

## ARINC Project Initiation/Modification (APIM)

- 1.0 Name of Proposed Project** **APIM 22-001**  
**ARINC Project Paper 660C:** CNS/ATM Avionics Architectures Supporting NextGen/SESAR Concepts (**working title**)
- 1.1 Name of Originator and/or Organization**  
Jessie Turner, The Boeing Company
- 2.0 Subcommittee Assignment and Project Support**
- 2.1 Suggested AEEC Group and Chairman**  
Systems Architecture and Interfaces (SAI) Subcommittee  
Chairmen: Rich Stillwell, United
- 2.2 Support for the activity (as verified)**  
Airlines: FedEx  
Airframe Manufacturers: Airbus, Boeing, Embraer  
Suppliers: **Collins Aerospace, GE Aviation, Honeywell, L3-Harris - ACSS, Thales**
- 2.3 Commitment for Drafting and Meeting Participation (as verified)**  
Airlines:  
Airframe Manufacturers: Airbus, Boeing, Embraer  
Suppliers: **Collins, L3-Harris - ACSS, Thales**  
Others:
- 2.4 Recommended Coordination with other groups**  
ICAO ICNSS/TF, FAA NextGen, SESAR/SJU, etc.
- 3.0 Project Scope (why and when standard is needed)**
- 3.1 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). ARINC Report 660B 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-X<sub>AVO</sub>), 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.
- 3.2 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  no

    Airbus:            Future airplane developments

    Boeing:           Future airplane developments

    Other:

Modification/retrofit requirement      yes  no

    Specify:            Modernized/updated systems

Needed for airframe manufacturer or airline project      yes  no

    Specify:

Mandate/regulatory requirement      yes  no

    Program and date:

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

    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  no

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

Are Patent(s) involved?      yes  no

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

### 3.3 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

**Discuss role that CNS/ATM systems, both air and ground, play in operational efficiency and long-term sustainability of aviation.**

§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-X<sub>AVIO</sub>, 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.

### 3.4 Security Scope

Is Cyber Security Impacted (if YES, check box(es) below)      yes  no   
    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.)

### 4.0 Benefits

#### 4.1 Basic benefits

Operational enhancements      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: \_\_\_\_\_  
Is this a software interface and protocol standard?      yes  no   
    Specify: \_\_\_\_\_  
Product offered by more than one supplier? N/A      yes  no   
    Identify:

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

##### 4.2.1 Benefits for Airlines

Supports airline planning and investment decisions.

##### 4.2.2 Benefits for Airframe Manufacturers

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

##### 4.2.3 Benefits for Avionics Equipment Suppliers

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

### 5.0 Documents to be Produced and Date of Expected Result

ARINC Project Paper 660C (May 2024)

#### 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
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.

**6.0            Comments**

None

**6.1            Expiration Date for the APIM**

May 2024

***Completed forms should be submitted to Paul Prisaznuk ([pjp@sae-itc.org](mailto:pjp@sae-itc.org))  
AEEC Executive Secretary & Program Director***