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**HMS HE Optics Management Information Base (MIB)
Part 1: SCTE-HMS-HE-OPTICAL TRANSMITTER-MIB**

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SCOPE

The MIB module is for representing general information about optical equipment present in the headend (or indoor) and is supported by an SNMP agent.

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NORMATIVE REFERENCE

IETF RFC2578, Structure of Management Information Version 2 (SMIv2)

IETF RFC2580, Conformance Statements for SMIv2

IETF RFC2737, Entity MIB (Version 2)

SCTE 38-11 (formerly HMS 114), Hybrid Management Sub-layer Management Information Base (MIB) Part 11: SCTE-HMS-HEADENDIDENT-MIB

SCTE 83-1 (formerly HMS 108), HMS Inside Plant Management Information Base (MIB) Part 1: SCTE-HMS-HE-OPTICS-MIB

IETF RFC2573, SNMP Applications

IETF RFC1907, Management Information Base for Version 2 of the Simple Network Management Protocol (SNMPv2)

ANSI/SCTE 38-1 2002 (formerly HMS 026), Hybrid Management Sublayer Management Information Blocks (MIB) Part 1: Property MIB

SCTE 84-1 (formerly HMS 111), HMS Common Inside Plant Management Information Base (MIB) Part 1: SCTE-HMS-HE-COMMON-MIB

INFORMATIVE REFERENCE

None

TERMS AND DEFINITIONS

This document defines the following terms:

Management Information Base (MIB) - the specification of information in a manner that allows standard access through a network management protocol.

REQUIREMENTS

This section defines the mandatory syntax of the SCTE-HMS-HE-OPTICAL-TRANSMITTER-MIB. It follows the IETF Simple Network Management Protocol (SNMP) for defining managed objects.

The syntax is given below:

```

-- Module Name: HMS112R10.MIB (SCTE 85-1)
-- SCTE Status: Adopted

SCTE-HMS-HE-OPTICAL-TRANSMITTER-MIB DEFINITIONS ::= BEGIN

IMPORTS
    Integer32, Unsigned32, MODULE-IDENTITY, OBJECT-TYPE
        FROM SNMPv2-SMI
    MODULE-COMPLIANCE, OBJECT-GROUP
        FROM SNMPv2-CONF
    entPhysicalIndex
        FROM ENTITY-MIB
    HeTenthCentigrade, HeTenthVolt, HeTenthdBm, HeHundredthNanoMeter,
    HeTenthdB, HeOnOffStatus, HeOnOffControl, HeLaserType
        FROM SCTE-HMS-HEADENDIDENT-MIB -- see SCTE 38-11 (formerly HMS114)
    heOpticalTransmitterGroup
        FROM SCTE-HMS-HE-OPTICS-MIB; -- see SCTE 83-1 (formerly HMS108)

heOpticalTransmitterMIB MODULE-IDENTITY
    LAST-UPDATED "200302170000Z" -- February 17, 2003
    ORGANIZATION "SCTE HMS Working Group"
    CONTACT-INFO
        " SCTE HMS Subcommittee, Chairman
        mailto:standards@scte.org
        "
    DESCRIPTION
        "The MIB module is for representing optical transmitters
        present in the headend (or indoor) and are supported by a
        SNMP agent."

    ::= { heOpticalTransmitterGroup 1 }

heOpTxMIBObjects OBJECT IDENTIFIER ::= { heOpticalTransmitterMIB 1 }

--      The Optical Transmitter Unit Table
heOpTxUnitTable OBJECT-TYPE
    SYNTAX SEQUENCE OF HeOpTxUnitEntry

```

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table containing information about headend (or indoor)
fiber optic transmitters. These transmitters could be plug-in
modules for a chassis, stand-alone pizza-box units etc."

::= { heOpTxMIBObjects 1 }

heOpTxUnitEntry OBJECT-TYPE

SYNTAX HeOpTxUnitEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Information about each Fiber Optic Transmitter in
the subsystem."

INDEX { entPhysicalIndex }

::= { heOpTxUnitTable 1 }

HeOpTxUnitEntry ::= SEQUENCE

```
{  
  heOpTxUnitOutputStatus  HeOnOffStatus,  
  heOpTxUnitOnOffControl  HeOnOffControl  
}
```

heOpTxUnitOutputStatus OBJECT-TYPE

SYNTAX HeOnOffStatus

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The output status of the transmitter.

If all the outputs of the transmitter are off then
the variable value shall be off(1), else the value
shall be on(2)."

::= { heOpTxUnitEntry 1 }

heOpTxUnitOnOffControl OBJECT-TYPE

SYNTAX HeOnOffControl

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This variable controls the output status of the transmitter.

Setting this variable to off(1) will cause all the transmitters outputs to be shut off.

Setting this variable to on(2) will cause all the transmitters outputs to be turned on.

Setting this variable to meaningless(3) will have no effect.

A GET request on this variable will always return the value meaningless(3).

A management application should query heOpTxUnitOutputStatus to get the output status of the transmitter."

::= { heOpTxUnitEntry 2 }

-- The Optical Transmitter Input Table

heOpTxInputTable OBJECT-TYPE

SYNTAX SEQUENCE OF HeOpTxInputEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table containing information related to RF Parameters in headend (or indoor) fiber optic transmitters. These transmitters could be plug-in modules for a chassis, stand-alone pizza-box units etc."

::= { heOpTxMIBObjects 2 }

heOpTxInputEntry OBJECT-TYPE

SYNTAX HeOpTxInputEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Information about each Fiber Optic Transmitter in the subsystem."

INDEX { entPhysicalIndex, heOpTxInputIndex }
::= { heOpTxInputTable 1 }

HeOpTxInputEntry ::= SEQUENCE {
 heOpTxInputIndex Unsigned32,
 heOpTxInputRFPower HeTenthdBm,
 heOpTxInputModulatorBias HeTenthVolt,
 heOpTxInputAGCMode HeOnOffStatus,
 heOpTxInputModulationMode INTEGER,
 heOpTxInputRFPadLevel HeTenthdB
}

heOpTxInputIndex OBJECT-TYPE

SYNTAX Unsigned32
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

"Index number corresponding to the RF Input for the transmitter unit."

::= { heOpTxInputEntry 1 }

heOpTxInputRFPower OBJECT-TYPE

SYNTAX HeTenthdBm
UNITS "0.1 dBm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"RF composite input power in 0.1 dBm."

::= { heOpTxInputEntry 2 }

heOpTxInputModulatorBias OBJECT-TYPE

SYNTAX HeTenthVolt
UNITS "0.1 Volt"
MAX-ACCESS read-only

STATUS current
DESCRIPTION
"Modulation Bias."
::= { heOpTxInputEntry 3 }

heOpTxInputAGCMode OBJECT-TYPE
SYNTAX HeOnOffStatus
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"Switches the transmitter Automatic Gain Control mode
of operation either off(1) or on(2)."
::= { heOpTxInputEntry 4 }

heOpTxInputModulationMode OBJECT-TYPE
SYNTAX INTEGER {
cw(1),
modulated(2)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"Transmitter modulation mode:
cw(1) for Continuous Wave, or
modulated(2) for Modulated."
::= { heOpTxInputEntry 5 }

heOpTxInputRFPadLevel OBJECT-TYPE
SYNTAX HeTenthdB
UNITS "0.1 dB"
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"RF Pad Attenuation Level."
::= { heOpTxInputEntry 6 }

-- The Optical Transmitter Laser Table

heOpTxLaserTable OBJECT-TYPE
SYNTAX SEQUENCE OF HeOpTxLaserEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "A table containing information about transmitter
 laser(s)."
 ::= { heOpTxMIBObjects 3 }

heOpTxLaserEntry OBJECT-TYPE
SYNTAX HeOpTxLaserEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "A list of information about each laser in
 the particular transmitter."
INDEX { entPhysicalIndex, heOpTxLaserIndex }
 ::= { heOpTxLaserTable 1 }

HeOpTxLaserEntry ::= SEQUENCE {
 heOpTxLaserIndex Unsigned32,
 heOpTxLaserTemp HeTenthCentigrade,
 heOpTxLaserBiasCurrent Integer32,
 heOpTxLaserOutputPower HeTenthdBm,
 heOpTxLaserTECCurrent Integer32,
 heOpTxLaserType HeLaserType,
 heOpTxLaserWavelength HeHundredthNanoMeter,
 heOpTxLaserOutputStatus HeOnOffStatus,
 heOpTxLaserOnOffControl HeOnOffControl
}

heOpTxLaserIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
 "An arbitrary value which uniquely identifies the laser."

::= { heOpTxLaserEntry 1 }

heOpTxLaserTemp OBJECT-TYPE

SYNTAX HeTenthCentigrade (-250..1000)

UNITS "0.1 degrees Celsius"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Temperature of the Transmitter Laser.

This object must provide for the alarm management capabilities with a corresponding entry in the propertyTable of SCTE-HMS-PROPERTY-MIB (HMS026).

An alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (HMS026).

A log record shall be added as an entry in the heCommonLogTable.

An heCommonAlarmEvent notification shall be sent."

::= { heOpTxLaserEntry 2 }

heOpTxLaserBiasCurrent OBJECT-TYPE

SYNTAX Integer32 (0..65535)

UNITS "milli Amperes"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Transmitter laser bias current.

This object must provide for the alarm management capabilities with a corresponding entry in the propertyTable of SCTE-HMS-PROPERTY-MIB (HMS026).

An alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (HMS026).

A log record shall be added as an entry in the heCommonLogTable.

An heCommonAlarmEvent notification shall be sent."

::= { heOpTxLaserEntry 3 }

heOpTxLaserOutputPower OBJECT-TYPE

SYNTAX HeTenthdBm

UNITS "0.1 dBm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The laser output power.

This object must provide for the alarm management capabilities with a corresponding entry in the propertyTable of SCTE-HMS-PROPERTY-MIB (HMS026).

An alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (HMS026).

A log record shall be added as an entry in the heCommonLogTable.

An heCommonAlarmEvent notification shall be sent."

::= { heOpTxLaserEntry 4 }

heOpTxLaserTECCurrent OBJECT-TYPE

SYNTAX Integer32

UNITS "milli Amperes"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Laser Thermo Electric Cooler current."

::= { heOpTxLaserEntry 5 }

heOpTxLaserType OBJECT-TYPE

SYNTAX HeLaserType

MAX-ACCESS read-only

STATUS current
DESCRIPTION
"Laser type."
::= { heOpTxLaserEntry 6 }

heOpTxLaserWavelength OBJECT-TYPE
SYNTAX HeHundredthNanoMeter
UNITS "0.01 nanometer"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The laser wavelength.
Typical value might be 155056 (1550.56 nm)."
::= { heOpTxLaserEntry 7 }

heOpTxLaserOutputStatus OBJECT-TYPE
SYNTAX HeOnOffStatus
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The laser output status.

The value is on(2), if the Laser output is operating
in normal condition

The value is off(1), if the laser is either forced to turn off
or shut due to an internal error.

This object must provide for the alarm management capabilities
with a corresponding entry in the discretePropertyTable of
SCTE-HMS-PROPERTY-MIB (HMS026).

An alarm shall be recorded as an entry in the currentAlarmTable
of SCTE-HMS-PROPERTY-MIB (HMS026).

A log record shall be added as an entry in the heCommonLogTable.

```

        An heCommonAlarmEvent notification shall be sent."
 ::= { heOpTxLaserEntry 8 }

heOpTxLaserOnOffControl OBJECT-TYPE
    SYNTAX      HeOnOffControl
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This variable controls the output status of the laser.

        Setting this variable to off(1) will cause the
        laser output to be shut off.

        Setting this variable to on(2) will cause the
        laser output to be turned on.

        Setting this variable to meaningless(3) will have no effect.

        A Get Request on this variable will always return the value
        meaningless(3).

        A management application should query heOpTxLaserOutputStatus
        to get the output status of the laser."
 ::= { heOpTxLaserEntry 9 }

-- Conformance information
heOpTxMIBConformance
    OBJECT IDENTIFIER ::= { heOpticalTransmitterMIB 2 }

heOpTxMIBCompliances
    OBJECT IDENTIFIER ::= { heOpTxMIBConformance 1 }

heOpTxMIBGroups
    OBJECT IDENTIFIER ::= { heOpTxMIBConformance 2 }

-- Compliance statements
heOpTxCompliance MODULE-COMPLIANCE

```

```

STATUS current
DESCRIPTION
    "The minimum compliance statement for indoor optical transmitters."
MODULE
    MANDATORY-GROUPS { heOpTxUnitMandatoryGroup,
                        heOpTxLaserMandatoryGroup
                      }
 ::= { heOpTxMIBCompliances 1 }

heOpTxUnitMandatoryGroup OBJECT-GROUP
OBJECTS {
    heOpTxUnitOutputStatus
}
STATUS current
DESCRIPTION
    "The main group defines objects which are common to all
    indoor optical transmitter modules."
 ::= { heOpTxMIBGroups 1 }

heOpTxLaserMandatoryGroup OBJECT-GROUP
OBJECTS {
    heOpTxLaserType,
    heOpTxLaserWavelength,
    heOpTxLaserOutputStatus
}
STATUS current
DESCRIPTION
    "The laser group defines laser objects which are common to all
    indoor optical transmitter modules."
 ::= { heOpTxMIBGroups 2 }

heOpTxUnitTableGroup OBJECT-GROUP
OBJECTS {
    heOpTxUnitOutputStatus,
    heOpTxUnitOnOffControl
}
STATUS current

```

DESCRIPTION

"The unit group defines objects which are defined
in the SCTE-HMS-HE-OPTICAL-TRANSMITTER-MIB MIB module."
::= { heOpTxMIBGroups 3 }

heOpTxInputTableGroup OBJECT-GROUP

OBJECTS {
 heOpTxInputRFPower,
 heOpTxInputModulatorBias,
 heOpTxInputAGCMode,
 heOpTxInputModulationMode,
 heOpTxInputRFPadLevel
}

STATUS current

DESCRIPTION

"The input group defines RF objects which are defined
in the SCTE-HMS-HE-OPTICAL-TRANSMITTER-MIB MIB module."
::= { heOpTxMIBGroups 4 }

heOpTxLaserTableGroup OBJECT-GROUP

OBJECTS {
 heOpTxLaserTemp,
 heOpTxLaserBiasCurrent,
 heOpTxLaserOutputPower,
 heOpTxLaserTECCurrent,
 heOpTxLaserType,
 heOpTxLaserWavelength,
 heOpTxLaserOutputStatus,
 heOpTxLaserOnOffControl
}

STATUS current

DESCRIPTION

"The laser group defines laser objects which are defined
in the SCTE-HMS-HE-OPTICAL-TRANSMITTER-MIB MIB module."
::= { heOpTxMIBGroups 5 }

END

