INTERNATIONAL STANDARD

ISO 8802-3

ANSI/IEEE Std 802.3

First edition
1989-02-24

Information processing systems — Local area networks —

Part 3 :
Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications

Systèmes de traitement de l'information — Réseaux locaux —

Partie 3 : Accès multiple par surveillance du signal et détection de collision et spécifications pour la couche physique

Reference number
ISO 8802-3 : 1989 (E)
ANSI/IEEE
Std 802.3-1988

First Printing

ISBN 1-55937-005-X
Library of Congress Catalog Card Number 88-046183

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345 East 47th Street, New York, NY 10017, USA

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February 24, 1989 *SH11726*

International Standard ISO 8802-3 : 1989
ANSI/IEEE Std 802.3-1988

(Editorial revision of
ANSI/IEEE Std 802.3-1985 and 802.3a-1988)

Information processing systems—
Local area networks—

Part 3:
Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications

Sponsor

**Technical Committee on Computer Communications
of the
IEEE Computer Society**

Approved June 9, 1988 (ANSI/IEEE Std 802.3-1988)
Approved October 20, 1988 (ANSI/IEEE Std 802.3a-1988)

IEEE Standards Board

Approved January 12, 1989

American National Standards Institute

Approved 1988 by the

International Organization for Standardization

**Adopted as an International Standard by the
International Organization for Standardization**

**Published by
The Institute of Electrical and Electronics Engineers, Inc**

AMERICAN NATIONAL STANDARD

International Standard ISO 8802-3 : 1989

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In 1985, ANSI/IEEE Std 802.3-1985 was adopted by ISO Technical Committee 97, *Information processing systems*, as draft International Standard ISO/DIS 8802-3. Following the procedures described above, the Standard was subsequently approved by ISO in the form of this new edition, which is published as International Standard ISO 8802-3 : 1989. This edition also includes ISO 8802-3/DAD 1 which resulted from the adoption in 1987 of ANSI/IEEE Std 802.3a-1988.

For the purpose of assigning global addresses, the Institute of Electrical and Electronics Engineers, Inc., USA, has been designated by the ISO Council as the Registration Authority. Communications on this subject should be addressed to

Registration Authority for ISO 8802-3
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During the preparation of this International Standard, information was gathered on patents upon which application of the standard might depend. Relevant patents were identified as belonging to Xerox Corporation. However, ISO cannot give authoritative or comprehensive information about evidence, validity or scope of patent and like rights. The patent-holder has stated that licences will be granted under reasonable terms and conditions and communications on this subject should be addressed to

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Foreword to International Standard ISO 8802-3 : 1989

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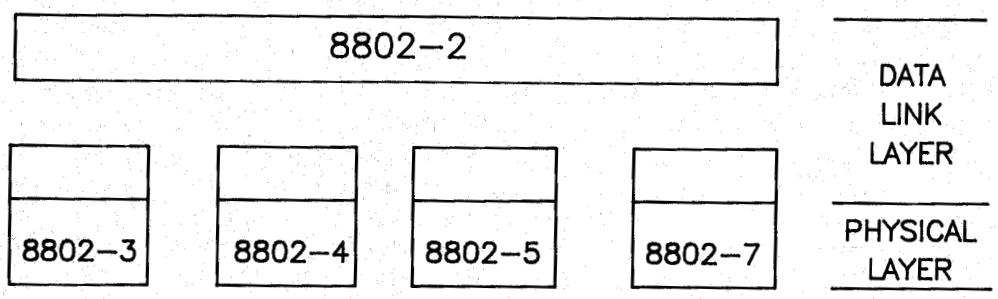

This family of standards deals with the physical and data link layers as defined by the ISO Open Systems Interconnection Reference Model (ISO 7498 : 1984). The access standards define four types of medium access technologies and associated physical media, each appropriate for particular applications or system objectives. The standards defining these technologies are:

(1) ISO 8802-3 [ANSI/IEEE Std 802.3-1988], a bus utilizing CSMA/CD as the access method,
(2) ISO 8802-4 [ANSI/IEEE Std 802.4-1985], a bus utilizing token passing as the access method,
(3) ISO 8802-5 [ANSI/IEEE Std 802.5-1985], a ring utilizing token passing as the access method,
(4) ISO 8802-7, a ring utilizing slotted ring as the access method.

ISO 8802-2 [ANSI/IEEE Std 802.2-1985], Logical Link Control protocol, is used in conjunction with the medium access standards.

The reader of this document is urged to become familiar with the complete family of standards.

The main body of this standard serves for both the ISO 8802-3 : 1989 and ANSI/IEEE 802.3-1988 standards. ISO and IEEE each have unique foreword sections. The Annex applies to the IEEE standard only. The Appendices serve as useful reference material to both standards.

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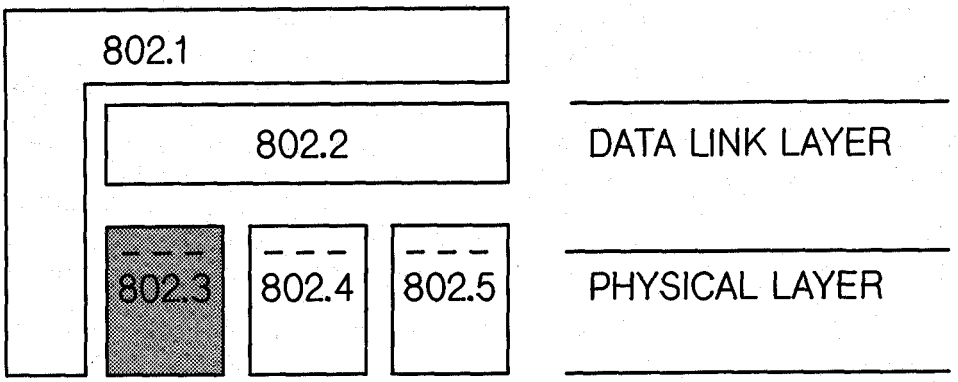
Foreword to ANSI/IEEE Std 802.3-1988
(Editorial Revision of ANSI/IEEE Std 802.3-1985 and ANSI/IEEE Std 802.3a-1988)

(This Foreword is not a part of ISO 8802-3 : 1989 or of ANSI/IEEE Std 802.3-1988.)

This standard is part of a family of standards for Local Area Networks (LANs). The relationship between this standard and other members of the family is shown below. (The numbers in the figure refer to IEEE standard numbers.)



This family of standards deals with the Physical and Data Link Layers as defined by the ISO Open Systems Interconnection Reference Model. The access standards define three types of medium access technologies and associated physical media, each appropriate for particular applications or system objectives. The standards defining these technologies are:

(1) ANSI/IEEE Std 802.3-1988 [ISO 8802-3], a bus utilizing CSMA/CD as the access method,
(2) ANSI/IEEE Std 802.4-1985 [ISO 8802-4], a bus utilizing token passing as the access method,
(3) ANSI/IEEE Std 802.5-1985 [ISO 8802-5], a ring utilizing token passing as the access method.

ANSI/IEEE Std 802.2-1985 [ISO 8802-2], the Logical Link Control standard, is used in conjunction with the medium access standards.

IEEE P802.1 describes the relationship among these standards and their relationship to the ISO Open Systems Interconnection Reference Model in more detail. This companion document also will contain networking management standards and information on internetworking. The reader of this standard is urged to become familiar with the complete family of standards.

The local area network access mechanism specified by this standard may

include patented matter. The IEEE Standards Office calls attention to the fact that it is claimed that the process of the local area network access mechanism described throughout this standard is the subject of United States patent numbers 4 063 220 and 4 099 024 and corresponding patents of foreign countries owned by the Xerox Corporation. Although these patents appear to cover the access mechanism subject in this standard, the IEEE takes no position with respect to patent validity. The Xerox Corporation has assured the IEEE that it is willing to grant a license under these patents on reasonable and nondiscriminatory terms and conditions to anyone wishing to obtain such a license. The Xerox Corporation's undertakings in this respect are on file with the IEEE Standards Office and the license details may be obtained from the Office of General Counsel of Xerox Corporation, whose address is Post Office Box 1600, Stamford, Connecticut 06904, USA.

This edition of the standard defines a 10 Mb/s baseband implementation of the Physical Layer using the CSMA/CD access method. It is anticipated that future editions of the standard may provide additional implementations of the physical layer to support different needs (for example, media, and data rates).

This standard contains state-of-the-art material. The area covered by this standard is undergoing evolution. Revisions are anticipated to this standard within the next few years to clarify existing material, to correct possible errors, and to incorporate new related material.

Readers wishing to know the state of revisions should contact

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The ECMA TC24 Committee on Communication Protocols also provided helpful input in the development of this standard.

The IEEE 802.3 Working Group acknowledges and appreciates that many concepts embodied in this standard are based largely upon the CSMA/CD access method earlier described in *The Ethernet* specification as written jointly by individuals from Xerox Corporation, Digital Equipment Corporation, and Intel Corporation. Appreciation is also expressed to Robert M. Metcalfe and David R. Boggs for their pioneering work in establishing the original concepts.

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Contents

SECTION PAGE

1. Introduction 17
   - 1.1 Overview 17
     - 1.1.1 Basic Concepts 17
     - 1.1.2 Architectural Perspectives 17
     - 1.1.3 Layer Interfaces 19
     - 1.1.4 Application Areas 19
   - 1.2 Notation 20
     - 1.2.1 State Diagram Conventions 20
     - 1.2.2 Service Specification Method and Notation 21
     - 1.2.3 Physical Layer and Media Notation 22
     - 1.2.4 Physical Layer Message Notation 22
   - 1.3 References 22
   - 1.4 Definitions 23
2. MAC Service Specification 25
   - 2.1 Scope and Field of Application 25
   - 2.2 Overview of the Service 25
     - 2.2.1 General Description of Services Provided by the Layer 25
     - 2.2.2 Model Used for the Service Specification 26
     - 2.2.3 Overview of Interactions 26
     - 2.2.4 Basic Services and Options 26
   - 2.3 Detailed Service Specification 26
     - 2.3.1 MA_DATA.request 26
     - 2.3.2 MA_DATA.indication 27
3. Media Access Control Frame Structure 29
   - 3.1 Overview 29
     - 3.1.1 MAC Frame Format 29
   - 3.2 Elements of the MAC Frame 30
     - 3.2.1 Preamble Field 30
     - 3.2.2 Start Frame Delimiter (SFD) Field 30
     - 3.2.3 Address Fields 30
     - 3.2.4 Destination Address Field 31
     - 3.2.5 Source Address Field 31
     - 3.2.6 Length Field 32
     - 3.2.7 Data and PAD Fields 32
     - 3.2.8 Frame Check Sequence Field 32
   - 3.3 Order of Bit Transmission 33
   - 3.4 Invalid MAC Frame 33
4. Media Access Control Method 35
   - 4.1 Functional Model of the Media Access Control Method 35
     - 4.1.1 Overview 35
     - 4.1.2 CSMA/CD Operation 35
     - 4.1.3 Relationships to LLC Sublayer and Physical Layer 38
     - 4.1.4 CSMA/CD Access Method Functional Capabilities 38

SECTION PAGE

4.2 CSMA/CD Media Access Control Method (MAC): Precise Specification 40
4.2.1 Introduction 40
4.2.2 Overview of the Procedural Model 40
4.2.3 Frame Transmission Model 43
4.2.4 Frame Reception Model 47
4.2.5 Preamble Generation 48
4.2.6 Start Frame Sequence 49
4.2.7 Global Declarations 49
4.2.8 Frame Transmission 52
4.2.9 Frame Reception 57
4.2.10 Common Procedures 60
4.3 Interfaces to/from Adjacent Layers 60
4.3.1 Overview 60
4.3.2 Services Provided by the MAC Sublayer 60
4.3.3 Services Required from the Physical Layer 61
4.4 Specific Implementations 63
4.4.1 Compatibility Overview 63
4.4.2 Allowable Implementations 63
5. Network Management 65
6. PLS Service Specifications 67
6.1 Scope and Field of Application 67
6.2 Overview of the Service 67
6.2.1 General Description of Services Provided by the Layer 67
6.2.2 Model Used for the Service Specification 67
6.2.3 Overview of Interactions 67
6.2.4 Basic Services and Options 67
6.3 Detailed Service Specification 68
6.3.1 Peer-to-Peer Service Primitives 68
6.3.2 Sublayer-to-Sublayer Service Primitives 68
7. Physical Signaling (PLS) and Attachment Unit Interface (AUI) Specifications 71
7.1 Scope 71
7.1.1 Definitions 72
7.1.2 Summary of Major Concepts 72
7.1.3 Application 73
7.1.4 Modes of Operation 73
7.1.5 Allocation of Function 73
7.2 Functional Specification 73
7.2.1 PLS-PMA (DTE-MAU) Interface Protocol 73
7.2.2 PLS Interface to MAC and Management Entities 80
7.2.3 Frame Structure 82
7.2.4 PLS Functions 83
7.3 Signal Characteristics 86
7.3.1 Signal Encoding 86

SECTION PAGE

7.3.2 Signaling Rate 91
7.3.3 Signaling Levels 91
7.4 Electrical Characteristics 91
7.4.1 Driver Characteristics 92
7.4.2 Receiver Characteristics 95
7.4.3 AUI Cable Characteristics 97
7.5 Functional Description of Interface Circuits 99
7.5.1 General 99
7.5.2 Definition of Interchange Circuits 100
7.6 Mechanical Characteristics 103
7.6.1 Definition of Mechanical Interface 103
7.6.2 Line Interface Connector 103
7.6.3 Contact Assignments 104
8. Medium Attachment Unit and Baseband Medium Specifications, Type 10BASE5 107
8.1 Scope 107
8.1.1 Overview 107
8.1.2 Definitions 108
8.1.3 Application Perspective: MAU and MEDIUM Objectives 109
8.2 MAU Functional Specifications 110
8.2.1 MAU Physical Layer Functions 111
8.2.2 MAU Interface Messages 114
8.2.3 MAU State Diagrams 115
8.3 MAU-Medium Electrical Characteristics 116
8.3.1 MAU-to-Coaxial Cable Interface 116
8.3.2 MAU Electrical Characteristics 121
8.3.3 MAU-DTE Electrical Characteristics 122
8.3.4 MAU-DTE Mechanical Connection 122
8.4 Characteristics of the Coaxial Cable 122
8.4.1 Coaxial Cable Electrical Parameters 122
8.4.2 Coaxial Cable Properties 123
8.4.3 Total Segment DC Loop Resistance 125
8.5 Coaxial Trunk Cable Connectors 125
8.5.1 Inline Coaxial Extension Connector 125
8.5.2 Coaxial Cable Terminator 125
8.5.3 MAU-to-Coaxial Cable Connector 126
8.6 System Considerations 127
8.6.1 Transmission System Model 127
8.6.2 Transmission System Requirements 129
8.6.3 Labeling 132
8.7 Environmental Specifications 132
8.7.1 General Safety Requirements 132
8.7.2 Network Safety Requirements 133
8.7.3 Electromagnetic Environment 134
8.7.4 Temperature and Humidity 135