ARINC Project Initiation/Modification (APIM)

# Name of Proposed ProjectAPIM 19-009B

ATC Transponder and Traffic Computer Standardization

(ARINC 718A (Expected to be adopted Oct 2021), ARINC 735C)

## Name of Originator and/or Organization

Boeing / Jessie Turner

# Subcommittee Assignment and Project Support

## Suggested AEEC Group and Chairman

Systems Architecture and Interfaces (SAI) Subcommittee

SAI Chairmen: Reinhard Andreae and Rich Stillwell

Surveillance Working Group Chairman: Mohammed Ahmed, Boeing

## Support for the activity

Airlines: American, Delta, FedEx, TAP Portugal, UPS

Airframe Manufacturers: Airbus, Boeing

Suppliers: ACSS, Collins, Garmin, Honeywell

Others: N/A

## Commitment for Drafting and Meeting Participation

Airlines:

Airframe Manufacturers: Airbus, Boeing

Suppliers: ACSS, Collins, Garmin, Honeywell

Others: N/A

## Recommended Coordination with other groups

None

# Project Scope

## Description

**ATC Transponder/ADS-B Out Functions**

This project proposes to update the following ARINC Characteristics based on changes being incorporated into RTCA DO-181F - ATCRBS/Mode S Minimum Operational Performance Standards (MOPS) and RTCA DO-260C - 1090 MHz ADS-B Out MOPS [both ECD Sept. 2020]:

* Prepare Supplement 5 to ARINC 718A: MARK 4 ATC TRANSPONDER (ATCRBS/MODE S) (Expected to be adopted Oct 2021)

**TCAS/ACAS-X/ADS-B In Functions**

This project also proposes to update the following ARINC Characteristics based on newly released RTCA DO-385 - Airborne Collision Avoidance System – X MOPS (dated Oct. 2, 2018), new ACAS-Xu MOPS [ECD Sept. 2020] and changes being incorporated into RTCA DO-361A - Advanced Flight deck based Interval Management (FIM) MOPS (dated March 26, 2020), RTCA DO-317C – ADS-B In Surveillance Applications MOPS [ECD June 2020], and RTCA DO-260C - 1090 MHz ADS-B Out MOPS [ECD Sept. 2020]:

* Prepare ARINC Project Paper 735C: Traffic Computer- ACAS-X and ADS-B Functionality

## Planned usage of the envisioned specification

New aircraft developments planned to use this specification yes  no ⌧

Specify:

Modification/retrofit requirement yes ⌧ no 

Specify: ADS-B In & ACAS-X changes

Needed for airframe manufacturer or airline project yes ⌧ no 

Specify: Supports future ADS-B In/ACAS-X projects

Mandate/regulatory requirement yes  no ⌧

Is the activity defining/changing an infrastructure standard? yes  no ⌧

Specify:

When is the ARINC Standard required? May 2021

What is driving this date? Target design date

Are 18 months (min) available for standardization work? yes ⌧ no 

Are Patent(s) involved? yes  no ⌧

If YES please describe, identify patent holder:

## Issues to be worked

ATC Transponder/ADS-B Out Functions

Update ARINC 718A to reflect changes necessary due to changes to the ATC/Mode S Transponder MOPS (RTCA DO-181F) and the 1090MHz ADS-B Out MOPS (RTCA DO-260C). (Expected to be adopted Oct 2021)

TCAS/ACAS-X/ADS-B In Functions

Prepare ARINC Project Paper 735C to reflect changes necessary due to the new ACAS-Xa/Xo MOPS (RTCA DO-385) and ACAS-XU MOPS (DO-3xx) and changes being incorporated into the Advanced FIM MOPS (RTCA DO-361A) and ADS-B In Applications MOPS (RTCA DO-317C).

Potential changes include (but are not limited to): descriptions of functions supported, input/output pin definitions, and ARINC 429 label/bit definitions.

# Benefits

## Basic benefits

Operational enhancements? ADS-B In yes ⌧ no 

For equipment standards:

a. Is this a hardware characteristic? yes ⌧ no 

b. Is this a software characteristic? yes  no ⌧

c. Interchangeable interface definition? yes ⌧ no 

d. Interchangeable function definition? yes ⌧ no 

If not fully interchangeable, please explain: Not applicable

Is this a software interface and protocol standard? yes  no ⌧

Specify:

Product offered by more than one supplier yes ⌧ no 

Identify: ACSS, Collins Aerospace, Honeywell

## Specific project benefits (Describe overall project benefits.)

### Benefits for Airlines

* Supports future ADS-B In/Collision Avoidance capabilities
* Equipment supplier choices with common interfaces

### Benefits for Airframe Manufacturers

* Supports future ADS-B In/Collision Avoidance capabilities
* Common installation(s)/solution(s), less variability

### Benefits for Avionics Equipment Suppliers

* Supports future ADS-B In/Collision Avoidance capabilities
* Provide equipment that can be installed on multiple aircraft platforms, across multiple aircraft OEMs.

# Documents to be Produced and Date of Expected Result

* Supplement 5 to ARINC 718A: MARK 4 ATC TRANSPONDER (ATCRBS/MODE S), May 2021
* ARINC Project Paper 735C: TRAFFIC COMPUTER - ACAS-X AND ADS-B FUNCTIONALITY, May 2021

## Meetings and Expected Document Completion

The following table identifies the number of meetings and proposed meeting days needed to produce the documents described above.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Activity** | **Mtgs** | **Mtg-Days**  **(Total)** | **Expected**  **Start Date** | **Expected Completion Date** |
| Supplement 5 to ARINC 718A XPDR  (Expected to be adopted Oct 2021) | Bi-weekly web conferences | TBD | Oct 2019 | Oct 2021 |
| ARINC Project Paper 735C ACAS-X and ADS-B | Bi-weekly web conferences | TBD | Oct 2019 | Mar 2022 |

# Comments

## Expiration Date for the APIM

March 2022

***Completed forms should be submitted to the AEEC Executive Secretary and Program Director, Paul J. Prisaznuk (pjp@sae-itc.org)***