INTERNET-DRAFT

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Definitions of Managed Objects for HDSL2 and SHDSL Lines
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1. Abstract

This document defines an experimental portion of the Management Information Base (MIB) module for use with network management protocols in the Internet community. In particular, it describes objects used for managing HDSL2 and SHDSL interfaces.

This document specifies a MIB module in a manner that is both compliant to the SNMPv2 SMI, and semantically identical to the peer SNMPv1 definitions.

2. The SNMP Management Framework

The SNMP Management Framework presently consists of five major components:

- An overall architecture, described in RFC 2571 [1].

- Mechanisms for describing and naming objects and events for the purpose of management. The first version of this Structure of Management Information (SMI) is called SMIv1 and described in STD 16, RFC 1155 [2], STD 16, RFC 1212 [3] and RFC 1215 [4]. The second version, called SMIv2, is described in STD 58, RFC 2578 [5], STD 58, RFC 2579 [6] and STD 58, RFC 2580 [7].

- Message protocols for transferring management information. The first version of the SNMP message protocol is called SNMPv1 and described in STD 15, RFC 1157 [8]. A second version of the SNMP message protocol, which is not an Internet standards track protocol, is called SNMPv2c and described in RFC 1901 [9] and RFC 1906 [10]. The third version of the message protocol is called SNMPv3 and described in RFC 1906 [10], RFC 2572 [11] and RFC 2574 [12].

- Protocol operations for accessing management information. The first set of protocol operations and associated PDU formats is described in STD 15, RFC 1157 [8]. A second set of protocol

operations and associated PDU formats is described in RFC 1905 [13].

o A set of fundamental applications described in RFC 2573 [14] and the view-based access control mechanism described in RFC 2575 [15].

A more detailed introduction to the current SNMP Management Framework can be found in RFC 2570 [16].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. Objects in the MIB are defined using the mechanisms defined in the SMI.

This memo specifies a MIB module that is compliant to the SMIv2. A MIB conforming to the SMIv1 can be produced through the appropriate translations. The resulting translated MIB must be semantically equivalent, except where objects or events are omitted because no translation is possible (use of Counter64). Some machine readable information in SMIv2 will be converted into textual descriptions in SMIv1 during the translation process. However, this loss of machine readable information is not considered to change the semantics of the MIB.

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [17].

3. Introduction

This document describes an SNMP MIB for managing HDSL2/SHDSL Lines. These definitions are based upon the specifications for the HDSL2 and SHDSL Embedded Operations Channel (EOC) as defined in ANSI T1E1.4/2000-006 [18] and ITU G.991.2 (ex G.SHDSL) [19].

The MIB will eventually be located in the MIB tree under MIB 2 transmission, as discussed in the MIB-2 Integration (RFC 1213 [20] and RFC 2863 [21]) section of this document. Until approved by the IETF, vendors may also choose to support it under the experimental tree.

3.1. Relationship of the HDSL2/SHDSL Line MIB with Standard MIBs

This section outlines the relationship of this MIB with other MIBs described in RFCs and in various degrees of "standardization". Specifically, MIB-2 as presented in RFC 1213 [20] and RFC 2863 [21] is discussed.

3.1.1 General MIB-2 Integration (RFCs 1213 and 2863)

The HDSL2/SHDSL Line MIB specifies the detailed attributes of a data interface. As such, it needs to integrate with RFC 2863 [21]. The IANA has assigned the following ifTypes to HDSL2 and SHDSL:

```
IANAifType ::= TEXTUAL-CONVENTION
    ...
SYNTAX INTEGER {
    ...
    hdsl2 (168), -- High Bit-Rate DSL, 2nd generation
    shdsl (169), -- Multirate HDSL2
    ...
    }
```

3.1.2 Usage of ifTable

The MIB branch identified by this ifType contains tables appropriate for this interface type. Most such tables extend the ifEntry table, and are indexed by ifIndex.

The following attributes are part of the mandatory ifGeneral group in RFC 2863 [21], and are not duplicated in the HDSL2/SHDSL Line MIB.

ifIndex	Interface index.
ifDescr	See interfaces MIB [21].
ifType	hdsl2(168) or shdsl(169).
ifSpeed	Set as appropriate. (This is fixed at 1552000 for HDSL2 lines)
ifPhysAddress	This object should have an octet string with zero length.
ifAdminStatus	See interfaces MIB [21].
ifOperStatus	See interfaces MIB [21].
ifLastChange	See interfaces MIB [21].
ifName	See interfaces MIB [21].
ifLinkUpDownTrapEnable	Default to enabled(1).

ifHighSpeed	Set as appropriate. (For HDSL2 lines, this is fixed at 2)
ifConnectorPresent	Set as appropriate.

Figure 1: Use of ifTable Objects

4. Conventions used in the MIB

4.1. Naming Conventions

A. **xtuC refers to a central site terminal unit;**
   H2TU-C for HDSL2, or STU-C for SHDSL.
B. **xtuR refers to a remote site terminal unit;**
   H2TU-R for HDSL2, or STU-R for SHDSL.
C. **xtu refers to a terminal unit; either an xtuC or xtuR.**
D. **xru refer to a regenerator unit;**
   H2RU for HDSL2, or SRU for SHDSL.
E. **xU refers to any HDSL2/SHDSL unit; either an xtu or xru.**
F. **CRC is cyclic redundancy check.**
G. **ES means errored second.**
H. **LOSW means loss of sync word.**
I. **LOSWS means LOSW seconds.**
J. **SES means severely errored second.**
K. **SNR means signal-to-noise ratio.**
L. **UAS means unavailable second.**

4.2. Textual Conventions

The following textual conventions are defined to reflect the line topology in the MIB (further discussed is the following section) and to define the behaviour of the statistics to be maintained by an agent.

o Hdsl2ShdslUnitId :

This attribute uniquely identifies each unit in a HDSL2/SHDSL span. It mirrors the EOC addressing mechanism:

xtuC(1)	- CO terminal unit
xtuR(2)	- CPE terminal unit
xru1(3) .. xru8(10)	- regenerators, numbered from central office side

o Hdsl2ShdslUnitSide:
This attribute references the two sides of a unit:

networkSide(1)   - N in figure 2, below
customerSide(2) - C in figure 2, below

o Hdsl2ShdslWirePair:
This attribute references the wire-pairs connecting the units:

wirePair1(1)   - First pair for HDSL2/SHDSL.
wirePair2(2)   - Optional second pair for SHDSL only.

o Hdsl2ShdslTransmissionModeType:
This attribute specifies the regional setting for a SHDSL line. Specified as a BITS construct, the two mode types are:

region1   - ITU-T G.991.2 Annex A
region2   - ITU-T G.991.2 Annex B

o Hdsl2ShdslPerfCurrDayCount:

This attribute defines the behaviour of the 1-day (24 hour) gauges found in the MIB.

o Hdsl2Shdsl1DayIntervalCount:

This attribute defines the behaviour of the 1-day (24 hour) interval counters found in the MIB.

o Hdsl2ShdslPerfTimeElapsed:

This attribute defines the behaviour of the elapsed time counters found in the MIB.

o Hdsl2ShdslPerfIntervalThreshold:

This attribute defines the behaviour of the alarm thresholds found in the MIB.

4.3. Structure

The MIB is structured into following MIB groups:

o Span Configuration Group:

This group supports MIB objects for configuring parameters for the HDSL2/SHDSL span. It contains the following table(s):

- hdsl2ShdslSpanConfTable

o Span Status Group:

This group supports MIB objects for retrieving span status information. It contains the following table(s):

- hdsl2ShdslSpanStatusTable

o Unit Inventory Group:

This group supports MIB objects for retrieving unit inventory information about units in HDSL2/SHDSL lines via the EOC. It contains the following table(s):

- hdsl2ShdslInventoryTable

o Segment Endpoint Configuration Group:

This group supports MIB objects for configuring parameters for the HDSL2/SHDSL segment endpoints. It contains the following table(s):

- hdsl2ShdslEndpointConfTable

o Segment Endpoint Current Status/Performance Group:

This group supports MIB objects that provide the current status/performance information relating to segment endpoints. It contains the following table(s):

- hdsl2ShdslEndpointCurrTable

o Segment Endpoint 15-Minute Interval Status/Performance Group:

This group supports MIB objects that provide historic status/performance information relating to segment endpoints in 15-minute intervals. It contains the following table(s):

- hdsl2Shdsl15MinIntervalTable

o Segment Endpoint 1-Day Interval Status/Performance Group:

This group supports MIB objects that provide historic status/performance information relating to segment endpoints in 1-day intervals. It contains the following table(s):

- hdsl2Shdsl1DayIntervalTable

o Maintenance Group:

This group supports MIB objects for performing maintenance operations such as loopbacks for HDSL2/SHDSL lines. It contains the following table(s):

- hdsl2ShdslEndpointMaintTable
- hdsl2ShdslUnitMaintTable

o Span Configuration Profile Group:

This group supports MIB objects for defining configuration profiles for HDSL2/SHDSL Spans. It contains the following table(s):

- hdsl2ShdslSpanConfProfileTable

o Segment Endpoint Alarm Configuration Profile Group:

This group supports MIB objects for defining alarm configuration profiles for HDSL2/SHDSL Segment Endpoints. It contains the following table(s):

- hdsl2ShdslEndpointAlarmConfProfileTable

o Notifications Group:

This group defines Notification messages supported for HDSL2/SHDSL lines. It defines the following notifications:

- hdsl2ShdslLoopAttenCrossing
- hdsl2ShdslSNRMarginCrossing
- hdsl2ShdslPerfESThresh
- hdsl2ShdslPerfSESThresh
- hdsl2ShdslPerfCRCanomaliesThresh
- hdsl2ShdslPerfLOSWSThresh
- hdsl2ShdslPerfUASThresh
- hdsl2ShdslSpanInvalidNumRepeaters
- hdsl2ShdslLoopbackFailure
- hdsl2ShdslpowerBackoff
- hdsl2ShdsldeviceFault
- hdsl2ShdsldcContinuityFault
- hdsl2ShdslconfigInitFailure
- hdsl2ShdslprotocolInitFailure
- hdsl2ShdslnoNeighborPresent
- hdsl2ShdsllocalPowerLoss

4.3.1 Line Topology

An HDSL2/SHDSL Line consists of a minimum of two units - xtuC (the central termination unit) and an xtuR (the remote termination unit). The line may optionally support up to 8 repeater/regenerator units (xru) as shown in the figure below.

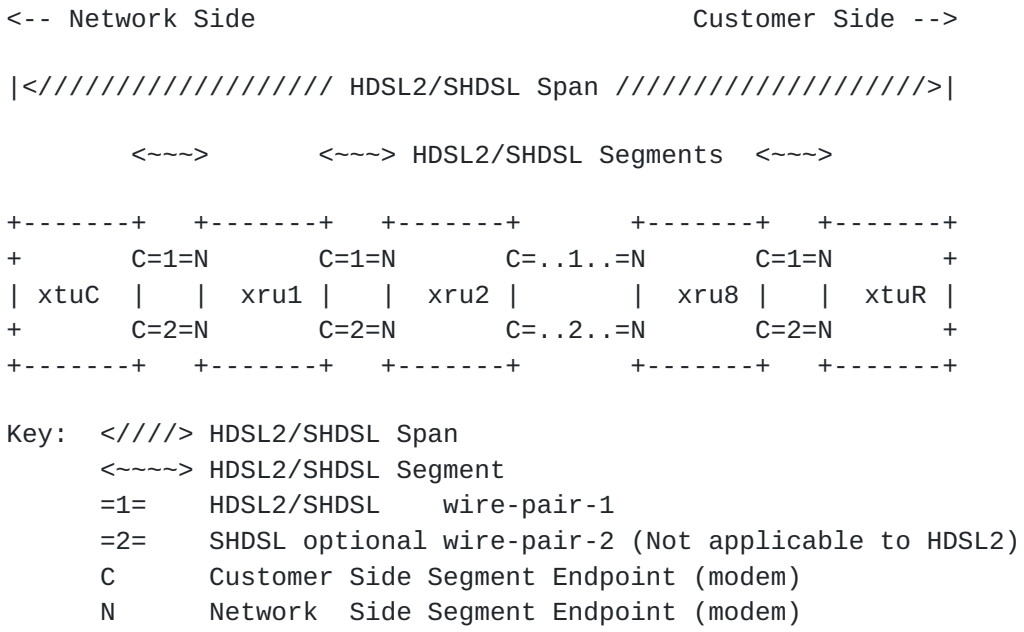

Figure 2: General topology for an HDSL2/SHDSL Line

4.4. Counters, Interval Buckets and Thresholds

For SNR Margin, Loop Attenuation, ES, SES, CRC anomalies, LOSW, and UAS, there are event counters, current 15-minute and one (up to 96) 15-minute history bucket(s) of "interval-counters", as well as current and one (up to 30) previous 1-day interval-counter(s). Each current 15-minute event bucket has an associated threshold notification.

Unlike RFC 2493 [22] and RFC 2662 [23], there is no representation in the MIB for invalid buckets. In those cases where the data for an interval is suspect or known to be invalid, the agent should not report the interval.

There is no requirement for an agent to ensure a fixed relationship between the start of a fifteen minute and any wall clock; however some implementations may align the fifteen minute intervals with quarter hours. Likewise, an implementation may choose to align one day intervals with the start of a day.

Counters are not reset when an xU is reinitialized, only when the agent is reset or reinitialized (or under specific request outside the scope of this MIB).

4.5. Profiles

As a managed node can handle a large number of xUs, (e.g., hundreds or perhaps thousands of lines), provisioning every parameter on every xU may become burdensome. Moreover, most lines are provisioned identically; with the same set of parameters. To simplify the provisioning process, this MIB makes use of profiles. A profile is a set of parameters that can be shared by multiple lines using the same configuration.

The following profiles are used in this MIB:

- Span Configuration Profiles - Span configuration profiles contain parameters for configuring HDSL2/SHDSL spans. They are defined in the hdsl2ShdslSpanConfProfileTable. Since span configuration parameters are only applicable for SHDSL, the support for span configuration profiles is optional for HDSL2 interfaces.

  Note that the configuration of the span dictates the behavior for each individual segment end point in the span. If a different configuration is provisioned for any given segment end point within the span, however, the new configuraiton for this segment end point will override the span configuration for this segment end point only.

- Segment Endpoint Alarm Configuration Profiles - These profiles contain parameters for configuring alarm thresholds for HDSL2/SHDSL segment endpoints. These profiles are defined in the hdsl2ShdslEndpointAlarmConfProfileTable.

Implementations will enable the manager to dynamically create and delete profiles as needed. The index of each profile is a locally-unique administratively assigned name for the profile having the textual convention `SnmpAdminString' (RFC 2571 [1]).

One or more lines may be configured to share parameters of a single profile (e.g., hdsl2ShdslEndpointAlarmConfProfile = `silver') by setting its hdsl2ShdslEndpointAlarmConfProfile objects to the value of this profile. If a change is made to the profile, all lines that refer to it will be reconfigured to the changed parameters. Before a profile can be deleted or taken out of service it must be first unreferenced from all associated lines.

Implementations must provide a default profile whose name is `DEFVAL' for each profile type. The values of the associated parameters will be vendor specific unless otherwise indicated in this document. Before a line's profiles have been set, these profiles will be automatically used by setting hdsl2ShdslEndpointAlarmConfProfile and hdsl2ShdslSpanConfProfile to `DEFVAL' where appropriate.

Profiles are created, assigned, and deleted dynamically using the profile name and profile row status in each of the four profile tables.

Profile changes MUST take effect immediately. These changes MAY result in a restart (hard reset or soft restart) of the units on the line.

4.6. Notifications

The ability to generate the SNMP notifications coldStart/WarmStart (per [21]) which are per agent (e.g., per DSLAM in such a device), and linkUp/linkDown (per [21]) -- which are per interface (i.e., HDSL2/SHDSL line) is required.

A linkDown notification may be generated whenever any of ES, SES, CRC Anomaly, LOSW, or UAS event occurs. The corresponding linkUp

notification MAY be sent when all link failure conditions are cleared.

The notifications defined in this MIB are for initialization failure and for the threshold crossings associated with the following events: ES, SES, CRC Anomaly, LOSW, and UAS. Each threshold has its own enable/threshold value. When that value is 0, the notification is disabled.

The hdsl2ShdslEndpointCurrStatus is a bitmask representing all outstanding error conditions associated with a particular Segment Endpoint. Note that since status of remote endpoints is obtained via the EOC, this information may be unavailable for units that are unreachable via EOC during a line error condition. Therefore, not all conditions may always be included in its current status. Notifications corresponding to the bit fields in this object are defined.

Two alarm conditions, SNR Margin Alarm and Loop Attenuation Alarm, are organized in a manner slightly different from that implied in the EOC specifications. In the MIB, these alarm conditions are tied to the two thresholds hdsl2ShdslEndpointThreshSNRMargin and hdsl2ShdslEndpointThreshLoopAttenuation found in the hdsl2ShdslEndpointAlarmConfProfileTable. In the EOC, the alarm conditions associated with these thresholds are per-unit. In the MIB, these alarm conditions are per-endpoint. For terminal units, this has no impact. For repeaters, this implies an implementation variance where the agent in the terminal unit is responsible for detecting a threshold crossing. As the reporting of a repeater detected alarm condition to the polling terminal unit occurs in the same EOC message as the reporting of the current SNR Margin and Loop Attenuation values, it is anticipated that this will have very little impact on agent implementation.

A threshold notification occurs whenever the corresponding current 15-minute interval error counter becomes equal to, or exceeds the threshold value. One notification may be sent per interval per interface. Since the current 15-minute counter are reset to 0 every 15 minutes, if the condition persists, the notification may recur as often as every 15 minutes. For example, to get a notification whenever a "loss of" event occurs (but at most once every 15 minutes), set the corresponding threshold to 1. The agent will generate a notification when the event originally occurs.

Note that the NMS may receive a linkDown notification, as well, if enabled. At the beginning of the next 15 minute interval, the counter is reset. When the first second goes by and the event occurs, the current interval bucket will be 1, which equals the threshold and the notification will be sent again.

A hdsl2ShdslSpanInvalidNumRepeaters notification may be generated following completion of the discovery phase if the number of repeaters discovered on the line differs from the number of repeaters specified in hdsl2ShdslSpanConfNumRepeaters. For those conditions where the number of provisioned repeaters is greater than those encountered during span discovery, all table entries associated with the nonexistant repeaters are to be discarded. For those conditions where the number of

provisioned repeaters is less than those encountered during span discovery, additional table entries are to be created using the default span configuration profile.

5. Conformance and Compliance

For both HDSL2 and SHDSL lines, the following group(s) are mandatory:

- hdsl2ShdslSpanConfGroup
- hdsl2ShdslSpanStatusGroup
- hdsl2ShdslInventoryGroup
- hdsl2ShdslEndpointConfGroup
- hdsl2Shdsl15MinIntervalGroup
- hdsl2Shdsl1DayIntervalGroup
- hdsl2ShdslMaintenanceGroup
- hdsl2ShdslEndpointAlarmConfGroup
- hdsl2ShdslNotificationGroup

For HDSL2 lines, the following group(s) are optional:

- hdsl2ShdslSpanConfProfileGroup
- hdsl2ShdslSpanShdslStatusGroup

6. Definitions

```
HDSL2-SHDSL-LINE-MIB DEFINITIONS ::= BEGIN

IMPORTS
MODULE-IDENTITY,
OBJECT-TYPE,
Counter32,
Gauge32,
NOTIFICATION-TYPE,
Integer32,
experimental                  FROM SNMPv2-SMI
RowStatus,
TEXTUAL-CONVENTION            FROM SNMPv2-TC
ifIndex                       FROM IF-MIB
PerfCurrentCount,
PerfIntervalCount             FROM PerfHist-TC-MIB
SnmpAdminString               FROM SNMP-FRAMEWORK-MIB
MODULE-COMPLIANCE,
OBJECT-GROUP,
NOTIFICATION-GROUP            FROM SNMPv2-CONF;

hdsl2ShdslMIB MODULE-IDENTITY
    LAST-UPDATED "200104020000Z" -- April 2, 2001
    ORGANIZATION "ADSLMIB Working Group"
    CONTACT-INFO "WG-email:  XDSLMIB@LISTSERV.ECIRALEIGH.COM
                  Subscribe: LISTSERV@LISTSERV.ECIRALEIGH.COM
                             In Body: subscribe/signoff XDSLMIB
                             Archive: index XDSLMIB/get <archivename>

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               "

    DESCRIPTION
        "This MIB module defines a collection of objects for managing
         HDSL2/SHDSL lines.  An agent may reside at either end of the
         line, however the MIB is designed to require no management
         communication between the modems beyond that inherent in the
         low-level EOC line protocol as defined in ANSI T1E1.4/2000-006
         (for HDSL2 lines), or in ITU G.991.2 (for SHDSL lines)."
    REVISION "200104020000Z" -- April 2, 2001
    DESCRIPTION "Initial version, published as RFC xxxx."

    ::= { experimental 109 } -- to be assigned by IANA

hdsl2ShdslMibObjects OBJECT IDENTIFIER ::= { hdsl2ShdslMIB 1 }

-- Textual Conventions used in this MIB
--

Hdsl2ShdslPerfCurrDayCount ::= TEXTUAL-CONVENTION
    STATUS    current
    DESCRIPTION
        "A gauge associated with interface performance measurements in
         a current 1-day (24 hour) measurement interval.

        The value of this gauge starts at zero at the beginning of an
        interval and is increased when associated events occur, until
        the end of the 1-day interval.  At that time the value of the
        gauge is stored in the previous 1-day history interval, if
        available, and the current interval counter is restarted at
```



```
        zero.

        In the case where the agent has no valid data available for
        this interval the corresponding object instance is not
        available and upon a retrieval request a corresponding error
        message shall be returned to indicate that this instance does
        not exist (for example, a noSuchName error for SNMPv1 and a
```

```
        noSuchInstance for SNMPv2 GET operation)."
    SYNTAX  Gauge32

Hdsl2Shdsl1DayIntervalCount ::= TEXTUAL-CONVENTION
    STATUS    current
    DESCRIPTION
        "A counter associated with interface performance measurements
         during the most previous 1-day (24 hour) measurement interval.
         The value of this counter is equal to the value of the current
         day counter at the end of its most recent interval.

         In the case where the agent has no valid data available for
         this interval the corresponding object instance is not
         available and upon a retrieval request a corresponding error
         message shall be returned to indicate that this instance does
         not exist (for example, a noSuchName error for SNMPv1 and a
         noSuchInstance for SNMPv2 GET operation)."
    SYNTAX  Gauge32

Hdsl2ShdslPerfTimeElapsed ::= TEXTUAL-CONVENTION
    STATUS    current
    DESCRIPTION
        "The number of seconds that have elapsed since the beginning of
         the current measurement period.  If, for some reason, such as
         an adjustment in the system's time-of-day clock, the current
         interval exceeds the maximum value, the agent will return the
         maximum value."
    SYNTAX    Gauge32

Hdsl2ShdslPerfIntervalThreshold ::= TEXTUAL-CONVENTION
    STATUS    current
    DESCRIPTION
        "This convention defines a range of values that may be set in
         a fault threshold alarm control.  As the number of seconds in
         a 15-minute interval numbers at most 900, objects of this type
         may have a range of 0...900, where the value of 0 disables the
         alarm."
    SYNTAX    INTEGER(0..900)

Hdsl2ShdslUnitId ::= TEXTUAL-CONVENTION
    STATUS    current
    DESCRIPTION
        "This is the unique identification for all units in a
         HDSL2/SHDSL Span.  It is based on the EOC unit addressing
         scheme with reference to the xtuC."
    SYNTAX    INTEGER
              {
              xtuC(1),
```

```
            xtuR(2),
            xru1(3),
            xru2(4),
            xru3(5),
            xru4(6),
            xru5(7),
            xru6(8),
            xru7(9),
            xru8(10)
            }

Hdsl2ShdslUnitSide ::= TEXTUAL-CONVENTION
    STATUS    current
    DESCRIPTION
        "This is the referenced side of a HDSL2/SHDSL unit - Network
         or Customer side.  The side facing the Network is the Network
         side, while the side facing the Customer is the Customer side."
    SYNTAX    INTEGER
              {
              networkSide(1),
              customerSide(2)
              }

Hdsl2ShdslWirePair ::= TEXTUAL-CONVENTION
    STATUS    current
    DESCRIPTION
        "This is the referenced pair of wires in a HDSL2/SHDSL Segment.
         HDSL2 only supports a single pair (wirePair1), while SHDSL
         supports an optional second pair (wirePair2)."
    SYNTAX    INTEGER
              {
              wirePair1(1),
              wirePair2(2)
              }

Hdsl2ShdslTransmissionModeType ::= TEXTUAL-CONVENTION
    STATUS    current
    DESCRIPTION
        "Contains the regional setting of the HDSL2/SHDSL span,
        represented as a bit-map of possible settings. The various
        bit positions are:

        Bit   Meaning      Description
        1     region 1     Indicates ITU-T G.991.2 Annex A.
        2     region 2     Indicates ITU-T G.991.2 Annex B."
    SYNTAX      BITS
                {
                region1(0),
                region2(1)
```

```
                }

-- Span Configuration Group
--

hdsl2ShdslSpanConfTable OBJECT-TYPE
```



```
    SYNTAX     SEQUENCE OF Hdsl2ShdslSpanConfEntry
    MAX-ACCESS not-accessible
    STATUS     current
    DESCRIPTION
        "This table supports overall configuration of HDSL2/SHDSL
         Spans."
    ::= { hdsl2ShdslMibObjects 1 }

hdsl2ShdslSpanConfEntry OBJECT-TYPE
    SYNTAX      Hdsl2ShdslSpanConfEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the hdsl2ShdslSpanConfTable.  Each entry
         represents the complete Span in a single HDSL2/SHDSL line.
         It is indexed by the ifIndex of the associated HDSL2/SHDSL
         line."
    INDEX { ifIndex }
    ::= { hdsl2ShdslSpanConfTable 1 }

Hdsl2ShdslSpanConfEntry ::=
    SEQUENCE
    {
    hdsl2ShdslSpanConfNumRepeaters          INTEGER,
    hdsl2ShdslSpanConfProfile               SnmpAdminString,
    hdsl2ShdslSpanConfAlarmProfile          SnmpAdminString
    }

hdsl2ShdslSpanConfNumRepeaters OBJECT-TYPE
    SYNTAX      INTEGER(0..8)
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object provisions the number of repeaters/regenerators
        in this HDSL2/SHDSL Span."
    ::= { hdsl2ShdslSpanConfEntry 1 }

hdsl2ShdslSpanConfProfile OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE(1..32))
    MAX-ACCESS  read-write
```

```
    STATUS      current
    DESCRIPTION
        "This object is a pointer to a span configuration profile in
        the hdsl2ShdslSpanConfProfileTable, which applies to this span.
        The value of this object is the index of the referenced profile
        in the hdsl2ShdslSpanConfProfileTable.  Note that span
        configuration profiles are only applicable to SHDSL lines.
        HDSL2 lines will not support this object.  By default, this
        object  will have the value 'DEFVAL' (the index of the default
        profile)."
    ::= { hdsl2ShdslSpanConfEntry 2 }

hdsl2ShdslSpanConfAlarmProfile OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE(1..32))
    MAX-ACCESS  read-write
```



```
    STATUS      current
    DESCRIPTION
        "This object is a pointer to an Alarm configuration profile in
        the hdsl2ShdslEndpointAlarmConfProfileTable.  The value of this
        object is the index of the referenced profile in the
        hdsl2ShdslEndpointAlarmConfProfileTable.  The alarm threshold
        configuration in the referenced profile will be used by default
        for all segment endpoints in this span.  Individual endpoints
        may override this profile by explicitly specifying some other
        profile in the hdsl2ShdslEndpointConfTable.  By default, this
        object will have the value 'DEFVAL' (the index of the default
        profile)."
    ::= { hdsl2ShdslSpanConfEntry 3 }

-- Span Status Group
--

hdsl2ShdslSpanStatusTable OBJECT-TYPE
    SYNTAX     SEQUENCE OF Hdsl2ShdslSpanStatusEntry
    MAX-ACCESS not-accessible
    STATUS     current
    DESCRIPTION
        "This table provides overall status information of
        HDSL2/SHDSL spans."
    ::= { hdsl2ShdslMibObjects 2 }

hdsl2ShdslSpanStatusEntry OBJECT-TYPE
    SYNTAX      Hdsl2ShdslSpanStatusEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
```

```
        "An entry in the hdsl2ShdslSpanStatusTable.  Each entry
         represents the complete span in a single HDSL2/SHDSL line.  It
         is indexed by the ifIndex of the associated HDSL2/SHDSL line."
    INDEX { ifIndex }
    ::= { hdsl2ShdslSpanStatusTable 1 }

Hdsl2ShdslSpanStatusEntry ::=
    SEQUENCE
    {
    hdsl2ShdslStatusNumAvailRepeaters        INTEGER,
    hdsl2ShdslStatusMaxAttainableLineRate    Integer32,
    hdsl2ShdslStatusActualLineRate           Integer32,
    hdsl2ShdslStatusTransmissionModeCurrent
                Hdsl2ShdslTransmissionModeType
    }

hdsl2ShdslStatusNumAvailRepeaters OBJECT-TYPE
    SYNTAX      INTEGER(0..8)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Contains the actual number of repeaters/regenerators
         discovered in this HDSL2/SHDSL span."
    ::= { hdsl2ShdslSpanStatusEntry 1 }
```



```
hdsl2ShdslStatusMaxAttainableLineRate OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "bps"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Contains the maximum attainable line rate in this HDSL2/SHDSL
         span."
    ::= { hdsl2ShdslSpanStatusEntry 2 }

hdsl2ShdslStatusActualLineRate OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "bps"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Contains the actual line rate in this HDSL2/SHDSL span."
    ::= { hdsl2ShdslSpanStatusEntry 3 }

hdsl2ShdslStatusTransmissionModeCurrent OBJECT-TYPE
    SYNTAX      Hdsl2ShdslTransmissionModeType
```

```
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Contains the current PSD regional setting of the
         HDSL2/SHDSL span."
    ::= { hdsl2ShdslSpanStatusEntry 4 }

-- Unit Inventory Group
--

hdsl2ShdslInventoryTable OBJECT-TYPE
    SYNTAX     SEQUENCE OF Hdsl2ShdslInventoryEntry
    MAX-ACCESS not-accessible
    STATUS     current
    DESCRIPTION
        "This table supports retrieval of unit inventory information
         available via the EOC from units in a HDSL2/SHDSL line."
    ::= { hdsl2ShdslMibObjects 3 }

hdsl2ShdslInventoryEntry OBJECT-TYPE
    SYNTAX      Hdsl2ShdslInventoryEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the hdsl2ShdslInventoryTable.  Each entry
         represents inventory information for a single unit in a
        HDSL2/SHDSL line.  It is indexed by the ifIndex of the
        HDSL2/SHDSL line and the Hdsl2ShdslUnitId of the
        associated unit."
    INDEX { ifIndex, hdsl2ShdslInvIndex }
    ::= { hdsl2ShdslInventoryTable 1 }

Hdsl2ShdslInventoryEntry ::=
```



```
    SEQUENCE
    {
    hdsl2ShdslInvIndex                      Hdsl2ShdslUnitId,
    hdsl2ShdslInvVendorID                   OCTET STRING,
    hdsl2ShdslInvVendorModelNumber          OCTET STRING,
    hdsl2ShdslInvVendorSerialNumber         OCTET STRING,
    hdsl2ShdslInvVendorEOCSoftwareVersion   Integer32,
    hdsl2ShdslInvStandardVersion            Integer32,
    hdsl2ShdslInvVendorListNumber           OCTET STRING,
    hdsl2ShdslInvVendorIssueNumber          OCTET STRING,
    hdsl2ShdslInvVendorSoftwareVersion      OCTET STRING,
    hdsl2ShdslInvEquipmentCode              OCTET STRING,
    hdsl2ShdslInvVendorOther                OCTET STRING,
```

```
    hdsl2ShdslInvTransmissionModeCapability
                            Hdsl2ShdslTransmissionModeType
    }

hdsl2ShdslInvIndex OBJECT-TYPE
    SYNTAX      Hdsl2ShdslUnitId
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The index into the hdsl2ShdslInventoryTable."
    ::= { hdsl2ShdslInventoryEntry 1 }

hdsl2ShdslInvVendorID OBJECT-TYPE
    SYNTAX      OCTET STRING(SIZE(8))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Vendor ID as reported in an Inventory Response message."
    ::= { hdsl2ShdslInventoryEntry 2 }

hdsl2ShdslInvVendorModelNumber OBJECT-TYPE
    SYNTAX      OCTET STRING(SIZE(12))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Vendor model number as reported in an Inventory Response
         message."
    ::= { hdsl2ShdslInventoryEntry 3 }

hdsl2ShdslInvVendorSerialNumber OBJECT-TYPE
    SYNTAX      OCTET STRING(SIZE(12))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Vendor serial number as reported in an Inventory Response
         message."
    ::= { hdsl2ShdslInventoryEntry 4 }

hdsl2ShdslInvVendorEOCSoftwareVersion OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
```



```
    DESCRIPTION
        "Vendor EOC version as reported in a Discovery Response
         message."
    ::= { hdsl2ShdslInventoryEntry 5 }
```

```
hdsl2ShdslInvStandardVersion OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Version of the HDSL2/SHDSL standard implemented, as reported
         in an Inventory Response message."
    ::= { hdsl2ShdslInventoryEntry 6 }

hdsl2ShdslInvVendorListNumber OBJECT-TYPE
    SYNTAX      OCTET STRING(SIZE(3))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Vendor list number as reported in an Inventory Response
         message."
    ::= { hdsl2ShdslInventoryEntry 7 }

hdsl2ShdslInvVendorIssueNumber OBJECT-TYPE
    SYNTAX      OCTET STRING(SIZE(2))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Vendor issue number as reported in an Inventory Response
         message."
    ::= { hdsl2ShdslInventoryEntry 8 }

hdsl2ShdslInvVendorSoftwareVersion OBJECT-TYPE
    SYNTAX      OCTET STRING(SIZE(6))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Vendor software version as reported in an Inventory
         Response message."
    ::= { hdsl2ShdslInventoryEntry 9 }

hdsl2ShdslInvEquipmentCode OBJECT-TYPE
    SYNTAX      OCTET STRING(SIZE(10))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Equipment code conforming to ANSI T1.213, Coded Identification
         of Equipment Entities."
    ::= { hdsl2ShdslInventoryEntry 10 }

hdsl2ShdslInvVendorOther OBJECT-TYPE
    SYNTAX      OCTET STRING(SIZE(12))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

```
        "Other vendor information as reported in an Inventory
         Response message."
    ::= { hdsl2ShdslInventoryEntry 11 }

hdsl2ShdslInvTransmissionModeCapability OBJECT-TYPE
    SYNTAX      Hdsl2ShdslTransmissionModeType
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Contains the transmission mode capability of the SHDSL unit."
    ::= { hdsl2ShdslInventoryEntry 12 }

-- Segment Endpoint Configuration Group
--

hdsl2ShdslEndpointConfTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Hdsl2ShdslEndpointConfEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table supports configuration parameters for segment
         endpoints in a HDSL2/SHDSL line."
    ::= { hdsl2ShdslMibObjects 4 }

hdsl2ShdslEndpointConfEntry OBJECT-TYPE
    SYNTAX      Hdsl2ShdslEndpointConfEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the hdsl2ShdslEndpointConfTable.  Each entry
         represents a single segment endpoint in a HDSL2/SHDSL line.
         It is indexed by the ifIndex of the HDSL2/SHDSL line, the
         UnitId of the associated unit, the side of the unit, and the
         wire-pair of the associated modem."
    INDEX { ifIndex, hdsl2ShdslInvIndex, hdsl2ShdslEndpointSide,
            hdsl2ShdslEndpointWirePair}
    ::= { hdsl2ShdslEndpointConfTable 1 }

Hdsl2ShdslEndpointConfEntry ::=
    SEQUENCE
    {
    hdsl2ShdslEndpointSide                      Hdsl2ShdslUnitSide,
    hdsl2ShdslEndpointWirePair                  Hdsl2ShdslWirePair,
    hdsl2ShdslEndpointAlarmConfProfile          SnmpAdminString
    }
```

```
hdsl2ShdslEndpointSide OBJECT-TYPE
    SYNTAX      Hdsl2ShdslUnitSide
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The side of the unit associated with this segment endpoint -
         Network/Customer side - as per the Hdsl2ShdslUnitSide textual
         convention."
    ::= { hdsl2ShdslEndpointConfEntry 1 }
```



```
hdsl2ShdslEndpointWirePair OBJECT-TYPE
    SYNTAX      Hdsl2ShdslWirePair
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The wire-pair of the modem associated with this segment
         endpoint as per the Hdsl2ShdslWirePair textual convention."
::= { hdsl2ShdslEndpointConfEntry 2 }

hdsl2ShdslEndpointAlarmConfProfile OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE(0..32))
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object configures the alarm threshold values to be used
         for this segment endpoint.  The values are obtained from the
         alarm configuration profile referenced by this object.  The
         value of this object is the index of the referenced profile in
         the hdsl2ShdslEndpointAlarmConf ProfileTable, or NULL (a zero-
         length SnmpAdminString).  If the value is NULL, the endpoint
         uses the default Alarm Configuration Profile for the associated
         span as per the hdsl2ShdslSpanConfAlarmProfile object in the
         hdsl2ShdslSpanConfTable.  The default value of this object is
         NULL."
    ::= { hdsl2ShdslEndpointConfEntry 3 }

-- Segment Endpoint Current Status/Performance Group
--

hdsl2ShdslEndpointCurrTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Hdsl2ShdslEndpointCurrEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table contains current status and performance information
         for segment endpoints in HDSL2/SHDSL Lines."
```

```
    ::= { hdsl2ShdslMibObjects 5 }

hdsl2ShdslEndpointCurrEntry OBJECT-TYPE
    SYNTAX      Hdsl2ShdslEndpointCurrEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the hdsl2ShdslEndpointCurrTable.  Each entry
        contains status and performance information relating to a
        single segment endpoint.  It is indexed by the ifIndex of the
        HDSL2/SHDSL line, the UnitId of the associated unit, the side
        of the unit, and the wire-pair of the associated modem."
    INDEX { ifIndex, hdsl2ShdslInvIndex, hdsl2ShdslEndpointSide,
            hdsl2ShdslEndpointWirePair }
    ::= { hdsl2ShdslEndpointCurrTable 1 }

Hdsl2ShdslEndpointCurrEntry ::=
    SEQUENCE
```



```
    {
    hdsl2ShdslEndpointCurrAtn               Integer32,
    hdsl2ShdslEndpointCurrSnrMgn            Integer32,
    hdsl2ShdslEndpointCurrStatus            Integer32,
    hdsl2ShdslEndpointES                    Counter32,
    hdsl2ShdslEndpointSES                   Counter32,
    hdsl2ShdslEndpointCRCanomalies          Counter32,
    hdsl2ShdslEndpointLOSWS                 Counter32,
    hdsl2ShdslEndpointUAS                   Counter32,
    hdsl2ShdslEndpointCurr15MinTimeElapsed  Hdsl2ShdslPerfTimeElapsed,
    hdsl2ShdslEndpointCurr15MinES           PerfCurrentCount,
    hdsl2ShdslEndpointCurr15MinSES          PerfCurrentCount,
    hdsl2ShdslEndpointCurr15MinCRCanomalies PerfCurrentCount,
    hdsl2ShdslEndpointCurr15MinLOSWS        PerfCurrentCount,
    hdsl2ShdslEndpointCurr15MinUAS          PerfCurrentCount,
    hdsl2ShdslEndpointCurr1DayTimeElapsed   Hdsl2ShdslPerfTimeElapsed,
    hdsl2ShdslEndpointCurr1DayES            Hdsl2ShdslPerfCurrDayCount,
    hdsl2ShdslEndpointCurr1DaySES           Hdsl2ShdslPerfCurrDayCount,
    hdsl2ShdslEndpointCurr1DayCRCanomalies  Hdsl2ShdslPerfCurrDayCount,
    hdsl2ShdslEndpointCurr1DayLOSWS         Hdsl2ShdslPerfCurrDayCount,
    hdsl2ShdslEndpointCurr1DayUAS           Hdsl2ShdslPerfCurrDayCount
    }

hdsl2ShdslEndpointCurrAtn OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "dB"
    MAX-ACCESS  read-only
    STATUS      current
```

```
    DESCRIPTION
        "The current loop attenuation for this endpoint as reported in
         a Network or Customer Side Performance Status message."
    ::= { hdsl2ShdslEndpointCurrEntry 1 }

hdsl2ShdslEndpointCurrSnrMgn OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "dB"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The current SNR margin for this endpoint as reported in a
         Status Response/SNR message."
    ::= { hdsl2ShdslEndpointCurrEntry 2 }

hdsl2ShdslEndpointCurrStatus OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Contains the current state of the endpoint.  This is a
        bit-map of possible conditions. The various bit positions
        are:

        1 noDefect               There no defects on the line

        2 powerBackoff           Indicates enhanced Power Backoff
```



```
        4 deviceFault            Indicates a vendor-dependent
                                 detection of diagnostics or
                                 self-test results

        8 dcContinuityFault      Indicates vendor-dependent
                                 conditions that interfere with
                                 span powering such as short and
                                 open circuits

        16 snrMarginAlarm        Indicates that the SNR margin
                                 has dropped below the alarm threshold

        32 loopAttenuationAlarm  Indicates that the loop attentuation
                                 has dropped below the alarm threshold

        64 loswFailureAlarm      Indicates a forward LOSW alarm

        128 configInitFailure    Endpoint failure during initialization
                                 due to paired endpoint not able to
```

```
                                support requested configuration

            256 protocolInitFailure  Endpoint failure during initialization
                                     due to incompatible protocol used by
                                     the paired endpoint.

            512 noNeighborPresent    Endpoint failure during initialization
                                     due to no activation sequence detected
                                     from paired endpoint.

            1024 loopbackActive      A loopback is currently active at this
                                     Segment Endpoint.

            This is intended to supplement ifOperStatus."
        ::= { hdsl2ShdslEndpointCurrEntry 3 }

    hdsl2ShdslEndpointES OBJECT-TYPE
        SYNTAX      Counter32
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of Errored Seconds (ES) on this endpoint since the xU
             was last restarted."
        ::= { hdsl2ShdslEndpointCurrEntry 4 }

    hdsl2ShdslEndpointSES OBJECT-TYPE
        SYNTAX       Counter32
        UNITS        "seconds"
        MAX-ACCESS   read-only
        STATUS       current
        DESCRIPTION
            "Count of Severely Errored Seconds (SES) on this endpoint
             since the xU was last restarted."
        ::= { hdsl2ShdslEndpointCurrEntry 5 }
```



```
    hdsl2ShdslEndpointCRCanomalies OBJECT-TYPE
        SYNTAX       Counter32
        MAX-ACCESS   read-only
        STATUS       current
        DESCRIPTION
            "Count of CRC anomalies on this endpoint since the xU was
             last restarted."
        ::= { hdsl2ShdslEndpointCurrEntry 6 }

    hdsl2ShdslEndpointLOSWS OBJECT-TYPE
        SYNTAX       Counter32
```

```
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Loss of Sync Word (LOSW) Seconds on this endpoint
         since the xU was last restarted."
    ::= { hdsl2ShdslEndpointCurrEntry 7 }

hdsl2ShdslEndpointUAS OBJECT-TYPE
    SYNTAX       Counter32
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Unavailable Seconds (UAS) on this endpoint since
         the xU was last restarted."
    ::= { hdsl2ShdslEndpointCurrEntry 8 }

hdsl2ShdslEndpointCurr15MinTimeElapsed OBJECT-TYPE
    SYNTAX       Hdsl2ShdslPerfTimeElapsed
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Total elapsed seconds in the current 15-minute interval."
    ::= { hdsl2ShdslEndpointCurrEntry 9 }

hdsl2ShdslEndpointCurr15MinES OBJECT-TYPE
    SYNTAX       PerfCurrentCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Errored Seconds (ES) in the current 15-minute
         interval."
    ::= { hdsl2ShdslEndpointCurrEntry 10 }

hdsl2ShdslEndpointCurr15MinSES OBJECT-TYPE
    SYNTAX       PerfCurrentCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
```



```
        "Count of Severely Errored Seconds (SES) in the current
         15-minute interval."
    ::= { hdsl2ShdslEndpointCurrEntry 11 }
```

```
hdsl2ShdslEndpointCurr15MinCRCanomalies OBJECT-TYPE
    SYNTAX       PerfCurrentCount
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of CRC anomalies in the current 15-minute interval."
    ::= { hdsl2ShdslEndpointCurrEntry 12 }

hdsl2ShdslEndpointCurr15MinLOSWS OBJECT-TYPE
    SYNTAX       PerfCurrentCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Loss of Sync Word (LOSW) Seconds in the current
         15-minute interval."
    ::= { hdsl2ShdslEndpointCurrEntry 13 }

hdsl2ShdslEndpointCurr15MinUAS OBJECT-TYPE
    SYNTAX       PerfCurrentCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Unavailable Seconds (UAS) in the current 15-minute
         interval."
    ::= { hdsl2ShdslEndpointCurrEntry 14 }

hdsl2ShdslEndpointCurr1DayTimeElapsed OBJECT-TYPE
    SYNTAX       Hdsl2ShdslPerfTimeElapsed
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Number of seconds that have elapsed since the beginning of
         the current 1-day interval."
    ::= { hdsl2ShdslEndpointCurrEntry 15 }

hdsl2ShdslEndpointCurr1DayES OBJECT-TYPE
    SYNTAX       Hdsl2ShdslPerfCurrDayCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Errored Seconds (ES) during the current day as
         measured by hdsl2ShdslEndpointCurr1DayTimeElapsed."
    ::= { hdsl2ShdslEndpointCurrEntry 16 }

hdsl2ShdslEndpointCurr1DaySES OBJECT-TYPE
    SYNTAX       Hdsl2ShdslPerfCurrDayCount
```

```
    UNITS        "seconds"
```



```
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Severely Errored Seconds (SES) during the current
         day as measured by hdsl2ShdslEndpointCurr1DayTimeElapsed."
    ::= { hdsl2ShdslEndpointCurrEntry 17 }

hdsl2ShdslEndpointCurr1DayCRCanomalies OBJECT-TYPE
    SYNTAX       Hdsl2ShdslPerfCurrDayCount
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of CRC anomalies during the current day as measured
         by hdsl2ShdslEndpointCurr1DayTimeElapsed."
    ::= { hdsl2ShdslEndpointCurrEntry 18 }

hdsl2ShdslEndpointCurr1DayLOSWS OBJECT-TYPE
    SYNTAX       Hdsl2ShdslPerfCurrDayCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Loss of Sync Word (LOSW) Seconds during the current
         day as measured by hdsl2ShdslEndpointCurr1DayTimeElapsed."
    ::= { hdsl2ShdslEndpointCurrEntry 19 }

hdsl2ShdslEndpointCurr1DayUAS OBJECT-TYPE
    SYNTAX       Hdsl2ShdslPerfCurrDayCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Unavailable Seconds (UAS) during the current day as
         measured by hdsl2ShdslEndpointCurr1DayTimeElapsed."
    ::= { hdsl2ShdslEndpointCurrEntry 20 }

-- Segment Endpoint 15-Minute Interval Status/Performance Group
--

hdsl2Shdsl15MinIntervalTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Hdsl2Shdsl15MinIntervalEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table provides one row for each HDSL2/SHDSL endpoint
```

```
         performance data collection interval."
    ::= { hdsl2ShdslMibObjects 6 }

hdsl2Shdsl15MinIntervalEntry OBJECT-TYPE
    SYNTAX      Hdsl2Shdsl15MinIntervalEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the hdsl2Shdsl15MinIntervalTable."
    INDEX { ifIndex, hdsl2ShdslInvIndex, hdsl2ShdslEndpointSide,
```



```
            hdsl2ShdslEndpointWirePair, hdsl2Shdsl15MinIntervalNumber}
    ::= { hdsl2Shdsl15MinIntervalTable 1 }

Hdsl2Shdsl15MinIntervalEntry ::=
    SEQUENCE
    {
    hdsl2Shdsl15MinIntervalNumber         INTEGER,
    hdsl2Shdsl15MinIntervalES             PerfIntervalCount,
    hdsl2Shdsl15MinIntervalSES            PerfIntervalCount,
    hdsl2Shdsl15MinIntervalCRCanomalies   PerfIntervalCount,
    hdsl2Shdsl15MinIntervalLOSWS          PerfIntervalCount,
    hdsl2Shdsl15MinIntervalUAS            PerfIntervalCount
    }

hdsl2Shdsl15MinIntervalNumber OBJECT-TYPE
    SYNTAX      INTEGER(1..96)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Performance Data Interval number. 1 is the the most recent
         previous interval; interval 96 is 24 hours ago. Intervals
         2..96 are optional."
    ::= { hdsl2Shdsl15MinIntervalEntry 1 }

hdsl2Shdsl15MinIntervalES OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of Errored Seconds (ES) during the interval."
    ::= { hdsl2Shdsl15MinIntervalEntry 2 }

hdsl2Shdsl15MinIntervalSES OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS       "seconds"
```

```
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of Severely Errored Seconds (SES) during the
         interval."
    ::= { hdsl2Shdsl15MinIntervalEntry 3 }

hdsl2Shdsl15MinIntervalCRCanomalies OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of CRC anomalies during the interval."
    ::= { hdsl2Shdsl15MinIntervalEntry 4 }

hdsl2Shdsl15MinIntervalLOSWS OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
```



```
    STATUS      current
    DESCRIPTION
        "Count of Loss of Sync Word (LOSW) Seconds during the
         interval."
    ::= { hdsl2Shdsl15MinIntervalEntry 5 }

hdsl2Shdsl15MinIntervalUAS OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of Unavailable Seconds (UAS) during the interval."
    ::= { hdsl2Shdsl15MinIntervalEntry 6 }

-- Segment Endpoint 1-Day Interval Status/Performance Group
--

hdsl2Shdsl1DayIntervalTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Hdsl2Shdsl1DayIntervalEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table provides one row for each HDSL2/SHDSL endpoint
         performance data collection interval."
    ::= { hdsl2ShdslMibObjects 7 }
```

```
hdsl2Shdsl1DayIntervalEntry OBJECT-TYPE
    SYNTAX      Hdsl2Shdsl1DayIntervalEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the hdsl2Shdsl1DayIntervalTable."
    INDEX { ifIndex, hdsl2ShdslInvIndex, hdsl2ShdslEndpointSide,
            hdsl2ShdslEndpointWirePair, hdsl2Shdsl1DayIntervalNumber }
    ::= { hdsl2Shdsl1DayIntervalTable 1 }

Hdsl2Shdsl1DayIntervalEntry ::=
    SEQUENCE
    {
    hdsl2Shdsl1DayIntervalNumber           INTEGER,
    hdsl2Shdsl1DayIntervalMoniSecs         Hdsl2ShdslPerfTimeElapsed,
    hdsl2Shdsl1DayIntervalES               Hdsl2Shdsl1DayIntervalCount,
    hdsl2Shdsl1DayIntervalSES              Hdsl2Shdsl1DayIntervalCount,
    hdsl2Shdsl1DayIntervalCRCanomalies     Hdsl2Shdsl1DayIntervalCount,
    hdsl2Shdsl1DayIntervalLOSWS            Hdsl2Shdsl1DayIntervalCount,
    hdsl2Shdsl1DayIntervalUAS              Hdsl2Shdsl1DayIntervalCount
    }

hdsl2Shdsl1DayIntervalNumber OBJECT-TYPE
    SYNTAX      INTEGER(1..30)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "History Data Interval number. Interval 1 is the the most
```



```
         recent previous day; interval 30 is 30 days ago. Intervals
         2..30 are optional."
    ::= { hdsl2Shdsl1DayIntervalEntry 1 }

hdsl2Shdsl1DayIntervalMoniSecs OBJECT-TYPE
    SYNTAX       Hdsl2ShdslPerfTimeElapsed
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "The amount of time in the 1-day interval over which the
         performance monitoring information is actually counted.
         This value will be the same as the interval duration except
         in a situation where performance monitoring data could not
         be collected for any reason."
    ::= { hdsl2Shdsl1DayIntervalEntry 2 }

hdsl2Shdsl1DayIntervalES OBJECT-TYPE
    SYNTAX       Hdsl2Shdsl1DayIntervalCount
```

```
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Errored Seconds (ES) during the 1-day interval as
         measured by hdsl2Shdsl1DayIntervalMoniSecs."
    ::= { hdsl2Shdsl1DayIntervalEntry 3 }

hdsl2Shdsl1DayIntervalSES OBJECT-TYPE
    SYNTAX       Hdsl2Shdsl1DayIntervalCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Severely Errored Seconds (SES) during the 1-day
         interval as measured by hdsl2Shdsl1DayIntervalMoniSecs."
    ::= { hdsl2Shdsl1DayIntervalEntry 4 }

hdsl2Shdsl1DayIntervalCRCanomalies OBJECT-TYPE
    SYNTAX       Hdsl2Shdsl1DayIntervalCount
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of CRC anomalies during the 1-day interval as
         measured by hdsl2Shdsl1DayIntervalMoniSecs."
    ::= { hdsl2Shdsl1DayIntervalEntry 5 }

hdsl2Shdsl1DayIntervalLOSWS OBJECT-TYPE
    SYNTAX       Hdsl2Shdsl1DayIntervalCount
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Loss of Sync Word (LOSW) Seconds during the 1-day
         interval as measured by hdsl2Shdsl1DayIntervalMoniSecs."
    ::= { hdsl2Shdsl1DayIntervalEntry 6 }
```



```
hdsl2Shdsl1DayIntervalUAS OBJECT-TYPE
    SYNTAX       Hdsl2Shdsl1DayIntervalCount
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of Unavailable Seconds (UAS) during the 1-day interval
         as measured by hdsl2Shdsl1DayIntervalMoniSecs."
    ::= { hdsl2Shdsl1DayIntervalEntry 7 }
```

```
-- Maintenance Group
--

hdsl2ShdslEndpointMaintTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Hdsl2ShdslEndpointMaintEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table supports maintenance operations (eg. loopbacks)
         to be performed on HDSL2/SHDSL segment endpoints."
    ::= { hdsl2ShdslMibObjects 8 }

hdsl2ShdslEndpointMaintEntry OBJECT-TYPE
    SYNTAX      Hdsl2ShdslEndpointMaintEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the hdsl2ShdslEndpointMaintTable.  Each entry
         corresponds to a single segment endpoint, and is indexed by the
         ifIndex of the HDSL2/SHDSL line, the UnitId of the associated
         unit and the side of the unit."
    INDEX { ifIndex, hdsl2ShdslInvIndex, hdsl2ShdslEndpointSide }
    ::= { hdsl2ShdslEndpointMaintTable 1 }

Hdsl2ShdslEndpointMaintEntry ::=
    SEQUENCE
    {
    hdsl2ShdslMaintLoopbackConfig      INTEGER,
    hdsl2ShdslMaintTipRingReversal     INTEGER,
    hdsl2ShdslMaintPowerBackOff        INTEGER,
    hdsl2ShdslMaintSoftRestart         INTEGER
    }

hdsl2ShdslMaintLoopbackConfig OBJECT-TYPE
    SYNTAX      INTEGER
                {
                noLoopback(1),
                normalLoopback(2),
                specialLoopback(3)
                }
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object controls configuration of loopbacks for the
         associated segment endpoint.  The status of the loopback
         is obtained via the hdsl2ShdslEndpointCurrStatus object."
```

```
    ::= { hdsl2ShdslEndpointMaintEntry 1 }

hdsl2ShdslMaintTipRingReversal OBJECT-TYPE
    SYNTAX      INTEGER
                {
                normal(1),
                reversed(2)
                }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object indicates the state of the tip/ring pair at
         the associated segment endpoint."
    ::= { hdsl2ShdslEndpointMaintEntry 2 }

hdsl2ShdslMaintPowerBackOff OBJECT-TYPE
    SYNTAX      INTEGER
                {
                default(1),
                enhanced(2)
                }
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object configures the receiver at the associated
         segment endpoint to operate in default or enhanced power
         backoff mode."
    ::= { hdsl2ShdslEndpointMaintEntry 3 }

hdsl2ShdslMaintSoftRestart OBJECT-TYPE
    SYNTAX      INTEGER
                {
                ready(1),
                restart(2)
                }
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object enables the manager to trigger a soft restart
         of the modem at the associated segment endpoint.  The manager
         may only set this object to the 'restart(2)' value to initiate
         a restart.  The agent will perform a restart after
         approximately 5 seconds, and restore the object to the
         'ready(1)' state."
    ::= { hdsl2ShdslEndpointMaintEntry 4 }

hdsl2ShdslUnitMaintTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Hdsl2ShdslUnitMaintEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
```

```
        "This table supports maintenance operations for units in a
         HDSL2/SHDSL line."
    ::= { hdsl2ShdslMibObjects 9 }
```



```
hdsl2ShdslUnitMaintEntry OBJECT-TYPE
    SYNTAX      Hdsl2ShdslUnitMaintEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the hdsl2ShdslUnitMaintTable.  Each entry
         corresponds to a single unit, and is indexed by the ifIndex
         of the HDSL2/SHDSL line and the UnitId of the associated
         unit."
    INDEX { ifIndex, hdsl2ShdslInvIndex  }
    ::= { hdsl2ShdslUnitMaintTable 1 }

Hdsl2ShdslUnitMaintEntry ::=
    SEQUENCE
    {
    hdsl2ShdslMaintLoopbackTimeout     Integer32,
    hdsl2ShdslMaintUnitPowerSource     INTEGER
    }

hdsl2ShdslMaintLoopbackTimeout OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object configures the timeout value for loopbacks
         initiated at segments endpoints contained in the associated
         unit.  A value of 0 disables the timeout."
    ::= { hdsl2ShdslUnitMaintEntry 1 }

hdsl2ShdslMaintUnitPowerSource OBJECT-TYPE
    SYNTAX      INTEGER
                {
                local(1),
                span(2)
                }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object indicates the DC power source being used by the
         associated unit."
    ::= { hdsl2ShdslUnitMaintEntry 2 }
```

```
-- Span Configuration Profile Group
--

hdsl2ShdslSpanConfProfileTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Hdsl2ShdslSpanConfProfileEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table supports definitions of span configuration
         profiles for SHDSL lines.  HDSL2 does not support these
         configuration options."
    ::= { hdsl2ShdslMibObjects 10 }
```



```
hdsl2ShdslSpanConfProfileEntry OBJECT-TYPE
    SYNTAX      Hdsl2ShdslSpanConfProfileEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Each entry corresponds to a single span configuration
         profile.  Each profile contains a set of span configuration
         parameters.  The configuration parameters in a profile are
         applied to those lines referencing that profile (see the
         hdsl2ShdslSpanConfProfile object).  Profiles may be
         created/deleted using the row creation/deletion mechanism
         via hdsl2ShdslSpanConfProfileRowStatus.  Profiles that are
         being referenced may not be deleted."
    INDEX { IMPLIED hdsl2ShdslSpanConfProfileName }
    ::= { hdsl2ShdslSpanConfProfileTable 1 }

Hdsl2ShdslSpanConfProfileEntry ::=
    SEQUENCE
    {
    hdsl2ShdslSpanConfProfileName               SnmpAdminString,
    hdsl2ShdslSpanConfWireInterface             INTEGER,
    hdsl2ShdslSpanConfMinLineRate               Integer32,
    hdsl2ShdslSpanConfMaxLineRate               Integer32,
    hdsl2ShdslSpanConfPSD                       INTEGER,
    hdsl2ShdslSpanConfTransmissionMode
                                    Hdsl2ShdslTransmissionModeType,
    hdsl2ShdslSpanConfRemoteEnabled             INTEGER,
    hdsl2ShdslSpanConfPowerFeeding              INTEGER,
    hdsl2ShdslSpanConfCurrCondTargetMarginDown  INTEGER,
    hdsl2ShdslSpanConfWorstCaseTargetMarginDown INTEGER,
    hdsl2ShdslSpanConfCurrCondTargetMarginUp    INTEGER,
    hdsl2ShdslSpanConfWorstCaseTargetMarginUp   INTEGER,
    hdsl2ShdslSpanConfUsedTargetMargins         Integer32,
```

```
    hdsl2ShdslSpanConfProfileRowStatus          RowStatus
    }

hdsl2ShdslSpanConfProfileName OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE(1..32))
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object is the unique index associated with this profile."
    ::= { hdsl2ShdslSpanConfProfileEntry 1 }

hdsl2ShdslSpanConfWireInterface OBJECT-TYPE
    SYNTAX      INTEGER
                {
                twoWire(1),
                fourWire(2)
                }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object configures the two-wire or optional four-wire
         operation for SHDSL Lines."
```



```
    ::= { hdsl2ShdslSpanConfProfileEntry 2 }

hdsl2ShdslSpanConfMinLineRate OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "bps"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object configures the minimum transmission rate for
         the associated SHDSL Line in bits-per-second (bps).  If
         the minimum line rate equals the maximum line rate
         (hdsl2ShdslSpanMaxLineRate), the line rate is considered
         'fixed'.  If the minimum line rate is less than the maximum
         line rate, the line rate is considered 'rate-adaptive'."
    ::= { hdsl2ShdslSpanConfProfileEntry 3 }

hdsl2ShdslSpanConfMaxLineRate OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "bps"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object configures the maximum transmission rate for
         the associated SHDSL Line in bits-per-second (bps).  If
```

```
          the minimum line rate equals the maximum line rate
          (hdsl2ShdslSpanMaxLineRate), the line rate is considered
          'fixed'.  If the minimum line rate is less than the maximum
          line rate, the line rate is considered 'rate-adaptive'."
    ::= { hdsl2ShdslSpanConfProfileEntry 4 }

hdsl2ShdslSpanConfPSD OBJECT-TYPE
    SYNTAX      INTEGER
                {
                symmetric(1),
                asymmetric(2)
                }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object configures use of symmetric/asymmetric PSD (Power
         Spectral Density) Mask for the associated SHDSL Line.  Support
         for symmetric PSD is mandatory for all supported data rates.
         Support for asymmetric PSD is optional."
    ::= { hdsl2ShdslSpanConfProfileEntry 5 }

hdsl2ShdslSpanConfTransmissionMode OBJECT-TYPE
    SYNTAX      Hdsl2ShdslTransmissionModeType
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object specifies the regional setting for the SHDSL
         line."
    ::= { hdsl2ShdslSpanConfProfileEntry 6 }

hdsl2ShdslSpanConfRemoteEnabled OBJECT-TYPE
```



```
    SYNTAX      INTEGER
                {
                enabled(1),
                disabled(2)
                }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object enables/disables support for remote management
         of the units in a SHDSL line from the STU-R via the EOC."
    ::= { hdsl2ShdslSpanConfProfileEntry 7 }

hdsl2ShdslSpanConfPowerFeeding OBJECT-TYPE
    SYNTAX      INTEGER
                {
```

```
                noPower(1),
                powerFeed(2),
                wettingCurrent(3)
                }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object enables/disables support for optional power
         feeding in a SHDSL line."
    ::= { hdsl2ShdslSpanConfProfileEntry 8 }

hdsl2ShdslSpanConfCurrCondTargetMarginDown OBJECT-TYPE
    SYNTAX      INTEGER(-10..21)
    UNITS       "dB"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object specifies the downstream current condition target
         SNR margin for a SHDSL line.  The SNR margin is the difference
         between the desired SNR and the actual SNR.  Target SNR margin
         is the desired SNR margin for a unit."
    ::= { hdsl2ShdslSpanConfProfileEntry 9 }

hdsl2ShdslSpanConfWorstCaseTargetMarginDown OBJECT-TYPE
    SYNTAX      INTEGER(-10..21)
    UNITS       "dB"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object specifies the downstream worst case target SNR
         margin for a SHDSL line.  The SNR margin is the difference
         between the desired SNR and the actual SNR.  Target SNR
         margin is the desired SNR margin for a unit."
    ::= { hdsl2ShdslSpanConfProfileEntry 10 }

hdsl2ShdslSpanConfCurrCondTargetMarginUp OBJECT-TYPE
    SYNTAX      INTEGER(-10..21)
    UNITS       "dB"
    MAX-ACCESS  read-create
    STATUS      current
```



```
    DESCRIPTION
        "This object specifies the upstream current condition target
         SNR margin for a SHDSL line.  The SNR margin is the difference
         between the desired SNR and the actual SNR.  Target SNR margin
         is the desired SNR margin for a unit."
    ::= { hdsl2ShdslSpanConfProfileEntry 11 }
```

```
hdsl2ShdslSpanConfWorstCaseTargetMarginUp OBJECT-TYPE
    SYNTAX      INTEGER(-10..21)
    UNITS       "dB"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object specifies the upstream worst case target SNR
         margin for a SHDSL line.  The SNR margin is the difference
         between the desired SNR and the actual SNR.  Target SNR margin
         is the desired SNR margin for a unit."
    ::= { hdsl2ShdslSpanConfProfileEntry 12 }

hdsl2ShdslSpanConfUsedTargetMargins OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Contains indicates whether a target SNR margin is enabled or
         disabled.  This is a bit-map of possible settings.  The
         various bit positions are:

         1 currCondDown     current condition downstream target SNR
                            margin enabled

         2 worstCaseDown    worst case downstream target SNR margin
                            enabled

         4 currCondUp       current condition upstream target SNR
                            margin enabled

         8 worstCaseUp      worst case upstream target SNR margin
                            enabled."
    ::= { hdsl2ShdslSpanConfProfileEntry 13 }

hdsl2ShdslSpanConfProfileRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object controlls creation/deletion of the associated
         entry in this table per the semantics of RowStatus."
    ::= { hdsl2ShdslSpanConfProfileEntry 14 }

-- Segment Endpoint Alarm Configuration Profile group
--

hdsl2ShdslEndpointAlarmConfProfileTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Hdsl2ShdslEndpointAlarmConfProfileEntry
```

```
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table supports definitions of alarm configuration
         profiles for HDSL2/SHDSL segment endoints."
    ::= { hdsl2ShdslMibObjects 11 }

hdsl2ShdslEndpointAlarmConfProfileEntry OBJECT-TYPE
    SYNTAX      Hdsl2ShdslEndpointAlarmConfProfileEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Each entry corresponds to a single alarm configuration profile.
         Each profile contains a set of parameters for setting alarm
         thresholds for various performance attributes monitored at
         HDSL2/SHDSL segment endpoints.  Profiles may be created/deleted
         using the row creation/deletion mechanism via
         hdsl2ShdslEndpointAlarmConfProfileRowStatus.  Profiles that
         are being referenced may not be deleted."
    INDEX { IMPLIED hdsl2ShdslEndpointAlarmConfProfileName }
    ::= { hdsl2ShdslEndpointAlarmConfProfileTable 1 }

Hdsl2ShdslEndpointAlarmConfProfileEntry ::=
    SEQUENCE
    {
    hdsl2ShdslEndpointAlarmConfProfileName       SnmpAdminString,
    hdsl2ShdslEndpointThreshLoopAttenuation      Integer32,
    hdsl2ShdslEndpointThreshSNRMargin            Integer32,
    hdsl2ShdslEndpointThreshES
                Hdsl2ShdslPerfIntervalThreshold,
    hdsl2ShdslEndpointThreshSES
                Hdsl2ShdslPerfIntervalThreshold,
    hdsl2ShdslEndpointThreshCRCanomalies         Integer32,
    hdsl2ShdslEndpointThreshLOSWS
                Hdsl2ShdslPerfIntervalThreshold,
    hdsl2ShdslEndpointThreshUAS
                Hdsl2ShdslPerfIntervalThreshold,
    hdsl2ShdslEndpointAlarmConfProfileRowStatus  RowStatus
    }

hdsl2ShdslEndpointAlarmConfProfileName OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE(1..32))
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object is the unique index associated with this profile."
    ::= { hdsl2ShdslEndpointAlarmConfProfileEntry 1 }

hdsl2ShdslEndpointThreshLoopAttenuation OBJECT-TYPE
```

```
    SYNTAX      Integer32
    UNITS       "dB"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object configures the loop attentuation alarm threshold.
```



```
         When the current value reaches or drops below this threshold,
         a hdsl2ShdslLoopAttenCrossing will be generated."
    ::= { hdsl2ShdslEndpointAlarmConfProfileEntry 2 }

hdsl2ShdslEndpointThreshSNRMargin OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "dB"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object configures the SNR margin alarm threshold.
         When the current value reaches or drops below this threshold,
         a hdsl2ShdslSNRMarginCrossing will be generated."
    ::= { hdsl2ShdslEndpointAlarmConfProfileEntry 3 }

hdsl2ShdslEndpointThreshES OBJECT-TYPE
    SYNTAX      Hdsl2ShdslPerfIntervalThreshold
    UNITS       "seconds"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object configures the threshold for the number of
         errored seconds (ES) within any given 15-minute performance
         data collection interval.  If the value of errored seconds
         in a particular 15-minute collection interval reaches/
         exceeds this value, a hdsl2ShdslPerfESThresh will be
         generated.  One notification will be sent per interval per
         endpoint."
    ::= { hdsl2ShdslEndpointAlarmConfProfileEntry 4 }

hdsl2ShdslEndpointThreshSES OBJECT-TYPE
    SYNTAX      Hdsl2ShdslPerfIntervalThreshold
    UNITS       "seconds"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object configures the threshold for the number of
         severely errored seconds (SES) within any given 15-minute
         performance data collection interval.  If the value of
         severely errored seconds in a particular 15-minute collection
```

```
          interval reaches/exceeds this value, a hdsl2ShdslPerfSESThresh
          will be generated.  One notification will be sent per interval
          per endpoint."
     ::= { hdsl2ShdslEndpointAlarmConfProfileEntry 5 }

hdsl2ShdslEndpointThreshCRCanomalies OBJECT-TYPE
     SYNTAX      Integer32
     MAX-ACCESS  read-create
     STATUS      current
     DESCRIPTION
         "This object configures the threshold for the number of
          CRC anomalies within any given 15-minute performance data
          collection interval.  If the value of CRC anomalies in a
          particular 15-minute collection interval reaches/exceeds
          this value, a hdsl2ShdslPerfCRCanomaliesThresh will be
```



```
          generated.  One notification will be sent per interval per
          endpoint."
     ::= { hdsl2ShdslEndpointAlarmConfProfileEntry 6 }

hdsl2ShdslEndpointThreshLOSWS OBJECT-TYPE
     SYNTAX      Hdsl2ShdslPerfIntervalThreshold
     UNITS       "seconds"
     MAX-ACCESS  read-create
     STATUS      current
     DESCRIPTION
         "This object configures the threshold for the number of
          Loss of Sync Word (LOSW) Seconds within any given 15-minute
          performance data collection interval.  If the value of LOSW
          in a particular 15-minute collection interval reaches/exceeds
          this value, a hdsl2ShdslPerfLOSWSThresh will be generated.
          One notification will be sent per interval per endpoint."
     ::= { hdsl2ShdslEndpointAlarmConfProfileEntry 7 }

hdsl2ShdslEndpointThreshUAS OBJECT-TYPE
     SYNTAX      Hdsl2ShdslPerfIntervalThreshold
     UNITS       "seconds"
     MAX-ACCESS  read-create
     STATUS      current
     DESCRIPTION
         "This object configures the threshold for the number of
          unavailable seconds (UAS) within any given 15-minute
          performance data collection interval.  If the value of UAS
          in a particular 15-minute collection interval reaches/exceeds
          this value, a hdsl2ShdslPerfUASThresh will be generated.
          One notification will be sent per interval per endpoint."
     ::= { hdsl2ShdslEndpointAlarmConfProfileEntry 8 }
```

```
hdsl2ShdslEndpointAlarmConfProfileRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object controls creation/deletion of the associated
         entry in this table as per the semantics of RowStatus."
    ::= { hdsl2ShdslEndpointAlarmConfProfileEntry 9 }

-- Notifications Group
--

hdsl2ShdslNotifications OBJECT IDENTIFIER ::= { hdsl2ShdslMIB 0 }

hdsl2ShdslLoopAttenCrossing NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslEndpointCurrAtn,
    hdsl2ShdslEndpointThreshLoopAttenuation
    }
    STATUS     current
    DESCRIPTION
        "This notification indicates that the loop attenuation
```



```
         threshold (as per the hdsl2ShdslEndpointThreshLoopAttenuation
         value) has been reached/exceeded for the HDSL2/SHDSL segment
         endpoint."
::= { hdsl2ShdslNotifications 1 }

hdsl2ShdslSNRMarginCrossing NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslEndpointCurrSnrMgn,
    hdsl2ShdslEndpointThreshSNRMargin
    }
    STATUS     current
    DESCRIPTION
        "This notification indicates that the SNR margin threshold (as
         per the hdsl2ShdslEndpointThreshSNRMargin value) has been
         reached/exceeded for the HDSL2/SHDSL segment endpoint."
    ::= { hdsl2ShdslNotifications 2 }

hdsl2ShdslPerfESThresh NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslEndpointCurr15MinES,
```

```
    hdsl2ShdslEndpointThreshES
    }
    STATUS     current
    DESCRIPTION
        "This notification indicates that the errored seconds threshold
         (as per the hdsl2ShdslEndpointThreshES value) has been reached/
         exceeded for the HDSL2/SHDSL segment endpoint."
    ::= { hdsl2ShdslNotifications 3 }

hdsl2ShdslPerfSESThresh NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslEndpointCurr15MinSES,
    hdsl2ShdslEndpointThreshSES
    }
    STATUS     current
    DESCRIPTION
        "This notification indicates that the severely errored seconds
         threshold (as per the hdsl2ShdslEndpointThreshSES value) has
         been reached/exceeded for the HDSL2/SHDSL Segment Endpoint."
    ::= { hdsl2ShdslNotifications 4 }

hdsl2ShdslPerfCRCanomaliesThresh NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslEndpointCurr15MinCRCanomalies,
    hdsl2ShdslEndpointThreshCRCanomalies
    }
    STATUS    current
    DESCRIPTION
        "This notification indicates that the CRC anomalies threshold
         (as per the hdsl2ShdslEndpointThreshCRCanomalies value) has
         been reached/exceeded for the HDSL2/SHDSL Segment Endpoint."
```



```
    ::= { hdsl2ShdslNotifications 5 }

hdsl2ShdslPerfLOSWSThresh NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslEndpointCurr15MinLOSWS,
    hdsl2ShdslEndpointThreshLOSWS
    }
    STATUS     current
    DESCRIPTION
        "This notification indicates that the LOSW seconds threshold
         (as per the hdsl2ShdslEndpointThreshLOSWS value) has been
         reached/exceeded for the HDSL2/SHDSL segment endpoint."
```

```
    ::= { hdsl2ShdslNotifications 6 }

hdsl2ShdslPerfUASThresh NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslEndpointCurr15MinUAS,
    hdsl2ShdslEndpointThreshUAS
    }
    STATUS     current
    DESCRIPTION
        "This notification indicates that the unavailable seconds
         threshold (as per the hdsl2ShdslEndpointThreshUAS value) has
         been reached/exceeded for the HDSL2/SHDSL segment endpoint."
    ::= { hdsl2ShdslNotifications 7 }

hdsl2ShdslSpanInvalidNumRepeaters NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslSpanConfNumRepeaters
    }
    STATUS     current
    DESCRIPTION
        "This notification indicates that a mismatch has been detected
         between the number of repeater/regenerator units configured
         for a HDSL2/SHDSL line via the hdsl2ShdslSpanConfNumRepeaters
         object and the actual number of repeater/regenerator units
         discovered via the EOC."
    ::= { hdsl2ShdslNotifications 8 }

hdsl2ShdslLoopbackFailure NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslMaintLoopbackConfig
    }
    STATUS     current
    DESCRIPTION
        "This notification indicates that an endpoint maintenance
         loopback command failed for an HDSL2/SHDSL segment."
    ::= { hdsl2ShdslNotifications 9 }

hdsl2ShdslpowerBackoff NOTIFICATION-TYPE
    OBJECTS
```



```
    {
    hdsl2ShdslEndpointCurrStatus
    }
    STATUS    current
```

```
    DESCRIPTION
        "This notification indicates that the bit setting for
         powerBackoff in the hdsl2ShdslEndpointCurrStatus object for
         this endpoint has changed."
    ::= { hdsl2ShdslNotifications 10 }

hdsl2ShdsldeviceFault NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslEndpointCurrStatus
    }
    STATUS    current
    DESCRIPTION
        "This notification indicates that the bit setting for
         deviceFault in the hdsl2ShdslEndpointCurrStatus object for
         this endpoint has changed."
    ::= { hdsl2ShdslNotifications 11 }

hdsl2ShdsldcContinuityFault NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslEndpointCurrStatus
    }
    STATUS    current
    DESCRIPTION
        "This notification indicates that the bit setting for
         dcContinuityFault in the hdsl2ShdslEndpointCurrStatus object
         for this endpoint has changed."
    ::= { hdsl2ShdslNotifications 12 }

hdsl2ShdslconfigInitFailure NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslEndpointCurrStatus
    }
    STATUS    current
    DESCRIPTION
        "This notification indicates that the bit setting for
         configInitFailure in the hdsl2ShdslEndpointCurrStatus object
         for this endpoint has changed."
    ::= { hdsl2ShdslNotifications 13 }

hdsl2ShdslprotocolInitFailure NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslEndpointCurrStatus
    }
    STATUS    current
    DESCRIPTION
        "This notification indicates that the bit setting for
         protocolInitFailure in the hdsl2ShdslEndpointCurrStatus
```

```
         object for this endpoint has changed."
    ::= { hdsl2ShdslNotifications 14 }

hdsl2ShdslnoNeighborPresent NOTIFICATION-TYPE
    OBJECTS
    {
    hdsl2ShdslEndpointCurrStatus
    }
    STATUS    current
    DESCRIPTION
        "This notification indicates that the bit setting for
         noNeighborPresent in the hdsl2ShdslEndpointCurrStatus object
         for this endpoint has changed."
    ::= { hdsl2ShdslNotifications 15 }

hdsl2ShdsllocalPowerLoss NOTIFICATION-TYPE
    OBJECTS
    {
    ifIndex,
    hdsl2ShdslInvIndex
    }
    STATUS    current
    DESCRIPTION
        "This notification indicates impending unit failure due to
         loss of local power (last gasp)."
    ::= { hdsl2ShdslNotifications 16 }

-- conformance information
--

hdsl2ShdslConformance OBJECT IDENTIFIER ::= { hdsl2ShdslMIB 3 }
hdsl2ShdslGroups      OBJECT IDENTIFIER ::= { hdsl2ShdslConformance 1 }
hdsl2ShdslCompliances OBJECT IDENTIFIER ::= { hdsl2ShdslConformance 2 }

-- agent compliance statements

hdsl2ShdslLineMibCompliance MODULE-COMPLIANCE
    STATUS  current
    DESCRIPTION
        "The section outlines compliance requirements for this MIB."
    MODULE
    MANDATORY-GROUPS
    {
    hdsl2ShdslSpanConfGroup,
    hdsl2ShdslSpanStatusGroup,
    hdsl2ShdslInventoryGroup,
```

```
    hdsl2ShdslEndpointConfGroup,
    hdsl2ShdslEndpointCurrGroup,
    hdsl2Shdsl15MinIntervalGroup,
    hdsl2Shdsl1DayIntervalGroup,
    hdsl2ShdslMaintenanceGroup,
    hdsl2ShdslEndpointAlarmConfGroup,
    hdsl2ShdslNotificationGroup
    }
```



```
GROUP  hdsl2ShdslInventoryShdslGroup
    DESCRIPTION
        "Support for this group is only required for implementations
        supporting SHDSL lines."

GROUP  hdsl2ShdslSpanShdslStatusGroup
    DESCRIPTION
        "Support for this group is only required for implementations
        supporting SHDSL lines."

GROUP  hdsl2ShdslSpanConfProfileGroup
    DESCRIPTION
        "Support for this group is only required for implementations
        supporting SHDSL lines."

    ::= { hdsl2ShdslCompliances 1 }

-- units of conformance
--

hdsl2ShdslSpanConfGroup OBJECT-GROUP
    OBJECTS
    {
    hdsl2ShdslSpanConfNumRepeaters,
    hdsl2ShdslSpanConfProfile,
    hdsl2ShdslSpanConfAlarmProfile
    }
    STATUS      current
    DESCRIPTION
        "This group supports objects for configuring span related
         parameters for HDSL2/SHDSL lines."
    ::= { hdsl2ShdslGroups 1 }

hdsl2ShdslSpanStatusGroup OBJECT-GROUP
    OBJECTS
    {
    hdsl2ShdslStatusNumAvailRepeaters
    }
```

```
    STATUS      current
    DESCRIPTION
        "This group supports objects for retrieving span related
         status for HDSL2/SHDSL lines."
    ::= { hdsl2ShdslGroups 2 }

hdsl2ShdslInventoryShdslGroup OBJECT-GROUP
    OBJECTS
    {
    hdsl2ShdslInvTransmissionModeCapability
    }
    STATUS      current
    DESCRIPTION
        "This group supports objects for retrieving SHDSL-specific
         inventory information."
    ::= { hdsl2ShdslGroups 3 }
```



```
hdsl2ShdslSpanShdslStatusGroup OBJECT-GROUP
    OBJECTS
    {
    hdsl2ShdslStatusMaxAttainableLineRate,
    hdsl2ShdslStatusActualLineRate,
    hdsl2ShdslStatusTransmissionModeCurrent
    }
    STATUS      current
    DESCRIPTION
        "This group supports objects for retrieving SHDSL-specific
         span related status."
    ::= { hdsl2ShdslGroups 4 }

hdsl2ShdslInventoryGroup OBJECT-GROUP
    OBJECTS
    {
    hdsl2ShdslInvIndex,
    hdsl2ShdslInvVendorID,
    hdsl2ShdslInvVendorModelNumber,
    hdsl2ShdslInvVendorSerialNumber,
    hdsl2ShdslInvVendorEOCSoftwareVersion,
    hdsl2ShdslInvStandardVersion,
    hdsl2ShdslInvVendorListNumber,
    hdsl2ShdslInvVendorIssueNumber,
    hdsl2ShdslInvVendorSoftwareVersion,
    hdsl2ShdslInvEquipmentCode,
    hdsl2ShdslInvVendorOther
    }
    STATUS      current
```

```
    DESCRIPTION
        "This group supports objects that provide unit inventory
         information about the units in HDSL2/SHDSL lines."
    ::= { hdsl2ShdslGroups 5 }

hdsl2ShdslEndpointConfGroup OBJECT-GROUP
    OBJECTS
    {
    hdsl2ShdslEndpointSide,
    hdsl2ShdslEndpointWirePair,
    hdsl2ShdslEndpointAlarmConfProfile
    }
    STATUS      current
    DESCRIPTION
        "This group supports objects for configuring parameters for
         segment endpoints in HDSL2/SHDSL lines."
    ::= { hdsl2ShdslGroups 6 }

hdsl2ShdslEndpointCurrGroup OBJECT-GROUP
    OBJECTS
    {
    hdsl2ShdslEndpointSide,
    hdsl2ShdslEndpointWirePair,
    hdsl2ShdslEndpointCurrAtn,
    hdsl2ShdslEndpointCurrSnrMgn,
    hdsl2ShdslEndpointCurrStatus,
```



```
    hdsl2ShdslEndpointES,
    hdsl2ShdslEndpointSES,
    hdsl2ShdslEndpointCRCanomalies,
    hdsl2ShdslEndpointLOSWS,
    hdsl2ShdslEndpointUAS,
    hdsl2ShdslEndpointCurr15MinTimeElapsed,
    hdsl2ShdslEndpointCurr15MinES,
    hdsl2ShdslEndpointCurr15MinSES,
    hdsl2ShdslEndpointCurr15MinCRCanomalies,
    hdsl2ShdslEndpointCurr15MinLOSWS,
    hdsl2ShdslEndpointCurr15MinUAS,
    hdsl2ShdslEndpointCurr1DayTimeElapsed,
    hdsl2ShdslEndpointCurr1DayES,
    hdsl2ShdslEndpointCurr1DaySES,
    hdsl2ShdslEndpointCurr1DayCRCanomalies,
    hdsl2ShdslEndpointCurr1DayLOSWS,
    hdsl2ShdslEndpointCurr1DayUAS
    }
    STATUS      current
    DESCRIPTION
```

```
        "This group supports objects which provide current status and
         performance measurements relating to segment endpoints in
         HDSL2/SHDSL lines."
    ::= { hdsl2ShdslGroups 7 }

hdsl2Shdsl15MinIntervalGroup OBJECT-GROUP
    OBJECTS
    {
    hdsl2Shdsl15MinIntervalES,
    hdsl2Shdsl15MinIntervalSES,
    hdsl2Shdsl15MinIntervalCRCanomalies,
    hdsl2Shdsl15MinIntervalLOSWS,
    hdsl2Shdsl15MinIntervalUAS
    }
    STATUS      current
    DESCRIPTION
        "This group supports objects which maintain historic
         performance measurements relating to segment endpoints in
         HDSL2/SHDSL lines in 15-minute intervals."
    ::= { hdsl2ShdslGroups 8 }

hdsl2Shdsl1DayIntervalGroup OBJECT-GROUP
    OBJECTS
    {
    hdsl2Shdsl1DayIntervalMoniSecs,
    hdsl2Shdsl1DayIntervalES,
    hdsl2Shdsl1DayIntervalSES,
    hdsl2Shdsl1DayIntervalCRCanomalies,
    hdsl2Shdsl1DayIntervalLOSWS,
    hdsl2Shdsl1DayIntervalUAS
    }
    STATUS      current
    DESCRIPTION
        "This group supports objects which maintain historic
         performance measurements relating to segment endpoints in
```



```
         HDSL2/SHDSL lines in 1-day intervals."
    ::= { hdsl2ShdslGroups 9 }

hdsl2ShdslMaintenanceGroup OBJECT-GROUP
    OBJECTS
    {
    hdsl2ShdslMaintLoopbackConfig,
    hdsl2ShdslMaintTipRingReversal,
    hdsl2ShdslMaintPowerBackOff,
    hdsl2ShdslMaintSoftRestart,
    hdsl2ShdslMaintLoopbackTimeout,
```

```
    hdsl2ShdslMaintUnitPowerSource
    }
    STATUS      current
    DESCRIPTION
        "This group supports objects that provide support for
         maintenance actions for HDSL2/SHDSL lines."
    ::= { hdsl2ShdslGroups 10 }

hdsl2ShdslEndpointAlarmConfGroup OBJECT-GROUP
    OBJECTS
    {
    hdsl2ShdslEndpointThreshLoopAttenuation,
    hdsl2ShdslEndpointThreshSNRMargin,
    hdsl2ShdslEndpointThreshES,
    hdsl2ShdslEndpointThreshSES,
    hdsl2ShdslEndpointThreshCRCanomalies,
    hdsl2ShdslEndpointThreshLOSWS,
    hdsl2ShdslEndpointThreshUAS,
    hdsl2ShdslEndpointAlarmConfProfileRowStatus
    }
    STATUS      current
    DESCRIPTION
        "This group supports objects that allow configuration of alarm
         thresholds for various performance parameters for HDSL2/SHDSL
         lines."
    ::= { hdsl2ShdslGroups 11 }

hdsl2ShdslNotificationGroup NOTIFICATION-GROUP
    NOTIFICATIONS
    {
    hdsl2ShdslLoopAttenCrossing,
    hdsl2ShdslSNRMarginCrossing,
    hdsl2ShdslPerfESThresh,
    hdsl2ShdslPerfSESThresh,
    hdsl2ShdslPerfCRCanomaliesThresh,
    hdsl2ShdslPerfLOSWSThresh,
    hdsl2ShdslPerfUASThresh,
    hdsl2ShdslSpanInvalidNumRepeaters,
    hdsl2ShdslLoopbackFailure,
    hdsl2ShdslpowerBackoff,
    hdsl2ShdsldeviceFault,
    hdsl2ShdsldcContinuityFault,
    hdsl2ShdslconfigInitFailure,
    hdsl2ShdslprotocolInitFailure,
```



```
    hdsl2ShdslnoNeighborPresent,
    hdsl2ShdsllocalPowerLoss
```

```
    }
    STATUS      current
    DESCRIPTION
        "This group supports notifications of significant events/
         conditions associated with HDSL2/SHDSL lines."
    ::= { hdsl2ShdslGroups 12 }

hdsl2ShdslSpanConfProfileGroup OBJECT-GROUP
    OBJECTS
    {
    hdsl2ShdslSpanConfWireInterface,
    hdsl2ShdslSpanConfMinLineRate,
    hdsl2ShdslSpanConfMaxLineRate,
    hdsl2ShdslSpanConfPSD,
    hdsl2ShdslSpanConfTransmissionMode,
    hdsl2ShdslSpanConfRemoteEnabled,
    hdsl2ShdslSpanConfPowerFeeding,
    hdsl2ShdslSpanConfCurrCondTargetMarginDown,
    hdsl2ShdslSpanConfWorstCaseTargetMarginDown,
    hdsl2ShdslSpanConfCurrCondTargetMarginUp,
    hdsl2ShdslSpanConfWorstCaseTargetMarginUp,
    hdsl2ShdslSpanConfUsedTargetMargins,
    hdsl2ShdslSpanConfProfileRowStatus
    }
    STATUS      current
    DESCRIPTION
        "This group supports objects that constitute configuration
         profiles for configuring span related parameters in SHDSL
         lines."
    ::= { hdsl2ShdslGroups 13 }

END
```

7. Security Considerations

There are a number of management objects defined in this MIB that have a MAX-ACCESS clause of read-write and/or read-create. Such objects may be considered sensitive or vulnerable in some network environments. The support for SET operations in a non-secure environment without proper protection can have a negative effect on network operations.

No managed objects in this MIB contain sensitive information.

SNMPv1 by itself is not a secure environment. Even if the network itself is secure (for example by using IPSec), even then, there is no control as to who on the secure network is allowed to access and GET/SET (read/change/create/delete) the objects in this MIB.

It is recommended that the implementers consider the security features as provided by the SNMPv3 framework. Specifically, the use

of the User-based Security Model RFC 2574 [12] and the View-based Access Control Model RFC 2575 [15] is recommended.

It is then a customer/user responsibility to ensure that the SNMP entity giving access to an instance of this MIB, is properly configured to give access to the objects only to those principals (users) that have legitimate rights to indeed GET or SET (change/create/delete) them.

8. Acknowledgments

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