ARINC Project Initiation/Modification (APIM)

# Name of Proposed ProjectAPIM 21-XXX

Update ARINC 660B, “CNS/ATM AVIONICS ARCHITECTURES SUPPORTING NEXTGEN/SESAR CONCEPTS”

## Name of Originator and/or Organization

Jessie Turner, The Boeing Company

# Subcommittee Assignment and Project Support

## Suggested AEEC Group and Chairman

Systems Architecture and Interfaces (SAI) Subcommittee

Chairmen: Rich Stillwell, United and Reinhard Andreae, Lufthansa

## Support for the activity (as verified)

Airlines:

Airframe Manufacturers: Airbus, Boeing

Suppliers:

Others:

## Commitment for Drafting and Meeting Participation (as verified)

Airlines:

Airframe Manufacturers: Airbus, Boeing

Suppliers:

Others:

## Recommended Coordination with other groups

Other groups to coordinate with?

# Project Scope (why and when standard is needed)

## Description

ARINC Report 660B “CNS/ATM AVIONICS ARCHITECTURES SUPPORTING NEXTGEN/SESAR CONCEPTS” was published in January 2014. Since this time, there have been a number of significant industry developments in the areas of Communication, Navigation, and Surveillance (CNS) and Air Traffic Management (ATM). The ARINC 660B document should be updated to capture the benefits of new technologies and to identify impacts to avionics architectures that would apply to new and retrofit airplanes. Potential topics include Internet Protocol Suite (IPS), NextGen Airborne Collision Avoidance System (ACAS-XA/O), Automatic Dependent Surveillance – Broadcast (ADS-B), L-band Digital Aeronautical Communication System (LDACS), and a number of others.

The product from this effort will be ARINC Report 660C.

## Planned usage of the envisioned specification

Note: New airplane programs must be confirmed by manufacturer prior to completing this section.

New aircraft developments planned to use this specification yes [x]  no [ ]

 Airbus: Future airplane developments

 Boeing: Future airplane developments

 Other:

Modification/retrofit requirement yes [x]  no [ ]

 Specify: Modernized/updated systems

Needed for airframe manufacturer or airline project yes [ ]  no [x]

 Specify:

Mandate/regulatory requirement yes [ ]  no [x]

 Program and date:

Is the activity defining/changing an infrastructure standard? yes [ ]  no [x]

 Specify (e.g., ARINC 429)

When is the ARINC standard required? May 2024

What is driving this date? Logical progression of report preparation

Are 18 months (min) available for standardization work? yes [x]  no [ ]

 If NO please specify solution: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Are Patent(s) involved? yes [ ]  no [x]

 If YES please describe, identify patent holder: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Issues to be worked

Updates to the ARINC 660B document sections, including, but not limited to:

§1 Introduction - Identify updates to FAA NextGen, European SESAR, and ICAO ASBU plans, and other sub-sections as needed

§2 INTRODUCTION TO NEXTGEN/SESAR CONCEPTS – Provide updates to Satellite Navigation infrastructure deployment & standards development plans, Datalink Communication deployment plans, ADS-B In applications, SWIM, and others. Add new technologies, including IPS, LDACS, ACAS-XA/O, Space-based ADS-B, and others.

§3 AVIONICS REFERENCE ARCHITECTURES – Add new sub-section for Avionics Architecture – 2020’s

§4 IMPACTS ON AIRBORNE FUNCTIONAL ARCHITECTURES – Provide updates to potential impacts to systems to accommodate NextGen/SESAR functionality.

§5 RECOMMENDED AVIONICS ARCHITECTURES TO SUPPORT NEXTGEN/SESAR – Provide updates to the mandate summary and Retrofit Requirements for each of the Avionics Architectures. Add new sub-section for Avionics Architecture – 2020’s.

§6 IMPACTS ON STANDARDS – Identify additional ARINC Standards that may require revisions to support NextGen/SESAR airspace initiatives.

## Security Scope

Is Cyber Security Impacted (if YES, check box(es) below) yes [ ]  no [x]

 Aircraft Control Domain yes [ ]  no [ ]

 Airline Information Services Domain yes [ ]  no [ ]

 PAX Information and Entertainment Systems yes [ ]  no [ ]

 Other: yes [ ]  no [ ]

(Discuss the level of cyber security guidance needed, the specific topics to be covered, and whether these topics are covered elsewhere by reference, e.g., ICAO Documents, RTCA/EUROCAE Standards, existing ARINC Standards, or if they need to be defined by a new or revised ARINC Standard.)

# Benefits

## Basic benefits

Operational enhancements yes [x]  no [ ]

For equipment standards:

* + - * 1. Is this a hardware characteristic? yes [ ]  no [x]
				2. Is this a software characteristic? yes [ ]  no [x]
				3. Interchangeable interface definition? yes [ ]  no [x]
				4. Interchangeable function definition? yes [ ]  no [x]

 If not fully interchangeable, please explain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Is this a software interface and protocol standard? yes [ ]  no [x]

 Specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Product offered by more than one supplier? N/A yes [ ]  no [ ]

 Identify:

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

### Benefits for Airlines

Supports airline planning and investment decisions.

### Benefits for Airframe Manufacturers

Supports airframer planning and investment decisions for production, retrofit bulletins, and future airplane developments.

### Benefits for Avionics Equipment Suppliers

Supports supplier planning and investment decisions for equipment upgrades and new equipment design development.

# Documents to be Produced and Date of Expected Result

ARINC Report 660C (May 2024)

## 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** |
| ARINC 660C | 6 | 18 | May 2022 | May 2024 |

\* Shows regularly scheduled SAI Subcommittee meetings between May 2022 and May 2024. Web conferences are also expected to be held as needed.

# Comments

None

## Expiration Date for the APIM

May 2024

Completed forms should be submitted to Paul Prisaznuk (pjp@sae-itc.org)

AEEC Executive Secretary & Program Director