

ARINC Project Initiation/Modification (APIM)

- 1.0 Name of Proposed Project** **APIM 16-005A**
Define Cabin System Interfaces as follows:
- HD Landscape Camera
 - ~~USB 3.1 Power Outlets~~ (completed)
 - Update Network System Components
 - 4K Ultra High Definition Video Standards
 - **Update Part 0 Overview of ARINC Cabin Standards**
- 1.1 Name of Originator and/or Organization**
Cabin Systems Subcommittee (CSS)
Delta Air Lines, Chairman
- 2.0 Subcommittee Assignment and Project Support**
- 2.1 Suggested AEEC Group and Chairman**
Cabin System Subcommittee (CSS)
Dale Freeman, Delta Air Lines
- 2.2 Support for the activity (as verified)**
Airlines: Delta
Airframe Manufacturers: Airbus, Boeing
Suppliers: KID, VT Miltope, LH-Technik, Thales, Panasonic, Rockwell-Collins, Lumexis, Zodiac ZII, Zodiac Seats France, Astronics, Amphenol, TE Connectivity, Esterline Souriau, ITT Cannon, W. L. Gore, Molex, Latecoere
Others:
- 2.3 Commitment for Drafting and Meeting Participation (as verified)**
Airlines: Delta
Airframe Manufacturers: Airbus, Boeing
Suppliers: KID, VT Miltope, LH-Technik, Thales, Panasonic, Rockwell-Collins, Lumexis, Zodiac ZII, Zodiac Seats France, Astronics, Amphenol, TE Connectivity, Esterline Souriau, ITT Cannon, W. L. Gore, Molex, Latecoere
Others:
- 2.4 Recommended Coordination with other groups**
N/A
- 3.0 Project Scope (why and when standard is needed)**
- 3.1 Description**
New and retrofit aircraft will use the documents developed under this standardization program. The documents will define cost effective and valuable network infrastructures for interface standards between inter-cabin and cabin-to-aircraft equipment and communications standards.

The objective is to help the airlines cope with the rapid and evolving IFE industry by providing them with the freedom of choice in the installation and modular expansion of cabin equipment. This is necessary since passenger entertainment and infotainment systems are subject to frequent aircraft upgrades. Generating cabin interface protocols, administering and resolving seat integration issues, cabin communications, and connector standardization are also significant parts of the activities.

Specifically, this APIM authorizes the following activities for Cabin Standards:

- Include the following changes in Supplement 8 to ARINC 628 Part 1, per APIM 15-006 **and APIM 17-009**:
 - (1) Provide interfaces for a High-Definition (HD) Landscape Camera. The interface definition will include new video encoding formats, video resolution, and bandwidth requirements.
 - (2) Provide specifications for UHD Video streams (4K), video encoding requirements and video screen resolutions.
- Update applicable interfaces for USB 3.1 outlets in passenger seats in Supplement 9 to ARINC 628 Part 2, Supplement 4 to ARINC 809, and Supplement 2 to ARINC 832. **Note: This item is considered closed -- Supplement 9 to ARINC 628 Part 2 completed; and no changes to ARINC 809 or ARINC 832.**
- Supplement 4 to ARINC 628 Part 9 – to replace references to legacy network system components that are no longer in use or have been replaced (e.g., CNSU) to be in line with current systems, e.g., ARINC 628 Part 1 802.11n wireless access points. **Note: This item is considered closed -- Supplement 4 to ARINC 628 Part 9 completed.**
- **Supplement 4 to ARINC 628 Part 0 – to provide a routine update of the standard to bring the overview/summary document up to date with the status of cabin-related standards.**

3.2 Planned usage of the envisioned specification

New aircraft developments planned to use this specification yes no

 Airbus: A320Neo, Airplane retrofit and forward fit programs

 Boeing: 737 Max, 777X, and airplane retrofit programs forward fit programs

Modification/retrofit requirement yes no

 Specify: Airlines are retrofitting cabin systems into their existing fleets.

Needed for airframe manufacturer or airline project yes no

 Specify: driven by the need to provide common definitions for the airplane programs and retrofit programs

Mandate/regulatory requirement yes no

 Program and date: No mandate

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

 Specify:

When is the ARINC Standard required? Per aircraft program

What is driving this date? Aircraft Development Schedules

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

If NO, please specify solution: Not applicable

Are Patent(s) involved? yes no

If YES please describe, identify patent holder: Not applicable

3.3 Issues to be worked

- Definition of standard cabin interfaces for the technologies indicated

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

Product offered by more than one supplier yes no

Identify:

4.2 Specific project benefits (Describe overall project benefits.)

Cabin systems provide entertainment and other services to the passenger. To satisfy the airline's desire for improved services to its passengers, cabin systems are becoming more sophisticated and complex. Home entertainment and office type computing systems and peripherals are finding applications in the cabin to facilitate data handling and communication to the ground. The growing complexity of cabin equipment has resulted in the need to update Cabin Standards in multiple parts. New standards are being added to provide guidance to developers of next generation systems and networks. The benefits of the cabin standards are numerous. They provide the airlines freedom of choice, unit price reduction through increased volume, interchangeable spares, more upgradeable options, and creation of more sub- markets for integrators and software/hardware suppliers. These benefits are being realized on all new aircraft programs, eventually regional and business jets, and retrofit aircraft programs.

4.2.1 Benefits for Airlines

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

4.2.2 Benefits for Airframe Manufacturers

- Equipment interchangeability 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

- 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 4 to ARINC 628 Part 0
- Supplement 8 to ARINC 628 Part 1
- ~~Supplement 9 to ARINC 628 Part 2~~ (completed)
- ~~Supplement 4 to ARINC 628 Part 9~~ (completed)

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 8 to ARINC 628 Part 1	3	9	5/16	3/17 April 2019
Supplement 4 to ARINC 628 Part 0	4	12	11/17	April 2019
Allocated Resources (max)	5 12	15 36	May 2016	9/17 April 2019

* Meeting days reflect CSS meetings responsible for multiple ARINC Standards. In addition to the in-person meetings identified above, web conferences will be called to support specific project goals.

6.0 Comments

This APIM opens the following ARINC Standards.

- ARINC Specification 628 Part 0
- ARINC Specification 628 Part 1 (content per APIMs 15-006, 16-005A, 17-009, and 17-011)

6.1 Expiration Date for this APIM

October 2019

Completed forms should be submitted to the AEEC Executive Secretary.