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NATIONAL AIRSPACE SYSTEM
Concept of Operations

Addendum 4:
Free Flight Phase 2

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Foreword

This report was approved by the RTCA Free Flight Steering Committee on December 13, 2000.

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- coalescing aviation system user and provider technical requirements in a manner that helps government and industry meet their mutual objectives and responsibilities;

- analyzing and recommending solutions to the system technical issues that aviation faces as it continues to pursue increased safety, system capacity and efficiency;

- developing consensus on the application of pertinent technology to fulfill user and provider requirements, including development of minimum operational performance standards for electronic systems and equipment that support aviation; and

- assisting in developing the appropriate technical material upon which positions for the International Civil Aviation Organization and the International Telecommunication Union and other appropriate international organizations can be based.

The organization's recommendations are often used as the basis for government and private sector decisions as well as the foundation for many Federal Aviation Administration Technical Standard Orders.

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1 INTRODUCTION

This document supplements the National Airspace System Concept of Operations. It describes the government/industry consensus on suggested capability and implementation locations for the post Free Flight Phase 1 period called Free Flight Phase 2. The recommendations included should be the basis for both the Federal Aviation Administration (FAA) and the user community plans for procedural, investment and architectural decisions.

1.1 Background

Free Flight Phase 1 (FFP1) is the first modernization initiative that will facilitate a National Airspace System (NAS) evolution to Free Flight. Using a concept called spiral development; the FAA is implementing FFP1 capabilities with planned enhancements or "builds." Although, the FFP1 capabilities are beneficial, the program includes the implementation of a limited set of capabilities at a limited number of locations. Therefore, to continue and increase the receipt of benefits, the FAA must continue to implement FFP1 as well as new capabilities.

To sustain the momentum established with the FFP1 program, the RTCA Free Flight Select Committee formed a government/industry-working group responsible for recommending a post FFP1 plan. The group began meeting in the fall of 1998 and selected 2003 to 2005 as the target period for deploying the next set of capabilities. They chose this period because FFP1 ends in 2002 and the target date for the completion of National Performance Review actions is 2005. Consequently, Free Flight Phase 2 (FFP2) consists of the limited deployment of selected capabilities during the 2003 to 2005 period.

The FFP2 recommendations, described in this addendum, focus on sustaining, proliferating, and evolving FFP1 capabilities and providing new capabilities. The FFP2 initiative should manage program risk while incrementally providing benefits to NAS users and service providers through the implementation of proven capabilities at selected NAS facilities and locations.

1.2 Free Flight Phase 2

The goal of FFP2 is to continue the implementation of capabilities that provide user and service provider benefits. Like FFP1, FFP2 should leverage proven technologies with needed procedural enhancements and appropriate standards to provide for the further implementation of FFP1 capabilities as well as the implementation and evolution of new capabilities. To fully implement a capability necessitates appropriate changes to airspace design, procedures, systems, logistics, labor negotiations, certification, etc. enabling NAS users and service providers to realize benefits.

FFP2 should also monitor the priority research initiatives identified by the RTCA government/industry-working group as described in Appendix A. The FAA should consider implementing a research initiative that becomes mature enough either as an enhancement to an existing FFP2 capability or as a new capability.

It is important to understand that FFP2 is a subset of NAS modernization and does not represent all of the activities planned for the post FFP1 period. While the specific focus of this addendum is on the FFP2 capabilities, one must remember that FFP2 capabilities will be implemented concurrently with many other NAS modernization activities. Yet, many FFP2 capabilities are dependent on other modernization activities for critical prerequisite functions and architectural support. Without the successful deployment and implementation of these supporting activities, FFP2 capabilities and desired benefits will not be achieved. Benefits will be realized when the capabilities are widely used on a daily basis. Full benefits will be achieved when all of the capabilities are implemented at all of the recommended locations.

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1.3 Purpose and Scope

This document provides recommendations for the FAA to use in the development of the FFP2 program and beyond by updating on the recommendations presented to the Free Flight Steering committee in December 1999 [1] which are described in Appendix B. It also provides a common understanding of the available technologies for use by all stakeholders. This document is a basis from which the aviation community can attain further consensus on the direction of FFP2 activities and provides a benchmark for use in discussions pertinent to FFP2 matters.

1.4 Organization

The addendum is organized into four sections and four appendices.

- Section 1 provides an overview of the follow-on efforts needed to support FFP2 implementation.
- Section 2 describes the recommended FFP2 capabilities and their implementation locations.
- Section 3 includes descriptions of how NAS users and service providers make use of the recommended capabilities.
- Section 4 provides FFP2 operational scenarios.
- Appendix A defines acronyms used in the document.
- Appendix B documents the deliberations and recommendations of the government/industry working group responsible for formulating the FFP2 recommendations.
- Appendix C contains the FAA FFP2 Program Baseline.
- Appendix D defines the differences between the RTCA recommendations and the planned FAA FFP2 Program.

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