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Information processing systems — Fibre Distributed Data Interface (FDDI) —

Part 2 :
Token Ring Media Access Control (MAC)

Systèmes de traitement de l'information — Interface de données distribuées sur fibre (FDDI) —

Partie 2 : Mécanisme d'accès au support de l'anneau à jeton (MAC)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 9314-2 was prepared by Technical Committee ISO/TC 97, *Information processing systems.*

ISO 9314 consists of the following parts, under the general title *Information processing systems — Fibre Distributed Data Interface (FDDI) —*

- *Part 1: Token Ring Physical Layer Protocol (PHY)*
- *Part 2: Token Ring Media Access Control (MAC)*
- *Part 3: Token Ring Physical Layer, Medium Dependent (PMD)*

Introduction

This part of ISO 9314 on the FDDI media access control is intended for use in a high-performance multistation network. This protocol is designed to be effective at 100 Mbit/s using a Token ring architecture and fibre optics as the transmission medium over distances of several kilometres in extent.

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Information processing systems - Fibre Distributed Data Interface (FDDI) -

Part 2:
Token Ring Media Access Control (MAC)

1 Scope

This part of ISO 9314 specifies the Media Access Control (MAC), the lower sublayer of the Data Link Layer (DLL), for Fibre Distributed Data Interface (FDDI).

FDDI provides a high-bandwidth (100 Mbit/s), general-purpose interconnection among computers and peripheral equipment using fibre optics as the transmission medium in a ring configuration. FDDI can be configured to support a sustained transfer rate of approximately 80 Mbit/s (10 Mbyte/s). It may not meet the response time requirements of all unbuffered high speed devices. FDDI establishes the connection among many stations distributed over distances of several kilometres in extent. Default values for the FDDI were calculated to accommodate rings of up to 1 000 physical links and a total fibre path length of 200 km (typically corresponding to 500 stations and 100 km of dual fibre cable).

FDDI consists of

(a) A Physical Layer (PL), which provides the medium, connectors, optical bypassing, and driver/receiver requirements. PL also defines encode/decode and clock requirements as required for framing the data for transmission on the medium or to the higher layers of the FDDI. For purposes of this part of 9314, references to the PL are made in terms of the Physical Layer entity designated PHY.

(b) A Data Link Layer (DLL), which is divided into two sublayers:

(1) A Media Access Control (MAC) which provides fair and deterministic access to the medium, address recognition, and generation and verification of frame check sequences. Its primary function is the delivery of frames, including frame insertion, repetition, and removal. The definition of MAC is contained in this part of ISO 9314.

(2) A Logical Link Control (LLC) which provides a common protocol to provide the required data assurance services between MAC and the Network Layer.

(c) A Station Management (SMT)[1)] which provides the control necessary at the station level to manage the processes under way in the various FDDI layers such that a station may work co-operatively on a ring. SMT provides services such as control of station initialization, configuration management, fault isolation and recovery, and scheduling procedures.

[1)] SMT will form the subject of a future part of ISO 9314.

The MAC definition contained herein is designed to be as independent as possible from bo the physical medium and the speed of operation. Concepts employed in ISO 8802-5, deali with Token Ring MAC operation have been modified to accommodate the higher FDDI speed while retaining a similar set of services and facilities.

ISO 9314 specifies the interfaces, functions, and operations necessary to ensure interoperabili between conforming FDDI implementations. This part of ISO 9314 provides a function description. Conforming implementations may employ any design technique that does n violate interoperability.

2 Normative references

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

ISO 8802-2: ----[1], *Information processing systems - Local Area Networks - Part 2: Logic Link Control (LLC).*

ISO 8802-5: ----[1], *Information processing systems - Local Area Networks - Part 5: Tok Ring Access Method and Physical Layer specification.*

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

ISO 9314-3: ----[1], *Information processing systems - Fibre Distributed Data Interface (FDDI) Part 3: Token Ring Physical Layer, Medium Dependent (PMD).*

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[1] To be published.