

# ARINC Project Initiation/Modification (APIM)

**1.0 Name of Proposed Project** **APIM 17-014A**

Prepare two ARINC Standards as follows:

- Supplement 8 to ARINC Specification 834: Aircraft Data Interface Function (ADIF) to include Aviation Data Broadcast Protocol (ADBP) improvements, support for Media Independent Aircraft Messaging (MIAM) protocol, and data security enhancements.
- New ARINC Project Paper 834A: Aircraft Data Interface Functional Enhancements to define single standard using Internet Protocols (IP) to improve EFB interface functions. This interface is intended to reside within the EFB device.

Software specification only

yes  no

**2.0 Subcommittee Assignment and Project Support**

**2.1 Suggested AEEC Group**

Electronic Flight Bag (EFB) Subcommittee.

**2.2 Support for the activity (as verified)**

Organizations: Alaska Airlines, American Airlines, EI AI, FedEx, Lufthansa Airlines, Qantas, Southwest Airlines, United Airlines, Airbus, Boeing, Astronautics, Astronics Ballard Technology, Avionica, CMC Electronics, Gulfstream Aerospace, Lextech, Lufthansa Systems, Rockwell Collins, Sabre, SITA, Teledyne, Ultramain, UTC Aerospace Systems, Viasat, Thales, Jeppesen [others, TBI]

**2.3 Commitment for Resources (directly from participant)**

Organizations: American Airlines, FedEx, Lufthansa, Southwest, Airbus, Boeing, Astronics Ballard Technology, Astronautics, Avionica, CMC Electronics, Gulfstream Aerospace, Rockwell Collins, Sabre, SITA, Teledyne, UTC Aerospace Systems [others, TBI]

**2.4 Recommended Coordination with other groups**

The EFB Subcommittee will coordinate other subcommittees as needed.

The following activities might be relevant to this topic:

- ARINC Specification 429: *Digital Information Transfer System (DITS)*
- ARINC Characteristic 717: *Flight Data Acquisition and Recording System*
- ARINC Specification 619: *ACARS Protocols for Avionic End Systems*
- ARINC Characteristic 759: *Aircraft Interface Device (AID)*
- ARINC Specification 840: *Electronic Flight Bag (EFB) Application Control Interface (ACI) Standard*
- **ARINC Specification 841: *Media Independent Aircraft Messaging (MIAM)***

### 3.0 Project Scope

### 3.1 Description

The goal of [ARINC Project Paper 834A](#) is to eliminate the need for end-system application developers to write separate data interfaces for different AIDs (as is currently the case), depicted in Figure 1, and to also not be required to provide conversion from raw input data (e.g., ARINC 429 labels) to engineering units.

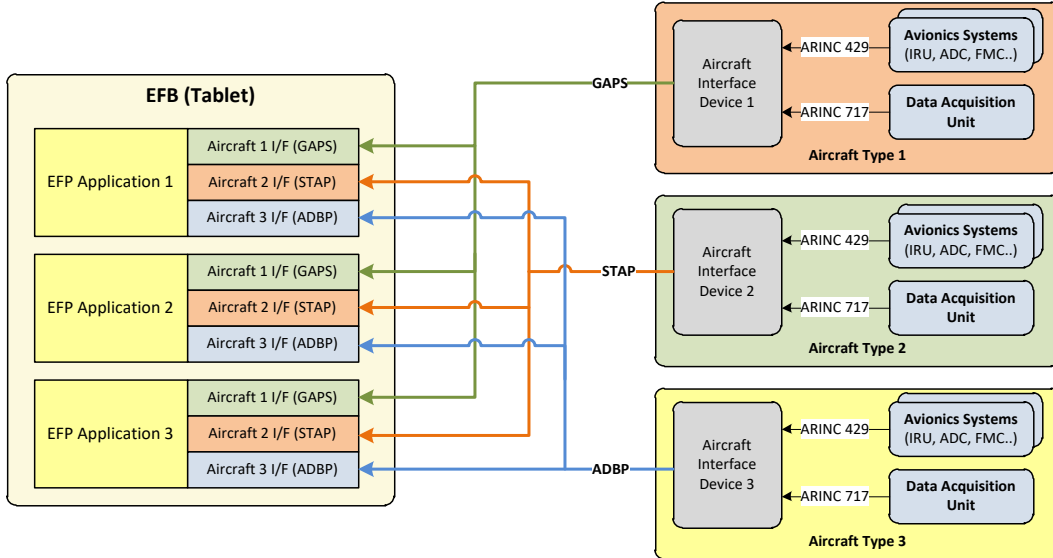


Figure 1: Too many interfaces between existing EFB applications and aircraft systems.

The primary intent of this APIM is to resolve of this problem of three standardized protocols for Aircraft Data Interface Function (GAPS, STAP, and ADBP defined in ARINC 834). This requires evaluation of possible solution approaches to identify the optimal suitable solution for airline operators.

**ARINC Specification 834 will be updated to Supplement 8 and will include security improvements, MIAM protocols, and ADBP enhancements to simplify its continued use in existing deployments.**

**The EFB Subcommittee has identified the need for an entirely new ARINC Standard, to be developed as ARINC Project Paper 834A. This standard will encompass the latest IP technologies and focus on a single protocol to eliminate the duplication of applications required to function among the three protocols described above in the existing ARINC Specification 834.**

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

A key consideration during the proposed work is to arrive at a cost-effective solution which does not result in unwanted duplication of existing standards.

Planned usage of the envisioned specification

New aircraft developments planned to use this specification      yes  no

New avionics equipment for major retrofit programs                      yes  no

Mandate/regulatory requirement    yes  no

Program and date: (program & date) Not Applicable

Modification/retrofit requirement    yes  no

Specify: Not Applicable

Airframer and/or airline projects to use this specification                      yes  no

Once established, it is expected to be used by airframer and/or airline projects using avionics data parameters.

Is the infrastructure standard for the aircraft defined?                      yes  no

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

EFB application suppliers are confronted with the need to develop multiple interfaces for connectivity to various AID solutions. This problem is due to three different protocol choices presently defined in ARINC 834, and data that may be presented in engineering units, ARINC 429 units or ARINC 717 units requiring the application to perform conversions. This represents an additional burden on application developers in terms of development and software maintenance, and higher costs for airlines, particularly mixed fleet operators.

**ARINC Specification 834 will be upgraded to Supplement 8 with additional capabilities to support legacy implementations.**

**ARINC Project Paper 834A will define a single protocol intended to achieve true interoperability between the EFB and aircraft systems.**

### 4.0 Benefits

#### 4.1 Basic benefits

**ARINC Project Paper 834A** will define a single EFB end-system application aircraft data interface to be developed and maintained by application developers, which will reduce development time and software maintenance overhead, lower costs for airline operators, and represent a significant step towards achieving interoperability.

Operational enhancements (reduction in DOC?)                      yes  no

Form, Fit, Function, (FFF) standard (HW and/or SW):

(a) ARINC 600 form (only HW)                      yes  no

(b) Interchangeable fit (plug, mount, SW loading interface, etc.)                      yes  no

(c) Interchangeable function                      yes  no

If not fully interchangeable, please explain:

(d) API standard only, since H/W will not be addressed                      yes  no

(e) Product offered by more than one supplier                      yes  no

The purpose of this proposed project is to establish an open standard that can be implemented by any supplier.

#### 4.2 Specific project benefits

- Minimize the overall cost of implementing EFB applications by defining a single API that is simple to implement.
- Enable the use of software applications developed by third parties.

#### 4.2.1 Benefits for Airlines

ARINC Project Paper 834A will provide several benefits to Airlines:

- Airlines would benefit from lower integration cost, time, and risk.
- Better and more consistent integration of applications leads to better user acceptance.

#### 4.2.2 Benefits for Airframe Manufacturers

- Provide guidance to implement EFB to aircraft systems interface.

#### 4.2.3 Benefits for EFB Equipment and Application Suppliers

- Facilitate communication from EFB and aircraft systems

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

New ARINC Project Paper 834A and Supplement 8 to ARINC Specification 834: Aircraft Data Interface Function (ADIF) by October 2020.

#### 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. This activity will be undertaken by the EFB Subcommittee. Monthly teleconferences will be held between face to face meetings to maintain progress.

Activity	Mtgs	Mtg-Days (Total)	Expected Start Date	Expected Completion Date
Supplement 8 to ARINC Specification 834	68	23x1 (w/EFBUF)	July 2018	April-Oct 2020
Develop new ARINC Project Paper 834A		45x3 (EFB SC)		Oct 2020
		1418 total days		

Please note the number of meetings, the number of meeting days, and the frequency of web conferences to be supported by the ARINC IA staff.

### 6.0 Comments

None.

#### 6.1 Expiration Date for the APIM

May-Dec 2020

**Completed forms should be submitted to the AEEC Executive Secretary.**