

SMATSA PBN Transition Plan for Serbia

PBN.PLN.RS

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ДИРЕКТОРАТ ЦИВИЛНОГ ВАЗДУХОПЛОВСТВА
РЕПУБЛИКЕ СРБИЈЕ
Скадарска 23, Београд

Београд

Број: 4/1.09-0006/2024-0002

29 JAN 2024

Контрола летења Србије и Црне Горе
SMATSA доо Београд

ПРЕМБЕНО: 29 JAN 2024			
Сл. јед.	Број	Прилог	Бројност
АМ100	968-1/2024	-	-

На основу чл. 4 Правилника о утврђивању захтева за коришћење ваздушног простора и оперативним процедурама у вези са навигацијом заснованом на могућностима ваздухоплова („Службени гласник РС”, број 68/21) и чл. 136. Закона о општем управном поступку („Службени гласник РС“, бр. 18/16 и 95/2018), а поступајући у вези са захтевом Контроле летења Србије и Црне Горе SMATSA доо Београд, директор Директората цивилног ваздухопловства Републике Србије са седиштем у Београду Скадарска 23 доноси

РЕШЕЊЕ

1. Контроли летења Србије и Црне Горе SMATSA доо Београд, Трг Николе Пашића бр. 10, **одобрава се** документ „SMATSA PBN Transition Plan for Serbia“, PBN.PLN.RS v3.0 од 12.12.2023. године.
2. Ово решење ступа на снагу даном доношења.
3. Жалба на решење не одлаже извршење решења.

Образложење

У складу са чл. 4 Правилника о утврђивању захтева за коришћење ваздушног простора и оперативним процедурама у вези са навигацијом заснованом на могућностима ваздухоплова („Службени гласник РС”, број 68/21), по коме је пружалац АТМ/АНС дужан да нацрт значајних измена PBN плана транзиције из Прилога 1. члан 4. наведеног правилника достави на одобрење Директорату најкасније 30 дана пре његовог ступања на снагу, Контрола летења Србије и Црне Горе SMATSA доо Београд (у даљем тексту: SMATSA доо) је дана 12.12.2023. године електронском поштом доставила Директорату цивилног ваздухопловства Републике Србије предлог документа „SMATSA PBN Transition Plan for Serbia“, PBN.PLN.RS v3.0 од 12.12.2023. године.

У односу на претходну верзију PBN плана транзиције v2.0 у коју је Директорат имао увид, у предлог верзије 3.0 документа су унете следеће измене:

- делови 2.4 и 2.5 у вези са CNS су у потпуности попуњени;
- консултације са NM унете у план транзиције у складу са чланом 4. PBN IR;
- додато образложење за RNP APCH процедуре планиране за RWY 01R на аеродрому за слетање кружењем на супротни праг RWY 19L;
- унете су уредничке измене (ажуриране референце и слично).

SMATSA доо је Директорату, поред предлога PBN плана транзиције, доставила и доказну документацију о обављеним консултацијама са корисницима, током усаглашавања предлога националног PBN плана транзиције пружалаца услуга са Менаџером мреже (Eurocontrol NM).

Након анализе документа и усвојених коментара на нацрт, SMATSA је доставила коначан нацрт документа бр. 4/1-09-0006/2024-0001 (AMI.00-93/4 од 25.01.2024.) дана 25.01.2024. године. Директорат је верификовао усаглашеност предлога PBN плана транзиције са захтевима из Пододељка PBN Анекса Правилника о утврђивању захтева за коришћење ваздушног простора и оперативним процедурама у вези са навигацијом заснованом на могућностима ваздухоплова („Службени гласник РС”, број 68/21), а нарочито да ли су узети у обзир ставови корисника ваздушног простора, где је то примерено.

По добијању одобрења од стране Директората, предлог PBN плана транзиције ће бити постављен на интернет страницу <https://smatsa.rs/pbn-transition-plan-for-serbia-2/> и тако бити доступан за консултације са осталим субјектима, у складу са захтевом члана 4. Прилога 1. Правилника о утврђивању захтева за коришћење ваздушног простора и оперативним процедурама у вези са навигацијом заснованом на могућностима ваздухоплова („Службени гласник РС”, број 68/21).

SMATSA доо је електронском поштом доставила доказ о уплати републичке административне таксе (1040,00 дин) за одобрење документа.

На основу горе наведеног решено је као у диспозитиву овог решења.

Жалба на решење не одлаже извршење решења у складу са чланом 235. став 5. Закона о ваздушном саобраћају.

Упутство о правном средству: Против овог решења дозвољено је изјавити жалбу министру надлежном за послове саобраћаја у року од 15 дана од дана достављања овог решења. Жалба се предаје Директорату цивилног ваздухопловства Републике Србије непосредно или се шаље препоручено путем поште, са републичком административном таксом у износу од 490,00 динара. Републичка административна такса се уплаћује на рачун буџета Републике Србије бр. 840-742221843-57, модел 97, позив на број 44-018 сагласно Закону о републичким административним таксама. Доказ о уплаћеној републичкој административној такси се прилаже уз жалбу.

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3. а/а.

Контрола летања Србије и Црне Горе
SMATSA доо Београд

Бр. АМ-00-93/1

122 JAN 2024

год

Based on the Serbia and Montenegro Air Traffic Services SMATSA Ilc Regulation of organisation and job description - OU/DIR No 235/28 dated 21.12.2018. with associated amendments, in accordance with defined tasks and authorisation for the job position Director of SMATSA Ilc, I hereby enact

SMATSA PBN Transition Plan for Serbia

This document becomes effective 30 days after approval by the Civil Aviation Directorate of the Republic of Serbia.

Director of SMATSA Ilc

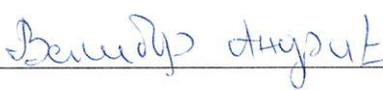
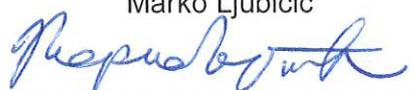
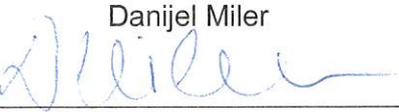
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FOREWORD

Given that SMATSA Ilc is responsible for providing air traffic management/air navigation services (ATM/ANS) in two countries—the Republic of Serbia and the state of Montenegro—two distinct but interrelated PBN transition plans for each country were developed.

The PBN IR has been transposed into national legislation of the Republic of Serbia under the terms of the ECAA agreement, which provides a framework for the application of EC Regulations in non-EU member states.

SMATSA Ilc is completely dedicated to promoting a harmonised European strategy as the only recognised means to deal with the predicted continuation of air traffic and increasing demands on the usage of available airspace.

This document was created using pertinent NETOPS meeting working papers that were amended based on the specific needs and present level of SMATSA Ilc compliance with the requirements established in the PBN IR.

The document is meant to be updated on a regular basis. New editions will be issued based on experience as well as comments and suggestions from relevant stakeholders.

EXECUTIVE SUMMARY

SMATSA llc has developed a PBN Transition Plan to ensure compliance with the PBN IR, allowing for a smooth and safe transition to the provision of services utilising PBN in its AoR in a timely and effective manner.

The results of a comparative analysis of the current operations level against published requirements for the subject aerodromes identified in the first phase of transition plan development revealed that SMATSA llc met all objectives defined for 2020 and beyond in terms of en-route, TMA, and approach operations.

Four further aerodromes have been added to the list of eligible aerodromes following clarifications on the applicability of the PBN IR provided at an EASA ATM/ANS TeB meeting on December 7, 2020.

The primary objectives for the following term are the implementation of new PBN procedures and the establishment of contingency measures, as well as the transition to the minimum operation network of conventional NAVAIDs.

The major focus of that process will be the formulation of a practical strategy for gradually transitioning to a PBN-only operational environment and lowering the network of conventional infrastructure to the degree appropriate for all stakeholders.

Furthermore, SMATSA llc will conduct appropriate stakeholder outreach to facilitate the execution of specified and confirmed transitional measures within agreed-upon timescales.

Airspace users shall be notified of proposed modifications in a timely manner, allowing them to fully equip/retrofit airborne equipment if necessary.

When completed, the final document will detail the consented improvements to meet regulatory requirements as established in the future operational environment, as well as a comprehensive strategic roadmap for PBN implementation to aid in that process.

1 INTRODUCTION

1.1 Presentation of the document

1.1.1 About the document

This document is developed by the Serbia and Montenegro Air Traffic Services SMATSA llc (hereinafter: SMATSA llc) in compliance with:

- Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation (OJ L 189, 26.7.2018, p. 3–8), including national transposition – “Pravilnik o utvrđivanju zahteva za korišćenje vazdušnog prostora i operativnim procedurama u vezi sa navigacijom zasnovanom na mogućnostima vazduhoplova („Službeni glasnik RS”, broj 68/21)” (hereinafter: PBN IR) and
- Executive Director Decision 2018/013/R of 21 November 2018 issuing Acceptable Means of Compliance and Guidance Material to Commission Regulation (EU) No 1332/2011 and Commission Implementing Regulation (EU) 2018/1048 and repealing Decision 2012/002/R of the Executive Director of the Agency of 8 March 2012 and
- Annexes I and II to ED Decision 2018/013/R - Acceptable Means of Compliance and Guidance Material to Commission Regulation (EU) No 1332/2011 and Commission Implementing Regulation (EU) 2018/1048 on common airspace usage requirements and operating procedures ‘AMC & GM to AUR’ (Issue 2, 21 November 2018)

This document is consistent with the European ATM Master Plan and the common projects referred to in Article 15a of Regulation (EC) No 550/2004 of the European Parliament and of the Council¹.

This document does not take into account CP 1 IR² requirements (AF 1 and AF 3) which supersedes the PCP IR³.

1.1.2 Structure of the document

This document contains the following sections:

- Section 1: Introduction - provides the structure, purpose, and scope of the document, as well as a list of all requirements arising from the PBN IR;
- Section 2: Current operational environment - presents a description of the current operational environment subject to change in accordance with the PBN IR requirements;
- Section 3: Future operational concept - provides an overview of the future state of the operational environment when all of the specified goals are met;

¹ Regulation (EC) No 550/2004 of the European Parliament and of the Council of 10 March 2004 on the provision of air navigation services in the single European sky (the service provision Regulation) (OJ L 96, 31.3.2004, p. 10-19) transposed into national legislative of the Republic of Serbia within Pravilnik o uslovima koje moraju da ispunjavaju pružaoci usluga u vazdušnoj plovidbi („Službeni glasnik RS”, broj 26/20, 154/20 i 24/11)

² Commission Implementing Regulation (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014

³ Commission Implementing Regulation (EU) No 716/2014 of 27 June 2014 on the establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan (OJ L 190, 28.6.2014, p. 19-44)

- Section 4: Consultation process - includes details of the consultation with all stakeholders;
- Section 5: Transition plan - provides a detailed plan for achieving the objectives identified in Section 3;
- Section 6: Definitions - provides definitions;
- Section 7: Abbreviations and acronyms - contains a list of all acronyms and abbreviations used in the document.

1.2 Purpose

The exclusive purpose of the document is to guarantee that the requirements stipulated in the Article 4 of the PBN IR, regarding necessary measures to ensure a smooth and safe transition to the provision of the services using PBN, are met in a timely and effective manner.

The transition shall include all procedures intended for use of general air traffic (GAT), including the following:

- Instrument approach procedures (IAPs);
- Standard instrument arrival (STAR) and standard instrument departures (SID) routes; and
- Air Traffic Service (ATS) routes.

1.3 Scope

Aerodromes (AD) and instrument runway ends (IRE) currently subject to the PBN Transition Plan (PBN TP) are those that have implemented instrument approach procedures for GAT inside the BEOGRAD ATCC Area of Responsibility, within the airspace of the Republic of Serbia (part of BEOGRAD FIR/UIR).

Table 1 Aerodromes included in the PBN TP

ICAO Code	Name	IRE	RWY Type ⁴	Purpose	TMA
LYBE	BEOGRAD/Nikola Tesla	12L	PA	Civil	TMA Beograd
		30R	PA		
		12R	PA		
		30L	NPA		
LYNI	NIŠ/Konstantin Veliki	11	NPA	Civil / Military	TMA Niš
		29	NPA		
LYKV	KRALJEVO/Morava	13	NIR	Civil / Military	TMA Kraljevo
		31	NIR		
LYBT	BEOGRAD/Batajnica - Pukovnik-pilot Milenko Pavlović	12L	PA	Military / Civil*	TMA Batajnica
		30R	NPA		
		12R	NPA		
		30L	NPA		
LYVR	VRŠAC	01R	NPA	Civil	TMA Vršac
		19L	NPA		

PA – Instrument, Precision Approach, NPA – Instrument, Non-Precision Approach, NIR – Non-Instrument Runway

⁴ Not in line with NM recommendations: in accordance with a CAD-issued certificate or aerodrome approval, as stated in the [AIP Serbia/Montenegro](#)

1.4 Entry into force and application

The table below summarise the PBN IR requirements.

Table 2 Breakdown of the PBN IR requirements by article

REQUIREMENTS		03 DEC 2020	25 JAN 2024	06 JUN 2030
Article 4 and Article 7 Applicability of AUR.PBN.2005				
Article 4	Transition Plan (<i>or significant updates</i>) approved (<i>living document</i>)*	x*	x*	x*
AUR.PBN.2005 (1) or (2) or (3)	RNP APCH at IREs without Precision Approach (PA)	x		
	RNP APCH at all IREs (with PA)		x	
AUR.PBN.2005 (4) or (5)	RNAV 1 or RNP 1(+) SID and STAR - one per IRE		x	
	RNAV 1 or RNP 1(+) for all SID and STARs			x
AUR.PBN.2005 (6)	RNAV 5 ATS routes at and above FL150	x		
	RNAV 5 ATS routes below FL150		x	
AUR.PBN.2005 (7)	Helicopter RNP 0.3/RNAV 1/RNP 1 SID/STAR - one per IRE		x	
	Helicopter RNP 0.3/RNAV 1/RNP 1 for all SID/STAR			x
	Helicopter RNP 0.3/RNAV 1/RNP 1 ATS routes below FL150		x	
Article 5 and Article 6				
Article 5	Exclusive use of PBN			x
Article 6	Contingency measures	x	x	x
RNP 1(+) – RNP 1 specification including RF and/or vertical paths defined by constraints				

*The transition plan will undergo multiple iterations; Article 4 stipulates that the plan's draft and significant updates must be approved by the competent authority before implementation.

2 CURRENT OPERATIONAL ENVIRONMENT

2.1 IAPs

The table below demonstrates the current availability of approach operations.

Table 3 Overview of the present approach operations

ICAO Code	RWY	PBN			Conventional		Circling
		PA	APV	NPA	PA	NPA	
LYBE	12L	LPV Cat I	LNAV/ VNAV	LNAV	ILS Cat III	LOC / VOR / NDB (DME)	Visual manoeuvring
	30R	LPV Cat I	LNAV/ VNAV	LNAV	ILS Cat I	LOC / VOR / NDB (DME)	
	12R	LPV Cat I	LNAV/ VNAV	LNAV	ILS Cat III	LOC / VOR (DME)	
	30L	LPV Cat I	LNAV/ VNAV	LNAV	n/a	VOR (DME)	
LYNI	11	n/a	LNAV/ VNAV	LNAV	n/a	VOR (DME)	Visual manoeuvring
	29	LPV Cat I	LNAV/ VNAV	LNAV	ILS Cat I	LOC / VOR (DME)	
LYKV	13	LPV Cat I	LNAV/ VNAV	LNAV	n/a	VOR (DME)	Visual manoeuvring
	31	LPV Cat I	LNAV/ VNAV	LNAV	n/a	VOR (DME)	
LYBT	12L	LPV Cat I	LNAV/ VNAV	LNAV	ILS Cat I	LOC / NDB (DME)	Visual manoeuvring
	30R	LPV Cat I	LNAV/ VNAV	LNAV	n/a	NDB A	
	12R	LPV Cat I	LNAV/ VNAV	LNAV	n/a	NDB (DME)	
	30L	n/a	n/a	LNAV	n/a	NDB A	
LYVR	01R	n/a	n/a	n/a	n/a	VOR / NDB (DME)	Visual manoeuvring with prescribed tracks
	19L	n/a	n/a	n/a	n/a	NDB (DME)	

NOTE: Redundant conventional approach procedures are provided as backup or contingency measures.

2.2 STARs and SIDs

The table below demonstrates the current availability of Terminal control area (TMA) operations.

Table 4 Overview of the present TMA operations

ICAO Code	RWY	STARs / SIDs
LYBE	12L/30R 12R/30L	RNAV 1 based on GNSS signal only Conventional based on VOR/DME and NDB aids
LYNI	11/29	RNP 1 based on GNSS signal Conventional based on VOR/DME and NDB aids
LYKV	13/31	RNP 1 based on GNSS signal Conventional based on VOR/DME and NDB aids
LYBT	12L/30R 12R/30L	RNP 1 based on GNSS signal Conventional only based on VOR/DME and NDB aids
LYVR	01R/19L	Conventional only based on VOR/DME and NDB aids

NOTE: Redundant conventional STARs/SIDs are provided as backup or contingency measures.

2.3 En-route

The table below demonstrates the current availability of en-route operations.

Table 5 Overview of the present en-route operations

NAV application	Limits	NAV specification	NAV infrastructure
FRA* <i>crossborder on 24/7 basis (SECSI FRA)</i>	FL660 FL205	/	GNSS and Radar vectoring VOR/DME and NDB aids as backup only
ATS routes	FL205 MEA	RNAV 5	

*Out of the PBN IR scope.

2.4 Navigation infrastructure

The table below demonstrates the current availability of navigation (NAV) infrastructure.

Table 6 Overview of the present NAV infrastructure

NAVAID	In use
ILS/DMEs	4 (YUB, YBG, YNI, BTJ)
ILS	1 - YBE
VOR/DMEs	8 (BGD, NII, KRV, VAC, SMI, TPL, VAL, BLC)
NDBs	21 (IA, OBR, PA, POZ, VAL, JA, KN, BLC, JST, VTN, ZO, BR, AD, LA, ML, PV, BT, EK, PZ, VRA, UZ)
Markers	8 (LYBE: MM 12L, OM 12L, MM 30R, OM 30R, LYNI: MKR, LYBT: MM 12L, OM 12L, LYUZ: MKR)
Total number:	42

2.5 Surveillance and communication services

The table below demonstrates the current availability of surveillance (SUR) and communication (COM) services.

Table 7 Overview of the present SUR and COM services

Airspace	SUR	COM
ACC Beograd	Fully provided (minimum horizontal radar separation is 5 NM - see ENR 1.6 AIP Serbia/Montenegro)	Fully provided
TMA Beograd		
TMA Niš	Not provided (non-radar environment – procedural ATC services only)	
TMA Kraljevo		
TMA Batajnica		
TMA Vršac		

NOTE: SUR and COM services are not dependent on GNSS signal, therefore they are unaffected by GNSS outages.

2.6 Fleet capability

Flight fleet capability analysis by aerodrome is carried out using Eurocontrol's CNS Dashboard under the following conditions:

- Period: **MAY - SEP 2023**;
- Operation Type: **Arrivals only**;
- Make / Model / Aircraft Age Bands: **All**;
- Registered in Europe: **Y and N**;
- Registration country: **All**;
- ICAO Flight type: **All**.

Table 8 summarises the findings, and the key conclusions are presented below.

These results should be interpreted conscientiously, keeping in mind the primary purpose of aerodromes, the PBN procedure introduction date, as well as the known limitations of the current flight plan format and the wrong declarations issue.

LYBE (the main international airport with a high level of traffic)

- **PBN Capabilities:** RNAV 5 and RNAV 1 full functionality, relying mainly on GNSS and DME/DME; RNP APCH at an exceptionally high level.
- **NAVAIDs Capabilities:** Almost entirely PBN-approved flights, with dominant GNSS and DME capacity; inertial navigation, ILS, and VOR represented at a moderate level; very limited LPV and GBAS capabilities.

LYNI (international airport with a low level of traffic)

- **PBN Capabilities:** RNAV 5 full functionality, with all permitted sensor level greater than 80%; RNP 1 represented in around half of the flights; RNP APCH at an exceptionally high level.
- **NAVAIDs Capabilities:** Almost entirely PBN-approved flights, with dominant GNSS and DME capacity; high level of ADF and inertial navigation functionalities; ILS and VOR represented at a moderate level; limited GBAS and very restricted LPV capabilities.

LYKV (international airport with a low level of traffic)

- **PBN Capabilities:** RNAV 5 full functionality, relying mainly on GNSS and DME/DME; very low level of RNP 1 capabilities; RNP APCH at exceptionally high level.
- **NAVAIDs Capabilities:** Entirely PBN-approved flights, with dominant GNSS and DME capacity; very high level of ADF, ILS, and VOR functionalities; inertial navigation represented at a lower level; very restricted LPV capabilities; and no GBAS availability.

LYVR (domestic aerodrome for pilot training and air sport activities)

- **PBN Capabilities:** Very limited data, with minimal indication of RNAV 5 GNSS and RNP 1 availability.
- **NAVAIDs Capabilities:** Less than 1% of PBN-approved flights; capacity mostly restricted to GNSS and ADF, with some DME capabilities.

LYBT (military aerodrome with a limited level of GAT traffic)

- **PBN Capabilities:** Low level of RNAV 5, RNP 1, and RNP APCH capabilities.
- **NAVAIDs Capabilities:** Less than 40% PBN-approved flights; strong reliance on DME and ADF; and moderate availability of GNSS and Inertial Navigation.

Table 8 Overview of the present PBN fleet capabilities by percentage of flight

ICAO Code	LYBE	LYNI	LYKV	LYVR	LYBT
PBN Capabilities (%)					
B1 - RNAV 5 all permitted sensors	68.25	83.98	0.65	0	25.00
B2 - RNAV 5 GNSS	30.03	15.48	99.35	0.26	4.17
B3 - RNAV 5 DME/DME	29.64	13.85	94.84	0	4.17
B4 - RNAV 5 VOR/DME	25.63	12.23	70.97	0	4.17
B5 - RNAV 5 INS or IRS	3.54	17.53	0	0	4.17
D1 - RNAV 1 all permitted sensors	67.67	83.66	0.65	0	20.83
D2 - RNAV 1 GNSS	28.54	15.58	99.35	0	8.33
D3 - RNAV 1 DME/DME	23.31	29.65	70.97	0	4.17
D4 - RNAV 1 DME/DME/IRU	2.30	0.22	0	0	0
O1 - Basic RNP 1 all permitted sensors	35.15	58.98	0.65	0	16.67
O2 - Basic RNP 1 GNSS	19.89	31.49	4.52	0.26	0
O3 - Basic RNP 1 DME/DME	1.10	0.11	0	0	4.17
O4 - Basic RNP 1 DME/DME/IRU	0.05	0	0	0	0
S1 - RNP APCH	41.84	17.32	92.26	0.26	8.33
S2 - RNP APCH with BARO-VNAV	65.72	82.03	5.81	0	16.67
T1 - RNP AR APCH with RF	6.14	0.11	0	0	0
T2 - RNP AR APCH without RF	2.10	0	0	0	0
PBN Combined Capabilities (%)					
RNAV 5 - Any means (any Bx)	98.62	99.68	100	0.26	25.00
RNAV 5 - GNSS and DME/DME ((B2 and B3) or B1)	95.54	97.73	95.48	0	25.00
RNAV 5 - GNSS only (B2 only)	1.80	1.08	3.87	0.26	0
RNAV 5 - VOR/DME only (B4 only)	0.43	0	0	0	0
RNAV 1 - Any means (any Dx)	98.56	99.35	100	0	29.17
RNAV 1 - GNSS only (D2 only)	5.39	3.25	28.39	0	4.17
RNAV 1 - Non GNSS (D3 or D4 and not (D1 or D2))	2.36	0.11	0	0	0
RNP 1 (any Ox)	46.08	60.39	5.16	0.26	20.83
RNP APCH - Any means (S1 or S2 or B)	94.11	99.57	99.35	0.26	25.00
RNP APCH - LNAV only (S1 and not S2 and not B)	27.39	16.02	92.26	0.26	8.33
RNP APCH (S1 or S2)	93.91	98.59	98.06	0.26	25.00
RNP AR APCH (T1 or T2)	6.16	0.11	0	0	0
NAVAIDs Capabilities (%)					
R - PBN Approved	99.49	99.78	100	0.26	37.50
G - GNSS	99.53	99.89	100	22.56	37.50
B - LPV (APV with SBAS)	6.49	3.57	5.16	0	0
D - DME	99.42	99.89	99.35	0.51	79.17
O - VOR	48.63	37.12	90.97	0.26	0
L - ILS	49.01	54.98	90.97	0.26	0
I - Inertial Navigation	75.71	87.45	16.13	0	37.50
F - ADF	93.96	93.40	99.35	22.05	66.67
A - GBAS landing system	1.65	11.15	0	0	0

3 FUTURE OPERATIONAL CONCEPT

The future operational concept is planned in line with PBN IR requirements.

3.1 IAPs

The future approach operations (as shown in the table below) are planned in accordance with the following principles:

- Primary (RNP APCH) and supplementing (ILS Cat II or III if available) approach procedures shall be published in AIP and made fully available 24/7 for operations planning;
- Contingency procedures shall also be published in AIP, but not for planning purposes, and only available by NOTAM or by ATC clearance (on pilot request - if there is no other measure to be used on tactical basis);
- All NAVAIDs (operational and contingency) shall be published with all required information accessible through appropriate AIP sections.

Table 9 Future approach operations

ICAO Code	RWY	NAV specification	Facilities to supplement RNP APCHs	Contingency
LYBE	12L	RNP APCH implemented on: LPV: 26 MAR 20 LNAV/VNAV: 08 NOV 18 LNAV: 30 APR 15	ILS Cat III (LOC) based on YUB ILS/DME and BGD VOR/DME for missed approach	VOR approach implemented based on BGD VOR/DME
	30R		n/a	ILS Cat I (LOC) implemented based on YBE ILS and BGD VOR/DME for missed approach
	12R	RNP APCH implemented on: LPV: 23 FEB 23 LNAV/VNAV: 23 FEB 23 LNAV: 23 FEB 23	ILS Cat III (LOC) based on YBG ILS/DME and BGD VOR/DME for missed approach	VOR approach implemented based on BGD VOR/DME
	30L		n/a	

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ICAO Code	RWY	NAV specification	Facilities to supplement RNP APCHs	Contingency
LYNI	11	RNP APCH implemented on: LNAV/VNAV: 11 OCT 18 LNAV: 17 SEP 15 <i>(LPV implementation excessively difficult due to terrain constraints)</i>	n/a	VOR approach implemented based on NII VOR/DME
	29	RNP APCH implemented on: LPV: 26 MAR 20 LNAV/VNAV: 11 OCT 18 LNAV: 11 OCT 18		ILS Cat I (LOC) implemented based on YNI ILS/DME and NII VOR/DME for missed approach
LYKV	13	RNP APCH implemented on: LPV: 22 JUL 22 LNAV/VNAV: 20 JUN 19 LNAV: 20 JUN 19	n/a	VOR approach implemented based on KRV VOR/DME
	31	RNP APCH implemented on: LPV: 22 JUL 22 LNAV/VNAV: 20 JUN 19 LNAV: 20 JUN 19		
LYBT	12L	RNP APCH implemented on: LPV: 10 AUG 23 LNAV/VNAV: 10 AUG 23 LNAV: 10 AUG 23	n/a	ILS Cat I (LOC) planned for 2029 based on BTJ ILS/DME and new VOR/DME for missed approach
	30R	RNP APCH implemented on: LPV: 10 AUG 23 LNAV/VNAV: 10 AUG 23 LNAV: 10 AUG 23		VOR approach planned for 2029 based on new VOR/DME
	12R	RNP APCH implemented on: LPV: 10 AUG 23 LNAV/VNAV: 10 AUG 23 LNAV: 10 AUG 23		
	30L	RNP APCH implemented on: LNAV: 10 AUG 23 <i>(LNAV/VNAV and LPV implementation impossible due to airspace restriction - LY R8)</i>		

Continued on next page.

ICAO Code	RWY	NAV specification	Facilities to supplement RNP APCHs	Contingency
LYVR	01R	RNP APCH planned for: LPV: 25 JAN 24 LNAV/VNAV: 25 JAN 24 LNAV: 25 JAN 24	n/a	VOR approach implemented based on VAC VOR/DME
	19L	RNP APCH planned for: LNAV: 25 JAN 24 <i>(LNAV/VNAV and LPV implementation excessively difficult due to terrain constraints)</i>		

3.2 STARs and SIDs

The future TMA operations (as shown in the table below) are planned in accordance with the following principles:

- Primary STARs and SIDs (RNAV 1 / RNP 1) shall be published in AIP and made fully available 24/7 for operations planning;
- Contingency procedures for LYBE shall not be published in AIP because DME/DME backup infrastructure as well as radar vectoring will be provided; contingency measures will imply only flight to or from BGD VOR/DME;
- Contingency procedures for LYNI, LYKV, LYBT and LYVR shall be published in AIP because there is no radar service provided and due to high terrain configuration at some locations; procedures shall not be available for planning purposes and shall be used by ATC clearance only (on pilot request);
- All NAVAIDs (operational and contingency) shall be published with all required information accessible through appropriate AIP sections.

Table 10 Future TMA operations

ICAO Code	RWY	STARs / SIDs (RNAV 1 or RNP 1)	NAV infrastructure
LYBE	12L	RNAV 1 to all STARs/SIDs Implemented on 30 APR 2015	GNSS and DME/DME + Radar vectoring DME/DME planned for 2025 Radar vectoring implemented Contingency based on BGD VOR/DME implemented
	30R		
	12R	RNAV 1 to all STARs/SIDs Implemented for 23 FEB 23	
	30L		
LYNI	11	RNP 1 + vertical constraints to all STARs/SIDs Implemented on 17 SEP 2015	GNSS only Contingency based on NII VOR/DME implemented
	29	<i>(higher performance is required in order to maintain air traffic safety in environments with high terrain features and without radar service provision)</i>	
LYKV	13	RNP 1 + vertical constraints to all STARs/SIDs Implemented on 20 JUN 2019	GNSS only Contingency based on KRV VOR/DME implemented
	31	<i>(higher performance is required in order to maintain air traffic safety in environments with high terrain features and without radar service provision)</i>	
LYBT	12L	RNP 1 + vertical constraints to all STARs/SIDs Implemented on 10 AUG 2023 <i>(higher performance is required in order to maintain air traffic safety in environments with no radar service provision)</i>	GNSS only Contingency based on new VOR/DME planned for 2029
	30R		
	12R		
	30L		
LYVR	01R	RNP 1 + vertical constraints to all STARs/SIDs Planned for 25 JAN 2024	GNSS only Contingency based on VAC VOR/DME implemented
	19L	<i>(higher performance is required in order to maintain air traffic safety in environments with no radar service provision)</i>	

3.3 En-route

Future en-route operations are planned as shown in the table below and will be enabled for use in the following way:

- The most operations will be performed within FRA environment;
- Extension of FRA laterally (through the involvement of additional countries in the SECSI FRA initiative) and vertically (below FL205 to the operationally required level) beyond 2030 should be expected and will subsequently affect ATS route network;
- RNAV 5 ATS routes will be maintained in order to support operations in non-radar ATC units and to connect FRA and TMA.
- Network of RNP 0.3 ATS routes below FL150 will be introduced in order to support helicopter operations.
- Contingency procedures/routes shall not be published in AIP because DME/DME coverage as well as radar vectoring will be provided; contingency measures will imply only flight to or from VOR/DME infrastructure;
- All contingency NAVAIDs (operational and contingency) shall be published with all required information accessible through appropriate AIP sections.

Table 11 Future en-route operations

NAV application	Limits	NAV specification	NAV infrastructure
FRA* <i>crossborder on 24/7 basis (expanded SECSI FRA)</i>	TBD FL205	/	GNSS and DME/DME + Radar vectoring DME/DME planned for 2028 Radar vectoring implemented Contingency based on VOR aids implemented
ATS routes Implemented on 01 FEB 18	TBD MEA	RNAV 5	
Helicopter ATS routes below FL150 Planned for 25 JAN 2024 <i>(an initiative for the implementation of rotorcraft operations has been launched with the representatives of the helicopter units of the Serbian Armed Forces and the Ministry of the Interior)</i>	TBD	RNP 0.3	GNSS only

* Out of the PBN IR scope.

3.4 Navigation infrastructure

Necessary Minimum Operational Network (MON) of conventional NAVAIDs within future operational environment framework is planned according to the table below.

Table 12 Future NAVAIDs MON

NAVAID	In use	Withdrawal	Remarks
ILS/DMEs	2 (YUB, YBG) 2 (YNI, BTJ)	/	2 - supplementary to RNP APCH 2 - contingency
ILS	1 - YBE	/	contingency
VOR/DMEs	5 (BGD, NII, KRV, new location, VAC) installation planned for 2029	4 - VORs (SMI, TPL, VAL, BLC)	5 - contingency 4 - successive withdrawals planned until 2025
DMEs	4 (SMI, TPL, VAL, BLC, new locations) installations planned for 2028	/	supplementary to RNAV 5/1
NDBs	/	21 (IA, OBR, PA, POZ, VAL, JA, KN, BLC, JST, VTN, ZO, BR, AD, LA, ML, PV, BT, EK, PZ, VRA, UZ)	successive withdrawals planned until 2029
Markers	/	8 (LYBE: MM 12L, OM 12L, MM 30R, OM 30R, LYNI: MKR, LYBT: MM 12L, OM 12L, LYUZ: MKR)	successive withdrawals planned until 2025
Total number:	14	33	

3.5 Surveillance and communication services

Surveillance and communication services in the future operational environment will be provided as shown in the following table:

Table 13 Future SUR and COM services

Airspace	SUR	COM
ACC Beograd	Fully provided (minimum horizontal radar separation is 3 NM)	Fully provided
TMA Beograd		
TMA Niš	Not provided (non-radar environment – procedural ATC services only) NOTE: full radar coverage available in some TMAs	
TMA Kraljevo		
TMA Batajnica		
TMA Vršac		

NOTE: SUR and COM services are not dependent on GNSS signal, therefore they are unaffected by GNSS outages.

4 CONSULTATION PROCESS

SMATSA llc published the Aeronautical Information Circular (AIC) on March 24, 2022, in which all stakeholders are publicly encouraged to contribute to the development of the PBN Transport Plan.

At the same time, the most recent version of the PBN TP is made available on the SMATSA llc website, along with an appropriate feedback form, which can be reached via the following link: <https://smatsa.rs/pbn-transition-plan-for-serbia-2/>.

Until date, the PBN TP has gone through the following consultation phases:

Table 14 Consultation process phases

Feedback					
No.	1	Stakeholder	NM Eurocontrol	Incorp. edition	0.6
The consultation with NM is complete regarding 2020 requirements.					
No.	2	Stakeholder	NM Eurocontrol	Incorp. edition	2.1
Notes and recommendations: <ul style="list-style-type: none"> ○ Sections 2.4 and 6.5 on surveillance and communication systems need to be complete in further updates of the plan; ○ For completeness and as required in Article 4 of the PBN IR, the consultation process with NM should be mentioned in the plan. 					
No.	3	Stakeholder	NM Eurocontrol	Incorp. edition	3.0
An updated version of the plan is requested as: <ul style="list-style-type: none"> ○ A NDB procedure is currently published in the AIP intended for landing at LYVR RWY19L with circling with prescribed track. The regulation requires for every targeted runway end the implementation of RNP APCH procedures intended to that runway end. Therefore, as there is an instrument approach procedure to RWY 19L (NDB RWY 19L), the runway is targeted for the implementation of RNP APCH procedures. <p>According to table 32, RNP APCH procedures are planned for RWY01R making possible the landing in the opposite RWY19L via circling manoeuvre. However, this operation (circling manoeuvre from the opposite RWY) is not considered as an instrument approach procedure to RWY 19L. As a first step, it should be evaluated whether straight-in procedures can be implemented at that IRE, if not, the implementation of RNP APCH with circling minima only should be assessed. If neither straight-in nor circling minima only are possible, then the plan should explain the reasons for that (i.e., terrain).</p> Recommendations for further updates of the plan: <ul style="list-style-type: none"> ○ Consultation process: include further details of the consultation with all stakeholders, including NM. ○ RNP APCH: Correct the following errors in column "RWY type" of table 32: <ul style="list-style-type: none"> – LYUZ RWY28, according to note 2 of Table 4, section 4.1: "Currently there are no instrument procedures implemented at LYUZ RWY10/28." Hence, RWY10/28 should be classified as "Non-Instrument Runway", therefore, as of today, it is not targeted by the PBN IR. Nevertheless, the PBN map tool has been updated to account for this information. – LYKV RWY13/31: precision approach procedures are published for both runway ends, hence the classification should be "Instrument, Precision Approach" instead of "Non-Instrument Approach". – Whenever possible, replace the TBD in table 32 with the planned dates indicated in Table 36. ○ SID/STAR routes: <ul style="list-style-type: none"> – If RNP 0.3/RNAV1/RNP1 rotorcraft SID/STAR procedures are planned for the future, this information should be provided at each runway end. ○ Whenever possible, replace the TBD in table 33 with the planned dates indicated in Table 36. 					

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No.	4	Stakeholder	NM Eurocontrol	Incorp. edition	3.0
Recommendations for further updates of the plan:					
<ul style="list-style-type: none">○ Consultation process: we note that the consultation is still ongoing, please include further details of the consultation with other stakeholders in addition to NM, whenever possible.○ RNP APCH: Correct the following error in column "RWY type" of table 1:<ul style="list-style-type: none">– LYKV RWY13/31: precision approach procedures (LPV Cat I) are published for both runway ends, hence the classification should be "Instrument, Precision Approach" instead of "Non-Instrument Approach".○ SID/STAR routes: Align the information regarding the implementation date for LYBE STARs /SIDs based on DME/DME:<ul style="list-style-type: none">– Table 9 in subsection 3.2. indicates: "DME/DME planned for 2028", and– Table 14 in section 5. Indicates for the short-term:"2025", "TMA Beograd LYBE: implementation of full DME/DME backup infrastructure for RNAV 1 SIDs/STARs".○ We recommend addressing fleet capability issues, as in previous version of the plan.					

NOTES:

1. The PBN TP approval process with the competent authority responsible for the airspace concerned is not included in this table.
2. Explanatory notes added at adequate document section about request not been fulfilled.

5 TRANSITION PLAN

In order to make full compliance with the PBN IR the following general measures have been defined for future implementation:

- Implementation of missing STAR/SID and IAP PBN procedures and ATS routes;
- Gradual withdrawal of conventional procedures (STARs/SIDs/IAPs);
- Implementation of DME/DME network as a backup infrastructure for TMA (where possible) and en-route PBN operations in case of a reversion from GNSS;
- Implementation of contingency measures, including retention of necessary MON of conventional NAVAIDs:
 - ILS Cat II and III (where available) - Will be retained in order to supplement RNP APCH procedures;
 - ILS Cat I (where available) - Will be used only as contingency approach procedure in case of a reversion from GNSS;
 - All DMEs (aerodromes, TMA, en-route):
 - Should be modernised (if not currently) and retained in order to make DME/DME backup infrastructure to support TMA and en-route PBN operations;
 - New DME installations may be expected, if required by the DME/DME coverage analysis;
 - Aerodrome VORs:
 - Should be modernised (if not currently) and retained as contingency approach procedures at IREs where ILS Cat I is not available;
 - Will be retained as contingency NAVAIDs for TMA and en-route operations in case of a reversion from GNSS or PBN unavailability;
 - Together with collocated DMEs will form the backup solution for missed approach phase (even for initial/intermediate phase when no radar service is provided) when GNSS signal is not available;
 - Aerodrome VOR/DMEs support backup COM failure procedures and are used by airlines to define internal engine-out and other emergency procedures;
 - TMA and en-route VORs:
 - Identified as legacy NAVAIDs and will not be renewed (maintenance is not possible anymore);
 - Will be sequentially withdrawn from operational use (GAT) in the sequence determined by their operational need;
 - All NDBs and markers - Will be withdrawn from operational use (GAT);
 - STARs/SIDs - Minimum one conventional STAR/SID procedure will be retained as contingency procedures in non-radar environments;
 - Aircraft not equipped or not able to follow RNAV 5/1 or RNP 1 routes will be subject to radar vectoring or instructed to use conventional routes.

Regarding the current level of compliance with the PBN IR requirements and identified future objectives three periods for further implementation steps have been determined:

- Short-term (next 3 years);
- Medium-term (from 4 to 7 years);
- Long-term (beyond 7 years).

Table 15 covers all transitional measures and their expected implementation dates from this year to the end of the implementation cycle.

Table 15 Summary of planned annual transitional measures

Transition period		Location	Measure
Short-term	2023	TMA Batajnica - LYBT	<ul style="list-style-type: none"> ○ implementation of RNP APCH procedures ○ implementation of RNP 1 STARs/SIDs ○ rationalisation of conventional STARs/SIDs
	2024	TMA Vršac - LYVR	<ul style="list-style-type: none"> ○ implementation of RNP APCH procedures ○ implementation of RNP 1 STARs/SIDs ○ rationalisation of conventional STARs/SIDs
		En-route / TMAs	<ul style="list-style-type: none"> ○ implementation of RNP 0.3 ATS routes below FL150
	2025	TMA Beograd - LYBE	<ul style="list-style-type: none"> ○ adaptation of RNP APCH procedures ○ rationalisation of RNAV 1 STARs/SIDs ○ implementation of full DME/DME backup infrastructure for RNAV 1 STARs/SIDs ○ rationalisation of conventional STARs/SIDs ○ withdrawal of VOR IAPs
Medium-term	2027	TMA Beograd - LYBE	<ul style="list-style-type: none"> ○ withdrawal of conventional procedures and transition to contingency procedures
	2028	En-route	<ul style="list-style-type: none"> ○ implementation of full DME/DME backup infrastructure for RNAV 5 ATS routes network
		TMA Niš - LYNI	<ul style="list-style-type: none"> ○ withdrawal of conventional procedures and transition to contingency procedures
		TMA Kraljevo - LYKV	<ul style="list-style-type: none"> ○ withdrawal of conventional procedures and transition to contingency procedures
	2029	TMA Batajnica - LYBT	<ul style="list-style-type: none"> ○ withdrawal of conventional procedures and transition to contingency procedures
		TMA Vršac - LYVR	<ul style="list-style-type: none"> ○ withdrawal of conventional procedures and transition to contingency procedures
Long-term	After 2030	All	<ul style="list-style-type: none"> ○ exclusive use of PBN and procedure maintenance in accordance with defined operational level

6 DEFINITIONS

For purposes of this document, the PBN IR Article 2 definitions shall apply.

7 ACRONYMS AND ABBREVIATIONS

AF	ATM Functionality
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
AMC	Acceptable Means Of Compliance
ANS	Air Navigation Services
ANSP	Air Navigation Service Provider
AoR	Area Of Responsibility
APCH	Approach
APV	Approach Procedure With Vertical Guidance
ATC	Air Traffic Control
ATCC	Air Traffic Control Centre
ATM	Air Traffic Management
ATS	Air Traffic Services
AUR	Airspace Usage Requirements
CAD	Civil Aviation Directorate Of The Republic Of Serbia
Cat	Category
COM	Communication
CP	Common Project
DME	Distance Measuring Equipment
EASA	European Union Aviation Safety Agency
EC	European Commission
ECAA	European Common Aviation Area
ED	Executive Director
ENR	En-Route
EU	European Union
FIR	Flight Information Region
FL	Flight Level
FRA	Free Route Airspace
GAT	General Air Traffic
GM	Guidance Material
GNSS	Global Navigation Satellite System
IAP	Instrument Approach Procedure

ICAO	International Civil Aviation Organization
IFP	Instrument Flight Procedure
ILS	Instrument Landing System
IR	Implementing Rule
IRE	Instrument Runway End
LNAV	Lateral Navigation
LOC	Localizer
LPV	Localizer Performance With Vertical Guidance
MEA	Minimum En-Route Altitude
MON	Minimum Operational Network
NAV	Navigation
NAVAID	Navigation Aid
NDB	Non-Directional Beacon
NETOPS	Network Operations Team
NIR	Non-Instrument Runway
NM	Nautical Mile
NM	Network Manager
NPA	Non-Precision Approach
OJ	Official Journal
PA	Precision Approach
PBN	Performance Based Navigation
PCP	Pilot Common Project
RF	Radius To Fix
RNAV	Area Navigation
RNP	Required Navigation Performance
RS	Republic Of Serbia
RWY	Runway
SECSI	South East Common Sky Initiative
SID	Standard Instrument Departure
STAR	Standard Instrument Arrival
SUR	Surveillance
TBD	To Be Defined
TeB	Technical Body
TMA	Terminal Control Area
TP	Transition Plan
UIR	Upper Flight Information Region
VNAV	Vertical Navigation
VOR	Very High Frequency Omnidirectional Radio Range

END OF THE DOCUMENT