

**INTERNATIONAL CIVIL AVIATION ORGANIZATION**  
**FIRST MEETING OF DIRECTORS OF CIVIL AVIATION OF THE**  
**CARIBBEAN REGION (CAR/DCA/1)**

(Grand Cayman, Cayman Islands, 8-11 October 2002)

**Agenda Item 4: Air Navigation**  
**4.2 – CNS Developments**

**FAA’S ADS-B LINK DECISION CAPABILITIES**

(Presented by the United States of America)

**SUMMARY**

This paper discusses the FAA ADS-B Link Decision. The FAA press release of July 1, 2002 is included as an attachment. This paper is written more from the standpoint of ADS-B Link Decision Capabilities, and attempts to answer many of the questions of the readers, including next steps such as operational procedures, certification criteria and guidance material. Additional information is included regarding: 1) FAA points of contact, and 2) a web address to access copies of the link decision “overview”, and the “approach and basis” for the link decision documents.

**1 Introduction**

1.1 On 1 July 2002, FAA announced selection of two link technologies for provision of Automatic Dependent Surveillance – Broadcast (ADS-B) service. The ADS-B architecture will utilize a combination of a 1090 MHz Extended Squitter ADS-B link for air carrier and private/commercial operators of high performance airframes and a Universal Access Transceiver ADS-B link for the typical general aviation user. This was the result of 10 years of research and development work efforts, development of technical standards for data links to support ADS-B, and cooperative work efforts with U.S. Aviation industry, international organizations and Eurocontrol.

1.2 This paper works to answer some basic questions of the reader regarding this FAA Link Decision, and also attempts to look to the future of using ADS-B in an operational environment.

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## 2 Discussion

2.1 What is ADS-B? ADS-B is a surveillance technology that enables applications that allow both pilots and controllers to have a common picture of airspace and traffic. ADS-B airborne systems transmit an aircraft's identity, position, velocity, and intent to other aircraft and to air traffic control systems on the ground, thus allowing for common situational awareness to all appropriately equipped users of the National Airspace System (NAS).

2.2 Why ADS-B? The reasons the aviation community and the FAA are interested in ADS-B are clear. Foremost, ADS-B is seen as a cornerstone enabler for Free Flight because it provides common situational awareness for more shared air and ground responsibility. ADS-B is expected to improve safety and to increase efficiency and capacity. Safety is enhanced with improved situational awareness. Efficiency is gained as the improved situational awareness and new procedures allow pilots and controllers to make better use of existing separation standards. Capacity will be further increased as confidence in ADS-B capabilities allows reduction of separation standards and new models of control responsibility. ADS-B intent information will also provide improved performance for decision support tools.

2.3 Why make a decision? Users will hesitate to equip until a link decision is made, due to the cost, schedule, and benefit uncertainties. The decision is expected to stimulate rapid equipage where the benefits are the greatest. As more users equip, the benefits for others to equip will increase. The decision allows manufacturers to focus on the identified technology choice, thus allowing for production of equipment for users to procure. The decision also allows for national and international spectrum reassignment and frequency planning, and U.S. coordination with international activities in order to achieve global interoperability.

2.4 What precipitated the decision? In August 1998, the RTCA Free Flight Steering Committee recommended that the FAA evaluate nine operational enhancements considered essential for improving the efficiency and safety of the NAS. RTCA further recommended that the FAA evaluate ADS-B technology alternatives since seven of the nine recommended operational enhancements required ADS-B as an enabling technology. In response to the RTCA recommendations, the FAA sponsored the Safe Flight 21 (SF-21) and Capstone initiatives to explore the potential near-term and mid-term applications that could be implemented to achieve the recommended operational enhancements.

2.5 How did we reach this decision? Over the last 10 years, many individuals (including FAA employees, support contractors, manufacturer representatives, user representatives, international colleagues) have supported development of ADS-B, leading to this decision. Examples of major work efforts: 1) documents including RTCA Joint Operational Concept, RTCA Surveillance Operational Concept, SF-21 Operational Concept; 2) domestic and international standards including RTCA Minimum Aviation System Performance Standards [MASPS] for ADS-B, RTCA 1090 MHz Minimum Operational Performance Standards [MOPS], RTCA Universal Access Transceiver MOPS in development, ICAO standards for ADS-B; 3) simulation studies, bench and flight-level tests and demonstrations with various support contractors and UROCONTROL; 4) technical link assessments (co-chaired with EUROCONTROL); 5)

investment analyses; 6) public meetings and discussions with industry; and 7) coordination with international service providers and users.

2.6 What does the decision mean? This decision commits the FAA to moving forward with the operational use of ADS-B enabled capabilities within the U.S. It is anticipated that this decision will allow avionics manufacturers to move forward expeditiously with their plans to produce commercial ADS-B avionics and will allow airspace users to make investment decisions on ADS-B equipage. This decision also represents a clear statement of the intent of the FAA to continue with the development and implementation of ADS-B enabled operational capabilities within the U.S. The FAA plans to work with the international aviation organizations to ensure that ADS-B is globally interoperable.

2.7 What's next? Now that the FAA has made a decision on the ADS-B link, the agency can focus on the development of the operational procedures and the certification criteria and guidance that are necessary to enable near-term operational use of ADS-B and associated applications within the U.S.

### 3.0 Conclusion

3.1 The meeting is invited to:

- Note the information presented in this paper
- Note the point of contact below for further information
- Visit the website below to access further information, including two papers:
  - *The Approach and Basis for the FAA ADS-B Link Decision*
  - *Overview of the FAA ADS-B Link Decision*
- Note FAA press release, included as an **Attachment**

Notes:

- 1) FAA Point of Contact:  
Ricardo Parra  
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FAA/ASD-140  
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2) For further information and document access:

<http://www.faa.gov/asd/>

Upon arrival at this website, select: “*FAA Announces Automatic Dependent Surveillance Broadcast Architecture – ADS-B Link Decision*”

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