

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.

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
<i>Supp 5 to ARINC 803</i>	<i>15</i>	<i>15</i>	<i>11/2021</i>	<i>05/2023</i>
<i>Supp 3 to ARINC 804</i>	<i>15</i>	<i>15</i>	<i>11/2021</i>	<i>05/2023</i>

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***