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Information technology — Fibre Distributed Data Interface (FDDI) — Part 5: Hybrid Ring Control (HRC)

*Technologies de l'information — Interface de données distribuées sur
fibre (FDDI) —*

Partie 5: Commande hybride par anneau (HRC)



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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 the technical committees established by the respective organization to deal with particular 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 9314-5 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)*
- Part 2: *Token Ring Media Access Control (MAC)*
- Part 3: *Physical Layer, Medium Dependent (PMD)*
- Part 5: *Hybrid Ring Control (HRC)*

Annexes A to F of this part of ISO/IEC 9314 are for information only.

Information technology — Fibre Distributed Data Interface (FDDI) —

Part 5: Hybrid Ring Control (HRC)

1 Scope

This part of ISO/IEC 9314 specifies a hybrid ring control (HRC) protocol which provides a mode of operation in which both packet switched and isochronous data are transmitted within the same special frame structure, called a cycle. HRC is designed to operate with the existing media access control (MAC), physical layer (PHY), and physical medium dependent (PMD) layers of the FDDI protocol.

The HRC is composed of the hybrid multiplexer (H-MUX) and the isochronous media access control (I-MAC) protocols. The H-MUX integrates packet and isochronous data into cycles which it transmits onto and receives from the medium using the services of the physical layer. The I-MAC provides separate transmission channels for the transfer of user isochronous data streams. The format, clocking and synchronization of cycles, and the operation and interfaces of the H-MUX and I-MAC are defined by this part of ISO/IEC 9314. These interfaces include the interface to the FDDI station management (SMT) protocol.

The HRC is designed to support various transmission rates, from 100 Mbps upwards, in increments of 6,144 Mbps. All transmission rate dependent parameters defined in this part of ISO/IEC 9314 assume a transmission rate of 100 Mbps.

Stations composed of FDDI and HRC entities are referred to as FDDI-II stations. The FDDI packet MAC (P-MAC) and the HRC components, and their architectural relationship to LLC and a circuit switching Multiplexer (CS-MUX) are illustrated in figure 1. This figure does not imply an implementation configuration

FDDI-II networks consist of FDDI-II stations. Interoperability between FDDI and FDDI-II stations on the same network is provided in HRC basic mode, which only supports packet transmission.

The set of FDDI standards, ISO/IEC 9314, specifies the interfaces, functions, and operations necessary to ensure interoperability between conforming FDDI implementations. This part of ISO/IEC 9314 specifies a hybrid ring control protocol: HRC. Conforming implementations may employ any design technique that does not violate interoperability.

2 Normative references

The following standards contain provisions which, through reference in this 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 listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

ISO 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 9314-7:----¹, *Information technology — Fibre Distributed Data Interface (FDDI) — Part 7: Physical Layer Protocol-2 (PHYS-2)*.

ISO/IEC 9314-8:----¹, *Information technology — Fibre Distributed Data Interface (FDDI) — Part 8: Media Access Control-2 (MAC-2)*.

ISO 8802-2:1994, *Information technology — Telecommunications and information exchange between systems — Local and metropolitan area networks — Specific requirements — Part 2: Logical link control*.

¹ To be published.