

Definitions of Managed Objects for HDSL2 and SHDSL Lines
draft-ietf-adslmib-hdsl2-02.txt

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[1.](#) Abstract

This document defines an experimental portion of the Management Information Base (MIB) 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:

- o An overall architecture, described in [RFC 2571](#) [\[1\]](#).
- o 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].

- o 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].

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- o 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].

[2.1.](#) Object Definitions

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

defined using the subset of Abstract Syntax Notation One (ASN.1) defined in the SMI. In particular, each object type is named by an OBJECT IDENTIFIER, an administratively assigned name. The object type together with an object instance serves to uniquely identify a specific instantiation of the object. For human convenience, we often use a textual string, termed the descriptor, to also refer to the object type.

3. Introduction

This document describes an SNMP MIB for managing HDSL2/SHDSL Lines. The MIB is intended to be compatible with both the SNMPv1 and SNMPv2. 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.

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NOTE TO RFC EDITOR: please replace the above paragraph with the following paragraph when appropriate:

The MIB is located in the MIB tree under MIB-2 transmission, as discussing in the MIB-2 Integration ([RFC 1213](#) [20] and [RFC 2863](#) [21]) section of this document.

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
    ...
}
```

}

This MIB will be accessed through the transmission subtree as shown:

```
hdsl2ShdslInterface ::= { transmission xxx }
```

NOTE TO RFC EDITOR: please replace the xxx with an assigned number

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.

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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.** LOS means loss of signal.
- I.** LOSS means loss of signal second.
- J.** LOSW means loss of sync word, distinct from LOS.
- K.** LOSWS means LOSW second.
- L.** SES means severely errored second.
- M.** SNR means signal-to-noise ratio.
- N.** UAS means unavailable second.

4.2. Textual Conventions

The following textual conventions are defined to reflect the line topology in the MIB (further discussed in 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
xru(3) .. xru8(10)	- regenerators, numbered from central office side

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- 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 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 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

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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):

- hds12Shds1EndpointCurrTable

- 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):

- hds12Shds115MinIntervalTable

- 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):

- hds12Shds11DayIntervalTable

- 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):

- hds12Shds1EndpointMaintTable
- hds12Shds1UnitMaintTable

- o Span Configuration Profile Group:

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

- hds12Shds1SpanConfProfileTable

- 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):

- hds12Shds1EndpointAlarmConfProfileTable

- o Notifications Group:

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

- hds12ShdslLoopAttenCrossingTrap
- hds12ShdslSNRMarginCrossingTrap
- hds12ShdslPerfESThreshTrap
- hds12ShdslPerfSESThreshTrap
- hds12ShdslPerfCRCAnomaliesThreshTrap
- hds12ShdslPerfLOSWSThreshTrap
- hds12ShdslPerfUASThreshTrap
- hds12ShdslSpanInvalidNumRepeaters

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.

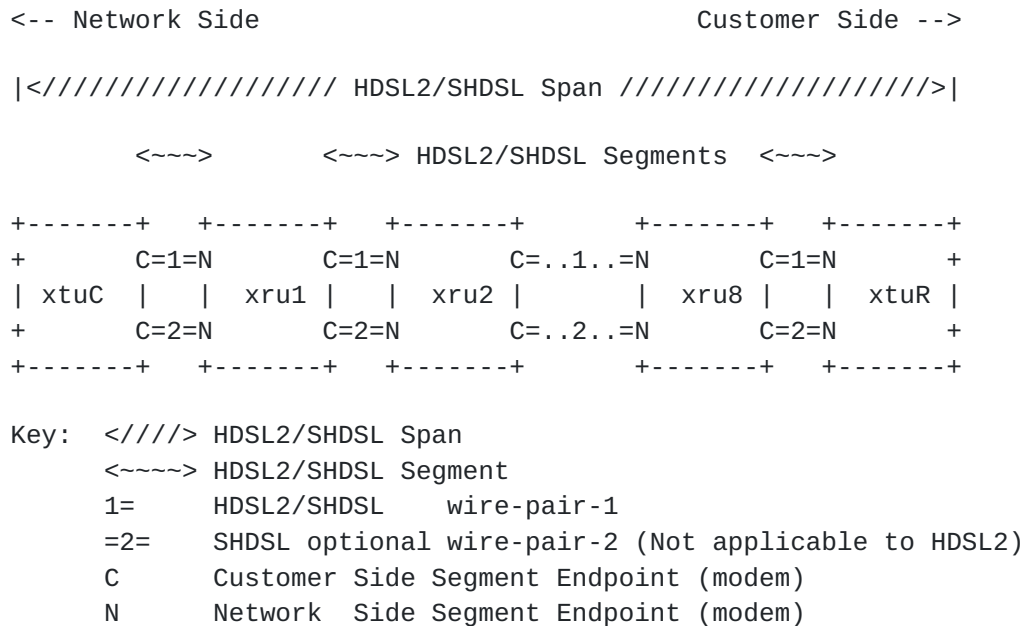


Figure 2: General topology for an HDSL2/SHDSL Line

4.4. Counters, Interval Buckets and Thresholds

For SNR Margin, Loop Attenuation, ES, SES, CRC anomalies, LOSWS, 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 trap.

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

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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:

- o Span Configuration Profiles - Span configuration profiles contain parameters for configuring HDSL2/SHDSL spans. They are defined in the `hds12ShdslSpanConfProfileTable`. Since span configuration parameters are only applicable for SHDSL, the support for span configuration profiles is optional for HDSL2 interfaces.
- o Segment Endpoint Alarm Configuration Profiles - These profiles contain parameters for configuring alarm thresholds for HDSL2/SHDSL segment endpoints. These profiles are defined in the `hds12ShdslEndpointAlarmConfProfileTable`.

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., `hds12ShdslEndpointAlarmConfProfile = `silver'`) by setting its `hds12ShdslEndpointAlarmConfProfile` 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 `hdl2ShdslEndpointAlarmConfProfile` and `hdl2ShdslSpanConfProfile` 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.

Changes to alarm profiles MUST take effect immediately. Changes to non-alarm profiles MAY be deferred until the next restart (hard reset or soft restart) of the units on the line. Vendors MAY choose to have

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the non-alarm profile changes take effect immediately. Alarm profiles are those profile settings found in the `hdl2ShdslEndpointAlarmConfProfileTable`. Non-alarm profiles are those profile settings found in the `hdl2ShdslSpanConfTable` and `hdl2ShdslSpanConfProfileTable`.

4.6. Traps

The ability to generate the SNMP traps `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` trap may be generated whenever any of ES, SES, CRC Anomaly, LOSWS, or UAS event occurs. At this operational point, a manager can use `hdl2ShdslEndpointCurrStatus` for additional detailed information. The corresponding `linkUp` trap MAY be sent when all link failure conditions are cleared.

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

The `hdl2ShdslEndpointCurrStatus` 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.

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 trap occurs whenever the corresponding current 15-minute interval error counter becomes equal to, or exceeds the threshold value. One trap 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 trap may recur as often as every 15 minutes. For example, to get a trap whenever a "loss of" event occurs (but at most once every 15 minutes), set the corresponding threshold to 1. The agent will generate a trap when the event originally occurs.

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Note that the NMS may receive a `linkDown` trap, 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 trap will be sent again.

[5.](#) Conformance and Compliance

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

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

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

- `hdsl2ShdslSpanConfProfileGroup`

[6.](#) Definitions

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

IMPORTS

MODULE-IDENTITY,

OBJECT-TYPE,

Counter32,

Gauge32,

NOTIFICATION-TYPE,

Integer32,

experimental FROM SNMPv2-SMI

DisplayString,

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;

hds12ShdslMIB MODULE-IDENTITY

LAST-UPDATED "0008210000Z" -- August 21, 2000

ORGANIZATION "ADSLMIB Working Group"

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"

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"

DESCRIPTION

"This MIB module defines a collection of objects for managing HDLSL2/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 HDLSL2 lines), or in ITU G.991.2 (for SHDSL lines)."

-- NOTE TO RFC EDITOR: Please replace the following with the
-- appropriate assigned 'transmission xxx' number
::= { experimental 999999 }

hdsl2ShdslLineMib OBJECT IDENTIFIER ::= { hdsl2ShdslMIB 1 }
hdsl2ShdslMibObjects OBJECT IDENTIFIER ::= { hdsl2ShdslLineMib 1 }

-- Textual Conventions used in this MIB
--

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

The value of this counter 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 counter 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

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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 an 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 an 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 an HDSL2/SHDSL Segment. HDSL2 only supports a single pair (wirePair1), while SHDSL supports an optional second pair (wirePair2)."

SYNTAX INTEGER

```

    {
        wirePair1(1),
        wirePair2(2)
    }

```

-- Span Configuration Group

--

hdl2ShdslSpanConfTable OBJECT-TYPE

SYNTAX SEQUENCE OF Hdsl2ShdslSpanConfEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table supports overall configuration of HDSL2/SHDSL Spans."

::= { hdsl2ShdslMibObjects 1 }

hdl2ShdslSpanConfEntry OBJECT-TYPE

SYNTAX Hdsl2ShdslSpanConfEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the hds12Shds1SpanConfTable. Each entry represents the complete Span in a single HDSL2/SHDSL line. It is indexed by the ifIndex of the associated HDSL2/SHDSL line."

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```
INDEX { ifIndex }
 ::= { hds12Shds1SpanConfTable 1 }
```

```
Hds12Shds1SpanConfEntry ::=
SEQUENCE
{
  hds12Shds1ConfNumRepeaters          INTEGER,
  hds12Shds1SpanConfProfile           SnmpAdminString,
  hds12Shds1SpanAlarmConfProfile      SnmpAdminString
}
```

hds12Shds1ConfNumRepeaters 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."

```
::= { hds12Shds1SpanConfEntry 1 }
```

hds12Shds1SpanConfProfile OBJECT-TYPE

```
SYNTAX      SnmpAdminString
MAX-ACCESS  read-write
STATUS      current
```

DESCRIPTION

"This object is a pointer to a span configuration profile in the hds12Shds1SpanConfProfileTable, which applies to this span. The value of this object is the index of the referenced profile in the hds12Shds1SpanConfProfileTable. 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)."

```
::= { hds12Shds1SpanConfEntry 2 }
```

hds12Shds1SpanAlarmConfProfile OBJECT-TYPE

```
SYNTAX      SnmpAdminString
MAX-ACCESS  read-write
STATUS      current
```

DESCRIPTION

"This object is a pointer to an Alarm configuration profile in

the hds12Shds1EndpointAlarmConfProfileTable. The value of this object is the index of the referenced profile in the hds12Shds1EndpointAlarmConfProfileTable. 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 hds12Shds1EndpointConfTable. By default, this object will have the value 'DEFVAL' (the index of the default profile)."

```
::= { hds12Shds1SpanConfEntry 3 }
```

```
-- Unit Inventory Group
```

```
--
```

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hds12Shds1InventoryTable OBJECT-TYPE

SYNTAX SEQUENCE OF Hds12Shds1InventoryEntry

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."

```
::= { hds12Shds1MibObjects 2 }
```

hds12Shds1InventoryEntry OBJECT-TYPE

SYNTAX Hds12Shds1InventoryEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the hds12Shds1InventoryTable. 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 Hds12Shds1UnitId of the associated unit."

INDEX { ifIndex, hds12Shds1InvIndex }

```
::= { hds12Shds1InventoryTable 1 }
```

Hds12Shds1InventoryEntry ::=

SEQUENCE

{

hds12Shds1InvIndex	Hds12Shds1UnitId,
hds12Shds1InvVendorID	Integer32,
hds12Shds1InvVendorModelNumber	DisplayString,
hds12Shds1InvVendorSerialNumber	DisplayString,
hds12Shds1InvVendorEOCSsoftwareVersion	Integer32,
hds12Shds1InvStandardVersion	Integer32,
hds12Shds1InvVendorListNumber	DisplayString,

hds12ShdslInvVendorIssueNumber	DisplayString,
hds12ShdslInvVendorSoftwareVersion	DisplayString,
hds12ShdslInvEquipmentCode	DisplayString,
hds12ShdslInvVendorOther	DisplayString

}

hds12ShdslInvIndex OBJECT-TYPE

SYNTAX Hds12ShdslUnitId

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The index into the hds12ShdslInventoryTable."

::= { hds12ShdslInventoryEntry 1 }

hds12ShdslInvVendorID OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Vendor ID as reported in an Inventory Response message."

::= { hds12ShdslInventoryEntry 2 }

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hds12ShdslInvVendorModelNumber OBJECT-TYPE

SYNTAX DisplayString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Vendor model number as reported in an Inventory Response message."

::= { hds12ShdslInventoryEntry 3 }

hds12ShdslInvVendorSerialNumber OBJECT-TYPE

SYNTAX DisplayString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Vendor serial number as reported in an Inventory Response message."

::= { hds12ShdslInventoryEntry 4 }

hds12ShdslInvVendorEOCSoftwareVersion OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Vendor EOC version as reported in an Inventory Response message."
 ::= { hds12ShdslInventoryEntry 5 }

hds12ShdslInvStandardVersion 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."
 ::= { hds12ShdslInventoryEntry 6 }

hds12ShdslInvVendorListNumber OBJECT-TYPE

SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "Vendor list number as reported in an Inventory Response message."
 ::= { hds12ShdslInventoryEntry 7 }

hds12ShdslInvVendorIssueNumber OBJECT-TYPE

SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "Vendor issue number as reported in an Inventory Response message."
 ::= { hds12ShdslInventoryEntry 8 }

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hds12ShdslInvVendorSoftwareVersion OBJECT-TYPE

SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "Vendor software version as reported in an Inventory Response message."
 ::= { hds12ShdslInventoryEntry 9 }

hds12ShdslInvEquipmentCode OBJECT-TYPE

SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION

```

        "Equipment code conforming to ANSI T1.213, Coded Identification
        of Equipment Entities."
    ::= { hdsl2ShdslInventoryEntry 10 }

```

```

hdlsl2ShdslInvVendorOther OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS   read-only
    STATUS      current
    DESCRIPTION
        "Other vendor information as reported in an Inventory
        Response message."
    ::= { hdsl2ShdslInventoryEntry 11 }

```

```

-- Segment Endpoint Configuration Group
--

```

```

hdlsl2ShdslEndpointConfTable 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 }

```

```

hdlsl2ShdslEndpointConfEntry 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 }

```

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```

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
```

```
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 hdsl2ShdslLineAlarmConfProfileTable,  
    or NULL. If the value is NULL, the endpoint uses the  
    default Alarm Configuration Profile for the associated  
    span as per the hdsl2ShdslSpanAlarmConfProfile 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 }
```

hds12Shds1EndpointCurrEntry OBJECT-TYPE

SYNTAX Hds12Shds1EndpointCurrEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry in the hds12Shds1EndpointCurrTable. 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, hds12Shds1InvIndex, hds12Shds1EndpointSide,
hds12Shds1EndpointWirePair }

::= { hds12Shds1EndpointCurrTable 1 }

Hds12Shds1EndpointCurrEntry ::=

SEQUENCE

{	
hds12Shds1EndpointCurrAtn	Integer32,
hds12Shds1EndpointCurrSnrMgn	Integer32,
hds12Shds1EndpointCurrStatus	Integer32,
hds12Shds1EndpointES	Counter32,
hds12Shds1EndpointSES	Counter32,
hds12Shds1EndpointCRCAnomalies	Counter32,
hds12Shds1EndpointLOSWS	Counter32,
hds12Shds1EndpointUAS	Counter32,
hds12Shds1EndpointCurr15MinTimeElapsed	Hds12Shds1PerfTimeElapsed,
hds12Shds1EndpointCurr15MinES	PerfCurrentCount,
hds12Shds1EndpointCurr15MinSES	PerfCurrentCount,
hds12Shds1EndpointCurr15MinCRCAnomalies	PerfCurrentCount,
hds12Shds1EndpointCurr15MinLOSWS	PerfCurrentCount,
hds12Shds1EndpointCurr15MinUAS	PerfCurrentCount,
hds12Shds1EndpointCurr1DayTimeElapsed	Hds12Shds1PerfTimeElapsed,
hds12Shds1EndpointCurr1DayES	Hds12Shds1PerfCurrDayCount,
hds12Shds1EndpointCurr1DaySES	Hds12Shds1PerfCurrDayCount,
hds12Shds1EndpointCurr1DayCRCAnomalies	Hds12Shds1PerfCurrDayCount,
hds12Shds1EndpointCurr1DayLOSWS	Hds12Shds1PerfCurrDayCount,
hds12Shds1EndpointCurr1DayUAS	Hds12Shds1PerfCurrDayCount
}	

hds12Shds1EndpointCurrAtn 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."
 ::= { hds12ShdslEndpointCurrEntry 1 }

hds12ShdslEndpointCurrSnrMgn OBJECT-TYPE

SYNTAX Integer32
UNITS "dB"
MAX-ACCESS read-only

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STATUS current
DESCRIPTION

"The current SNR margin for this endpoint as reported
in a Status Response/SNR message."
 ::= { hds12ShdslEndpointCurrEntry 2 }

hds12ShdslEndpointCurrStatus 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 exceeded the alarm threshold
32 loopAttenuationAlarm	Indicates that the loop attenuation has exceeded 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 }

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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."
::= { hds12ShdslEndpointCurrEntry 7 }

hds12ShdslEndpointUAS 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."
::= { hds12ShdslEndpointCurrEntry 8 }

hds12ShdslEndpointCurr15MinTimeElapsed OBJECT-TYPE

SYNTAX Hds12ShdslPerfTimeElapsed
UNITS "seconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION

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"Total elapsed seconds in the current 15-minute interval."
::= { hds12ShdslEndpointCurrEntry 9 }

hds12ShdslEndpointCurr15MinES OBJECT-TYPE

SYNTAX PerfCurrentCount
UNITS "seconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Count of Errored Seconds (ES) in the current 15-minute
interval."
::= { hds12ShdslEndpointCurrEntry 10 }

hds12ShdslEndpointCurr15MinSES 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."
::= { hds12ShdslEndpointCurrEntry 11 }

hds12ShdslEndpointCurr15MinCRCAnomalies OBJECT-TYPE

SYNTAX PerfCurrentCount
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "Count of CRC anomalies in the current 15-minute interval."
 ::= { hds12ShdslEndpointCurrEntry 12 }

hds12ShdslEndpointCurr15MinLOSWS 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."
 ::= { hds12ShdslEndpointCurrEntry 13 }

hds12ShdslEndpointCurr15MinUAS OBJECT-TYPE

SYNTAX PerfCurrentCount
UNITS "seconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "Count of Unavailable Seconds (UAS) in the current 15-minute
 interval."
 ::= { hds12ShdslEndpointCurrEntry 14 }

hds12ShdslEndpointCurr1DayTimeElapsed OBJECT-TYPE

SYNTAX Hds12ShdslPerfTimeElapsed
UNITS "seconds"
MAX-ACCESS read-only

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STATUS current
DESCRIPTION
 "Number of seconds that have elapsed since the beginning of
 the current 1-day interval."
 ::= { hds12ShdslEndpointCurrEntry 15 }

hds12ShdslEndpointCurr1DayES OBJECT-TYPE

SYNTAX Hds12ShdslPerfCurrDayCount
UNITS "seconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "Count of Errored Seconds (ES) during the current day as
 measured by hds1PerfCurr1DayTimeElapsed."

::= { hds12Shds1EndpointCurrEntry 16 }

hds12Shds1EndpointCurr1DaySES OBJECT-TYPE

SYNTAX Hds12Shds1PerfCurrDayCount

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of Severely Errored Seconds (SES) during the current day as measured by hds1PerfCurr1DayTimeElapsed."

::= { hds12Shds1EndpointCurrEntry 17 }

hds12Shds1EndpointCurr1DayCRCAnomalies OBJECT-TYPE

SYNTAX Hds12Shds1PerfCurrDayCount

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of CRC anomalies during the current day as measured by hds1PerfCurr1DayTimeElapsed."

::= { hds12Shds1EndpointCurrEntry 18 }

hds12Shds1EndpointCurr1DayLOSWS OBJECT-TYPE

SYNTAX Hds12Shds1PerfCurrDayCount

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of Loss of Sync Word Seconds (LOSWS) during the current day as measured by hds1PerfCurr1DayTimeElapsed."

::= { hds12Shds1EndpointCurrEntry 19 }

hds12Shds1EndpointCurr1DayUAS OBJECT-TYPE

SYNTAX Hds12Shds1PerfCurrDayCount

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of Unavailable Seconds (UAS) during the current day as measured by hds1PerfCurr1DayTimeElapsed."

::= { hds12Shds1EndpointCurrEntry 20 }

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

--

hds12Shds115MinIntervalTable OBJECT-TYPE

SYNTAX SEQUENCE OF Hds12Shds115MinIntervalEntry

```

MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION
    "This table provides one row for each HDSL2/SHDSL endpoint
    performance data collection interval."
::= { hds12ShdslMibObjects 6 }

```

```

hds12Shdsl15MinIntervalEntry OBJECT-TYPE
    SYNTAX      Hds12Shdsl15MinIntervalEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the hds12Shdsl15MinIntervalTable."
    INDEX { ifIndex, hds12ShdslInvIndex, hds12ShdslEndpointSide,
            hds12ShdslEndpointWirePair, hds12Shdsl15MinIntervalNumber}
    ::= { hds12Shdsl15MinIntervalTable 1 }

```

```

Hds12Shdsl15MinIntervalEntry ::=
    SEQUENCE
    {
        hds12Shdsl15MinIntervalNumber      INTEGER,
        hds12Shdsl15MinIntervalES          PerfIntervalCount,
        hds12Shdsl15MinIntervalSES          PerfIntervalCount,
        hds12Shdsl15MinIntervalCRCAnomalies PerfIntervalCount,
        hds12Shdsl15MinIntervalLOSWS        PerfIntervalCount,
        hds12Shdsl15MinIntervalUAS          PerfIntervalCount
    }

```

```

hds12Shdsl15MinIntervalNumber 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."
    ::= { hds12Shdsl15MinIntervalEntry 1 }

```

```

hds12Shdsl15MinIntervalES OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS        "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of Errored Seconds (ES) during the interval."
    ::= { hds12Shdsl15MinIntervalEntry 2 }

```

```

hds12Shdsl15MinIntervalSES OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS        "seconds"

```

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MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of Severely Errored Seconds (SES) during the interval."

::= { hds12Shdsl15MinIntervalEntry 3 }

hds12Shdsl15MinIntervalCRCAnomalies OBJECT-TYPE

SYNTAX PerfIntervalCount

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of CRC anomalies during the interval."

::= { hds12Shdsl15MinIntervalEntry 4 }

hds12Shdsl15MinIntervalLOSWS OBJECT-TYPE

SYNTAX PerfIntervalCount

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of Loss of Sync Word (LOSW) Seconds during the interval."

::= { hds12Shdsl15MinIntervalEntry 5 }

hds12Shdsl15MinIntervalUAS OBJECT-TYPE

SYNTAX PerfIntervalCount

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of Unavailable Seconds (UAS) during the interval."

::= { hds12Shdsl15MinIntervalEntry 6 }

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

--

hds12Shdsl1DayIntervalTable OBJECT-TYPE

SYNTAX SEQUENCE OF Hds12Shdsl1DayIntervalEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table provides one row for each HDSL2/SHDSL endpoint performance data collection interval."

::= { hds12ShdslMibObjects 7 }

hds12Shdsl1DayIntervalEntry OBJECT-TYPE

SYNTAX Hds12Shdsl1DayIntervalEntry

```

MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION
    "An entry in the hds12Shds11DayIntervalTable."
INDEX { ifIndex, hds12Shds1InvIndex, hds12Shds1EndpointSide,
        hds12Shds1EndpointWirePair, hds12Shds11DayIntervalInterval }
 ::= { hds12Shds11DayIntervalTable 1 }

```

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```

Hds12Shds11DayIntervalEntry ::=
    SEQUENCE
    {
        hds12Shds11DayIntervalInterval      INTEGER,
        hds12Shds11DayIntervalMoniSecs      Hdsl2Shds1PerfTimeElapsed,
        hds12Shds11DayIntervalES            Hdsl2Shds11DayIntervalCount,
        hds12Shds11DayIntervalSES            Hdsl2Shds11DayIntervalCount,
        hds12Shds11DayIntervalCRCAnomalies   Hdsl2Shds11DayIntervalCount,
        hds12Shds11DayIntervalLOSWS          Hdsl2Shds11DayIntervalCount,
        hds12Shds11DayIntervalUAS            Hdsl2Shds11DayIntervalCount
    }

```

```

hds12Shds11DayIntervalInterval 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."
    ::= { hds12Shds11DayIntervalEntry 1 }

```

```

hds12Shds11DayIntervalMoniSecs OBJECT-TYPE
    SYNTAX      Hdsl2Shds1PerfTimeElapsed
    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."
    ::= { hds12Shds11DayIntervalEntry 2 }

```

```

hds12Shds11DayIntervalES OBJECT-TYPE
    SYNTAX      Hdsl2Shds11DayIntervalCount
    UNITS        "seconds"
    MAX-ACCESS   read-only

```

STATUS current
DESCRIPTION
"Count of Errored Seconds (ES) during the 1-day interval as
measured by hds12Shds11DayIntervalMoniSecs."
::= { hds12Shds11DayIntervalEntry 3 }

hds12Shds11DayIntervalSES OBJECT-TYPE
SYNTAX Hds12Shds11DayIntervalCount
UNITS "seconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Count of Severely Errored Seconds (SES) during the 1-day
interval as measured by hds12Shds11DayIntervalMoniSecs."
::= { hds12Shds11DayIntervalEntry 4 }

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hds12Shds11DayIntervalCRCAnomalies OBJECT-TYPE
SYNTAX Hds12Shds11DayIntervalCount
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Count of CRC anomalies during the 1-day interval as
measured by hds12Shds11DayIntervalMoniSecs."
::= { hds12Shds11DayIntervalEntry 5 }

hds12Shds11DayIntervalLOSWS OBJECT-TYPE
SYNTAX Hds12Shds11DayIntervalCount
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 hds12Shds11DayIntervalMoniSecs."
::= { hds12Shds11DayIntervalEntry 6 }

hds12Shds11DayIntervalUAS OBJECT-TYPE
SYNTAX Hds12Shds11DayIntervalCount
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Count of Unavailable Seconds (UAS) during the 1-day interval
as measured by hds12Shds11DayIntervalMoniSecs."
::= { hds12Shds11DayIntervalEntry 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 HDSSL2/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 HDSSL2/SHDSL line, the UnitId of the associated
unit and the side of the unit."

INDEX { ifIndex, hdsl2ShdslInvIndex, hdsl2ShdslEndpointSide }

::= { hdsl2ShdslEndpointMaintTable 1 }

Hdsl2ShdslEndpointMaintEntry ::=

SEQUENCE

{

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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

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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
    HDLSL2/SHDSL line."
 ::= { hds12ShdslMibObjects 9 }

```

```

hds12ShdslUnitMaintEntry OBJECT-TYPE
    SYNTAX      Hdsl2ShdslUnitMaintEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "An entry in the hds12ShdslUnitMaintTable. Each entry
        corresponds to a single unit, and is indexed by the
        ifIndex of the HDLSL2/SHDSL line and the UnitId of the
        associated unit."
    INDEX { ifIndex, hds12ShdslInvIndex }
    ::= { hds12ShdslUnitMaintTable 1 }

```

```

Hdsl2ShdslUnitMaintEntry ::=
    SEQUENCE
    {
        hds12ShdslMaintLoopbackTimeout      Integer32,
        hds12ShdslMaintUnitPowerSource      INTEGER
    }

```

```

hds12ShdslMaintLoopbackTimeout 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."
    ::= { hds12ShdslUnitMaintEntry 1 }

```

```

hds12ShdslMaintUnitPowerSource OBJECT-TYPE
    SYNTAX      INTEGER
                {
                    local(1),
                    span(2)
                }
    MAX-ACCESS   read-only
    STATUS       current

```

"This object indicates the DC power source being used by the associated unit."

::= { hds12Shds1UnitMaintEntry 2 }

-- Span Configuration Profile Group

--

hds12Shds1SpanConfProfileTable OBJECT-TYPE

SYNTAX SEQUENCE OF Hds12Shds1SpanConfProfileEntry

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."

::= { hds12Shds1MibObjects 10 }

hds12Shds1SpanConfProfileEntry OBJECT-TYPE

SYNTAX Hds12Shds1SpanConfProfileEntry

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 hds12Shds1SpanConfProfile object). Profiles may be created/deleted using the row creation/deletion mechanism via hds12Shds1SpanConfProfileRowStatus. Profiles that are being referenced may not be deleted."

INDEX { hds12Shds1SpanConfProfileName }

::= { hds12Shds1SpanConfProfileTable 1 }

Hds12Shds1SpanConfProfileEntry ::=

SEQUENCE

{

hds12Shds1SpanConfProfileName SnmpAdminString,

hds12Shds1SpanWireInterface INTEGER,

hds12Shds1SpanLineSpeed Integer32,

hds12Shds1SpanConfPSD INTEGER,

hds12Shds1SpanRemoteEnabled INTEGER,

hds12Shds1SpanConfProfileRowStatus RowStatus

}

hds12Shds1SpanConfProfileName OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object is the unique index associated with this profile."

::= { hds12Shds1SpanConfProfileEntry 1 }

hdl2ShdslSpanWireInterface OBJECT-TYPE

SYNTAX INTEGER

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```
        {
            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."

::= { hdl2ShdslSpanConfProfileEntry 2 }

hdl2ShdslSpanLineSpeed OBJECT-TYPE

SYNTAX Integer32

UNITS "bps"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object configures the transmission rate for the associated SHDSL Line in bits-per-second (bps)."

::= { hdl2ShdslSpanConfProfileEntry 3 }

hdl2ShdslSpanConfPSD 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."

::= { hdl2ShdslSpanConfProfileEntry 4 }

hdl2ShdslSpanRemoteEnabled 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."

::= { hds12ShdslSpanConfProfileEntry 5 }

hds12ShdslSpanConfProfileRowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object controls creation/deletion of the associated

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entry in this table per the semantics of RowStatus."

::= { hds12ShdslSpanConfProfileEntry 6 }

-- Segment Endpoint Alarm Configuration Profile group

--

hds12ShdslEndpointAlarmConfProfileTable OBJECT-TYPE

SYNTAX SEQUENCE OF Hds12ShdslEndpointAlarmConfProfileEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table supports definitions of alarm configuration profiles for HDSL2/SHDSL segment endpoints."

::= { hds12ShdslMibObjects 11 }

hds12ShdslEndpointAlarmConfProfileEntry OBJECT-TYPE

SYNTAX Hds12ShdslEndpointAlarmConfProfileEntry

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 hds12ShdslEndpointAlarmConfProfileRowStatus. Profiles that are being referenced may not be deleted."

INDEX { hds12ShdslEndpointAlarmConfProfileName }

::= { hds12ShdslEndpointAlarmConfProfileTable 1 }

Hds12ShdslEndpointAlarmConfProfileEntry ::=

SEQUENCE

{

hds12ShdslEndpointAlarmConfProfileName SnmpAdminString,

```

hdsl2ShdslEndpointThreshLoopAttenuation      Integer32,
hdsl2ShdslEndpointThreshSNRMargin            Integer32,
hdsl2ShdslEndpointThreshES
        Hdsl2ShdslPerfIntervalThreshold,
hdsl2ShdslEndpointThreshSES
        Hdsl2ShdslPerfIntervalThreshold,
hdsl2ShdslEndpointThreshCRCAnomalies         Integer32,
hdsl2ShdslEndpointThreshLOSWS
        Hdsl2ShdslPerfIntervalThreshold,
hdsl2ShdslEndpointThreshUAS
        Hdsl2ShdslPerfIntervalThreshold,
hdsl2ShdslEndpointAlarmConfProfileRowStatus  RowStatus
}

```

hdsl2ShdslEndpointAlarmConfProfileName OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object is the unique index associated with this profile."

::= { hdsl2ShdslEndpointAlarmConfProfileEntry 1 }

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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/exceeds this threshold, a

hdsl2ShdslLoopAttenCrossingTrap 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/exceeds this threshold, a

hdsl2ShdslSNRMarginCrossingTrap 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 hds12ShdslPerfESThreshTrap will be generated. One trap will be sent per interval per endpoint."

::= { hds12ShdslEndpointAlarmConfProfileEntry 4 }

hds12ShdslEndpointThreshSES OBJECT-TYPE

SYNTAX Hds12ShdslPerfIntervalThreshold
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 hds12ShdslPerfSESThreshTrap will be generated. One trap will be sent per interval per endpoint."

::= { hds12ShdslEndpointAlarmConfProfileEntry 5 }

hds12ShdslEndpointThreshCRCAnomalies OBJECT-TYPE

SYNTAX Integer32
MAX-ACCESS read-create
STATUS current

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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 hds12ShdslPerfCRCAnomaliesThreshTrap will be generated. One trap will be sent per interval per endpoint."

::= { hds12ShdslEndpointAlarmConfProfileEntry 6 }

hds12ShdslEndpointThreshLOSWS OBJECT-TYPE

SYNTAX Hds12ShdslPerfIntervalThreshold
UNITS "seconds"
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"This object configures the threshold for the number of

loss of sync word seconds (LOSWS) within any given 15-minute performance data collection interval. If the value of LOSWS in a particular 15-minute collection interval reaches/exceeds this value, a hds12ShdslPerfLOSWSThreshTrap will be generated. One trap will be sent per interval per endpoint."

```
::= { hds12ShdslEndpointAlarmConfProfileEntry 7 }
```

hds12ShdslEndpointThreshUAS OBJECT-TYPE

SYNTAX Hds12ShdslPerfIntervalThreshold

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 hds12ShdslPerfUASThreshTrap will be generated. One trap will be sent per interval per endpoint."

```
::= { hds12ShdslEndpointAlarmConfProfileEntry 8 }
```

hds12ShdslEndpointAlarmConfProfileRowStatus 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."

```
::= { hds12ShdslEndpointAlarmConfProfileEntry 9 }
```

-- Notifications Group

--

hds12ShdslTraps OBJECT IDENTIFIER ::= { hds12ShdslLineMib 2 }

hds12ShdslTrapsPrefix OBJECT IDENTIFIER ::= { hds12ShdslTraps 0 }

hds12ShdslLoopAttenCrossingTrap NOTIFICATION-TYPE

OBJECTS

{

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```
ifIndex,
hds12ShdslInvIndex,
hds12ShdslEndpointSide,
hds12ShdslEndpointWirePair,
hds12ShdslEndpointCurrAtn,
hds12ShdslEndpointThreshLoopAttenuation
}
```

STATUS current

DESCRIPTION

"This trap indicates that the loop attenuation threshold (as per the hds12Shds1EndpointThreshLoopAttenuation value) has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified by the ifIndex, hds12Shds1InvIndex, hds12Shds1EndpointSide, and hds12Shds1EndpointWirePair values."

::= { hds12Shds1TrapsPrefix 1 }

hds12Shds1SNRMarginCrossingTrap NOTIFICATION-TYPE

OBJECTS

```
{  
ifIndex,  
hds12Shds1InvIndex,  
hds12Shds1EndpointSide,  
hds12Shds1EndpointWirePair,  
hds12Shds1EndpointCurrSnrMgn,  
hds12Shds1EndpointThreshSNRMargin  
}
```

STATUS current

DESCRIPTION

"This trap indicates that the SNR margin threshold (as per the hds12Shds1EndpointThreshSNRMargin value) has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified by the ifIndex, hds12Shds1InvIndex, hds12Shds1EndpointSide, and hds12Shds1EndpointWirePair values."

::= { hds12Shds1TrapsPrefix 2 }

hds12Shds1PerfESThreshTrap NOTIFICATION-TYPE

OBJECTS

```
{  
ifIndex,  
hds12Shds1InvIndex,  
hds12Shds1EndpointSide,  
hds12Shds1EndpointWirePair,  
hds12Shds1EndpointCurr15MinES,  
hds12Shds1EndpointThreshES  
}
```

STATUS current

DESCRIPTION

"This trap indicates that the errored seconds threshold (as per the hds12Shds1EndpointThreshES value) has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified by the ifIndex, hds12Shds1InvIndex, hds12Shds1EndpointSide, and hds12Shds1EndpointWirePair values."

::= { hds12Shds1TrapsPrefix 3 }

hdsl2ShdslPerfSESThreshTrap NOTIFICATION-TYPE

OBJECTS

```
{
  ifIndex,
  hdsl2ShdslInvIndex,
  hdsl2ShdslEndpointSide,
  hdsl2ShdslEndpointWirePair,
  hdsl2ShdslEndpointCurr15MinSES,
  hdsl2ShdslEndpointThreshSES
}
```

STATUS current

DESCRIPTION

"This trap indicates that the severely errored seconds threshold (as per the hdsl2ShdslEndpointThreshSES value) has been reached/exceeded for the HDSL2/SHDSL Segment Endpoint identified by the ifIndex, hdsl2ShdslInvIndex, hdsl2ShdslEndpointSide, and hdsl2ShdslEndpointWirePair values."

::= { hdsl2ShdslTrapsPrefix 4 }

hdsl2ShdslPerfCRCAnomaliesThreshTrap NOTIFICATION-TYPE

OBJECTS

```
{
  ifIndex,
  hdsl2ShdslInvIndex,
  hdsl2ShdslEndpointSide,
  hdsl2ShdslEndpointWirePair,
  hdsl2ShdslEndpointCurr15MinCRCAnomalies,
  hdsl2ShdslEndpointThreshCRCAnomalies
}
```

STATUS current

DESCRIPTION

"This trap indicates that the CRC anomalies threshold (as per the hdsl2ShdslEndpointThreshCRCAnomalies value) has been reached/exceeded for the HDSL2/SHDSL Segment Endpoint identified by the ifIndex, hdsl2ShdslInvIndex, hdsl2ShdslEndpointSide, and hdsl2ShdslEndpointWirePair values."

::= { hdsl2ShdslTrapsPrefix 5 }

hdsl2ShdslPerfLOSWSThreshTrap NOTIFICATION-TYPE

OBJECTS

```
{
  ifIndex,
  hdsl2ShdslInvIndex,
  hdsl2ShdslEndpointSide,
  hdsl2ShdslEndpointWirePair,
  hdsl2ShdslEndpointCurr15MinLOSWS,
  hdsl2ShdslEndpointThreshLOSWS
}
```

STATUS current

DESCRIPTION

"This trap indicates that the LOSW seconds threshold (as per the hds12Shds1EndpointThreshLOSWS value) has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified by the ifIndex, hds12Shds1InvIndex, hds12Shds1EndpointSide, and hds12Shds1EndpointWirePair values."

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::= { hds12Shds1TrapsPrefix 6 }

hds12Shds1PerfUASThreshTrap NOTIFICATION-TYPE

OBJECTS

```
{
ifIndex,
hds12Shds1InvIndex,
hds12Shds1EndpointSide,
hds12Shds1EndpointWirePair,
hds12Shds1EndpointCurr15MinUAS,
hds12Shds1EndpointThreshUAS
}
```

STATUS current

DESCRIPTION

"This trap indicates that the unavailable seconds threshold (as per the hds12Shds1EndpointThreshUAS value) has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified by the ifIndex, hds12Shds1InvIndex, hds12Shds1EndpointSide, and hds12Shds1EndpointWirePair values."

::= { hds12Shds1TrapsPrefix 7 }

hds12Shds1SpanInvalidNumRepeaters NOTIFICATION-TYPE

OBJECTS

```
{
ifIndex,
hds12Shds1ConfNumRepeaters
}
```

STATUS current

DESCRIPTION

"This trap indicates that a mismatch has been detected between the number of repeater/regenerator units configured for a HDSL2/SHDSL line via the hds12Shds1ConfNumRepeaters object and the actual number of repeater/regenerator units discovered via the EOC."

::= { hds12Shds1TrapsPrefix 8 }

-- conformance information

hds12Shds1Conformance OBJECT IDENTIFIER ::= { hds12Shds1LineMib 3 }

hds12Shds1Groups OBJECT IDENTIFIER ::= { hds12Shds1Conformance 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,

hdsl2ShdslInventoryGroup,

hdsl2ShdslEndpointConfGroup,

hdsl2ShdslEndpointCurrGroup,

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hdsl2Shdsl15MinIntervalGroup,

hdsl2Shdsl1DayIntervalGroup,

hdsl2ShdslMaintenanceGroup,

hdsl2ShdslEndpointAlarmConfGroup,

hdsl2ShdslNotificationGroup

}

GROUP hdsl2ShdslSpanConfProfileGroup

DESCRIPTION

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

::= { hdsl2ShdslCompliances 1 }

-- units of conformance

hdsl2ShdslSpanConfGroup OBJECT-GROUP

OBJECTS

{

hdsl2ShdslConfNumRepeaters,

hdsl2ShdslSpanConfProfile,

hdsl2ShdslSpanAlarmConfProfile

}

STATUS current

DESCRIPTION

"This group supports objects for configuring span related
parameters for HDSL2/SHDSL lines."

::= { hdsl2ShdslGroups 1 }

hdsl2ShdslInventoryGroup OBJECT-GROUP

OBJECTS

{

```

hds12ShdslInvIndex,
hds12ShdslInvVendorID,
hds12ShdslInvVendorModelNumber,
hds12ShdslInvVendorSerialNumber,
hds12ShdslInvVendorEOCSoftwareVersion,
hds12ShdslInvStandardVersion,
hds12ShdslInvVendorListNumber,
hds12ShdslInvVendorIssueNumber,
hds12ShdslInvVendorSoftwareVersion,
hds12ShdslInvEquipmentCode,
hds12ShdslInvVendorOther
}
STATUS      current
DESCRIPTION
    "This group supports objects that provide unit inventory
    information about the units in HDSL2/SHDSL lines."
::= { hds12ShdslGroups 2 }

```

```

hds12ShdslEndpointConfGroup OBJECT-GROUP
OBJECTS
{
hds12ShdslEndpointSide,
hds12ShdslEndpointWirePair,

```

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```

hds12ShdslEndpointAlarmConfProfile
}
STATUS      current
DESCRIPTION
    "This group supports objects for configuring parameters for
    segment endpoints in HDSL2/SHDSL lines."
::= { hds12ShdslGroups 3 }

```

```

hds12ShdslEndpointCurrGroup OBJECT-GROUP
OBJECTS
{
hds12ShdslEndpointSide,
hds12ShdslEndpointWirePair,
hds12ShdslEndpointCurrAtn,
hds12ShdslEndpointCurrSnrMgn,
hds12ShdslEndpointCurrStatus,
hds12ShdslEndpointES,
hds12ShdslEndpointSES,
hds12ShdslEndpointCRCAnomalies,
hds12ShdslEndpointLOSWS,
hds12ShdslEndpointUAS,
hds12ShdslEndpointCurr15MinTimeElapsed,
hds12ShdslEndpointCurr15MinES,

```

```

hds12Shds1EndpointCurr15MinSES,
hds12Shds1EndpointCurr15MinCRCAnomalies,
hds12Shds1EndpointCurr15MinLOSWS,
hds12Shds1EndpointCurr15MinUAS,
hds12Shds1EndpointCurr1DayTimeElapsed,
hds12Shds1EndpointCurr1DayES,
hds12Shds1EndpointCurr1DaySES,
hds12Shds1EndpointCurr1DayCRCAnomalies,
hds12Shds1EndpointCurr1DayLOSWS,
hds12Shds1EndpointCurr1DayUAS
}
STATUS      current
DESCRIPTION
    "This group supports objects which provide current status and
    performance measurements relating to segment endpoints in
    HDSL2/SHDSL lines."
::= { hds12Shds1Groups 4 }

```

hds12Shds115MinIntervalGroup OBJECT-GROUP

```

OBJECTS
{
hds12Shds115MinIntervalES,
hds12Shds115MinIntervalSES,
hds12Shds115MinIntervalCRCAnomalies,
hds12Shds115MinIntervalLOSWS,
hds12Shds115MinIntervalUAS
}
STATUS      current
DESCRIPTION
    "This group supports objects which maintain historic performance
    measurements relating to segment endpoints in HDSL2/SHDSL lines
    in 15-minute intervals."

```

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```

::= { hds12Shds1Groups 5 }

```

hds12Shds11DayIntervalGroup OBJECT-GROUP

```

OBJECTS
{
hds12Shds11DayIntervalMoniSecs,
hds12Shds11DayIntervalES,
hds12Shds11DayIntervalSES,
hds12Shds11DayIntervalCRCAnomalies,
hds12Shds11DayIntervalLOSWS,
hds12Shds11DayIntervalUAS
}
STATUS      current
DESCRIPTION

```

```
    "This group supports objects which maintain historic performance
    measurements relating to segment endpoints in HDLSL2/SHDSL lines
    in 1-day intervals."
 ::= { hdsl2ShdslGroups 6 }
```

hdsl2ShdslMaintenanceGroup OBJECT-GROUP

```
OBJECTS
{
    hdsl2ShdslMaintLoopbackConfig,
    hdsl2ShdslMaintTipRingReversal,
    hdsl2ShdslMaintPowerBackOff,
    hdsl2ShdslMaintSoftRestart,
    hdsl2ShdslMaintLoopbackTimeout,
    hdsl2ShdslMaintUnitPowerSource
}
STATUS      current
DESCRIPTION
    "This group supports objects that provide support for
    maintenance actions for HDLSL2/SHDSL lines."
 ::= { hdsl2ShdslGroups 7 }
```

hdsl2ShdslEndpointAlarmConfGroup OBJECT-GROUP

```
OBJECTS
{
    hdsl2ShdslEndpointAlarmConfProfileName,
    hdsl2ShdslEndpointThreshLoopAttenuation,
    hdsl2ShdslSpanWireInterface,
    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 HDLSL2/SHDSL
    lines."
 ::= { hdsl2ShdslGroups 8 }
```

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hdsl2ShdslNotificationGroup NOTIFICATION-GROUP

```
NOTIFICATIONS
{
    hdsl2ShdslLoopAttenCrossingTrap,
    hdsl2ShdslSNRMarginCrossingTrap,
```

```

hds12ShdslPerfESThreshTrap,
hds12ShdslPerfSESThreshTrap,
hds12ShdslPerfCRCAnomaliesThreshTrap,
hds12ShdslPerfLOSWSThreshTrap,
hds12ShdslPerfUASThreshTrap,
hds12ShdslSpanInvalidNumRepeaters
}
STATUS          current
DESCRIPTION
    "This group supports traps that enable notification of
    significant events/conditions associated with HDLS2/SHDSL
    lines."
::= { hds12ShdslGroups 9 }

```

```

hds12ShdslSpanConfProfileGroup OBJECT-GROUP
OBJECTS
{
hds12ShdslSpanConfProfileName,
hds12ShdslSpanWireInterface,
hds12ShdslSpanLineSpeed,
hds12ShdslSpanRemoteEnabled,
hds12ShdslSpanConfPSD,
hds12ShdslSpanConfProfileRowStatus
}
STATUS          current
DESCRIPTION
    "This group supports objects that constitute configuration
    profiles for configuring span related parameters in SHDSL
    lines."
::= { hds12ShdslGroups 10 }

```

END

7. Security Considerations

Security issues are not discussed in this memo.

8. Acknowledgments

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