IEEE P802.3ar™/D1.1, February 2006
(Draft amendment to IEEE Std 802.3-2005)

IEEE P802.3ar™/D1.1

Draft Amendment of:
IEEE Standard for Information technology—
Telecommunications and information exchange between systems—
Local and metropolitan area networks—
Specific requirements

Part 3: Carrier Sense Multiple Access with
Collision Detection (CSMA/CD) Access Method
and Physical Layer Specifications

Amendment: Congestion management

Sponsor

LAN/MAN Standards Committee
of the
IEEE Computer Society

Abstract: This draft is an amendment of IEEE Std 802.3-2005 (in publication preparation). This Draft amendment specifies optional MAC rate limiting mechanisms and associated management attributes. This draft D1.1 is being circulated for IEEE 802.3ar Task Force review. The formal expiration date of this draft is March 10, 2006.

Keywords: congestion management, rate limiting

Introduction

> **(This introduction is not part of IEEE Std 802.3as-20xx, IEEE Standard for Information technology—Telecommunications and information exchange between systems—Local and metropolitan area networks—Specific requirements CSMA/CD Access Method and Physical Layer Specifications, Amendment: Congestion Management**

> **Editor's Note (to be removed prior to publication):**
>
> This front matter is provided for comment only. Front matter is not part of a published standard and is therefore, not part of the draft standard. Some text in this front matter is provided by the IEEE editor and other by the IEEE 802.3 Chair. It will be further edited during publication preparation after balloting of the draft is complete.
>
> One exception to IEEE style that is conciously used to simplify the balloting process is the numbering of the front matter. Instead of the front matter being lower case Roman numeral page numbers, with the draft restarting at 1 with arabic page numbers, balloted front matter and draft are numbered consecuively with arabic page numbers. This allows the PDF page number to agree with the printed page number.

IEEE Std 802.3™ was first published in 1985. Since the initial publication, many projects have added functionality or provided maintenance updates to the specifications and text included in the standard. Each IEEE 802.3 project/amendment is identified with a suffix (e.g., IEEE 802.3ar). A historical listing of projects that have added to or modified IEEE Std 802.3 is included in IEEE Std 802.3-2005.

> **Editor's Note (to be removed prior to publication):**
>
> If the historical listing is no longer included then the preceding sentence will be removed.

The Media Access Control (MAC) protocol specified in IEEE Std 802.3 is Carrier Sense Multiple Access with Collision Detection (CSMA/CD). This MAC protocol was included in the experimental Ethernet developed at Xerox Palo Alto Research Center. While the experimental Ethernet had a 2.94 Mb/s data rate, IEEE Std 802.3-1985 specified operation at 10 Mb/s. Since 1985 new media options, new speeds of operation, and new capabilities have been added to IEEE Std 802.3.

Some of the major additions to IEEE Std 802.3 are identified in the marketplace with their project number. This is most common for projects adding higher speeds of operation or new protocols. For example, IEEE Std 802.3u added 100 Mb/s operation (also called Fast Ethernet), IEEE Std 802.3x specified full duplex operation and a flow control protocol, IEEE Std 802.3z added 1000 Mb/s operation (also called Gigabit Ethernet), IEEE Std 802.3ae added 10 Gb/s operation (also called 10 Gigabit Ethernet) and IEEE Std 802.3ah specified access network Ethernet (also called Ethernet in the First Mile). These major additions are all now included in IEEE Std 802.3-2005 and are not maintained as separate documents.

At the date of IEEE Std 802.3as-20xx publication, IEEE Std 802.3 is comprised of the following documents

IEEE Std 802.3-2005

Section one -- Includes Clause 1 through Clause 20 and Annex A through Annex H and Annex 4a. Section One includes the specifications for 10 Mb/s operation and the MAC, frame formats and service interfaces used for all speeds of operation.

Section two -- Includes Clause 21 through Clause 33 and Annex 22A through Annex 33E. Section Two includes the specifications for 100 Mb/s operation and management attributes for multiple protocols

and operational speeds as well as specifications for providing power over twisted pair cabling for multiple operational speeds.

Section three -- Includes Clause 34 through Clause 43 and Annex 36A through Annex 43C. Section Three includes the specifications for 1000 Mb/s operation.

Section four -- Includes Clause 44 through Clause 53 and Annex 44A through Annex 50A. Section Four includes the specifications for 10 Gb/s operation.

Section five -- Includes Clause 56 through Clause 67 and Annex 58A through Annex 67A. Section Five adds new physical layers and sublayers for operation from 512 kb/s to 1000 Mb/s, and defines services and protocol elements that permit the exchange of IEEE Std 802.3 format frames between stations in a subscriber access network.

IEEE Std 802.3xx-20xx

This amendment includes ... .

Editor's Note (to be removed prior to publication):

The above list should include all approved amendments that are part of the base standard. Because of the number of 802.3 projects running in parallel, it is difficult to predict which if any projects will be approved prior to this amendment.

Descriptions of approved amendments are to be added by the publication editor, taken from the front matter of approved projects.

IEEE Std 802.3 will continue to evolve. New Ethernet capabilities are anticipated to be added within the next few years as amendments to the base standard.

Conformance test methodology

An additional standard, IEEE Std 1802.3™-2001provides conformance test information for 10BASE-T.

IEEE Std 802.3ar-20xx

IEEE Std 802.3ar-20xx, Congestion management, is an amendment to IEEE Std 802.3-2005. This document specifies optional MAC rate limiting mechanisms and associated management attributes.

Notice to users

Errata, if any, for this and all other standards can be accessed at the following URL: http://standards.ieee.org/reading/ieee/updates/errata/index.html. Users are encouraged to check this URL for errata periodically.

Interpretations

Current interpretations can be accessed at the following URL: http://standards.ieee.org/reading/ieee.interp/index.html

Downloads

Select portions of IEEE Std 802.3 and files included by reference within IEEE Std 802.3 can be downloaded from the Internet. This material may include PICs tables, data tables and code referenced or included in the standard. These files can be accessed at the following URL: [URL currently under discussion with IEEE staff].

Patents

Attention is called to the possibility that implementations of this standard may require use of subject matter covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. The IEEE shall not be responsible for identifying patents or patent applications for which a license may be required to implement an IEEE standard or for conducting inquiries into the legal validity or scope of those patents that are brought to its attention. A patent holder or patent applicant has filed a statement of assurance that it will grant licenses under these rights without compensation or under reasonable rates and nondiscriminatory, reasonable terms and conditions to applicants desiring to obtain such licenses. The IEEE makes no representation as to the reasonableness of rates, terms and conditions of the license agreements offered by patent holders or patent applicants. Further information may be obtained from the IEEE Standards Department.

Participants

The following individuals were officers and members of the IEEE 802.3 working group at the beginning of the P802.3ar working group ballot. Individuals may have not voted, voted for approval, disapproval or abstained on this amendment.

Robert M. Grow, *Chair*
David Law, *Vice Chair*
Wael William Diab, *Secretary*
Steven B. Carlson, *Executive Secretary*
Kevin Q Daines, *Chair, Congestion Management Task Force*
Hugh Barrass, *Editor, Congestion Management Task Force*

The following members of the balloting committee voted on this revision of the standard. Balloters may have voted for approval, disapproval, or abstention.

[To be added by publication editor]

When the IEEE-SA Standards Board approved this standard on dd month yyyy, it had the following membership.

[To be added by publication editor]

Also included are the following nonvoting IEEE-SA Standards Board liaisons:

[To be added by publication editor]

Special symbols and operators

Printed character	Meaning	Keystrokes	Character code	Font
*	Boolean AND	*	ALT-042	Symbol
+	Boolean OR, arithmetic addition	+	ALT-043	Symbol
^	Boolean XOR	^	ALT-094	Times New Roman
!	Boolean NOT	!	ALT-033	Symbol
×	Multiplication	Ctrl-q 4	ALT-0180	Symbol
<	Less than	<	ALT-060	Symbol
≤	Less than or equal to	Ctrl-q #	ALT-0163	Symbol
>	Greater than	>	ALT-062	Symbol
≥	Greater than or equal to	Ctrl-q 3	ALT-0179	Symbol
=	Equal to	=	ALT-061	Symbol
≠	Not equal to	Ctrl-q 9	ALT-0185	Symbol
⇐	Assignment operator	Ctrl-q \	ALT-0220	Symbol
∈	Indicates membership	Ctrl-q Shft-n	ALT-0206	Symbol
∉	Indicates nonmembership	Ctrl-q Shft-o	ALT-0207	Symbol
±	Plus or minus (a tolerance)	Ctrl-q 1	ALT-0177	Symbol
°	Degrees	Ctrl-q 0	ALT-0176	Symbol
∑	Summation	Esc ^ Shift+a	ALT-0229	Symbol
√	Square root	Ctrl-q Shft-v	ALT-0214	Symbol
—	Big dash (em dash)	Ctrl-q Shft-q	ALT-0151	Times New Roman
–	Little dash (en dash), subtraction	Ctrl-q Shft-p	ALT-0150	Times New Roman
|	Vertical bar	|	ALT-0124	Times New Roman
†	Dagger	Ctrl-q Space	ALT-0134	Times New Roman
‡	Double dagger	Ctrl-q '	ALT-0135	Times New Roman
α	Lower case alpha	a	ALT-097	Symbol
β	Lower case beta	b	ALT-098	Symbol
γ	Lower case gamma	g	ALT-103	Symbol
δ	Lower case delta	d	ALT-100	Symbol
ε	Lower case epsilon	e	ALT-101	Symbol
λ	Lambda	l	ALT-0108	Symbol
μ	Micro	Ctrl-q 5	ALT-0181	Times New Roman
Ω	Omega	W	ALT-087	Symbol

Contents

Changes to previously approved clauses of IEEE Std 802.3-2005 (as amended)

Draft Amendment of:
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Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications

Amendment: Congestion management

Sponsor

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This draft amendment to IEEE Std. 802.3 specifies optional mechanisms within the MAC to limit the rate of transmitted data.

This draft D1.1 is preliminary and is circulated for Task Force review. It has no official status within IEEE P802.3ar. The formal expiration date of this draft is March 10, 2006.

[This amendment is part of IEEE Std 802.3™-2005.]

NOTE—This amendment is based on the current edition of IEEE Std 802.3-2005 (base text is from P802.3REVam/D2.2 and will be corrected by the P802.3ar editor if the base text is changed in publication of IEEE Std 802.3-2005). This is one of seven approved projects changing text in the base standard, but this amendment has minimal overlap with the other projects, but base text may need to be changed depending on the order of approval of these projects. When TF review was initiated, this draft had minimal overlap with 802.3as.

Editing instructions are shown in ***bold italic*** . Four editing instructions are used: change, delete, insert, and replace. ***Change*** is used to make small corrections in existing text or tables. The editing instruction specifies the location of the change and describes what is being changed either by using strikethrough (to remove old material) or underscore (to add new material). ***Delete*** removes existing material. ***Insert*** adds new material without disturbing the existing material. Insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. Editorial notes will not be carried over into future editions. ***Replace*** is used to make large changes in existing text, subclauses, tables, or figures by removing existing material and replacing it with new material. Editorial notes will not be carried over into future editions because the changes will be incorporated into the base standard.

Revisions to IEEE 802.3-2005, Clause 4

4. Media Access Control

Revisions to IEEE 802.3-2005, Annex 4A

> **Editors' Notes:** To be removed prior to final publication.
>
> This revision is based on IEEE P802.3as/D2.2. The editing instructions define how to merge the material contained here into the base document set to form the new comprehensive standard as created by the addition of P802.3ar.
>
> Revision History:
> Draft 0.9, October 2005   Preliminary draft for Task Force review.
> Draft 1.0, November 2005   Draft for Task Force review.
> Draft 1.1, February 2006   Second draft for Task Force review.

4A. Simplified full duplex media access control

4A.2.3.2.2 Interframe spacing

Change subclause 4A.2.3.2.2 as follows:

As defined in 4A.2.3.2.1, the rules for deferring ensure a minimum interframe spacing of interFrameSpacing bit times. This is intended to provide interframe recovery time to aid in frame delineation on the physical medium.

Note that interFrameSpacing is the minimum value of the interframe spacing. ~~If necessary for implementation reasons, a transmitting sublayer may use a larger value with a resulting decrease in its throughput. The larger value is determined by the parameters of the implementation, see 4A.4.~~ A larger value for interframe spacing is used for controlling the nominal data rate of the MAC sublayer (with frame granularity). While in this optional mode of operation, the MAC sublayer waits a further time after the interFrameSpacing according to the variable txAdditionalInterFrameSpacing. Furthermore the MAC sublayer waits until the optional timer txFrameRateTimer reaches zero before transmitting a new frame. For more details, see 4A.2.7 and 4A.2.8.

4A.2.7.2 Transmit state variables

Insert the following new variables in subclause 4A.2.7.2:

> **Editors' Notes:** To be removed prior to final publication.
>
> Clause 3.1.1 as modified by P802.3as has definitions for the terms "frame" and "packet.". The term "frame" refers to all of the information from the start of the destination address to the end of the CRC. The term "packet" refers to everything included in the frame with the addition of a preamble and carrier extension if appropriate.
>
> A future revision of the standard may consider changing variable names for consistency.

txAdditionalInterFrameSpacing: 1..?; {In bit times, calculated per packet or fixed depending on rate control method}

txFrameRateTimer: 0..?; {timer to enforce the minimum time between successive packet starts}

txRateLimitFrameOverheadEnable: Boolean; {Indicates desire for additional overhead for each frame, see corresponding value for txAdditionalFrameOverhead}

txRateLimitPayloadRateEnable: Boolean; {Indicates desire for lower effective bit rate of transmission, see corresponding value for txIfsStretchRatio}

txRateLimitFrameRateEnable: Boolean; {Indicates desire to limit the number of packets per second, see corresponding value for txFrameRateStart}

txRateLimitEnable: = txRateLimitFrameOverheadEnable
        or txRateLimitPayloadRateEnable
        or txRateLimitFrameRateEnable;

txAdditionalFrameOverhead = ...; {In octets, minimum amount that is added to each frame, when txRateLimitFrameOverheadEnable is enabled}

txIfsStretchRatio = ...; {In bits, determines the number of bits in a packet that require one octet of interFrameSpacing extension, when txRateLimitPayloadRateEnable is enabled}

txFrameRateStart = ...; {In bits, the value loaded into the txFrameRateTimer at the start of each packet, when txRateLimitFrameRateEnable is enabled}

txIfsStretchCount: 0..txIfsStretchRatio; {In bits, a running counter of the number of bits during a packet's transmission that are to be considered for the minimum interFrameSpacing extension}

txIfsStretchSize: 0..(((maxBasicFrameSize + qTagPrefixSize) x 8 + headerSize + interFrameSpacing + txIfsStretchRatio – 1) div txIfsStretchRatio); {In octets, the number of additional inter-frame spacing octets to be added when txRateLimitPayloadRateEnable is enabled}

4A.2.7.3 Receive state variables

Insert the following at the end of subclause 4A.2.7.3:

If the receiving system has limitations that prevent it from receiving frames at the maximum rate possible for the attached medium then it may define the following variables:

  var
    rxRateLimitFrameOverheadEnable: Boolean; {Indicates the desired rate control mode}
    rxAdditionalFrameOverhead = ...; {In bytes, desired minimum amount that is added to each frame, when rxRateLimitFrameOverheadEnable is true}
    rxRateLimitPayloadRateEnable: Boolean; {Indicates the desired rate control mode}
    rxIfsStretchRatio = ...; {In bits, determines the desired number of bits in a packet that require one octet of interFrameSpacing extension, when rxRateLimitPayloadRateEnable is enabled}
    rxRateLimitFrameRateEnable: Boolean; {Indicates the desired rate control mode}
    rxFrameRateStart = ...; {In bits, the desired value of the link partner's txFrameRateTimer at the start of each frame}

The values of these variables reflect the values that the receiver would wish to be programmed into the link partner's transmit rate limiter (see 4A.2.7 and 4A.2.8).

4A.2.8 Frame transmission

Delete existing process Deference in 4A.2.8:

process Deference;
begin
  cycle {Main loop}
    while (*not* transmitting *and not* (carrierSenseMode *and* carrierSense)) *do* nothing; {Wait for the start of transmission or congestion}
    deferring := true; {Inhibit future transmissions}
    while (transmitting *or* (carrierSenseMode *and* carrierSense)) *do* nothing; {Wait for the end of transmission and congestion}
    if deferenceMode *then* Wait(interFrameSpacing); {Time out entire interframe gap if enabled}

```
        deferring := false {Don't inhibit transmission}                                    1
   end {Main loop}                                                                          2
end; {Deference}                                                                            3
                                                                                           4
                                                                                           5
```

Insert new process Deference in 4A.2.8:   6
                                                                                           7

```
process Deference;                                                                         8
begin                                                                                      9
   cycle {Main loop}                                                                       10
      while (not transmitting and not (carrierSenseMode and carrierSense)) do nothing; {Wait for the start   11
                                          of transmission or congestion}                   12
      deferring := true; {Inhibit future transmissions}                                    13
      while (transmitting or (carrierSenseMode and carrierSense)) do nothing; {Wait for the end of   14
                                          transmission and congestion}                      15
      if deferenceMode then                                                                16
      begin                                                                                17
         Wait(interFrameSpacing + txAdditionalInterFrameSpacing); {Time out interframe gap plus   18
                                          extended interframe gap if required}              19
         if (not frameWaiting                                                              20
            or (txIfsStretchSize < txAdditionalInterFrameSpacing) {If IFS stretch function then carry ...}   21
            or (txFrameRateTimer != 0)) then txIfsStretchCount := 0; {... over remaining bits}   22
         while (txFrameRateTimer != 0) do nothing; {Wait for frame rate timer if required}   23
      end                                                                                   24
      deferring := false {Don't inhibit transmission}                                      25
   end {Main loop}                                                                          26
end; {Deference}                                                                            27
                                                                                           28
```

Insert new paragraph after process Deference in 4A.2.8:   29
                                                                                           30

If any rate limiting is enabled, the Deference process enforces the interframe spacing for an additional   31
number of bit times in excess of the constant interFrameSpacing. The additional number of bit times is   32
reflected by the variable txAdditionalInterFrameSpacing. If the resulting frame plus interframe spacing is   33
less than the minimum period allowed by the frame rate control then the process waits for   34
txFrameRateTimer to count down. If variable txIfsStretchCount determines the interframe spacing,   35
txIfsStretchCount is less than txIfsStretchRatio and the next frame is ready for transmission (variable   36
frameWaiting is true), the Deference process enforces interframe spacing only for the integer number of   37
octets, as indicated by txIfsStretchSize, and saves txIfsStretchCount for the next frame's transmission.   38
Otherwise txIfsStretchCount is set to zero.   39
                                                                                           40

Insert following into top of {Inner loop} of process BitTransmitter in 4A.2.8:   41
                                                                                           42

```
            if txRateLimitEnable then {Calculate the counter values}                       43
               begin                                                                        44
                  if (txRateLimitPayloadRateEnable) then                                    45
                     begin                                                                  46
                        txIfsStretchSize := (txIfsStretchCount + headerSize + frameSize +   47
                                       interFrameSpacing) div txIfsStretchRatio; {payload rate limit}   48
                        txIfsStretchCount := (txIfsStretchCount + headerSize + frameSize +   49
                                       interFrameSpacing) mod txIfsStretchRatio;            50
                                       {Remainder to carry over into the next frame's transmission}   51
                     end                                                                    52
                  else txIfsStretchSize := 0;                                               53
                  if (txRateLimitFrameOverheadEnable and                                    54
```

(txAdditionalFrameOverhead > txIfsStretchSize))

 then txAdditionalInterFrameSpacing := txAdditionalFrameOverhead x 8;

 else txAdditionalInterFrameSpacing := txIfsStretchSize x 8;

 end

Insert following into top of procedure StartTransmit in 4A.2.8:

if txRateLimitFrameRateEnable *then* txFrameRateTimer := txFrameRateStart;

 {Load frame rate counter}

Insert process FrameRateTimer in 4A.2.8:

FrameRateTimer is a process that does nothing unless the txFrameRateTimer variable is non-zero. When txFrameRateTimer is non-zero, FrameRateTimer waits txFrameRateTimer bit times:

process FrameRateTimer;
begin
 cycle
  while txFrameRateTimer = 0 *do* nothing; {Wait for a transmit to start and load timer}
  Wait(txFrameRateTimer)
 end
end; {FrameRateTimer}

Revisions to IEEE 802.3-2005, Clause 30

30. Management

30.2.5 Capabilities

Insert the following attributes into Table 30-1, below aRateControlStatus, as follows:

			DTE								Repeater					MAU						
			Basic Package (Mandatory)	Mandatory Package (Mandatory)	Recommended Package (Optional)	Optional Package (Optional)	Array Package (Optional)	Excessive Deferral Package (Optional)	Multiple PHY Package (Optional)	PHY Error Monitor Capability (Optional)	Basic Control Capability (Mandatory)	Performance Monitor Capability (Optional)	Address Tracking Capability (Optional)	100/1000 Mb/s Monitor Capability (Optional)	1000 Mb/s Burst Monitor Capability (Optional)	Basic Package (Mandatory)	MAU Control Package (Optional)	Media Loss Tracking Package (Conditional)	Broadband DTE MAU Package (Conditional)	MII Capability (Conditional)	PHY Error Monitor Capability (Optional)	Auto-Negotiation Package (Mandatory)
aTxRateLimitFrameOverheadStatus	ATTRIBUTE	GET-SET	X^2	X																		
aTxAdditionalFrameOverhead	ATTRIBUTE	GET-SET	X^2	X																		
aTxRateLimitPayloadRateStatus	ATTRIBUTE	GET-SET	X^2	X																		
aTxIfsStretchRatio	ATTRIBUTE	GET-SET	X^2	X																		
aTxRateLimitFrameRateStatus	ATTRIBUTE	GET-SET	X^2	X																		
aTxFrameRateStart	ATTRIBUTE	GET-SET	X^2	X																		
aRxRateLimitFrameOverheadStatus	ATTRIBUTE	GET		X																		
aRxAdditionalFrameOverhead	ATTRIBUTE	GET		X																		
aRxRateLimitPayloadRateStatus	ATTRIBUTE	GET		X																		
aRxIfsStretchRatio	ATTRIBUTE	GET		X																		
aRxRateLimitFrameRateStatus	ATTRIBUTE	GET		X																		
aRxFrameRateStart	ATTRIBUTE	GET		X																		

Insert note after NOTE 1 in Table 30-1 as follows:

NOTE 2: The aTxRateLimitFrameOverheadStatus, aTxAdditionalFrameOverhead, aTxRateLimitPayloadRateStatus, aTxIfsStretchRatio, aTxRateLimitFrameRateStatus and aTxFrameRateStart attributes are Mandatory in systems that implement rate control, except for systems that use a fixed value of txIfsStretchRatio of 104 bits (see 4.4.2). They are Recommended for other systems.

Editors' Notes: To be removed prior to final publication.

The references to Clause 4A in the following attributes will be supplemented by references to Clause 4 when the Clause 4 changes are added (see note on page 9 of this draft).

Insert subclause 30.3.1.1.37 as follows

30.3.1.1.37 aTxRateLimitFrameOverheadStatus

ATTRIBUTE

APPROPRIATE SYNTAX:
>An ENUMERATED VALUE that has one of the following entries:
>
>| | |
>|---|---|
>| transmit rate limit frame overhead off | Transmit rate limit mode disabled |
>| transmit rate limit frame overhead on | Transmit rate limit mode enabled |
>| unknown | Transmit rate limit mode unknown |

BEHAVIOUR DEFINED AS:
>A GET operation returns the current Transmit Rate Limit Frame Overhead mode of operation of the MAC sublayer.
>
>A SET operation changes the mode of operation of the MAC sublayer to the indicated value. A SET operation shall have no effect on a device whose mode cannot be changed through management or that can only operate in a single mode.
>
>This attribute maps to the variable txRateLimitFrameOverheadEnable (see 4A.2.7.2)

Insert subclause 30.3.1.1.38 as follows

30.3.1.1.38 aTxAdditionalFrameOverhead

ATTRIBUTE

APPROPRIATE SYNTAX:
>INTEGER

BEHAVIOUR DEFINED AS:
>A GET operation returns the current Transmit Additional Frame Overhead of the MAC sublayer.
>
>A SET operation changes the mode of operation of the MAC sublayer to the indicated value. A SET operation shall have no effect on a device whose mode cannot be changed through management or that can only operate in a single mode.
>
>This attribute maps to the variable txAdditionalFrameOverhead (see 4A.2.7.2)

Insert subclause 30.3.1.1.39 as follows

30.3.1.1.39 aTxRateLimitPayloadRateStatus

ATTRIBUTE

APPROPRIATE SYNTAX:
>An ENUMERATED VALUE that has one of the following entries:
>
>| | |
>|---|---|
>| transmit rate limit payload rate off | Transmit rate limit mode disabled |
>| transmit rate limit payload rate on | Transmit rate limit mode enabled |
>| unknown | Transmit rate limit mode unknown |

BEHAVIOUR DEFINED AS:
>A GET operation returns the current Transmit Rate Limit Payload Rate mode of operation of the MAC sublayer.
>
>A SET operation changes the mode of operation of the MAC sublayer to the indicated value. A SET operation shall have no effect on a device whose mode cannot be changed through management or that can only operate in a single mode.
>
>This attribute maps to the variable txRateLimitPacketPayloadRate (see 4A.2.7.2)

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Insert subclause 30.3.1.1.40 as follows

30.3.1.1.40 aTxIfsStretchRatio

ATTRIBUTE

APPROPRIATE SYNTAX:
INTEGER

BEHAVIOUR DEFINED AS:
A GET operation returns the current Transmit Inter Frame Spacing Stretch Ratio of the MAC sublayer.

A SET operation changes the mode of operation of the MAC sublayer to the indicated value. A SET operation shall have no effect on a device whose mode cannot be changed through management or that can only operate in a single mode.

This attribute maps to the variable txIfsStretchRatio (see 4A.2.7.2)

Insert subclause 30.3.1.1.41 as follows

30.3.1.1.41 aTxRateLimitFrameRateStatus

ATTRIBUTE

APPROPRIATE SYNTAX:
An ENUMERATED VALUE that has one of the following entries:
transmit rate limit frame rate off   Transmit rate limit mode disabled
transmit rate limit frame rate on   Transmit rate limit mode enabled
unknown   Transmit rate limit mode unknown

BEHAVIOUR DEFINED AS:
A GET operation returns the current Transmit Rate Limit Frame Rate mode of operation of the MAC sublayer.

A SET operation changes the mode of operation of the MAC sublayer to the indicated value. A SET operation shall have no effect on a device whose mode cannot be changed through management or that can only operate in a single mode.

This attribute maps to the variable txRateLimitPacketFrameRate (see 4A.2.7.2)

Insert subclause 30.3.1.1.42 as follows

30.3.1.1.42 aTxFrameRateStart

ATTRIBUTE

APPROPRIATE SYNTAX:
INTEGER

BEHAVIOUR DEFINED AS:
A GET operation returns the current Transmit Frame Rate Start of the MAC sublayer.

A SET operation changes the mode of operation of the MAC sublayer to the indicated value. A SET operation shall have no effect on a device whose mode cannot be changed through management or that can only operate in a single mode.

This attribute maps to the variable txFrameRateStart (see 4A.2.7.2)

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Insert subclause 30.3.1.1.43 as follows

30.3.1.1.43 aRxRateLimitFrameOverheadStatus

ATTRIBUTE

APPROPRIATE SYNTAX:
> An ENUMERATED VALUE that has one of the following entries:

receive rate limit frame overhead off	Receive rate limit mode disabled
receive rate limit frame overhead on	Receive rate limit mode enabled
unknown	Receive rate limit mode unknown

BEHAVIOUR DEFINED AS:
> A GET operation returns the current Transmit Rate Limit Frame Overhead mode desired of the remote MAC sublayer.

> This attribute maps to the variable rxRateLimitFrameOverheadEnable (see 4A.2.7.3)

Insert subclause 30.3.1.1.44 as follows

30.3.1.1.44 aRxAdditionalFrameOverhead

ATTRIBUTE

APPROPRIATE SYNTAX:
> INTEGER

BEHAVIOUR DEFINED AS:
> A GET operation returns the current Transmit Additional Frame Overhead desired of the remote MAC sublayer.

> This attribute maps to the variable rxAdditionalFrameOverhead (see 4A.2.7.3)

Insert subclause 30.3.1.1.45 as follows

30.3.1.1.45 aRxRateLimitPayloadRateStatus

ATTRIBUTE

APPROPRIATE SYNTAX:
> An ENUMERATED VALUE that has one of the following entries:

receive rate limit payload rate off	Receive rate limit mode disabled
receive rate limit payload rate on	Receive rate limit mode enabled
unknown	Receive rate limit mode unknown

BEHAVIOUR DEFINED AS:
> A GET operation returns the current Transmit Rate Limit Payload Rate mode desired of the remote MAC sublayer.

> This attribute maps to the variable rxRateLimitPayloadRateEnable (see 4A.2.7.3)

Insert subclause 30.3.1.1.46 as follows

30.3.1.1.46 aRxIfsStretchRatio

ATTRIBUTE

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APPROPRIATE SYNTAX:
INTEGER

BEHAVIOUR DEFINED AS:
A GET operation returns the current Transmit Inter Frame Spacing Stretch Ratio desired of the remote MAC sublayer.

This attribute maps to the variable rxIfsStretchRatio (see 4A.2.7.3)

Insert subclause 30.3.1.1.47 as follows

30.3.1.1.47 aRxRateLimitFrameRateStatus

ATTRIBUTE

APPROPRIATE SYNTAX:
An ENUMERATED VALUE that has one of the following entries:

receive rate limit frame rate off	Receive rate limit mode disabled
receive rate limit frame rate on	Receive rate limit mode enabled
unknown	Receive rate limit mode unknown

BEHAVIOUR DEFINED AS:
A GET operation returns the current Transmit Rate Limit Frame Rate mode desired of the remote MAC sublayer.

This attribute maps to the variable rxRateLimitFrameRateEnable (see 4A.2.7.3)

Insert subclause 30.3.1.1.48 as follows

30.3.1.1.48 aRxFrameRateStart

ATTRIBUTE

APPROPRIATE SYNTAX:
INTEGER

BEHAVIOUR DEFINED AS:
A GET operation returns the current Transmit Frame Rate Start desired of the remote MAC sublayer.

This attribute maps to the variable rxFrameRateStart (see 4A.2.7.3)

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Revisions to IEEE 802.3-2005, Annex 30A

30A. GDMO specification for 802.3 managed object classes

Revisions to IEEE 802.3-2005, Annex 30B

Editors' Notes: To be removed prior to final publication.

This revision is based on IEEE P802.3as/D2.2. The editing instructions define how to merge the material contained here into the base document set to form the new comprehensive standard as created by the addition of P802.3ar.

The changes to Annex 30B will be made after the changes to Clause 30 have been solidified. This is expected to occur no later than D2.0.

Revision History:
Draft 0.9, October 2005   Preliminary draft for Task Force review.
Draft 1.0, November 2005   Draft for Task Force review.
Draft 1.1, February 2006   Second draft for Task Force review.

30B. Media Access Control