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Managed Objects of EPON
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Status of this Memo

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Abstract

This document defines a portion of the Management Information Base (MIB) for use with network management protocols in TCP/IP based Internets. In particular, it defines objects for managing devices and interfaces that conform to the Ethernet Passive Optical Networks (EPON) standards as defined in IEEE Draft 802.3ah-2004 Draft 3.3. The document contains a list of management entities based on the registers defined in the Institute of Electrical and Electronic Engineers, IEEE Draft 802.3ah-2004 Draft 3.3 Annex 30A and mainly

partitioned accordingly.

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1. Terminology

Key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

2. The Internet-Standard Management Framework

For a detailed overview of the documents that describe the current Internet-Standard Management Framework, please refer to section 7 of RFC 3410 [RFC3410]. Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This memo specifies a MIB module that is compliant to the SMIv2, which is described in STD 58, RFC 2578 [RFC2578], STD 58, RFC 2579 [RFC2579] and STD 58, RFC 2580 [RFC2580].

3. Overview

This document defines a portion of the Management Information Base (MIB) for use with network management protocols in TCP/IP based Internets. In particular, it defines objects for managing devices and interfaces that conform to the Ethernet Passive Optical Networks (EPON) standards as defined in [802.3ah]. The document contains a list of management entities based on the registers defined in [802.3ah] Annex 30A and partitioned accordingly. The document also contains a device group section defining the MIB modules for EPON from a device perspective, that are connected directly to the IEEE 802.3ah specifications. The document also provides amendments to the 802.3 MAU MIB modules documents for the EFM EPON device type addition.

4. Relationship of the EFM EPON MIB and EPON device MIB to other MIBs

4.1 Relationship of the EFM EPON MIB to the Interfaces MIB, the Ethernet-like Interfaces MIB and the MAU MIB EFM EPON interfaces

require implementation of Interfaces MIB module [RFC2863], Ethernet-like Interfaces MIB module [RFC3635] and MAU-MIB module [RFC3636]. The MIB modules defined in this document are an extension for these MIB modules. For instance, The module is defining dot3MpcpRemoteMACAddress only while assuming the local MAC address attribute is already defined in [RFC3635].

4.2 Relationship of the EFM EPON MIB to the OAM EFM MIB

EFM EPON interfaces require implementation of OAM EFM MIB module [I-D.ietf-hubmib-efm-mib]. This document defines OAM MIB module attributes and managed objects that are complementary to the EFM EPON MIB module.

4.3 Relationship of the EPON Device MIB to EFM EPON MIB

EPON devices require implementation of the EFM EPON MIB module which are specified in this document. The opposite is not required as it possible to implement the EFM interfaces by itself.

4.4 Relationship of the EPON Device MIB to Optical interface MIB

EPON devices may implement the Optical interface MIB module [RFC3591]. The optical interface MIB module document defines optical interface attributes and managed objects that are assumed to be used by an EPON device.

4.5 Relationship of the EPON Device MIB to bridge MIB

EPON OLT devices may implement the bridge MIB modules [RFC1493], [RFC1525], Where the LLIDs of the PON are referred as the bridge ports. There is a direct mapping between the bridge ports and the LLIDs, which are virtual bridge ports. Attributes in the bridge MIB module should be used accordingly. This document defines managed objects for a bridge that are assumed to be used by an EPON OLT device which bridges the data between the LLIDs of the PON.

4.6 Relationship of the EPON Device MIB to the Entity MIB

EPON OLT devices may implement the Entity MIB modules [RFC2737], Where attributes like physical device ID and physical status, Hardware status are used from that MIB module

5. IANA Considerations

The EFM EPON MIB module requires the allocation of a single object identifier for its MODULE-IDENTITY under the MIB-2 tree. The EPON Device MIB module requires the allocation of a single object identifier for its MODULE-IDENTITY under the MIB-2 tree. IANA has not yet allocated these object identifiers.

6. MIB structure

This document includes two MIB modules, the first is the EFM EPON MIB module and the second is the EPON device MIB module. The EFM EPON MIB module defines the objects used for configuration and description of the [802.3ah] P2MP section. These MIB module objects are included in three MIB module groups.

The MPCP MIB module definition - MIB module related to [802.3ah] clause 64 Multi Point Control Protocol attributes. In this MIB module group: The dot3MpcpTable defines the objects used for the configuration and description of the status of MPCP ([802.3ah] Multi-Point Control Protocol) compliant interfaces. The dot3MpcpStatTable defines the statistics group for MPCP compliant interfaces.

The OMPEmulation MIB module definitions - MIB module related to [802.3ah] clause 65 point to point emulation attributes. In this MIB module group: The dot3OmpEmulationTable defines the objects used for the configuration and description of the status of OMPEmulation compliant interfaces. The dot3OmpEmulationStatTable defines the statistics group for OMPEmulation compliant interfaces.

The MAU MIB module definition including MAU type definitions and EPON MAU managed object related to [802.3ah] clause 60 and clause 65. The dot3EponMauTable defines the objects used for the configuration and description of the status of MAU EPON compliant interfaces. The dot3EponMauType defines the Type group for [802.3ah] EPOM MAUs. Editor note - Editor recommands the MAU Type object should be in [802.3] MAU type objects [RFC3636].

The EPON Device MIB module defines the objects used for configuration and description of management objects for EPON compliant Devices. The eponDeviceControlTable defines the objects used for the configuration and description of the EPON compliant devices. The eponDeviceRemoteMACAddressLLIDTable defines the objects used for configuration and description of the MacAddress to LLID table used for the bridge emulation of the EPON devices. The eponDeviceStatTable defines the objects used for the statistics group of the EPON devices. The eponDeviceEventObjectTable defines the objects used for configuration and desription of specific Events of the EPON devices. The eponDeviceEventsLogTable defines the objects used for the events log of the EPON devices.

7. Relationship table of the dot3EFM MIB module objects to the IEEE802.3ah objects

oMPCP managed object class (30.3.5)

dot3EFM MIB module object	IEEE802.3ah object	Reference
dot3MpcpID	aMPCPID	30.3.5.1.1
dot3MpcpAdminState	aMPCPAdminState	30.3.5.1.2
dot3MpcpMode	aMPCPMode	30.3.5.1.3
dot3MpcpLinkID	aMPCPLinkID	30.3.5.1.4
dot3MpcpRemoteMACAddress	aMPCPRemoteMACAddress	30.3.5.1.5
dot3MpcpRegistrationState	aMPCPRegistrationState	30.3.5.1.6
dot3MpcpMACCtrlFramesTransmitted	aMPCPMACCtrlFramesTransmitted	30.3.5.1.7
dot3MpcpMACCtrlFramesReceived	aMPCPMACCtrlFramesReceived	30.3.5.1.8
dot3MpcpTxGate	aMPCPTxGate	30.3.5.1.9
dot3MpcpTxRegAck	aMPCPTxRegAck	30.3.5.1.10
dot3MpcpTxRegister	aMPCPTxRegister	30.3.5.1.11
dot3MpcpTxRegRequest	aMPCPTxRegRequest	30.3.5.1.12
dot3MpcpTxReport	aMPCPTxReport	30.3.5.1.13
dot3MpcpRxGate	aMPCPRxGate	30.3.5.1.14
dot3MpcpRxRegAck	aMPCPRxRegAck	30.3.5.1.15
dot3MpcpRxRegister	aMPCPRxRegister	30.3.5.1.16
dot3MpcpRxRegRequest	aMPCPRxRegRequest	30.3.5.1.17
dot3MpcpRxReport	aMPCPRxReport	30.3.5.1.18

dot3MpcpTransmitElapsed	aMPCPTransmitElapsed	30.3.5.1.19
dot3MpcpReceiveElapsd	aMPCPReceiveElapsed	30.3.5.1.20
dot3MpcpRoundTripTim	aMPCPRoundTripTime	30.3.5.1.21
dot3MpcpDiscoveryWindowsSent	aMPCPDiscoveryWindowSent	30.3.5.1.22
dot3MpcpDiscoveryTimout	aMPCPDiscoveryTimeou	30.3.5.1.23
dot3MpcpMaximumPendigGrants	aMPCPMaximumPendingGants	30.3.5.1.24
dot3MPCPAdminControl	acMPCPAdminControl	30.3.5.2.1
dot3MpcpOnTime	laserOnTime	64.3.5.1
dot3MpcpOffTime	laserOffTime	64.3.5.1
dot3MpcpSyncTime	SyncTime	64.3.3.2
dot3MpcpRxNotSupportdMPCP		

Table 1

oOMPEmulation managed object class (30.3.7)

dot3EFM MIB module object	IEEE802.3ah object	Reference
dot3OmpEmulationID	aOMPEmulationID	30.3.7.1.1
dot3OmpEmulationType	aOMPEmulationType	30.3.7.1.2
dot3OmpEmulationSLDErrors	aSLDErrors	30.3.7.1.3
dot3OmpEmulationCRC8rrors	aCRC8Errors	30.3.7.1.4
dot3OmpEmulationGoodLID	aGoodLLID	30.3.7.1.5
dot3OmpEmulationOnuPnCastLLID	aONUPONcastLLID	30.3.7.1.6
dot3OmpEmulationOltPnCastLLID	aOLTPONcastLLID	30.3.7.1.7
dot3OmpEmulationBadLID	aBadLLID	30.3.7.1.8
dot3OmpEmulationBroacastLLIDNotOnuID		
dot3OmpEmulationOnuLIDNotBroadcast		
dot3OmpEmulationBroacastLLIDPlusOnuId		
dot3OmpEmulationNotBoadcastLLIDNotOnuId		

Table 2

oMAU managed object class (30.5.1)

dot3EFM MIB module object	IEEE802.3ah object	Reference
dot3EponMauType	aMAUType	30.5.1.1.2
dot3EponMauPCSCodingViolation	aPCSCodingViolation	30.5.1.1.12
dot3EponMauFecAbility	aFECAbility	30.5.1.1.13
dot3EponMauFecMode	aFECmode	30.5.1.1.14
dot3EponMauFECCorrectedBlocks	aFECCorrectedBlocks	30.5.1.1.15
dot3EponMauFECUncorrectableBlocks	aFECUncorrectableBlocks	30.5.1.1.16
dot3EponMauBufferHeaCodingViolation		

Table 3

8. Definitions - The EFM EPON MIB module

(See section 30.2.5 in [802.3ah] for details)

```
DOT3-EFM-EPON-MIB DEFINITIONS ::= BEGIN

     IMPORTS
         MODULE-IDENTITY, mib-2, OBJECT-TYPE, Counter32,
         Integer32, OBJECT-IDENTITY
             FROM SNMPv2-SMI
         TruthValue, MacAddress
             FROM SNMPv2-TC
         ifIndex
             FROM IF-MIB
         MODULE-COMPLIANCE, OBJECT-GROUP
             FROM SNMPv2-CONF
         ;

dot3EfmeponMIB MODULE-IDENTITY
    LAST-UPDATED "200409210000Z"  -- September 21, 2004
    ORGANIZATION "IETF Ethernet Interfaces and Hub MIB Working
                  Group"
    CONTACT-INFO
                  "WG charter:
              http://www.ietf.org/html.charters/hubmib-charter.html
                   Mailing Lists:
                     General Discussion: hubmib@ietf.org
                     To Subscribe: hubmib-request@ietf.org
                     In Body: subscribe your_email_address
                     Chair: Dan Romascanu
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```

```
                    E-mail: lior.khermosh@passave.com"
      DESCRIPTION
              "The objects in this MIB module are used to manage the
               Ethernet in the First Mile (EFM) Multi Point Control
               Protocol (MPCP) Interfaces as defined in IEEE Draft
               P802.3ah/D3.0 clause 64,65.
            The following reference is used throughout this MIB module:
              [802.3ah] refers to:
                IEEE Draft P802.3ah/D3.3: 'Draft amendment to -
                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 - Media Access Control Parameters,
                Physical Layers and Management Parameters for
                subscriber access networks', 22 April 2004.

             Of particular interest are Clause 64(MPCP) 65(P2MP RS) and
             60 (PON PMDs). Clause 30, 'Management', and Clause 45,
             'Management Data Input/Output (MDIO) Interface'.

             Copyright (C) The Internet Society (2004).  This version
             of this MIB module is part of XXXX see the RFC itself for
             full legal notices."

             -- Editor's Note: Replace XXXX with the actual RFC number
             -- assigned by RFC Editor and remove this note

      REVISION    "200409210000Z"  -- September 21, 2004
      DESCRIPTION "Initial version, published as RFC XXXX."

      ::= { mib-2 XXX }

      -- Editor's Note: Replace XXX with a real OID once it is
      -- assigned by IANA and remove this note.


   -- Editor-s note: MPCP MIB modules definitions ([802.3ah]
   --- clause 30.3.5)
   -- Editor-s note: Description in attributes with References should be
   -- minimized in later versions

   dot3MpcpMIB OBJECT IDENTIFIER ::= { dot3EfmeponMIB 1}

   dot3MpcpObjects OBJECT IDENTIFIER ::= { dot3MpcpMIB 1}

   dot3MpcpConformance OBJECT IDENTIFIER ::= { dot3MpcpMIB 2}
```

```
   dot3MpcpTable OBJECT-TYPE
       SYNTAX  SEQUENCE OF Dot3MpcpEntry
       MAX-ACCESS  not-accessible
       STATUS  current
       DESCRIPTION
               "Table for dot3 Multi-Point Control Protocol (MPCP)
               MIB modules."
       ::= { dot3MpcpObjects 1 }

   dot3MpcpEntry OBJECT-TYPE
       SYNTAX  Dot3MpcpEntry
       MAX-ACCESS  not-accessible
       STATUS  current
       DESCRIPTION
               "An entry in the dot3 MPCP MIB modules table."
       INDEX  { ifIndex }
       ::= { dot3MpcpTable 1 }

   Dot3MpcpEntry ::=
       SEQUENCE {
           dot3MpcpID                          Integer32,
           dot3MpcpOperStatus                  TruthValue,
           dot3MpcpMode                        INTEGER,
           dot3MpcpLinkID                      Integer32,
           dot3MpcpRemoteMACAddress            MacAddress,
           dot3MpcpRegistrationState           INTEGER,
           dot3MpcpTransmitElapsed             Integer32,
           dot3MpcpReceiveElapsed              Integer32,
           dot3MpcpRoundTripTime               Integer32,
           dot3MpcpMaximumPendingGrants        Integer32,
           dot3MpcpAdminState                  TruthValue,
           dot3MpcpOnTime                      Integer32,
           dot3MpcpOffTime                     Integer32,
           dot3MpcpSyncTime                    Integer32
       }

   dot3MpcpID OBJECT-TYPE
       SYNTAX  Integer32
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "This variable is assigned so as to uniquely identify the
                Multi-Point MAC  Control (MPCP) entity, as defined in
                [802.3ah] clause 64, among the subordinate managed
                objects of the containing object.
                This attribute is relevant for an OLT and an ONU."
       REFERENCE   "[802.3ah], 30.3.5.1.1."
       ::= { dot3MpcpEntry 1 }
```

```
   dot3MpcpOperStatus OBJECT-TYPE
       SYNTAX  TruthValue
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "This variable can be used to define the operational
                state of the Multi-Point MAC Control sublayer as
                defined in [802.3ah] clause 64. Selecting admin for an
                interface with Multi-Point MAC Control sublayer. When
                the attribute is True the the interface will act as if
                Multi-point control protocol is enabled. When the
                attribute is False the interface will act as if it does
                not have the Multi-point control protocol. The
                operational state can be changed using the
                dot3MpcpAdminState attribute.
                This attribute is relevant for an OLT and an ONU."
       REFERENCE   "[802.3ah], 30.3.5.1.2."
       ::= { dot3MpcpEntry 2 }

   dot3MpcpMode  OBJECT-TYPE
       SYNTAX  INTEGER {
               olt(1),
               onu(2)
       }
       MAX-ACCESS  read-write
       STATUS  current
       DESCRIPTION
               "This variable can be used to identify the operational
                state of the Multi-Point MAC Control sublayer as
                defined in [802.3ah] clause 64. Selecting olt(1) for an
                OLT (server) mode and onu(2) for an ONU (client) mode.
                Writing can be done during only during initialization,
                when dot3MpcpOperStatus indicates Flase.
                This attribute is relevant for an OLT and an ONU."
       REFERENCE   "[802.3ah], 30.3.5.1.3."
       DEFVAL { 1 }
       ::= { dot3MpcpEntry 3 }

   dot3MpcpLinkID OBJECT-TYPE
       SYNTAX  Integer32
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A read-only value that identifies the Logical Link
                identity (LLID) associated with the MAC port as
                specified in [802.3ah] clause 65.1.3.2.2.
                This attribute is relevant for an OLT and an ONU."
       REFERENCE   "[802.3ah], 30.3.5.1.4."
```

```
        ::= { dot3MpcpEntry 4 }

    dot3MpcpRemoteMACAddress OBJECT-TYPE
        SYNTAX  MacAddress
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read-only value 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 specified in [802.3ah] Annex
                 31A, (2) lengthOrType field value equal to the reserved
                 Type for MAC Control as specified in [802.3ah] Annex
                 31A. (3) an MPCP subtype value equal to the subtype
                 reserved for MPCP as specified in [802.3ah] Annex 31A.
                 This attribute is relevant for an OLT and an ONU."
        REFERENCE   "[802.3ah], 30.3.5.1.5."
        ::= { dot3MpcpEntry 5 }

    dot3MpcpRegistrationState OBJECT-TYPE
        SYNTAX  INTEGER {
                unregistered(1),
                registering(2),
                registered(3)
        }
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read-only value that identifies the operational state
                 of the Multi-Point MAC Control sublayer as defined in
                 [802.3ah] clause 64. When this attribute has the
                 enumeration unregistered(1) the interface may be used
                 for registering a link partner. When this attribute has
                 the enumeration registering(2) the interface is in the
                 process of registering a link-partner. When this
                 attribute has the enumeration registered(3) the
                 interface has an established link-partner.
                 This attribute is relevant for an OLT and an ONU. For
                 the OLT it provides an indication per LLID."
        REFERENCE   "[802.3ah], 30.3.5.1.6."
        ::= { dot3MpcpEntry 6 }

    dot3MpcpTransmitElapsed OBJECT-TYPE
        SYNTAX  Integer32
        UNITS       "TQ (16nsec)"
        MAX-ACCESS  read-only
        STATUS  current
```

```
        DESCRIPTION
                "A read-only value that reports the interval from 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 attribute is relevant for an OLT and an ONU."
        REFERENCE   "[802.3ah], 30.3.5.1.19."
        ::= { dot3MpcpEntry 7 }

    dot3MpcpReceiveElapsed OBJECT-TYPE
        SYNTAX  Integer32
        UNITS       "TQ (16nsec)"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read-only value 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 last MPCP frame reception in ns)/16. If this value
                 exceeds (2^32-1) the value (2^32-1) shall be returned.
                 This attribute is relevant for an OLT and an ONU."
        REFERENCE   "[802.3ah], 30.3.5.1.20."
        ::= { dot3MpcpEntry 8 }

    dot3MpcpRoundTripTime OBJECT-TYPE
        SYNTAX  Integer32
        UNITS       "TQ (16nsec)"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read-only value 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 attribute is relevant for an OLT and an
                 ONU. For the OLT there is a value per LLID"
        REFERENCE   "[802.3ah], 30.3.5.1.21."
        ::= { dot3MpcpEntry 9 }

    dot3MpcpMaximumPendingGrants OBJECT-TYPE
        SYNTAX  Integer32 (0..255)
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read-only value that indicates the maximum number of
                 grants an ONU can store. The maximum number of grants an
                 ONU can store has a range of 0 to 255.
```

```
                This attribute is relevant for an OLT and an ONU. For
                the OLT there is a value per LLID"
        REFERENCE   "[802.3ah], 30.3.5.1.24."
        ::= { dot3MpcpEntry 10 }

    dot3MpcpAdminState OBJECT-TYPE
        SYNTAX  TruthValue
        MAX-ACCESS  read-write
        STATUS  current
        DESCRIPTION
                "This variable can be used to define the operational
                 state of the Multi-Point MAC Control sublayer as defined
                 in [802.3ah] clause 64. Selecting admin for an interface
                 with Multi-Point MAC Control sublayer. When selecting
                 the value as True the interface Multi-Point control
                 protocol is enabled. When selecting the value as False
                 the interface acts as if the Multi-point Control
                 protocol does not exist. Reading reflects the state of
                 the attribute and the operation of the Multi-point
                 control protocol mode of the interface.
                 Writing can be done all the time.
                 This attribute is relevant for an OLT and an ONU."
        REFERENCE   "[802.3ah], 30.3.5.2.1."
        DEFVAL { false }
        ::= { dot3MpcpEntry 11 }


    dot3MpcpOnTime OBJECT-TYPE
        SYNTAX  Integer32
        UNITS       "TQ (16nsec)"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read-only value that reports the -on time- for a grant
                 burst in increments of Time Quanta (TQ) 16ns as defined
                 in [802.3ah] 60,64. The value returned shall be (on time
                 ns)/16. If this value exceeds (2^32-1) the value
                 (2^32-1) shall be returned.
                 This attribute is relevant for an OLT and an ONU."
        REFERENCE   "[802.3ah], 64.3.5.1."
        ::= { dot3MpcpEntry 12 }

    dot3MpcpOffTime OBJECT-TYPE
        SYNTAX  Integer32
        UNITS       "TQ (16nsec)"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
```

```
                "A read-only value that reports the -off time- for a
                 grant burst in increments of Time Quanta (TQ) 16ns as
                 defined in [802.3ah] 60,64. The value returned shall be
                 (off time ns)/16. If this value exceeds (2^32-1) the
                 value (2^32-1) shall be returned.
                 This attribute is relevant for an OLT and an ONU."
        REFERENCE   "[802.3ah], 64.3.5.1."
        ::= { dot3MpcpEntry 13 }

    dot3MpcpSyncTime OBJECT-TYPE
        SYNTAX  Integer32
        UNITS       "TQ (16nsec)"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read-only value that reports the -sync lock time- for
                 an OLT receiver in increments of Time Quanta (TQ) 16ns
                 as defined in [802.3ah] 60,64,65. The value returned
                 shall be (sync lock time ns)/16. If this value exceeds
                 (2^32-1) the value (2^32-1) shall be returned.
                 This attribute is relevant for an OLT and an ONU."
        REFERENCE   "[802.3ah], 64.3.3.2."
       ::= { dot3MpcpEntry 14 }



    dot3MpcpStatTable OBJECT-TYPE
        SYNTAX     SEQUENCE OF Dot3MpcpStatEntry
        MAX-ACCESS not-accessible
        STATUS     current
        DESCRIPTION
                "This table defines the list of statistics counters of
                 [802.3ah] clause 64 MPCP interface."
    ::= { dot3MpcpObjects 2 }

    dot3MpcpStatEntry OBJECT-TYPE
        SYNTAX     Dot3MpcpStatEntry
        MAX-ACCESS not-accessible
        STATUS     current
        DESCRIPTION
                "Table entries for table of statistics counters of
                 [802.3ah] clause 64 MPCP interface."
        INDEX       { ifIndex }
        ::= { dot3MpcpStatTable 1 }

    Dot3MpcpStatEntry ::=
        SEQUENCE {
                dot3MpcpMACCtrlFramesTransmitted      Counter32,
```

```
            dot3MpcpMACCtrlFramesReceived          Counter32,
            dot3MpcpDiscoveryWindowsSent           Counter32,
            dot3MpcpDiscoveryTimeout               Counter32,
            dot3MpcpTxRegRequest                   Counter32,
            dot3MpcpRxRegRequest                   Counter32,
            dot3MpcpTxRegAck                       Counter32,
            dot3MpcpRxRegAck                       Counter32,
            dot3MpcpTxReport                       Counter32,
            dot3MpcpRxReport                       Counter32,
            dot3MpcpTxGate                         Counter32,
            dot3MpcpRxGate                         Counter32,
            dot3MpcpTxRegister                     Counter32,
            dot3MpcpRxRegister                     Counter32,
            dot3MpcpRxNotSupportedMPCP             Counter32
        }

    dot3MpcpMACCtrlFramesTransmitted OBJECT-TYPE
        SYNTAX  Counter32
        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 a
                 MPCP frame.
                 This attribute is relevant for an OLT and an ONU."
        REFERENCE   "[802.3ah], 30.3.5.1.7."
        ::= { dot3MpcpStatEntry 1 }

    dot3MpcpMACCtrlFramesReceived OBJECT-TYPE
        SYNTAX  Counter32
        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 31.4.1.3, and
                 (2) an opcode indicating a MPCP frame.
                 This attribute is relevant for an OLT and an ONU."
        REFERENCE   "[802.3ah], 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 attribute is relevant for an OLT and an ONU. At the
                 ONU value should be zero."
        REFERENCE   "[802.3ah], 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 attribute is relevant for an OLT and an ONU."
        REFERENCE   "[802.3ah], 30.3.5.1.23."
        ::= { dot3MpcpStatEntry 4}


    dot3MpcpTxRegRequest OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a REGISTER_REQ MPCP
                 frames transmission occurs. Increment the counter by one
                 for each REGISTER_REQ MPCP frame transmitted as defined
                 in [802.3ah] clause 64. This counter is mandatory for an
                 ONU. This attribute is relevant for an OLT and an ONU.
                 At the OLT value should be zero."
        REFERENCE   "[802.3ah], 30.3.5.1.12."
        ::= { dot3MpcpStatEntry 5}

    dot3MpcpRxRegRequest OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a REGISTER_REQ MPCP
                 frames reception occurs. A single counter at the ONU and
```

```
                a set of counters, one for each LLID, at the OLT.
                Increment the counter by one for each REGISTER_REQ MPCP
                frame received for each LLID as defined in [802.3ah]
                clause 64. This counter is mandatory for an ONU and for
                an OLT. At the ONU value should be zero."
        REFERENCE   "[802.3ah], 30.3.5.1.17."
        ::= { dot3MpcpStatEntry 6}

    dot3MpcpTxRegAck OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a REGISTER_ACK MPCP
                frames transmission occurs. Increment the counter by one
                for each REGISTER_ACK MPCP frame transmitted as defined
                in [802.3ah] clause 64. This counter is mandatory for an
                ONU. This attribute is relevant for an OLT and an ONU.
                At the OLT the value should be zero."
        REFERENCE   "[802.3ah], 30.3.5.1.10."
        ::= { dot3MpcpStatEntry 7}

    dot3MpcpRxRegAck OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a REGISTER_ACK MPCP
                frames reception occurs. A single counter at the ONU and
                a set of counters, one for each LLID, at the OLT.
                Increment the counter by one for each REGISTER_ACK MPCP
                frame received for each LLID, as defined in [802.3ah]
                clause 64. This counter is mandatory for an ONU and for
                an OLT. At the ONU the value should be zero."
        REFERENCE   "[802.3ah], 30.3.5.1.15."
        ::= { dot3MpcpStatEntry 8}

    dot3MpcpTxReport OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a REPORT MPCP frames
                transmission occurs. Increment the counter by one for
                each REPORT MPCP frame transmitted as defined in
```

```
                [802.3ah] clause 64. This counter is mandatory for an
                ONU. This attribute is relevant for an OLT and an ONU.
                At the OLT value should be zero."
        REFERENCE   "[802.3ah], 30.3.5.1.13."
        ::= { dot3MpcpStatEntry 9}

    dot3MpcpRxReport OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a REPORT MPCP frames
                 reception occurs. A single counter at the ONU and a set
                 of counters, one for each LLID, at the OLT. Increment
                 the counter by one for each REPORT MPCP frame received
                 for each LLID, as defined in [802.3ah] clause 64.
                 This counter is mandatory for an ONU and for an OLT.
                 At the ONU value should be zero."
        REFERENCE   "[802.3ah], 30.3.5.1.18."
        ::= { dot3MpcpStatEntry 10}

    dot3MpcpTxGate OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a GATE MPCP frames
                 transmission occurs. A set of counters, one for each
                 LLID, at the OLT. Increment the counter by one for each
                 GATE MPCP frame transmitted, for each LLID, as defined
                 in [802.3ah] clause 64. This counter is mandatory for an
                 OLT. This attribute is relevant for an OLT and an ONU.
                 At the ONU the value should be zero."
        REFERENCE   "[802.3ah], 30.3.5.1.9."
        ::= { dot3MpcpStatEntry 11}

    dot3MpcpRxGate OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a GATE MPCP frames
                 reception occurs. A single counter at the ONU and a set
                 of counters, one for each LLID ,at the OLT. Increment
                 the counter by one for each GATE MPCP frame received,
```

```
                for each LLID, as defined in [802.3ah] clause 64. This
                counter is mandatory for an ONU and for an OLT. At the
                OLT the value should be zero."
        REFERENCE   "[802.3ah], 30.3.5.1.14."
        ::= { dot3MpcpStatEntry 12}

    dot3MpcpTxRegister OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a REGISTER MPCP frames
                 transmission occurs. A set of counters, one for each
                 LLID, at the OLT. Increment the counter by one for each
                 REGISTER MPCP frame transmitted, for each LLID, as
                 defined in [802.3ah] clause 64. This counter is
                 mandatory for an OLT. This attribute is relevant for an
                 OLT and an ONU. At the ONU the value should be zero."
        REFERENCE   "[802.3ah], 30.3.5.1.11."
        ::= { dot3MpcpStatEntry 13}

    dot3MpcpRxRegister OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a REGISTER MPCP frames
                 reception occurs. A single counter at the ONU and a set
                 of counters, one for each LLID, at the OLT. Increment
                 the counter by one for each REGISTER MPCP frame
                 received, for each LLID, as defined in [802.3ah] clause
                 64. This counter is mandatory for an ONU and for an OLT.
                 at the OLT the value should be zero."
        REFERENCE   "[802.3ah], 30.3.5.1.16."
        ::= { dot3MpcpStatEntry 14}

    dot3MpcpRxNotSupportedMPCP OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a non-supported MPCP
                 frames reception occurs. A single counter at the ONU and
                 a set of counters, one for each LLID, at the OLT.
                 Increment the counter by one for each non-supported MPCP
```

```
                frame received, for each LLID, as defined in [802.3ah]
                clause 64. This counter is mandatory for an ONU and for
                an OLT."
        ::= { dot3MpcpStatEntry 15}



         -- Conformance Statements

   -- Conformance Groups

   dot3MpcpGroups      OBJECT IDENTIFIER ::= { dot3MpcpConformance 1 }

   dot3MpcpGroupBase OBJECT-GROUP
       OBJECTS {
               dot3MpcpID,
               dot3MpcpOperStatus,
               dot3MpcpMode,
               dot3MpcpLinkID,
               dot3MpcpRemoteMACAddress,
               dot3MpcpRegistrationState,
               dot3MpcpMaximumPendingGrants,
               dot3MpcpAdminState
       }
       STATUS  current
       DESCRIPTION
               "A collection of objects of dot3 Mpcp Basic entity state
               definition."
       ::= { dot3MpcpGroups 1 }

   dot3MpcpGroupParam OBJECT-GROUP
       OBJECTS {
               dot3MpcpTransmitElapsed,
               dot3MpcpReceiveElapsed,
               dot3MpcpRoundTripTime,
               dot3MpcpOnTime,
               dot3MpcpOffTime,
               dot3MpcpSyncTime
       }
       STATUS  current
       DESCRIPTION
               "A collection of objects of dot3 Mpcp for P2MP
                parameters."
       ::= { dot3MpcpGroups 2 }

   dot3MpcpGroupStat OBJECT-GROUP
       OBJECTS {
```

```
            dot3MpcpMACCtrlFramesTransmitted,
            dot3MpcpMACCtrlFramesReceived,
            dot3MpcpDiscoveryWindowsSent,
            dot3MpcpDiscoveryTimeout ,
            dot3MpcpTxRegRequest,
            dot3MpcpRxRegRequest,
            dot3MpcpTxRegAck,
            dot3MpcpRxRegAck,
            dot3MpcpTxReport,
            dot3MpcpRxReport,
            dot3MpcpTxGate,
            dot3MpcpRxGate,
            dot3MpcpTxRegister,
            dot3MpcpRxRegister,
            dot3MpcpRxNotSupportedMPCP
    }
    STATUS  current
    DESCRIPTION
            "A collection of objects of dot3 Mpcp Statistics"
    ::= { dot3MpcpGroups 3 }


-- Compliance

dot3MpcpCompliances OBJECT IDENTIFIER ::= { dot3MpcpConformance 2 }

dot3MPCPCompliance MODULE-COMPLIANCE
    STATUS      current
    DESCRIPTION "The compliance statement for Multi-point
                 control protocol interfaces."

    MODULE  -- this module
    MANDATORY-GROUPS { dot3MpcpGroupBase}

   GROUP       dot3MpcpGroupParam
   DESCRIPTION "This group is mandatory for all MPCP supporting
                interfaces for configuration of the Multipoint
                Parameters."
   GROUP       dot3MpcpGroupStat
   DESCRIPTION "This group is mandatory for all MPCP supporting
                interfaces for Statistics collection."
   ::= { dot3MpcpCompliances 1}




-- Editor-s note:   OMPEmulation managed object definitions
```

```
   dot3OmpEmulationMIB OBJECT IDENTIFIER ::= { dot3EfmeponMIB 2}

   dot3OmpEmulationObjects OBJECT IDENTIFIER ::={dot3OmpEmulationMIB 1}

   dot3OmpeConformance OBJECT IDENTIFIER ::= { dot3OmpEmulationMIB 2 }


   dot3OmpEmulationTable OBJECT-TYPE
       SYNTAX  SEQUENCE OF Dot3OmpEmulationEntry
       MAX-ACCESS  not-accessible
       STATUS  current
       DESCRIPTION
               "Table for dot3 OmpEmulation MIB modules."
       ::= { dot3OmpEmulationObjects 1 }

   dot3OmpEmulationEntry OBJECT-TYPE
       SYNTAX  Dot3OmpEmulationEntry
       MAX-ACCESS  not-accessible
       STATUS  current
       DESCRIPTION
               "An entry in the dot3 OmpEmulation MIB modules table."
       INDEX  { ifIndex }
       ::= { dot3OmpEmulationTable 1 }

       Dot3OmpEmulationEntry ::=
       SEQUENCE {
               dot3OmpEmulationID            Integer32,
               dot3OmpEmulationType               INTEGER
       }

   dot3OmpEmulationID OBJECT-TYPE
       SYNTAX  Integer32
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "The value of dot3OmpEmulationID is assigned so as to
                uniquely identify a OMPEmulation entity among the
                subordinate managed objects of the containing object.
                The value is mandated for an ONU."
       REFERENCE   "[802.3ah], 30.3.7.1.1."
       ::= { dot3OmpEmulationEntry 1}

   dot3OmpEmulationType OBJECT-TYPE
       SYNTAX  INTEGER {
               unknown(1),
               olt(2),
               onu(3)
       }
```

```
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read-only value that indicates that mode of operation
                 of the Reconciliation Sublayer for Point to Point
                 Emulation (see [802.3ah] clause 65.1). unknown(1) value
                 is assigned in initializing, true state or type not yet
                 known. olt(2) value is assigned when Sublayer operating
                 in OLT mode. onu(3) value is assigned when Sublayer
                 operating in ONU mode."
        REFERENCE   "[802.3ah], 30.3.7.1.2."
        ::= { dot3OmpEmulationEntry 2}

    dot3OmpEmulationStatTable OBJECT-TYPE
        SYNTAX     SEQUENCE OF Dot3OmpEmulationStatEntry
        MAX-ACCESS not-accessible
        STATUS     current
        DESCRIPTION
                "This table defines the list of statistics counters of
                 [802.3ah] clause 65 OMP interface."
        ::= { dot3OmpEmulationObjects 2}

    dot3OmpEmulationStatEntry OBJECT-TYPE
        SYNTAX     Dot3OmpEmulationStatEntry
        MAX-ACCESS not-accessible
        STATUS     current
        DESCRIPTION
                "Table entries for Table of statistics counters of
                 [802.3ah] clause 65 OMP interface."
        INDEX       { ifIndex }
        ::= { dot3OmpEmulationStatTable 1 }

    Dot3OmpEmulationStatEntry::=
        SEQUENCE {
                dot3OmpEmulationSLDErrors                Counter32,
                dot3OmpEmulationCRC8Errors               Counter32,
                dot3OmpEmulationBadLLID                  Counter32,
                dot3OmpEmulationGoodLLID                 Counter32,
                dot3OmpEmulationOnuPonCastLLID           Counter32,
                dot3OmpEmulationOltPonCastLLID           Counter32,
                dot3OmpEmulationBroadcastLLIDNotOnuID    Counter32,
                dot3OmpEmulationOnuLLIDNotBroadcast      Counter32,
                dot3OmpEmulationBroadcastLLIDPlusOnuId   Counter32,
                dot3OmpEmulationNotBroadcastLLIDNotOnuId Counter32
        }

    dot3OmpEmulationSLDErrors OBJECT-TYPE
        SYNTAX  Counter32
```

```
        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 [802.3ah] clause 65.1.3.3.1.
                 This attribute is mandatory for an OLT and optional for
                 an ONU."
        REFERENCE   "[802.3ah], 30.3.7.1.3."
        ::= { dot3OmpEmulationStatEntry 1}

    dot3OmpEmulationCRC8Errors OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of frames received that contain a valid SLD
                 field, as defined in [802.3ah] clause 65.1.3.3.1, but do
                 not pass the CRC-8 check as defined in [802.3ah] clause
                 65.1.3.3.3. This attribute is mandatory for an OLT and
                 for an ONU."
        REFERENCE   "[802.3ah], 30.3.7.1.4."
        ::= { dot3OmpEmulationStatEntry 2}


    dot3OmpEmulationBadLLID OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of frames received that contain a valid SLD
                 field, as defined in [802.3ah] clause 65.1.3.3.1, and
                 pass the CRC-8 check, as defined in [802.3ah] clause
                 65.1.3.3.3, but are discarded due to the LLID check as
                 defined in [802.3ah] clause 65.1.3.3.2.
                 This attribute is relevant for an OLT and an ONU."
        REFERENCE   "[802.3ah], 30.3.7.1.8."
        ::= { dot3OmpEmulationStatEntry 3}

    dot3OmpEmulationGoodLLID OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of frames received that contain a valid SLD
```

```
                field, as defined in [802.3ah] clause 65.1.3.3.1, and
                pass the CRC-8 check, as defined in [802.3ah] clause
                65.1.3.3.3.
                This attribute is relevant for an OLT and an ONU."
        REFERENCE   "[802.3ah], 30.3.7.1.5."
        ::= { dot3OmpEmulationStatEntry 4}


    dot3OmpEmulationOnuPonCastLLID OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of frames received that contain a valid SLD
                 field in an ONU, as defined in [802.3ah] 65.1.3.3.1,
                 passes the CRC-8 check, as defined in [802.3ah]
                 65.1.3.3.3, and the frame meets the rule for acceptance
                 defined in [802.3ah] 65.1.3.3.2."
        REFERENCE   "[802.3ah], 30.3.7.1.6."
        ::= { dot3OmpEmulationStatEntry 5}

    dot3OmpEmulationOltPonCastLLID OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of frames received that contain a valid SLD
                 field in an OLT, as defined in [802.3ah] 65.1.3.3.1,
                 passes the CRC-8 check, as defined in [802.3ah]
                 65.1.3.3.3, and the frame meets the rule for acceptance
                 defined in [802.3ah] 65.1.3.3.2."
        REFERENCE   "[802.3ah], 30.3.7.1.7."
        ::= { dot3OmpEmulationStatEntry 6}

    dot3OmpEmulationBroadcastLLIDNotOnuID OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of frames received that contain a valid SLD
                 field in a OLT, as defined in [802.3ah] clause
                 65.1.3.3.1, and pass the CRC-8 check, as defined in
                 [802.3ah] clause 65.1.3.3.3, and contain broadcast LLID
                 as defined in [802.3ah] clause 65.
                 This attribute is mandatory for an OLT and for an ONU."
```

```
        ::= { dot3OmpEmulationStatEntry 7}

    dot3OmpEmulationOnuLLIDNotBroadcast OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of frames received that contain a valid SLD
                 field in a OLT, as defined in [802.3ah] clause
                 65.1.3.3.1, and pass the CRC-8 check, as defined in
                 [802.3ah] clause 65.1.3.3.3, and contain the ONU's LLID
                 as defined in [802.3ah] clause 65. This attribute is
                 mandatory for an ONU and mandatory for an OLT (a
                 counter per LLID)."
        ::= { dot3OmpEmulationStatEntry 8}

    dot3OmpEmulationBroadcastLLIDPlusOnuId OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of frames received that contain a valid SLD
                 field in a OLT, as defined in [802.3ah] clause
                 65.1.3.3.1, and pass the CRC-8 check, as defined in
                 [802.3ah] clause 65.1.3.3.3, and contain the broadcast
                 LLID plus ONU's LLID (frame reflected) as defined in
                 [802.3ah] clause 65. This attribute is mandatory for an
                 ONU and mandatory for an OLT (a counter per LLID)."
        ::= { dot3OmpEmulationStatEntry 9}

    dot3OmpEmulationNotBroadcastLLIDNotOnuId OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of frames received that contain a valid SLD
                 field in a OLT, as defined in [802.3ah] clause
                 65.1.3.3.1, and pass the CRC-8 check, as defined in
                 [802.3ah] clause 65.1.3.3.3, and does not contain the
                 ONU's LLID as defined in [802.3ah] clause 65. This
                 attribute is mandatory for an ONU"
        ::= { dot3OmpEmulationStatEntry 10}
```

```
      -- Conformance Statements

   -- Conformance Groups

   dot3OmpeGroups OBJECT IDENTIFIER ::={ dot3OmpeConformance 1}


   dot3OmpeGroupID OBJECT-GROUP
       OBJECTS {
               dot3OmpEmulationID,
               dot3OmpEmulationType

       }
       STATUS  current
       DESCRIPTION
               "A collection of objects of dot3 OMP emulation ID entity
                state definition."
       ::= { dot3OmpeGroups 1 }


   dot3OmpeGroupStat OBJECT-GROUP
       OBJECTS {
               dot3OmpEmulationSLDErrors,
               dot3OmpEmulationCRC8Errors,
               dot3OmpEmulationBadLLID,
               dot3OmpEmulationGoodLLID,
               dot3OmpEmulationOnuPonCastLLID,
               dot3OmpEmulationOltPonCastLLID,
               dot3OmpEmulationBroadcastLLIDNotOnuID,
               dot3OmpEmulationOnuLLIDNotBroadcast,
               dot3OmpEmulationBroadcastLLIDPlusOnuId,
               dot3OmpEmulationNotBroadcastLLIDNotOnuId
       }
       STATUS  current
       DESCRIPTION
               "A collection of objects of dot3 OMP emulation
                Statistics"
       ::= { dot3OmpeGroups 2 }


   -- Compliance

   dot3OmpeCompliances OBJECT IDENTIFIER ::= { dot3OmpeConformance 2 }

   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."

        ::= { dot3OmpeCompliances 1}



    -- Editor-s note:   MAU managed object definitions (30.5.1)

    dot3EponMauMIB OBJECT IDENTIFIER ::= { dot3EfmeponMIB 3}

    dot3EponMauObjects OBJECT IDENTIFIER ::= { dot3EponMauMIB 1}

    dot3EponMauConformance OBJECT IDENTIFIER ::= { dot3EponMauMIB 2 }

    dot3EponMauTable OBJECT-TYPE
        SYNTAX  SEQUENCE OF Dot3EponMauEntry
        MAX-ACCESS  not-accessible
        STATUS  current
        DESCRIPTION
                "Table for dot3 MAU EPON MIB modules."
        ::= { dot3EponMauObjects 1 }

    dot3EponMauEntry OBJECT-TYPE
        SYNTAX  Dot3EponMauEntry
        MAX-ACCESS  not-accessible
        STATUS  current
        DESCRIPTION
                "An entry in the dot3 MAU EPON MIB modules table."
        INDEX  { ifIndex }
        ::= { dot3EponMauTable 1 }

    Dot3EponMauEntry ::=
        SEQUENCE {
                dot3EponMauPCSCodingViolation           Counter32,
                dot3EponMauFecAbility                   INTEGER,
                dot3EponMauFecMode                      INTEGER,
                dot3EponMauFECCorrectedBlocks           Counter32,
                dot3EponMauFECUncorrectableBlocks       Counter32,
                dot3EponMauBufferHeadCodingViolation    Counter32
        }
```

```
   dot3EponMauPCSCodingViolation OBJECT-TYPE
       SYNTAX  Counter32
       UNITS      "octets"
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "For 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 1000 Mb/ s operation it is a count
                of the number of times an invalid codegroup is received,
                other than the /V/ code-group."
       REFERENCE   "[802.3ah], 30.5.1.1.12."
       ::= { dot3EponMauEntry 1}

   dot3EponMauFecAbility OBJECT-TYPE
       SYNTAX  INTEGER {
               unknown (1),
               nonsupported (2),
               supported (3)
       }
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A read-only value that indicates the support of
                operation of the 1000BASE-PX PHY optional FEC Sublayer
                for Forward error correction see [802.3ah] clause 65.2).
                unknown(1) value is assigned in initializing, for non
                FEC support state or type not yet known. nonsupported(2)
                value is assigned when Sublayer is not support.
                supported(3) value is assigned when Sublayer is
                supported."
       REFERENCE   "[802.3ah], 30.5.1.1.13."
       ::= { dot3EponMauEntry 2}

   dot3EponMauFecMode OBJECT-TYPE
       SYNTAX  INTEGER {
               unknown (1),
               disabled (2),
               enabled (3)
       }
       MAX-ACCESS  read-write
       STATUS  current
       DESCRIPTION
               "A read-write value that indicates the mode of operation
                of the 1000BASE-PX PHY optional FEC Sublayer for Forward
                error correction see [802.3ah] clause 65.2).
                A GET operation returns the current mode of operation
                the PHY. A SET operation changes the mode of operation
```

```
                of the PHY to the indicated value. unknown(1) value is
                assigned in initializing, for non FEC support state or
                type not yet known. disabled(2) value is assigned when
                Sublayer operating in disabled mode. enabled(3) value is
                assigned when Sublayer operating in FEC mode. writing
                can be done all the time."
        REFERENCE   "[802.3ah], 30.5.1.1.14."
        DEFVAL { 1 }
        ::= { dot3EponMauEntry 3}

    dot3EponMauFECCorrectedBlocks OBJECT-TYPE
        SYNTAX  Counter32
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "For 10PASS-TS, 2BASE-TL and 1000BASE-PX PHYs, 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."
        REFERENCE   "[802.3ah], 30.5.1.1.15."
        ::= { dot3EponMauEntry 4}

    dot3EponMauFECUncorrectableBlocks OBJECT-TYPE
        SYNTAX  Counter32
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "For 10PASS-TS, 2BASE-TL and 1000BASE-PX PHYs, 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."
        REFERENCE   "[802.3ah], 30.5.1.1.16."
        ::= { dot3EponMauEntry 5}

    dot3EponMauBufferHeadCodingViolation OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "octets"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "For 1000 Mbps operation it is a counts of the number of
                 invalid code-group received directly from the link."
        ::= { dot3EponMauEntry 6}
```

```
   -- Defining EPON MAU types
   -- Editor's Note: This section should be added to 802.3 MAU MIB
   -- module RFC. Preference would be that the MAU MIB module
   -- structure would change so that it is re-written as an
   -- IANA-maintained module.

   dot3EponMauType OBJECT IDENTIFIER ::= { dot3EponMauMIB 3 }

   eponMauType1000BasePXOLT OBJECT-IDENTITY
       STATUS      current
       DESCRIPTION "Multipoint MAC Control (per 802.3 section 64,65) OLT
                    (master), unknown PMD"
       REFERENCE   "[802.3ah], 30.5.1.1.2."
       ::= { dot3EponMauType 1 }

   eponMauType1000BasePXONU OBJECT-IDENTITY
       STATUS      current
       DESCRIPTION "Multipoint MAC Control (per 802.3 section 64,65),ONU
       (slave), unknown PMD"
       REFERENCE   "[802.3ah], 30.5.1.1.2."
       ::= { dot3EponMauType 2 }

   eponMauType1000BasePX10DOLT OBJECT-IDENTITY
       STATUS      current
       DESCRIPTION "EPON over 10K link, downlink (per 802.3 section 60),
                    OLT side"
       REFERENCE   "[802.3ah], 30.5.1.1.2."
       ::= { dot3EponMauType 3 }

   eponMauType1000BasePX10DONU OBJECT-IDENTITY
       STATUS      current
       DESCRIPTION "EPON over 10K link, downlink (per 802.3 section 60),
                    ONU side"
       REFERENCE   "[802.3ah], 30.5.1.1.2."
       ::= { dot3EponMauType 4 }

   eponMauType1000BasePX10UOLT OBJECT-IDENTITY
       STATUS      current
       DESCRIPTION "EPON over 10K link, uplink (per 802.3 section 60),
                    OLT side"
       REFERENCE   "[802.3ah], 30.5.1.1.2."
       ::= { dot3EponMauType 5 }

   eponMauType1000BasePX10UONU OBJECT-IDENTITY
       STATUS      current
       DESCRIPTION "EPON over 10K link, uplink (per 802.3 section 60),
                    ONU side"
       REFERENCE   "[802.3ah], 30.5.1.1.2."
```

```
        ::= { dot3EponMauType 6 }


    eponMauType1000BasePX20DOLT OBJECT-IDENTITY
        STATUS      current
        DESCRIPTION "EPON over 20K link, downlink (per 802.3 section 60),
                     OLT side"
        REFERENCE   "[802.3ah], 30.5.1.1.2."
        ::= { dot3EponMauType 7 }

    eponMauType1000BasePX20DONU OBJECT-IDENTITY
        STATUS      current
        DESCRIPTION "EPON over 20K link, downlink (per 802.3 section 60),
                     ONU side"
        REFERENCE   "[802.3ah], 30.5.1.1.2."
        ::= { dot3EponMauType 8 }

    eponMauType1000BasePX20UOLT OBJECT-IDENTITY
        STATUS      current
        DESCRIPTION "EPON over 20K link, uplink (per 802.3 section 60),
                     OLT side"
        REFERENCE   "[802.3ah], 30.5.1.1.2."
        ::= { dot3EponMauType 9 }

    eponMauType1000BasePX20UONU OBJECT-IDENTITY
        STATUS      current
        DESCRIPTION "EPON over 20K link, uplink (per 802.3 section 60),
                     ONU side"
        REFERENCE   "[802.3ah], 30.5.1.1.2."
        ::= { dot3EponMauType 10 }


         -- Conformance Statements

    -- Conformance Groups

    dot3EponMauGroups OBJECT IDENTIFIER ::={ dot3EponMauConformance 1}

    dot3EponMauGroupAll OBJECT-GROUP
        OBJECTS {
                dot3EponMauPCSCodingViolation
        }
        STATUS  current
        DESCRIPTION
                "A collection of objects of dot3 MAU definition."
        ::= { dot3EponMauGroups 1 }

    dot3EponMauGroupFEC OBJECT-GROUP
```

```
        OBJECTS {
                dot3EponMauFecAbility,
                dot3EponMauFecMode,
                dot3EponMauFECCorrectedBlocks,
                dot3EponMauFECUncorrectableBlocks,
                dot3EponMauBufferHeadCodingViolation
        }
        STATUS  current
        DESCRIPTION
                "A collection of objects of FEC group definition."
        ::= { dot3EponMauGroups 2 }


    -- Compliance

    dot3EponMauCompliances OBJECT IDENTIFIER::={dot3EponMauConformance 2}

    dot3EponMauCompliance MODULE-COMPLIANCE
        STATUS      current
        DESCRIPTION "The compliance statement for MAU EPON interfaces."

        MODULE  -- this module
        MANDATORY-GROUPS { dot3EponMauGroupAll }

        GROUP       dot3EponMauGroupFEC
        DESCRIPTION "This group is mandatory for all EPON MAU devices
                     Supporting FEC functionality as for Definitions and
                     BER Statistics collection."

        ::= { dot3EponMauCompliances 1}


    END
```

9. Definitions - The EPON Device MIB

```
        EPON-DEVICE-MIB DEFINITIONS ::= BEGIN


       IMPORTS
           MODULE-IDENTITY, mib-2, OBJECT-TYPE, Counter32,
           Unsigned32, Integer32, zeroDotZero
               FROM SNMPv2-SMI
           TruthValue, DateAndTime, RowStatus, MacAddress
               FROM SNMPv2-TC
           ifIndex
               FROM IF-MIB
           MODULE-COMPLIANCE, OBJECT-GROUP
               FROM SNMPv2-CONF
            SnmpAdminString
               FROM SNMP-FRAMEWORK-MIB
       ;

   eponDeviceMIB MODULE-IDENTITY
       LAST-UPDATED "200409210000Z"  -- September 21, 2004
       ORGANIZATION "IETF Ethernet Interfaces and Hub MIB Working
                     Group"
       CONTACT-INFO
                    "WG charter:
                  http://www.ietf.org/html.charters/hubmib-charter.html
                     Mailing Lists:
                       General Discussion: hubmib@ietf.org
                       To Subscribe: hubmib-request@ietf.org
                       In Body: subscribe your_email_address
                     Chair: Dan Romascanu
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                     Editor: Lior Khermosh
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```

P.O.Box 2089 Hertzliya Pituach 46120 Israel
Tel: +972-9-9717600 Ext: 7181
E-mail: lior.khermosh@passave.com"

```
      DESCRIPTION
              "The objects in this MIB module are used to manage
               Ethernet Passive Optical Network (EPON) devices which
               are based on the Ethernet in the First Mile (EFM) PON
               as defined in IEEE Draft P802.3ah/D3.0 clause 60,64,65.

               The following reference is used throughout this MIB
               module:
               [802.3ah] refers to:
               IEEE Draft P802.3ah/D3.3: 'Draft amendment to -
               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 - Media Access Control Parameters,
               Physical Layers and Management Parameters for subscriber
               access networks', 22 April 2004.
               Of particular interest are Clause 64(MPCP) 65(P2mP RS)
               and 60 (PON PMDs). Clause 30, 'Management', and Clause
               45,'Management Data Input/Output (MDIO) Interface'.

               Copyright (C) The Internet Society (2004).  This version
               of this MIB module is part of XXXX see the RFC itself
               for full legal notices."

            -- Editor's Note: Replace XXXX with the actual RFC number
            -- assigned by RFC Editor and remove this note

            REVISION    "200409210000Z"  -- September 21, 2004
            DESCRIPTION "Initial version, published as RFC XXXX."

      ::= { mib-2 XXX }

            -- Editor's Note: Replace XXX with a real OID once it is
            -- assigned by IANA and remove this note.

   eponDeviceObjectMIB OBJECT IDENTIFIER ::= { eponDeviceMIB 1}

   eponDeviceObjects OBJECT IDENTIFIER ::= { eponDeviceObjectMIB  1}

   eponDeviceConformance OBJECT IDENTIFIER ::= { eponDeviceObjectMIB  2}

   eponDeviceControlObjects OBJECT IDENTIFIER ::= { eponDeviceObjects 1}
```

```
   eponDeviceStatObjects OBJECT IDENTIFIER ::= { eponDeviceObjects 2}

   eponDeviceEventObjects OBJECT IDENTIFIER ::= { eponDeviceObjects 3}


   eponDeviceControlTable OBJECT-TYPE
       SYNTAX  SEQUENCE OF EponDeviceControlEntry
       MAX-ACCESS  not-accessible
       STATUS  current
       DESCRIPTION
               "Table for EPON device MIB modules."
       ::= { eponDeviceControlObjects 1 }

   eponDeviceControlEntry OBJECT-TYPE
       SYNTAX  EponDeviceControlEntry
       MAX-ACCESS  not-accessible
       STATUS  current
       DESCRIPTION
               "An entry in the EPON device Control table."
       INDEX  { ifIndex }
       ::= { eponDeviceControlTable 1 }

   EponDeviceControlEntry ::=
       SEQUENCE {
        eponDeviceObjectReset                       INTEGER,
        eponDeviceObjectModes                       INTEGER,
        eponDeviceObjectFecEnabled                  INTEGER,
        eponDeviceObjectOamMode                     INTEGER,
        eponDeviceObjectDeviceReadyMode             INTEGER,
        eponDeviceObjectPowerDown                   TruthValue,
        eponDeviceObjectNumberOfLLIDs               Integer32,
        eponDeviceObjectReportThreshold             Integer32,
        eponDeviceRemoteMACAddressLLIDControl       INTEGER
       }


   eponDeviceObjectReset OBJECT-TYPE
       SYNTAX  INTEGER {
               running(1),
               reset(2)
       }
       MAX-ACCESS  read-write
       STATUS  current
       DESCRIPTION
               "This variable is used to reset the EPON device. The
                interface may be unavailable while the reset occurs and
                data may be lost. During reading operation it returns
                the state of the EPON device. running(1) indicates and
```

```
                operates normal operation, reset(2) indicates and
                operates reset mode. Writing can be done all the time."
        DEFVAL { 1 }
        ::= { eponDeviceControlEntry 1 }

    eponDeviceObjectModes OBJECT-TYPE
        SYNTAX  INTEGER {
                olt(1),
                onu(2)
        }
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "This variable defines the mode of the EPON device. When
                 an olt(1) it is an Optical Line Terminal device (server)
                 and when an onu(2) and Optical Network Unit device
                 (client)"
        ::= { eponDeviceControlEntry 2 }

    eponDeviceObjectFecEnabled OBJECT-TYPE
        SYNTAX  INTEGER {
                noFecEnabled (1),
                fecTxEnabled (2),
                fecRxEnabled (3),
                fecTxRxEnabled (4)
        }
        MAX-ACCESS  read-write
        STATUS  current
        DESCRIPTION
              "This variable defines and provides information whether the
               EPON device uses FEC as defined in the [802.3ah] clause
               65.2 for EPON. When noFECEnabled(1) the device does not
               support FEC mode When fecTxEnabled(2) the device supports
               the FEC transmission mode. When fecRxEnabled(3) the device
               supports the FEC Receive mode. When fecTxRxEnabled(4) the
               device supports the FEC transmission and receive mode.
               Writing can be done all the time.
               This attribute is relevant for an OLT and an ONU."
        DEFVAL { 1 }
        ::= { eponDeviceControlEntry 4 }

    eponDeviceObjectOamMode OBJECT-TYPE
        SYNTAX  INTEGER {
                noOam (1),
                oamServer (2),
                oamclient (3)
        }
        MAX-ACCESS  read-write
```

```
        STATUS  current
        DESCRIPTION
                "This variable defines and provides information on the
                 Operation Administration and Maintenance (OAM) mode of
                 an EPON device as defined by the [802.3ah] clause 57.
                 When noOam(1) the device does not supports the OAM mode.
                 When oamServer(2) the device supports the OAM mode as a
                 server unit. When oamClient(3) the device supports the
                 OAM mode as a client unit.
                 Writing can be done during initialization,
                 eponDeviceObjectDeviceReadyMode is in notReady(1) or
                 inProcess(2).
                 This attribute is relevant for an OLT and an ONU."
        DEFVAL { 1 }
        ::= { eponDeviceControlEntry 5 }


    eponDeviceObjectDeviceReadyMode     OBJECT-TYPE
        SYNTAX  INTEGER {
                notReady (1),
                inProcess (2),
                ready (3)
        }
        MAX-ACCESS  read-write
        STATUS  current
        DESCRIPTION
                "This variable defines the mode of an EPON device and
                 provides information on the mode in initialization -
                 ready for registration as defined by the [802.3ah]
                 clause 64.
                 When notReady(1) the device is not ready for operation.
                 When inProcess(2) the device is in initialization
                 process.
                 When ready(3) the device is ready for registration.
                 Writing can be done all the time.
                 This attribute is relevant for an OLT and an ONU."
        DEFVAL { 1 }
        ::= { eponDeviceControlEntry 6 }

    eponDeviceObjectPowerDown OBJECT-TYPE
        SYNTAX  TruthValue
        MAX-ACCESS  read-write
        STATUS  current
        DESCRIPTION
                "Setting this variable to True(1) will cause Device to be
                 entered into Power down mode where no registration is
                 allowed and only receiving data from the link.
                 Writing can be done all the time.
```

```
                This attribute is relevant for an OLT and an ONU."
        DEFVAL { false }
        ::= { eponDeviceControlEntry 7 }


    eponDeviceObjectNumberOfLLIDs OBJECT-TYPE
        SYNTAX  Integer32
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read only variable which defines the number of
                 registered LLIDs (as defined by the [802.3ah] clause 65)
                 in a EPON network for an OLT and an ONU. Initialization
                 value is 0.
                 This attribute is relevant for an OLT and an ONU."
        ::= { eponDeviceControlEntry 8 }

    eponDeviceObjectReportThreshold OBJECT-TYPE
        SYNTAX  Integer32
        UNITS       "TQ (16nsec)"
        MAX-ACCESS  read-write
        STATUS  current
        DESCRIPTION
                "A set of 8 integers, for each LLID, that defines the
                 threshold reporting for each Queue in the REPORT
                 message, as defined in [802.3ah] 64. First Queue set
                 reporting will provide information on the queue
                 occupancy of frames below this Threshold. The value
                 returned shall be in Time quanta (TQ) which is 16nsec or
                 2 octets increments.
                 Writing can be done all the time.
                 This attribute is relevant for an OLT and an ONU."
        DEFVAL { 0 }
        ::= { eponDeviceControlEntry 9 }

    eponDeviceRemoteMACAddressLLIDControl OBJECT-TYPE
        SYNTAX INTEGER {
                none(1),
                resetLog(2),
                useDefaultReporting(3)
        }
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
                "Indicates and controls the resetting of the LLID MAC
                 address log. Setting this object to none(1) has no
                 action resetLog(2) empties the LLID MAC address log. All
                 data is deleted. Setting it to useDefaultReporting(3)
```

```
                returns all entries priorities to their factory-default
                reporting. Reading this object always returns
                useDefaultReporting(3)."
        DEFVAL { 3 }
        ::= { eponDeviceControlEntry 10 }

    eponDeviceRemoteMACAddressLLIDTable OBJECT-TYPE
        SYNTAX      SEQUENCE OF EponDeviceRemoteMACAddressLLIDEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
                "A table of read-only value that identifies the
                source_address and LLIDs parameter of the remote devices
                in the network. This MacAddress value, as defined in
                [802.3ah], 30.3.5.1.5, is updated on reception of a
                valid frame with a unicast destination Field or
                (1) a destination Field equal to the reserved multicast
                address for MAC Control specified in [802.3ah] Annex
                31A, (2) lengthOrType field value equal to the reserved
                Type for MAC Control as specified in [802.3ah] Annex
                31A. (3)an MPCP subtype value equal to the subtype
                reserved for MPCP as specified in [802.3ah] Annex 31A,
                and an LLID as allocated by the OLT. The table is
                defined as Remote MAC address - LLID (RMadL)
                The table is relevant only for an OLT device, and is
                equivalent from a bridge emulation to the bridge
                port-MAC address table where the LLIDs are equivalent to
                virtual bridge ports."
        ::= { eponDeviceControlObjects 2 }


    eponDeviceRemoteMACAddressLLIDEntry OBJECT-TYPE
        SYNTAX      EponDeviceRemoteMACAddressLLIDEntry
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
                "A group of entries.  Applications create and delete
                entries using eponDeviceRMadlEntryStatus.
                When adding objects to an LLID they are added in the
                persistent order of their index in this table."
        INDEX       {ifIndex }
        ::= { eponDeviceRemoteMACAddressLLIDTable 1 }

        EponDeviceRemoteMACAddressLLIDEntry ::=
        SEQUENCE {
                eponDeviceRemoteMACAddressLLIDName    SnmpAdminString,
                eponDeviceRMadlLLID                   Unsigned32,
                eponDeviceRMadlLogID                  OBJECT IDENTIFIER,
```

```
            eponDeviceRMadlRemoteAddress          MacAddress,
            eponDeviceRMadlType                   INTEGER,
            eponDeviceRMadlAction                 INTEGER,
            eponDeviceRMadlEntryStatus            RowStatus
        }

    eponDeviceRemoteMACAddressLLIDName OBJECT-TYPE
        SYNTAX      SnmpAdminString (SIZE (1..32))
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
                "A locally-unique, administratively assigned name for a
                 group of entries."
        ::= { eponDeviceRemoteMACAddressLLIDEntry 1 }

    eponDeviceRMadlLLID OBJECT-TYPE
        SYNTAX      Unsigned32 (1..4294967295)
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
                "An arbitrary integer for the purpose of identifying the
                 LLID. Writing can be done all the time."
        DEFVAL { 1 }
        ::= { eponDeviceRemoteMACAddressLLIDEntry 2 }


    eponDeviceRMadlLogID OBJECT-TYPE
        SYNTAX      OBJECT IDENTIFIER
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
                "The object identifier of a MIB module object to add to
                 an entry, indicating the entry ID in the table. Writing
                 can be done all the time."
        DEFVAL { zeroDotZero }
        ::= { eponDeviceRemoteMACAddressLLIDEntry 3 }

    eponDeviceRMadlRemoteAddress OBJECT-TYPE
        SYNTAX     MacAddress
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
                "The remote MAC address of the LLID.
                 Writing can be done all the time."
        ::= { eponDeviceRemoteMACAddressLLIDEntry 4 }


    eponDeviceRMadlType OBJECT-TYPE
```

```
        SYNTAX  INTEGER {
                notRegister (1),
                registered (2)
        }
        MAX-ACCESS  read-write
        STATUS  current
        DESCRIPTION
                "A list of types for entries - LLIDs. Indicates and
                 defines the state of registration. notRegister(1) marks
                 a non registered LID, registered(2) marks a registered
                 LLID.  Writing can be done all the time."
        DEFVAL { 1 }
        ::= { eponDeviceRemoteMACAddressLLIDEntry 5 }

    eponDeviceRMadlAction OBJECT-TYPE
        SYNTAX  INTEGER {
                none (1),
                register (2),
                deregister (3),
                reregister (4)
        }
        MAX-ACCESS  read-write
        STATUS  current
        DESCRIPTION
                "A list of actions for an entry - LLID.  Indicates and
                 defines the state of registration for the remote device.
                 none(1) marks no action, register(2) marks to register
                 an LLID, deregister(3) marks to deregister an LLID,
                 reregister(4) marks reregistered LLID.
                 Writing can be done all the time."
        DEFVAL { 1 }
        ::= { eponDeviceRemoteMACAddressLLIDEntry 6 }


    eponDeviceRMadlEntryStatus OBJECT-TYPE
        SYNTAX      RowStatus
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
                "The control that allows creation and deletion of
                 entries. Once made active an entry MAY not be modified
                 except to delete it."
       ::= { eponDeviceRemoteMACAddressLLIDEntry 7 }



    --Statistics tables
```

```
   eponDeviceStatTable OBJECT-TYPE
       SYNTAX     SEQUENCE OF EponDeviceStatEntry
       MAX-ACCESS not-accessible
       STATUS     current
       DESCRIPTION
               "This table defines the list of statistics counters of
                EPON devices. The attributes are relevant for an OLT and
                an ONU."
       ::= { eponDeviceStatObjects 1}

   eponDeviceStatEntry OBJECT-TYPE
       SYNTAX     EponDeviceStatEntry
       MAX-ACCESS not-accessible
       STATUS     current
       DESCRIPTION
               "Table entries for Table of statistics counters of EPON
                devices."
       INDEX       { ifIndex }
       ::= { eponDeviceStatTable 1 }

   EponDeviceStatEntry::=
       SEQUENCE {
               eponDeviceStatTxFramesQueue0           Counter32,
               eponDeviceStatTxFramesQueue1           Counter32,
               eponDeviceStatTxFramesQueue2           Counter32,
               eponDeviceStatTxFramesQueue3           Counter32,
               eponDeviceStatTxFramesQueue4           Counter32,
               eponDeviceStatTxFramesQueue5           Counter32,
               eponDeviceStatTxFramesQueue6           Counter32,
               eponDeviceStatTxFramesQueue7           Counter32,
               eponDeviceStatRxFramesQueue0           Counter32,
               eponDeviceStatRxFramesQueue1           Counter32,
               eponDeviceStatRxFramesQueue2           Counter32,
               eponDeviceStatRxFramesQueue3           Counter32,
               eponDeviceStatRxFramesQueue4           Counter32,
               eponDeviceStatRxFramesQueue5           Counter32,
               eponDeviceStatRxFramesQueue6           Counter32,
               eponDeviceStatRxFramesQueue7           Counter32,
               eponDeviceStatDroppedFramesQueue0      Counter32,
               eponDeviceStatDroppedFramesQueue1      Counter32,
               eponDeviceStatDroppedFramesQueue2      Counter32,
               eponDeviceStatDroppedFramesQueue3      Counter32,
               eponDeviceStatDroppedFramesQueue4      Counter32,
               eponDeviceStatDroppedFramesQueue5      Counter32,
               eponDeviceStatDroppedFramesQueue6      Counter32,
               eponDeviceStatDroppedFramesQueue7      Counter32
       }
```

```
    eponDeviceStatTxFramesQueue0 OBJECT-TYPE
      SYNTAX  Counter32
      UNITS      "frames"
      MAX-ACCESS  read-only
      STATUS  current
      DESCRIPTION
              "A count of the number of times a -Queue-0- frames
               transmission occurs. Increment the counter by one for
               each frame transmitted which is an output of -Queue-0-.
               The -Queue-0- marking matched the REPORT MPCP message
               Queue-0 field, as defined in [802.3ah] clause 64. This
               counter is mandatory for an ONU."
      ::= { eponDeviceStatEntry 1}

  eponDeviceStatTxFramesQueue1 OBJECT-TYPE
      SYNTAX  Counter32
      UNITS      "frames"
      MAX-ACCESS  read-only
      STATUS  current
      DESCRIPTION
              "A count of the number of times a -Queue-1- frames
               transmission occurs. Increment the counter by one for
               each frame transmitted which is an output of -Queue-1-.
               The -Queue-1- marking matched the REPORT MPCP message
               Queue-1 field, as defined in [802.3ah] clause 64. This
               counter is mandatory for an ONU."
      ::= { eponDeviceStatEntry 2}

  eponDeviceStatTxFramesQueue2 OBJECT-TYPE
      SYNTAX  Counter32
      UNITS      "frames"
      MAX-ACCESS  read-only
      STATUS  current
      DESCRIPTION
              "A count of the number of times a -Queue-2- frames
               transmission occurs. Increment the counter by one for
               each frame transmitted which is an output of -Queue-2-.
               The -Queue-2- marking matched the REPORT MPCP message
               Queue-2 field, as defined in [802.3ah] clause 64. This
               counter is mandatory for an ONU."
      ::= { eponDeviceStatEntry 3}

  eponDeviceStatTxFramesQueue3 OBJECT-TYPE
      SYNTAX  Counter32
      UNITS      "frames"
      MAX-ACCESS  read-only
      STATUS  current
      DESCRIPTION
```

```
                "A count of the number of times a -Queue-3- frames
                 transmission occurs. Increment the counter by one for
                 each frame transmitted which is an output of -Queue-3-.
                 The -Queue-3- marking matched the REPORT MPCP message
                 Queue-3 field, as defined in [802.3ah] clause 64.
                 This counter is mandatory for an ONU."
            ::= { eponDeviceStatEntry 4}

    eponDeviceStatTxFramesQueue4 OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a -Queue-4- frames
                 transmission occurs. Increment the counter by one for
                 each frame transmitted which is an output of -Queue-4-.
                 The -Queue-4- marking matched the REPORT MPCP message
                 Queue-4 field, as defined in [802.3ah] clause 64.
                 This counter is mandatory for an ONU."
        ::= { eponDeviceStatEntry 5}

    eponDeviceStatTxFramesQueue5 OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a -Queue-5- frames
                 transmission occurs. Increment the counter by one for
                 each frame transmitted which is an output of -Queue-5-.
                 The -Queue-5- marking matched the REPORT MPCP message
                 Queue-5 field, as defined in [802.3ah] clause 64.
                 This counter is mandatory for an ONU."
        ::= { eponDeviceStatEntry 6}

    eponDeviceStatTxFramesQueue6 OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a -Queue-6- frames
                 transmission occurs. Increment the counter by one for
                 each frame transmitted which is an output of -Queue-6-.
                 The -Queue-6- marking matched the REPORT MPCP message
                 Queue-6 field, as defined in [802.3ah] clause 64.
                 This counter is mandatory for an ONU."
```

```
        ::= { eponDeviceStatEntry 7}

    eponDeviceStatTxFramesQueue7 OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
           STATUS  current
           DESCRIPTION
                "A count of the number of times a -Queue-7- frames
                 transmission occurs. Increment the counter by one for
                 each frame transmitted which is an output of -Queue-7-.
                 The -Queue-7- marking matched the REPORT MPCP message
                 Queue-7 field, as defined in [802.3ah] clause 64.
                 This counter is mandatory for an ONU."
        ::= { eponDeviceStatEntry 8}

    eponDeviceStatRxFramesQueue0 OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a -Queue-0- frames
                 reception occurs. A single counter at the ONU and a set
                 of counters, one for each LLID, at the OLT. Increment
                 the counter by one for each frame received for each
                 LLID, which is an output of -Queue-0-. The -Queue-0-
                 marking matched the REPORT MPCP message Queue-0 field,
                 as defined in [802.3ah] clause 64.
                 This counter is mandatory for an ONU and an OLT."
        ::= { eponDeviceStatEntry 9}

    eponDeviceStatRxFramesQueue1 OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a -Queue-1- frames
                 reception occurs. A single counter at the ONU and a set
                 of counters, one for each LLID, at the OLT. Increment
                 the counter by one for each frame received for each
                 LLID, which is an output of -Queue-1-. The -Queue-1-
                 marking matched the REPORT MPCP message Queue-1 field,
                 as defined in [802.3ah] clause 64.
                 This counter is mandatory for an ONU and an OLT."
        ::= { eponDeviceStatEntry 10}
```

```
   eponDeviceStatRxFramesQueue2 OBJECT-TYPE
       SYNTAX  Counter32
       UNITS      "frames"
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A count of the number of times a -Queue-2- frames
                reception occurs. A single counter at the ONU and a set
                of counters, one for each LLID, at the OLT. Increment
                the counter by one for each frame received for each
                LLID, which is an output of -Queue-2-. The -Queue-2-
                marking matched the REPORT MPCP message Queue-2 field,
                as defined in [802.3ah] clause 64.
                This counter is mandatory for an ONU and an OLT."
       ::= { eponDeviceStatEntry 11}

   eponDeviceStatRxFramesQueue3 OBJECT-TYPE
       SYNTAX  Counter32
       UNITS      "frames"
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A count of the number of times a -Queue-3- frames
                reception occurs. A single counter at the ONU and a set
                of counters, one for each LLID, at the OLT. Increment
                the counter by one for each frame received for each
                LLID, which is an output of -Queue-3-. The -Queue-3-
                marking matched the REPORT MPCP message Queue-3 field,
                as defined in [802.3ah] clause 64.
                This counter is mandatory for an ONU and an OLT."
       ::= { eponDeviceStatEntry 12}

   eponDeviceStatRxFramesQueue4 OBJECT-TYPE
       SYNTAX  Counter32
       UNITS      "frames"
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A count of the number of times a -Queue-4- frames
                reception occurs. A single counter at the ONU and a set
                of counters, one for each LLID, at the OLT. Increment
                the counter by one for each frame received for each
                LLID, which is an output of -Queue-4-. The -Queue-4-
                marking matched the REPORT MPCP message Queue-4 field,
                as defined in [802.3ah] clause 64.
                This counter is mandatory for an ONU and an OLT."
       ::= { eponDeviceStatEntry 13}
```

```
   eponDeviceStatRxFramesQueue5 OBJECT-TYPE
       SYNTAX  Counter32
       UNITS      "frames"
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A count of the number of times a -Queue-5- frames
                reception occurs. A single counter at the ONU and a set
                of counters, one for each LLID, at the OLT. Increment
                the counter by one for each frame received for each
                LLID, which is an output of -Queue-5-. The -Queue-5-
                marking matched the REPORT MPCP message Queue-5 field,
                as defined in [802.3ah] clause 64.
                This counter is mandatory for an ONU and an OLT."
       ::= { eponDeviceStatEntry 14}

   eponDeviceStatRxFramesQueue6 OBJECT-TYPE
       SYNTAX  Counter32
       UNITS      "frames"
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A count of the number of times a -Queue-6- frames
                reception occurs. A single counter at the ONU and a set
                of counters, one for each LLID, at the OLT. Increment
                the counter by one for each frame received for each
                LLID, which is an output of -Queue-6-. The -Queue-6-
                marking matched the REPORT MPCP message Queue-6 field,
                as defined in [802.3ah] clause 64.
                This counter is mandatory for an ONU and an OLT."
       ::= { eponDeviceStatEntry 15}

   eponDeviceStatRxFramesQueue7 OBJECT-TYPE
       SYNTAX  Counter32
       UNITS      "frames"
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A count of the number of times a -Queue-7- frames
                reception occurs. A single counter at the ONU and a set
                of counters, one for each LLID, at the OLT. Increment
                the counter by one for each frame received for each
                LLID, which is an output of -Queue-7-. The -Queue-7-
                marking matched the REPORT MPCP message Queue-7 field,
                as defined in [802.3ah] clause 64.
                This counter is mandatory for an ONU and an OLT."
       ::= { eponDeviceStatEntry 16}
```

```
   eponDeviceStatDroppedFramesQueue0 OBJECT-TYPE
       SYNTAX  Counter32
       UNITS      "frames"
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A count of the number of times a -Queue-0- frames drops
                occurs. Increment the counter by one for each frame
                dropped from -Queue-0-. The -Queue-0- marking matched
                the REPORT MPCP message Queue-0 field, as defined in
                [802.3ah] clause 64.
                This counter is mandatory for an ONU."
       ::= { eponDeviceStatEntry 17}

   eponDeviceStatDroppedFramesQueue1 OBJECT-TYPE
       SYNTAX  Counter32
       UNITS      "frames"
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A count of the number of times a -Queue-1- frames drops
                occurs. Increment the counter by one for each frame
                dropped from -Queue-1-. The -Queue-1- marking matched
                the REPORT MPCP message Queue-1 field, as defined in
                [802.3ah] clause 64.
                This counter is mandatory for an ONU."
       ::= { eponDeviceStatEntry 18}

   eponDeviceStatDroppedFramesQueue2 OBJECT-TYPE
       SYNTAX  Counter32
       UNITS      "frames"
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A count of the number of times a -Queue-2- frames drops
                occurs. Increment the counter by one for each frame
                dropped from -Queue-2-. The -Queue-2- marking matched
                the REPORT MPCP message Queue-2 field, as defined in
                [802.3ah] clause 64.
                This counter is mandatory for an ONU."
       ::= { eponDeviceStatEntry 19}

   eponDeviceStatDroppedFramesQueue3 OBJECT-TYPE
       SYNTAX  Counter32
       UNITS      "frames"
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
```

```
                "A count of the number of times a -Queue-3- frames drops
                 occurs. Increment the counter by one for each frame
                 dropped from -Queue-3-. The -Queue-3- marking matched
                 the REPORT MPCP message Queue-3 field, as defined in
                 [802.3ah] clause 64.
                 This counter is mandatory for an ONU."
        ::= { eponDeviceStatEntry 20}

    eponDeviceStatDroppedFramesQueue4 OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a -Queue-4- frames drops
                 occurs. Increment the counter by one for each frame
                 dropped from -Queue-4-. The -Queue-4- marking matched
                 the REPORT MPCP message Queue-4 field, as defined in
                 [802.3ah] clause 64.
                 This counter is mandatory for an ONU."
        ::= { eponDeviceStatEntry 21}

    eponDeviceStatDroppedFramesQueue5 OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a -Queue-5- frames drops
                 occurs. Increment the counter by one for each frame
                 dropped from -Queue-5-. The -Queue-5- marking matched
                 the REPORT MPCP message Queue-5 field, as defined in
                 [802.3ah] clause 64.
                 This counter is mandatory for an ONU."
        ::= { eponDeviceStatEntry 22}

    eponDeviceStatDroppedFramesQueue6 OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a -Queue-6- frames drops
                 occurs. Increment the counter by one for each frame
                 dropped from -Queue-6-. The -Queue-6- marking matched
                 the REPORT MPCP message Queue-6 field, as defined in
                 [802.3ah] clause 64.
                 This counter is mandatory for an ONU."
```

```
        ::= { eponDeviceStatEntry 23}

    eponDeviceStatDroppedFramesQueue7 OBJECT-TYPE
        SYNTAX  Counter32
        UNITS      "frames"
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A count of the number of times a -Queue-7- frames drops
                 occurs. Increment the counter by one for each frame
                 dropped from -Queue-7-. The -Queue-7- marking matched
                 the REPORT MPCP message Queue-7 field, as defined in
                 [802.3ah] clause 64.
                 This counter is mandatory for an ONU."
        ::= { eponDeviceStatEntry 24}

    --Editor's Note use reference to event MIB modules [RFC2981] and
    --docsis MIB modules [RFC2669]


    eponDeviceEventObjectTable OBJECT-TYPE
        SYNTAX     SEQUENCE OF EponDeviceEventObjectEntry
        MAX-ACCESS not-accessible
        STATUS     current
        DESCRIPTION
                "This table defines the Event Objects for EPON devices.
                 The attributes are relevant for an OLT and an ONU."
        ::= { eponDeviceEventObjects 1}

    eponDeviceEventObjectEntry OBJECT-TYPE
        SYNTAX     EponDeviceEventObjectEntry
        MAX-ACCESS not-accessible
        STATUS     current
        DESCRIPTION
                "Table entries for Table of Event objects for EPON
                 devices."
        INDEX       { ifIndex }
        ::= { eponDeviceEventObjectTable 1 }

    EponDeviceEventObjectEntry::=
        SEQUENCE {
    eponDeviceSampleMinimum                         Integer32,
    eponDeviceDyingGaspAlarmState                   TruthValue,
    eponDeviceDyingGaspAlarmEnabled                 TruthValue,
    eponDeviceCriticalEventState                    TruthValue,
    eponDeviceCriticalEventEnabled                  TruthValue,
    eponDeviceLocalLinkFaultAlarmState              TruthValue,
    eponDeviceLocalLinkFaultAlarmEnabled            TruthValue,
```

```
   eponDeviceTemperatureEventIndicationState            TruthValue,
   eponDeviceTemperatureEventIndicationEnabled          TruthValue,
   eponDevicePowerVoltageEventIndicationState           TruthValue,
   eponDevicePowerVoltageEventIndicationEnabled         TruthValue,
   eponDeviceGlobalEventState                           TruthValue,
   eponDeviceGlobalEventEnabled                         TruthValue,
   eponDeviceErroredSymbolPeriodEventState              TruthValue,
   eponDeviceErroredSymbolPeriodEventEnabled            TruthValue,
   eponDeviceErroredFrameEventState                     TruthValue,
   eponDeviceErroredFrameEventEnabled                   TruthValue,
   eponDeviceErroredFramePeriodEventState               TruthValue,
   eponDeviceErroredFramePeriodEventEnabled             TruthValue,
   eponDeviceErroredFrameSecondsSummaryEventState       TruthValue,
   eponDeviceErroredFrameSecondsSummaryEventEnabled     TruthValue,
   eponDeviceOrganizationSpecificEventState             TruthValue,
   eponDeviceOrganizationSpecificEventEnabled           TruthValue,
   eponDeviceEventControl                               INTEGER
       }

   eponDeviceSampleMinimum OBJECT-TYPE
       SYNTAX      Integer32 (1..2147483647)
       UNITS       "seconds"
       MAX-ACCESS  read-write
       STATUS      current
       DESCRIPTION
               "The minimum Frequency of events this system will accept.
                A system may use the larger values of this minimum to
                lessen the impact of constant sampling. For larger
                sampling intervals the system samples less often and
                suffers less overhead.
                Unless explicitly resource limited, a system's value for
                this object SHOULD be 1, allowing as small as a 1 second
                interval for ongoing trigger sampling.
                Writing of the value can be done all the time."
       DEFVAL { 1 }
       ::= { eponDeviceEventObjectEntry 1 }

   eponDeviceDyingGaspAlarmState OBJECT-TYPE
       SYNTAX  TruthValue
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A read-only variable, which defines the state of the
                Dying Gasp indication of the OAM alarm indications as
                described in the [802.3ah] clause 57. When true the
                device has a dying gasp alarm asserted. When false the
                dying gasp alarm is reset "
       ::= { eponDeviceEventObjectEntry 2}
```

```
   eponDeviceDyingGaspAlarmEnabled OBJECT-TYPE
       SYNTAX      TruthValue
       MAX-ACCESS  read-write
       STATUS      current
       DESCRIPTION
               "A control to allow DyingGaspAlarm event to be used.
                When the value is true the event is sampled. When the
                value is false the event is not sampled.
                Writing can be done all the time."
       DEFVAL { false }
       ::= { eponDeviceEventObjectEntry 3 }

   eponDeviceCriticalEventState OBJECT-TYPE
       SYNTAX  TruthValue
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A read-only variable, which defines the state of the
                Critical Event indication of the OAM alarm indications
                as described in the [802.3ah] clause 57. When true the
                device has a Critical Event asserted. When false the
                Critical Event is reset."
       ::= { eponDeviceEventObjectEntry 4 }

   eponDeviceCriticalEventEnabled OBJECT-TYPE
       SYNTAX      TruthValue
       MAX-ACCESS  read-write
       STATUS      current
       DESCRIPTION
               "A control to allow CriticalEvent event to be used. When
                the value is true the event is sampled. When the value
                is false the event is not sampled.
                Writing can be done all the time."
       DEFVAL { false }
       ::= { eponDeviceEventObjectEntry 5 }


      eponDeviceLocalLinkFaultAlarmState OBJECT-TYPE
       SYNTAX  TruthValue
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A read-only variable, which defines the state of the
                Local Link Fault indication of the OAM alarm indications
                as described in the [802.3ah] clause 57. When true the
                device has a Local Link Fault alarm asserted. When
                false the Local Link Fault alarm is reset."
       ::= { eponDeviceEventObjectEntry 6 }
```

```
   eponDeviceLocalLinkFaultAlarmEnabled OBJECT-TYPE
       SYNTAX      TruthValue
       MAX-ACCESS  read-write
       STATUS      current
       DESCRIPTION
               "A control to allow LocalLinkFaultAlarm event to be used.
                When the value is true the event is sampled. When the
                value is false the event is not sampled.
                Writing can be done all the time."
       DEFVAL { false }
       ::= { eponDeviceEventObjectEntry 7 }


      eponDeviceTemperatureEventIndicationState OBJECT-TYPE
       SYNTAX  TruthValue
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A read-only variable, which defines the state of the
                Temperature Event indication of an EPON device. When
                condition of box temperature is above the threshold
                defined the alarm is asserted. When the condition is
                below that threshold the alarm is de-asserted. When true
                the device has a Temperature Event Indication asserted.
                When false the Temperature Event Indication is reset."
       ::= { eponDeviceEventObjectEntry 8 }

   eponDeviceTemperatureEventIndicationEnabled OBJECT-TYPE
       SYNTAX      TruthValue
       MAX-ACCESS  read-write
       STATUS      current
       DESCRIPTION
               "A control to allow TemperatureEventIndication event to
                be used. When the value is true the event is sampled.
                When the value is false the event is not sampled.
                Writing can be done all the time."
       DEFVAL { false }
       ::= { eponDeviceEventObjectEntry 9 }

   eponDevicePowerVoltageEventIndicationState OBJECT-TYPE
       SYNTAX  TruthValue
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A read-only variable, which defines the state of the
                Power/Voltage Event Indication of an EPON device. When
                condition of box Power/voltage is above the threshold
                defined the alarm is asserted. When the condition is
```

```
                below that threshold the alarm is de-asserted. When true
                the device has a Power/Voltage Event Indication
                asserted. When false the Power/Voltage Event Indication
                is reset. "
        ::= { eponDeviceEventObjectEntry 10 }


    eponDevicePowerVoltageEventIndicationEnabled OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
                "A control to allow PowerVoltageEventIndication event to
                 be used. When the value is true the event is sampled.
                 When the value is false the event is not sampled.
                 Writing can be done all the time."
        DEFVAL { false }
        ::= { eponDeviceEventObjectEntry 11 }


       eponDeviceGlobalEventState OBJECT-TYPE
        SYNTAX  TruthValue
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read-only variable, which defines the state of the
                 Global Event indication of an EPON device. When the
                 indication of the event input occurs the event is
                 asserted. When the input is removed that event is
                 de-asserted. When true the device has a Global Event
                 asserted. When false the Global Event Indication is
                 reset."
        ::= { eponDeviceEventObjectEntry 12 }

    eponDeviceGlobalEventEnabled OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
                "A control to allow GlobalEvent event to be used. When
                 the value is true the event is sampled. When the value
                 is false the event is not sampled. Writing can be done
                 all the time."
        DEFVAL { false }
        ::= { eponDeviceEventObjectEntry 13 }

    eponDeviceErroredSymbolPeriodEventState OBJECT-TYPE
        SYNTAX  TruthValue
```

```
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read-only variable, which defines the state of the
                 Errored Symbol Period Event indication of the OAM alarm
                 TLV indications as described in the [802.3ah]
                 clause 57.5.3. When true the device has an Errored
                 Symbol Period Event asserted. When false the Errored
                 Symbol Period Event is reset."
        ::= { eponDeviceEventObjectEntry 14}

    eponDeviceErroredSymbolPeriodEventEnabled OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
                "A control to allow ErroredSymbolPeriodEvent event to be
                 used. When the value is true the event is sampled. When
                 the value is false the event is not sampled. Writing can
                 be done all the time."
        DEFVAL { false }
        ::= { eponDeviceEventObjectEntry 15 }

    eponDeviceErroredFrameEventState OBJECT-TYPE
        SYNTAX  TruthValue
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read-only variable, which defines the state of the
                 Errored Frame Event indication of the OAM alarm TLV
                 indications as described in the [802.3ah] clause 57.5.3.
                 When true the device has an Errored Frame Event
                 asserted. When false the Errored Frame Event is reset."
        ::= { eponDeviceEventObjectEntry 16 }

    eponDeviceErroredFrameEventEnabled OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
                "A control to allow ErroredFrameEvent event to be used.
                 When the value is true the event is sampled. When the
                 value is false the event is not sampled.
                 Writing can be done all the time."
        DEFVAL { false }
        ::= { eponDeviceEventObjectEntry 17 }
```

```
   eponDeviceErroredFramePeriodEventState OBJECT-TYPE
       SYNTAX  TruthValue
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A read-only variable, which defines the state of the
                Errored Frame Period Event indication of the OAM alarm
                TLV indications as described in the [802.3ah] clause
                57.5.3. When true the device has an Errored Frame Period
                Event asserted. When false the Errored Frame Period
                Event is reset."
       ::= { eponDeviceEventObjectEntry 18 }

   eponDeviceErroredFramePeriodEventEnabled OBJECT-TYPE
       SYNTAX      TruthValue
       MAX-ACCESS  read-write
       STATUS      current
       DESCRIPTION
               "A control to allow ErroredFramePeriodEvent event to be
                used. When the value is true the event is sampled. When
                the value is false the event is not sampled. Writing can
                be done all the time."
       DEFVAL { false }
       ::= { eponDeviceEventObjectEntry 19 }


   eponDeviceErroredFrameSecondsSummaryEventState OBJECT-TYPE
       SYNTAX  TruthValue
       MAX-ACCESS  read-only
       STATUS  current
       DESCRIPTION
               "A read-only variable, which defines the state of the
                Errored Frame Seconds Summary Event indication of the
                OAM alarm TLV indications as described in the [802.3ah]
                clause 57.5.3. When true the device has an Errored Frame
                Seconds Summary Event asserted. When false the Errored
                Frame Seconds Summary Event is reset."
       ::= { eponDeviceEventObjectEntry 20 }

   eponDeviceErroredFrameSecondsSummaryEventEnabled OBJECT-TYPE
       SYNTAX      TruthValue
       MAX-ACCESS  read-write
       STATUS      current
       DESCRIPTION
               "A control to allow ErroredFrameSecondsSummaryEvent event
                to be used. When the value is true the event is sampled.
                When the value is false the event is not sampled.
                Writing can be done all the time."
```

```
        DEFVAL { false }
        ::= { eponDeviceEventObjectEntry 21 }


    eponDeviceOrganizationSpecificEventState OBJECT-TYPE
        SYNTAX  TruthValue
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A read-only variable, which defines the state of the
                 Organization Specific Event indication of the OAM alarm
                 TLV indications as described in the [802.3ah] clause
                 57.5.3. When true the device has an Organization
                 Specific Event asserted. When false the Organization
                 Specific Event is reset."
        ::= { eponDeviceEventObjectEntry 22 }

    eponDeviceOrganizationSpecificEventEnabled OBJECT-TYPE
        SYNTAX      TruthValue
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
                "A control to allow OrganizationSpecificEvent event to be
                 used. When the value is true the event is sampled. When
                 the value is false the event is not sampled.
                 Writing can be done all the time."
        DEFVAL { false }
        ::= { eponDeviceEventObjectEntry 23 }

    eponDeviceEventControl OBJECT-TYPE
        SYNTAX INTEGER {
                none(1),
                resetLog(2),
                useDefaultReporting(3)
        }
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
                "Indicates and controls the resetting of the Event log.
                 Setting this object to none(1) has no action resetLog(2)
                 empties the event log. All data is deleted. Setting it
                 to useDefaultReporting(3) returns all event priorities
                 to their factory-default reporting. Reading this object
                 always returns useDefaultReporting(3)."
        DEFVAL { 3 }
        ::= { eponDeviceEventObjectEntry 24 }
```

```
   -- Events Log Table

   eponDeviceEventsLogTable OBJECT-TYPE
       SYNTAX      SEQUENCE OF EponDeviceEventsLogEntry
       MAX-ACCESS  not-accessible
       STATUS      current
       DESCRIPTION
               "A table of objects provides a log of notification based
                on the event as pointed to by entries in those tables.
                The intent is a MAC level event log (set of events to
                when they happened).
                This attribute is relevant for an OLT and an ONU."
       ::= { eponDeviceEventObjects 2 }

   eponDeviceEventsLogEntry OBJECT-TYPE
       SYNTAX      EponDeviceEventsLogEntry
       MAX-ACCESS  not-accessible
       STATUS      current
       DESCRIPTION
               "A group of Events. Applications create and delete
                entries using eponDeviceEventsEntryStatus. When adding
                objects to a notification they are added in the lexical
                order of their index in this table."
       INDEX       {eponDeviceEventsLogName, eponDeviceEventsLogIndex }
       ::= { eponDeviceEventsLogTable 1 }

   EponDeviceEventsLogEntry ::=
       SEQUENCE {
               eponDeviceEventsLogName            SnmpAdminString,
               eponDeviceEventsLogIndex           Unsigned32,
               eponDeviceEventsLogID              OBJECT IDENTIFIER,
               eponDeviceEventsLogFirstTime       DateAndTime,
               eponDeviceEventsLogLastTime        DateAndTime,
               eponDeviceEventsLogCounts          Counter32,
               eponDeviceEventsLogType            INTEGER,
               eponDeviceEventsLogEntryStatus     RowStatus
       }

   eponDeviceEventsLogName OBJECT-TYPE
       SYNTAX      SnmpAdminString (SIZE (1..32))
       MAX-ACCESS  not-accessible
       STATUS      current
       DESCRIPTION
               "A locally-unique, administratively assigned name for a
                group of Events."
       ::= { eponDeviceEventsLogEntry 1 }

   eponDeviceEventsLogIndex OBJECT-TYPE
```

```
        SYNTAX      Unsigned32 (1..4294967295)
        MAX-ACCESS  not-accessible
        STATUS      current
        DESCRIPTION
                "An arbitrary integer for the purpose of identifying
                 individual Events within a eponDeviceEventsLogName
                 group. Events within a group are placed in the
                 notification in the numerical order of this index."
        ::= { eponDeviceEventsLogEntry 2 }

    eponDeviceEventsLogID OBJECT-TYPE
        SYNTAX      OBJECT IDENTIFIER
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
                "The object identifier of a MIB module object to add to a
                 Notification that results from the event.
                 Writing can be done all the time."
        DEFVAL { zeroDotZero }
        ::= { eponDeviceEventsLogEntry 3 }

    eponDeviceEventsLogFirstTime OBJECT-TYPE
        SYNTAX      DateAndTime
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
                "The time that an entry was created."
        ::= { eponDeviceEventsLogEntry 4 }

    eponDeviceEventsLogLastTime OBJECT-TYPE
        SYNTAX      DateAndTime
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
                "If multiple events are reported via the same entry, the
                 time that the last event for this entry occurred,
                 otherwise this should have the same value as
                 eponDeviceEventsLogFirstTime."
        ::= { eponDeviceEventsLogEntry 5 }

    eponDeviceEventsLogCounts OBJECT-TYPE
        SYNTAX      Counter32
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
                "The number of consecutive event instances reported by
                 this entry. This starts at 1 with the creation of this
                 row and increments by 1 for each subsequent duplicate
```

```
                event."
        ::= { eponDeviceEventsLogEntry 6 }

    eponDeviceEventsLogType OBJECT-TYPE
        SYNTAX  INTEGER {
                eponDeviceDyingGaspAlarmState (1),
                eponDeviceCriticalEventState (2),
                eponDeviceLocalLinkFaultAlarmState (3),
                eponDeviceTemperatureEventIndicationState (4),
                eponDevicePowerVoltageEventIndicationState (5),
                eponDeviceGlobalEventState (6),
                eponDeviceErroredSymbolPeriodEventState (7),
                eponDeviceErroredFrameEventState (8),
                eponDeviceErroredFramePeriodEventState (9),
                eponDeviceErroredFrameSecondsSummaryEventState (10),
                eponDeviceOrganizationSpecificEventState (11)
        }
        MAX-ACCESS  read-only
        STATUS  current
        DESCRIPTION
                "A list of types for Events. Events are ordered according
                 to their significance where 1 is the highest severity.
                 eponDeviceDyingGaspAlarmState(1) indicates a Dying Gasp
                  Alarm State,
                 eponDeviceCriticalEventState(2) indicates a Critical
                  Event State,
                 eponDeviceLocalLinkFaultAlarmState(3) indicates a Local
                  Link Fault Alarm State,
                 eponDeviceTemperatureEventIndicationState(4) indicates a
                  Temperature Event Indication State,
                 eponDevicePowerVoltageEventIndicationState(5) indicates
                  a Power Voltage Event Indication State,
                 eponDeviceGlobalEventState(6) indicates a Global Event
                  State,
                 eponDeviceErroredSymbolPeriodEventState(7) indicates an
                  Errored Symbol Period Event State,
                 eponDeviceErroredFrameEventState(8) indicates an Errored
                  Frame Event State,
                 eponDeviceErroredFramePeriodEventState(9) indicates an
                  Errored Frame Period Event State,
                 eponDeviceErroredFrameSecondsSummaryEventState(10)
                  indicates an Errored Frame Seconds Summary Event State,
                 eponDeviceOrganizationSpecificEventState(11) indicates
                  an Organization Specific Event State. "
        ::= { eponDeviceEventsLogEntry 7 }


    eponDeviceEventsLogEntryStatus OBJECT-TYPE
```

```
        SYNTAX      RowStatus
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
                "The control that allows creation and deletion of
                 entries. Once made active an entry MAY not be modified
                 except to delete it."
        ::= { eponDeviceEventsLogEntry 8 }




         -- Conformance Statements

   -- Conformance Groups

   eponDeviceGroups OBJECT IDENTIFIER ::={ eponDeviceConformance 1}

   eponDeviceGroupControl OBJECT-GROUP
       OBJECTS {
               eponDeviceObjectReset,
               eponDeviceObjectModes,
               eponDeviceObjectFecEnabled,
               eponDeviceObjectOamMode,
               eponDeviceObjectDeviceReadyMode,
               eponDeviceObjectPowerDown,
               eponDeviceObjectNumberOfLLIDs,
               eponDeviceObjectReportThreshold,
               eponDeviceRemoteMACAddressLLIDControl
       }
       STATUS  current
       DESCRIPTION
               "A collection of objects of eponDevice control
                definition."
       ::= { eponDeviceGroups 1 }


   eponDeviceGroupRMadLTable OBJECT-GROUP
       OBJECTS {
               eponDeviceRMadlLLID,
               eponDeviceRMadlLogID,
               eponDeviceRMadlRemoteAddress,
               eponDeviceRMadlType,
               eponDeviceRMadlAction,
               eponDeviceRMadlEntryStatus
       }
       STATUS  current
       DESCRIPTION
```

```
                "A collection of objects of eponDevice remote Mac address
                 to LLID table."
        ::= { eponDeviceGroups 2 }


    eponDeviceGroupStat OBJECT-GROUP
        OBJECTS {
                eponDeviceStatTxFramesQueue0,
                eponDeviceStatTxFramesQueue1,
                eponDeviceStatTxFramesQueue2,
                eponDeviceStatTxFramesQueue3,
                eponDeviceStatTxFramesQueue4,
                eponDeviceStatTxFramesQueue5,
                eponDeviceStatTxFramesQueue6,
                eponDeviceStatTxFramesQueue7,
                eponDeviceStatRxFramesQueue0,
                eponDeviceStatRxFramesQueue1,
                eponDeviceStatRxFramesQueue2,
                eponDeviceStatRxFramesQueue3,
                eponDeviceStatRxFramesQueue4,
                eponDeviceStatRxFramesQueue5,
                eponDeviceStatRxFramesQueue6,
                eponDeviceStatRxFramesQueue7,
                eponDeviceStatDroppedFramesQueue0,
                eponDeviceStatDroppedFramesQueue1,
                eponDeviceStatDroppedFramesQueue2,
                eponDeviceStatDroppedFramesQueue3,
                eponDeviceStatDroppedFramesQueue4,
                eponDeviceStatDroppedFramesQueue5,
                eponDeviceStatDroppedFramesQueue6,
                eponDeviceStatDroppedFramesQueue7
        }
        STATUS  current
        DESCRIPTION
                "A collection of objects of EPON device Statistics"
        ::= { eponDeviceGroups 3 }



    eponDeviceGroupEvent OBJECT-GROUP
        OBJECTS {
                eponDeviceSampleMinimum,
                eponDeviceDyingGaspAlarmState,
                eponDeviceDyingGaspAlarmEnabled,
                eponDeviceCriticalEventState,
                eponDeviceCriticalEventEnabled,
                eponDeviceLocalLinkFaultAlarmState,
                eponDeviceLocalLinkFaultAlarmEnabled,
```

```
                eponDeviceTemperatureEventIndicationState,
                eponDeviceTemperatureEventIndicationEnabled,
                eponDevicePowerVoltageEventIndicationState,
                eponDevicePowerVoltageEventIndicationEnabled,
                eponDeviceGlobalEventState,
                eponDeviceGlobalEventEnabled,
                eponDeviceErroredSymbolPeriodEventState,
                eponDeviceErroredSymbolPeriodEventEnabled,
                eponDeviceErroredFrameEventState,
                eponDeviceErroredFrameEventEnabled,
                eponDeviceErroredFramePeriodEventState ,
                eponDeviceErroredFramePeriodEventEnabled  ,
                eponDeviceErroredFrameSecondsSummaryEventState ,
                eponDeviceErroredFrameSecondsSummaryEventEnabled,
                eponDeviceOrganizationSpecificEventState  ,
                eponDeviceOrganizationSpecificEventEnabled,
                eponDeviceEventControl
        }
        STATUS  current
        DESCRIPTION
                "A collection of objects for EPON device Events"
        ::= { eponDeviceGroups 4 }

    eponDeviceGroupEventLog OBJECT-GROUP
        OBJECTS {
                eponDeviceEventsLogID,
                eponDeviceEventsLogFirstTime,
                eponDeviceEventsLogLastTime,
                eponDeviceEventsLogCounts,
                eponDeviceEventsLogType,
                eponDeviceEventsLogEntryStatus
        }
        STATUS  current
        DESCRIPTION
                "A collection of objects for EPON device Events log"
        ::= { eponDeviceGroups 5 }


    -- Compliance

    eponDeviceCompliances OBJECT IDENTIFIER ::= {eponDeviceConformance 2}

    eponDeviceCompliance MODULE-COMPLIANCE
        STATUS      current
        DESCRIPTION "The compliance statement for EPON Devices."
        MODULE  -- this module
        MANDATORY-GROUPS { eponDeviceGroupControl }
```

```
       GROUP       eponDeviceGroupRMadLTable
       DESCRIPTION " This group is mandatory for all
                           OLT EPON devices supporting LLID-MAC
                           address table."

       GROUP       eponDeviceGroupStat
       DESCRIPTION "This group is mandatory for all EPON devices
                    supporting interfaces for Statistics collection."

       GROUP       eponDeviceGroupEvent
       DESCRIPTION "This group is mandatory for all EPON devices
                    supporting interfaces for event collection."

       GROUP       eponDeviceGroupEventLog
       DESCRIPTION "This group is mandatory for all EPON devices
                    supporting interfaces for event log collection."

       ::= { eponDeviceCompliances 1}


   END
```

10. Security Considerations

There are number of managed objects defined in this MIB module that have a MAX-ACCESS clause of read-write or read-create. Writing to these objects can have a potentially disruptive effects on network operation: Including:

Changing dot3MpcpMode mode (Writing can be done during initialization only when dot3MpcpOperStatus indicates Flase)

Changing dot3MpcpAdminState state (Writing can be done all the time)

Changing eponDeviceObjectReportThreshold (Writing can be done all the time)

Changing dot3EponMauFecMode mode (Writing can be done all the time)

Changing eponDeviceObjectReset mode (Writing can be done all the time)

Changing eponDeviceObjectFecEnabled mode (Writing can be done all the time)

Changing eponDeviceObjectOamMode mode (Writing can be done during initialization, eponDeviceObjectDeviceReadyMode is in notReady(1) or inProcess(2))

Changing eponDeviceObjectDeviceReadyMode (Writing can be done all the time)

Changing eponDeviceObjectPowerDown (Writing can be done all the time)

Changing eponDeviceObjectReportThreshold (Writing can be done all the time)

Changing eponDeviceRemoteMACAddressLLIDControl (Writing can be done all the time)

Changing eponDeviceRMadlLogID (Writing can be done all the time)

Changing eponDeviceRMadlLLID (Writing can be done all the time)

Changing eponDeviceRMadlRemoteAddress (Writing can be done all the time)

Changing eponDeviceRMadlType (Writing can be done all the time)

Changing eponDeviceRMadlAction (Writing can be done all the time)

Changing eponDeviceRMadlEntryStatus (Writing can be done all the time)

Changing eponDeviceSampleMinimum(Writing can be done all the time)

Changing eponDeviceDyingGaspAlarmEnabled (Writing can be done all the time)

Changing eponDeviceCriticalEventEnabled (Writing can be done all the time)

Changing eponDeviceLocalLinkFaultAlarmEnabled (Writing can be done all the time)

Changing eponDeviceTemperatureEventIndicationEnabled (Writing can be done all the time)

Changing eponDevicePowerVoltageEventIndicationEnabled (Writing can be done all the time)

Changing eponDeviceGlobalEventEnabled (Writing can be done all the time)

Changing eponDeviceErroredSymbolPeriodEventEnabled (Writing can be done all the time)

Changing eponDeviceErroredFrameEventEnabled (Writing can be done all the time)

Changing eponDeviceErroredFramePeriodEventEnabled (Writing can be done all the time)

Changing eponDeviceErroredFrameSecondsSummaryEventEnabled (Writing can be done all the time)

Changing eponDeviceOrganizationSpecificEventEnabled (Writing can be done all the time)

Changing eponDeviceEventControl (Writing can be done all the time)

Changing eponDeviceEventsLogID (Writing can be done all the time)

Changing eponDeviceEventsLogEntryStatus (Writing can be done all the time)

The user of this MIB module must therefore be aware that support for SET operations in a non-secure environment without proper protection

can have a negative effect on network operations.

The readable objects in this MIB module (i.e., those with MAX-ACCESS other than not-accessible) may be considered sensitive in some environments since, collectively, they provide information about the performance of network interfaces and can reveal some aspects of their configuration. In such environments it is important to control even GET and NOTIFY access to these objects and possibly even to encrypt their values when sending them over the network via SNMP.

SNMP versions prior to SNMPv3 did not include adequate security. Even if the network itself is secure (for example by using IPSec), even then, there is no control as to who on the secure network is allowed to access and GET/SET (read/change/create/delete) the objects in this MIB module.

It is RECOMMENDED that implementers consider the security features as provided by the SNMPv3 framework (see [RFC3410], section 8), including full support for the SNMPv3 cryptographic mechanisms (for authentication and privacy).

Further, deployment of SNMP versions prior to SNMPv3 is NOT RECOMMENDED. Instead, it is RECOMMENDED to deploy SNMPv3 and to enable cryptographic security. It is then a customer/operator responsibility to ensure that the SNMP entity giving access to an instance of this MIB module is properly configured to give access to the objects only to those principals (users) that have legitimate rights to indeed GET or SET (change/create/delete) them.

11. References

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