland i.e. on war in Ukraine and other makroeconomic factors.

4. Major operational or structural changes

Has the ANSP implemented any major operational or structural changes (incl. any new fixed assets put into operation) during the calendar year enabling current or future cost-efficiency gains? Please outline the relevant changes and their estimated impact on performance.
No major operational or structural changes were implemented in 2022.

5. Verification of actual costs

Findings of the verification of actual costs by the NSA (in accordance with Art. 22(7), Art. 23 and Art. 28(7) of IR 2019/317), and where applicable identification of corrections applied to the reported actual costs as a result of this verification.
Due to the deadline for the submission of financial statements and annual report of activities by ANSPs, verification is ongoing. Up to now no inconsistency were found.

Has the NSA verified that the costs referring to non-ANS activities (U-space, drone detection, satellites,...) or ANS costs provided to third countries are presented separately in the ANSP accounts? If not, has the NSA verified that such costs are not included in the terminal cost base?
Information presented in part for ER cost-efficiency

2.4.2.(a) - Cost efficiency PI: Actual unit cost incurred by users for en route ANS

En route charging zone				
Poland	2020/2021	2022	2023	2024
En route unit costs (in national currency) - DUC	341,41	219,46	191,90	185,27

Adjustments stemming from the year (in national currency)	2020/2021	2022	2023	2024
Inflation adjustment (Art. 26)	12 332 444	81 928 949		
Cost exempt from cost-sharing (Art. 28(4) to 28(6))	3 766 487	-89 213		
Traffic risk sharing adjustment (Art. 27(2) to 27(5))	0	133 671 167		
Traffic adjustement (Art. 27(8))	-1 484 042	21 307 351		
Financial incentives (Art. 11(3) and 11 (4))		n/a		
Adjustment for modulation of charges (Art. 32(1))	0	0		
Difference in revenue from temporary application of unit rate (Art. 29(4) and 29(5))				
Cross-financing to (-) / from (+) other charging zone(s) (Art. 25(2)(j))	0	0		
Total other revenues (Art. 25(3))	-52 415 054	-28 415 884		
Loss of revenue from application of a lower unit rate (Art. 29(6))	0	0		
Total adjustments stemming from year n (in nat. currency)	**-37 800 165**	**208 402 371**		

Actual service units	4 731 739	3 128 964		
Total adjustements per actual service unit (in nat. Currency)	-7,99	66,60		
Actual unit cost incurred by users (in nat. Currency)	333,42	286,06		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
This PI reflects adjustments foreseen by Regulation 2019/317 that are calculated automatically and cannot be modified. Therefore possibility for ANSPs or NSA to take initiatives aimed at improving this PI is very limited. PI does not use cross financing between charging zones and does not apply provision of Article 29(6). Modulation of charges is also not used in RP3.

2.4.2.(b) - Cost efficiency PI: Actual unit cost incurred by users for terminal ANS

Terminal charging zone				
Poland zone 1	2020/2021	2022	2023	2024
Terminal unit costs (in national currency) - DUC	830,36	559,45	519,24	510,38

Adjustments stemming from the year (in national currency)	2020/2021	2022	2023	2024
Inflation adjustment (Art. 26)	815 870	5 145 019		
Cost exempt from cost-sharing (Art. 28(4) to 28(6))	217 469	286 265		
Traffic risk sharing adjustment (Art. 27(2) to 27(5))	0	831 461		
Traffic adjustement (Art. 27(8))	87 526	128 239		
Financial incentives (Art. 11(3) and 11 (4))		n/a		
Adjustment for modulation of charges (Art. 32(1))	0	0		
Difference in revenue from temporary application of unit rate (Art. 29(4) and 29(5))				
Cross-financing to (-) / from (+) other charging zone(s) (Art. 25(2)(j))	0	0		
Total other revenues (Art. 25(3))	-1 516 405	-1 063 010		
Loss of revenue from application of a lower unit rate (Art. 29(6))	0	0		
Total adjustments stemming from year n (in nat. currency)	**-395 540**	**5 327 974**		

Actual service units	96 933	83 357		
Total adjustements per actual service unit (in nat. Currency)	-4,08	63,92		
Actual unit cost incurred by users (in nat. Currency)	826,28	623,36		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
Information presented in part for ER cost-efficiency.

2.4.2.(b) - Cost efficiency PI: Actual unit cost incurred by users for terminal ANS

Terminal charging zone				
Poland zone 2	2020/2021	2022	2023	2024
Terminal unit costs (in national currency) - DUC	1 876,36	1 202,96	1 142,80	1 055,80

Adjustments stemming from the year (in national currency)	2020/2021	2022	2023	2024
Inflation adjustment (Art. 26)	2 495 636	15 299 582		
Cost exempt from cost-sharing (Art. 28(4) to 28(6))	926 409	4 647 333,21		
Traffic risk sharing adjustment (Art. 27(2) to 27(5))	0	-11 489 446		
Traffic adjustement (Art. 27(8))	-870 812	-3 568 468		
Financial incentives (Art. 11(3) and 11 (4))		n/a		
Adjustment for modulation of charges (Art. 32(1))	0	0		
Difference in revenue from temporary application of unit rate (Art. 29(4) and 29(5))				
Cross-financing to (-) / from (+) other charging zone(s) (Art. 25(2)(j))	0	0		
Total other revenues (Art. 25(3))	-6 223 995	-4 031 855		
Loss of revenue from application of a lower unit rate (Art. 29(6))	0	0		
Total adjustments stemming from year n (in nat. currency)	**-3 672 762**	**857 146**		

Actual service units	141 160	140 929		
Total adjustements per actual service unit (in nat. Currency)	-26,02	6,08		
Actual unit cost incurred by users (in nat. Currency)	1 850,34	1 209,04		

What initiatives were implemented or are planned that will improve this PI and how does the NSA intend on monitoring their effectiveness on performance?
Information presented in part for ER cost-efficiency.

2.4.3 - Additional Cost-Efficiency Indicators

Number of additional Cost-Efficiency Indicators	0

SECTION 3: INCENTIVE SCHEMES

3 - INCENTIVE SCHEMES

Incentive schemes not applicable for 2022

SECTION 4: INVESTMENTS

4 - INVESTMENTS

Polish Air Navigation Services Agency (PANSA)

Currency	PLN

Investment plan as per RP3 performance plan

Number of new major investments (PP)	12

#	Name of new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
1	*01440701_Campus*	722 261 693	167 859 621	243 422	275 706	511 449	1 801 404	5 735 184	40	93%	7%	after RP3	243 422	1 370 325	2 568 362		
2	*02440701_Communication_systems*	54 777 202	40 095 848	50 469	253 279	1 555 903	2 763 951	4 168 370	00/15/20	100%	0%	2024, after RP3	50 469	413 548	1 429 197		
3	*03440701_iTEC*	274 984 161	170 534 160	458 299	727 953	2 015 604	4 193 469	5 843 007	10	100%	0%	after RP3	458 299	5 736 339	9 001 205		
4	*06440701_VCS_system*	34 620 196	14 820 196	0	13 631	107 591	268 451	606 210	05/15	100%	0%	after RP3	0	65 779	156 784		
5	*21440701_ATM_OPS_Centre_Poznan*	92 335 659	4 447 011	2 041 113	2 773 247	5 056 443	5 082 500	5 065 357	07/20/40	100%	0%	2021, 2022	2 041 113	6 072 145	8 924 652		
6	*IP470701_U-Space_Program*	29 110 512	11 242 540	23 225	133 519	463 040	778 662	1 063 564	10	0%	100%	after RP3	23 225	1 155 808	1 561 099		
7	*IT170202_Tower_at_the_Central_Hub_Airport*	61 538 020	38 020	0	0	0	0	899	15/40	30%	70%	after RP3	0	0	0		
8	*IT430803_Radar_PSR/MSSR_Gdańsk*	24 966 688	24 960 773	150	429	103 763	683 668	2 289 011	15/20	100%	0%	2024	150	162	304		
9	*IT430900_Modernization_of_the_ATM_system_2*	101 011 895	34 821 458	115 698	536 262	2 605 840	3 820 586	3 743 463	10/15	88%	12%	2022	115 698	8 866 779	9 289 017		
10	*IT440732_MLAT_system_for_FIR_Warsaw*	35 950 119	22 683 430	0	1 494	75 903	365 687	1 748 413	10	90%	10%	after RP3	0	483 361	579 328		
11	*IR470209_CWP_TWR*	32 313 562	8 445 298	16 715	38 434	284 447	337 256	455 460	07/10/40	88%	12%	after RP3	16 715	260 836	374 495		
12	*IT430404_Server_Business_Infrastructure*	25 985 556	20 795 077	0	24 704	459 203	2 070 770	4 132 891	05	81%	19%	recurring	0	905 999	1 771 664		
Sub-total of **new major investments** above (1)		1 489 855 263	520 743 431	2 949 091	4 778 658	13 239 186	22 166 404	34 851 828					2 949 091	25 331 082	35 656 108		
Sub-total **other new investments** (2)		822 072 250	406 576 722	2 022 374	4 940 731	18 595 257	33 513 157	43 222 372					2 022 374	41 094 608	53 862 164		
Sub-total **existing investments** (3)				145 157 661	146 846 296	156 330 820	143 371 651	131 784 305					145 157 661	96 766 383	99 833 456		
Total new and existing investments (1) + (2) + (3)		2 311 927 513	927 320 153	150 129 125	156 565 685	188 165 264	199 051 212	209 858 505					150 129 125	163 192 073	189 351 728		

** The total % enroute+terminal should be equal to 100%.*

Has the ANSP made progress on the implementation of major investments in accordance with the schedule contained in the performance plan?	No

Please indicate what were the changes related to the planned schedule and for which major investments did those changes apply
In 2022 the global economy still faced the results of earlier stagnation of growth related to COVID-19 crisis. This had a significant impact also on the civil aviation sector. Restrictions related to the COVID-19 pandemic also impacted ability to execute some of the elements of the planned investments in line with earlier assumed schedules (delays or even failure to delivery and acceptance, lack of raw materials/materials, lack of staff on the side of contractors, lack of offers from companies to carry out investment, significant increase in prices, disruptions in commodity markets, logistic networks, supply chains). Supply chain disruptions together with increasing raw material prices were leading to significant increase in contractors prices. The situation was exacerbated by tense Russian-Ukrainian relations, which culminated in the Russian invasion of Ukraine in February 2022. The war in Ukraine necessitated re-evaluation of PANSA priorities and investments plans. Compared with other economic regions, Europe has been notably vulnerable to the economic consequences of Russia's invasion of Ukraine. Due to changing macroeconomic and geopolitical situation, adjustments had to be made to a number of projects - some had to be postponed, for some the scope was changed, for some the value was updated (details are further provided below). These changes aimed at adjusting the CAPEX plan to current operational needs as well as to changed market situation. Changes were made to the value of projects as a result of fluctuations in the EUR/PLN exchange rate (not only for contracts in EUR). In addition, the Public Procurement Law was amended in October 2022 and obligatory price indexation was introduced for contracts lasting longer than 6 months and contracts the subject of which are deliveries. Some of the bids received were higher than expected in RP3 PP. Having in mind current dynamic economic situation, growing inflation and increase in interest rates, the value of assets resulting from CAPEX implementation may significantly increase in the future.

In case of changes to the implementation schedule, please analyze the related justifications provided by the ANSP for each major investment
The information presented below is based on the PANSA investment plan for major investments included in 2021 in the revised RP3 performance plan. The prolonged crisis and the economic situation requires constant monitoring and review of ongoing projects. 1. 01440701_Campus – postponed, change of scope and value - In 2022, considering the current market situation and significant growth in prices, the necessary budget for CAMPUS would have to be increased by around 40%. To mitigate such significant increase the investment scope and schedule were a subject to further verification and reduction. In consequence implementation work has not started in 2022. Analyses are carried out to reduce the scope of works only to those identified as necessary and mandatory for ensuring continuity of PANSA basic operational goals; basically the project is expected to be limited to the construction of the new operating room with the necessary supporting infrastructure. Based on analyses mentioned above, further decision on investment scope will be made and it will require changes to both the realisation timetable and the value of planned expenditures. It is expected that the total value will be reduced approx. by 30% compared to RP3 PP. The benefits identified in the RP3 PP in 2021 remain valid, though rescheduling will delay the expected benefits. 2. 02440701_Communication_systems - no change in scope, change of schedule - In June 2022, a contract for the implementation of active network infrastructure system equipment (supply, installation, configuration and implementation) at the ATC Centre in Poznań was signed (PAŻP/22-197/AZHU). Due to difficulties with the delivery of the equipment, the implementation of the project is postponed to July 2023. The benefits identified in RP3 PP remain valid. Change of the schedule will postpone the deadlines for achieving the expected benefits. In July 2022, a contract for the implementation of transmit/receive radiolocation centre in Pęcice was signed (PAŻP/22-195/MRI). The contract is on schedule and the construction project has been delivered. Due to the postponement of the estimated completion date of the project, the expected benefits will be achieved in 2024. The delay in implementation is the result of the lengthy tender process. 3. 03440701_ATM system with a simulator – change of schedule - In 2022 works were executed according to the schedule resulting from contract signed in August 2020 (delivery, installation and implementation in Poznań ATC Center). In June 2022 Amendment No.2 to this contract was introduced to cover minor changes to the schedule and changes in the scope (construction of virtualization platform by PANSA instead of its delivery by INDRA Sistemas in order to enable its wider use in the organization). The above modification of scope affects the change in the method of individual elements implementation. Moreover, in 2022 during the analysis of the SRS document (System Requirements Specification) discrepancies that required further detailing of the agreement, were identified. Therefore, in December 2022 Amendment No. 3 to the contract was signed. Currently the need for Amendment no 4 is analized to enable the integration of the training and operational mission to be completed and to include in Amendment No. 4 the implementation of additional system functionalities that were developed on the basis of familiarization, operational and technical workshops and LabChecks. Work on the Amendment No.4 is in progress. The benefits identified in the RP3 PP in 2021 remain valid, although due to postponed/reviewed schedule of implementation might be achieved later than initially planned. 4. 06440701_VCS_system – no change in scope, change of schedule - In 2022, taking into account technological changes, as well as operational needs, there was a need to modify and update the documents necessary for the announcement of the tender procedure for the main scope of the investment. The delay in tender procedures affected the schedule of the investment. The works carried out in 2022 by the operational and technical services on the tender documentation have not been completed. In 2022 additional activity related to purchase of ERIF3.00 radio interface cards for the VCS system was completed. 5. 21440701_ATM OPS Centre Poznań – change of schedule and scope - In May 2022, a contract for the construction of two fiber optic lines (PAŻP/22-192/MRI) was signed. Due to difficulties in finding a contractor and obtaining a consent for works at the airport ,the implementation has been delayed. Works related to the construction of the fiber optic ring were significantly delayed in relation to the RP3 PP due to the lack of agreement on the permit for the implementation of the investment at the Poznań-Ławica Airport (the lack of airport's permission to enter to airport area). The first line was built in 1Q2023, the second is planned in May 2023. Additionally, within other contracts, in 2022, as part of the additional equipment, the following purchases were made: purchase and installation of window covers, monitors for conference rooms and extension of switchgears. The benefits identified in the RP3 PP in 2021 remain valid, though rescheduling will delay the expected benefits. 6. IP470701_UAV environment development (U-Space Programme) – change of schedule - In June 2022 a contract (PAŻP/22-187/AZHU) for the development of the Pansa UTM system to a new version and the provision of technical support services was signed. The postponement of the contract signature date was due to the lengthy procurement process and due to the procedure at the National Appeals Chamber. In 2022 the contract was under execution. In December 2022, the System Architecture Plan was received. Continuous technical support service for PansaUTM is being implemented under the existing contract. Additionally in 2022 UAV has been purchased and the order for UAV test flights has been executed. The investment also encompasses the development of the infrastructure for UAV tracking. Works on tender documentation preparation are ongoing. The benefits identified in the RP3 PP in 2021 remain valid, though rescheduling will delay the expected benefits. 7. IT170202_Tower at the Central Hub Airport – postponed, change to scope - The task schedule is closely correlated with the Solidarity CTH investments. The deadlines for achieving the expected benefits are subject to Solidarity CTH implementation schedule. This investment is under review by Solidarity CTH, the result of the analysis may have an impact one the future PANSA project plan. Based on the contract signed in August 2022 with the Solidarity CTH, the scope of the project to be executed by PANSA was reduced to cover only the tower equipment. Changes to

the financial schedule and scope will not reduce the benefits for users. The total value of the investment was reduced by approx. 58% compared to RP3 PP.

8. IT430803_Radar PSR/MSSR Gdańsk – no change to scope, changed schedule and value – in 2022 as a result of the COVID-19 pandemic and the global economic crisis, currently also impacted by the war in Ukraine, prices of construction works rose so significantly that PANSA needed to revise the project budget. In 2022, the work related to the development of the documentation necessary to launch a tender in accordance with the new Public Procurement Law was prolonged and the bids received were higher than expected in RP3 PP, necessitating an increase in CAPEX for the project. In December 2022 the contract was signed (PAŻP/22-380/AZHU). The contract includes the construction of three radars – Gdańsk, Katowice (additional new major investment in comparison to RP3 PP) and Pułtusk. In addition, the Public Procurement Law was amended in October 2022 and obligatory price indexation was introduced, which increased the contract value. The total value of the investment increase by approx. 60% compared to RP3 PP. Currently the projects is planned to enter into operation in 2026. The operational benefits identified in the RP3 PP in 2021 remain valid. Changing of the schedule will postpone the deadlines for achieving the expected benefits.

9. IT430900_Modernization_of_the_ATM_system_2 – no change - The scope of the basic agreement and the subsequent annex to the contract was finalised in 2022. In 2022 the operating system was replaced on RedHat 7 along with the replacement of hardware and adaptation of the P_21 application to HW and RH7. Software containing some of the new functions was delivered, as well as some new functionalities, new P_21 workstations and the P_21 system was relocated to Warsaw TWR. However, the war in Ukraine necessitated re-evaluation of PANSA priorities and investments plans. New additional investments supporting accelerated availability of contingency solutions might be required. During the analysis of requirements from the technical, usable and business side, a change occurred due to the identification of many hardware and software needs. Work will be carried out on developing a request for proposals (RFI) to the supplier, therefore the estimated amount of the project is not yet known and there may be a significant change of scope and value. The benefits identified in the RP3 PP in 2021 remain valid. Change of the schedule will not postpone achieving the expected benefits.

10. IT440732_MLAT system for FIR Warsaw – change to scope, schedule and value - As part of rev RP3 PP, the implementation of 3 stages was assumed: West, South and Centre. In 2022, there was a change in the schedule due to a delay in announcement of the tenders resulting from the prolonged competitive dialogue for Stage I West, which resulted in the extension of work on individual activities under Stage I West and changes in the scope of Stage II South. Finally, contract for the WAM/ADS-B West stage was signed in April 2023. Within two other procurements procedures (for Stage I West and Stage II South) the use of "options" was introduced as Stage IV of implementation, consisting in the assumption of expanding the system in the field of airport and APP (synchronization with the investment process of Krakow Airport, expected changes in the boundaries of TMA Kraków). The financial scope of individual stages of the task has changed by about 15-20%, taking into account external market changes (changes in value due to inflation and euro exchange rate). All the above changes affect the schedule of individual stages and the entire task. The amount of expenditures planned for implementation after the changes increased by 47% compared to RP3 PP. Schedule changes will delay the achievement of the expected benefits for the airspace users.

11. IR470209_CWP_TWR – change to scope - In 2022, there were delays in the implementation of the Warsaw TWR modernisation, the feasibility study is still ongoing. Ongoing analyses of the implementation options resulted in the need to update the schedule and scope of implementation of the various stages and technical feasibilities. In Q4 2022, the list of locations planned for the investment implementation was updated (Radom and Szymany were removed).

In addition, the Public Procurement Law was amended in October 2022 and obligatory price indexation was introduced for contracts lasting longer than 6 months and contracts the subject of which are deliveries. In consequence CAPEX planned for the project increased approx. by 30% compared to RP3 PP.

12. IT430404_Server_Business_Infrastructure – no change - In April 2022 the contracts have been signed (PAŻP/22-120/AZHU; PAŻP/22-121/AZHU). The purchase of infrastructure enabling the preparation of a virtualization platform for P21/iTEC in Poznań ATC Center was completed, hardware and software, Red Hat Enterprise Linux 8. In 2023, as a part of the concluded contracts, the process of using the "option" for the supply of equipment was started, including: 2 Dell MX7000 blade enclosures fully staffed with servers, 8 pcs each (i.e. a total of 16 servers), 2 switches SAN and 2 IBM FS7300 arrays. The equipment will be installed in the server room in the Warsaw ATC Center in 2023. Currently assets are planned to enter into operation in 2023. The benefits identified in RP3 PP remain valid. The schedule change should accelerate the achievement of the expected benefits.

RADAR Katowice - no change to scope, changed schedule and value – in 2022 as a result of the COVID-19 pandemic and the global economic crisis, currently also impacted by the war in Ukraine, prices of construction works rose so significantly that PANSA needed to revise the project budget. In 2022, the work related to the development of the documentation necessary to launch a tender in accordance with the new Public Procurement Law was prolonged and the bids received were higher than planned, necessitating an increase in CAPEX for the project. In December 2022 the contract was signed (PAŻP/22-380/AZHU). In addition, the Public Procurement Law was amended in October 2022 and obligatory price indexation was introduced, which increased the contract value. The total value of the investment increase by approx. 61% compared to RP3 PP. Currently the project is planned to enter into operation in 2026. The operational benefits identified in the RP3 PP in 2021 remain valid. Changing of the schedule will postpone the deadlines for achieving the expected benefits. It is additional new major investment approved by the CAA in November 2022.

Additional investments not foreseen as part of the performance plan and requested by the ANSP in accordance with Art. 28(4) of IR 2019/317.

Number of additional new major investments 2020-2021	1

#	Name of additional new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
1	*IT430804_Radar_PSR/MSSR_Katowice*	31 388 500	22 918 006			73 561	605 472	2 045 948	15/20	100%	0%	2024		4 374	8 198		
Sub-total of **additional new major investments** above (1)		31 388 500	22 918 006			73 561	605 472	2 045 948						4 374	8 198		

** The total % enroute+terminal should be equal to 100%.*

Number of additional new major investments **2022**	0

#	Name of additional new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **additional new major investments** above (1)		0	0				0	0							0		

** The total % enroute+terminal should be equal to 100%.*

Description and justification of the costs nature and benefits of additional other new investments in fixed assets planned over the reference period
The other investments (not listed under the major investments above) complement the new/major ones in the wider context of PANSA strategic plan, which aims at transforming PANSA so that it is ready for the challenges stemming from the Single European Sky development. They are dedicated to completing projects aiming to support the 4 KPAs (capacity, cost-efficiency, environment and safety) or to keep the business operations running/service continuity. There is also a number of investments that are related to replacement of equipment at life-end (often also upgrading the equipment), to infrastructure optimization, IT and rolling stock required to provide continuity of air navigation services. The other ongoing/planned investments include communication ground stations necessary for airspace developments aimed at capacity improvement, DVOR/DMEs, ILs/DMEs, voice communication systems, WAN modernization, investments related to cybersecurity, virtual airport control towers (rTWR), radars etc. The planned investment projects include implementation of functionalities foreseen by the Common Project One and ATM Master Plan. In 2022 PANSA has executed 3 additional investments (non-major) not foreseen in the RP3 PP to be financed under the EU Performance and Charging Scheme that support the above directions, such as creation and modification of workplaces for Air Traffic Controllers; however, their value was not significant. With regards to existing investments, they cover the depreciation costs and cost of capital related to projects developed before RP3. It should be indicated that following the changing external circumstance and in the view of starting preliminary preparations for RP4, PANSA has verified investment plan to reflect current operational needs, current market situation as well as needs in the 2029+ horizon. This led to some new investments, related to personnel safety level increase and telecom devices, that are necessary to modernise existing infrastructure, which were added to the investment plan.

4 - INVESTMENTS

Institute of Meteorology and Water Management - National Research Institute (IMWM)

Currency	PLN

Investment plan as per RP3 performance plan

Number of new major investments (PP)	0

#	Name of new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **new major investments** above (1)		0	0	0	0	0	0	0					0	0	0		
Sub-total **other new investments** (2)		0	0	249	50 432	649 063	1 234 133	1 869 851					249	33 247	112 865		
Sub-total **existing investments** (3)				2 174 313	2 163 978	1 904 971	1 454 989	1 995 605					2 174 313	2 045 582	1 988 094		
Total new and existing investments (1) + (2) + (3)		0	0	2 174 563	2 214 411	2 554 034	2 689 121	3 865 456					2 174 563	2 078 829	2 100 959		

** The total % enroute+terminal should be equal to 100%.*

Has the ANSP made progress on the implementation of major investments in accordance with the schedule contained in the performance plan?	Click to select

Additional investments not foreseen as part of the performance plan and requested by the ANSP in accordance with Art. 28(4) of IR 2019/317.

Number of additional new major investments 2020-2021	0

Number of additional new major investments 2022	Click to select

#	Name of additional new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024

Sub-total of **additional new major investments** above (1)	0	0				0	0							0		

** The total % enroute+terminal should be equal to 100%.*

Description and justification of the costs nature and benefits of additional other new investments in fixed assets planned over the reference period
IMWM continuously makes every effort to ensure that the financial resources it allocates to new investments would make it possible to continue meeting the current requirements for meteorological services in Europe. This concenrs mainly being prepared for data transmission standards in appropriate, standardized formats, which in turn will unify products for air carriers. In 2022 we continued (and still do) to modernise our 7 AWOS systems located at 7 polish airports not only to increase the safety of air operations in difficult weather conditions but also to increase the safety of meteorological services and its continuity. Purchase in 2022 of additional infrastructure /for example AWOS spare parts and or lightening detectors/ increased and will increase their reliability, which in a significant positive way affects the security and continuity of the meteorological service. Involvement in the development of new products dedicated to meteorological services for ATC services will result in better and faster decision making, which will significantly reduce the delays that result from suddenly changing weather conditions. As for long-term priorities, we want to better respond to the wishes of our primary audience, which are pilots. When it comes to commercial aviation, our goal is to further develop our services for civil aviation. We constantly try to improve the methods of our work so as to provide pilots with meteorological information in the most optimal and user-friendly form, while performing it in accordance with the regulations. Eventhough during the past difficult time in 2020 where we all had to deal with SARS COV 2 pandemic and the reduction of the level of air traffic, IMWM tried to coplete even some small investing plans. We found ourselfs in the situation where we had to sign an annex to the financial agreement with PANSA, which resulted in a significant reduction of IMWM's remuneration and shifting the balance of other funds to IMWM until 2021. Thus, by the decision of the Directorate, all investments in the year 2020 have been put on hold. In 2021, the IMWM managed to announce investment tender procedures. Some of them were successful, and some were not due to a very dynamic increase in the level of inflation or the lack of bidders. Part of the investment, e.g. the purchase of computer equipment was completed in 2022. In the future IMWM would like to focus on futher modernisation of AWOS systems (including replenishing the spare parts warehouse), modernisation od lightening detection infrastructure and maybe even implementation of LIDAR for wind shear detection.

4 - INVESTMENTS

Radom Meteo sp. z o.o.

Currency	PLN

Investment plan as per RP3 performance plan

Number of new major investments (PP)	0

#	Name of new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **new major investments** above (1)		0	0	0	0	0	0	0					0	0	0		
Sub-total **other new investments** (2)		915 000	915 000	0	0	0	160 476	166 838					0	0	0		
Sub-total **existing investments** (3)				72 456	51 248	28 185	0	0					72 456	51 226	28 340		
Total new and existing investments (1) + (2) + (3)		0	0	72 456	51 248	28 185	160 476	166 838					72 456	51 226	28 340		

** The total % enroute+terminal should be equal to 100%.*

Has the ANSP made progress on the implementation of major investments in accordance with the schedule contained in the performance plan?	Click to select

Additional investments not foreseen as part of the performance plan and requested by the ANSP in accordance with Art. 28(4) of IR 2019/317.

Number of additional new major investments 2020-2021	0

Number of additional new major investments 2022	Click to select

#	Name of additional new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024

Sub-total of **additional new major investments** above (1)	0	0				0	0							0		

** The total % enroute+terminal should be equal to 100%.*

Description and justification of the costs nature and benefits of additional other new investments in fixed assets planned over the reference period
N/A

4 - INVESTMENTS

Warmia i Mazury sp. z o.o.

Currency	PLN

Investment plan as per RP3 performance plan

Number of new major investments (PP)	0

#	Name of new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **new major investments** above (1)		0	0	0	0	0	0	0					0	0	0		
Sub-total **other new investments** (2)		6 830 000	1 776 667	0	13 940	50 546	48 644	453 485					0	0	0		
Sub-total **existing investments** (3)				214 533	213 470	223 928	212 156	211 832					214 533	189 911	179 242		
Total new and existing investments (1) + (2) + (3)		0	0	214 533	227 410	274 474	260 800	665 317					214 533	189 911	179 242		

** The total % enroute+terminal should be equal to 100%.*

Has the ANSP made progress on the implementation of major investments in accordance with the schedule contained in the performance plan?	Click to select

Additional investments not foreseen as part of the performance plan and requested by the ANSP in accordance with Art. 28(4) of IR 2019/317.

Number of additional new major investments 2020-2021	0

Number of additional new major investments 2022	0

#	Name of additional new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024

Sub-total of **additional new major investments** above (1)	0	0				0	0							0		

** The total % enroute+terminal should be equal to 100%.*

Description and justification of the costs nature and benefits of additional other new investments in fixed assets planned over the reference period
N/A

4 - INVESTMENTS

Port Lotniczy Bydgoszcz S.A.

Currency	PLN

Investment plan as per RP3 performance plan

Number of new major investments (PP)	0

#	Name of new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Planned date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024
Sub-total of **new major investments** above (1)		0	0	0	0	0	0	0					0	0	0		
Sub-total **other new investments** (2)		4 317 155	4 317 155	0	0	0	176 112	668 799					0	0	0		
Sub-total **existing investments** (3)				579 213	565 279	516 034	479 394	454 701					579 213	567 317	550 174		
Total new and existing investments (1) + (2) + (3)		0	0	579 213	565 279	516 034	655 507	1 123 500					579 213	567 317	550 174		

** The total % enroute+terminal should be equal to 100%.*

Has the ANSP made progress on the implementation of major investments in accordance with the schedule contained in the performance plan?	Click to select

Additional investments not foreseen as part of the performance plan and requested by the ANSP in accordance with Art. 28(4) of IR 2019/317.

Number of additional new major investments 2020-2021	0

Number of additional new major investments 2022	0

#	Name of additional new major investment (i.e. above 5 M€ equivalent in national currency)	Total value of the asset (capex or contractual leasing value) (in national currency)	Value of the assets allocated to ANS in the scope of the PP (in national currency)	**Determined costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)					Lifecycle (Amortisation period in years)	Allocation (%)*		Date of entry into operation	**Actual costs** of investment (i.e. depreciation, cost of capital and cost of leasing) (in national currency)				
				2020	2021	2022	2023	2024		Enroute	Terminal		2020	2021	2022	2023	2024

Sub-total of **additional new major investments** above (1)	0	0				0	0							0		

** The total % enroute+terminal should be equal to 100%.*

Description and justification of the costs nature and benefits of additional other new investments in fixed assets planned over the reference period
N/A

SECTION5: MILITARY DIMENSION OF THE PLAN

5 - MILITARY DIMENSION OF THE PLAN

Environment

Provide analysis and evaluate the scale of the impact of military dimension on the environment KPA. Please highlight the role of airspace design, procedures used in airspace reservation, interoperability of systems, information management, and specific local circumstances.
There are over 30 permanent military areas extending over FL95 in FIR EPWW that have the impact on civil traffic flows and thereby can influence the horizontal flight efficiency indicator. Additionally, in FIR EPWW recurring significant multinational NATO military exercises are held including: Anakonda, Astral Knight, AV-DET Rotation, Baltops, Defender, Dragon, Rammstein Guard, Tobruq Legacy. Due to large scale of those exercises there are aircraft stopovers and regroupings on military aerodromes in FIR EPWW that increase the load on ACC GAT and OAT Warszawa that might impact the route efficiency of civil aircrafts. Military aerodromes, including EPLK, EPKS, EPPW, EPMM, are located nearby the main civil aerodromes. There are agreed procedures and LoA signed between PANSA and the Military side describing the process of airspace management at pre-tactical and tactical level in order to optimise its use. The procedures are continuously updated according to the current needs of both the civilian and military sides. The local ASM system (CAT) automatically exchanges the data with the Network Manager system. ASM information is available in ATM system, additionally published on PANSA website.

What measures have been implemeted or planned to improve the situation?
On strategic airspace management level, all significant military exercises and permanent military areas are evaluated and analysed taking into account historic civil traffic flows and civil traffic predictions. The impact is consulted with the key stakeholders including neighbouring states, aerodrome operators, aircraft operators, ATS, the military, EUROCONTROL NM. The locations of the military activities are, whenever possible, designed to not affect the main traffic flows, ATC routes, DCTs and POLFRA connectivity. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of the day. If possible class C TRA airspace is implemented to minimize the impact on civil routing. Military areas are always divided into smaller modules/segments. Each of these segments is designed in order to fit particular military activities without necessity to activate the whole area to perform specific military training assignments. The shape of these segments is always aligned with main civil traffic flows to minimize the horizontal flight inefficiency. Special procedures are prepared including dynamic change of level or segment and creation of new temporary routings for avoidance of military traffic. Special coordination points are prepared in advance to improve the cooperation between military aircrafts and ATC arriving/departing to/from military areas. The information flow is guaranteed by internal procedures and Supporting Self Check-in Documents System. Further measures include: -update of local ASM system/radar data added to visualize military activity in segregated areas. As a result update of coordination procedures to reduce the time required to release segregated areas back to civil traffic. - implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on the day of the operations.

Capacity

Provide analysis and evaluate the scale of the impact of military dimension on the capacity KPA. Please highlight the role of airspace design, procedures used in airspace reservation, interoperability of systems, information management, and specific local circumstances.
There are over 30 permanent military areas extending over FL95 in FIR EPWW that have an impact on civil traffic flows and available airspace for civil traffic, which however by end of 2021 had only minor impact on declared occupancy values without the need for ATFCM measures. Additionally in FIR EPWW recurring significant multinational military exercises are held including: Anakonda, Astral Knight, AV-DET Rotation, Baltops, Defender, Dragon, Rammstein Guard, Tobruq Legacy. Due to large scale of those exercises there are aircraft stopovers and regroupings on military aerodromes in FIR EPWW that increase the load on ACC GAT and OAT Warszawa that might impact the route efficiency of civil aircrafts and airspace capacity. Military aerodromes, including EPLK, EPKS, EPPW, EPMM, are located nearby the main civil aerodromes. There are agreed procedures and LoA signed between PANSA and the Military side describing the process of airspace management at pre-tactical and tactical level in order to optimise its use. The procedures are continuously updated according to the current needs of both the civilian and military sides. The local ASM system (CAT) automatically exchanges the data with the Network Manager system. ASM information is available in ATM system, additionally published on PANSA website.

What measures have been implemeted or planned to improve the situation?
On strategic airspace management level, all significant military exercises and permanent military areas are evaluated and analysed taking into account historic civil traffic flows and civil traffic predictions taking into account both entry count and occupancy. The locations of the military activities are, whenever possible, designed not to affect the main traffic flows, ATC routes, DCTs and POLFRA connectivity and to have minimal or even no impact on capacity. Segmentation, time and level restrictions are imposed when needed to mitigate the impact in location in heavy traffic periods of the day. If possible class C TRA airspace is implemented to minimize the impact on civil operations. Further measures include: - update of local ASM system/radar data added to visualize military activity in segregated areas. As a result, update of coordination procedures to reduce the time required to release segregated areas back to civil traffic. - implementation of closer cooperation between AMC Poland and FMP Warszawa in order to reduce as much as possible negative influence of segregated areas on civil traffic. Implementation of new coordination procedures (NPZ management) taking into account forecasted demand of civil traffic on segregated airspace allocation in time on the day of the operations.

Cost-efficiency

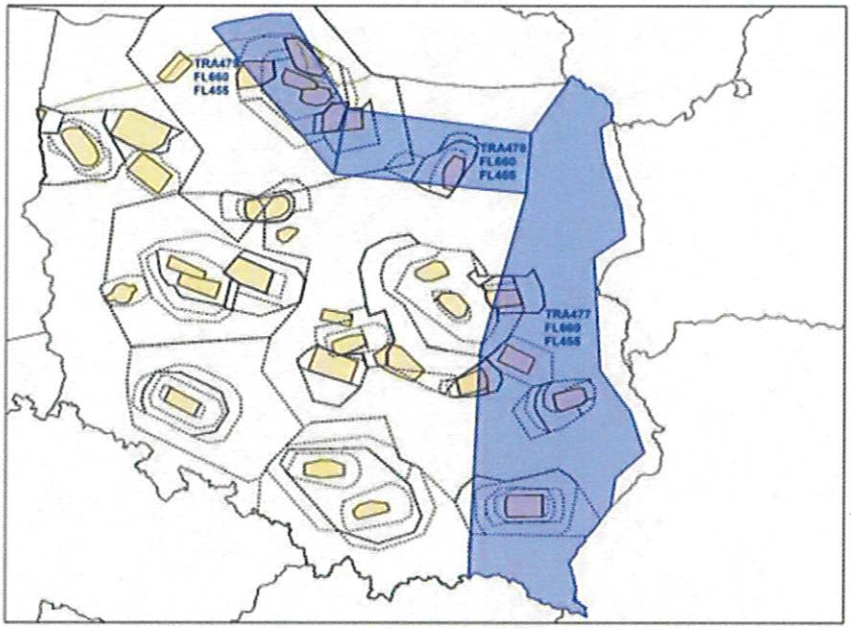
Provide analysis and evaluate the scale of the impact of military dimension on the cost-efficiency KPA. Please highlight what type of commercial/financial agreements exist between the ANSP(s) and the Military (if any).
No material impact of the military dimension on the cost-efficiency KPA has been noted. There are no commercial/financial agreements between PANSA and the Military - cooperation and agreements focus on operational issues. Further information on civil-military cooperation was provided in dedicated questionnaire submitted to the PRB in April 2022.

Additional information related to Russia's war of aggression against Ukraine

Please describe the changes in military operations directly related to Russia's war of aggression against Ukraine.
Since the beginning of Russia's war of aggression against Ukraine level of military traffic in the Polish airspace has increased significantly. Since then, Polish and allied air forces are constantly active in both segregated military zones and controlled airspace. In the controlled airspace, military traffic stays for hours, according to the OAT flight plan and any other GAT traffic must be separated. Because of the operational needs of the military side, many segregated areas were created ad hoc, from day to day. Throughout the year 2022 newly created zones were in constant change due to the need of fine tuning them to both military and civilian needs and rapidly changing situation in Ukraine. It should be noted that the military side reacts to the activities observed in the countries neighboring Poland and defines its needs on a continuous basis, which serves to protect the borders of Poland, the EU and NATO.

Please describe if/how significant changes occurred in the definition/use of military airspaces.
In 2022 about 100 new military airspaces were created in FIR Warszawa only for military activities caused by war (not counting in exercises and other planned activities). Additionally, zones published in the AIP Poland are now in constant use, some of them are active almost 24/7 since beginning of the war.

Please describe if significant airspace blocks are/have been reserved for continuous military operations (i.e. being restricted from civilian traffic). Please describe the geographical location and volume of these airspace blocks (i.e. horizontal and vertical boundaries).
Whole FIR Warszawa is covered in a huge number of military zones active every day (the new ones and solid structures of the airspace). These zones are used not only for the defense of Poland, the EU's and NATO borders, but also for exercises aimed at maintaining competence and cooperation between allied forces at the highest level at the same time. The biggest concentration of them is near the border with Ukraine. The activity of the 6 largest zones (first restricted areas, then converted into TRA's), located on the eastern border and taking about third of Polish territory (see also the maps below) from FL195 to FL315 (can be activated on request up to FL 380) significantly limited civilian traffic throughout 2022 and 2023 both vertically and horizontally. It can also be assumed that after the end of the war in Ukraine, most of the zones will continue to be used to monitor the ended conflict. Some areas for UAV's were created as class C airspace to allow for passing civilian traffic through zones after coordination with the military. Number of lower airspaces where also limiting operations on airports (mainly EPRZ) for short periods of time. There are also areas introduced in higher airspace above FL315 up to FL365 along the Polish-Belarusian boundary, which could also influence traffic at cruising level. Additionally, areas located in the north-east part of Warszawa FIR influence the optimal vertical profile for Warsaw Chopin airport and Modlin airport departures and arrivals to/from the north and north-east direction forcing traffic to delay further climb or start the descent earlier to be clear with military areas when active. Since these areas are active very often, AOs must plan extra fuel in case the intermediate level off is needed. However, PANSA tries to ease AOs planning process and conducting operations in east part of Warszawa FIR as much as possible. For this purpose, PANSA dynamically manages RAD restrictions. Another important element is the need to accommodate not only Polish military assets in the airspace, but also those from allied countries belonging to the NATO alliance. Because of this, AAR missions (Air to Air Refueling) take place in the central and north part of Poland (to reduce aircraft movement across Europe and beyond) and this activity has got the impact on the access to the airspace for civilian traffic.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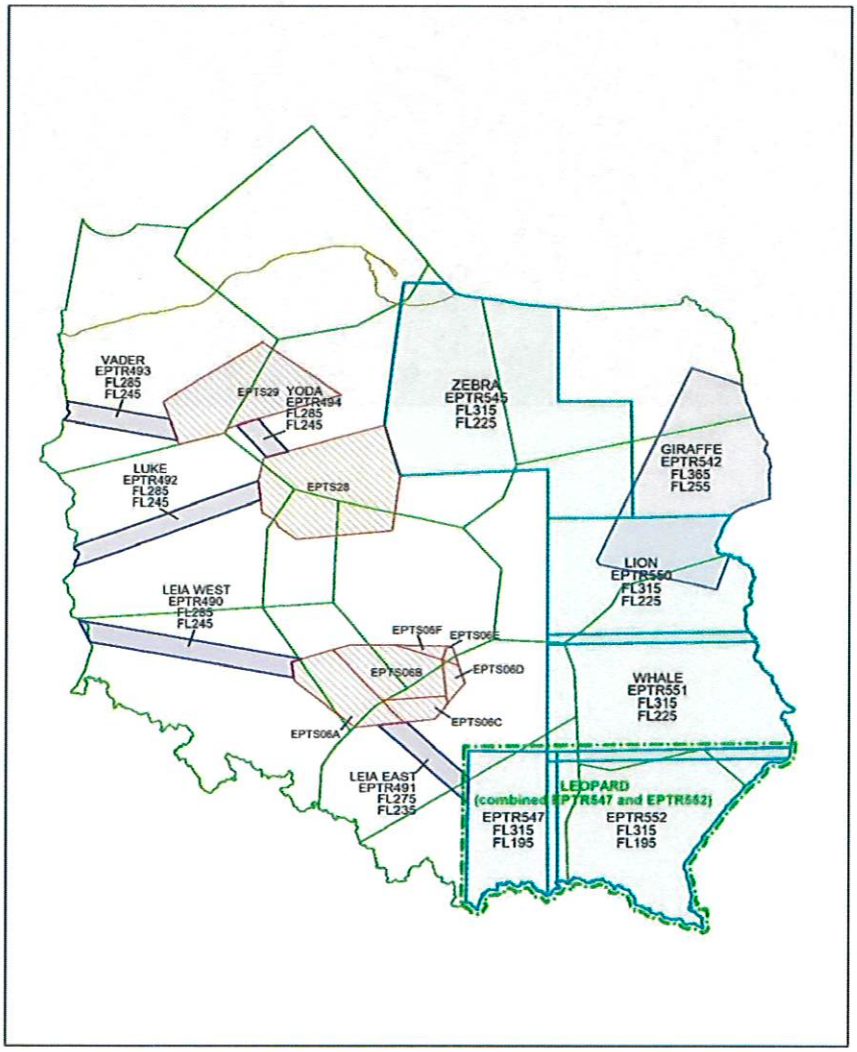
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LEIA WEST
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EPTS06D
WHALE
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EPTS06C
EPTS06A
LEIA EAST
EPTR491
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LEOPARD
(combined EPTR547 and EPTR552)
EPTR547
FL315
FL195
EPTR552
FL315
FL195

SECTION 6: ANNEXES

6 - ANNEXES

List of annexes
Annex 1 - The local capacity indicators validation in relation to the Russia's aggression against Ukraine.

Third Reference Period (2020-2024)

Annex 1. The local capacity indicators validation in relation to the Russia's aggression against Ukraine

Situation:

Since the end of February 2022 new challenges have emerged - as a consequence of the military aggression of the Russian Federation on Ukraine. The closure of Ukrainian airspace and further restrictions imposed on traffic flows on east-western axis (as a consequence of sanctions and reciprocal actions) led to significant changes to traffic flows in the Polish airspace (including drop in overflights and increase in traffic on the north-southern axis along Poland's eastern border). At the same time, a direct consequence of the war was significant increase in military activity (including NATO) in FIR Warszawa, what impacted airspace availability for civil traffic and as a consequence, increasing delays, especially en-route ATFM delay per flight.

The aggression of the Russian Federation against Ukraine has a significant impact on the air navigation services in Poland due to the introduction of a number of restrictions in FIR Warszawa. A direct consequence of this situation are significant delays in Polish airspace.

1. ATFM delays directly related to the exceptional event in 2022.

EN-ROUTE delays.

Following discussion with the Network Manager, since mid-March 2022 delays caused by the war in Ukraine have been marked as "O" (other) and thus also included in the data published by the Network Manager. Delays marked "O" are only related to the war in Ukraine and do not take into account other causes of delays. At the beginning of the war, before the code "O" started to be used, they were reported under the code "M". The delays coded "O" amounted to 419 394 minutes, while those coded "M" over February-March amounted to 5 712 minutes. The table is based on EUROCONTROL/NM data, consistent with the data included in the Monitoring Report for 2022 - regarding en-route delays related to the war in Ukraine, recorded during the EACCC activation period (February 24 - May 23 2022). These figures represent delay values in both minutes and minutes per flight.

MONTH	DATE	IFR Flights	ER delays M	ER delays O	Total delays exceptional events (min)	Total delays exceptional events (min per flight)
FEB	24.02.2022	1 372			0	0,00
	25.02.2022	1 547			0	0,00
	26.02.2022	1 288	179	0	179	0,14
	27.02.2022	1 232	0	0	0	0,00
	28.02.2022	1 247			0	0,00
FEB total		**6 686**	**179**	**0**	**179**	**0,03**
MAR	01.03.2022	1 136			0	0,00
	02.03.2022	1 159			0	0,00
	03.03.2022	1 247	134	0	134	0,11
	04.03.2022	1 417	608	0	608	0,43
	05.03.2022	1 270	796	0	796	0,63
	06.03.2022	1 315	158	0	158	0,12
	07.03.2022	1 286			0	0,00
	08.03.2022	1 160	515	0	515	0,44
	09.03.2022	1 143	61	0	61	0,05
	10.03.2022	1 245	0	0	0	0,00
	11.03.2022	1 368	186	0	186	0,14
	12.03.2022	1 235	2 199	0	2 199	1,78
	13.03.2022	1 279	0	0	0	0,00
	14.03.2022	1 312	11	0	11	0,01
	15.03.2022	1 146	271	0	271	0,24
	16.03.2022	1 106	51	0	51	0,05
	17.03.2022	1 177	330	0	330	0,28
	18.03.2022	1 413	213	94	307	0,22
	19.03.2022	1 181	0	625	625	0,53
	20.03.2022	1 247	0	259	259	0,21
	21.03.2022	1 264			0	0,00
	22.03.2022	1 110	0	415	415	0,37
	23.03.2022	1 187	0	416	416	0,35
	24.03.2022	1 218	0	18	18	0,01
	25.03.2022	1 393	0	142	142	0,10
	26.03.2022	1 264	0	78	78	0,06
	27.03.2022	1 310			0	0,00
	28.03.2022	1 334			0	0,00
	29.03.2022	1 344	0	450	450	0,33
	30.03.2022	1 317	0	1 263	1 263	0,96
	31.03.2022	1 427	0	1 251	1 251	0,88
MAR total		**39 010**	**5 533**	**5 011**	**10 544**	**0,27**
APR	01.04.2022	1 395	0	1 380	1 380	0,99
	02.04.2022	1 351	0	2 546	2 546	1,88
	03.04.2022	1 376	0	1 769	1 769	1,29
	04.04.2022	1 331	0	0	0	0,00
	05.04.2022	1 321	0	510	510	0,39
	06.04.2022	1 314	0	0	0	0,00
	07.04.2022	1 419	0	0	0	0,00
	08.04.2022	1 360	0	1 162	1 162	0,85
	09.04.2022	1 302	0	0	0	0,00
	10.04.2022	1 213	452	0	0	0,00
	11.04.2022	1 346	315	0	0	0,00
	12.04.2022	1 348	0	1 275	1 275	0,95
	13.04.2022	1 362	0	0	0	0,00
	14.04.2022	1 431	0	2 593	2 593	1,81
	15.04.2022	1 468	0	2 322	2 322	1,58
	16.04.2022	1 359	0	2 915	2 915	2,14
	17.04.2022	1 323	0	2 044	2 044	1,54
	18.04.2022	1 385	0	1 717	1 717	1,24
	19.04.2022	1 418	0	2 952	2 952	2,08
	20.04.2022	1 315	0	987	987	0,75
	21.04.2022	1 339	0	3 026	3 026	2,26
	22.04.2022	1 448	0	2 969	2 969	2,05
	23.04.2022	1 374	0	2 514	2 514	1,83
	24.04.2022	1 470	0	3 409	3 409	2,32
	25.04.2022	1 490	0	1 914	1 914	1,28
	26.04.2022	1 529	0	1 783	1 783	1,17
	27.04.2022	1 483	0	2 252	2 252	1,52
	28.04.2022	1 547	0	2 787	2 787	1,80
	29.04.2022	1 657	0	5 049	5 049	3,05
	30.04.2022	1 658	0	4 209	4 209	2,54
APR total		**42 132**	**767**	**54 084**	**54 851**	**1,30**
	01.05.2022	1 691	0	3 036	3 036	1,80

	02.05.2022	1 560	0	1 917	1 917	1,23
	03.05.2022	1 598	0	2 021	2 021	1,26
	04.05.2022	1 648	0	2 098	2 098	1,27
	05.05.2022	1 722	0	2 581	2 581	1,50
	06.05.2022	1 738	0	1 933	1 933	1,11
	07.05.2022	1 748	0	4 875	4 875	2,79
	08.05.2022	1 748	0	3 512	3 512	2,01
	09.05.2022	1 725	0	2 177	2 177	1,26
	10.05.2022	1 706	108	996	996	0,58
	11.05.2022	1 720	0	2 003	2 003	1,16
MAY	12.05.2022	1 797	0	2 787	2 787	1,55
	13.05.2022	1 837	0	1 765	1 765	0,96
	14.05.2022	1 819	0	4 243	4 243	2,33
	15.05.2022	1 781	0	4 060	4 060	2,28
	16.05.2022	1 709	0	2 351	2 351	1,38
	17.05.2022	1 646	0	1 766	1 766	1,07
	18.05.2022	1 650	0	1 167	1 167	0,71
	19.05.2022	1 773	0	3 611	3 611	2,04
	20.05.2022	1 848	0	4 979	4 979	2,69
	21.05.2022	1 805	0	5 901	5 901	3,27
	22.05.2022	1 800	0	3 101	3 101	1,72
	23.05.2022	1 781	0	2 165	2 165	1,22
MAY total		**39 850**	**108**	**65 045**	**65 153**	**1,63**
24FEB-23MAY TOTAL		**127 678**	**6 587**	**124 140**	**130 727**	**1,02**

In Poland's opinion, the above mentioned delays (all delays reported under "O" as well as delays reported under "M" which were linked to the war) meet the conditions for delays resulting from exceptional events as defined in in article 2 point 9 of the Commission Implementing Regulation (EU) 2019/317 of 11 February 2019 laying down a performance and charging scheme in the single European sky and repealing Implementing Regulations (EU) No 390/2013 and (EU) No 391/2013, and therefore shall be excluded from the calculation of the route delay indicator for PANSA in 2022.

Following the outbreak of the war, the EACCC was activated by the Network Manager. Although, for practical reasons, the EACCC was subsequently deactivated in May 2022. In Polish CAA opinion, the circumstances triggering its activation are still pertain and haven't changed. Furthermore they will be still influencing the situation in Polish airspace in 2023.

ATFM arrival delays.

The outbreak of the war in Ukraine impacted traffic to/from Rzeszów-Jasionka airport , which became a transportation hub for Ukraine. As a consequence, significant traffic increase at this airport, as compared to both previous years as well as the assumptions underlying the adopted RP3 PP, was observed.

Below are the airport arrival ATFM delays for Rzeszów airport over March-May 2022:

MAR: 100 minutes (codes: G, M),

APR: 24 minutes (code: G),

MAY: 153 minutes (code: C).

2. The list of all the ATFM regulations which were directly related to the exceptional event for each ANSP and airport concerned.

For en-route:

PANSA implemented RAD measures and EU Restrictions that were aimed to reduce ATFCM delays within EPWW FIR sectors with limited capacity due to additional military activity.

PANSA also implemented solutions aimed at minimising this negative impact, especially in the south-eastern part of the Polish airspace:

Further improvements in the sectorisation in the south-eastern part of the Polish airspace were made through introduction of three-layer vertical split (first stage).

Despite the war and challenges related thereto, PANSA continued to implement initiatives aimed at improving capacity in FIR Warszawa to meet challenges related to traffic increase after the crisis as well as potential changes in traffic flows. These included, among others, the following:

- preparations for implementation of the first stage of airspace three-layer vertical split (south-eastern part of the Polish airspace – JR sectors – operationally deployed in April 2023),
- reorganisation of Kraków TMA – new sectors, new SID/STAR procedures (planned to be operationally deployed in 2023),
- continued harmonisation of GAT and OAT traffic leading to implementation of EUROAT,
- evolving ACC sector configurations and management to cope with updated traffic forecasts,
- continued FMP dynamic management and ATFCM techniques including STAM,
- improvement of comprehensive airspace management.

Following the observed negative impact of the war in Ukraine and related increased military activity on capacity, PANSA also implemented solutions aimed at minimising this negative impact, especially in the south-eastern part of the Polish airspace: level change of military areas, RAD and PTR to change EPRZ traffic profiles, new sector configurations in JKZR part since 17.06.2022, coordination with LZBB to unblock PODAN and KEFIR border points (above FL315). PANSA also implemented RAD measures and EU Restrictions that were aimed to reduce ATFCM delays within EPWW FIR sectors with limited capacity due to additional military activity.

PANSA also actively contributed to the implementation of Summer 2023 NM measures aimed at limiting delays in the mostly congested parts of the Network.
For Terminal:
To mitigate impact on terminal capacity performance related to Russia's war against Ukraine, traffic to/from Rzeszów airport was excluded from JKL sector, allowing for undisturbed traffic to/from that airport.

3. The justification for ATFM regulation.

The main reasons for the imposed regulations related to the war in Ukraine were:
• increased air traffic in the sectors affected by the regulations (mainly in the south-eastern part of the Warsaw FIR), related to the need to bypass the space closed for traffic in Ukraine and restrictions on operating in the space of Belarus,
• space reservations by the military,
• requirements of the new operational situation resulting from the ongoing war beyond Poland's eastern border and the growing intensity of military air operations in FIR Warszawa. The need to reduce area capacities for all sectors and reduce the occupancy value for sectors NL, JK, JKL and CL,
• additionally, the redirection of traffic flows from the border sectors with Ukraine and Belarus (sector R) resulted in increased traffic volume and complexity in the JK sector, which meant that most regulations were imposed on this sector,
• due to the reservation of space by the military for 24 hours (tactically the reservation times were changed), some of the regulations were assumed pre-tactically.

In Polish CAA opinion all above mentioned ATFM regulations/actions taken by PANSA to mitigate negative impact of the external, political situation on the traffic in Poland fulfil the definition of the exceptional events as defined in in article 2 point 9 of the Commission Implementing Regulation (EU) 2019/317. However it was impossible to significantly reduce ATFM delays related to the exceptional events. As a consequence, Poland wished to exclude the delays related to the war from the 2022 Monitoring Report.