

# ARINC IA Project Initiation/Modification (APIM)

**1.0 Name of Proposed Project** **APIM #: 09-004A**  
 Update and maintain existing fiber optic standards

**2.0 Subcommittee Assignment and Project Support**

2.1 Identify AEEC Group  
     Fiber Optic Subcommittee

2.2 Support for the activity  
     Airlines: TBD, **FedEx, AAL**  
     Airframe Manufacturers:  
         Airbus  
         Boeing  
         Gulfstream  
         **Dassault**

Suppliers:

AFL
Amphenol
Carlisle IT
Deutsch UK
EDMO Distributors
EMTEQ
GE Aviation
Glenair
JDSU

ITT-Cannon
Kitco Fiber Optics
Lumexis
Radiall
Rockwell-Collins
Sabritec
Souriau
TE Connectivity
US Conec

Others:  
     NAVAIR

2.3 Commitment for resources  
     Same as above

2.4 Chairman:  
     Boeing – Bob Nye

2.5 Recommended Coordination with other groups  
     NIC Subcommittee  
     ADN Subcommittee  
     SAI Subcommittee



General IFE modifications

EFB systems

Mandate/regulatory requirement      yes  no

Program and date: *(program & date)*

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

Specify                      NIC and aircraft data buses

When is the ARINC standard required?

Immediate through 2011

What is driving this date? \_\_ Immediate need, but time is required to complete

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

Identification of evolving testing and maintenance procedures.

Defining standards for new fiber optic system components (single-mode fiber, optical connectors).

## 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:    An element of WDM LAN standard \_\_\_\_\_

Product offered by more than one supplier      yes  no

Identify:    All above companies

### 4.2 Specific project benefits

In general all changes will enhance the benefits of weight, reliability and bandwidth that are already realized with the implementation of fiber optics. Maintenance of these standards will allow the aviation industry to remain current with rapidly changing technology.

To provide guidance on testing the physical layer of fiber optic systems and to ensure that all fiber optic cable harness manufacturers are testing to the same standard utilizing the appropriate AMQJs, test equipment and test procedures.

**Installation, inspection, testing and cleaning procedures documented and standardized will decrease costs and increase reliability and efficiency of aircraft systems. Training of methods and procedures will also broaden aircraft technicians' knowledge and experience to benefit the aviation industry.**

#### *4.2.1 Benefits for Airlines*

*Broadens choices of hardware and improves selection of manufacturers of that hardware. Improved testing and maintenance techniques.*

#### *4.2.2 Benefits for Airframe Manufacturers*

*Better choices of qualified hardware and consistent methods defined for design and installation.*

#### *4.2.3 Benefits for Avionics Equipment Suppliers*

*Provides the ability to compete fairly in the industry and are presented guidelines for the type of equipment that the users desire.*

## 5.0 Documents to be Produced and Date of Expected Result

### 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 3 to ARINC Specification 801	3/year*	6 days per year	11/2009	<del>3/2011</del> 10/2012
Supplement 2 to ARINC Specification 802				
Supplement 3 to ARINC Report 803				
Supplement 2 to ARINC Report 804				
Supplement 4 to ARINC Report 805				
Supplement 5 to ARINC Report 806				
Supplement 3 to ARINC Report 807				

- Indicate meetings that will address multiple standards together. Some unsupported meetings will also be needed to support the updates to the standards, i.e., technical working group or other ad hoc meetings that do not requiring IA staff support.
- **ARINC Specifications 801 and 802 are inter-related and work is generally in parallel as new material is incorporated (documenting single-mode fiber).**
- **ARINC Report 803 is expected to take at least 12-18 months to gather information on LRU fiber installations for incorporating into the Standard.**
- **ARINC Reports 805, 806, and 807 are inter-related and work is generally in parallel as new material is incorporated (documenting single-mode fiber).**

## 6.0 Comments

The current situation is that there are different methods for maintaining and testing the physical layer of aerospace fiber optic systems.

These different test methods are designed for testing specific applications of the fiber optic physical layer; for example active interfaces and passive interfaces. This has led to confusion as to how to properly test the fiber optic cable harness, quality assurance compliance and system acceptance. In most cases this has led

to improper test methodology and therefore it is vital that an aerospace testing standard be prepared to address the increasing use of fiber optic technology.

***For IA Staff use***

Date Received: \_\_\_\_\_ IA Staff Assigned: \_\_\_\_\_

Estimated Cost: \_\_\_\_\_

Potential impact: \_\_\_\_\_

(**A. Safety**    **B. Regulatory**    **C. New aircraft/system**    **D. Other**)

Forward to committee(s) (AEEC, AMC, FSEMC): \_\_\_\_\_ Date Forwarded: \_\_\_\_\_

Committee resolution: \_\_\_\_\_

(**0 Withdrawn**    **1 Authorized**    **2 Deferred**    **3 More detail needed**    **4 Rejected**)

Assigned Priority: \_\_\_\_\_ Date of Resolution: \_\_\_\_\_

(**A High - execute first**    **B Normal - may be deferred.**)

Assigned to SC/WG: \_\_\_\_\_