

ARINC Project Initiation/Modification (APIM)

- 1.0 Name of Proposed Project** **APIM 19-009BA**
ATC Transponder and Traffic Computer Standardization
(ARINC 718A, ARINC 735C)
- 1.1 Name of Originator and/or Organization**
Boeing / Jessie Turner
- 2.0 Subcommittee Assignment and Project Support**
- 2.1 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
- 2.2 Support for the activity**
Airlines: American, Delta, FedEx, TAP Portugal, UPS
Airframe Manufacturers: Airbus, Boeing
Suppliers: ACSS, Collins, Garmin, Honeywell
Others:
- 2.3 Commitment for Drafting and Meeting Participation**
Airlines:
Airframe Manufacturers: Airbus, Boeing
Suppliers: ACSS, Collins, Garmin, Honeywell
Others:
- 2.4 Recommended Coordination with other groups**
None

3.0 Project Scope

3.1 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 [**published December 2020**~~both ECD Sept. 2020~~]:

- Prepare Supplement 5 to ARINC 718A: MARK 4 ATC TRANSPONDER (ATCRBS/MODE S)

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 [**published December 2020**~~ECD Sept. 2020~~]:

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

3.2 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 ~~2022~~2024

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:

3.3 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).

TCAS/ACAS-X/ADS-B In Functions

Prepare ARINC Project Paper 735C to reflect changes necessary due to the new ACAS-X_a/X_o MOPS (RTCA DO-385) and ACAS-X_U MOPS (DO-~~386~~~~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.

4.0 Benefits

4.1 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

4.2 Specific project benefits (Describe overall project benefits.)

4.2.1 Benefits for Airlines

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

4.2.2 Benefits for Airframe Manufacturers

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

4.2.3 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.

5.0 Documents to be Produced and Date of Expected Result

- Supplement 5 to ARINC 718A: MARK 4 ATC TRANSPONDER (ATCRBS/MODE S), **March 2022** ~~May 2021~~
- ARINC Project Paper 735C: TRAFFIC COMPUTER - ACAS-X AND ADS-B FUNCTIONALITY, **March 2022** ~~May 2021~~

5.1 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	Bi-weekly web conferences	TBD	Oct 2019	Mar 2022 2021
ARINC Project Paper 735C ACAS-X and ADS-B	Bi-weekly web conferences	TBD	Oct 2019	Mar 2022 2021

6.0 Comments

6.1 Expiration Date for the APIM

May 2022 ~~October 2021~~

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