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SMATSA PBN Transition Plan for Montenegro

PBN.PLN.MNE

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Based on the Serbia and Montenegro Air Traffic Services SMATSA llc 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 llc, I hereby enact

SMATSA PBN Transition Plan for Montenegro

This document becomes effective 30 days after approval by the National Airspace Management Board.

Director of SMATSA llc

Predrag Jovanović

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2.0	14.01.2022.	Document updated after CAA Montenegro revision and in accordance with clarifications at EASA ATM/ANS TeB meeting held on 7th Dec 2020 on the applicability of the PBN regulation
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3.0	12.12.2023.	Content consolidation in accordance with NM and users' feedback; the document structure simplified; text revised

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FOREWORD

Given that SMATSA llc 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 state of Montenegro under the terms of the ECAA agreement, which provides a framework for the application of EC Regulations in non-EU member states.

SMASTA llc 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 llc 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 majority of objectives defined for 2020 and beyond in terms of en-route, TMA, and approach operations.

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 korišćenju vazdušnog prostora i operativnih procedura u vezi sa navigacijom zasnovanoj na navigacionim performansama (PBN) („Službeni list CG", br. 01/20 i 109/20) (Preuzeta Uredba Komisije br. 2018/1048)" (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 Council[1].

This document does not take into account CP 1 IR[2] requirements (AF#1 and AF#3) which supersedes the PCP IR[3].

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 Montenegro within Pravilnik o pružanju usluga u vazdušnoj plovidbi u jedinstvenom evropskom nebu i poboljšanju efikasnosti i održivosti evropskog vazduhoplovnog sistema („Službeni list CG", broj 22/2013)

[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 state of Montenegro (part of BEOGRAD FIR/UIR).

Table 1 Aerodromes included in the PBN TP

ICAO Code	Name	IRE	RWY Type[4]	Purpose	TMA
LYPG	PODGORICA	18	NIR	Civil	TMA Podgorica
		36	PA		
LYTV	TIVAT	14	NIR	Civil	TMA Tivat
		32	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 CAA-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 (*or significant updates)* approved *(living document)*[*]	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 draught 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	
LYPG	**18**	n/a	n/a	n/a	n/a	n/a	Visual manoeuvring with prescribed tracks
	36	LPV Cat I	LNAV/ VNAV	LNAV	ILS Cat I	LOC / VOR / NDB (DME)	
LYTV	**14**	n/a	n/a	n/a	n/a	n/a	Visual manoeuvring with prescribed tracks
	32	n/a	n/a	n/a	n/a	LOC / 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
LYPG	**18/36**	**RNP 1** based on GNSS signal **Conventional** based on VOR/DME and NDB aids
LYTV	**14/32**	**RNP 1** based on GNSS signal **Conventional** 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* *crossborder on 24/7 basis (SECSI FRA)*	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	1 - YUI
LOC/DME	1 - TIV
VOR/DME	1 - POD
NDBs	7 (DAN, MOJ, NIK, POD, GO, RO, TAZ)
Markers	3 (MM 36, OM 36, MKR)
Total number:	**13**

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 Podgorica		
TMA Tivat	**Not provided** (non-radar environment – procedural ATC services only)	

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.

LYPG (international airport with a moderate level of traffic)

- **PBN Capabilities**: RNAV 5 full functionality, relying mainly on GNSS and DME/DME; RNP 1 represented in around half of the flights; RNP APCH at approximately 80%.
- **NAVAIDs Capabilities**: Almost entirely PBN-approved flights, with dominant GNSS capacity; DME, inertial navigation, and ADF capability at an exceptionally high level; reduced level of ILS, VOR, and GBAS availability; as well as very limited LPV capabilities.

LYTV (international airport with a moderate level of traffic)

- **PBN Capabilities**: RNAV 5 full functionality, relying mainly on GNSS and DME/DME, but with a very low level of INS or IRS availability; RNP 1 represented in less than half of the flights; RNP APCH at approximately 85%.
- **NAVAIDs Capabilities**: Almost entirely PBN-approved flights, with dominant GNSS capacity; DME, inertial navigation, and ADF capability at an exceptionally high level; reduced level of ILS, VOR, and LPV availability; as well as very limited GBAS capabilities.

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

ICAO Code	LYPG	LYTV
PBN Capabilities (%)		
B1 - RNAV 5 all permitted sensors	68.49%	59.65%
B2 - RNAV 5 GNSS	30.31%	39.48%
B3 - RNAV 5 DME/DME	27.47%	31.24%
B4 - RNAV 5 VOR/DME	27.71%	29.25%
B5 - RNAV 5 INS or IRS	16.77%	1.86%
O1 - Basic RNP 1 all permitted sensors	55.60%	40.69%
O2 - Basic RNP 1 GNSS	21.60%	9.11%
O3 - Basic RNP 1 DME/DME	1.00%	1.26%
O4 - Basic RNP 1 DME/DME/IRU	0.76%	0.03%
S1 - RNP APCH	28.86%	25.64%
S2 - RNP APCH with BARO-VNAV	74.34%	68.18%
T1 - RNP AR APCH with RF	5.96%	6.65%
T2 - RNP AR APCH without RF	5.88%	1.62%
PBN Combined Capabilities (%)		
RNAV 5 - Any means (any Bx)	99.76%	99.37%
RNAV 5 - GNSS and DME/DME ((B2 and B3) or B1)	95.41%	90.79%
RNAV 5 - GNSS only (B2 only)	2.73%	7.40%
RNAV 5 - VOR/DME only (B4 only)	0.08%	0.13%
RNP 1 (any Ox)	64.63%	49.84%
RNP APCH - Any means (S1 or S2 or B)	83.57%	86.39%
RNP APCH - LNAV only (S1 and not S2 and not B)	7.85%	14.55%
RNP APCH (S1 or S2)	82.66%	85.43%
RNP AR APCH (T1 or T2)	5.98%	6.67%
NAVAIDs Capabilities (%)		
R - PBN Approved	99.95%	99.82%
G - GNSS	99.76%	99.82%
B - LPV (APV with SBAS)	3.57%	15.49%
D - DME	99.27%	98.72%
O - VOR	12.31%	27.42%
L - ILS	23.80%	29.23%
I - Inertial Navigation	89.95%	76.79%
F - ADF	87.98%	90.92%
A - GBAS landing system	11.81%	4.19%

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 approach procedures (RNP APCH) 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
LYPG	**18**	**Not applicable** *(Non-Instrument Runway – out of the scope of the PBN IR; implementation impossible due to terrain constraints)*		Visual manoeuvring only
	36	**RNP APCH** implemented on: **LPV**: 26 MAR 20 **LNAV/VNAV**: 26 MAR 20 **LNAV:** 25 MAY 17	n/a	**ILS Cat I (LOC)** implemented based on YUI ILS and POD VOR/DME for missed approach
LYTV	**14**	**Not applicable** *(Non-Instrument Runway – out of the scope of the PBN IR; implementation impossible due to terrain constraints)*		Visual manoeuvring only
	32	**RNP APCH** planned for: **LNAV**: 25 JAN 24 *(LNAV/VNAV and LPV implementation impossible due to terrain constraints)*	n/a	**LOC approach** planned for 2029 based on TIV LOC/DME and new VOR/DME for missed approach

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 (RNP 1) shall be published in AIP and made fully available 24/7 for operations planning;
- Contingency procedures shall be published in AIP due to high terrain configuration; 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**
LYPG	**18**	**RNP 1 + vertical constraints to all STARs/SIDs** Implemented on 25 MAY 17 *(higher performance are required in order to maintain air traffic safety in environments with high terrain features*)	**GNSS and Radar vectoring** Radar vectoring implemented Contingency based on VOR/DME implemented
	36		
LYTV	**14**	**RNP 1 + vertical constraints to all STARs/SIDs** Implemented on 25 MAY 17 *(higher performance are required in order to maintain air traffic safety in environments with high terrain features*)	**GNSS only** Contingency based on new VOR/DME planned for 2029
	32		

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.
- 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* *crossborder on 24/7 basis (expanded SECSI FRA)*	TBD FL205	/	**GNSS and DME/DME + Radar vectoring** DME/DME planned for 2028 Radar vectoring implemented Contingency based on VOR aids planned for 2029
ATS routes** Implemented on 01 FEB 18	TBD MEA	RNAV 5	

* Out of the PBN IR scope.

**** Conventional ATS routes (U)W36 and A482 (integral part of the trilateral agreement regulating the delegation of the ATS provision to Brindisi ACC, signed in October 1999) will be retained for contingency purposes, and new RNAV 5 ATS routes (U)Z636 and Q482 will be implemented in their place as of 25 JAN 24.

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	1 - YUI	/	contingency
LOC/DME	1 - TIV	/	contingency
VOR/DMEs	2 (POD, new location) installation planned for 2029	/	contingency
NDBs	/	7 (DAN, MOJ, NIK, POD, GO, RO, TAZ)	successive withdrawals planned until 2029
Markers	/	3 (MM 36, OM 36, MKR)	successive withdrawals planned until 2025
Total number:	**4**	**10**	

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
TMA Podgorica	**Fully provided** (minimum horizontal radar separation is 5 NM)	**Fully provided**
TMA Tivat	**Not provided** (non-radar environment – procedural ATC services only)	

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-montenegro-2/.

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

Table 14 Consultation process phases

<table>
<tr><th colspan="6">Feedback</th></tr>
<tr><td>No.</td><td>1</td><td>Stakeholder</td><td>NM Eurocontrol</td><td>Incorp. edition</td><td>0.6</td></tr>
<tr><td colspan="6">The consultation with NM is complete regarding 2020 requirements with no further comments.</td></tr>
<tr><td>No.</td><td>2</td><td>Stakeholder</td><td>NM Eurocontrol</td><td>Incorp. edition</td><td>2.1</td></tr>
<tr><td colspan="6">Notes and recommendations:
○ Section 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.</td></tr>
<tr><td>No.</td><td>3</td><td>Stakeholder</td><td>NM Eurocontrol</td><td>Incorp. edition</td><td>3.0</td></tr>
<tr><td colspan="6">An updated version of the plan is requested as:
○ An NDB approach with circling minima is published for LYTV RWY14, hence this is an instrument runway end targeted by the PBN IR.
Note that an approach to RWY 32 with circling minima to allow landing on the opposite RWY 14 is not considered as an instrument approach procedure intended for RWY14.
If straight-in RNP APCH procedures are not possible due to one of the derogations included in the rule (i.e., terrain), the next step should be to assess whether RNP APCH with circling minima only would be possible. If this is also not possible, the plan should provide the correspondent justification (i.e., terrain).
○ PBN IR requires the implementation of RNAV 5 to all ATS routes at and above FL 150 by 03 Dec 2020 and below FL150 by 25 JAN 2024. Conventional routes may remain for contingency purposes.
○ Section 3.3 includes the following NOTE: “ATS routes (U)W36 and A482 have formal designators for routes that are not area navigation routes (in accordance with ICAO Annex 11 Air Traffic Services) because they are integral part of the trilateral agreement regulating the delegation of the ATS provision to Brindisi ACC signed in October 1999. ATS route designators will be changed together with revision or cancelation of the trilateral agreement. We would like to draw your attention on the fact that these conventional routes are not fully contained within the delegated airspace to Brindisi ACC, therefore some conventional segments are within BEOGRAD ATCC (Airspace of Montenegro). According to Table 17 of the plan, RNAV 5 requirements for ATS routes are already fulfilled in the airspace of Montenegro as RNAV 5 is established from route MNM ALT to FL205, however, this statement seems to contradict with the fact that conventional segments are available in that airspace.
○ Please provide an updated version of the plan addressing the possible implementation of a 2D RNP APCH (LNAV) straight-in or with circling minima only for LYTV RWY14. If none of those options are possible, then the plan should explain the reason(s) for not implementing the RNP APCH. In line with that, the updated version of the plan should provide any of the following information:
– Implementation planned with estimated dates, or
– Impossible to implement due to one of the derogations included in the rule (i.e., terrain), or
– Implementation not planned due to other reasons.</td></tr>
</table>

Continued on next page.

No.	**3**	Stakeholder	**NM Eurocontrol**	Incorp. edition	**3.0**

- Please clarify whether all segments of the conventional routes published in the ENR3.1.1 are not under SMATSA responsibility, with special attention to those segments within BEOGRAD ATCC (not contained into the delegated airspace to Brindisi ACC). Hence, the updated version of the plan should include any of the following statements below concerning ATS routes where ATM/ANS is provided:
  - Implementation plans to convert conventional routes to RNAV 5 ATS routes with estimated dates, or
  - Conventional routes to be kept for contingency purposes, or
  - No plans for those conventional routes due to other reasons.

Recommendations for further updates of the plan:

- Consultation process: provide more detailed information on the consultation with stakeholders once finalised.
- RNP APCH:
  - Change the classification in column “RWY Type” of Table 15 for LYTV RWY14 as follows: “Non-Precision Instrument Approach”, and for LYPG RWY 18 as follows: “Non-Instrument RWY” (Update accordingly along the different sections in the document).
  - Include in the table the estimated date for RNP APCH with LNAV at LYTV RWY 32 (25 Jan 2024, as described in page 14).
- Navaid infrastructure: clarify which navaids (names) are planned to be withdrawn and estimated dates if available. Table 23 in Section 6.4 only provides numbers (i.e., NDBs: 7).
- Contingency: address in more detail Surveillance and Communication systems in subsection 6.5.

No.	**4**	Stakeholder	**NM Eurocontrol**	Incorp. edition	**3.0**

Recommendations for further updates of the plan:

- Consultation process: provide more detailed information on the consultation with other stakeholders, in addition to NM, once finalised.
- En-route: whenever possible, provide an update on the outcome of the discussions on the conversion of ATS routes (U)W36 and A482.
- RNP APCH:
  - Regarding potential RNP APCH (LNAV) implementation at LYTV RWY14: include any of the following statements:

    Implementation planned with estimated dates, or

    Impossible to implement due to one of the derogations included in the rule (i.e., terrain), or

    Implementation not planned due to other reasons.

    This recommendation is the same as for LYVR RWY19L, included in the PBN Transition Plan for Serbia, where an NDB procedure is also published with circling with prescribed tracks. We note that in this later case, the updated version (v3.0) of the PBN Transition Plan for Serbia includes a plan to implement an RNP APCH (LNAV) with circling minima only by 25 Jan 2024.
  - Change the classification in column “RWY Type” of Table 15 for LYTV RWY14 as follows: “Non-Precision Approach (NPA)”.
- 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 IAP PBN procedure;
- Gradual withdrawal of conventional procedures (STARs/SIDs/IAPs);
- Implementation of DME/DME network as a backup infrastructure for 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 I (where available) - Will be used only as contingency approach procedure in case of a reversion from GNSS;
  - DMEs (TMA and en-route):
    - New DME installations may be expected, in order to make DME/DME backup infrastructure to support en-route PBN operations, if required by the DME/DME coverage analysis;
  - Aerodrome VOR/DMEs:
    - Should be installed (at LYTV) and retained (at LYPG) as contingency approach procedures at IREs where ILS Cat I is not available;
    - 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;
    - Will be used as contingency NAVAIDs for TMA and en-route operations in case of a reversion from GNSS or PBN unavailability;
    - Will support backup COM failure procedures and are used by airlines to define internal engine-out and other emergency procedures;
  - 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;
  - Aircraft not equipped or not able to follow RNAV 5 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	2024	TMA Tivat - LYTV	○ implementation of RNP APCH procedure ○ rationalisation of conventional STARs/SIDs
	2025	TMA Podgorica - LYPG	○ optimisation of RNP APCH and RNP 1 STARs/SIDs ○ rationalisation of conventional STARs/SIDs ○ withdrawal of NDB IAP
		TMA Tivat - LYTV	○ rationalisation of RNP 1 STARs/SIDs ○ withdrawal of NDB IAP
Medium-term	2027	TMA Tivat - LYTV	○ installation of new aerodrome VOR/DME to support contingency procedures
	2028	En-route	○ implementation of DME/DME backup infrastructure for RNAV 5 ATS routes network
	2029	TMA Podgorica - LYPG	○ withdrawal of conventional procedures and transition to contingency procedures
		TMA Tivat - LYTV	○ withdrawal of conventional procedures and transition to contingency procedures
Long-term	After 2030	All	○ 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
CAA	Civil Aviation Agency
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