AEEC

Together "We Set the Standard."

To	Aviation Industry	**Date**	October 13, 2021
From	P. J. Prisaznuk AEEC Executive Secretary & Program Director pjp@sae-itc.org tel +1 443-254-0528	**Reference**	21-086/AXX-237 lth

Subject **AEEC's Work Program for 2021-2023**
AEEC Mid-Term Session
October 7, 2021

Summary The AEEC Executive Committee approved eight additional project proposals during the AEEC General Session:

APIM Number	AEEC Sub-Committee	Project Description / Deliverables
21-006	FOS	**Supplement 5 to ARINC Report 803:** *Fiber Optic Design Guidelines* **Supplement 3 to ARINC Report 804:** *Fiber Optic Active Device Specification*
21-007	APEX	**ARINC Specification 653:** *Avionics Application Software Standard Interface* – multi-part update
20-002A	600	**Supplement 21 to ARINC Specification 600:** *Air Transport Avionics Equipment Interfaces* – new schedule
19-005A	AOC	**Supplement 5 to ARINC Specification 633:** *AOC Air-Ground Data and Message Exchange Format*
19-007A	ISS	**ARINC Project Paper 768A:** *Second Generation Integrated Surveillance System (2G ISS)* – new schedule
19-008B	WXR	**ARINC Project Paper 748:** *Airborne Weather Radar with Advanced Antenna Technology* – new scope and schedule
19-009B	XPDR	**Supplement 5 to ARINC 718A:** *MARK 4 ATC Transponder (ATCRBS/MODE S)* – new schedule **ARINC Project Paper 735C:** *Traffic Computer, ACAS-X and ADS-B Functionality* – new schedule
19-013A	GAIN	**Supplement 7 to ARINC Specification 810:** *Definition of Standard Interfaces for Galley Insert (GAIN) Equipment Physical Interfaces*

The statement of work for each project is attached to this document in the form of an APIM (ARINC Proposal to Initiate/Modify an ARINC Standard).

As of the date of this letter, the AEEC has 29 projects (APIMs) presently open, calling for 12 new ARINC Standards and 32 Supplements to existing ARINC Standards, all presently in work.

Thank you for your support of these initiatives.

Action

The purpose of this letter is twofold:

1. Actions of the Airlines Electronic Engineering Committee (AEEC) are hereby announced.
2. ARINC Industry Activities invites its Members and all interested parties to participate in ARINC Standards development activities.

For additional information on AEEC's Work Program, contact the AEEC Executive Secretary & Program Director or visit the AEEC website: *www.aviation-ia.com/activities/aeec*.

cc

AEEC Executive Committee, AOC, APEX, FOS, GAIN, ISS, NIC, SAI, XPDR

Attachment 1

Attachment 1

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 21-006

Fiber Optics Active Device Interchangeability Guidance

1.1 Name of Originator and/or Organization

Tom Jaeger, American Airlines
Robert Nye, The Boeing Company

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

AEEC Fiber Optics Subcommittee (FOS)

2.2 Support for the activity (as verified)

Airlines: American Airlines

Airframe Manufacturers: Airbus, Boeing

Suppliers: Cotsworks, Glenair, Smiths Interconnect, Radiall

Others:

2.3 Commitment for Drafting and Meeting Participation (as verified)

Airlines: American Airlines

Airframe Manufacturers: Airbus, Boeing

Suppliers: Cotsworks, Glenair, Smiths Interconnect, Radiall

Others:

2.4 Recommended Coordination with other groups

SAE AS-3 (Photonic) John Mazurowski

3.0 Project Scope (why and when standard is needed)

3.1 Description

As new aircraft are produced, and older aircraft retrofitted, the use of Fiber Optics (FO) has increased in avionics systems, as well as cabin IFES. While the ARINC FO Standards (ARINC 801-807, 845, 846) have provided guidance on interconnectability for connectors, cables, etc., the standardization of the optoelectronics (transceivers) is also deserving of closer attention.

In order to maintain interoperability of fiber optic data transmission between different vendors and OEMs agreement needs to be reached on frequency usage and transmission standards. If these characteristics are not standardized the Operators will have to source multiple LRUs for their fleets due to network incompatibilities for units which could otherwise be identical.

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: Modernized systems with FO

Boeing: Modernized systems with FO

Other: Modernized systems with FO

Modification/retrofit requirement yes ☒ no ☐

Specify: Modernized/updated systems with FO

Needed for airframe manufacturer or airline project yes ☐ no ☒

Specify: (aircraft & date)

Mandate/regulatory requirement yes ☐ no ☒

Program and date: (program & date)

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

Specify (e.g., ARINC 429)

When is the ARINC standard required? 2023

What is driving this date? Logical progression of standard 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

1. Identify state of optoelectronics in avionics/airborne systems
2. Identify gaps in existing ARINC Standards for proposed guidance
3. Drafting of consensus-based material for inclusion in ARINC Standards
4. Determine if a new ARINC Standard is required (not likely)
5. Circulate and review draft supplement material
    a. **Supplement 5 to ARINC Report 803:** *Fiber Optic Design Guidelines*
    b. **Supplement 3 to ARINC Report 804:** *Fiber Optic Active Device Specification*

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 yes ☒ no ☐

Identify: (company name)

4.2 Specific project benefits (Describe overall project benefits.)

4.2.1 Benefits for Airlines

Improve interchangeability between airframe and avionics suppliers

Reduce communication errors caused by optoelectronics

4.2.2 Benefits for Airframe Manufacturers

Same as Section 4.2.1

4.2.3 Benefits for Avionics Equipment Suppliers

Same as Section 4.2.1

5.0 Documents to be Produced and Date of Expected Result

Supplement 5 to ARINC Report 803

Supplement 3 to ARINC Report 804

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
Supp 5 to ARINC 803	*15*	*15*	*11/2021*	*05/2023*
Supp 3 to ARINC 804	*15*	*15*	*11/2021*	*05/2023*

The number of meetings/days noted are ARINC online meetings.

6.0 Comments

The FOS is preparing fiber optic standards to support Cabin and Ku/Ka Satcom APIMs:

18-001A – Cabin Systems (CSS) work on 5th Gen Seat Networks

20-001 – Ku/Ka Band Satellite (KSAT) work on ARINC 792A

The FOS will also coordinate with subcommittees utilizing the Ethernet interface per ARINC Specification 664 Part 2 and Part 7.

6.1 Expiration Date for the APIM

October 2023

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

Attachment 2

Attachment 2

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 21-007

Update **ARINC Specification 653:** *Avionics Application Software Standard Interface, multi-part document (Section 5 of this APIM identifies each part)*

1.1 Name of Originator and/or Organization

Gordon Putsche, Boeing

Pierre Gabrilot, Airbus

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

APEX Software Subcommittee

Pierre Gabrilot, Airbus and Gordon Putsche, Boeing

2.2 Support for the Activity (as verified)

Airlines: TBD

Airframe Manufacturers: Airbus, Boeing

Suppliers: Honeywell Aerospace, Green Hills, Wind River, DDC-I, Mannarino Systems, General Electric, GMV, Universal Avionics, Verocel, Collins, Thales, SYSGO

Others: TUBITAK, SAAB

2.3 Commitment for Drafting and Meeting Participation (as verified)

Airlines: TBD

Airframe Manufacturers: Airbus, Boeing

Suppliers: Wind River, Green Hills, DDC-I, Verocel, GMV, Universal Avionics

Others: TUBITAK

2.4 Recommended Coordination with other groups

SAI Subcommittee

3.0 Project Scope (why and when standard is needed)

3.1 Description

The ARINC 653 standard suite needs updating to provide clarifications and corrections resulting from use of the standard. In addition, new capabilities need to be added to accommodate and expand user base as well as account for technological improvements. New capabilities include the addition of a C++ programming language interface specification.

3.2 Planned usage of the ARINC Standard

Develop and maintain ARINC 653 software interface standards for new airplane development programs and for retrofit programs, including the Boeing 777X.

ARINC 653 (APEX) defines an interface between APplication software and EXecutive software. ARINC 653 is being expanded to meet OEM requirements and avionics supplier requirements for new airplanes and to support in-service software updates.

New aircraft developments planned to use this specification yes ☒ no ☐

Airbus: Supports new airplane product development

Boeing: Supports new airplane product development

Other: (manufacturer, aircraft & date)

Modification/retrofit requirement yes ☐ no ☒

Specify: (aircraft & date)

Needed for airframe manufacturer or airline project yes ☐ no ☒

Specify: (aircraft & date)

Mandate/regulatory requirement yes ☐ no ☒

Program and date: (program & date)

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

Specify: ARINC Specification 653

When is the ARINC standard required? October 2023

What is driving this date? New product development

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

- Prepare Supplement 4 to ARINC 653 Part 0
- Prepare Supplement 6 to ARINC 653 Part 1
- Prepare Supplement 5 to ARINC 653 Part 2
- Prepare Supplement 3 to ARINC 653 Part 3A
  - Note that a revision to ARINC 653 Part 3A is only needed if the modifications to Parts 1 impacts the content of that document. The updates to the test specification will be clear when Part 1 is complete.

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: ARINC Specification 653

Product offered by more than one supplier yes ☒ no ☐

Identify: DDC-I, Green Hills, Wind River, SYSGO

4.2 Specific Project Benefits

Use of the ARINC 653 standard has broadened significantly. Updates and maintenance of the standard are increasingly important to ensure consistent interpretation (portability), and improved capability to support increasing demands for modern aircraft functionality.

4.2.1 Benefits for Airlines

This standard will provide several benefits to the airlines:

- Enables airlines to consider operational upgrades to specific software
- Reduction of avionics weight and volume by using IMA architecture
- The benefit of multi-core is twofold:
  1) More computing throughput as new functions require.
  2) Reduction of the number of modules for the same computing throughput.

4.2.2 Benefits for Airframe Manufacturers

Portability allows for increased freedom of choice with respect to computing equipment and tools.

4.2.3 Benefits for Avionics Equipment Suppliers

The standard software environment facilitates common developer knowledgebase, which should improve quality of software.

5.0 Documents to be Produced and Date of Expected Result

- ARINC 653 Part 0, Supplement 4 October 2023
- ARINC 653 Part 1, Supplement 6 April 2023
- ARINC 653 Part 2, Supplement 5 April 2023
- ARINC 653 Part 3A, Supplement 3 October 2023 - TBC
  - Note that a revision to ARINC 653 Part 3A is only needed if the modifications to Parts 1 impacts the content of that document. The updates to the test specification will be clear when Part 1 is complete. Any updates are likely to be small and easily accomplished by the WG members.

- Note that a revision to ARINC 653 Part 3B is under discussion and if deemed necessary, this APIM will be updated.

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 653 Part 0	*2*	*6*	*Jan 2022*	*April 2023*
ARINC 653 Part 1			*Jan 2022*	*April 2023*
ARINC 653 Part 2			*Jan 2022*	*April 2023*
ARINC 653 Part 3A (if needed)				*October 2023*

Please note the number of in-person meetings and the number of meeting days to be supported by the ARINC Staff.

Web conferences will be conducted approximately quarterly.

6.0 Comments

None.

6.1 Expiration Date for the APIM

October 2023

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

Attachment 3

Attachment 3

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 20-002A

Supplement 21 to ARINC Specification 600: Air Transport Avionics Equipment Interfaces

Size 4 ARINC 600 Connector, Rack and Panel (960 pins)

1.1 Name of Originator and/or Organization

AIRBUS

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

ARINC 600 Connector Working Group

Chairman: **Steffen Ohde, Airbus**

2.2 Support for the Activity (as verified)

Airlines: TBD

Airframe Manufacturers: AIRBUS

Suppliers: RADIALL / SOURIAU / TE

Others: to add system suppliers → AIRBUS AVIONICS (internal suppliers)

2.3 Commitment for Drafting and Meeting Participation (as verified)

Airlines: TBD

Airframe Manufacturers: AIRBUS

Suppliers: RADIALL / SOURIAU / TE

Others: to add system suppliers → AIRBUS AVIONICS (internal suppliers)

2.4 Recommended Coordination with other groups

Cabin Systems Subcommittee

SAI Subcommittee

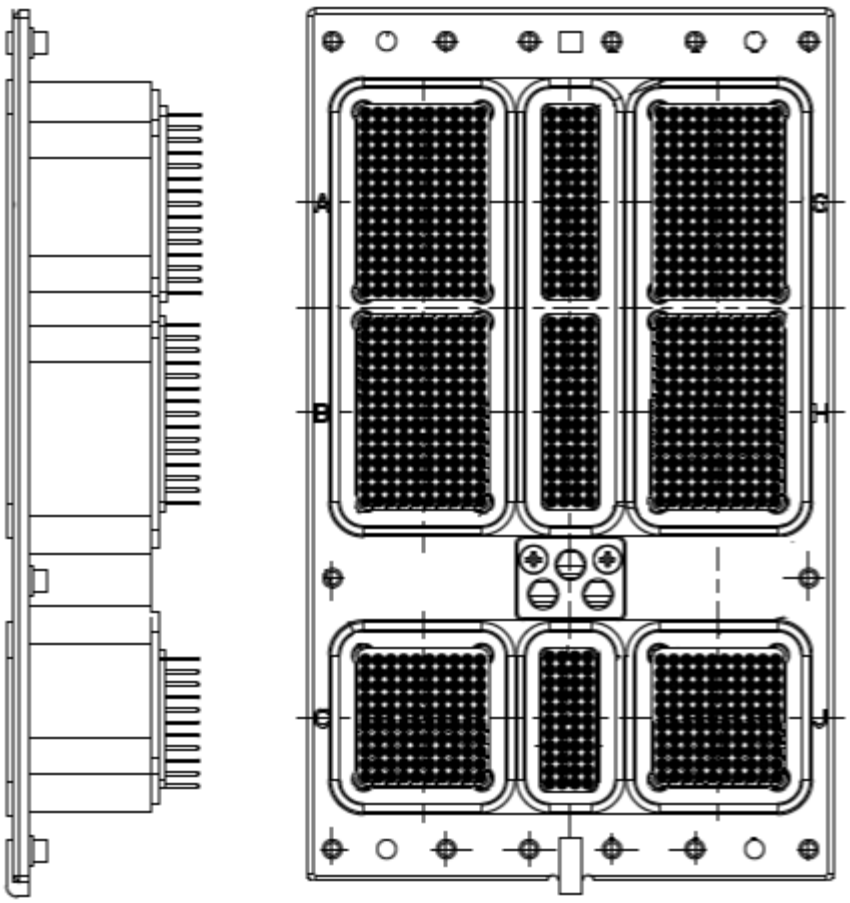
3.0 Project Scope (why and when standard is needed)

3.1 Description

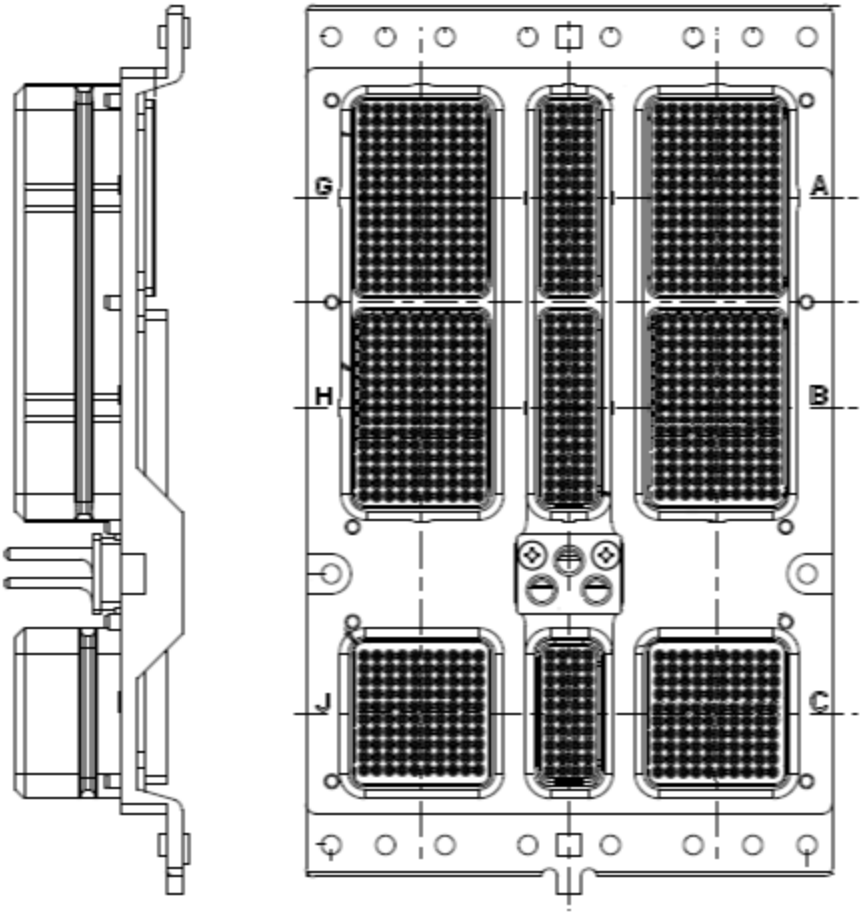
The aim is to increase:

- New connector size with 3 additional cavities
- Shell number available
- Pins number

See attached presentation.



Receptacle connector



Plug connector

ARINC 600 performance expected to be defined, both electrical and mechanical.

3.2 Planned usage of the ARINC Standard

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

New aircraft developments planned to use this specification yes ☐ no ☒

Airbus: (aircraft & date)

Boeing: (aircraft & date)

Other: (manufacturer, aircraft & date)

Modification/retrofit requirement yes ☒ no ☐

Specify: (A320 & 2023 for testing)

Needed for airframe manufacturer or airline project yes ☒ no ☐

Specify: (A320 & 2023 for testing)

Mandate/regulatory requirement yes ☐ no ☒

Program and date: (program & date)

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

Specify: ARINC 600 standard

When is the ARINC standard required? **May 2024**

What is driving this date?

to secure system architecture new development with buy strategy

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

(Describe the major issues to be addressed.)

Additional cavities with existing ARINC 600 shells (cf. drawing).

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 ☒

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 yes ☒ no ☐

Identify: RADIALL / SOURIAU / TE

4.2 Specific Project Benefits

Offer more PIN contact per avionics equipment to system.

4.2.1 Benefits for Airlines

Enabler for more integrated systems (e.g. Reduce number of avionics S/N)

4.2.2 Benefits for Airframe Manufacturers

Offer more PIN contact per avionics equipment to system,

4.2.3 Benefits for Avionics Equipment Suppliers

Foster an ecosystem around a new standardized connector.

5.0 Documents to be Produced and Date of Expected Result

ARINC 600 Standard update **in May 2024.**

5.1 Meetings and Expected Document Completion

6 meetings to be anticipated during the 18 months

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 600	***20 (est)***	***20 (est)*** *18*	*06/2020*	***May 2024***

Bi-monthly online meetings are planned at this time (6 meetings per year).

6.0 Comments

These meetings will be held online until in-person travel is viable.

6.1 Expiration Date for the APIM

December **2024**

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

Attachment 4

Attachment 4

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 19-005A

Supplement 5 to ARINC Specification 633, AOC Messaging

1.1 Name of Originator and/or Organization

AEEC AOC Subcommittee (Lufthansa German Airlines, Delta Air Lines, KLM Royal Dutch Airlines, NavBlue, flightkeys, Lufthansa Systems

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

AOC Subcommittee

Dirk Zschunke – Lufthansa German Airlines

2.2 Support for the activity (as verified)

Airlines: Delta Air Lines, Lufthansa German Airlines,
KLM Royal Dutch Airlines

Airframe Manufacturers: Airbus (through NavBlue), The Boeing Company (TBC)

Suppliers: Collins Aerospace, flightkeys, Lufthansa Systems, Jeppesen, NavBlue, Sabre

Others:

2.3 Commitment for Drafting and Meeting Participation (as verified)

Airlines: Delta Air Lines, Lufthansa German Airlines, KLM Royal Dutch Airlines

Airframe Manufacturers: Airbus (through NavBlue)

Suppliers: flightkeys, Lufthansa Systems, Jeppesen, NavBlue, Sabre

Others:

2.4 Recommended Coordination with other groups

None

3.0 Project Scope (why and when standard is needed)

3.1 Description

Supplement 5 will include items defining data structures listed in the ARINC 633-4 APIM but not completed due to time, lack of maturity and/or complexity.

Create or expand the following data structures in ARINC 633 AOC definition:

Operational Flight Plan Updates

- WayPoint
- Add WayPoint information with ATC restrictions, limits, target values, etc. (in SESAR and FAA NextGen context
- ETOPS **(Completed in Supplement 4)**
- In Flight Update **(Supplement 5)**

- Electronic Signature **(Completed in Supplement 4)**
- Idle Factor **(Completed in Supplement 4)**
- Dispatch License **(Completed in Supplement 4)**

Crew List **(Some items completed in Supplement 4, some will be addressed in Supplement 5)**

- Duty Data **(Supplement 5)**
  - To facilitate EFB chaining flights
- Pilot email **(Completed in Supplement 4)**
- Pilot Identifier **(Completed in Supplement 4)**
  - Used to Identify Pilot on EFB
- EFB Reference Pin Code (for Identification) **(Completed in Supplement 4)**

RAIM **(Completed in Supplement 4)**

- Place in Flight Plan or Standalone RAIM

Fuel Header **(Completed in Supplement 4)**

- Add Taxi InFuel
- Include a Minimum Fuel Element
- Add Optional Cargo Fuel Element (to Load)

PIREP **(Completed in Supplement 4)**

- Add Aircraft Type element

ATIS **(Completed in Supplement 4)**

- ATIS runway condition per ICAO

Request / Response **(Supplement 5)**

- Expand Supplement 3 definition

Performance **(Supplement 5)**

- RNP **(Completed in Supplement 4)**
- RCP
- RSP

Terrain Clearance **(Completed in Supplement 4)**

- Elaborate route from critical point to escape airport

Special Loads / NOTOC **(Supplement 5, in coordination with IATA)**

Upper Air Data **(Completed in Supplement 4)**

- Atmospheric conditions at different Flight Levels in the Flight Plan

Turbulence

- TURB at different WayPoints
- Light, Moderate, Severe or Extreme

Guidance **(Most likely Supplement 5)**

- Value of using Dictionary (complying with Waypoint functional elements

Take/Off Alternate **(Completed in Supplement 4)**

- Add Guidance and Clarification (where its located)

Rerouting Flight Plan **(Completed in Supplement 4)**

- Make eFlight Folder Manger

General Alternate Routes **(Completed in Supplement 4)**

- Include diversion airport
  - beyond existing T/O or Final Alternate

NOTAM **(Completed in Supplement 4)**

Flight Lists Data (Supplement 5)

Unified Modeling for Diversion Scenarios (Supplement 5)

CO_2 Emissions Reporting (Supplement 5)

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: (aircraft & date)

Boeing: (aircraft & date)

Other: (manufacturer, aircraft & date)

Modification/retrofit requirement yes ☐ no ☒

Specify: (aircraft & date)

Needed for airframe manufacturer or airline project yes ☐ no ☒

Specify: (aircraft & date)

Mandate/regulatory requirement yes ☐ no ☒

Program and date: (program & date)

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

Specify (e.g., ARINC 429)

When is the ARINC standard required?

May 2023

What is driving this date?

Airlines are still operating Supplement 1 and 2.

Are 18 months (min) available for standardization work? yes ☒ no ☐

Are Patent(s) involved? yes ☐ no ☒

None that are known

3.3 Issues to be worked

- See Section 3.1
- **Add more examples and best practices information in Supplement 5.**

- Make the document more efficient – reduce links? **(Completed in Supplement 4)**

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 ☒

Is this a software interface and protocol standard? yes ☒ no ☐

Product offered by more than one supplier yes ☒ no ☐

Identify: Lufthansa Systems, NavBlue, Jeppesen, Sabre

4.2 Specific project benefits (Describe overall project benefits.)

4.2.1 Benefits for Airlines

AOC messaging Standard will satisfy airline customer need.

4.2.2 Benefits for Airframe Manufacturers

This will enable a standard product to be developed applicable to many users. This reduces development cost.

4.2.3 Benefits for Avionics Equipment Suppliers

5.0 Documents to be Produced and Date of Expected Result

Identify Project Papers expected to be completed per the table in the following section.

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 4 to ARINC 633	***4***	***12***	*May 2019*	***Sept 2021***
Supplement 5 to ARINC 633	***4***	***12***	***Oct 2021***	***May 2023***

6.0 Comments

Monthly web conference or as needed.

6.1 Expiration Date for the APIM

October 2023

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

Attachment 5

Attachment 5

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 19-007A

ARINC Project Paper 768A: Second Generation Integrated Surveillance System (ISS)

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: Jessie Turner

2.2 Support for the activity

Airlines: American, Delta, FedEx, TAP Portugal, UPS

Airframe Manufacturers: Airbus, Boeing

Suppliers: ACSS, Collins Aerospace (TBC), Gables, Garmin, Honeywell

Others: N/A

2.3 Commitment for Drafting and Meeting Participation

Airlines:

Airframe Manufacturers: Airbus, Boeing

Suppliers: ACSS, Garmin, Honeywell

Others: N/A

2.4 Recommended Coordination with other groups

None.

3.0 Project Scope

3.1 Description

This project proposes to create a generational [2nd Generation (2G)] update (ARINC 768A) to the existing ARINC 768 “Integrated Surveillance System (ISS)” characteristic which would support new aircraft designs. It is expected that the ARINC 768A – 2G ISS would result in a >50% reduction in size and weight as compared to currently fielded ARINC 768 ISS Processor Units and a >60% savings in volume and weight (at the aircraft-level). Overall equipment acquisition costs are expected to be reduced and overall reliability is expected to increase.

The Integrated Surveillance System (ISS) represents the integration of standalone aircraft surveillance systems and has resulted in the reduction of the cost, as well as the size, weight, and power (SWaP) requirements, for the suite of the following surveillance functions:

- Air Traffic Control (ATC)/Mode S Transponder

- Automatic Dependent Surveillance – Broadcast Out (ADS-B Out)
- ADS-B In
- Airborne Collision Avoidance System (ACAS-X)
- Terrain Awareness and Warning System (TAWS) with Reactive Wind Shear (RWS)

The initial version of ARINC Characteristic 768: Integrated Surveillance System was developed in 2002-2004, and was first published in October 2005. This characteristic has been successfully used by both Airbus (A380 and A350) and Boeing (787 and 777-8/-9).

In the ~15 years since the first development of the ISS, there have been significant technology advancements in processors and Radio Frequency (RF) components/designs which are expected to result in further reductions in cost and SWaP requirements. Also, with future aircraft designs having a network-based interface design (in lieu of point-to-point ARINC 429/discrete wiring), the equipment can be designed to specifically support network-based interfaces without carrying the overhead of legacy ARINC 429/discrete interfaces. In addition, lessons learned from industry implementations of the ARINC 768 standard can be incorporated into an updated ARINC 768A industry standard.

The Distance Measuring Equipment (DME) function, which currently resides in a standalone ARINC 709 DME Interrogator (along with a dedicated DME antenna), operates in the same L-Band frequency range as the ATC Transponder, TCAS, and ADS-B. The DME function can be included within the 2G ISSPU (and bottom ATC antenna connection) resulting in additional, significant cost and SWaP savings at the aircraft-level.

Lastly, the new ARINC 768A standard should also support a bottom mounted omni-directional antenna (in lieu of a directional antenna). This would provide installation and weight savings, since the omni-directional antenna is smaller/lighter and only requires a single coaxial cable (versus 4 coaxial cables required for a directional antenna).

3.2 Planned usage of the envisioned specification

New aircraft developments planned to use this specification — yes ☒ no ☐

Specify: Boeing - new air transport aircraft

Airbus - new air transport aircraft

Modification/retrofit requirement — yes ☐ no ☒

Specify:

Needed for airframe manufacturer or airline project — yes ☒ no ☐

Specify: Next new Boeing air transport aircraft

Mandate/regulatory requirement — yes ☐ no ☒

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

Specify:

When is the ARINC Standard required? **March 2023**

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

It is expected that the following specific items will be addressed as part of the ARINC 768A standard development (and others as they arise):

1) Standardize ISS Processor Unit form, fit, function, and interfaces with reduced SWaP compared to ARINC 768 and determine need to define multiple configurations (for example, with or without TAWS.)

2) Add the Distance Measuring Equipment (DME) function

3) Specify an architecture with a bottom omni-directional antenna connection in lieu of a bottom directional antenna.

4) Specify the ISS connector size, keying, and pinouts to support:
   a) ARINC 664 network-based connections (e.g., fiber)
   b) One directional antenna (4 coaxes) and one omni antenna (1 coax)
   c) Minimize ARINC 429 interfaces

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: 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

- Expected reduced equipment and operating cost (< weight and volume)
- Equipment supplier choices
- Higher reliability (no separate hardware for dual DME installation, and more reliable omni antennas)

4.2.2 Benefits for Airframe Manufacturers

- Common installation(s)/solution(s), less variability
- Equipment volume reduction (reduction in equipment racks, or allows

other avionics equipment to be installed without additional equipment racks)

4.2.3 Benefits for Avionics Equipment Suppliers

- 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

ARINC Characteristic 768A, "Second Generation Integrated Surveillance System (2G ISS)", **March 2023.**

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 768A – 2G ISS	**Bi-weekly Web Conferences**	**TBD**	October 2019	March **2023**

6.0 Comments

The working group has faced several technical challenges obtaining consensus on the use of fiber optic to support ARINC 664 network interface. Benefits of the fiber have widely echoed positively among the subcommittee members instead of copper interface, however further alignment is needed. Therefore, the scope of this APIM will need to account for physical layer definition, managed under a different standard (refer to draft APIM 21-006), before objective criteria can be fulfilled for ARINC 768A as it will have direct implication on fiber optic transmitter/receiver performance criteria.

6.1 Expiration Date for the APIM

March 2023

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

Attachment 6

Attachment 6

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 19-008B

New ARINC Project Paper 748: Airborne Weather Radar with Advanced Antenna Technology

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

Weather Radar Working Group Chairman: Mohammed Ahmed, Boeing

2.2 Support for the activity

Airlines: American, Delta, FedEx, Lufthansa, TAP Portugal, United, UPS

Airframe Manufacturers: Airbus, Boeing

Suppliers: Collins, Garmin, Honeywell, Gables

Others:

2.3 Commitment for Drafting and Meeting Participation

Airlines: FedEx

Airframe Manufacturers: Airbus, Boeing

Suppliers: Collins, Gables, Garmin, Honeywell

Others:

2.4 Recommended Coordination with other groups

None

3.0 Project Scope

3.1 Description

This project calls for a new Weather Radar ARINC Project Paper 748 to support new, ARINC 664 network-based, aircraft designs.

ARINC Characteristic 708A “Airborne Weather Radar with Forward Looking Windshear Detection Capability” was last updated with Supplement 3 in 1999. The ARINC 708A-3 architecture has the WXR antenna and antenna drive under the nose radome, and interconnected, via a waveguide, to a Receiver/ Transmitter (that contains the RF front-end and processing) installed in a tray inside the pressure vessel.

In the last 10 years, suppliers have designed and fielded newer WXR system installations that are not compliant with ARINC 708A (or any other standard). In these WXR installations, the RF front end is installed within a Receiver/Transmitter Module (RTM) under the nose radome and is interconnected with a standalone ARINC 600 rack-mounted WXR processor in the EE bay. Also, no separate waveguide installation is required for these newer WXR installations. [Note: This type of newer WXR architecture (with an RTM under the nose radome) is documented in the ARINC 768 Integrated Surveillance System (ISS) characteristic, but ARINC 768 has an ISS Processor Unit in lieu of a standalone WXR Processor in the EE bay].

Although these newer WXR installations provide cost and Size, Weight, and Power (SWaP) benefits over-and-above the ARINC 708A WXR installations, these newer, standalone WXR installations do not follow an industry standard and are not interchangeable between suppliers. Consequently, if one supplier's WXR system needs to be swapped-out to install another supplier's WXR system, extensive aircraft changes are required to be made (e.g. the WXR Processor's ship-side connector, RTM ship-side connector, and wiring between the WXR Processor and RTM need to be changed). This has a significant impact if an airframer or airline wants to switch between WXR equipment suppliers.

For future network-based aircraft, the WXR system installation needs to be standardized so that these extensive aircraft changes are not required. The working group should consider an interface definition for accommodating the receipt and transmission of raw weather data. The Working Group's goal is to develop a WXR system that installs an Electronically Scanned Antenna (ESA) under the aircraft's nose radome.

Weather radar meetings held in 2020 and 2021 revealed several technical challenges and trade-offs related to moving from the traditional mechanically sweeping antenna to a fixed mount ESA. The group has discussed several ESA geometries including single panel ESA, dual panel ESA, and three panel ESA. Panel size and geometry will have a direct influence on weather radar performance. This all comes at some cost and with tradeoffs. Therefore, the scope of this APIM is expanded to include an ESA feasibility study and an attachment to ARINC Project Paper 748. The feasibility study is expected to contain objective criteria and quantitative data for ESA performance in different configurations.

3.2 Planned usage of the envisioned specification

New aircraft developments planned to use this specification	yes ☒ no ☐
Specify: Next new Boeing air transport aircraft Next new Airbus air transport aircraft	
Modification/retrofit requirement	yes ☐ no ☒
Specify:	
Needed for airframe manufacturer or airline project	yes ☒ no ☐
Specify: Next new Boeing air transport aircraft	
Mandate/regulatory requirement	yes ☐ no ☒

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

Specify:

When is the ARINC Standard required? May **2023**

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

It is expected that the following specific items will be addressed as part of the WXR standard development (and others as they arise):

1) Standardize a WXR Electronically Scanned Antenna (ESA) installation under the nose radome. The goal is that the ESA would support RF transmit/receive, processing, and input/output functions, thus, negating the need for a separate WXR processor in the EE bay. Whether this goal can be met will be determined during standards development.

2) The ESA installation would standardize the following:
   a. Installation mounting
   b. Maximum volume
   c. Connector(s) and pinouts to support power input and ARINC 664 network-based connections (e.g., fiber, and others if required)
   d. Antenna pattern field of view
   e. Operational frequencies

3) Expected system reliability for the new installation needs to be determined and should be improved over current WXR installations (single and dual installations).

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: Not applicable

Is this a software interface and protocol standard? yes ☐ no ☒

Specify:

Product offered by more than one supplier yes ☒ no ☐

Identify: Collins Aerospace, Garmin, Honeywell

4.2 Specific project benefits (Describe overall project benefits.)

4.2.1 Benefits for Airlines

- Supplier system interchangeability

4.2.2 Benefits for Airframe Manufacturers

- Common installation(s)/solution(s), less variability
- Supplier system interchangeability

4.2.3 Benefits for Avionics Equipment Suppliers

- 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

ARINC Project Paper 748: Airborne Weather Radar System with Advanced Antenna Technology, **March 2023.**

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 Project Paper 748 Weather Radar	TBD*	**TBD***	October 2019	March **2023**

6.0 Comments

*** This is an online activity.** Regularly scheduled web conferences are planned.

6.1 Expiration Date for the APIM

October **2023**

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

Attachment 7

Attachment 7

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project — APIM 19-009B

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**]:

- 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**]:

- 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**

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) 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**
- ARINC Project Paper 735C: TRAFFIC COMPUTER - ACAS-X AND ADS-B FUNCTIONALITY, **March 2022**

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

6.0 Comments

6.1 Expiration Date for the APIM

May 2022

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

Attachment 8

Attachment 8

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 19-013A

This APIM proposes development of **Supplement 7 to ARINC Specification 810:** *Definition of Standard Interfaces for Galley Insert (GAIN) Equipment Physical Interfaces*

1.1 Name of Originator and/or Organization

Christian Auris, Airbus, Co-Chairman, Galley Inserts (GAIN) Subcommittee

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

Galley Inserts (GAIN) Subcommittee

Co-Chairman: Christian Auris, Airbus

Co-Chairman: Adam Cha, Boeing

2.2 Support for the Activity (as verified)

Airlines:

Airframe Manufacturers: Airbus, Boeing (TBC)

Suppliers:

Others:

2.3 Commitment for Drafting and Meeting Participation (as verified)

Airlines: Lufthansa, Virgin Atlantic, Air Canada

Airframe Manufacturers: Airbus, Boeing (TBC)

Suppliers:

Others:

2.4 Recommended Coordination with other groups

The following AEEC Subcommittee activities are relevant to this topic:

- SAI Subcommittee

3.0 Project Scope (why and when standard is needed)

3.1 Description

The current published version of **ARINC Specification 810-6:** *Definition of Standard Interfaces for Galley Insert (GAIN) Equipment Physical Interfaces* defines the physical dimensions for electrical and non-electrical galley inserts.

The standard defines the dimensional requirements for galley compartments and inserts. To enable future applications related to catering processes (e.g. inventory management), sensors will be required to identify the content of the galley compartment.

To enable cross fleet operations, it will be required to standardize positions and technology to be used to provide good service to the operators.

3.2 Planned usage of the ARINC Standard

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

New aircraft developments planned to use this specification yes ☒ no ☐

Airbus: **TBD**

Boeing: **TBD**

Other: **TBD**

Modification/retrofit requirement yes ☒ no ☐

Specify: (aircraft & date)

Needed for airframe manufacturer or airline project yes ☒ no ☐

Specify: (aircraft & date)

Mandate/regulatory requirement yes ☐ no ☒

Program and date: (program & date)

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

Specify ARINC 810

When is the ARINC standard required? Supplement 7 to ARINC 810 is expected by May 2023.

What is driving this date? Aircraft development schedules.

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

Identify the types of sensors required for galley inventory tracking.

Define positions for sensors in the compartments for non-electrical inserts.

Define positions for identifiers on the non-electrical inserts (e.g. Trolley/Standard container).

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 ☐

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 yes ☒ no ☐

Identify: Safran, Diethelm Keller, Korita, Collins Aerospace, AIM, Bucher

4.2 Specific Project Benefits

GAIN standards provide a common distribution system for Airbus and Boeing multi- and single-aisle aircraft. These standards focus on standardized interfaces that are beneficial to the airlines, airframe manufacturers, and suppliers.

4.2.1 Benefits for Airlines

This standard will provide several benefits to Airlines:

- Equipment interoperability between suppliers.
- Reduction in development cost, improved reliability, and therefore reduced cost for the airlines.

4.2.2 Benefits for Airframe Manufacturers

This standard will provide several benefits to Airframe manufacturers:

- Equipment interoperable between suppliers.
- Flexibility and reduced costs by working from the same set of guidelines.
- Reduction of time and cost for new developments due to reuse of proven solutions.

4.2.3 Benefits for Avionics Equipment Suppliers

This standard will provide several benefits to Equipment Suppliers:

- Eliminates the need to design custom provisions for each installation.
- Reduction of time and cost for new developments due to reuse of proven solutions.

5.0 Documents to be Produced and Date of Expected Result

Supplement 7 to ARINC Specification 810: Definition of Standard Interfaces for Galley Insert (GAIN) Equipment Physical Interfaces. A mature document is expected by May 2023.

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 7 to ARINC 810	Bi-weekly Web Conferences	TBD	October 2021	May 2023

Please note the number of in-person meetings and the number of meeting days to be supported by the ARINC IA Staff.

Please add a statement describing the frequency of web conferences.

6.0 Comments

6.1 Expiration Date for the APIM

May 2023

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