



Agenda Item 3: Air Navigation Services

3.1 CNS/ATM

OVERVIEW OF THE FEDERAL AVIATION ADMINISTRATION'S INTERNATIONAL ACTIVITIES TO FURTHER AWARENESS AND IMPLEMENTATION OF PERFORMANCE-BASED NAVIGATION

(Presented by the United States of America)

SUMMARY

This paper provides an update on recent U.S. international activities on Performance-Based Navigation (Area Navigation and Required Navigation Performance.) implementation.

References:

- ICAO Doc 9613, *Manual for Required Navigation Performance*
- North American Aviation Trilateral *Statement on Joint Strategy for Implementation of Performance-Based Navigation: Area Navigation (RNAV) and Required Navigation Performance (RNP) in North America*

1. Introduction

1.1 The Federal Aviation Administration (FAA) of the United States Department of Transportation has worked in close partnership with its aviation stakeholders for several years to implement Performance-Based Navigation in the U.S. National Airspace System. In concert with this effort, the FAA is committed to working with the international community, in global, regional, and bilateral forums, to further the harmonized implementation of Performance-Based Navigation where the aviation community (government and industry) determines that benefits can be realized.

1.2 This paper provides information on recent U.S. international activities in the area of Performance-Based Navigation.

2. Discussion

2.1 Performance-Based Navigation is the inclusive term for both Area Navigation (RNAV) and Required Navigation Performance (RNP) concepts.

2.2 Performance-Based Navigation seeks to take advantage of the ability of aircraft to operate safely and efficiently by using a variety of on-board systems. These systems are used in conjunction with a variety of external signals provided by ground-based, space-based, and aircraft-based systems. The overall aim is to achieve safety, capacity, access and efficiency benefits for users (commercial and general aviation) and air traffic service providers.

2.3 Performance-Based Navigation is an end-to-end system of concepts and applications based on aircraft performance standards and metrics. Aviation authorities specify the aircraft capabilities and performance requirements necessary to operate in a given airspace, or use a given route or instrument procedure. Performance-Based Navigation is a significant shift from the conventional model wherein the aviation authority requires specified technologies or equipment.

2.4 The FAA is a key participant in the ICAO Required Navigation Performance and Special Operational Requirements Study Group (RNPSORG). The RNPSORSG is charged to provide the ICAO Secretariat with recommendations concerning RNAV and RNP concepts and implementation issues. The Study Group is revising ICAO Doc 9613, *Manual for Required Navigation Performance*, for delivery to the Secretariat in mid-2006.

2.5 From January to June 2005, the FAA worked closely with Eurocontrol representatives to harmonize their respective requirements for RNAV operations (Precision RNAV, or P-RNAV, in Europe, and U.S. RNAV “Type B”). This harmonization effort has resulted in a proposal for an “ICAO RNAV” standard that was submitted jointly by the FAA and Eurocontrol to the RNPSORSG at its June 2005 meeting and will be reviewed by the ICAO Secretariat.

2.6 The North American Aviation Trilateral (NAAT), comprising Canada, the United States, and Mexico’s civil aviation authorities have agreed on the importance of pursuing harmonized implementation of Performance-Based Navigation, and to streamline the implementation of Performance-Based Navigation by taking coordinated action on strategic issues.

2.7 On 22 June 2005, the *North American Aviation Trilateral Statement on Joint Strategy for Implementation of Performance-Based Navigation: Area Navigation (RNAV) and Required Navigation Performance (RNP) in North America* was signed by senior representatives of Transport Canada, NAV CANADA, the FAA, the Dirección General de Aeronautica Civil (DGAC) and Los Servicios a la Navegación en el Espacio Aéreo Mexicano (SENEAM).

2.8 This *Statement* recognizes that States implement Performance-Based Navigation at different rates and levels, based on their particular needs. A joint strategy should focus on the development of harmonized standards and recommended practices for procedure design, aircraft and operator approvals, and air traffic operations.

2.9 Basic principles include transition to RNAV as the primary focus of Performance Based Navigation. Implementation of RNP is advantageous where benefits accrue from applying aircraft performance requirements. Users and service providers take advantage of existing investments and operations to the maximum extent possible.

2.10 The participants in the North American Aviation Trilateral recognize that The benefits of a harmonized approach for performance-based area navigation could extend beyond their borders. The NAAT plans to encourage the expansion of performance-based area navigation throughout the Caribbean, Central America and South America in coordination with regional ICAO organizations.

2.11 FAA has participated in several seminars held in the CAR/SAM region to share information on technical and policy aspects of implementing performance-based navigation. Recent events include the following:

- North American Aviation Trilateral Flight Safety Technical Meeting (January 2005 in Ixtapa, Mexico)
- Corporación Centroamericana de Servicios de Navegación Aérea (COCESNA) First Regional Safety Workshop (March 2005 in San Salvador, El Salvador)
- ICAO / FAA) / Servicios a la Navegación en el Espacio Aéreo Mexicano (SENEAM) Regional NAM/CAR/SAM Seminar on Area Navigation (RNAV) and Required Navigation Performance (RNP) Implementation (August 2005 in Mexico City)
- Third CAR/SAM RNAV/RNP Seminar (September 2005 in Lima, Peru)

2.12 The FAA will actively participate in the GREPECAS CNS/ATM Sub Group and its RNAV/RNP Task Force to share its knowledge of Performance-Based Navigation implementation with interested States.

3. **Recommendation**

3.1 The Meeting is invited to:

- a) note the information provided in the paper, and
- b) distribute this paper to the appropriate State's air traffic service provider and civil aviation regulatory organizations, accompanied by their views on the utility of Performance-Based Navigation for their airspace systems.