

SCTE | **STANDARDS**

Network Operations Subcommittee

AMERICAN NATIONAL STANDARD

ANSI/SCTE 113 2017 (R2022)

**HMS Digital Transport
Management Information Base
SCTE-HMS-HE-DIG-TRANSPORT-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

Release	Date
SCTE 113 2005	12/16/2005
SCTE 113 2011	1/10/2011
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SCTE 113 2017 (R2022)	August 2022

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 113 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 SCOPE5

2.0 NORMATIVE REFERENCES5

3.0 INFORMATIVE REFERENCES.....5

4.0 COMPLIANCE NOTATION.....5

5.0 DEFINITIONS AND ACRONYMS6

6.0 REQUIREMENTS.....6

3.0 SCOPE

This document is identical to SCTE 113 2006 except for informative components which may have been updated such as the title page, NOTICE text, headers and footers. No normative changes have been made to this document.

This document provides MIB definitions for HMS Digital Transport equipments present in the headend (or indoor) and is supported by a SNMP agent.

4.0 NORMATIVE REFERENCES

The following documents contain provisions, which, through reference in this text, constitute provisions of this standard. At the time of subcommittee approval, the editions indicated were valid. All standards are subject to revision, and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent editions of the documents listed below.

4.1 SCTE References

SCTE 38-11 2004 (formerly HMS114) SCTE-HMS-HEADENDIDENT-MIB
SCTE 83-1 2003 (formerly HMS108) SCTE-HMS-HE-OPTICS-MIB
SCTE 38-1 2004 (formerly HMS026) SCTE-HMS-PROPERTY-MIB
SCTE 84-1 2003 (formerly HMS111) SCTE-HMS-HE-COMMON-MIB

4.2 Standards from other Organizations

IETF RFC 2578 SNMPv2-SMI
IETF RFC 2579 SNMPv2-TC
IETF RFC 2580 SNMPv2-CONF
IETF RFC 2737 ENTITY-MIB
ITU-T G.652 Characteristics of a single-mode optical fibre and cable (06/05)
ITU-T G.655 Characteristics of a non-zero dispersion-shifted single-mode optical fibre and cable (03/06)

5.0 INFORMATIVE REFERENCES

The following documents may provide valuable information to the reader but are not required when complying with this standard.

None

6.0 COMPLIANCE NOTATION

“SHALL”	This word or the adjective “REQUIRED” means that the item is an absolute requirement of this specification.
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“SHALL NOT”	This phrase means that the item is an absolute prohibition of this specification.
“SHOULD”	This word or the adjective “RECOMMENDED” means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighed before choosing a different course.
“SHOULD NOT”	This phrase means that there may exist valid reasons in particular circumstances when the listed behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
“MAY”	This word or the adjective “OPTIONAL” means that this item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because it enhances the product, for example; another vendor may omit the same item.

7.0 DEFINITIONS AND ACRONYMS

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

8.0 REQUIREMENTS

The following defines the mandatory syntax of the SCTE-HMS-HE-DIG-TRANSPORT-MIB. It follows the IETF Simple Network Management Protocol (SNMP) for defining managed objects. The syntax is given below.

```
SCTE-HMS-HE-DIG-TRANSPORT-MIB DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
  OBJECT-TYPE, MODULE-IDENTITY, Integer32,
  Unsigned32
    FROM SNMPv2-SMI
  OBJECT-GROUP, MODULE-COMPLIANCE
    FROM SNMPv2-CONF
  TEXTUAL-CONVENTION
    FROM SNMPv2-TC
  entPhysicalIndex
    FROM ENTITY-MIB
  HeHundredthNanoMeter, HeMilliAmp, HeTenthCentigrade,
  HeTenthdBm, HeFaultStatus
    FROM SCTE-HMS-HEADENDIDENT-MIB
  heOpticalTransportGroup
    FROM SCTE-HMS-HE-OPTICS-MIB
  heCommonNotificationsGroup, heCommonLogGroup
    FROM SCTE-HMS-HE-COMMON-MIB;
```

```
heDigXcvrMib MODULE-IDENTITY
  LAST-UPDATED "200607210900Z"
  ORGANIZATION
    "SCTE HMS Working Group"
```

CONTACT-INFO

"SCTE HMS Subcommittee, Chairman
mail to: standards@scte.org "

DESCRIPTION

"The parameters in this MIB module are applicable to the 'line side' interface of digital transport equipment such as a 10GbE aggregator. This MIB module does not address the 'client side' interfaces that have port speeds lower than 10Gbps.

The parameters defined in this MIB module primarily address the physical layer attributes of the device's external interfaces. This MIB does not address the parameters associated with the internal intelligence of the device such as OSI Layer 2 or Layer 3 switching/routing functionality. This is left to the appropriate standard (IETF) MIBs that might already exist. This MIB module does enforce the parameter representation structure, including depicting alarm states, as defined in SCTE-HMS-HE-COMMON-MIB (SCTE84-1). The heCommonAlarmEvent notification mentioned in this MIB module is defined in SCTE-HMS-HE-COMMON-MIB. Refer to SCTE-HMS-HE-COMMON-MIB for other compliance statements.

For each digital transceiver unit the entPhysicalDescr (defined in the ENTITY-MIB) may contain the XFP hardware interface description. The entPhysicalDescr may also contain the wavelength description. The wavelength description includes information such as the type of WDM or C/DWDM and dispersion compensation."

REVISION "200607210900Z"

DESCRIPTION

"1. Syntax Corrections.
2. Fixed IMPORTS and Compliance Statements."

::= { heOpticalTransportGroup 1 }

HeEnableValue ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"enable(1) or disable(2)."

SYNTAX INTEGER {

enable (1),

disable (2)

}

-- Textual Conventions

heDigXcvrMIBObjects OBJECT IDENTIFIER ::= { heDigXcvrMib 1 }

-- Conformance Information

heDigXcvrConformance OBJECT IDENTIFIER ::= { heDigXcvrMib 2 }

heDigXcvrCompliances OBJECT IDENTIFIER ::= { heDigXcvrConformance 1 }

heDigXcvrGroups OBJECT IDENTIFIER ::= { heDigXcvrConformance 2 }

-- The Unit table

heDigXcvrUnitTable OBJECT-TYPE

SYNTAX SEQUENCE OF HeDigXcvrUnitEntry

MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

"This table contains one row per digital transceiver unit. The table extends the entPhysicalTable with the attributes pertinent to the digital transceiver unit."

::= { heDigXcvrMIBObjects 1 }

heDigXcvrUnitEntry OBJECT-TYPE
 SYNTAX HeDigXcvrUnitEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

"An entry in the Unit Table contains information about the unit."

INDEX { entPhysicalIndex }
 ::= { heDigXcvrUnitTable 1 }

HeDigXcvrUnitEntry ::= SEQUENCE {
 heDigXcvrUnitCompositeAlarm
 HeFaultStatus,
 heDigXcvrUnitType
 INTEGER
 }

heDigXcvrUnitCompositeAlarm OBJECT-TYPE

SYNTAX HeFaultStatus
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION

"System composite alarm. A SNMP Get request on this variable shall return normal(1) if there are no alarms currently active on the unit and fault(2) otherwise.

This object shall provide for the alarm management capabilities with a corresponding entry in the discretePropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."

::= { heDigXcvrUnitEntry 1 }

heDigXcvrUnitType OBJECT-TYPE

SYNTAX INTEGER {
 xcvr (1),
 tx (2),
 rx (3)
 }

MAX-ACCESS read-only
 STATUS current
 DESCRIPTION

"The unit type. A SNMP Get request on this variable indicates the capabilities of the device.

xcvr(1) indicates Transceiver capabilities.
 tx(2) indicates Transmitter capabilities.
 rx(3) indicates Receiver capabilities.
 "

::= { heDigXcvrUnitEntry 2 }

-- The Transceiver table

heDigXcvrTable OBJECT-TYPE

SYNTAX SEQUENCE OF HeDigXcvrEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table contains one row for each port. The table extends the entPhysicalTable with the attributes pertinent to each port."

::= { heDigXcvrMIBObjects 2 }

heDigXcvrEntry OBJECT-TYPE

SYNTAX HeDigXcvrEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the Transceiver Table contains information about a particular transceiver."

INDEX { entPhysicalIndex }

::= { heDigXcvrTable 1 }

HeDigXcvrEntry ::= SEQUENCE {

heDigXcvrLsPOWALM

HeFaultStatus,

heDigXcvrLsPOWACT

HeTenthdBm,

heDigXcvrTEMPALM

HeFaultStatus,

heDigXcvrLsTEMPACT

HeTenthCentigrade,

heDigXcvrLsBIASALM

HeFaultStatus,

heDigXcvrLsBIASACT

HeMilliAmp,

heDigXcvrLsWAVEACT

HeHundredthNanoMeter,

heDigXcvrLsWaveNom

HeHundredthNanoMeter,

heDigXcvrFreqSpacingNom

HeHundredthNanoMeter,

heDigXcvrLsENABLE

HeEnableValue,

heDigXcvrLsENABLEStatus

HeEnableValue,

heDigXcvrRxPOWALM

HeFaultStatus,

heDigXcvrRxPOWACT

HeTenthdBm,

heDigXcvrTxLOCKERR

HeFaultStatus,

```

heDigXcvrRxLOCKERR
    HeFaultStatus,
heDigXcvrRxLOSALM
    HeFaultStatus,
heDigXcvrDataErrorALM
    HeFaultStatus,
heDigXcvrDispTolPos
    Unsigned32,
heDigXcvrDispTolNeg
    Integer32
}

```

heDigXcvrLsPOWALM OBJECT-TYPE

```

SYNTAX  HeFaultStatus
MAX-ACCESS read-only
STATUS  current
DESCRIPTION

```

"A discrete alarm indicating loss of laser power.

This object shall provide for the alarm management capabilities with a corresponding entry in the discretePropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."

```
 ::= { heDigXcvrEntry 1 }
```

heDigXcvrLsPOWACT OBJECT-TYPE

```

SYNTAX  HeTenthdBm
MAX-ACCESS read-only
STATUS  current
DESCRIPTION

```

"Output power of the transmitter on a particular port.

This object shall provide for the alarm management capabilities with a corresponding entry in the PropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."

```
 ::= { heDigXcvrEntry 2 }
```

heDigXcvrTEMPALM OBJECT-TYPE

```

SYNTAX  HeFaultStatus
MAX-ACCESS read-only
STATUS  current

```

DESCRIPTION

"A discrete alarm depicting abnormal temperature of the transceiver.

This object shall provide for the alarm management capabilities with a corresponding entry in the discretePropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."

::= { heDigXcvrEntry 3 }

heDigXcvrLsTEMPACT OBJECT-TYPE

SYNTAX HeTenthCentigrade

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A Get Request on the variable shall return the value of laser temperature.

This object shall provide for the alarm management capabilities with a corresponding entry in the PropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent"

::= { heDigXcvrEntry 4 }

heDigXcvrLsBIASALM OBJECT-TYPE

SYNTAX HeFaultStatus

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A laser bias alarm.

This object shall provide for the alarm management capabilities with a corresponding entry in the discretePropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."

::= { heDigXcvrEntry 5 }

heDigXcvrLsBIASACT OBJECT-TYPE

SYNTAX HeMilliAmp

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A Get Request on the variable shall return the value of laser bias.

This object shall provide for the alarm management capabilities with a corresponding entry in the PropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."

::= { heDigXcvrEntry 6 }

heDigXcvrLsWAVEACT OBJECT-TYPE

SYNTAX HeHundredthNanoMeter

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Actual laser wavelength for the transmitter.

The wavelength offset can be derived from heDigXcvrLsWAVEACT and heDigXcvrLsWAVENom.

This object shall provide for the alarm management capabilities with a corresponding entry in the PropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."

::= { heDigXcvrEntry 7 }

heDigXcvrLsWaveNom OBJECT-TYPE

SYNTAX HeHundredthNanoMeter

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"A laser nominal wavelength for the transmitter.

This value is writable for tunable lasers.

The wavelength offset can be derived from heDigXcvrLsWAVEACT and heDigXcvrLsWAVENom.

"

::= { heDigXcvrEntry 8 }

heDigXcvrFreqSpacingNom OBJECT-TYPE
SYNTAX HeHundredthNanoMeter
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The expected or factory initialized line-width/frequency
 spacing for the transmitter."
 ::= { heDigXcvrEntry 9 }

heDigXcvrLsENABLE OBJECT-TYPE
SYNTAX HeEnableValue
MAX-ACCESS read-write
STATUS current
DESCRIPTION
 "Laser enable/disable command."
 ::= { heDigXcvrEntry 10 }

heDigXcvrLsENABLEStatus OBJECT-TYPE
SYNTAX HeEnableValue
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "A Get Request on the variable shall return the state of the laser
 (enabled/disabled).

 This object shall provide for the alarm management capabilities
 with a corresponding entry in the discretePropertyTable of
 SCTE-HMS-PROPERTY-MIB (SCTE38-1).

 The alarm shall be recorded as an entry in the currentAlarmTable
 of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

 A log record shall be added as an entry in the heCommonLogTable
 of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

 An heCommonAlarmEvent notification shall be sent."
 ::= { heDigXcvrEntry 11 }

heDigXcvrRxPOWALM OBJECT-TYPE
SYNTAX HeFaultStatus
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "A receiver power alarm.

 This object shall provide for the alarm management capabilities
 with a corresponding entry in the discretePropertyTable of
 SCTE-HMS-PROPERTY-MIB (SCTE38-1).

 The alarm shall be recorded as an entry in the currentAlarmTable
 of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

 A log record shall be added as an entry in the heCommonLogTable
 of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."
::= { heDigXcvrEntry 12 }

heDigXcvrRxPOWACT OBJECT-TYPE

SYNTAX HeTenthdBm

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A Get Request on the variable shall return the value of received optical power.

This object shall provide for the alarm management capabilities with a corresponding entry in the PropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."
::= { heDigXcvrEntry 13 }

heDigXcvrTxLOCKERR OBJECT-TYPE

SYNTAX HeFaultStatus

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A loss of lock on MUX alarm on the transmitter portion.

This object shall provide for the alarm management capabilities with a corresponding entry in the discretePropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."
::= { heDigXcvrEntry 14 }

heDigXcvrRxLOCKERR OBJECT-TYPE

SYNTAX HeFaultStatus

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A loss of lock on DMUX alarm on the receiver portion.

This object shall provide for the alarm management capabilities with a corresponding entry in the discretePropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable

of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."

::= { heDigXcvrEntry 15 }

heDigXcvrRxLOSALM OBJECT-TYPE

SYNTAX HeFaultStatus

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A loss of signal alarm on the receiver portion.

This object shall provide for the alarm management capabilities with a corresponding entry in the discretePropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."

::= { heDigXcvrEntry 16 }

heDigXcvrDataErrorALM OBJECT-TYPE

SYNTAX HeFaultStatus

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"A data alarm on the receiver portion of the transceiver.

This object shall provide for the alarm management capabilities with a corresponding entry in the discretePropertyTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

The alarm shall be recorded as an entry in the currentAlarmTable of SCTE-HMS-PROPERTY-MIB (SCTE38-1).

A log record shall be added as an entry in the heCommonLogTable of SCTE-HMS-HE-COMMON-MIB (SCTE84-1).

An heCommonAlarmEvent notification shall be sent."

::= { heDigXcvrEntry 17 }

heDigXcvrDispTolPos OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

" The transmitter positive chromatic dispersion tolerance. The amount of positive chromatic dispersion, measured in ps/nm, that will cause the minimum received power to degrade by 2 dB. This is a positive value to represent

```

        propagation through standard single mode fiber (ITU-T G.652) at the lasing
        wavelength of the transmitter."
 ::= { heDigXcvrEntry 18 }

```

```

heDigXcvrDispTolNeg OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    " The transmitter negative chromatic dispersion tolerance. The amount of
    negative chromatic dispersion, measured in ps/nm, that will cause the minimum
    received power to degrade by 2 dB. This is a negative value to represent
    propagation through an over-compensated link, or through fiber with negative
    dispersion (ITU-T G.655 NZD-)."
 ::= { heDigXcvrEntry 19 }

```

```

heDigXcvrCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION
    "The minimum compliance statement for digital transceivers."
MODULE
MANDATORY-GROUPS { heDigTransmitterMandatoryGroup,
                    heDigReceiverMandatoryGroup }
GROUP heDigTransmitterGroup
DESCRIPTION
    "The heDigTransmitterGroup is unconditionally optional."
GROUP heDigReceiverGroup
DESCRIPTION
    "The heDigReceiverGroup is unconditionally optional."
GROUP heDigXcvrUnitGroup
DESCRIPTION
    "The heDigXcvrUnitGroup is unconditionally optional."
MODULE SCTE-HMS-HE-COMMON-MIB
MANDATORY-GROUPS { heCommonLogGroup,
                    heCommonNotificationsGroup }
 ::= { heDigXcvrCompliances 1 }

```

```
-- This module MIB groupings
```

```

heDigXcvrUnitGroup OBJECT-GROUP
OBJECTS { heDigXcvrUnitCompositeAlarm,
          heDigXcvrUnitType }
STATUS current
DESCRIPTION
    "The collection of objects which are used to represent the system parameters."
 ::= { heDigXcvrGroups 1 }

```

```

heDigTransmitterGroup OBJECT-GROUP
OBJECTS { heDigXcvrDataErrorALM,
          heDigXcvrFreqSpacingNom,
          heDigXcvrLsBIASACT,
          heDigXcvrLsBIASALM,
          heDigXcvrLsENABLE,
          heDigXcvrLsENABLEStatus,
          heDigXcvrLsPOWACT,
          heDigXcvrLsPOWALM,

```



```

        heDigXcvrLsTEMPACT,
        heDigXcvrLsWAVEACT,
        heDigXcvrLsWaveNom,
        heDigXcvrTEMPALM,
        heDigXcvrTxLOCKERR,
        heDigXcvrDispTolPos,
        heDigXcvrDispTolNeg }
STATUS    current
DESCRIPTION
    "The collection of objects which are used to represent the transmitter parameters."
 ::= { heDigXcvrGroups 2 }

heDigReceiverGroup OBJECT-GROUP
OBJECTS { heDigXcvrRxLOCKERR,
          heDigXcvrRxLOSALM,
          heDigXcvrRxPOWACT,
          heDigXcvrRxPOWALM }
STATUS    current
DESCRIPTION
    "The collection of objects which are used to represent the receiver parameters."
 ::= { heDigXcvrGroups 3 }

heDigTransmitterMandatoryGroup OBJECT-GROUP
OBJECTS { heDigXcvrFreqSpacingNom,
          heDigXcvrLsBIASALM,
          heDigXcvrLsENABLE,
          heDigXcvrLsPOWALM,
          heDigXcvrLsWaveNom }
STATUS    current
DESCRIPTION
    "The collection of mandatory objects which are used to represent the transmitter parameters.
    These parameters shall be supported if the unit has transmitter or a transceiver
    capabilities on the line side interface (e.g. 10GbE port)."
 ::= { heDigXcvrGroups 4 }

heDigReceiverMandatoryGroup OBJECT-GROUP
OBJECTS { heDigXcvrRxPOWALM }
STATUS    current
DESCRIPTION
    "The collection of mandatory objects which are used to represent the receiver parameters.
    These parameters shall be supported if the unit has receiver capabilities on
    the line side interface (e.g. 10GbE port)."
 ::= { heDigXcvrGroups 5 }
END

```