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FOREWORD

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- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where, for any other reason, there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when the technical committee has collected data of a different kind from that which is normally published as an International Standard, for example ‘state of the art’.

Technical reports of types 1 and 2 are subject to review within three years of publication to decide whether they can be transformed into International Standards. Technical reports of

type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/IEC TR 14165-312, which is a technical report of type 2, was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This document is issued in the type 2 technical report series of publications (according to 16.2.2 of the Procedures for the technical work of ISO/IEC JTC 1 (5th edition, 2004)) as a prospective standard for provisional application in the field of avionics, because there is an urgent requirement for guidance on how standards in this field should be used.

This document is not to be regarded as an International Standard. It is proposed for provisional application so that information and experience of its use in practice may be gathered. Comments on the content of this document should be sent to IEC Central Office.

A review of this type 2 technical report will be carried out not later than three years after its publication with the option of extension for a further three years, conversion into an International Standard or withdrawal.

This Technical Report has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

INTRODUCTION

This part of ISO/IEC 14165 defines a set of features necessary to implement a real-time Fibre Channel network (point-to-point, switched fabric, or arbitrated loop) supporting the FC-AE-1553 Upper Level Protocol.

FC-AE-1553 is intended to support bi-directional communication between two or more N_Ports in a constrained and carefully defined environment, typical of avionics applications. The intended usage is avionic command, control, instrumentation, simulation, signal processing, file distribution, and sensor/video data distribution. These application areas are characterized by a variety of requirements, among them a need for high reliability, fault tolerance, and deterministic behavior to support real-time command/response.

The FC-AE-1553 protocol is based on MIL-STD-1553B Notice 2 with extensions in bandwidth, address space, and data transfer size in order to support low-latency, low overhead communication between elements of a mission-critical avionics system. Some of the key features of FC-AE-1553 are its command/response protocol; options for acknowledged or unacknowledged messaging, RDMA transfers, file transfers; along with the capability to bridge to legacy MIL-STD-1553 terminals.

This part of ISO/IEC 14165 is divided into 4 clauses:

Clause 1 is the scope of this part of ISO/IEC 14165.

Clause 2 enumerates the normative references that apply to this part of ISO/IEC 14165.

Clause 3 describes the definitions, abbreviations, and conventions used in this part of ISO/IEC 14165.

Clause 4 defines the FC-AE-1553 Upper Level Protocol. This clause indicates whether features are Required, Prohibited, Allowed, or Invocable in FC-AE-1553.

This part of ISO/IEC 14165 has three annexes:

Annex A is a normative annex which defines Process Login for the FC-AE-1553 upper layer protocol.

Annex B is an informative annex that contains a profile of the FC-FS and FC-AL-2 standards as an example for avionics Fibre Channel network which uses FC-AE-1553.

Annex C is an informative annex providing information regarding bridging between FC-AE-1553 Fibre Channel networks and MIL-STD-1553 buses.

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1 Scope

This part of ISO/IEC 14165 is intended to serve as an implementation guide to maximize the likelihood of interoperability between conforming implementations. This part of ISO/IEC 14165 Prohibits or Requires features that are optional, and Prohibits the use of some non-optional features in the referenced specifications (see Clause 2).

In addition, this part of ISO/IEC 14165 simplifies implementations and their associated documentation, testing, and support requirements.

This Technical Report does not define internal characteristics of conformant implementations. This part of ISO/IEC 14165 incorporates features from the normative references in Clause 2.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

The provisions of the referenced specifications other than ISO/IEC, IEC, ISO and ITU documents, as identified in this clause, are valid within the context of this document. The reference to such a specification within this document does not give it any further status within ISO or IEC. In particular, it does not give the referenced specification the status of an International Standard.

ISO/IEC 14165-122, *Information technology – Fibre channel – Part 122: Arbitrated loop–2 (FC-AL-2)* [INCITS 332-1999]

ISO/IEC 14165-251, *Information technology – Fibre channel – Part 251: Framing and signalling (FC-FS)* [ANSI INCITS 373:2003]

ISO/IEC 14165-261, *Information technology – Fibre Channel – Part 261: Link Services (FC-LS)* (in preparation)

ANSI INCITS 424, *Information technology – Fibre channel – Framing and Signaling-2 (FC-FS-2)*