IEEE8023-DOT3-EPON-MIB DEFINITIONS ::= BEGIN

IMPORTS

MODULE-IDENTITY, OBJECT-TYPE, Counter32,

Integer32, Unsigned32, Counter64, org

FROM SNMPv2-SMI

TruthValue, MacAddress

FROM SNMPv2-TC

ifIndex

FROM IF-MIB

MODULE-COMPLIANCE, OBJECT-GROUP

FROM SNMPv2-CONF

;

ieee8023dot3EponMIB MODULE-IDENTITY

LAST-UPDATED "202307310000Z" – July 31, 2023

ORGANIZATION

"IEEE 802.3 Working Group"

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DESCRIPTION

"The objects in this MIB module are used to manage the

Ethernet in the First Mile (EFM) Ethernet Passive Optical

Network (EPON) Interfaces as defined in IEEE Std 802.3

Clauses 60, 64, and 65.

Of particular interest are Clause 64 (MultiPoint Control

Protocol - MPCP), Clause 65 (Point-to-Multipoint

Reconciliation Sublayer - P2MP RS), Clause 60 (Ethernet

Passive Optical Network Physical Medium Dependent - EPON

PMDs), Clause 30, 'Management', and Clause 45, 'Management

Data Input/Output (MDIO) Interface'."

REVISION "202307310000Z" – July 31, 2023

DESCRIPTION

"Revision, based on an earlier version in IEEE Std 802.3.1-2013

addressing changes from IEEE Std 802.3 revisions 2012, 2015, 2018,

and 2022."

REVISION "201304110000Z" -- April 11, 2013

DESCRIPTION

"Revision, based on an earlier version in IEEE Std 802.3.1-2011."

REVISION "201102020000Z" -- February 2, 2011

DESCRIPTION

"Initial version, based on an earlier version published

as RFC 4837."

::= { org ieee(111) standards-association-numbers-series-standards(2)

lan-man-stds(802) ieee802dot3(3) ieee802dot3dot1mibs(1) 9 }

dot3EponObjects OBJECT IDENTIFIER ::= { ieee8023dot3EponMIB 1}

dot3EponConformance OBJECT IDENTIFIER ::= { ieee8023dot3EponMIB 2}

-- MPCP MIB modules definitions (IEEE Std 802.3, Clause 30.3.5)

dot3EponMpcpObjects

OBJECT IDENTIFIER ::= { dot3EponObjects 1 }

dot3MpcpControlTable OBJECT-TYPE

SYNTAX SEQUENCE OF Dot3MpcpControlEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A Table of dot3 MultiPoint Control Protocol (MPCP)

MIB objects. The entries in the table are control and

status objects of the MPCP.

Each object has a row for every virtual link denoted by

the corresponding ifIndex.

The LLID field, as defined in the IEEE Std 802.3, is a 2-byte

register (15-bit field and a broadcast bit) limiting the

number of virtual links to 32768. Typically the number

of expected virtual links in a PON is like the number of

ONUs, which is 32-64, plus an additional entry for

broadcast LLID."

::= { dot3EponMpcpObjects 1 }

dot3MpcpControlEntry OBJECT-TYPE

SYNTAX Dot3MpcpControlEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the dot3 MPCP Control table.

Rows exist for an OLT interface and an ONU interface.

A row in the table is denoted by the ifIndex of the link

and it is created when the ifIndex is created.

The rows in the table for an ONU interface are created

at system initialization.

The row in the table corresponding to the OLT ifIndex

and the row corresponding to the broadcast virtual link

are created at system initialization.

A row in the table corresponding to the ifIndex of a

virtual links is created when a virtual link is

established (ONU registers) and deleted when the virtual

link is deleted (ONU deregisters)."

INDEX { ifIndex }

::= { dot3MpcpControlTable 1}

Dot3MpcpControlEntry ::=

SEQUENCE {

dot3MpcpOperStatus TruthValue,

dot3MpcpAdminState TruthValue,

dot3MpcpMode INTEGER,

dot3MpcpSyncTime Unsigned32,

dot3MpcpLinkID Unsigned32,

dot3MpcpRemoteMACAddress MacAddress,

dot3MpcpRegistrationState INTEGER,

dot3MpcpTransmitElapsed Unsigned32,

dot3MpcpReceiveElapsed Unsigned32,

dot3MpcpRoundTripTime Unsigned32,

dot3MpcpMaximumPendingGrants Unsigned32

}

dot3MpcpOperStatus OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the operational state of the

MultiPoint MAC Control sublayer as defined in

IEEE Std 802.3, Clause 64 or Clause 77.

When the value is true(1), the interface will act as if the

MultiPoint Control Protocol is enabled. When the value is false(2)

, the interface will act as if the MultiPoint Control Protocol is

disabled. The operational state can be changed using the

dot3MpcpAdminState object.

This object is applicable for an OLT, with the same

value for all virtual interfaces, and for an ONU."

REFERENCE "IEEE Std 802.3, 30.3.5.1.2"

::= { dot3MpcpControlEntry 1 }

dot3MpcpAdminState OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This object is used to define the admin state of the

MultiPoint MAC Control sublayer, as defined in

IEEE Std 802.3, Clause 64 or Clause 77,

and to reflect its state.

When selecting the value as true(1), the MultiPoint

Control Protocol of the interface is enabled.

When selecting the value as false(2), the MultiPoint

Control Protocol of the interface is disabled.

This object reflects the administrative state of the

MultiPoint Control Protocol of the interface.

The write operation is not restricted in this document

and can be done at any time. Changing

dot3MpcpAdminState state can lead to disabling the

MultiPoint Control Protocol on the respective interface,

leading to the interruption of service for the users

connected to the respective EPON interface.

This object is applicable for an OLT, with the same

value for all virtual interfaces, and for an ONU."

REFERENCE "IEEE Std 802.3, 30.3.5.2.1"

DEFVAL { false }

::= { dot3MpcpControlEntry 2 }

dot3MpcpMode OBJECT-TYPE

SYNTAX INTEGER {

olt(1),

onu(2)

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object is used to identify the operational

state of the MultiPoint MAC Control sublayer as

defined in IEEE Std 802.3, Clause 64 or Clause 77.

Reading olt(1) for an OLT (server) mode and onu(2) for an ONU

(client) mode. This object is used to identify the operational

mode for the MPCP tables.

This object is applicable for an OLT, with the same

value for all virtual interfaces, and for an ONU."

REFERENCE "IEEE Std 802.3, 30.3.5.1.3"

DEFVAL { olt }

::= { dot3MpcpControlEntry 3 }

dot3MpcpSyncTime OBJECT-TYPE

SYNTAX Unsigned32

UNITS "TQ (16 ns)"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An object that reports the 'sync lock time' of the

OLT receiver in increments of Time Quanta (TQ)-16ns

as defined in IEEE Std 802.3, Clause 64 or Clause 77.

The value returned shall be (sync lock time ns)/16, rounded up

to the nearest TQ. If this value exceeds (2^32-1), the

value (2^32-1) shall be returned. This object is applicable

for an OLT, with distinct values for all virtual interfaces,

and for an ONU."

REFERENCE "IEEE Std 802.3, 64.3.3.2 and 77.3.3.2"

::= { dot3MpcpControlEntry 4 }

dot3MpcpLinkID OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An object that identifies the Logical Link

Identifier (LLID) associated with the MAC of the virtual

link as specified in IEEE Std 802.3, 65.1.3.2.2 or

76.2.6.1.3.2, as appropriate.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

The ONU and the corresponding virtual MAC of the OLT,

for the same virtual link, have the same value.

Value is assigned when the ONU registers.

Value is freed when the ONU deregisters."

REFERENCE "IEEE Std 802.3, 30.3.5.1.4"

::= { dot3MpcpControlEntry 5 }

dot3MpcpRemoteMACAddress OBJECT-TYPE

SYNTAX MacAddress

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An object that identifies the source\_address

parameter of the last MPCPDUs passed to the MAC Control.

This value is updated on reception of a valid frame with

1) a destination Field equal to the reserved multicast

address for MAC Control as specified in IEEE Std 802.3, Annex

31A; 2) the lengthOrType field value equal to the reserved

Type for MAC Control as specified in IEEE Std 802.3, Annex

31A; 3) an MPCP subtype value equal to the subtype

reserved for MPCP as specified in IEEE Std 802.3, Annex 31A.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

The value reflects the MAC address of the remote entity

and therefore the OLT holds a value for each LLID, which

is the MAC address of the ONU; the ONU has a single

value that is the OLT MAC address."

REFERENCE "IEEE Std 802.3, 30.3.5.1.5"

::= { dot3MpcpControlEntry 6 }

dot3MpcpRegistrationState OBJECT-TYPE

SYNTAX INTEGER {

unregistered(1),

registering(2),

registered(3)

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An object that identifies the registration state

of the MultiPoint MAC Control sublayer as defined in

IEEE Std 802.3, Clause 64 and Clause 77.

When this object has the enumeration unregistered(1),

the interface is unregistered and may be used for

registering a link partner.

When this object has the enumeration

registering(2), the interface is in the process of

registering a link-partner. When this object has the

enumeration registered(3), the interface has an

established link-partner.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

REFERENCE "IEEE Std 802.3, 30.3.5.1.6"

::= { dot3MpcpControlEntry 7 }

dot3MpcpTransmitElapsed OBJECT-TYPE

SYNTAX Unsigned32

UNITS "TQ (16 ns)"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An object that reports the interval from the last

MPCP frame transmission in increments of Time Quanta

(TQ)-16ns. The value returned shall be (interval from

last MPCP frame transmission in ns)/16. If this value

exceeds (2^32-1), the value (2^32-1) shall be returned.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

REFERENCE "IEEE Std 802.3, 30.3.5.1.19"

::= { dot3MpcpControlEntry 8 }

dot3MpcpReceiveElapsed OBJECT-TYPE

SYNTAX Unsigned32

UNITS "TQ (16 ns)"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An object that reports the interval from last MPCP frame

reception in increments of Time Quanta (TQ)-16ns. The

value returned shall be (interval from last MPCP frame

reception in ns)/16. If this value exceeds (2^32-1), the

value (2^32-1) shall be returned.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

REFERENCE "IEEE Std 802.3, 30.3.5.1.20"

::= { dot3MpcpControlEntry 9 }

dot3MpcpRoundTripTime OBJECT-TYPE

SYNTAX Unsigned32 (0..'ffff'h)

UNITS "TQ (16 ns)"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An object that reports the MPCP round trip time in

increments of Time Quanta (TQ)-16ns. The value returned

shall be (round trip time in ns)/16. If this value

exceeds (2^16-1), the value (2^16-1) shall be returned.

This object is applicable for an OLT. At the

OLT, it has a distinct value for each virtual interface."

REFERENCE "IEEE Std 802.3, 30.3.5.1.21"

::= { dot3MpcpControlEntry 10 }

dot3MpcpMaximumPendingGrants OBJECT-TYPE

SYNTAX Unsigned32 (0..255)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An object that reports the maximum number of grants

that an ONU can store for handling. The maximum number

of grants that an ONU can store for handling has a

range of 0 to 255.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the OLT, the value should be zero."

REFERENCE "IEEE Std 802.3, 30.3.5.1.24"

::= { dot3MpcpControlEntry 11 }

dot3MpcpStatTable OBJECT-TYPE

SYNTAX SEQUENCE OF Dot3MpcpStatEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table defines the list of statistics counters of

an interface implementing the IEEE Std 802.3, Clause 64 or

Clause 77 MPCP.

Each object has a row for every virtual link denoted by

the corresponding ifIndex.

The LLID field, as defined in IEEE Std 802.3, is a 2-byte

register (15-bit field and a broadcast bit) limiting the

number of virtual links to 32768. Typically the number

of expected virtual links in a PON is like the number of

ONUs, which is 32-64, plus an additional entry for

broadcast LLID."

::= { dot3EponMpcpObjects 2 }

dot3MpcpStatEntry OBJECT-TYPE

SYNTAX Dot3MpcpStatEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the table of statistics counters of the

IEEE Std 802.3, Clause 64 or Clause 77 MPCP interface.

Rows exist for an OLT interface and an ONU interface.

A row in the table is denoted by the ifIndex of the link

and it is created when the ifIndex is created.

The rows in the table for an ONU interface are created

at system initialization.

The row in the table corresponding to the OLT ifIndex

and the row corresponding to the broadcast virtual link

are created at system initialization.

A row in the table corresponding to the ifIndex of a

virtual link is created when a virtual link is

established (ONU registers) and deleted when the virtual

link is deleted (ONU deregisters)."

INDEX { ifIndex}

::= { dot3MpcpStatTable 1 }

Dot3MpcpStatEntry ::=

SEQUENCE {

dot3MpcpMACCtrlFramesTransmitted Counter64,

dot3MpcpMACCtrlFramesReceived Counter64,

dot3MpcpDiscoveryWindowsSent Counter32,

dot3MpcpDiscoveryTimeout Counter32,

dot3MpcpTxRegRequest Counter64,

dot3MpcpRxRegRequest Counter64,

dot3MpcpTxRegAck Counter64,

dot3MpcpRxRegAck Counter64,

dot3MpcpTxReport Counter64,

dot3MpcpRxReport Counter64,

dot3MpcpTxGate Counter64,

dot3MpcpRxGate Counter64,

dot3MpcpTxRegister Counter64,

dot3MpcpRxRegister Counter64

}

dot3MpcpMACCtrlFramesTransmitted OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of MPCP frames passed to the MAC sublayer for

transmission. This counter is incremented when a

MA\_CONTROL.request service primitive is generated within

the MAC control sublayer with an opcode indicating an

MPCP frame.

This object is applicable for an OLT and an ONU. At the

OLT it has a distinct value for each virtual interface.

Discontinuities of this counter can occur at

re-initialization of the management system, and at other

times as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.7"

::= { dot3MpcpStatEntry 1 }

dot3MpcpMACCtrlFramesReceived OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of MPCP frames passed by the MAC sublayer to the

MAC Control sublayer. This counter is incremented when a

ReceiveFrame function call returns a valid frame with

1) a lengthOrType field value equal to the reserved

Type for 802.3\_MAC\_Control as specified in IEEE Std 802.3

31.4.1.3, and

2) an opcode indicating an MPCP frame.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.8"

::= { dot3MpcpStatEntry 2}

dot3MpcpDiscoveryWindowsSent OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of discovery windows generated. The counter is

incremented by one for each generated discovery window.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the ONU, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.22"

::= { dot3MpcpStatEntry 3}

dot3MpcpDiscoveryTimeout OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a discovery timeout

occurs. Increment the counter by one for each discovery

processing state-machine reset resulting from timeout

waiting for message arrival.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.23"

::= { dot3MpcpStatEntry 4}

dot3MpcpTxRegRequest OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a REGISTER\_REQ MPCP

frame transmission occurs. Increment the counter by one

for each REGISTER\_REQ MPCP frame transmitted as defined

in IEEE Std 802.3, Clause 64 or Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the OLT, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.12"

::= { dot3MpcpStatEntry 5}

dot3MpcpRxRegRequest OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a REGISTER\_REQ MPCP

frame reception occurs.

Increment the counter by one for each REGISTER\_REQ MPCP

frame received as defined in IEEE Std 802.3, Clause 64 or

Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the ONU, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.17"

::= { dot3MpcpStatEntry 6}

dot3MpcpTxRegAck OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a REGISTER\_ACK MPCP

frame transmission occurs. Increment the counter by one

for each REGISTER\_ACK MPCP frame transmitted as defined

in IEEE Std 802.3, Clause 64 or Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the OLT, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.10"

::= { dot3MpcpStatEntry 7}

dot3MpcpRxRegAck OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a REGISTER\_ACK MPCP

frame reception occurs.

Increment the counter by one for each REGISTER\_ACK MPCP

frame received as defined in IEEE Std 802.3, Clause 64 or

Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the ONU, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.15"

::= { dot3MpcpStatEntry 8}

dot3MpcpTxReport OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a REPORT MPCP frame

transmission occurs. Increment the counter by one for

each REPORT MPCP frame transmitted as defined in

IEEE Std 802.3, Clause 64 or Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the OLT, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.13"

::= { dot3MpcpStatEntry 9}

dot3MpcpRxReport OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a REPORT MPCP frame

reception occurs.

Increment the counter by one for each REPORT MPCP frame

received as defined in IEEE Std 802.3, Clause 64 or

Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the ONU, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.18"

::= { dot3MpcpStatEntry 10}

dot3MpcpTxGate OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a GATE MPCP frame

transmission occurs.

Increment the counter by one for each GATE MPCP frame

transmitted as defined in IEEE Std 802.3, Clause 64 or

Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the ONU, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.9"

::= { dot3MpcpStatEntry 11}

dot3MpcpRxGate OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a GATE MPCP frame

reception occurs.

Increment the counter by one for each GATE MPCP frame

received as defined in IEEE Std 802.3, Clause 64 or

Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the OLT, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.14"

::= { dot3MpcpStatEntry 12}

dot3MpcpTxRegister OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a REGISTER MPCP frame

transmission occurs.

Increment the counter by one for each REGISTER MPCP

frame transmitted as defined in IEEE Std 802.3, Clause 64 or

Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the ONU, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.11"

::= { dot3MpcpStatEntry 13}

dot3MpcpRxRegister OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a REGISTER MPCP frame

reception occurs.

Increment the counter by one for each REGISTER MPCP

frame received as defined in IEEE Std 802.3, Clause 64 or

Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the OLT, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.5.1.16"

::= { dot3MpcpStatEntry 14}

-- Optical Multi Point Emulation (OMPEmulation)

-- managed object definitions

dot3OmpEmulationObjects OBJECT IDENTIFIER ::={dot3EponObjects 2}

dot3OmpEmulationTable OBJECT-TYPE

SYNTAX SEQUENCE OF Dot3OmpEmulationEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of dot3 OmpEmulation MIB objects. The table

contain objects for the management of the OMPEmulation

sublayer.

Each object has a row for every virtual link denoted by

the corresponding ifIndex.

The LLID field, as defined in the IEEE Std 802.3, is a 2-byte

register (15-bit field and a broadcast bit) limiting the

number of virtual links to 32768. Typically the number

of expected virtual links in a PON is like the number of

ONUs, which is 32-64, plus an additional entry for

broadcast LLID."

::= { dot3OmpEmulationObjects 1 }

dot3OmpEmulationEntry OBJECT-TYPE

SYNTAX Dot3OmpEmulationEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the dot3 OmpEmulation table.

Rows exist for an OLT interface and an ONU interface.

A row in the table is denoted by the ifIndex of the link

and it is created when the ifIndex is created.

The rows in the table for an ONU interface are created

at system initialization.

The row in the table corresponding to the OLT ifIndex

and the row corresponding to the broadcast virtual link

are created at system initialization.

A row in the table corresponding to the ifIndex of a

virtual links is created when a virtual link is

established (ONU registers) and deleted when the virtual

link is deleted (ONU deregisters)."

INDEX { ifIndex }

::= { dot3OmpEmulationTable 1 }

Dot3OmpEmulationEntry ::=

SEQUENCE {

dot3OmpEmulationType INTEGER

}

dot3OmpEmulationType OBJECT-TYPE

SYNTAX INTEGER {

unknown(1),

olt(2),

onu(3)

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An object that indicates the mode of operation

of the Reconciliation Sublayer for Point-to-Point

Emulation (see IEEE Std 802.3, 65.1 or 76.2 as appropriate).

unknown(1) value is assigned in initialization; true state

or type is not yet known. olt(2) value is assigned when the

sublayer is operating in OLT mode. onu(3) value is assigned when

the sublayer is operating in ONU mode.

This object is applicable for an OLT, with the same

value for all virtual interfaces, and for an ONU."

REFERENCE "IEEE Std 802.3, 30.3.7.1.2"

::= { dot3OmpEmulationEntry 1}

dot3OmpEmulationStatTable OBJECT-TYPE

SYNTAX SEQUENCE OF Dot3OmpEmulationStatEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table defines the list of statistics counters of

IEEE Std 802.3, Clause 65 or Clause 76, OMPEmulation sublayer.

Each object has a row for every virtual link denoted by

the corresponding ifIndex.

The LLID field, as defined in the IEEE Std 802.3, is a 2-byte

register (15-bit field and a broadcast bit) limiting the

number of virtual links to 32768. Typically the number

of expected virtual links in a PON is like the number of

ONUs, which is 32-64, plus an additional entry for

broadcast LLID."

::= { dot3OmpEmulationObjects 2}

dot3OmpEmulationStatEntry OBJECT-TYPE

SYNTAX Dot3OmpEmulationStatEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the table of statistics counters of

IEEE Std 802.3, Clause 65 or Clause 76, OMPEmulation sublayer.

Rows exist for an OLT interface and an ONU interface.

A row in the table is denoted by the ifIndex of the link

and it is created when the ifIndex is created.

The rows in the table for an ONU interface are created

at system initialization.

The row in the table corresponding to the OLT ifIndex

and the row corresponding to the broadcast virtual link

are created at system initialization.

A row in the table corresponding to the ifIndex of a

virtual links is created when a virtual link is

established (ONU registers) and deleted when the virtual

link is deleted (ONU deregisters)."

INDEX { ifIndex}

::= { dot3OmpEmulationStatTable 1 }

Dot3OmpEmulationStatEntry::=

SEQUENCE {

dot3OmpEmulationSLDErrors Counter64,

dot3OmpEmulationCRC8Errors Counter64,

dot3OmpEmulationBadLLID Counter64,

dot3OmpEmulationGoodLLID Counter64,

dot3OmpEmulationOnuPonCastLLID Counter64,

dot3OmpEmulationOltPonCastLLID Counter64,

dot3OmpEmulationBroadcastBitNotOnuLlid Counter64,

dot3OmpEmulationOnuLLIDNotBroadcast Counter64,

dot3OmpEmulationBroadcastBitPlusOnuLlid Counter64,

dot3OmpEmulationNotBroadcastBitNotOnuLlid Counter64

}

dot3OmpEmulationSLDErrors OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of frames received that do not contain a valid

SLD field as defined in IEEE Std 802.3, 65.1.3.3.1 or

76.2.6.1.3.1, as appropriate.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.s

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.7.1.3"

::= { dot3OmpEmulationStatEntry 1}

dot3OmpEmulationCRC8Errors OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of frames received that contain a valid SLD

field, as defined in IEEE Std 802.3, 65.1.3.3.1 or 76.2.6.1.3.1

as appropriate, but do not pass the CRC-8 check as defined in

IEEE Std 802.3, 65.1.3.3.3 or 76.2.6.1.3.3 as appropriate.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.7.1.4"

::= { dot3OmpEmulationStatEntry 2}

dot3OmpEmulationBadLLID OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of frames received that contain a valid SLD field in an

OLT, and pass the CRC-8 check, but are discarded due to the

LLID check. The SLD is defined in IEEE Std 802.3, 65.1.3.3.1

or 76.2.6.1.3.1, as appropriate. The CRC-8 check is defined in

IEEE Std 802.3, 65.1.3.3.3 or 76.2.6.1.3.3, as appropriate. The

LLID check is defined in IEEE Std 802.3, 65.1.3.3.2 or

76.2.6.1.3.2, as appropriate.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.7.1.8"

::= { dot3OmpEmulationStatEntry 3}

dot3OmpEmulationGoodLLID OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of frames received that contain a valid SLD

field, as defined in IEEE Std 802.3, 65.1.3.3.1 or 76.2.6.1.3.1,

as appropriate, and pass the CRC-8 check as defined in

IEEE Std 802.3, 65.1.3.3.3 or 76.2.6.1.3.3, as appropriate.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.7.1.5"

::= { dot3OmpEmulationStatEntry 4}

dot3OmpEmulationOnuPonCastLLID OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of frames received that: 1) contain a valid SLD field

in an ONU, 2) meet the rules for frame acceptance, and

3) pass the CRC-8 check. The SLD is defined in

IEEE Std 802.3, 65.1.3.3.1 or 76.2.6.1.3.1, as appropriate. The

rules for LLID acceptance are defined in IEEE Std 802.3, 65.1.3.3.2

or 76.2.6.1.3.2, as appropriate. The CRC-8 check is defined

in IEEE Std 802.3, 65.1.3.3.3 or 76.2.6.1.3.3, as appropriate.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the OLT, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.7.1.6"

::= { dot3OmpEmulationStatEntry 5}

dot3OmpEmulationOltPonCastLLID OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of frames received that contain a valid SLD field, as

defined in IEEE Std 802.3, 65.1.3.3.1 or 76.2.6.1.3.1, as

appropriate, pass the CRC-8 check, as defined in

IEEE Std 802.3, 65.1.3.3.3 or 76.2.6.1.3.3, as appropriate,

and meet the rules of acceptance for an OLT defined in

IEEE Std 802.3, 65.1.3.3.2 or 76.2.6.1.3.2, as appropriate.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the ONU, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.3.7.1.7"

::= { dot3OmpEmulationStatEntry 6}

dot3OmpEmulationBroadcastBitNotOnuLlid OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of frames received that contain a valid SLD

field, as defined in IEEE Std 802.3,

65.1.3.3.1, pass the CRC-8 check, as defined in

IEEE Std 802.3, 65.1.3.3.3 or 76.2.6.1.3.3, and contain the

broadcast bit in the LLID and not the ONU's LLID (frame accepted)

as defined in IEEE Std 802.3, Clause 65 or Clause 76.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the OLT, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

::= { dot3OmpEmulationStatEntry 7}

dot3OmpEmulationOnuLLIDNotBroadcast OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of frames received that contain a valid SLD

field, as defined in IEEE Std 802.3,

65.1.3.3.1, pass the CRC-8 check, as defined in

IEEE Std 802.3, 65.1.3.3.3 or 76.2.6.1.3.3, and contain the ONU's

LLID as defined in IEEE Std 802.3, Clause 65 or Clause 76.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the OLT, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

::= { dot3OmpEmulationStatEntry 8}

dot3OmpEmulationBroadcastBitPlusOnuLlid OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of frames received that contain a valid SLD

field, as defined in IEEE Std 802.3,

65.1.3.3.1, pass the CRC-8 check, as defined in

IEEE Std 802.3, 65.1.3.3.3 or 76.2.6.1.3.3, and contain the

broadcast bit in the LLID and match the ONU's LLID (frame

reflected) as defined in IEEE Std 802.3, Clause 65 or Clause 76.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the OLT, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

::= { dot3OmpEmulationStatEntry 9}

dot3OmpEmulationNotBroadcastBitNotOnuLlid OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of frames received that contain a valid SLD

field, as defined in IEEE Std 802.3,

65.1.3.3.1, pass the CRC-8 check, as defined in

IEEE Std 802.3, 65.1.3.3.3 or 76.2.6.1.3.3, and do not contain

the ONU's LLID as defined in IEEE Std 802.3, Clause 65 or

Clause 76.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

At the OLT, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

::= { dot3OmpEmulationStatEntry 10}

-- FEC managed object definitions (30.5.1)

dot3EponFecObjects OBJECT IDENTIFIER ::={dot3EponObjects 3}

dot3EponFecTable OBJECT-TYPE

SYNTAX SEQUENCE OF Dot3EponFecEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of dot3 EPON FEC management objects.

The entries in the table are control and status objects

and statistic counters for the FEC layer.

Each object has a row for every virtual link denoted by

the corresponding ifIndex.

The LLID field, as defined in the IEEE Std 802.3, is a 2-byte

register (15-bit field and a broadcast bit) limiting the

number of virtual links to 32768. Typically the number

of expected virtual links in a PON is like the number of

ONUs, which is 32-64, plus an additional entry for

broadcast LLID."

::= { dot3EponFecObjects 1 }

dot3EponFecEntry OBJECT-TYPE

SYNTAX Dot3EponFecEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the dot3 EPON FEC table.

Rows exist for an OLT interface and an ONU interface.

A row in the table is denoted by the ifIndex of the link

and it is created when the ifIndex is created.

The rows in the table for an ONU interface are created

at system initialization.

The row in the table corresponding to the OLT ifIndex

and the row corresponding to the broadcast virtual link

are created at system initialization.

A row in the table corresponding to the ifIndex of a

virtual links is created when a virtual link is

established (ONU registers) and deleted when the virtual

link is deleted (ONU deregisters)."

INDEX { ifIndex}

::= { dot3EponFecTable 1 }

Dot3EponFecEntry ::=

SEQUENCE {

dot3EponFecPCSCodingViolation Counter64,

dot3EponFecAbility INTEGER,

dot3EponFecMode INTEGER,

dot3EponFecCorrectedBlocks Counter64,

dot3EponFecUncorrectableBlocks Counter64,

dot3EponFecBufferHeadCodingViolation Counter64

}

dot3EponFecPCSCodingViolation OBJECT-TYPE

SYNTAX Counter64

UNITS "octets"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"For a 100 Mb/s operation, it is a count of the number of

times an invalid code-group is received, other than the

/H/ code-group. For a 1000 Mb/s operation, it is a count

of the number of times an invalid codegroup is received,

other than the /V/ code-group. /H/ denotes a special

4b5b codeword of the IEEE Std 802.3 Clause 24 100 Mb/s PCS layer,

and /V/ denotes a special 8b10b codeword of the IEEE Std 802.3

Clause 36 1000 Mb/s PCS layer.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.5.1.1.14"

::= { dot3EponFecEntry 1}

dot3EponFecAbility OBJECT-TYPE

SYNTAX INTEGER {

unknown(1),

supported(2),

unsupported(3)

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An object that indicates the support of operation of the

optional FEC sublayer of the 1000BASE-PX PHY specified

in IEEE Std 802.3, 65.2.

unknown(1) value is assigned in the initialization, for non

FEC support state or type not yet known. unsupported(3)

value is assigned when the sublayer is not supported.

supported(2) value is assigned when the sublayer is

supported.

This object is applicable for an OLT, with the same

value for all virtual interfaces, and for an ONU.

The FEC counters will have a zero value when the

interface is not supporting FEC.

The counters:

dot3EponFecPCSCodingViolation - not affected by FEC

ability.

dot3EponFecCorrectedBlocks - has a zero value when

dot3EponFecAbility is unknown(1) and unsupported(3).

dot3EponFecUncorrectableBlocks - has a zero value when

dot3EponFecAbility is unknown(1) and unsupported(3).

dot3EponFecBufferHeadCodingViolation - has a zero value

when dot3EponFecAbility is unknown(1) and

unsupported(3)."

REFERENCE "IEEE Std 802.3, 30.5.1.1.15"

::= { dot3EponFecEntry 2}

dot3EponFecMode OBJECT-TYPE

SYNTAX INTEGER {

unknown(1),

disabled(2),

enabled(3)

}

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"An object that defines the mode of operation of the

optional FEC sublayer of the 1000BASE-PX PHY, specified

in IEEE Std 802.3, 65.2, and reflects its state.

A GET operation returns the current mode of operation

of the PHY. A SET operation changes the mode of

operation of the PHY to the indicated value.

unknown(1) value is assigned in the initialization for non

FEC support state or type not yet known.

disabled(2) value is assigned when the FEC sublayer is

operating in disabled mode.

enabled(3) value is assigned when the FEC sublayer is

operating in FEC mode.

The write operation is not restricted in this document

and can be done at any time. Changing dot3EponFecMode

state can lead to disabling the Forward Error Correction

on the respective interface, which can lead to a

degradation of the optical link, and therefore may lead

to an interruption of service for the users connected to

the respective EPON interface.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

The counting of

the FEC counters will stop when the FEC of the interface

is disabled.

The counters:

dot3EponFecPCSCodingViolation - not affected by FEC

mode.

dot3EponFecCorrectedBlocks - stops counting when

Rx\_FEC is not enabled. (unknown(1) and disabled(2)).

dot3EponFecUncorrectableBlocks - stops counting when

Rx\_FEC is not enabled (unknown(1) and disabled(2)).

dot3EponFecBufferHeadCodingViolation - stops counting

when Rx\_FEC is not enabled (unknown(1) and

disabled(2)).

The object:

dot3EponFecAbility - indicates the FEC ability and

is not affected by the dot3EponFecMode object."

REFERENCE "IEEE Std 802.3, 30.5.1.1.16"

DEFVAL { unknown }

::= { dot3EponFecEntry 3}

dot3EponFecCorrectedBlocks OBJECT-TYPE

SYNTAX Counter64

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"For 1000BASE-PX, 10/25/40/50/100/200/400GBASE-R, 10GBASE-PR

or 10/1GBASE-PRX PHYs, it is a count of corrected FEC blocks.

This counter will not increment for other PHY Types.

Increment the counter by one for each received block that is

corrected by the FEC function in the PHY.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.5.1.1.17"

::= { dot3EponFecEntry 4}

dot3EponFecUncorrectableBlocks OBJECT-TYPE

SYNTAX Counter64

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"For 1000BASE-PX, 10/25/40/50/100/200/400GBASE-R, 10GBASE-PR

or 10/1GBASE-PRX PHYs, it is a count of uncorrectable FEC blocks.

This counter will not increment for other PHY Types.

Increment the counter by one for each FEC block that is

determined to be uncorrectable by the FEC function in the PHY.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

REFERENCE "IEEE Std 802.3, 30.5.1.1.18"

::= { dot3EponFecEntry 5}

dot3EponFecBufferHeadCodingViolation OBJECT-TYPE

SYNTAX Counter64

UNITS "octets"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"For a 1000 Mb/s operation, it is a count of the number of

invalid code-group received directly from the link. The

value has a meaning only in 1000 Mb/s mode and it is

zero otherwise.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

::= { dot3EponFecEntry 6}

-- ExtendedPackage managed object definitions

dot3ExtPkgObjects OBJECT IDENTIFIER ::={dot3EponObjects 4}

dot3ExtPkgControlObjects OBJECT IDENTIFIER ::= { dot3ExtPkgObjects 1}

dot3ExtPkgControlTable OBJECT-TYPE

SYNTAX SEQUENCE OF Dot3ExtPkgControlEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of Extended package Control management

objects. Entries in the table are control and status

indication objects of an EPON interface, which are

gathered in an extended package as an addition to the

objects based on the IEEE Std 802.3, Clause 30, attributes.

Each object has a row for every virtual link denoted by

the corresponding ifIndex.

The LLID field, as defined in the IEEE Std 802.3, is a 2-byte

register (15-bit field and a broadcast bit) limiting the

number of virtual links to 32768. Typically the number

of expected virtual links in a PON is like the number of

ONUs, which is 32-64, plus an additional entry for

broadcast LLID."

::= { dot3ExtPkgControlObjects 1 }

dot3ExtPkgControlEntry OBJECT-TYPE

SYNTAX Dot3ExtPkgControlEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the Extended package Control table.

Rows exist for an OLT interface and an ONU interface.

A row in the table is denoted by the ifIndex of the link

and it is created when the ifIndex is created.

The rows in the table for an ONU interface are created

at system initialization.

The row in the table corresponding to the OLT ifIndex

and the row corresponding to the broadcast virtual link

are created at system initialization.

A row in the table corresponding to the ifIndex of a

virtual links is created when a virtual link is

established (ONU registers) and deleted when the virtual

link is deleted (ONU deregisters)."

INDEX { ifIndex}

::= { dot3ExtPkgControlTable 1 }

Dot3ExtPkgControlEntry ::=

SEQUENCE {

dot3ExtPkgObjectReset INTEGER,

dot3ExtPkgObjectPowerDown TruthValue,

dot3ExtPkgObjectNumberOfLLIDs Unsigned32,

dot3ExtPkgObjectFecEnabled INTEGER,

dot3ExtPkgObjectReportMaximumNumQueues Unsigned32,

dot3ExtPkgObjectRegisterAction INTEGER

}

dot3ExtPkgObjectReset OBJECT-TYPE

SYNTAX INTEGER {

running(1),

reset(2)

}

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This object is used to reset the EPON interface. The

interface may be unavailable while the reset occurs and

data may be lost.

Setting this object to running(1) will cause the

interface to enter into running mode. Setting this

object to reset(2) will cause the interface to go into

reset mode. When getting running(1), the interface is in

running mode. When getting reset(2), the interface is in

reset mode.

The write operation is not restricted in this document

and can be done at any time. Changing

dot3ExtPkgObjectReset state can lead to a reset of the

respective interface, leading to an interruption of

service for the users connected to the respective EPON

interface.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

A reset for a specific virtual interface resets only

this virtual interface and not the physical interface.

Thus, a virtual link that is malfunctioning can be

reset without affecting the operation of other virtual

interfaces.

The reset can cause Discontinuities in the values of the

counters of the interface, similar to re-initialization

of the management system. Discontinuity should be

indicated by the ifCounterDiscontinuityTime object of

the Interfaces Group MIB module."

DEFVAL { running }

::= { dot3ExtPkgControlEntry 1 }

dot3ExtPkgObjectPowerDown OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This object is used to power down the EPON interface.

The interface may be unavailable while the power down

occurs and data may be lost.

Setting this object to true(1) will cause the interface

to enter into power down mode. Setting this object to

false(2) will cause the interface to go out of power

down mode. When getting true(1), the interface is in

power down mode. When getting false(2), the interface is

not in power down mode.

The write operation is not restricted in this document

and can be done at any time. Changing

dot3ExtPkgObjectPowerDown state can lead to a power down

of the respective interface, leading to an interruption

of service of the users connected to the respective EPON

interface.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

A power down/up of a specific virtual interface affects

only the virtual interface and not the physical

interface. Hence a virtual link, which needs a certain

handling, can be powered down and then powered up without

disrupting the operation of other virtual interfaces.

The object is relevant when the admin state of the

interface is active as set by the dot3MpcpAdminState."

DEFVAL { false }

::= { dot3ExtPkgControlEntry 2 }

dot3ExtPkgObjectNumberOfLLIDs OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A read only object that indicates the number of

registered LLIDs. The initialization value is 0.

This object is applicable for an OLT with the same

value for all virtual interfaces and for an ONU.

The LLID field, as defined in the IEEE Std 802.3, is a 2-byte

register (15-bit field and a broadcast bit) limiting the

number of virtual links to 32768. Typically the number

of expected virtual links in a PON is like the number of

ONUs, which is 32-64, plus an additional entry for

broadcast LLID. At the ONU the

number of LLIDs for an interface is one."

::= { dot3ExtPkgControlEntry 3 }

dot3ExtPkgObjectFecEnabled OBJECT-TYPE

SYNTAX INTEGER {

noFecEnabled(1),

fecTxEnabled(2),

fecRxEnabled(3),

fecTxRxEnabled(4)

}

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"An object defining the FEC mode of operation of the

interface, and indicating its state. The modes defined in

this object are extensions to the FEC modes defined in

the dot3EponFecMode object.

When noFECEnabled(1), the interface does not enable FEC

mode.

When fecTxEnabled(2), the interface enables the FEC

transmit mode.

When fecRxEnabled(3), the interface enables the FEC

receive mode.

When fecTxRxEnabled(4), the interface enables the FEC

transmit and receive mode.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

The FEC counters are referring to the receive path. The

FEC counters will stop when the FEC receive mode of the

interface is disabled, as defined by fecRxEnabled(3)

and fecTxRxEnabled(4) values.

The counters:

dot3EponFecPCSCodingViolation - not affected by FEC

mode.

dot3EponFecCorrectedBlocks - stops counting when

Rx\_FEC is not enabled (noFecEnabled(1) and

fecTxEnabled(2)).

dot3EponFecUncorrectableBlocks - stops counting when

Rx\_FEC is not enabled (noFecEnabled(1) and

fecTxEnabled(2)).

dot3EponFecBufferHeadCodingViolation - stops counting

when Rx\_FEC is not enabled (noFecEnabled(1) and

fecTxEnabled(2)).

The objects:

dot3EponFecAbility - indicates the FEC ability and is

not affected by the FEC mode.

dot3EponFecMode - indicates the FEC mode for combined RX

and TX.

The write operation is not restricted in this document

and can be done at any time. Changing

dot3ExtPkgObjectFecEnabled state can lead to disabling

the Forward Error Correction on the respective interface,

which can lead to a degradation of the optical link, and

therefore may lead to an interruption of service for the

users connected to the respective EPON interface."

DEFVAL { noFecEnabled }

::= { dot3ExtPkgControlEntry 4 }

dot3ExtPkgObjectReportMaximumNumQueues OBJECT-TYPE

SYNTAX Unsigned32 (0..7)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An object, that defines the maximal number of queues in

the REPORT message as defined in IEEE Std 802.3, Clause 64. For

further information please see the description of the

queue table.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

DEFVAL { 0 }

::= { dot3ExtPkgControlEntry 5 }

dot3ExtPkgObjectRegisterAction OBJECT-TYPE

SYNTAX INTEGER {

none(1),

register(2),

deregister(3),

reregister(4)

}

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"An object configuring the registration state of an

interface, and indicating its registration state.

Write operation changes the registration state to its new

value.

Read operation returns the value of the state.

The registration state is reflected in this object and in

the dot3MpcpRegistrationState object.

none(1) indicates an unknown state,

register(2) indicates a registered LLID,

deregister(3) indicates a deregistered LLID,

reregister(4) indicates an LLID that is reregistering.

The following list describes the operation of the

interface, as specified in the IEEE Std 802.3, when a write

operation is setting a value.

none(1) - not doing any action.

register(2) - registering an LLID that has been requested

for registration (The LLID is in registering mode.

dot3MpcpRegistrationState - registering(2) ).

deregister(3) - deregisters an LLID that is registered

(dot3MpcpRegistrationState - registered(3) ).

reregister(4) - reregister an LLID that is registered

(dot3MpcpRegistrationState - registered(3) ).

The behavior of an ONU and OLT interfaces, at each one

of the detailed operation at each state, is described in

the registration state machine of figure 64-22,

IEEE Std 802.3.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface.

The write operation is not restricted in this document

and can be done at any time. Changing

dot3ExtPkgObjectRegisterAction state can lead to a change

in the registration state of the respective interface

leading to a deregistration and an interruption of

service of the users connected to the respective EPON

interface."

DEFVAL { none }

::= { dot3ExtPkgControlEntry 6 }

dot3ExtPkgQueueTable OBJECT-TYPE

SYNTAX SEQUENCE OF Dot3ExtPkgQueueEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of the extended package objects for queue

management. The IEEE Std 802.3 MPCP defines a report message

of the occupancy of the transmit queues for the feedback

BW request from the ONUs. These queues serve the uplink

transmission of the ONU and data is gathered there until

the ONU is granted for transmission.

The management table of the queues is added here mainly

to control the reporting and to gather some statistics

of their operation. This table is not duplicating

existing management objects of bridging queues,

specified in IEEE Std 802.1D, since the existence of a

dedicated transmit queuing mechanism is implied in the

IEEE Std 802.3, and the ONU may be a device that is not a

bridge with embedded bridging queues.

The format of the REPORT message, as specified

in IEEE Std 802.3, is presented below:

+-----------------------------------+

| Destination Address |

+-----------------------------------+

| Source Address |

+-----------------------------------+

| Length/Type |

+-----------------------------------+

| OpCode |

+-----------------------------------+

| TimeStamp |

+-----------------------------------+

| Number of queue Sets |

+-----------------------------------+ /|\

| Report bitmap | |

+-----------------------------------+ |

| Queue 0 report | |

+-----------------------------------+ | repeated for

| Queue 1 report | | every

+-----------------------------------+ | queue\_set

| Queue 2 report | |

+-----------------------------------+ |

| Queue 3 report | |

+-----------------------------------+ |

| Queue 4 report | |

+-----------------------------------+ |

| Queue 5 report | |

+-----------------------------------+ |

| Queue 6 report | |

+-----------------------------------+ |

| Queue 7 report | |

+-----------------------------------+ \|/

| Pad/reserved |

+-----------------------------------+

| FCS |

+-----------------------------------+

The 'Queue report' field reports the occupancy of each

uplink transmission queue.

The number of queue sets defines the number of the

reported sets, as would be explained in the description

of the dot3ExtPkgQueueSetsTable table. For each set the

report bitmap defines which queue is present in the

report, meaning that although the MPCP REPORT message

can report up to 8 queues in a REPORT message, the

actual number is flexible. The Queue table has a

variable size that is limited by the

dot3ExtPkgObjectReportMaximumNumQueues object, as an

ONU can have fewer queues to report.

The entries in the table are control and status

indication objects for managing the queues of an EPON

interface that are gathered in an extended package as

an addition to the objects that are based on the

IEEE Std 802.3 attributes.

Each object has a row for every virtual link and for

every queue in the report.

The LLID field, as defined in the IEEE Std 802.3, is a 2-byte

register (15-bit field and a broadcast bit) limiting the

number of virtual links to 32768. Typically the number

of expected virtual links in a PON is like the number of

ONUs, which is 32-64, plus an additional entry for

broadcast LLID.

The number of queues is between 0 and 7 and limited by

dot3ExtPkgObjectReportMaximumNumQueues."

::= { dot3ExtPkgControlObjects 2 }

dot3ExtPkgQueueEntry OBJECT-TYPE

SYNTAX Dot3ExtPkgQueueEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the Extended package Queue table. At the

OLT, the rows exist for each ifIndex and dot3QueueIndex.

At the ONU, rows exist for the single ifIndex for each

dot3QueueIndex.

Rows in the table are created when the ifIndex of the

link is created. A set of rows per queue are added for

each ifIndex, denoted by the dot3QueueIndex.

A set of rows per queue in the table, for an ONU

interface, are created at the system initialization.

A set of rows per queue in the table, corresponding to

the OLT ifIndex and a set of rows per queue

corresponding to the broadcast virtual link, are

created at the system initialization.

A set of rows per queue in the table, corresponding to

the ifIndex of a virtual link, are created when the

virtual link is established (ONU registers), and deleted

when the virtual link is deleted (ONU deregisters)."

INDEX { ifIndex, dot3QueueIndex }

::= { dot3ExtPkgQueueTable 1 }

Dot3ExtPkgQueueEntry ::=

SEQUENCE {

dot3QueueIndex Unsigned32,

dot3ExtPkgObjectReportNumThreshold Unsigned32,

dot3ExtPkgObjectReportMaximumNumThreshold Unsigned32,

dot3ExtPkgStatTxFramesQueue Counter64,

dot3ExtPkgStatRxFramesQueue Counter64,

dot3ExtPkgStatDroppedFramesQueue Counter64

}

dot3QueueIndex OBJECT-TYPE

SYNTAX Unsigned32 (0..7)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An object that identifies an index for the queue table

reflecting the queue index of the queues that are

reported in the MPCP REPORT message as defined in

IEEE Std 802.3, Clause 64 or Clause 77.

The number of queues is between 0 and 7, and limited by

dot3ExtPkgObjectReportMaximumNumQueues."

::= { dot3ExtPkgQueueEntry 1 }

dot3ExtPkgObjectReportNumThreshold OBJECT-TYPE

SYNTAX Unsigned32 (0..7)

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"An object that defines the number of thresholds for each

queue in the REPORT message as defined in IEEE Std 802.3,

Clause 64 or Clause 77.

Each queue\_set reporting will provide information on the

queue occupancy of frames below the matching Threshold.

Read operation reflects the number of thresholds.

Write operation sets the number of thresholds for each

queue.

The write operation is not restricted in this document

and can be done at any time. Value cannot exceed the

maximal value defined by the

dot3ExtPkgObjectReportMaximumNumThreshold object.

Changing dot3ExtPkgObjectReportNumThreshold can lead to

a change in the reporting of the ONU interface and

therefore to a change in the bandwidth allocation of the

respective interface. This change may lead a degradation

or an interruption of service of the users connected to

the respective EPON interface.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface

and for each queue. At the ONU, it has a distinct value

for each queue."

DEFVAL { 0 }

::= { dot3ExtPkgQueueEntry 2 }

dot3ExtPkgObjectReportMaximumNumThreshold OBJECT-TYPE

SYNTAX Unsigned32 (0..7)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An object, that defines the maximal number of thresholds

for each queue in the REPORT message as defined in

IEEE Std 802.3, Clause 64 or Clause 77. Each queue\_set

reporting will provide information on the queue occupancy of

frames below the matching Threshold.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface

and for each queue. At the ONU, it has a distinct value

for each queue."

DEFVAL { 0 }

::= { dot3ExtPkgQueueEntry 3 }

dot3ExtPkgStatTxFramesQueue OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a frame transmission

occurs from the corresponding 'Queue'.

Increment the counter by one for each frame transmitted,

which is an output of the 'Queue'.

The 'Queue' marking matches the REPORT MPCP message

Queue field as defined in IEEE Std 802.3, Clause 64 or Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface

and for each queue. At the ONU, it has a distinct value

for each queue.

At the OLT the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

::= { dot3ExtPkgQueueEntry 4}

dot3ExtPkgStatRxFramesQueue OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a frame reception

occurs from the corresponding 'Queue'.

Increment the counter by one for each frame received,

which is an input to the corresponding 'Queue'.

The 'Queue' marking matches the REPORT MPCP message

Queue field as defined in IEEE Std 802.3, Clause 64 or Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface

and for each queue. At the ONU, it has a distinct value

for each queue.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

::= { dot3ExtPkgQueueEntry 5}

dot3ExtPkgStatDroppedFramesQueue OBJECT-TYPE

SYNTAX Counter64

UNITS "frames"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A count of the number of times a frame drop

occurs from the corresponding 'Queue'.

Increment the counter by one for each frame dropped

from the corresponding 'Queue'.

The 'Queue' marking matches the REPORT MPCP message

Queue field as defined in IEEE Std 802.3, Clause 64 or Clause 77.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface

and for each queue. At the ONU, it has a distinct value

for each queue.

At the OLT, the value should be zero.

Discontinuities of this counter can occur at

re-initialization of the management system and at other

times, as indicated by the value of the

ifCounterDiscontinuityTime object of the Interfaces Group MIB

module."

::= { dot3ExtPkgQueueEntry 6}

dot3ExtPkgQueueSetsTable OBJECT-TYPE

SYNTAX SEQUENCE OF Dot3ExtPkgQueueSetsEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of Extended package objects used for the

management of the queue\_sets. Entries are control and

status indication objects of an EPON interface, which

are gathered in an extended package as an addition to

the objects based on the IEEE Std 802.3 attributes. The

objects in this table are specific for the queue\_sets,

which are reported in the MPCP REPORT message as defined

in IEEE Std 802.3, Clause 64 or Clause 77.

The IEEE Std 802.3 MPCP defines a report message of the

occupancy of the transmit queues for the feedback BW

request from the ONUs. These queues serve the uplink

transmission of the ONU and data is gathered there until

the ONU is granted for transmission.

The management table of the queues\_sets is added here

mainly to control the reporting and to gather some

statistics of their operation. This table is not

duplicating existing management objects of bridging

queues, specified in IEEE Std 802.1Q, since the existence of a

dedicated transmit queuing mechanism is implied in the

IEEE Std 802.3, and the ONU may be a device that is not a

bridge with embedded bridging queues.

The format of the REPORT message, as specified

in IEEE Std 802.3, is presented below:

+-----------------------------------+

| Destination Address |

+-----------------------------------+

| Source Address |

+-----------------------------------+

| Length/Type |

+-----------------------------------+

| OpCode |

+-----------------------------------+

| TimeStamp |

+-----------------------------------+

| Number of queue Sets |

+-----------------------------------+ /|\

| Report bitmap | |

+-----------------------------------+ |

| Queue 0 report | |

+-----------------------------------+ | repeated for

| Queue 1 report | | every

+-----------------------------------+ | queue\_set

| Queue 2 report | |

+-----------------------------------+ |

| Queue 3 report | |

+-----------------------------------+ |

| Queue 4 report | |

+-----------------------------------+ |

| Queue 5 report | |

+-----------------------------------+ |

| Queue 6 report | |

+-----------------------------------+ |

| Queue 7 report | |

+-----------------------------------+ \|/

| Pad/reserved |

+-----------------------------------+

| FCS |

+-----------------------------------+

As can be seen from the message format, the ONU

interface reports of the status of up to 8 queues

and it can report in a single MPCP REPORT message

of a few sets of queues.

The number of queue\_sets defines the number of the

reported sets, and it can reach a value of up to 8.

It means that an ONU can hold a variable number of

sets between 0 and 7.

The dot3ExtPkgQueueSetsTable table has a variable

queue\_set size that is limited by the

dot3ExtPkgObjectReportMaximumNumThreshold object as an

ONU can have fewer queue\_sets to report.

The 'Queue report' field reports the occupancy of each

uplink transmission queue. The queue\_sets can be used to

report the occupancy of the queues in a few levels as to

allow granting, in an accurate manner, of only part of

the data available in the queues. A Threshold is

defined for each queue\_set to define the level of the

queue that is counted for the report of the occupancy.

The threshold is reflected in the queue\_set table by the

dot3ExtPkgObjectReportThreshold object.

For each queue set, the report bitmap defines which

queues are present in the report, meaning that

although the MPCP REPORT message can report of up to 8

queues in a REPORT message, the actual number is

flexible.

The dot3ExtPkgQueueSetsTable table has a variable queue

size that is limited by the

dot3ExtPkgObjectReportMaximumNumQueues object as an ONU

can have fewer queues to report.

Each object has a row for every virtual link, for each

queue in the report and for each queue\_set in the queue.

The LLID field, as defined in the IEEE Std 802.3, is a 2-byte

register (15-bit field and a broadcast bit) limiting the

number of virtual links to 32768. Typically the number

of expected virtual links in a PON is like the number of

ONUs, which is 32-64, plus an additional entry for

broadcast LLID.

The number of queues is between 0 and 7 and limited by

dot3ExtPkgObjectReportMaximumNumQueues.

The number of queues\_sets is between 0 and 7 and limited

by dot3ExtPkgObjectReportMaximumNumThreshold."

::= { dot3ExtPkgControlObjects 3 }

dot3ExtPkgQueueSetsEntry OBJECT-TYPE

SYNTAX Dot3ExtPkgQueueSetsEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the Extended package queue\_set table. At

the OLT, the rows exist for each ifIndex,

dot3QueueSetQueueIndex and dot3QueueSetIndex. At the

ONU, rows exist for the single ifIndex, for each

dot3QueueSetQueueIndex and dot3QueueSetIndex.

Rows in the table are created when the ifIndex of the

link is created. A set of rows per queue and per

queue\_set are added for each ifIndex, denoted by

dot3QueueSetIndex and dot3QueueSetQueueIndex.

A set of rows per queue and per queue\_set in the table,

for an ONU interface are created at system

initialization.

A set of rows per queue and per queue\_Set in the table,

corresponding to the OLT ifIndex and a set of rows per

queue and per queue\_set, corresponding to the broadcast

virtual link, are created at system initialization.

A set of rows per queue and per queue\_set in the table,

corresponding to the ifIndex of a virtual link are

created when the virtual link is established (ONU

registers) and deleted when the virtual link is deleted

(ONU deregisters)."

INDEX { ifIndex,

dot3QueueSetQueueIndex,dot3QueueSetIndex}

::= { dot3ExtPkgQueueSetsTable 1 }

Dot3ExtPkgQueueSetsEntry ::=

SEQUENCE {

dot3QueueSetQueueIndex Unsigned32,

dot3QueueSetIndex Unsigned32,

dot3ExtPkgObjectReportThreshold Unsigned32

}

dot3QueueSetQueueIndex OBJECT-TYPE

SYNTAX Unsigned32 (0..7)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An object that identifies the queue index for the

dot3ExtPkgQueueSetsTable table. The queues are reported

in the MPCP REPORT message as defined in IEEE Std 802.3,

Clause 64 or Clause 77.

The number of queues is between 0 and 7, and limited by

dot3ExtPkgObjectReportMaximumNumQueues.

Value corresponds to the dot3QueueIndex of the queue

table."

::= { dot3ExtPkgQueueSetsEntry 1 }

dot3QueueSetIndex OBJECT-TYPE

SYNTAX Unsigned32 (0..7)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An object that identifies the queue\_set index for the

dot3ExtPkgQueueSetsTable table. The queues are reported

in the MPCP REPORT message as defined in IEEE Std 802.3,

Clause 64 or Clause 77.

The number of queues\_sets is between 0 and 7, and

limited by dot3ExtPkgObjectReportMaximumNumThreshold."

::= { dot3ExtPkgQueueSetsEntry 2 }

dot3ExtPkgObjectReportThreshold OBJECT-TYPE

SYNTAX Unsigned32

UNITS "TQ (16 ns)"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"An object that defines the value of a threshold report

for each queue\_set in the REPORT message as defined in

IEEE Std 802.3, Clause 64 or Clause 77. The number of sets for

each queue is dot3ExtPkgObjectReportNumThreshold.

In the REPORT message, each queue\_set reporting will

provide information on the occupancy of the queues for

frames below the matching Threshold.

The value returned shall be in Time quanta (TQ), which

is 16 ns or 2 octets increments.

Read operation provides the threshold value. Write

operation sets the value of the threshold.

The write operation is not restricted in this document

and can be done at any time. Changing

dot3ExtPkgObjectReportThreshold can lead to a change in

the reporting of the ONU interface and therefore to a

change in the bandwidth allocation of the respective

interface. This change may lead a degradation or an

interruption of service for the users connected to the

respective EPON interface.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface,

for each queue and for each queue\_set. At the ONU, it has

a distinct value for each queue and for each queue\_set."

DEFVAL { 0 }

::= { dot3ExtPkgQueueSetsEntry 3 }

--Optical Interface status tables

dot3ExtPkgOptIfTable OBJECT-TYPE

SYNTAX SEQUENCE OF Dot3ExtPkgOptIfEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table defines the control and status indication

objects for the optical interface of the EPON interface.

Each object has a row for every virtual link denoted by

the corresponding ifIndex.

The LLID field, as defined in the IEEE Std 802.3, is a 2-byte

register (15-bit field and a broadcast bit) limiting the

number of virtual links to 32768. Typically the number

of expected virtual links in a PON is like the number of

ONUs, which is 32-64, plus an additional entry for

broadcast LLID.

Although the optical interface is a physical interface,

there is a row in the table for each virtual interface.

The reason for having a separate row for each virtual

link is that the OLT has a separate link for each one of

the ONUs. For instance, ONUs could be in different

distances with different link budgets and different

receive powers, therefore having different power alarms.

It is quite similar to a case of different physical

interfaces."

::= { dot3ExtPkgControlObjects 5}

dot3ExtPkgOptIfEntry OBJECT-TYPE

SYNTAX Dot3ExtPkgOptIfEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the optical interface table of the EPON

interface.

Rows exist for an OLT interface and an ONU interface.

A row in the table is denoted by the ifIndex of the link

and it is created when the ifIndex is created.

The rows in the table for an ONU interface are created

at system initialization.

The row in the table corresponding to the OLT ifIndex

and the row corresponding to the broadcast virtual link

are created at system initialization.

A row in the table corresponding to the ifIndex of a

virtual links is created when a virtual link is

established (ONU registers) and deleted when the virtual

link is deleted (ONU deregisters)."

INDEX { ifIndex }

::= { dot3ExtPkgOptIfTable 1 }

Dot3ExtPkgOptIfEntry ::=

SEQUENCE {

dot3ExtPkgOptIfSuspectedFlag TruthValue,

dot3ExtPkgOptIfInputPower Integer32,

dot3ExtPkgOptIfLowInputPower Integer32,

dot3ExtPkgOptIfHighInputPower Integer32,

dot3ExtPkgOptIfLowerInputPowerThreshold Integer32,

dot3ExtPkgOptIfUpperInputPowerThreshold Integer32,

dot3ExtPkgOptIfOutputPower Integer32,

dot3ExtPkgOptIfLowOutputPower Integer32,

dot3ExtPkgOptIfHighOutputPower Integer32,

dot3ExtPkgOptIfLowerOutputPowerThreshold Integer32,

dot3ExtPkgOptIfUpperOutputPowerThreshold Integer32,

dot3ExtPkgOptIfSignalDetect TruthValue,

dot3ExtPkgOptIfTransmitAlarm TruthValue,

dot3ExtPkgOptIfTransmitEnable TruthValue

}

dot3ExtPkgOptIfSuspectedFlag OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object is a reliability indication.

If true, the data in this entry may be unreliable.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

::= { dot3ExtPkgOptIfEntry 1 }

dot3ExtPkgOptIfInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The optical power monitored at the input.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

::= { dot3ExtPkgOptIfEntry 2 }

dot3ExtPkgOptIfLowInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the input during the

current 15-minute interval.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

::= { dot3ExtPkgOptIfEntry 3 }

dot3ExtPkgOptIfHighInputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the input during the

current 15-minute interval.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

::= { dot3ExtPkgOptIfEntry 4 }

dot3ExtPkgOptIfLowerInputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The lower limit threshold on input power. If

dot3ExtPkgOptIfInputPower drops to this value or below,

a Threshold Crossing Alert (TCA) should be sent.

Reading will present the threshold value. Writing will

set the value of the threshold.

The write operation is not restricted in this document

and can be done at any time. Changing

dot3ExtPkgOptIfLowerInputPowerThreshold can lead to a Threshold

Crossing Alert (TCA) being sent for the respective interface.

This alert may be leading to an interruption of service for the

users connected to the respective EPON interface, depending on

the system action on such an alert.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

::= { dot3ExtPkgOptIfEntry 5 }

dot3ExtPkgOptIfUpperInputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The upper limit threshold on input power. If

dot3ExtPkgOptIfInputPower reaches or exceeds this value,

a Threshold Crossing Alert (TCA) should be sent.

Reading will present the threshold value. Writing will

set the value of the threshold.

The write operation is not restricted in this document

and can be done at any time. Changing

dot3ExtPkgOptIfUpperInputPowerThreshold can lead to a Threshold

Crossing Alert (TCA) being sent for the respective interface.

This alert may be leading to an interruption of service for the

users connected to the respective EPON interface, depending on

the system action on such an alert.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

::= { dot3ExtPkgOptIfEntry 6 }

dot3ExtPkgOptIfOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The optical power monitored at the output.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

::= { dot3ExtPkgOptIfEntry 7 }

dot3ExtPkgOptIfLowOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The lowest optical power monitored at the output during the

current 15-minute interval.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

::= { dot3ExtPkgOptIfEntry 8 }

dot3ExtPkgOptIfHighOutputPower OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The highest optical power monitored at the output during the

current 15-minute interval.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

::= { dot3ExtPkgOptIfEntry 9 }

dot3ExtPkgOptIfLowerOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The lower limit threshold on output power. If

dot3ExtPkgOptIfOutputPower drops to this value or below,

a Threshold Crossing Alert (TCA) should be sent.

Reading will present the threshold value. Writing will

set the value of the threshold.

The write operation is not restricted in this document

and can be done at any time. Changing

dot3ExtPkgOptIfLowerOutputPowerThreshold can lead to a Threshold

Crossing Alert (TCA) being sent for the respective interface.

This alert may be leading to an interruption of service for the

users connected to the respective EPON interface, depending on

the system action on such an alert.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

::= { dot3ExtPkgOptIfEntry 10 }

dot3ExtPkgOptIfUpperOutputPowerThreshold OBJECT-TYPE

SYNTAX Integer32

UNITS "0.1 dbm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The upper limit threshold on output power. If

dot3ExtPkgOptIfOutputPower reaches or exceeds this value,

a Threshold Crossing Alert (TCA) should be sent.

Reading will present the threshold value. Writing will

set the value of the threshold.

The write operation is not restricted in this document

and can be done at any time. Changing

dot3ExtPkgOptIfUpperOutputPowerThreshold can lead to a Threshold

Crossing Alert (TCA) being sent for the respective interface.

This alert may be leading to an interruption of service of the

users connected to the respective EPON interface, depending on

the system action on such an alert.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

::= { dot3ExtPkgOptIfEntry 11 }

dot3ExtPkgOptIfSignalDetect OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"When getting true(1), there is a valid optical signal at

the receive that is above the optical power level for

signal detection. When getting false(2) the optical

signal at the receive is below the optical power level

for signal detection.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

DEFVAL { false }

::= { dot3ExtPkgOptIfEntry 12 }

dot3ExtPkgOptIfTransmitAlarm OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"When getting true(1) there is a non-valid optical signal

at the transmit of the interface, either a higher level

or lower level than expected. When getting false(2) the

optical signal at the transmit is valid and in the

required range.

This object is applicable for an OLT and an ONU. At the

OLT, it has a distinct value for each virtual interface."

DEFVAL { false }

::= { dot3ExtPkgOptIfEntry 13 }

dot3ExtPkgOptIfTransmitEnable OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Setting this object to true(1) will cause the optical

interface to start transmission (according to the

control protocol specified for the logical interface).

Setting this object to false(2) will cause the

interface to stop the optical transmission.

When getting true(1), the optical interface is in

transmitting mode (obeying to the logical control

protocol).

When getting false(2), the optical interface is not in

transmitting mode.

The write operation is not restricted in this document

and can be done at any time. Changing

dot3ExtPkgOptIfTransmitEnable state can lead to a halt

in the optical transmission of the respective interface

leading to an interruption of service of the users

connected to the respective EPON interface.

The object is relevant when the admin state of the

interface is active as set by the dot3MpcpAdminState.

This object is applicable for an OLT and an ONU. At the

OLT it, has a distinct value for each virtual interface."

DEFVAL { false }

::= { dot3ExtPkgOptIfEntry 14 }

--

-- The MulticastIDs Table

--

dot3RecognizedMulticastIDsTable OBJECT-TYPE

SYNTAX SEQUENCE OF Dot3RecognizedMulticastIDsEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of MulticastIDs to be recognized by this device."

REFERENCE "IEEE Std 802.3, 30.3.5.1.25"

::= { dot3EponObjects 5 }

dot3RecognizedMulticastIDsEntry OBJECT-TYPE

SYNTAX Dot3RecognizedMulticastIDsEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the table of MulticastIDs to be recognized by this

device."

INDEX { ifIndex, dot3RecognizedMulticastIDIndex }

::= { dot3RecognizedMulticastIDsTable 1 }

Dot3RecognizedMulticastIDsEntry ::=

SEQUENCE {

dot3RecognizedMulticastIDIndex Unsigned32,

dot3RecognizedMulticastID Unsigned32

}

dot3RecognizedMulticastIDIndex OBJECT-TYPE

SYNTAX Unsigned32 (0..127)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An index into the table of MulticastIDs to be recognized by this

device."

::= { dot3RecognizedMulticastIDsEntry 1 }

dot3RecognizedMulticastID OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"An unsigned32 representing a single MulticastID to be recognized

by this device."

REFERENCE "IEEE Std 802.3, 30.3.5.1.25"

::= { dot3RecognizedMulticastIDsEntry 2 }

-- Conformance statements

-- Conformance Groups

dot3EponGroups OBJECT IDENTIFIER ::= { dot3EponConformance 1 }

dot3MpcpGroupBase OBJECT-GROUP

OBJECTS {

dot3MpcpOperStatus,

dot3MpcpAdminState,

dot3MpcpMode,

dot3MpcpSyncTime,

dot3MpcpLinkID,

dot3MpcpRemoteMACAddress,

dot3MpcpRegistrationState,

dot3MpcpMaximumPendingGrants,

dot3MpcpTransmitElapsed,

dot3MpcpReceiveElapsed,

dot3MpcpRoundTripTime

}

STATUS current

DESCRIPTION

"A collection of objects of dot3 Mpcp Control entity state

definition. Objects are per LLID."

::= { dot3EponGroups 1 }

dot3MpcpGroupStat OBJECT-GROUP

OBJECTS {

dot3MpcpMACCtrlFramesTransmitted,

dot3MpcpMACCtrlFramesReceived,

dot3MpcpDiscoveryWindowsSent,

dot3MpcpDiscoveryTimeout,

dot3MpcpTxRegRequest,

dot3MpcpRxRegRequest,

dot3MpcpTxRegAck,

dot3MpcpRxRegAck,

dot3MpcpTxReport,

dot3MpcpRxReport,

dot3MpcpTxGate,

dot3MpcpRxGate,

dot3MpcpTxRegister,

dot3MpcpRxRegister

}

STATUS current

DESCRIPTION

"A collection of objects of dot3 Mpcp Statistics.

Objects are per LLID."

::= { dot3EponGroups 2 }

dot3OmpeGroupID OBJECT-GROUP

OBJECTS {

dot3OmpEmulationType

}

STATUS current

DESCRIPTION

"A collection of objects of dot3 OMP emulation entity

state definition. Objects are per LLID."

::= { dot3EponGroups 3 }

dot3OmpeGroupStat OBJECT-GROUP

OBJECTS {

dot3OmpEmulationSLDErrors,

dot3OmpEmulationCRC8Errors,

dot3OmpEmulationBadLLID,

dot3OmpEmulationGoodLLID,

dot3OmpEmulationOnuPonCastLLID,

dot3OmpEmulationOltPonCastLLID,

dot3OmpEmulationBroadcastBitNotOnuLlid,

dot3OmpEmulationOnuLLIDNotBroadcast,

dot3OmpEmulationBroadcastBitPlusOnuLlid,

dot3OmpEmulationNotBroadcastBitNotOnuLlid

}

STATUS current

DESCRIPTION

"A collection of objects of dot3 OMP emulation

Statistics. Objects are per LLID."

::= { dot3EponGroups 4 }

dot3EponFecGroupAll OBJECT-GROUP

OBJECTS {

dot3EponFecPCSCodingViolation,

dot3EponFecAbility,

dot3EponFecMode,

dot3EponFecCorrectedBlocks,

dot3EponFecUncorrectableBlocks,

dot3EponFecBufferHeadCodingViolation

}

STATUS current

DESCRIPTION

"A collection of objects of dot3 FEC group control and

statistics. Objects are per LLID."

::= { dot3EponGroups 5 }

dot3ExtPkgGroupControl OBJECT-GROUP

OBJECTS {

dot3ExtPkgObjectReset,

dot3ExtPkgObjectPowerDown,

dot3ExtPkgObjectNumberOfLLIDs,

dot3ExtPkgObjectFecEnabled,

dot3ExtPkgObjectReportMaximumNumQueues,

dot3ExtPkgObjectRegisterAction

}

STATUS current

DESCRIPTION

"A collection of objects of dot3ExtPkg control

definition. Objects are per LLID."

::= { dot3EponGroups 6 }

dot3ExtPkgGroupQueue OBJECT-GROUP

OBJECTS {

dot3ExtPkgObjectReportNumThreshold,

dot3ExtPkgObjectReportMaximumNumThreshold,

dot3ExtPkgStatTxFramesQueue,

dot3ExtPkgStatRxFramesQueue,

dot3ExtPkgStatDroppedFramesQueue

}

STATUS current

DESCRIPTION

"A collection of objects of dot3ExtPkg Queue

control. Objects are per LLID, per queue."

::= { dot3EponGroups 7 }

dot3ExtPkgGroupQueueSets OBJECT-GROUP

OBJECTS {

dot3ExtPkgObjectReportThreshold

}

STATUS current

DESCRIPTION

"A collection of objects of dot3ExtPkg queue\_set

control. Objects are per LLID, per queue, per

queue\_set."

::= { dot3EponGroups 8 }

dot3ExtPkgGroupOptIf OBJECT-GROUP

OBJECTS {

dot3ExtPkgOptIfSuspectedFlag,

dot3ExtPkgOptIfInputPower,

dot3ExtPkgOptIfLowInputPower,

dot3ExtPkgOptIfHighInputPower,

dot3ExtPkgOptIfLowerInputPowerThreshold,

dot3ExtPkgOptIfUpperInputPowerThreshold,

dot3ExtPkgOptIfOutputPower,

dot3ExtPkgOptIfLowOutputPower,

dot3ExtPkgOptIfHighOutputPower,

dot3ExtPkgOptIfLowerOutputPowerThreshold,

dot3ExtPkgOptIfUpperOutputPowerThreshold,

dot3ExtPkgOptIfSignalDetect,

dot3ExtPkgOptIfTransmitAlarm,

dot3ExtPkgOptIfTransmitEnable

}

STATUS current

DESCRIPTION

"A collection of objects of control and status indication

of the optical interface.

Objects are per LLID."

::= { dot3EponGroups 9 }

dot3EponGroupMulticastIDs OBJECT-GROUP

OBJECTS {

dot3RecognizedMulticastID

}

STATUS current

DESCRIPTION

"One of a set of MulticastIDs recognized by an EPON interface."

::= { dot3EponGroups 10 }

-- Compliance statements

dot3EponCompliances

OBJECT IDENTIFIER ::= { dot3EponConformance 2 }

dot3MPCPCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION "The compliance statement for MultiPoint

Control Protocol interfaces."

MODULE -- this module

MANDATORY-GROUPS { dot3MpcpGroupBase}

GROUP dot3MpcpGroupStat

DESCRIPTION "This group is mandatory for all MPCP supporting

interfaces for statistics collection."

::= { dot3EponCompliances 1}

dot3OmpeCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION "The compliance statement for OMPEmulation

interfaces."

MODULE -- this module

MANDATORY-GROUPS { dot3OmpeGroupID}

GROUP dot3OmpeGroupStat

DESCRIPTION "This group is mandatory for all OMPemulation

supporting interfaces for statistics collection."

::= { dot3EponCompliances 2}

dot3EponFecCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION "The compliance statement for FEC EPON interfaces.

This group is mandatory for all FEC supporting

interfaces for control and statistics collection."

MODULE -- this module

MANDATORY-GROUPS { dot3EponFecGroupAll }

::= { dot3EponCompliances 3}

dot3ExtPkgCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION "The compliance statement for EPON Interfaces

using the extended package."

MODULE -- this module

MANDATORY-GROUPS { dot3ExtPkgGroupControl }

GROUP dot3ExtPkgGroupQueue

DESCRIPTION " This group is mandatory for all EPON interfaces

supporting REPORT queue management of the extended

package."

GROUP dot3ExtPkgGroupQueueSets

DESCRIPTION " This group is mandatory for all EPON interfaces

supporting REPORT queue\_sets management of the

extended package."

GROUP dot3ExtPkgGroupOptIf

DESCRIPTION "This group is mandatory for all EPON interfaces

supporting optical interfaces management,

of the extended package."

::= { dot3EponCompliances 4}

dot3EponMulticastIDsCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION "The compliance statement for EPON Interfaces that

support MulticastIDs."

MODULE -- this module

MANDATORY-GROUPS { dot3EponGroupMulticastIDs }

::= { dot3EponCompliances 5 }

END