PBN Training for ATC
Volume I

Airspace CONCEPT & IMPLEMENTATION GUIDANCE

Volume II

IMPLEMENTING RNAV AND RNP
ICAO PBN Manual
Doc 9613

✈ Volume I
✈ Airspace CONCEPT & IMPLEMENTATION GUIDANCE
✈ Section 3.5 – need for ATC training

✈ Volume II
✈ IMPLEMENTING RNAV AND RNP
Volume II

IMPLEMENTING RNAV AND RNP

PART A

Implementing RNAV 10

Implementing RNAV 5

Implementing RNAV 1 & 2

PART B

Implementing RNP 4

Implementing RNP 2*(TBD)*

Implementing Basic-RNP 1

PART C

Implementing Advanced-RNP 1*(TBD)*

Implementing RNP Approach

Implementing RNP-AR Approach
Implementing RNAV AND RNP - PART B

- Implementing RNAV 10
  - 1.2.6 Air traffic controller training

- Implementing RNAV 5
  - 2.2.6 Air traffic controller training

- Implementing RNAV 1 & 2
  - 3.2.6 Air traffic controller training

ATC training always in same section
x.2.6
IMPLEMENTING RNAV AND RNP – PART C

Implementing RNP 4
- 1.2.6 Air traffic controller training

Implementing RNP 2 (TBD)

Implementing Basic-RNP 1
- 3.2.6 Air traffic controller training

Implementing Advanced-RNP 1 (TBD)

Implementing RNP Approach
- 5.2.6 Air traffic controller training

Implementing RNP-AR Approach
- 6.2.6 Air traffic controller training
PBN Training for ATC

hawks.6.1 Core training

- How RNAV works in relation to the specification
- Flight Plan Requirements
- ATC Procedures

hawks.6.2 Training specific to this navigation specification
PBN Development Process

**PROCESS 1**
Determine Navigation Requirements

- Step 1: Project Preparation & Operational Requirement
- Step 2: Assess fleet capability and available CNS/ATM infrastructure in project lifecycle
- Step 3: Airspace Design
- Step 4: Navigation Analysis of Airspace Design

**PROCESS 2**
Identifying an ICAO Navigation Specification for Implementation

- Step 1: Select ICAO Navigation Specification
- Supported Match found?
  - YES: Go to Process 3
  - NO: Step 2
- Step 2: Adjust Operational Requirement and Revise Airspace Concept (Return to Process 1, Step 1)
- Step 3: Develop New Navigation Specification

**PROCESS 3**
Planning and Implementation

- Step 1: Formulate safety plan
- Step 2: Validate airspace concept
- Step 3: Procedure design
- Step 4: Procedure ground validation
- Step 5: Implementation decision
- Step 6: Flight inspection and flight validation
- Step 7: ATC system integration considerations
- Step 8: Awareness and training material
  - Step 8a: Train ATC
  - Step 8b: Train flight crew

Implementation Planning

Concept Validation
Design Finalisation
Design Validation

Post Implementation Review

Implementation

Step 10: Post implementation review

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PBN Training for ATC

✈ Initial Training
  ✈ What is PBN
  ✈ Design concept of operations
  ✈ Simulation
  ✈ Fallback – system integration
  ✈ How to issue a clearance
    ✈ Provide example phraseology

✈ Explain benefits in terms of ATC
  ✈ Safety culture
  ✈ Fewer radio transmissions
  ✈ Less chance of readback/hearback errors
  ✈ Greater predictability

✈ Recurrent Training
  ✈ Train the trainers
Questions??