![ACSS - An L3Harris & Thales Company] ![L3HARRIS™]

ADS-B IN RETROFIT SOLUTION AND SUCCESSFUL FLIGHT TEST WITH AMERICAN AIRLINES

ADS-B In Retrofit program (AIRS) moves forward with TSO certification


SAFE AND SECURE SKIES

The mandates for ADS-B Out presents clear opportunities for airlines to take advantage of ADS-B In technology. ACSS, an L3Harris and Thales Co., remains ahead of the game with their SafeRoute+ retrofit solution, specifically developed to bring efficiencies and increased safety in airline operations.

According to Captain Dave Surridge, A321 captain and senior manager of optimization, policies and procedures for American Airlines, and a lead pilot in the carrier's SafeRoute+ trail flights, "while the system delivers exceptional situational awareness in all phases of flight, it's most valuable during the critical approach phases of the flight."

"This new technology brings the same aircraft-specific data that ATC uses into the flight deck, and that allows flight crews to get a more complete picture of what the ADS-B equipped aircraft around them are doing," Captain Surridge said. "That bigger picture enables us to make better decisions about how the current stage of the flight is going to be conducted."

"ADS-B In applications can improve efficiency, capacity, and safety throughout the National Airspace System (NAS). Specifically, applications such as Airborne Situation Awareness (AIRB) augments a pilot's traffic situational awareness, which improves safety," Paul Takemoto, FAA Spokesperson said. "Additionally, improved identification of surrounding aircraft enables pilots to make more informed clearance requests to ATC, which can support flight efficiencies."

On September 15 and October 27, 2019; the ACSS Engineering team completed the flight tests for the SafeRoute+ ADS-B In retrofit solution with American Airlines and the FAA on their Airbus A321 aircraft. This test is part of the FAA-AAL-ACSS ADS-B In Retrofit Spacing Evaluation project (AIRS) that was kicked-off in July 2016. Two American Airbus A321 aircraft participated in demonstrating the system capabilities during a lengthy, over four-hour flight test originating from Phoenix Sky Harbor.
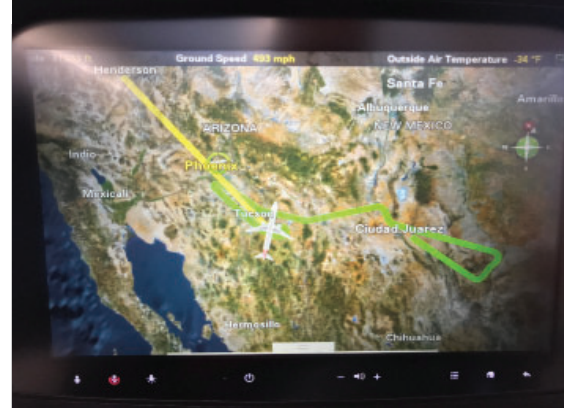
SAFEROUTE+

> Software upgrade to existing T³CAS or TCAS 3000SP computers
> Uses existing displays:
> – Multi-function Control and Display Units (MCDU)
> – Navigation Displays (ND)
> New Economical ADS-B Guidance Display (AGD) enables advanced applications
> Provides Enhanced Airborne Traffic Situational Awareness
> Enables higher runway throughput and maximizes runway capacity
> Reduces fuel burn and carbon emissions
> Enables less delay vectoring
> Facilitates better block-time predictability
> Decreases spacing buffers

DISCOVER MORE:

www.L3Harris.com/SafeRoute

ABOUT AIRS

The FAA, American Airlines, and ACSS signed a Memorandum of Agreement for the operational evaluation of the ADS-B In applications of Cockpit Display of Traffic Information (CDTI) Assisted Visual Separation (CAVS) and Interval Management Spacing (IM-S) in July 2016.

CAVS provides the flight crew with the capability to use the CDTI to assist in acquiring and maintaining visual contact with a preceding aircraft while performing visual separation on an approch in Visual Meteorological Conditions.

IM-S provides the capability for Air Traffic Control to issue a clearance for a flight crew to achieve and maintain a specified spacing goal with respect to a designated aircraft. The spacing can be expressed in terms of a distance or a time. The IM Spacing avionics provide speed guidance to the flight crew to maintain the spacing specified in the IM Clearance.

The FAA AAL ACSS ADS-B In Retrofit Spacing Evaluation (AIRS Eval) project meets multiple FAA objectives:

- Promotes the early adoption of ADS-B In applications by fielding a cost-effective retrofit solution that applies to a large potential market
- Collect operational data during IM and CAVS operations to evaluate benefits
- Demonstrate applications, procedures and operations that support the FAA's processes for making IM extensive throughout the NAS.

OPERATIONS INTO PHOENIX SKY HARBOR

Phoenix Sky Harbor (PHX) is the proposed airport for the inital operational evaluation. CAVS arrival operations do not require ATC involvement and can be performed on any arrival into PHX. IM Spacing operations do require ATC involvement, as the controller must issue an IM Clearance to initiate the operation.

IM Spacing operations are proposed for westbound arrivals through Albuquerque Center (ZAB) and into the Phoenix TRACON (P50). Westbound arrivals through ZAB carry about half of the arrival traffic into PHX. EAGUL6 is the busiest westbound arrival with the most potential benefit for IM Spacing.

IM Spacing clearances will be issued prior to the top of descent and could terminate at the TRACON boundary or continue through P50 to the final approach fix. The controllers will not require any special ground automation support for the operational evaluation. The controllers will know which aircraft are equipped with the IM Spacing application by checking the aircraft type since AAL plans to equip the entire A321 fleet, over 300 aircraft.

44,000

The number of COMMERCIAL FLIGHTS DAILY carrying 2,789,000 passengers.

First Flight Test

AMERICAN AIRLINES & ACSS

> In-flight cockpit view (left)

> Avionics Bay updates (right)

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