

INTERNATIONAL STANDARD

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Information technology – Fibre Distributed Data Interface (FDDI) – Part 13: Conformance Test Protocol Implementation Conformance Statement (CT-PICS) Proforma

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INFORMATION TECHNOLOGY – Fibre Distributed Data Interface (FDDI) –

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FOREWORD

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75% of the national bodies casting a vote.

International Standard ISO/IEC 9314-13 was prepared by Joint Technical Committee ISO/IEC JTC 1 *Information technology*, Subcommittee SC 25, *Interconnection of information technology equipment*.

ISO/IEC 9314 consists of the following parts, under the general title *Information technology – Fibre Distributed Data Interface (FDDI)*:

- *Part 1: Token Ring Physical Layer Protocol (PHY) (1989)*
- *Part 2: Token Ring Media Access Control (MAC) (1989)*
- *Part 3: Physical Layer Medium Dependent (PMD) (1990)*
- *Part 4: Single Mode Fibre Physical Layer Medium Dependent (SMF-PMD)¹⁾*
- *Part 5: Hybrid Ring Control (HRC) (1995)*
- *Part 6: Station Management (SMT)*
- *Part 7: Physical Layer Protocol (PHY-2)*
- *Part 8: Media Access Control-2 (MAC-2)*
- *Part 9: Low-Cost Fibre – Physical Medium Dependent (LCF-PMD) (under consideration)*
- *Part 10: Token Ring Twisted Pair Physical layer Medium Dependent (TP-PMD) (under consideration)*
- *Part 13: Conformance Test Protocol Implementation Conformance Statement Proforma (CT-PICS)*
- *Part 20: Physical Medium Dependent Conformance Testing (PMD-ATS) (under consideration)*
- *Part 21: Physical Layer Protocol Conformance Testing (PHY-ATS) (under consideration)*
- *Part 25: Abstract test suite for FDDI – Station Management Conformance Testing (SMT-ATS)*
- *Part 26: Media Access Control Conformance Testing (MAC-ATS) (under consideration)*

¹⁾ To be published.

INTRODUCTION

To evaluate the conformance of this particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a given OSI protocol. Such a statement is called a *Protocol Implementation Conformance Statement* (PICS).

The Fibre Distributed Data Interface (FDDI) is intended for use in a high-performance, general-purpose multistation network and is designed for efficient operation with a peak data rate of 100 Mbit/s. It uses a Token Ring Architecture with optical fiber as the transmission medium. FDDI provides for hundreds of stations operating over an extent of tens of kilometres.

FDDI PICS Proforma specifies the protocol features that are mandatory and optional within the base standards. This document is supported by four separate Abstract Test Suite (ATS) standards that specify the test architecture required to prove conformance of an FDDI implementation.

The four ATS standards under development, which will provide a complete conformance test of an FDDI station, are:

- a) An ATS for FDDI Physical Medium Dependent (PMD) that provides a conformance test for FDDI PMD. PMD specifies the optical interface of FDDI stations. PMD is not a protocol standard and this ATS requires the measurement of physical quantities such as optical power, wavelength and signal jitter. The PMD ATS differs from the methodology of higher-level protocol conformance tests written using the Tree and Tabular Combined Notation (TTCN) as specified by ISO/IEC 9646-3, because the TTCN notation does not provide a suitable vehicle for Physical Layer testing, where there is no concept of a protocol data unit and where physical quantities must be measured.
- b) An ATS for the FDDI Physical Layer Protocol (PHY) that provides a conformance test for FDDI PHY. PHY specifies the upper sublayer of the Physical Layer for the FDDI, including the data encode/decode, framing and clocking, as well as the elasticity buffer, smoothing, and repeat filter functions. FDDI PHY, however, does contain several state machines and implements a protocol at the level of FDDI code symbols. The only physical quantity that must be measured in this conformance test is frequency. The PHY ATS cannot use the TTCN notation and a notation is developed in the PHY ATS for specifying test patterns and expected results in terms of FDDI code symbol strings.
- c) An ATS for FDDI Media Access Control (MAC) that provides a conformance test for FDDI MAC. MAC specifies the lower sublayer of the Data Link Layer for FDDI. It specifies access to the medium, including addressing, data checking, and data framing. MAC also specifies the receiver and transmitter state machines. Since MAC is a protocol that deals primarily with complete PDUs, the Tree and Tabular Combined Notation (TTCN) language specified in ISO/IEC 9646-3 is used to specify MAC protocol tests.
- d) An ATS for FDDI Station Management (SMT) that provides a conformance test for FDDI SMT. SMT specifies the local portion of the system management application process for FDDI, including the control required for proper operation of an FDDI station in an FDDI ring. SMT provides services such as connection management, station insertion and removal, station initialization, configuration management, fault recovery, communication protocol for external authority, scheduling policies, and the collection of statistics. SMT interacts with PMD, PHY and MAC for testing.

INFORMATION TECHNOLOGY – Fibre Distributed Data Interface (FDDI) –

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1 Scope

This part of ISO/IEC 9314 provides the PICS proforma for the Fibre Distributed Data Interface (FDDI) specified in the base standards as denoted in clause 5.

2 Normative References

The following standards contain provisions which, through reference in the text, constitute provisions of this part of ISO/IEC 9314. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 9314 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 9314-1:1989, *Information processing systems – Fibre Distributed Data Interface (FDDI) – Part 1: Token Ring Physical Layer Protocol (PHY)*

ISO/IEC 9314-2:1989, *Information processing systems – Fibre Distributed Data Interface (FDDI) – Part 2: Token Ring Media Access Control (MAC)*

ISO/IEC 9314-3:1990, *Information processing systems – Fibre Distributed Data Interface (FDDI) – Part 3: Physical Layer Medium Dependent (PMD)*

ISO/IEC 9314-6:1994, *Information technology – Fibre Distributed Data Interface (FDDI) – Part 6: Station Management (SMT)*

ISO/IEC 7498-1:1994, *Information technology – Open Systems Interconnection – Basic Reference Model: The Basic Model*

ISO/IEC 9646-1:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts*

ISO/IEC 9646-2:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 2: Abstract Test Suite specification*