



INTERNATIONAL CIVIL AVIATION ORGANIZATION

First Meeting of APIRG Infrastructure and Information Management Sub Group (IIM/SG/1)  
(Nairobi, Kenya, 27-30 June 2017)

4.3. Aeronautical Communication Navigation Surveillance and Spectrum Infrastructure and Systems

4.3.3 Aeronautical Navigation requirements in support to ATM provision

AFI navigation requirements and deficiencies

(Presented by Secretariat)

SUMMARY

This paper presents the Aeronautical Navigation requirements in support to ATM services provision.

Action by the meeting is at paragraph 3:

REFERENCE(S):

- Doc 9750, *Global Air Navigation Plan*
- Doc 7474, *Air Navigation Plan – Africa-Indian Ocean Region*
- Report of AFI/RAN 7<sup>th</sup> meeting
- Report of SP AFI/RAN 8 Meeting
- Report on APIRG Meetings
- Report on the meeting for the establishment of the APIRG IIM Sub Group.

Related ICAO Strategic Objective(s): **A** – Safety, **B** – Air Navigation Capacity and Efficiency, **D** – Economic Development of Air Transport, and **E** – Environmental Protection.

Related ASBU KPIs & B0 Modules: All applicable to AIM, CNS and MET

1. INTRODUCTION

1.1 The APIRG meetings held generally every 18 months regularly reviews the status of implementation of the Air Navigation Plan in the area of navigation, identifies deficiencies related to aeronautical navigation and accordingly updates the regional navigation strategy with regards to the ATM new requirements.

2. DISCUSSION

2.1 The Aeronautical Navigation requirements in support to Air Traffic Management defined by the AFI Regional Air Navigation 7<sup>th</sup> meeting (Abuja, Nigeria, 12-23 May 1997) were discussed in detail and the AFI Regional Plan revised. Operational and technical needs and performance were identified for conventional Nav’ Aids and Global Navigation Satellite System (GNSS).



### ***2.1.1 Aeronautical conventional Radio Navigation***

In support of the PBN implementation, the requirements for Conventional Nav'Aids are as follow:

- a) ILS, VOR, DME and NDB – for en-route, terminal, approach and landing
- b) DME aligned with ILS (DME is required to serve as a substitute for a marker beacon component of ILS)
- c) DME requested to be collocated with VOR
- d) NDBs are discouraged – En-route navigation requirements are to be met by VOR/DME facilities, NDB should be withdrawn when the recommended VOR or VOR/DME is implemented.

### ***2.1.3 Global Navigation Satellite System (GNSS)***

The operation of core GNSS En-route in continental remote and oceanic airspaces will enable the implementation of Air Nav and RNP and facilitated the implementation of PBN with all its expected benefits. The implementation of augmented GNSS in coordination with all users' requirements will bring more opportunity of landing systems and increase availability, accuracy and flexibility for approach and landing operation.

#### ***2.1.3.1 Criteria for SBAS implementation***

The criteria for the provision of SBAS implementation are the following:

- 1) Availability of conclusive cost-benefit analysis (APIRG Conclusion 17/29 refers)
- 2) Full compliance with ICAO technical requirements (Standards and Recommended Practices)
- 3) Agreement between stakeholders on pre-implementation cost benefit analyses on case by case basis
- 4) Application of the user pays principle across all sectors (SBAS users), National authorities shall prevent cross-subsidization of non-civil aviation users of SBAS

## **2.2 Aeronautical navigation deficiencies in the AFI Region**

- 2.2.1 APIRG Sub Groups regularly assesses navigation deficiencies and APIRG invites Administration/Organizations to clear out these deficiencies within an agreed timeframe.
- 2.2.2 Based on information available the table of deficiencies in the navigation field attached at Appendix has been developed.

## **3 ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) Take note of the information presented in this working paper, recalling the navigation requirements to support the provision of ATM and;
- b) Identify additional requirements to be considered by the APIRG IIM Sub/Group ;
- c) Update the attached tables of AFI Navigation deficiencies;



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d) Agree on further planning and implementation actions to be conducted.

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