SCTE·ISBE STANDARDS

Network Operations Subcommittee

AMERICAN NATIONAL STANDARD

ANSI/SCTE 113 2017

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

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1.0   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.

2.0   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.

2.1   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

2.2   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)

3.0   INFORMATIVE REFERENCES

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

None

4.0   COMPLIANCE NOTATION

"SHALL"	This word or the adjective "REQUIRED" means that the item is an

	absolute requirement of this specification.
"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 weighted 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.

5.0   DEFINITIONS AND ACRONYMS

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

6.0   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 containsinformation 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
```