

# **SCTE** | **STANDARDS**

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**Network Operations Subcommittee**

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**AMERICAN NATIONAL STANDARD**

**ANSI/SCTE 85-3 2017 (R2022)**

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

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## 1.0 DOCUMENT TYPES AND TAGS

Document Type: Specification

Document Tags:

- |   |                                    |  |
|---|------------------------------------|--|
| <input type="checkbox"/> Test or Measurement          | <input type="checkbox"/> Checklist | <input type="checkbox"/> Facility                  |
| <input type="checkbox"/> Architecture or Framework    | <input type="checkbox"/> Metric    | <input checked="" type="checkbox"/> Access Network |
| <input type="checkbox"/> Procedure, Process or Method | <input type="checkbox"/> Cloud     | <input type="checkbox"/> Customer Premises         |

## 2.0 DOCUMENT RELEASE HISTORY

<b>Release</b>	<b>Date</b>
SCTE 85-3 2003	<i>05/09/2003</i>
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Note: Standards that are released multiple times in the same year use: a, b, c, etc. to indicate normative balloted updates and/or r1, r2, r3, etc. to indicate editorial changes to a released document after the year.

Note: This document is a reaffirmation of SCTE 85-3 2017. No substantive changes have been made to this document. Information components may have been updated such as the title page, NOTICE text, headers, and footers.

## TABLE OF CONTENTS

1.0	SCOPE .....	5
2.0	COPYRIGHT .....	5
3.0	NORMATIVE REFERENCES .....	5
4.0	INFORMATIVE REFERENCES .....	5
5.0	TERMS AND DEFINITIONS.....	5
6.0	REQUIREMENTS.....	5

### **3.0 SCOPE**

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

### **4.0 COPYRIGHT**

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

### **5.0 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

### **6.0 INFORMATIVE REFERENCES**

None

### **7.0 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.

### **8.0 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,

SCTE 85-3 2017 (R2022)

```
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 }

SCTE 85-3 2017 (R2022)

-- 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."

SCTE 85-3 2017 (R2022)

::= { 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

SCTE 85-3 2017 (R2022)

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

SCTE 85-3 2017 (R2022)

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 "

SCTE 85-3 2017 (R2022)

```
 ::= { 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 {
    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."
```

SCTE 85-3 2017 (R2022)

```
 ::= { heOpAmpMIBGroups 7 }  
END
```