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S T A N D A R D S

Network Operations Subcommittee

AMERICAN NATIONAL STANDARD

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**HMS Inside Plant
Management Information Base (MIB)
SCTE-HMS-HE-OPTICAL-AMPLIFIER-MIB**

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1.0 SCOPE

This document provides MIB definitions for HMS optical amplifiers present in the headend (or indoor) and supported by a SNMP agent.

2.0 COPYRIGHT

The MIB definition found in this document may be incorporated directly in products without further permission from the copyright owner, SCTE.

3.0 NORMATIVE REFERENCES

IETF RFC 1907 SNMPv2-MIB

IETF RFC 2578 SNMPv2-SMI

IETF RFC 2579 SNMPv2-TC

IETF RFC 2580 SNMPv2-CONF

IETF RFC 2737 ENTITY-MIB

SCTE 36 SCTE-ROOT

SCTE 37 SCTE-HMS-ROOTS

SCTE 38-11 SCTE-HMS-HEADENDIDENT-MIB

4.0 INFORMATIVE REFERENCES

None

5.0 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.

6.0 REQUIREMENTS

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

The syntax is given below.

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

IMPORTS

MODULE-IDENTITY, OBJECT-TYPE, Unsigned32
FROM SNMPv2-SMI
MODULE-COMPLIANCE, OBJECT-GROUP
FROM SNMPv2-CONF
entPhysicalIndex
FROM ENTITY-MIB
HeOnOffStatus, HeOnOffControl, HeLaserType,
HeTenthCentigrade, HeTenthdB, HeTenthdBm, HeMilliAmp
FROM SCTE-HMS-HEADENDIDENT-MIB
heOpticalAmplifierGroup
FROM SCTE-HMS-HE-OPTICS-MIB;

heOpticalAmplifierMIB MODULE-IDENTITY

LAST-UPDATED "200312100000Z" -- December 10, 2003
ORGANIZATION "SCTE HMS Working Group"
CONTACT-INFO
"SCTE HMS Subcommittee, Chairman
mailto: standards@scte.org"

DESCRIPTION

"The MIB module is for representing optical amplifiers
present in the headend (or indoor) and are supported by a
SNMP agent."

::= { heOpticalAmplifierGroup 1 }

heOpAmpMIBObjects OBJECT IDENTIFIER ::= { heOpticalAmplifierMIB 1 }

-- The Optical Amplifier Unit Table

heOpAmpUnitTable OBJECT-TYPE

SYNTAX SEQUENCE OF HeOpAmpUnitEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

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

::= { heOpAmpMIBObjects 1 }

heOpAmpUnitEntry OBJECT-TYPE

SYNTAX HeOpAmpUnitEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

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

INDEX { entPhysicalIndex }

::= { heOpAmpUnitTable 1 }

HeOpAmpUnitEntry ::= SEQUENCE

{

```
heOpAmpUnitOutputStatus  HeOnOffStatus,  
heOpAmpUnitOnOffControl  HeOnOffControl  
}
```

```
heOpAmpUnitOutputStatus  OBJECT-TYPE  
SYNTAX  HeOnOffStatus  
MAX-ACCESS  read-only  
STATUS  current  
DESCRIPTION
```

"The output status of the amplifier.

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

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."

```
::= { heOpAmpUnitEntry 1 }
```

```
heOpAmpUnitOnOffControl  OBJECT-TYPE  
SYNTAX  HeOnOffControl  
MAX-ACCESS  read-write  
STATUS  current  
DESCRIPTION
```

"This variable controls the output status of the amplifier.

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

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

A value meaningless(3) will be implemented by the variables that represent a switch with write-only access. A GET request for the value of the write-only variable shall return a value meaningless(3).

A SET request with a value meaningless(3) for the variable with write access shall have no effect and no exception is generated.

A value may be used by the variables with both read-write and write-only access.

The variables with read-only access shall be defined with the textual convention HeOnOffStatus."

```

 ::= { heOpAmpUnitEntry 2 }

--      The Optical Amplifier Input Table
heOpAmpInputTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF HeOpAmpInputEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table containing information related to input Parameters
        in headend (or indoor) fiber optic amplifiers. These
        amplifiers could be plug-in modules for a chassis,
        stand-alone pizza-box units etc."
    ::= { heOpAmpMIBObjects 2 }

heOpAmpInputEntry OBJECT-TYPE
    SYNTAX      HeOpAmpInputEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Information about each Fiber Optic amplifier input in
        the subsystem."
    INDEX       { entPhysicalIndex, heOpAmpInputIndex }
    ::= { heOpAmpInputTable 1 }

HeOpAmpInputEntry ::= SEQUENCE
{
    heOpAmpInputIndex  Unsigned32,
    heOpAmpInputPower  HeTenthdBm
}

heOpAmpInputIndex OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An arbitrary value which uniquely identifies
        the amplifier input."
    ::= { heOpAmpInputEntry 1 }

heOpAmpInputPower OBJECT-TYPE
    SYNTAX      HeTenthdBm
    UNITS       "0.1 dBm"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Optical input 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."
::= { heOpAmpInputEntry 2 }

-- The Optical Amplifier Laser Table
heOpAmpLaserTable OBJECT-TYPE
SYNTAX SEQUENCE OF HeOpAmpLaserEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"A table containing information about amplifier laser(s)."
::= { heOpAmpMIBObjects 3 }

heOpAmpLaserEntry OBJECT-TYPE
SYNTAX HeOpAmpLaserEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"A list of information about each laser in
the particular amplifier."
INDEX { entPhysicalIndex, heOpAmpLaserIndex }
::= { heOpAmpLaserTable 1 }

HeOpAmpLaserEntry ::= SEQUENCE
{
heOpAmpLaserIndex Unsigned32,
heOpAmpLaserTemp HeTenthCentigrade,
heOpAmpLaserBiasCurrent HeMilliAmp,
heOpAmpLaserOutputPower HeTenthdBm,
heOpAmpLaserTECCurrent HeMilliAmp,
heOpAmpLaserType HeLaserType
}

heOpAmpLaserIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"An arbitrary value which uniquely identifies the laser."
::= { heOpAmpLaserEntry 1 }

heOpAmpLaserTemp OBJECT-TYPE
SYNTAX HeTenthCentigrade
UNITS "0.1 degrees Celsius"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Temperature of the amplifier 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."

::= { heOpAmpLaserEntry 2 }

heOpAmpLaserBiasCurrent OBJECT-TYPE

SYNTAX HeMilliAmp
UNITS "1.0 mA"
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"Amplifier laser bias current in mA.

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."

::= { heOpAmpLaserEntry 3 }

heOpAmpLaserOutputPower 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."

::= { heOpAmpLaserEntry 4 }

heOpAmpLaserTECCurrent OBJECT-TYPE

SYNTAX HeMilliAmp
UNITS "1.0 mA"
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"Laser Thermo Electric Cooler 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."

```
::= { heOpAmpLaserEntry 5 }
```

```
heOpAmpLaserType OBJECT-TYPE
```

```
SYNTAX      HeLaserType
```

```
MAX-ACCESS  read-only
```

```
STATUS      current
```

```
DESCRIPTION
```

```
"Laser type."
```

```
::= { heOpAmpLaserEntry 6 }
```

```
--      The Optical Amplifier Output Table
```

```
heOpAmpOutputTable OBJECT-TYPE
```

```
SYNTAX      SEQUENCE OF HeOpAmpOutputEntry
```

```
MAX-ACCESS  not-accessible
```

```
STATUS      current
```

```
DESCRIPTION
```

```
"A table containing information about amplifier's outputs."
```

```
::= { heOpAmpMIBObjects 4 }
```

```
heOpAmpOutputEntry OBJECT-TYPE
```

```
SYNTAX      HeOpAmpOutputEntry
```

```
MAX-ACCESS  not-accessible
```

```
STATUS      current
```

```
DESCRIPTION
```

```
"A list of information about each output in  
the particular amplifier."
```

```
INDEX { entPhysicalIndex, heOpAmpOutputIndex }
```

```
::= { heOpAmpOutputTable 1 }
```

```
HeOpAmpOutputEntry ::= SEQUENCE
```

```
{  
    heOpAmpOutputIndex      Unsigned32,  
    heOpAmpSetOpticalOutputPower HeTenthdBm,  
    heOpAmpGainPerWavelength HeTenthdB,  
    heOpAmpOutputPower      HeTenthdBm,  
    heOpAmpOutputGainType    INTEGER  
}
```

```
heOpAmpOutputIndex OBJECT-TYPE
```

```
SYNTAX      Unsigned32
```

```
MAX-ACCESS  not-accessible
```

```
STATUS      current
```

```
DESCRIPTION
```

```
"An arbitrary value which uniquely identifies the output."
```

::= { heOpAmpOutputEntry 1 }

heOpAmpSetOpticalOutputPower OBJECT-TYPE

SYNTAX HeTenthdBm

UNITS "0.1 dBm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Set Amplifier Optical Output Power. The setting of this value has no effect unless the heOpAmpOutputGainType is set to constantPower(1)"

::= { heOpAmpOutputEntry 2 }

heOpAmpGainPerWavelength OBJECT-TYPE

SYNTAX HeTenthdB

UNITS "0.1 dBm"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Controls constant gain per wavelength. The setting of this value has no effect unless the heOpAmpOutputGainType is set to constantGain(2)"

::= { heOpAmpOutputEntry 3 }

heOpAmpOutputPower OBJECT-TYPE

SYNTAX HeTenthdBm

UNITS "0.1 dBm"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The output power. This could be the power from a single output or the output power from each of multiple outputs.

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."

::= { heOpAmpOutputEntry 4 }

heOpAmpOutputGainType OBJECT-TYPE

SYNTAX INTEGER {

constantPower(1),

constantGain(2)

}

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Controls the output gain type, which is either constant

```

        power or constant gain. When constantGain is selected,
        the value of heOpAmpGainPerWavelength is used to control
        the output of the amplifier and heOpAmpSetOpticalOutputPower
        will have no effect. When constantPower is selected,
        heOpAmpSetOpticalOutputPower is used to control the output
        of the amplifier and heOpAmpGainPerWavelength will have no
        effect "
 ::= { heOpAmpOutputEntry 5 }

-- conformance information
heOpAmpMIBConformance
    OBJECT IDENTIFIER ::= { heOpticalAmplifierMIB 2 }

heOpAmpMIBCompliances
    OBJECT IDENTIFIER ::= { heOpAmpMIBConformance 1 }

heOpAmpMIBGroups
    OBJECT IDENTIFIER ::= { heOpAmpMIBConformance 2 }

-- compliance statements
heOpAmpCompliance MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION
        "The minimum compliance statement for indoor optical amplifiers."
    MODULE -- this module
        MANDATORY-GROUPS { heOpAmpUnitMandatoryGroup,
            heOpAmpInputMandatoryGroup,
            heOpAmpOutputMandatoryGroup
        }
    GROUP heOpAmpUnitTableGroup
    DESCRIPTION
        "this is an unconditionally optional group"
    GROUP heOpAmpInputTableGroup
    DESCRIPTION
        "this is an unconditionally optional group"
    GROUP heOpAmpLaserTableGroup
    DESCRIPTION
        "this is an unconditionally optional group"
    GROUP heOpAmpOutputTableGroup
    DESCRIPTION
        "this is an unconditionally optional group"
 ::= { heOpAmpMIBCompliances 1 }

heOpAmpUnitMandatoryGroup OBJECT-GROUP
    OBJECTS {
        heOpAmpUnitOutputStatus
    }
    STATUS current
    DESCRIPTION
        "The main group defines objects which are common to all
        indoor optical amplifier modules."
 ::= { heOpAmpMIBGroups 1 }

heOpAmpInputMandatoryGroup OBJECT-GROUP
    OBJECTS {

```

```

        heOpAmpInputPower
    }
STATUS current
DESCRIPTION
    "The input group defines objects which are common to all
    indoor optical amplifier modules."
::= { heOpAmpMIBGroups 2 }

heOpAmpOutputMandatoryGroup OBJECT-GROUP
OBJECTS {
    heOpAmpOutputPower
}
STATUS current
DESCRIPTION
    "The output group defines objects which are common to all
    indoor optical amplifier modules."
::= { heOpAmpMIBGroups 3 }

heOpAmpUnitTableGroup OBJECT-GROUP
OBJECTS {
    heOpAmpUnitOutputStatus,
    heOpAmpUnitOnOffControl
}
STATUS current
DESCRIPTION
    "The unit group defines objects which are defined
    in the SCTE-HMS-HE-OPTICAL-amplifier-MIB MIB module."
::= { heOpAmpMIBGroups 4 }

heOpAmpInputTableGroup OBJECT-GROUP
OBJECTS {
    heOpAmpInputPower
}
STATUS current
DESCRIPTION
    "The input group defines optical objects which are defined
    in the SCTE-HMS-HE-OPTICAL-amplifier-MIB MIB module."
::= { heOpAmpMIBGroups 5 }

heOpAmpLaserTableGroup OBJECT-GROUP
OBJECTS {
    heOpAmpLaserTemp,
    heOpAmpLaserBiasCurrent,
    heOpAmpLaserOutputPower,
    heOpAmpLaserTECCurrent,
    heOpAmpLaserType
}
STATUS current
DESCRIPTION
    "The laser group defines laser objects which are defined
    in the SCTE-HMS-HE-OPTICAL-amplifier-MIB MIB module."
::= { heOpAmpMIBGroups 6 }

heOpAmpOutputTableGroup OBJECT-GROUP
OBJECTS {

```

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```
    heOpAmpSetOpticalOutputPower,  
    heOpAmpGainPerWavelength,  
    heOpAmpOutputPower,  
    heOpAmpOutputGainType  
}
```

STATUS current

DESCRIPTION

"The output group defines amplifier output objects which are defined
in the SCTE-HMS-HE-OPTICAL-amplifier-MIB MIB module."

::= { heOpAmpMIBGroups 7 }

END