

**Project Proposal For a New INCITS Technical Report**

**Fibre Channel Avionics Environment –  
Upper Layer Protocol and Profile based on  
MIL-STD-1553B Notice 2**

**(FC-AE-1553)**

**T11/03-308v1**

August 28, 2003

## **1. Source of the Proposed Project**

### **1.1. Title**

Fibre Channel Avionics Environment –Upper Layer Protocol and Profile based on MIL-STD-1553B Notice 2 (FC-AE-1553)

### **1.2. Date**

April 9, 2003

### **1.3. Proposer(s)**

INCITS TC T11, with a current membership of xx.

## **2. Process Description for Proposed Project**

### **2.1. Project Type (Development or Revision)**

Type D (Development done within INCITS T11)

### **2.2. Type of Document**

Technical Report

### **2.3. Definition of Concepts and Special Terms**

None

### **2.4. Expected Relationship with Approved Reference Models, Frameworks, Architectures, etc.**

All Fibre Channel standards and technical reports are intended for use in closed systems.

### **2.5. Recommended INCITS Development Technical Committee (Existing or New)**

It is recommended that this project be assigned to TC T11, in order that the project be coordinated with work on other Fibre Channel standards.

### **2.6. Anticipated Frequency and Duration of Meetings**

This project will make use of the regularly scheduled bimonthly T11 plenary meetings. Informal Working Groups will be organized on an ad-hoc basis.

## **2.7. Target Date for Initial Public Review (Milestone 4)**

June 2004

## **2.8. Estimated Useful Life of Standard or Technical Report**

It is anticipated that this technical report will have a useful life of 10 to 20 years based on the expected lifetime of avionics applications.

# **3. Business Case for Developing the Proposed Standard or Technical Report**

## **3.1. Description**

This project proposal recommends the development of new, and correction of existing, compliance criteria that allows interoperable sets of hardware and software to be specified and implemented to create an embedded Fibre Channel network within avionics applications.

This Technical Report from this project will replace clause 4.3 of FC-AE, INCITS TR-31-2002, which defined the original FC-AE-1553 protocol and profile.

The broad range of features and options defined within the Fibre Channel set of specifications make it particularly difficult to define and implement multiple instantiations of Fibre Channel networks for various avionics applications that are interoperable. The creation of this high leverage industry wide profile, that defines interoperable sets of features and options, will reduce the risk and cost of developing and implementing new and upgrade avionics programs using the 1553 protocol and facilitate the adoption of Fibre Channel into this industry. This profile provides the underlying structure for industry wide commonality, not only of the network elements, but also for development and test resources. The Fibre Channel Avionics Environment technical report provides an initial definition of a set of high leverage profiles that includes FC-AE-1553. Additional features and options, along with correction of existing definitions as needed, will further extend the utility of this profile.

A structured method for requirements tracking, based on the IS 9646 standard, will be utilized to update and correct the existing FC-AE-1553 definition in the FC-AE document in the creation of FC-AE-1553.

## **3.2. Existing Practice and the Need for a Standard**

Today's avionics applications (both new and upgrade programs) individually attempt to define the features and options for their specific implementation. Often this is accomplished based on the capabilities of existing commercial products that are not designed to address the needs of the avionics environment.

### **3.3. Implementation Impacts of the Proposed Standard**

The impact of the availability of this technical report will be tri-fold. First, it will provide the means by which the avionics industry can leverage common interoperable hardware and software for 1553-based platforms. Second, it has the potential to influence test and integration equipment developers to support avionics unique capabilities. And third, Fibre Channel component developers could easily implement, at little or no additional cost, the features and options required for the avionics market.

#### **3.3.1 Development Costs**

This Technical Report will be developed through the voluntary and cooperative efforts of T11 Task Committee members. No development costs are anticipated.

#### **3.3.2 Impact on Existing or Potential Markets**

The proposed Technical Report will provide an upward growth path that complements and enhances existing supplier products and support schemes. This report will result in expanded applications for existing and conceived products in avionics markets. It is likely that without this Technical Report adverse effects will occur through non-interoperable evolution.

#### **3.3.3 Costs and Methods for Conformity Assessment**

The committee will consider the results of testing provided to the committee through the voluntary efforts of the participants in T11. With this method all costs are borne by the organizations of the various participants and have for the most part been mainly an adjunct of their normal development costs.

#### **3.3.4 Return on Investment**

The return on investment for this activity is expected to be high due to the commonality of effort guided by a single method of providing interoperability definitions. Additionally, the investment made in products developed under FC-AE-1553 will be preserved by defining this profile within the existing infrastructure.

### **3.4. Legal Considerations**

#### **3.3.5 Patent Assertions**

Calls will be made to identify assertions of patent rights in accordance with the relevant INCITS, ANSI and ISO/IEC policies and procedures. T11 is not aware of any patent assertions that may be made.

### 3.3.6 Dissemination of the Standard or Technical Report

Drafts of this document will be disseminated electronically. Dissemination of the final technical report will be restricted, as the document becomes the property of INCITS, ANSI, or ISO/IEC.

## 4. Related Standards Activities

### 4.1. Existing Standards

X3.230-1994, Fibre Channel Physical and Signalling Interface (FC-PH).

X3.297-1997, Fibre Channel Physical and Signalling Interface - 2 (FC-PH-2).

X3.303-1998, Fibre Channel Physical and Signaling Interface - 3 (FC-PH-3).

X3.272-1997, Fibre Channel Arbitrated Loop – 2 (FC-AL-2).

NCITS TR-20-1998, Fibre Channel Fabric Loop Attach (FC-FLA).

NCITS 355:2001 Fibre Channel Switch Fabric and Switch Control Requirements (FC-SW-2).

NCITS 348:2000 Fibre Channel 3rd Generation Generic Services (FC-GS-3).

NCITS 342:2000 Fibre Channel Backbone (FC-BB).

INCITS 352:2001 - Physical Interface (FC-PI).

INCITS TR-31-:2002 – Fibre Channel Avionics Environment (FC-AE).

INCITS TR-XX-200x, Fibre Channel - Methodologies for Interconnects Technical Report (FC-MI), Revision 1.92.

ISO/IEC 9646 - Information Technology - Open Systems Interconnection - Conformance testing methodology and framework. Parts 1-7

### 4.2. Related Standards Activity

Project 1331-D, Fibre Channel Framing and Signal Interface (FC-FS).

Project 1506-D, Fibre Channel Physical Interface (FC-PI-2).

Project 1570-D, Fibre Channel Security Protocol (FC-SP).

Project 1356-D, Fibre Channel - Generic Service 3 (FC-GS-4)

Project 1377-D, Fibre Channel - Methodologies for Interconnects Technical Report (FC-MI-2).

Project 1305-D, Fibre Channel - Switch Fabric - 3 (FC-SW-3).

Project 1466-D, Fibre Channel - Back Bone - 2 (FC-BB-2).

**4.3. Recommendations for Coordinating Liaison**

None

**4.4. Recommendations for Close Liaison**

None