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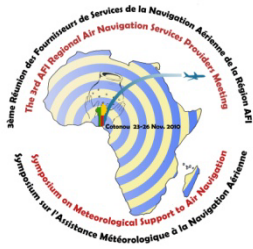
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The 3rd AFI Regional Air Navigation Services Providers Meeting

Cotonou 25-26 November 2010



Implementation of PBN in the AFI Region

Session 3: Seamless and Efficient Airspace



Presented by :
Sadou MARAFA

International Civil Aviation Organization (ICAO)

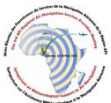
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**« A Single African Sky
As A Common Vision of AFI ANSPs »**

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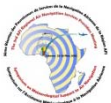


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INTRODUCTION /BACKGROUND (1/3)

- Performance-based navigation (PBN) provides the global framework of harmonized modern navigation requirements and the platform to implement and benefit from existing and future area navigation technologies
- two key “building blocks”: area navigation (RNAV) and required navigation performance (RNP),
- encompasses all phases of flight from en-route to approach

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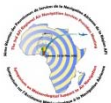


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INTRODUCTION /BACKGROUND (2/3)

- Assembly Resolution A36-23 calls for, inter alia, the PIRGs and States to development PBN Implementation plans in 2009
- APIRG 16 Decision 16/2: Establishment of an APIRG Performance-based Navigation Task Force (APIRG/PBN/TF)
- APIRG PBN Task Force developed and adopted the AFI PBN Implementation Plan at its second meeting in Nairobi, 4-6 December 2008

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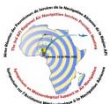


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INTRODUCTION /BACKGROUND (3/3)

- SP AFI/08 RAN Meeting, Durban, South Africa 24-29 November 2008: eight (8) Recommendations that are applicable to PBN and GNSS implementation, including a set of performance objectives outlining specific actions, responsible parties and action target dates.
- The performance objectives, which are formulated on performance framework forms (PFFs), have since been reviewed within the framework of APIRG and adopted

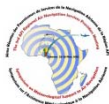
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PLANNING OF PBN IMPLEMENTATION IN THE AFI REGION (1/2)

- ICAO SARPs provide the necessary legal framework under the Chicago Convention and the referenced manuals provide support to States and stakeholders in the PBN implementation process
- Regional level:
 - PBN Task Force meetings,
 - Joint meetings of the PBN and GNSS task forces
 - and meetings of APIRG ATM and CNS Sub-groups.

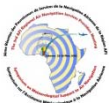
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PLANNING OF PBN IMPLEMENTATION IN THE AFI REGION (2/2)

- Assistance in implementation efforts, increasing awareness and better understanding of PBN:
 - PBN implementation seminar (Nairobi, Kenya, 1-4 December 2008),
 - PBN procedure design course/Special implementation project (Dakar, Senegal, 19-30 July 2010)
 - and PBN airspace and operational approval workshop (Johannesburg, South Africa, 6-9 September 2010).
- APIRG 17 approved the AFI regional implementation plan for PBN.

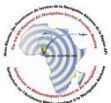
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PBN IMPLEMENTATION STATUS IN THE AFI REGION

- **National PBN Plans:**
 - **target date 31 December 2009,**
 - As of yet, about ten (10) AFI States
- **PBN for terminal airspace and aerodrome operations:**
 - A very limited number of States
 - RNAV/GNSS procedures for SIDs and STARs
- **PBN for en-route operations**
 - “Red Carpet” and “Gold Carpet” RNAV10 routes
 - Thirty (30) user-required RNAV10 routes on the target date of 21 October 2010 by PRND/WG

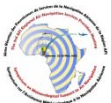
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LATEST DEVELOPMENT RELATING TO PBN IMPLEMENTATION IN THE AFI REGION (1/5)

- **PBN/GNSS TF1** meeting from 12 to 14 October 2010 in Nairobi, Kenya:
 - Considered the outcome of the 37th Session of the Assembly on the matter of PBN implementation (amendment of Assembly Resolution A36-23)
 - updated the AFI Regional PBN Implementation Plan and the PBN related AFI PFFs (ref. Appendix **A** and **B** respectively)

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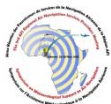


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LATEST DEVELOPMENT RELATING TO PBN IMPLEMENTATION IN THE AFI REGION (2/5)

- **NEAR TERM IMPLEMENTATION TARGETS (2008-2012)**
 - **RNP APCH (with Baro-VNAV)** in **30%** of instrument runways **by 2010** and **50%** by **2012** and priority given to airports with operational benefits. Each instrument runway will have an associated **RNP APCH (LNAV only)**
 - **RNAV 1 SID/STAR** for **30%** of international airports by **2010** and **50%** by **2012** and priority given to airports with RNP Approach.
 - Review existing conventional and RNAV routes to transition to PBN RNAV 5 or where operationally required RNAV 2/1 by 2012

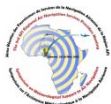
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LATEST DEVELOPMENT RELATING TO PBN IMPLEMENTATION IN THE AFI REGION (3/5)

- **MID TERM IMPLEMENTATION TARGETS (2013 – 2016)**
 - **RNP APCH (APV) (Baro-VNAV or Augmented GNSS) in 100% of instrument runways where practical by 2016.**
 - **RNP APCH (LNAV only) in 100% of instrument runways by 2016**
 - **RNAV 1 or RNP 1 SID/STAR for 100% of international airports by 2016.**
 - **RNAV 1 or RNP 1 SID/STAR for 70% of busy domestic airports where there are operational benefits.**
 - **Implementation of additional RNAV/RNP Routes as required**

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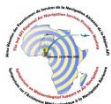


LATEST DEVELOPMENT RELATING TO PBN IMPLEMENTATION IN THE AFI REGION (2/3)

● ICAO/TCB Regional Project on AFI PBN Implementation

- **Objective:** give effect and support to Recommendations of the SP AFI RAN08 and APIRG Conclusions through:
- Development of model regulations to enable the GNSS aspects of air navigation and the implementation of PBN
- Direct interaction with States needing assistance to ensure that the model regulations are appropriately integrated into the specific States' legislation
- Assistance to States in developing specific actions in order to meet the requirements of the Regional and national PBN Implementation Plan

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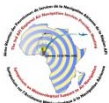


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LATEST DEVELOPMENT RELATING TO PBN IMPLEMENTATION IN THE AFI REGION (3/3)

- AFI States are urged to join this project by submitting formal requests to the ICAO Regional Offices.

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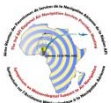


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Action by the meeting

- The AFI ANSPs, in coordination with the AFI CAAs, are invited to:
 - Participate in PBN implementation activities (meetings, seminars, workshops etc...) carried out in the AFI region by APIRG and its subsidiary bodies
 - Take necessary actions to expedite the implementation of PBN in the airspace under their responsibility, in accordance with the AFI regional PBN Plan

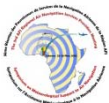
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References

- ICAO PBN Manual (Doc 9613),
- Assembly Resolution A36-23 and amendment
- SP AFI RAN 08 Meeting Report,
- APIRG/17 Meeting Report,
- PBN/GNSS TF1 Report

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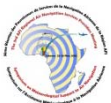
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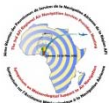
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Thank you for your attention

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