ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project — APIM 13-014B

Cabin Cables and Connectors

1.1 Name of Originator and/or Organization

CSS Subcommittee

Connector Working Group

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

CSS Subcommittee

Connector Working Group

Chairman: Dale Freeman

2.2 Support for the activity (as verified)

Airlines: Delta

Airframe Manufacturers: Boeing, Airbus

Suppliers: Lumexis, Panasonic, Rockwell Collins, Thales, Zodiac, Astronics, Amphenol, TEC, Glenair, Souriau, Radial, Cinch, Molex, ITT, Carlisle

2.3 Commitment for Drafting and Meeting Participation (as verified)

Airlines: Delta

Airframe Manufacturers: Boeing, Airbus

Suppliers: Lumexis, Panasonic, Rockwell Collins, Thales, Zodiac, Astronics, Amphenol, TEC, Glenair, Souriau, Radial, Cinch, Molex, ITT, Carlisle

2.4 Recommended Coordination with other groups

FOS Subcommittee, GAIN Subcommittee

3.0 Project Scope

3.1 Description

The CSS has developed a catalogue of standard connectors and cables for cabin applications. ARINC Specification 800 describes the characteristics and form factors of connectors and cables used for ARINC-specified cabin systems for commercial aircraft. Components are referenced in relevant system specifications and their designation is specified in this specification.

ARINC Specification 800 was published in four parts.

- **Part 1**: General description of new development process for cables and connectors for cabin systems; component identification; objectives; and qualification guidelines.
- **Part 2**: Listing of connector, contacts, and backshells; test specifications for connectors, test groups; and test requirements.
- **Part 3**: Listing of cable categories; test specifications; test groups; and test requirements.

- **Part 4**: Definition of test methodology for characterizing ARINC 664 Ethernet performance using aviation-grade connectors and cables.

ARINC Specification 800 provides component standards necessary to achieve interchangeability between equipment providers. The connectors and cables described in this Specification should be used for the cabin equipment.

The purpose of this APIM is to develop or modify ARINC Specification **800** to support standardization of cabin connectors and cables.

Specifically, this APIM authorizes the following activities:

- **Supplement 1 to ARINC 800, Part 2, Cabin Connectors to define a hybrid (i.e., fiber optic-copper) connector insert for use in cabin equipment retrofit and line-fit installations and to define connectors and contacts to support 10 Gbps Ethernet (reference APIM 12-004C).**
- **Supplement 1 to ARINC 800, Part 3, Cabin Cables to (1) define 4-pair aviation Cat 6A cables to support 10 Gbps Ethernet (reference APIM 12-004C) and (2) to incorporate hybrid fiber optic- copper composite cable defined by the CSS and intended for use with 4GCNs compliant with ARINC Specification 832-1.**

3.2 Planned usage of the envisioned specification

Use the following symbol to check yes or no below. ☒

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

Airbus:	A350
Boeing:	777X
Other:	(manufacturer, aircraft & date)

Modification/retrofit requirement yes ☒ no ❑

Airbus:	All Airbus Aircraft types
Boeing:	All Boeing Aircraft types

Needed for airframe manufacturer or airline project yes ☒ no ❑

Specify: Line fit and retro-fit on all existing aircraft types

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? October 2015

What is driving this date? Availability for future line-fit and retrofit projects

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

❑

If NO please specify solution: _____

Are Patent(s) involved? yes ❑

If YES please describe, identify patent holder: _____

3.3 Issues to be worked

Definition of key parameters for the hybrid **and 10 Gbps Ethernet** interface**s**, including the following:

- Connector insert selection.
- **8ax 4-pair contact definition**
- Seat-to-seat cabling
- Referencing from source documents

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: _____

Products offered by more than one supplier yes ☒ no ❑

Identify: Amphenol, TEC, Glenair, Souriau, Radial, Cinch, Molex, ITT, Carlisle

4.2 Specific Project Benefits

4.2.1 Benefits for Airlines

By providing a common document for these definitions it will be easier to specify standard wiring and connectors for the entire class of cabin systems. Standardized cables and connectors being used in several systems will reduce the cost for stock and repair.

4.2.2 Benefits for Airframe Manufacturers

The standardization of connectors and cables allows airframe manufacturers to reference industry approved and standardized cables and connectors

leading to reduction of time and cost for new developments due to reuse of proven solutions.

4.2.3 Benefits for Equipment Suppliers

The equipment suppliers get an industry-approved catalog with cables and connectors, enabling reduction of time and cost for new developments due to reuse of proven solutions. A single standard among different suppliers allows interchangeability and reduces development cost, which enhances competitiveness.

5.0 Documents to be Produced and Date of Expected Result

- Initial release of ARINC Project Paper 800, Part 3 - completed
- Supplement 1 to ARINC Specification 800, Part 2
- **Supplement 1 to ARINC Specification 800, Part 3**
- Supplement 3 to ARINC Specification 809 - completed
- Supplement 4 to ARINC Specification 810 – completed
- Initial release of ARINC Project Paper 800, Part 4 **- 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.

Product/Activity	Mtgs	Mtg-Days (Total)	Expected Start Date	Expected Completion Date
Supplement 1 to ARINC Specification 800 Part 2	***2***	***6****	*October 2013*	*April **2017***
Supplement 1 to ARINC Specification 800 Part 3	***2***		*October 2013*	*April **2017***

***NOTES:** This effort will take place within the regularly scheduled CSS meeting. In addition, web conferences will be arranged between CSS meetings to review action items and the draft Supplement material.

6.0 Comments

These efforts would take place within the CSS Subcommittee.

6.1 Expiration Date for this APIM

April **2017**

Submit completed form to the AEEC Executive Secretary.