# SCTE·ISBE STANDARDS

**Network Operations Subcommittee**

AMERICAN NATIONAL STANDARD

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**SCTE-HMS-HEADENDIDENT TEXTUAL CONVENTIONS MIB**

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**SCOPE**
<span style="color:red">This document is identical to SCTE 154-5 2009 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.</span>

This document provides the branch object identifiers for each of the MIBs within the SCTE HMS DIGITAL VIDEO MIB's (DVM) in the heDigital branch of the SCTE mibs. The SCTE HMS HEADENDIDENT-TC mib provides standard common mib text syntax for all HMS devices.

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**NORMATIVE REFERENCE**
IETF RFC 2578 SNMPv2-SMI
IETF RFC 2579 SNMPv2-TC
IETF RFC 2580 SNMPv2-CONF

**INFORMATIVE REFERENCE**
None

**TERMS AND DEFINITIONS**

**TEXTUAL CONVENTIONS -** Textual Conventions are a guide to standard structures used in SCTE HMS mib files. Text formats and uniform definitions are found in this file.
**Management Information Base (MIB)** – the specification of information in a manner that allows standard access through a network management protocol, specifically SNMP.
**Network Timing Protocol(NTP)** – NTP is a protocol designed to synchronize the clocks of computers over a network. NTP version 3 is an internet draft standard, formalized in RFC 1305. NTP version 4 is a significant revision of the NTP standard, and is the current development version, but has not been formalized in an RFC. Simple NTP (SNTP) version 4 is described in RFC 2030.
**Packet Identifier (PID)** – **-** Packet identifier; a unique 13-bit value used to identify the type of data stored in the packet payload (see ITU-T H.222.0 / ISO/IEC 13818-1).
**Quadrature Amplitude Modulation (QAM)** – The modulation scheme which conveys data by changing (*modulating*) the amplitude of two carrier waves. These two waves are out of phase with each other by 90 degrees and are thus called quadrature carriers.

**REQUIREMENTS**
This section defines the mandatory syntax of the *SCTE-HMS-HEADENDIDENT-TC-MIB*. It follows the IETF Simple Network Management Protocol (SNMP) for defining managed objects. This mib falls under the SCTE-HMS-ROOTS mib defined by the SCTE Standards HMS Subcommittee.

To avoid issues related to device security and possible user contention, this MIB is only read-only. Device manufacturers are expected to provide device provisioning and control as a separate "out of band" service via protocols of their choice.

The syntax is given below.

```
SCTE-HMS-HEADENDIDENT-TC-MIB DEFINITIONS ::= BEGIN

IMPORTS
      MODULE-IDENTITY, enterprises, Integer32, Unsigned32
            FROM SNMPv2-SMI
      TEXTUAL-CONVENTION
            FROM SNMPv2-TC;


hmsTextualConventionMIB MODULE-IDENTITY
    LAST-UPDATED    "200807231300Z"
    ORGANIZATION    "SCTE HMS Working Group"
    CONTACT-INFO    "SCTE HMS Subcommittee, Chairman
                      mail to:  standards@scte.org "


    DESCRIPTION
            "The MIB module is for representing general information
            about HeadEnd Digital equipment present(or indoor)
            and is supported by an SNMP agent."


    REVISION "200807231300Z"
    DESCRIPTION "Changed enumeration for QAMChannelInterleaveMode."


    REVISION "200807121300Z"
    DESCRIPTION
        "Modifications due to Comment Resolution Phase 2
            1. Un-Commented out HeAlarmControl, HeTrapRegenerate to add Alarm
Processing
            back into the HMS-154 mib files.
            2. Added support for Alarm Processing.
            3. Removed enumerations that were not used under the heDigital tree
(heLaserType).
            4. Modified QAMChannelModulationFormat.
            5. Removed Display String from IMPORTS
            6. Removed HeLaserType
            7. Added enumeration QAMChannelInterleaveMode"



    REVISION "200801161300Z"
    DESCRIPTION
        "Modifications due to Comment Resolution Meeting
            1. Commented out HeAlarmControl, HeTrapRegenerate,
HeDigitalRedundancyStatus
            per Comment Resolution meeting for formal release of the Mib File.
            2. Added comments to HeDigitalAlarmSeverity and HeDigitalAlarmType
that they
            are not used per Comment Resolution meeting for formal release of the
Mib File,
            and commented out the enumerations so no-one uses them until they are
needed in
            case they will have to change.
            3. Added the enumeration other to HeDigitalAlarmType so it would be
universal."


    REVISION "200712170000Z"
    DESCRIPTION
        "Modifications due to voting comments
            1. Changed syntax errors for capitalized words.
```

```
        2. Changed mib to have the -MIB extention"

    ::= { enterprises scteRoot(5591) scteHmsTree (1) insidePlantIdent (11)
          heDigital (5) 1 }

VideoInputFrameRateType  ::= TEXTUAL-CONVENTION
     STATUS     current
     DESCRIPTION
     " This value defines the types of MPEG Video Input Frame Rate that is
     supported by QAM devices."
     SYNTAX     INTEGER {
          other (1),
          autoSelect (2),
          f24Hz (3),
          f25Hz (4),
          f29Hz97 (5),
          f30Hz (6),
          f29or30Hz (7),
          f48Hz (8),
          f50Hz (9),
          f59Hz94 (10),
          f60Hz (11),
          f59or60Hz (12)    }

QAMChannelModulationFormat  ::= TEXTUAL-CONVENTION
     STATUS     current
     DESCRIPTION
     " This value defines the types of QAM Channel Modulation that is
     supported by QAM devices."
     SYNTAX     INTEGER {
          unknown(1),
          other(2),
          qam64(3),
          qam256(4),
          qam128(5),
          qam512 (6),
          qam1024 (7)
     }

QAMChannelInterleaveMode  ::= TEXTUAL-CONVENTION
     STATUS     current
     DESCRIPTION
     " This value defines the types of QAM Interleave Mode
     which follows the value of docsIfDownChannelInterleave. This
     value is supported by HMS QAM devices."
     SYNTAX     INTEGER {
          unknown(1),
          other(2),
          fecI8J16(3),
          fecI16J8(4),
          fecI32J4(5),
          fecI64J2(6),
          fecI128J1(7),
          fecI12J17(8)
          fecI128J2(9),
          fecI128J3(10),
          fecI128J4(11),
```

```
            fecI128J5(12),
            fecI128J6(13),
            fecI128J7(14),
            fecI128J8(15)
        }


ProgDataType   ::= TEXTUAL-CONVENTION
        STATUS      current
        DESCRIPTION
        "This value defines the types of data that can be contained in
        Programs and program streams."
        SYNTAX      INTEGER {
            video (1),
            audio (2),
            data (3),
            other(4)
        }

DeviceEnableDisableValues ::= TEXTUAL-CONVENTION
        STATUS      current
        DESCRIPTION
            "This data type represents whether the object is disabled(1) or
            enabled(2), or the object is not supported (3) by the current
          configuration or this device's hardware."
        SYNTAX  INTEGER {
            disabled (1),
            enabled (2),
            notSupported(3)
        }


MpegErrorStatus ::= TEXTUAL-CONVENTION
        STATUS      current
        DESCRIPTION
            "This data type represents whether the object is good(1) or has
            errors(2), or the object is not supported (3) by the current
          configuration or this device's hardware."
        SYNTAX  INTEGER {
            good (1),
            errors (2),
            notSupported(3)
        }

HePIDValue ::= TEXTUAL-CONVENTION
        DISPLAY-HINT "d"
        STATUS current
        DESCRIPTION
            "This data type represents a packet identifier (PID)
          value which ranges from 0 to (2^13 - 1). The value of
          65535 indicates that either the PID is invalid or does
          not exist."
        SYNTAX Unsigned32 (0..8191 | 65535)

HeClockSource ::= TEXTUAL-CONVENTION
    STATUS        current
    DESCRIPTION
```

```
                "An enumerated value that provides the location where the
                value for the clock on the module is coming from.
                internal - this value is being derived internally from the local
                module timing source.
                external - an source that is external to the module, such as a
                controller card is providing a signal to calculate the real time
clock.
                ntp - this module is running the ntp protocol and can sync up to a
                master ntp clock source.
                other - the real time clock source does not fit into the existing
values. "
    SYNTAX      INTEGER {
      unknown(1),
      other(2),
      internal(3),
      external(4),
      ntp(5),
      none(6)
    }


HeResetValue ::= TEXTUAL-CONVENTION
      STATUS current
      DESCRIPTION
          "Configured reset value for a specific device.
            reset - the value of reset is SET at the device and the device
            will reset.
            running - the normal value of the device is running when an SNMP
            GET of the reset value is sent.
            resetting - The value resetting shall be returned if an SNMP GET of
            the device is performed after a reset SET command is sent and before
            the device can actually perform the reset. A second reset SET command
            should not interrupt the reset sequence. If a second SET is sent, it
            will be ignored.
            "
      SYNTAX      INTEGER {
            reset(1),
          running(2),
          resetting(3)
      }

HeTenthVolt ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d-1"
    STATUS      current
    DESCRIPTION
        "This data type represents voltage levels that are normally
         expressed in volts. Units are in tenths of a volt;
         for example, -48.1 volts will be represented as -481."
    SYNTAX      Integer32

HeTenthdBm ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d-1"
    STATUS      current
    DESCRIPTION
        "This data type represents power levels
         that are normally expressed in dBm. Units
         are in tenths of a dBm;
         for example, -5.1 dBm will be represented as -51."
```

```
    SYNTAX      Integer32


HeTenthdBmV ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d-1"
    STATUS      current
    DESCRIPTION
        "This data type represents power levels
         that are normally expressed in dBmV. Units
         are in tenths of a dBmV;
         for example, -5.1 dBmV will be represented as -51."
    SYNTAX      Integer32


HeTenthCentigrade ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d-1"
    STATUS      current
    DESCRIPTION
        "This data type represents temperature values that
         are normally expressed in Centigrade. Units are in
         tenths of a Centigrade;
         for example, -5.1 Centigrade will be represented as -51."
    SYNTAX      Integer32


HeHundredthNanoMeter ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d-2"
    STATUS      current
    DESCRIPTION
        "This data type represents wavelength values that
         are normally expressed in nano meters. Units are in
         hundredths of a NanoMeter;
         for example, 1550.56 nm will be represented as 155056."
    SYNTAX      Unsigned32


HeTenthdB ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d-1"
    STATUS      current
    DESCRIPTION
            "This data type represents power levels
            that are normally expressed in dB. Units
            are in tenths of a dB;
            for example, -5.1 dB will be represented as -51."
    SYNTAX      Integer32


HeOnOffControl ::= TEXTUAL-CONVENTION
    STATUS       current
    DESCRIPTION
            "An enumerated value that provides a control of a particular
            hardware or software parameter that usually represent
            some sort of switch.

            A SET request with a value off(1) will cause the switch
            to be shut off.

            A SET request with a value on(2) will cause the switch
            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."
    SYNTAX      INTEGER {
        off(1),
        on(2),
        meaningless(3)
    }


HeOnOffStatus ::= TEXTUAL-CONVENTION
    STATUS        current
    DESCRIPTION
            "An enumerated value that provides a status of a particular
            hardware or software parameter that usually represent
            some sort of switch.

            A value off(1) indicates the switch is off.

            A value on(2) indicates the switch is on."
    SYNTAX      INTEGER {
        off(1),
        on(2)
    }



--
-- Values to support Alarmable parameters
--



HeAlarmControl ::= TEXTUAL-CONVENTION
      STATUS current
      DESCRIPTION
            "Alarm Control value for a specific device. This object is used to
control sending
            traps related to this headend entity or enabling disabling of raising
an alarm
            condition for a specific entity."
    SYNTAX      INTEGER {
        alarmEnabled(1),
        alarmDisabled(2)
        }



HeTrapRegenerate ::= TEXTUAL-CONVENTION
      STATUS current
      DESCRIPTION
          " This value tells the SNMP Agent to send the Trap Regenerate Trap for
```

```
            all values of Current alarms for this entity. The device can provide
            for a means to send ALL current alarms, not just one specific entity."
      SYNTAX        INTEGER {
          trapRegenerate(1),
          trapNormal(2)
          }

HeDigitalAlarmSeverity ::= TEXTUAL-CONVENTION
      STATUS        current
      DESCRIPTION
      " The alarm severity that is determined by the device and sent over in the
trap message."
      SYNTAX        INTEGER {
       critical(1),
       major(2),
       minor(3),
       warning(4),
       status(5),
       clear(6),
       information(7)
   }

HeDigitalAlarmType ::= TEXTUAL-CONVENTION
      STATUS        current
      DESCRIPTION
      " The alarm type that describes the Event that caused the alarm."
       SYNTAX INTEGER
              {
              communication(1),
              process(2),
              session(3),
              capacity(4),
              maintenance(5),
              provisioning(6),
              programMgmt(7),
              redundancy(8),
              other(9)
              }

HeFaultStatus ::= TEXTUAL-CONVENTION
     STATUS        current
     DESCRIPTION
              "An enumerated value that provides a fault status of
              a particular hardware or software parameter that
              usually represent some sort of condition.

              A value normal(1) indicates the normal condition.

              A value fault(2) indicates the fault condition."
     SYNTAX        INTEGER {
         normal(1),
         fault(2)
     }


HeMilliAmp ::= TEXTUAL-CONVENTION
     DISPLAY-HINT "d-3"
```

```
    STATUS        current
    DESCRIPTION
        "This data type represents current levels that are normally
         expressed in amperes. Units are in milliamperes;
         for example, 2.1 Amperes would be expressed as 2100."
    SYNTAX        Unsigned32

HeHundredthWatts ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d-2"
    STATUS        current
    DESCRIPTION
        "This data type represents power values that
         are normally expressed in watts. Units are in
         hundredths of a watt;
         for example, 420 watts will be represented as 42000."
    SYNTAX        Unsigned32


--
-- Redundancy Status was removed from heDigitalCommon and is Commented out per
comment
-- resolution meeting until such time as heDigitalCommon redundancy values are
implemented.
--

-- HeDigitalRedundancyStatus ::= TEXTUAL-CONVENTION
--     STATUS         current
--     DESCRIPTION
--             "This value will indicate the supported level of redundancy for this
--              entity.
--              notAvailable, this interface does not support any type of
redundancy,
--              no Mib objects are supported.
--
--      off - some type of redundancy is available and is defined in configuration,
--              but redundancy for this entity is turned off.
--
--              automatic - there is redundancy and the function is not defined in
--              configuration, the redundant switch is automatic and always on.
--
--      LoadBalanced, this interface is paired with a specific interface and shares
--              the load. Any redundant switch will send as many streams to the
other
--              interface as possible. In this condition there isn't a 100% backup
unless
--              both links are only operating at 50% of the maximum capacity.
--
--              hotStandby - redundancy is a one to one relationship with one
entity
--              configured to take over in the event of failure with minimal to no
disruption
--              in service.
--
--              backup - would be for any interface that isn't one to one. You
could have
--              1 backup  to 2 active,  1 to 3, 1 to 4 or any combination of backup
scenarios.
```

```
--              The exact combinations would be part of Redundancy configuration,
not this
--              configured status parameter. The backup redundant configuration
could cause
--              minimal disruption of service.
--
--              other - this would cover any type of redundancy that is not
described by the
--              other definitions. This would mean that the entity does support
redundancy of
--              some type. "
--    SYNTAX        INTEGER {
--         notAvailable(1),
--         off(2),
--         automatic(3),
--         loadBalanced(4),
--         hotStandby(5),
--         backup(6),
--         other(7)
--    }
--

END
```