ARINC Project Initiation/Modification (APIM)

1.0	**Name of Proposed Project**	**APIM 19-009**

Updates to ATC Transponder, Traffic Computer, and ISS Characteristics (ARINC 718A, ARINC 735B, ARINC 768)

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 (TBC), Garmin, Honeywell

Others:

2.3 Commitment for Drafting and Meeting Participation

Airlines:

Airframe Manufacturers: Airbus, Boeing

Suppliers: ACSS, 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 [both ECD Dec. 2019]:

- Prepare Supplement 5 to ARINC 718A: MARK 4 ATC TRANSPONDER (ATCRBS/MODE S)
- Prepare Supplement 3 to ARINC 768: INTEGRATED SURVEILLANCE

SYSTEM (ISS)

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) and changes being incorporated into RTCA DO-361A - Advanced Flight deck based Interval Management (FIM) MOPS and RTCA DO-260C - 1090 MHz ADS-B Out MOPS [both ECD Dec. 2019]:

- Prepare Supplement 3 to ARINC 735B: TRAFFIC COMPUTER, TCAS AND ADS-B FUNCTIONALITY
- Prepare Supplement 3 to ARINC 768: INTEGRATED SURVEILLANCE SYSTEM (ISS)

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 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:

3.3 Issues to be worked

ATC Transponder/ADS-B Out Functions
Update ARINC 718A and ARINC 768 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
Update ARINC 735B and ARINC 768 to reflect changes necessary due to the new ACAS-X MOPS (RTCA DO-385) and changes being incorporated into the Advanced FIM MOPS (RTCA DO-361A).

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), May 2021
- Supplement 3 to ARINC 735B: TRAFFIC COMPUTER - TCAS AND ADS-B FUNCTIONALITY, May 2021
- Supplement 3 to ARINC 768: INTEGRATED SURVEILLANCE SYSTEM (ISS), 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	4 (plus teleconferences)	12	Oct 2019	Mar 2021
Supplement 3 to ARINC 735B ADS-B				
Supplement 3 to ARINC 768 ISS				

6.0   Comments

6.1   Expiration Date for the APIM

October 2021