ARINC IA Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 08-011B

Cabin Enclosures - Mini Modules for Modular Rack Concept

2.0 Subcommittee Assignment and Project Support

2.1 Identify AEEC Group

It is recommended that the Cabin Systems Subcommittee (CSS), augmented with systems, integration and communications experts, be assigned to perform this work.

Airlines, aircraft manufacturers, cabin equipment/system suppliers and cable and connector manufacturers with an interest in cabin systems and its peripherals, are regularly participants in this activity.

2.2 Support for the activity

Airlines: Delta Air Lines

Airframe Manufacturers: Airbus

Suppliers: Panasonic Avionics, Thales, TE Connectivity, Molex, Amphenol, Radiall, Lufthansa Technik

Others:

2.3 Commitment for resources

Airlines: Delta

Airframe Manufacturers: Airbus will provide the necessary manpower and active support as required.

Suppliers: Panasonic Avionics, Thales, TE Connectivity, Molex, Amphenol, Radiall, Lufthansa Technik

Others:

2.4 Chairmen:

Chairman: Dale Freeman, Delta
Co-Chairmen: Gerald Lui-Kwan, Boeing and Rolf Goedecke, Airbus

2.5 Recommended Coordination with other groups

N/A

3.0 Project Scope

3.1 Description

ARINC Specification 836: Cabin Standard Enclosures – Modular Rack Principle (MRP), defines standard cabin equipment enclosures and provisions for equipment attachment on monuments.

This project will define and standardize mini modules for equipment being installed into a modular rack concept. The mini modules are mounted in frames (rack type slots) and can be installed and removed without tools. The mini modules include locking mechanisms for easy insertion and extraction. The

standard can be used for selected equipment being installed in cabin area. The physical footprint of these enclosures considers miniature circuit board standards to cover a large range of applications. When using the mini modular form factor, the space and weight requirements are drastically reduced compared with existing equipment. The mini modules are compatible with ARINC Specification 836 and set forth the standardization of cabin boxes in order to install cabin equipment quicker and easier.

The result of this project will be ARINC Project Paper 836A, which will include the previous form factors (Type I Enclosures) as well as the new miniature modules (Type II Enclosures).

3.2 Planned usage of the envisioned specification

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

Airbus:

Boeing:

Modification/retrofit requirement yes ❑ no ☒

Airbus:

Boeing:

Needed for airframe manufacturer or airline project yes ☒ no ❑

The timetable for this project is mainly driven by the development time needed to provide a mature definition. Introduction is not linked to a specific aircraft project. Introduction can be done as soon as possible to get the advantages of this standard.

Mandate/regulatory requirement yes ❑ no ☒

Program and date:

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

When is the ARINC standard required? October **2017**

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

Issues will include the development of form factors, mounting methods, and grounding/bonding methods for mini-modules and the associated mounting rack.

4.0 Benefits

The usefulness of an ARINC specification shall be led by the spirit to reduce the Direct Operating Cost (DOC) of an aircraft. As the DOC includes production cost (via the sales price) as well as the relevant operating cost, this method ensures the whole life time of an aircraft is covered.

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:

4.2 Specific project benefits

ARINC Specification 836A will provide a cabin equipment mini module standard to enable provisioning of the aircraft independent from customizing and options. The goal is to provide a modular box system supplemental to existing ARINC 836 Type I enclosures considering the specific need for cabin equipment.

4.3 Benefits for Airlines

Mini modular standardized enclosures simplify maintenance due to harmonized installation and quick replacement. Retrofits become much simpler as form and fit is pre-defined. Equipment becomes lighter and smaller and operating cost is reduced.

4.4 Benefits for Airframe Manufacturers

It will allow design of provisions for the aircraft independent of customization and options, reduces installation time and cost, and reduces weight and space requirements. Modules are stackable, both vertically and horizontally, resulting in a high package density.

4.5 Benefits for Avionics Equipment Suppliers

Predefined standardized mini-modules reduce development time and qualification cost. The boxes can be selected from a catalog and are manufactured in higher quantities. Standardized boards and standardized interface modules can be used.

5.0 Documents to be Produced and Date of Expected Result

ARINC Project Paper 836A.

6.0 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 836A	4*	Maximum ½ day each*	5/2014	10/2017

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

6.1 Expiration Date for this APIM

October 2017

7.0 Comments

None