Subject matter and scope

Implement RNP Approach procedures with vertical guidance. The intention is to transition from conventional Non Precision Approach (NPA) procedures to RNP approach procedures with vertical guidance.

RNP approach operations with vertical guidance using SBAS are flown to LPV minima, while the operations using Baro are flown to LNAV/VNAV minima. In addition, RNP approach operations using SBAS can be flown to LNAV/VNAV minima.

The main incentive is to enhance safety, but there are potential benefits in terms of reduced minima and better access to airports that do not have precision approach and landing capabilities.

This objective is in line with Regulation (EU) 2018/1048 on PBN and Regulation (EU) No 716/2014 on the establishment of the Pilot Common Project. (S-AF1.2 Enhanced TMA using RNP-based operations). It also supports the Performance Based Navigation implementation and harmonisation strategy of the ICAO European Region.

Individual ANSPs, airports and aircraft operators in ECAC area (in non-EU member states) should implement this functionality based on ICAO 37th Assembly resolution which recommends implementation of RNP approaches with vertical guidance to all instrument RWY ends.

At instrument runway ends where, due to terrain, obstacles or air traffic separation conditions, the implementation of RNP approach procedures to LNAV/VNAV and LPV minima is excessively difficult or not feasible, providers of ATM/ANS shall implement RNP Non-precision approach procedures (NPA) in accordance with the requirements of the RNP APCH specification, down to LNAV minima (See SLoA-ASP06 in this objective).

NOTE 1: The implementation of RNP approach procedures based on SBAS may be restricted by the coverage limitation of EGNOS satellite signal within the concerned airspace.

NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of “MIL” SloAs which identify actions EXCLUSIVE to military authorities.

Applicability Area(s) & Timescale(s)

<table>
<thead>
<tr>
<th>Applicability Area 1</th>
<th>EU member states instrument RWY ends, excluding RWYs at the aerodromes listed in section 1.2.1 of the Annex of the PCP Regulation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicability Area 2</td>
<td>Other ECAC instrument RWY ends (including PCP airports), not listed in Applicability Area 1.</td>
</tr>
</tbody>
</table>

Timescales:

<table>
<thead>
<tr>
<th>From:</th>
<th>By:</th>
<th>Applicable to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/06/2011</td>
<td>25/01/2024</td>
<td>Applicability Area 1 + Applicability Area 2</td>
</tr>
<tr>
<td>07/08/2018</td>
<td>03/12/2020</td>
<td>Applicability Area 1</td>
</tr>
<tr>
<td>07/08/2018</td>
<td>25/01/2024</td>
<td>Applicability Area 2</td>
</tr>
</tbody>
</table>

References

**European ATM Master Plan**

**OI step - [AOM-0602]-Enhanced terminal operations with APV using Barometric VNAV**

**Enablers**

<table>
<thead>
<tr>
<th>A/C-04 NAV03.1</th>
<th>A/C-05a</th>
<th>A/C-71 NAV03.1</th>
<th>CTE-N01 NAV03.2</th>
<th>PRO-AC-05a</th>
</tr>
</thead>
</table>

**OI step - [AOM-0604]-Enhanced terminal operations with LPV using SBAS**

**Enablers**

<table>
<thead>
<tr>
<th>A/C-01</th>
<th>A/C-06 BTNAV-STD-06</th>
<th>CTE-N01 NAV03.2</th>
<th>CTE-N06</th>
<th>CTE-N06a</th>
<th>PRO-AC-06</th>
<th>REG-HNA-03</th>
</tr>
</thead>
<tbody>
<tr>
<td>STD-023</td>
<td>STD-024</td>
<td>CTE-N06</td>
<td>CTE-N06a</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**OI step - No OI Link -**

**Enablers**

<table>
<thead>
<tr>
<th>CTE-N06a</th>
<th>CTE-N06b</th>
</tr>
</thead>
</table>

Legend:

- **WXYZ-001** Covered by SloA(s) in this objective
- **WXYZ-002** Covered by SloA(s) in another objective
- **WXYZ-03** Objective covering the enabler
- **zzz** Not covered in the Implementation Plan

Applicable legislation
RNP Approach Procedures to instrument RWY

Regulation (EU) 716/2014 Establishment of the Pilot Common Project
Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018 laying down airspace usage requirements and operating procedures concerning performance-based navigation

ICAO GANP – ASBUs
B0-APTA Improved Airport Accessibility

Deployment Programme

1.2.1 RNP Approaches with vertical guidance
1.2.2 Geographic database for procedure design

SESAR Solution

#103 Approach procedures with vertical guidance.

Operating Environment

Terminal, Aerodrome

<table>
<thead>
<tr>
<th>SloA ref.</th>
<th>Title</th>
<th>From</th>
<th>By</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAV10-REG01</td>
<td>Apply EASA material to local national regulatory activities</td>
<td>01/06/2010</td>
<td>25/01/2024</td>
</tr>
<tr>
<td>NAV10-REG02</td>
<td>Verify the transition plan for PBN in ANS provision</td>
<td>03/12/2020</td>
<td>06/06/2030</td>
</tr>
<tr>
<td>NAV10-ASP01</td>
<td>Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs served by precision approach</td>
<td>01/06/2008</td>
<td>25/01/2024</td>
</tr>
<tr>
<td>NAV10-ASP05</td>
<td>Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs without precision approach</td>
<td>01/06/2008</td>
<td>03/12/2020</td>
</tr>
<tr>
<td>NAV10-ASP02</td>
<td>Provide an approved SBAS Service to support APV/SBAS and declare the Service area</td>
<td></td>
<td>FINALISED</td>
</tr>
<tr>
<td>NAV10-ASP03</td>
<td>Develop National safety case for RNP approach down to LNAV, LNAV/VNAV and LPV minima</td>
<td>01/01/2009</td>
<td>25/01/2024</td>
</tr>
<tr>
<td>NAV10-ASP04</td>
<td>Publish in AIPs all coordinates data in WGS-84 in accordance with ICAO Annex 15 requirements and Article 14 of Regulation (EU) No 73/2010</td>
<td>01/01/2009</td>
<td>25/01/2024</td>
</tr>
<tr>
<td>NAV10-ASP06</td>
<td>Establish the transition plan for PBN in ANS provision</td>
<td>03/12/2020</td>
<td>06/06/2030</td>
</tr>
<tr>
<td>NAV10-ASP07</td>
<td>Design and Publish RNP non-precision (NPA) approach procedures to LNAV minima</td>
<td>07/08/2018</td>
<td>25/01/2024</td>
</tr>
<tr>
<td>NAV10-ASP07</td>
<td>Design and Publish RNP non-precision (NPA) approach procedures to LNAV minima</td>
<td>07/08/2018</td>
<td>25/01/2024</td>
</tr>
<tr>
<td>NAV10-ASP07</td>
<td>Design and Publish RNP non-precision (NPA) approach procedures to LNAV minima</td>
<td>07/08/2018</td>
<td>25/01/2024</td>
</tr>
<tr>
<td>NAV10-USE01</td>
<td>Equip aircraft with systems approved for RNP approach down to LNAV, LNAV/VNAV and LPV minima operations</td>
<td>01/04/2006</td>
<td>25/01/2024</td>
</tr>
<tr>
<td>NAV10-USE02</td>
<td>Get airworthiness certification and operational approval</td>
<td>01/04/2006</td>
<td>25/01/2024</td>
</tr>
</tbody>
</table>

Description of finalised and deleted SLoAs is available on the eATM Portal @ https://www.eatmportal.eu/working/depl/essip_objectives

Expected Performance Benefits

Safety: Reduction in Controlled Flight Into Terrain (CFIT) occurrences. Improved pilot situation awareness and reduced crew workload.

Capacity: Potential to enhance capacity due to lower minima than can be achieved through conventional NPA.

Operational Efficiency: Improved thanks to shortened approaches, increased flexibility in the use of runways, reduced landing minima for runways with only conventional NPAs, fallback during precision approach system outages.

Cost Efficiency:

Environment: Emissions and noise nuisance reduced by use of optimal flight procedures and routings and the elimination of step-down approach procedures.

Security:

Detailed SLoA Descriptions
<table>
<thead>
<tr>
<th>NAV10-REG01</th>
<th>Apply EASA material to local national regulatory activities</th>
<th>From: 01/06/2010</th>
<th>By: 25/01/2024</th>
</tr>
</thead>
</table>

**Action by:** State Authorities  
**Description & purpose:** Publish national regulatory material for RNP approach procedures based on Airworthiness Approval and Operational Criteria for RNP approach (RNP APCH) operations including LNAV/VNAV minima (EASA AMC 20-27) and Airworthiness approval and Operational criteria RNP approach (RNP APCH) Operations including LPV minima (EASA AMC 20-28).  
**Finalisation criteria:** 1 - National regulatory material for RNP approach procedures based on EASA AMC 20-27 and EASA AMC 20-28 has been published.

<table>
<thead>
<tr>
<th>NAV10-REG01</th>
<th>Verify the transition plan for PBN in ANS provision</th>
<th>From: 03/12/2020</th>
<th>By: 06/062030</th>
</tr>
</thead>
</table>

**Action by:** National Supervisory Authorities (NSAs)  
**Description & purpose:** This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018. Verify whether the draft transition plan, or the draft significant update thereof, complies with the requirements of PBN Implementing Regulation and in particular whether it takes account of the views of airspace users where appropriate, including those operating State aircraft. Inform the providers of ATM/ANS of the outcome of that verification without undue delay.  
**Supporting material(s):** EUROCONTROL - Airspace Concept Handbook for the Implementation of Performance Based Navigation (PBN) - Edition 3.0  
*Url:* [http://www.icao.int/publications/Pages/catalogue.aspx](http://www.icao.int/publications/Pages/catalogue.aspx)  
*Url:* [http://www.icao.int/publications/Pages/catalogue.aspx](http://www.icao.int/publications/Pages/catalogue.aspx)  
*Url:* [http://www.icao.int/publications/Pages/catalogue.aspx](http://www.icao.int/publications/Pages/catalogue.aspx)  
**Finalisation criteria:** 1 - The outcome of the verification has been notified to ANSP.

<table>
<thead>
<tr>
<th>NAV10-ASP01</th>
<th>Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs served by precision approach</th>
<th>From: 01/06/2008</th>
<th>By: 25/01/2024</th>
</tr>
</thead>
</table>

**Action by:** ANS Providers  
**Description & purpose:** Develop RNP approach procedures at all instrument runway ends already served by precision approach, either as the primary approach or as a back-up for precision approaches except where due to terrain, obstacles or air traffic separation conditions, the implementation is not feasible. This action includes the following tasks:  
- Identify runways where RNP approach should be introduced;  
- Design RNP approach procedures;  
- Publish RNP approach procedures in national AIPs.  
At instrument runway ends without an appropriate SBAS coverage, providers of ATM/ANS shall also implement LPV minima, no later than 18 months from the date at which such appropriate SBAS coverage becomes available. Where required due to traffic density or traffic complexity, implement radius to fix (RF) legs.  
*Note:* An alternative implementation option, for the case where LNAV/VNAV and LPV is not feasible, is described in SLoA-ASP06 of this objective.  
*Url:* [http://www.icao.int/publications/Pages/catalogue.aspx](http://www.icao.int/publications/Pages/catalogue.aspx)
### Finalisation criteria:

1. RNP approach down to LNAV, LNAV/VNAV and LPV minima - Procedures have been implemented in accordance with guidance material and published in the National AIP, and are in use.  

   **Note1:** If RF legs are implemented due to traffic density or traffic complexity, it should be reported via LSSIP in the comment to this SLoA.  

   **Note2:** Name (list) of the aerodrome(s) where this SLoA is implemented, and the minima which was applied (i.e. LNAV/VNAV or LPV) should be reported via LSSIP in the comment field to this SLoA.

---

### NAV10-ASP05

**Design and Publish RNP approach procedures to LNAV, LNAV/VNAV and LPV minima to RWYs without precision approach**  

<table>
<thead>
<tr>
<th>From:</th>
<th>By:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>01/06/2008</td>
<td>03/12/2020</td>
<td>25/01/2024</td>
</tr>
</tbody>
</table>

**Action by:** ANS Providers  

**Description & purpose:** Develop RNP approach procedures at all instrument runway ends without precision approach, except where due to terrain, obstacles or air traffic separation conditions, the implementation is not feasible. This action includes the following tasks:  

- Identify runways where RNP approach should be introduced;  
- Design RNP approach procedures;  
- Publish RNP approach procedures in national AIPs.  

At instrument runway ends without an appropriate SBAS coverage, providers of ATM/ANS shall also implement LPV minima, no later than 18 months from the date at which such appropriate SBAS coverage becomes available. Where required due to traffic density or traffic complexity, implement radius to fix (RF) legs.  

**Note 1:** For EU member states instrument RWY without precision approach procedures, i.e. with NPA, this SLoA shall be finalised by 03/12/2020. For other ECAC states (non-EU member states), it should be implemented by 25/01/2024.  

**Note 2:** An alternative implementation option, for the case where LNAV/VNAV and LPV is not feasible, is described in SLoA-ASP06 of this objective.

**Supporting material(s):**  

  

  
  [Url](http://www.icao.int/publications/Pages/catalogue.aspx)

---

### ATM Master Plan relationship:

[PRO-250]-Rotorcraft procedures for IFR access to VFR FATOs

---

### NAV10-ASP06

**Design and Publish RNP non-precision (NPA) approach procedures to LNAV minima**  

<table>
<thead>
<tr>
<th>From:</th>
<th>By:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>07/08/2018</td>
<td>25/01/2024</td>
<td>03/12/2020</td>
</tr>
</tbody>
</table>

**Action by:** ANS Providers  

**Description & purpose:** At instrument runway ends where, due to terrain, obstacles or air traffic separation conditions, the implementation of RNP approach procedures to LNAV/VNAV and LPV minima is excessively difficult or not feasible, providers of ATM/ANS shall implement RNP Non-precision approach procedures (NPA) in accordance with the requirements of the RNP APCH specification, down to LNAV minima.  

This action includes the following tasks:  

- Identify runways where RNP approach should be introduced;  
- Design RNP approach procedures;  
- Publish RNP approach procedures in national AIPs.  

**Note 1:** This SLoA is alternative implementation option to the one described in SLoA-ASP01 and SLoA-ASP05 of this objective.  

**Note 2:** For EU member states instrument RWY without precision approach procedures, i.e. with NPA, this SLoA shall be finalised by 03/12/2020. For other ECAC states (non-EU member states), it should be finalised by 25/01/2024.  

**Supporting material(s):**  

  

  
  [Url](http://www.icao.int/publications/Pages/catalogue.aspx)

---

### ATM Master Plan relationship:

[PRO-250]-Rotorcraft procedures for IFR access to VFR FATOs
**NAV10**

**RNP Approach Procedures to instrument RWY**

**Finalisation criteria:**
1. RNP non-precision approach (NPA) down to LNAV minima have been implemented in accordance with guidance material and published in the National AIP, and are in use.

   *If RF legs are implemented due to traffic density or traffic complexity, report it in the comment to this SLoA.*

   *Note: Name (list) of the aerodromes where this SLoA is implemented, should be reported via LSSIP in the comment field to this SLoA.*

**NAV10-ASP03**

<table>
<thead>
<tr>
<th>Develop National safety case for RNP approach down to LNAV/VNAV and LPV minima</th>
<th>From: 01/01/2009</th>
<th>By: 25/01/2024</th>
</tr>
</thead>
</table>

**Action by:** ANS Providers

**Description & purpose:**
Develop a generic safety case for RNP approach down to LNAV/VNAV and/or LPV, or LNAV minima procedures developed upon the EASA AMC for RNP APCH.

Identify and develop a means for mitigation of any issues requiring remedial action to ensure safety targets are met.

The material will be developed in a manner, and approval sought through the appropriate bodies, that will enable cross reference to be made by States in their implementation of RNP approaches.

At instrument runway ends without an appropriate SBAS coverage, providers of ATM/ANS shall also implement LPV minima, no later than 18 months from the date at which such appropriate SBAS coverage becomes available.

**Supporting material(s):**
  [Url](http://www.eurocontrol.int/articles/safety-assessment-methodology-sam)
- EUROCONTROL - EAM 4 - ESARR 4 - Risk Assessment and Mitigation in ATM - Edition 1.0 / 04/2001
  [Url](http://www.eurocontrol.int/articles/esarr-4-risk-assessment-and-mitigation-atm)

**Finalisation criteria:**
1. National Safety case for RNP approach down to LNAV/VNAV, LPV, and LNAV minima has been developed and submitted to the NSA.

**NAV10-ASP04**

<table>
<thead>
<tr>
<th>Publish in AIPs all coordinates data in WGS-84 in accordance with ICAO Annex 15 requirements and Article 14 of Regulation (EU) No 73/2010</th>
<th>From: 01/01/2009</th>
<th>By: 25/01/2024</th>
</tr>
</thead>
</table>

**Action by:** ANS Providers

**Description & purpose:**
It is an essential requirement for RNAV/RNP procedures that all coordinates data published in AIPs, e.g. Runway Thresholds, Navigation Aids, Waypoints, etc, are surveyed with reference to the WGS84 standard. Following survey which must be undertaken in accordance with the Eurocontrol standard for WGS 84 survey (Doc 006), the data must be maintained with adequate integrity.

**Supporting material(s):**
  [Url](http://publications.europa.eu/en/publication-detail/-/publication/97b943f4-8e7a-4c6e-9350-982f0efa31ac/language-en)
  [Url](http://www.icao.int/publications/Pages/catalogue.aspx)

**Finalisation criteria:**
1. AIP Updated accordingly

**NAV10-ASP07**

<table>
<thead>
<tr>
<th>Establish the transition plan for PBN in ANS provision</th>
<th>From: 03/12/2020</th>
<th>By: 06/062030</th>
</tr>
</thead>
</table>

**Action by:** ANS Providers

**Description & purpose:**
This SLoA is mandatory only for the States subject to Commission Implementing Regulation (EU) 2018/1048 of 18 July 2018.

Establish and implement a transition plan for using PBN. The transition plan shall be kept up-to-date. The transition plan shall be 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.

Consult all of the following parties on the draft transition plan and the draft of any significant updates thereof and take account of their views where appropriate:

a) aerodrome operators, airspace users and representative organisations of such airspace users affected by the provision of ANS services;

b) the Network Manager;

c) ANS providers in adjacent airspace blocks.

Submit the results of the consultation, as well as the draft transition plan, or the draft significant update thereof, for approval to the competent authority.
Supporting material(s):
Url: http://www.icao.int/publications/Pages/catalogue.aspx
Url: http://www.icao.int/publications/Pages/catalogue.aspx
Url: http://www.icao.int/publications/Pages/catalogue.aspx

Finalisation criteria:
1 - The draft transition plan, or the draft significant update thereof, has been submitted to the competent authority for approval.

<table>
<thead>
<tr>
<th>NAV10-USE01</th>
<th>Equip aircraft with systems approved for RNP approach down to LNAV/VNAV and/or LPV minima operations</th>
<th>From:</th>
<th>By:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Action by: Airspace Users</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description &amp; purpose: Fit the aircraft with suitably approved equipment (Stand alone or integrated with existing FMS) as follows: - APV/Baro equipment compliant to AMC 20-27; - APV/SBAS SBAS compliant to AMC 20-28. For new or modified aircraft, the Aircraft Flight Manual (AFM) or the Pilot's Operating Handbook (POH), whichever is applicable, should be updated according to AMC 20-27 and AMC 20-28.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FAA - AC 20-138C - Airworthiness Approval of Positioning and Navigation Systems 05/2012
|             | ATM Master Plan relationship: [A/C-05a]-APV Barometric VNAV [CTE-N06]-Space Based Augmentation System (SBAS) [CTE-N06a]-EGNOS V2.4.X [CTE-N06b]-EGNOS V3 |
|             | Finalisation criteria: 1 - Aircraft have been fitted with suitable APV/Baro equipment compliant to AMC 20-27 or APV/SBAS compliant to AMC 20-28. 2 - The AFM or the POH, whichever is applicable, have been updated according to AMC 20-27 and AMC 20-28. |

<table>
<thead>
<tr>
<th>NAV10-USE02</th>
<th>Get airworthiness certification and operational approval</th>
<th>From:</th>
<th>By:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Action by: Airspace Users</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description &amp; purpose: Apply for approval against EASA AMC 20-27 and 20-28. The applicant needs to submit, to the competent National Authorities, a compliance statement which shows how the criteria of the AMC 20-27 and 20-28 have been satisfied.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Url: [http://www.icao.int/publications/Pages/catalogue.aspx](http://www.icao.int/publications/Pages/catalogue.aspx)  
Url: [http://www.icao.int/publications/Pages/catalogue.aspx](http://www.icao.int/publications/Pages/catalogue.aspx) |
| Finalisation criteria | 1 - The airworthiness and operational approval has been granted by the competent National Authorities to the operator. |