

**Definitions of Managed Objects for HDSL2 and SHDSL Lines**  
**draft-ietf-adslmib-hdsl2-08.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

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called SNMPv3 and described in [RFC 1906](#) [10], [RFC 2572](#) [11] and [RFC 2574](#) [12].

- 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].

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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.

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:

```
hds12ShdslInterface ::= { experimental 109 }
```

NOTE TO RFC EDITOR: please replace experimental 109 with an assigned number in the transmission tree

### **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].	
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ifType	hds12(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 in the following section) and to define the behaviour of the statistics to be maintained by an agent.

o Hdsl2ShdslUnitId :

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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 bit-map, 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:

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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):



- hds12ShdslInventoryTable

- 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):

- hds12ShdslEndpointConfTable

- 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):

- hds12ShdslEndpointCurrTable

- 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):

- hds12Shdsl15MinIntervalTable

- 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):

- hds12Shdsl1DayIntervalTable

- o Maintenance Group:

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

- hds12ShdslEndpointMaintTable
- hds12ShdslUnitMaintTable

- o Span Configuration Profile Group:

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



- hds12ShdslSpanConfProfileTable

- 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):

- hds12ShdslEndpointAlarmConfProfileTable

- o Notifications Group:

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

- hds12ShdslLoopAttenCrossingTrap
- hds12ShdslSNRMarginCrossingTrap
- hds12ShdslPerfESThreshTrap
- hds12ShdslPerfSESThreshTrap
- hds12ShdslPerfCRCAnomaliesThreshTrap
- hds12ShdslPerfLOSSThreshTrap
- hds12ShdslPerfUASThreshTrap
- hds12ShdslSpanInvalidNumRepeaters
- hds12ShdslLoopbackFailure
- hds12ShdslPowerBackoff
- hds12ShdslDeviceFault
- hds12ShdslDCContinuityFault
- hds12ShdslConfigInitFailure
- hds12ShdslProtocolInitFailure
- hds12ShdslNoNeighborPresent
- hds12ShdslLocalPowerLoss

#### **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.

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<-- Network Side

Customer Side -->

|<////////// HDSL2/SHDSL Span //////////>|

<~~~>

<~~~> HDSL2/SHDSL Segments <~~~>



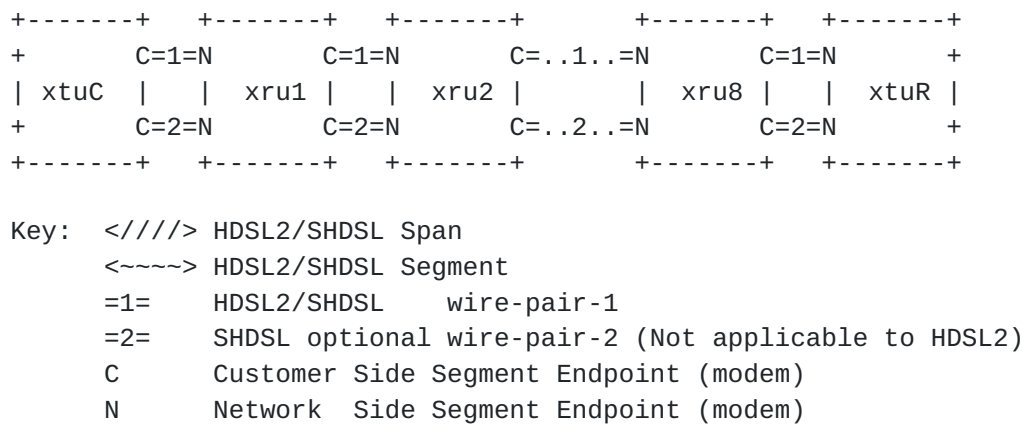


Figure 2: General topology for an HDSL2/SHDSL Line

#### 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 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 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.

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 configuration for this segment end point will override the span configuration for this segment end point only.

- 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 `hds12ShdslEndpointAlarmConfProfile` and `hds12ShdslSpanConfProfile` 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. 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.

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A linkDown trap may be generated whenever any of ES, SES, CRC Anomaly, LOSW, or UAS event occurs. 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, LOSW, and UAS. Each threshold has its own enable/threshold value. When that value is 0, the trap is disabled.

The hds12ShdslEndpointCurrStatus 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. Traps 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 hds12ShdslEndpointThreshSNRMargin and hds12ShdslEndpointThreshLoopAttenuation found in the hds12ShdslEndpointAlarmConfProfileTable. 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.

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.

A hds12Shds1SpanInvalidNumRepeaters trap 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 hds12Shds1SpanConfNumRepeaters. For those conditions where the number of provisioned repeaters is greater than those encountered during span

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discovery, all table entries associated with the nonexistent 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:

- hds12Shds1SpanConfGroup
- hds12Shds1SpanStatusGroup
- hds12Shds1InventoryGroup
- hds12Shds1EndpointConfGroup
- hds12Shds115MinIntervalGroup
- hds12Shds11DayIntervalGroup
- hds12Shds1MaintenanceGroup
- hds12Shds1EndpointAlarmConfGroup
- hds12Shds1NotificationGroup

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

- hds12Shds1SpanConfProfileGroup
- hds12Shds1SpanShds1StatusGroup

## **[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

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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)."

-- NOTE TO RFC EDITOR: Please replace the following with the  
-- appropriate assigned 'transmission xxx' number



```
::= { experimental 109 }
```

```
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
```

```
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```
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```

```
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```

```
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

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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)
          }

```

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:

```

```

    1 region 1          Indicates ITU-T G.991.2 Annex A.

```

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```

    2 region 2          Indicates ITU-T G.991.2 Annex B."
SYNTAX    Integer32

```

-- 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."

```



```
::= { hds12Shds1MibObjects 1 }
```

hds12Shds1SpanConfEntry OBJECT-TYPE

SYNTAX Hds12Shds1SpanConfEntry

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."

INDEX { ifIndex }

```
::= { hds12Shds1SpanConfTable 1 }
```

Hds12Shds1SpanConfEntry ::=

SEQUENCE

{

hds12Shds1SpanConfNumRepeaters           INTEGER,

hds12Shds1SpanConfProfile                SnmpAdminString,

hds12Shds1SpanConfAlarmProfile          SnmpAdminString

}

hds12Shds1SpanConfNumRepeaters 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 (SIZE(1..32))

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

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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 }
```



```

hds12Shds1SpanConfAlarmProfile 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 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 }
```

```
-- Span Status Group
```

```
--
```

```

hds12Shds1SpanStatusTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Hds12Shds1SpanStatusEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "This table provides overall status information of
        HDLS2/SHDSL spans."
```

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

```

hds12Shds1SpanStatusEntry OBJECT-TYPE
    SYNTAX      Hds12Shds1SpanStatusEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "An entry in the hds12Shds1SpanStatusTable. Each entry
        represents the complete span in a single HDLS2/SHDSL
        line. It is indexed by the ifIndex of the associated
        HDLS2/SHDSL line."
```

```
 INDEX { ifIndex }
```

```
 ::= { hds12Shds1SpanStatusTable 1 }
```

```

Hds12Shds1SpanStatusEntry ::=
    SEQUENCE
    {
        hds12Shds1StatusNumAvailRepeaters      INTEGER,
        hds12Shds1StatusMaxAttainableLineRate   Integer32,
        hds12Shds1StatusActualLineRate          Integer32,
```



```

        hds12ShdslStatusTransmissionModeCurrent
            Hds12ShdslTransmissionModeType
    }

```

```

hds12ShdslStatusNumAvailRepeaters 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."
    ::= { hds12ShdslSpanStatusEntry 1 }

```

```

hds12ShdslStatusMaxAttainableLineRate OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "bps"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Contains the maximum attainable line rate in this HDSL2/SHDSL
        span."
    ::= { hds12ShdslSpanStatusEntry 2 }

```

```

hds12ShdslStatusActualLineRate OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "bps"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Contains the actual line rate in this HDSL2/SHDSL span."
    ::= { hds12ShdslSpanStatusEntry 3 }

```

```

hds12ShdslStatusTransmissionModeCurrent OBJECT-TYPE
    SYNTAX      Hds12ShdslTransmissionModeType
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Contains the current PSD regional setting of the
        HDSL2/SHDSL span."
    ::= { hds12ShdslSpanStatusEntry 4 }

```

```

-- Unit Inventory Group
--

```

```

hds12ShdslInventoryTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Hds12ShdslInventoryEntry
    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 }

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hdlsl2ShdslInventoryEntry 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    DisplayString,
  hdsl2ShdslInvVendorSerialNumber   DisplayString,
  hdsl2ShdslInvVendorEOCSoftwareVersion Integer32,
  hdsl2ShdslInvStandardVersion      Integer32,
  hdsl2ShdslInvVendorListNumber     DisplayString,
  hdsl2ShdslInvVendorIssueNumber    DisplayString,
  hdsl2ShdslInvVendorSoftwareVersion DisplayString,
  hdsl2ShdslInvEquipmentCode        DisplayString,
  hdsl2ShdslInvVendorOther          DisplayString,
  hdsl2ShdslInvTransmissionModeCapability
                                   Hdsl2ShdslTransmissionModeType
}
```

hdlsl2ShdslInvIndex OBJECT-TYPE

SYNTAX Hdsl2ShdslUnitId

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The index into the hdsl2ShdslInventoryTable."

::= { hdsl2ShdslInventoryEntry 1 }

hdlsl2ShdslInvVendorID OBJECT-TYPE

SYNTAX OCTET STRING(SIZE(8))

MAX-ACCESS read-only

STATUS current



DESCRIPTION

"Vendor ID as reported in an Inventory Response message."  
::= { hds12ShdslInventoryEntry 2 }

hds12ShdslInvVendorModelNumber OBJECT-TYPE

SYNTAX DisplayString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Vendor model number as reported in an Inventory Response

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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 a Discovery 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."
 ::= { hdsl2ShdslInventoryEntry 7 }
```

hdsl2ShdslInvVendorIssueNumber OBJECT-TYPE

```
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Vendor issue number as reported in an Inventory Response
    message."
 ::= { hdsl2ShdslInventoryEntry 8 }
```

hdsl2ShdslInvVendorSoftwareVersion OBJECT-TYPE

```
SYNTAX      DisplayString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
```

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```
    "Vendor software version as reported in an Inventory
    Response message."
 ::= { hdsl2ShdslInventoryEntry 9 }
```

hdsl2ShdslInvEquipmentCode 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 }
```

hdsl2ShdslInvVendorOther OBJECT-TYPE

```
SYNTAX      DisplayString
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,

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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 }

hdlsl2ShdslEndpointAlarmConfProfile 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 string  
of length 0). If the value is NULL, the endpoint uses the  
default Alarm Configuration Profile for the associated span as  
per the hdsl2ShdslSpanConfAlarmProfile object in the  
hdlsl2ShdslSpanConfTable. The default value of this object is  
NULL."

::= { hdsl2ShdslEndpointConfEntry 3 }

-- Segment Endpoint Current Status/Performance Group  
--

hdlsl2ShdslEndpointCurrTable OBJECT-TYPE

SYNTAX       SEQUENCE OF Hdsl2ShdslEndpointCurrEntry  
MAX-ACCESS   not-accessible

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STATUS       current  
DESCRIPTION

"This table contains current status and performance information  
for segment endpoints in HDSL2/SHDSL Lines."

::= { hdsl2ShdslMibObjects 5 }

hdlsl2ShdslEndpointCurrEntry 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, hds12ShdslInvIndex, hds12ShdslEndpointSide,
        hds12ShdslEndpointWirePair }
 ::= { hds12ShdslEndpointCurrTable 1 }

```

```

Hds12ShdslEndpointCurrEntry ::=
SEQUENCE
{
hds12ShdslEndpointCurrAtn                Integer32,
hds12ShdslEndpointCurrSnrMgn             Integer32,
hds12ShdslEndpointCurrStatus             Integer32,
hds12ShdslEndpointES                     Counter32,
hds12ShdslEndpointSES                     Counter32,
hds12ShdslEndpointCRCAnomalies           Counter32,
hds12ShdslEndpointLOSWs                  Counter32,
hds12ShdslEndpointUAS                     Counter32,
hds12ShdslEndpointCurr15MinTimeElapsed   Hdsl2ShdslPerfTimeElapsed,
hds12ShdslEndpointCurr15MinES             PerfCurrentCount,
hds12ShdslEndpointCurr15MinSES            PerfCurrentCount,
hds12ShdslEndpointCurr15MinCRCAnomalies   PerfCurrentCount,
hds12ShdslEndpointCurr15MinLOSWs          PerfCurrentCount,
hds12ShdslEndpointCurr15MinUAS            PerfCurrentCount,
hds12ShdslEndpointCurr1DayTimeElapsed     Hdsl2ShdslPerfTimeElapsed,
hds12ShdslEndpointCurr1DayES               Hdsl2ShdslPerfCurrDayCount,
hds12ShdslEndpointCurr1DaySES              Hdsl2ShdslPerfCurrDayCount,
hds12ShdslEndpointCurr1DayCRCAnomalies     Hdsl2ShdslPerfCurrDayCount,
hds12ShdslEndpointCurr1DayLOSWs            Hdsl2ShdslPerfCurrDayCount,
hds12ShdslEndpointCurr1DayUAS              Hdsl2ShdslPerfCurrDayCount
}

```

```

hds12ShdslEndpointCurrAtn OBJECT-TYPE
SYNTAX      Integer32
UNITS       "dB"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The current loop attenuation for this endpoint as

```

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```

        reported in a Network or Customer Side Performance
        Status message."
 ::= { hds12ShdslEndpointCurrEntry 1 }

```

```

hds12ShdslEndpointCurrSnrMgn 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."

::= { 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 dropped below the alarm threshold
32 loopAttenuationAlarm	Indicates that the loop attenuation 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

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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."  
::= { hds12Shds1EndpointCurrEntry 3 }

hds12Shds1EndpointES 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."

::= { hds12Shds1EndpointCurrEntry 4 }

hds12Shds1EndpointSES 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."

::= { hds12Shds1EndpointCurrEntry 5 }

hds12Shds1EndpointCRCAnomalies OBJECT-TYPE

SYNTAX          Counter32

MAX-ACCESS    read-only

STATUS        current

DESCRIPTION

"Count of CRC anomalies on this endpoint since the xU was last restarted."

::= { hds12Shds1EndpointCurrEntry 6 }

hds12Shds1EndpointLOSWS OBJECT-TYPE

SYNTAX          Counter32

UNITS           "seconds"

MAX-ACCESS    read-only

STATUS        current

DESCRIPTION

"Count of Loss of Sync Word (LOSWS) Seconds on this endpoint since the xU was last restarted."

::= { hds12Shds1EndpointCurrEntry 7 }

hds12Shds1EndpointUAS OBJECT-TYPE

SYNTAX          Counter32

UNITS           "seconds"

MAX-ACCESS    read-only

STATUS        current



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## 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

"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

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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

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 hds12ShdslEndpointCurr1DayTimeElapsed."

::= { hds12ShdslEndpointCurrEntry 16 }

hds12ShdslEndpointCurr1DaySES OBJECT-TYPE

SYNTAX Hds12ShdslPerfCurrDayCount

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of Severely Errored Seconds (SES) during the current day as measured by hds12ShdslEndpointCurr1DayTimeElapsed."

::= { hds12ShdslEndpointCurrEntry 17 }



hds12ShdslEndpointCurr1DayCRCAnomalies OBJECT-TYPE

SYNTAX Hds12ShdslPerfCurrDayCount

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of CRC anomalies during the current day as measured  
by hds12ShdslEndpointCurr1DayTimeElapsed."

::= { hds12ShdslEndpointCurrEntry 18 }

hds12ShdslEndpointCurr1DayLOSWs OBJECT-TYPE

SYNTAX Hds12ShdslPerfCurrDayCount

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

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DESCRIPTION

"Count of Loss of Sync Word (LOSW) Seconds during the current  
day as measured by hds12ShdslEndpointCurr1DayTimeElapsed."

::= { hds12ShdslEndpointCurrEntry 19 }

hds12ShdslEndpointCurr1DayUAS OBJECT-TYPE

SYNTAX Hds12ShdslPerfCurrDayCount

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of Unavailable Seconds (UAS) during the current  
day as measured by hds12ShdslEndpointCurr1DayTimeElapsed."

::= { hds12ShdslEndpointCurrEntry 20 }

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

--

hds12Shdsl15MinIntervalTable OBJECT-TYPE

SYNTAX SEQUENCE OF Hds12Shdsl15MinIntervalEntry

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 hds12Shds115MinIntervalTable."  
INDEX { ifIndex, hds12Shds1InvIndex, hds12Shds1EndpointSide,  
hds12Shds1EndpointWirePair, hds12Shds115MinIntervalNumber}  
::= { hds12Shds115MinIntervalTable 1 }

Hds12Shds115MinIntervalEntry ::= SEQUENCE  
{  
hds12Shds115MinIntervalNumber INTEGER,  
hds12Shds115MinIntervalES PerfIntervalCount,  
hds12Shds115MinIntervalSES PerfIntervalCount,  
hds12Shds115MinIntervalCRCAnomalies PerfIntervalCount,  
hds12Shds115MinIntervalLOSWS PerfIntervalCount,  
hds12Shds115MinIntervalUAS PerfIntervalCount  
}

hds12Shds115MinIntervalNumber OBJECT-TYPE  
SYNTAX INTEGER(1..96)  
MAX-ACCESS not-accessible  
STATUS current  
DESCRIPTION

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"Performance Data Interval number. 1 is the the most recent  
previous interval; interval 96 is 24 hours ago. Intervals  
2..96 are optional."  
::= { hds12Shds115MinIntervalEntry 1 }

hds12Shds115MinIntervalES OBJECT-TYPE  
SYNTAX PerfIntervalCount  
UNITS "seconds"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"Count of Errored Seconds (ES) during the interval."  
::= { hds12Shds115MinIntervalEntry 2 }

hds12Shds115MinIntervalSES OBJECT-TYPE  
SYNTAX PerfIntervalCount  
UNITS "seconds"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"Count of Severely Errored Seconds (SES) during the  
interval."  
::= { hds12Shds115MinIntervalEntry 3 }

hds12Shds115MinIntervalCRCAnomalies 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 (LOSWS) 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
--

```

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#### 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
    {
        hds12Shdsl1DayIntervalNumber          INTEGER,
        hds12Shdsl1DayIntervalMoniSecs        Hdsl2ShdslPerfTimeElapsed,
        hds12Shdsl1DayIntervalES              Hdsl2Shdsl1DayIntervalCount,
        hds12Shdsl1DayIntervalSES             Hdsl2Shdsl1DayIntervalCount,
        hds12Shdsl1DayIntervalCRCAnomalies    Hdsl2Shdsl1DayIntervalCount,
        hds12Shdsl1DayIntervalLOSWS           Hdsl2Shdsl1DayIntervalCount,
        hds12Shdsl1DayIntervalUAS             Hdsl2Shdsl1DayIntervalCount
    }

```

```

hds12Shdsl1DayIntervalNumber 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."
    ::= { hds12Shdsl1DayIntervalEntry 1 }

```

```

hds12Shdsl1DayIntervalMoniSecs 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."
    ::= { hds12Shdsl1DayIntervalEntry 2 }

```

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```

hds12Shdsl1DayIntervalES 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 hds12Shdsl1DayIntervalMoniSecs."
    ::= { hds12Shdsl1DayIntervalEntry 3 }

```

```

hds12Shdsl1DayIntervalSES 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 }

```

#### hdlsl2Shdsl1DayIntervalCRCAnomalies 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 }

```

#### hdlsl2Shdsl1DayIntervalLOSWS 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 }

```

#### hdlsl2Shdsl1DayIntervalUAS 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
--

```

#### hdlsl2ShdslEndpointMaintTable OBJECT-TYPE

```

SYNTAX      SEQUENCE OF Hdsl2ShdslEndpointMaintEntry

```

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```

MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION

```

```

    "This table supports maintenance operations (eg. loopbacks)

```



to be performed on HDSL2/SHDSL segment endpoints."  
 ::= { hdsl2ShdslMibObjects 8 }

hdlsl2ShdslEndpointMaintEntry 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  
}

hdlsl2ShdslMaintLoopbackConfig 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 }

hdlsl2ShdslMaintTipRingReversal 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, hds12ShdslInvIndex }  
::= { hds12ShdslUnitMaintTable 1 }

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Hds12ShdslUnitMaintEntry ::=

```
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

DESCRIPTION

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

::= { hds12ShdslUnitMaintEntry 2 }

-- Span Configuration Profile Group

--

hds12ShdslSpanConfProfileTable OBJECT-TYPE

SYNTAX SEQUENCE OF Hds12ShdslSpanConfProfileEntry

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

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

INDEX { IMPLIED hds12Shds1SpanConfProfileName }

```
::= { hds12Shds1SpanConfProfileTable 1 }
```

Hds12Shds1SpanConfProfileEntry ::=

SEQUENCE

```
{
  hds12Shds1SpanConfProfileName          SnmpAdminString,
  hds12Shds1SpanConfWireInterface        INTEGER,
  hds12Shds1SpanConfMinLineRate          Integer32,
  hds12Shds1SpanConfMaxLineRate          Integer32,
  hds12Shds1SpanConfPSD                  INTEGER,
  hds12Shds1SpanConfTransmissionMode     Hds12Shds1TransmissionModeType,
  hds12Shds1SpanConfRemoteEnabled         INTEGER,
  hds12Shds1SpanConfPowerFeeding          INTEGER,
  hds12Shds1SpanConfCurrCondTargetMarginDown INTEGER,
  hds12Shds1SpanConfWorstCaseTargetMarginDown INTEGER,
  hds12Shds1SpanConfCurrCondTargetMarginUp  INTEGER,
  hds12Shds1SpanConfWorstCaseTargetMarginUp  INTEGER,
  hds12Shds1SpanConfUsedTargetMargins      Integer32,
  hds12Shds1SpanConfProfileRowStatus      RowStatus
}
```

#### hds12Shds1SpanConfProfileName OBJECT-TYPE

SYNTAX SnmpAdminString (SIZE(1..32))

MAX-ACCESS not-accessible

STATUS current

##### DESCRIPTION

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

```
::= { hds12Shds1SpanConfProfileEntry 1 }
```

#### hds12Shds1SpanConfWireInterface 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."
 ::= { hds12ShdslSpanConfProfileEntry 2 }

```

#### hds12ShdslSpanConfMinLineRate 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

```

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```

    the minimum line rate equals the maximum line rate
    (hds12ShdslSpanMaxLineRate), 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'."
 ::= { hds12ShdslSpanConfProfileEntry 3 }

```

#### hds12ShdslSpanConfMaxLineRate 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
    (hds12ShdslSpanMaxLineRate), 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'."
 ::= { hds12ShdslSpanConfProfileEntry 4 }

```

#### hds12ShdslSpanConfPSD 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 }

hdlsl2ShdslSpanConfTransmissionMode OBJECT-TYPE

SYNTAX Hdsl2ShdslTransmissionModeType

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object specifies the regional setting for the SHDSL line."

::= { hdsl2ShdslSpanConfProfileEntry 6 }

hdlsl2ShdslSpanConfRemoteEnabled OBJECT-TYPE

SYNTAX INTEGER

{  
enabled(1),  
disabled(2)  
}

MAX-ACCESS read-create

STATUS current

DESCRIPTION

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"This object enables/disables support for remote management of the units in a SHDSL line from the STU-R via the EOC."

::= { hdsl2ShdslSpanConfProfileEntry 7 }

hdlsl2ShdslSpanConfPowerFeeding 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 }

hdlsl2ShdslSpanConfCurrCondTargetMarginDown 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."  
::= { hds12ShdslSpanConfProfileEntry 9 }

hds12ShdslSpanConfWorstCaseTargetMarginDown 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."  
::= { hds12ShdslSpanConfProfileEntry 10 }

hds12ShdslSpanConfCurrCondTargetMarginUp 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."  
::= { hds12ShdslSpanConfProfileEntry 11 }

hds12ShdslSpanConfWorstCaseTargetMarginUp OBJECT-TYPE

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

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DESCRIPTION  
    "This object specifies the upstream worst case target SNR margin  
    for a SHDSL line."  
::= { hds12ShdslSpanConfProfileEntry 12 }

hds12ShdslSpanConfUsedTargetMargins 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."
::= { hds12ShdslSpanConfProfileEntry 13 }

```

hds12ShdslSpanConfProfileRowStatus OBJECT-TYPE

```

SYNTAX      RowStatus
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION

```

```

    "This object controls creation/deletion of the associated
    entry in this table per the semantics of RowStatus."
::= { hds12ShdslSpanConfProfileEntry 14 }

```

```

-- 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 HDLSL2/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 HDLSL2/SHDSL segment endpoints. Profiles may be
    created/deleted using the row creation/deletion mechanism via

```

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```

    hds12ShdslEndpointAlarmConfProfileRowStatus. Profiles that
    are being referenced may not be deleted."
INDEX { IMPLIED hds12ShdslEndpointAlarmConfProfileName }
::= { hds12ShdslEndpointAlarmConfProfileTable 1 }

```

Hds12ShdslEndpointAlarmConfProfileEntry ::=



```

SEQUENCE
{
hds12ShdslEndpointAlarmConfProfileName      SnmpAdminString,
hds12ShdslEndpointThreshLoopAttenuation      Integer32,
hds12ShdslEndpointThreshSNRMargin           Integer32,
hds12ShdslEndpointThreshES
        Hds12ShdslPerfIntervalThreshold,
hds12ShdslEndpointThreshSES
        Hds12ShdslPerfIntervalThreshold,
hds12ShdslEndpointThreshCRCAnomalies         Integer32,
hds12ShdslEndpointThreshLOSWS
        Hds12ShdslPerfIntervalThreshold,
hds12ShdslEndpointThreshUAS
        Hds12ShdslPerfIntervalThreshold,
hds12ShdslEndpointAlarmConfProfileRowStatus  RowStatus
}

```

#### hds12ShdslEndpointAlarmConfProfileName OBJECT-TYPE

```

SYNTAX      SnmpAdminString (SIZE(1..32))
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "This object is the unique index associated with this profile."
 ::= { hds12ShdslEndpointAlarmConfProfileEntry 1 }

```

#### hds12ShdslEndpointThreshLoopAttenuation 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 hds12ShdslLoopAttenCrossingTrap will be generated."
 ::= { hds12ShdslEndpointAlarmConfProfileEntry 2 }

```

#### hds12ShdslEndpointThreshSNRMargin 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 hds12ShdslSNRMarginCrossingTrap will be generated."
 ::= { hds12ShdslEndpointAlarmConfProfileEntry 3 }

```



#### hds12Shds1EndpointThreshES OBJECT-TYPE

SYNTAX Hds12Shds1PerfIntervalThreshold

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 hds12Shds1PerfESThreshTrap will be generated. One trap will be sent per interval per endpoint."

::= { hds12Shds1EndpointAlarmConfProfileEntry 4 }

#### hds12Shds1EndpointThreshSES OBJECT-TYPE

SYNTAX Hds12Shds1PerfIntervalThreshold

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 hds12Shds1PerfSESThreshTrap will be generated. One trap will be sent per interval per endpoint."

::= { hds12Shds1EndpointAlarmConfProfileEntry 5 }

#### hds12Shds1EndpointThreshCRCAnomalies 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 hds12Shds1PerfCRCAnomaliesThreshTrap will be generated. One trap will be sent per interval per endpoint."

::= { hds12Shds1EndpointAlarmConfProfileEntry 6 }

#### hds12Shds1EndpointThreshLOSWS OBJECT-TYPE

SYNTAX Hds12Shds1PerfIntervalThreshold

UNITS "seconds"

MAX-ACCESS read-create

STATUS current

##### DESCRIPTION

"This object configures the threshold for the number of Loss of Sync Word (LOSWS) 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 hds12ShdslPerfLOSWSThreshTrap will be generated.

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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

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

STATUS current



#### DESCRIPTION

"This trap indicates that the loop attenuation threshold (as per the hds12ShdslEndpointThreshLoopAttenuation value) has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified by the ifIndex, hds12ShdslInvIndex, hds12ShdslEndpointSide, and hds12ShdslEndpointWirePair values."

::= { hds12ShdslTrapsPrefix 1 }

hds12ShdslSNRMarginCrossingTrap NOTIFICATION-TYPE  
OBJECTS

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```
{
ifIndex,
hds12ShdslInvIndex,
hds12ShdslEndpointSide,
hds12ShdslEndpointWirePair,
hds12ShdslEndpointCurrSnrMgn,
hds12ShdslEndpointThreshSNRMargin
}
```

STATUS current

#### DESCRIPTION

"This trap indicates that the SNR margin threshold (as per the hds12ShdslEndpointThreshSNRMargin value) has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified by the ifIndex, hds12ShdslInvIndex, hds12ShdslEndpointSide, and hds12ShdslEndpointWirePair values."

::= { hds12ShdslTrapsPrefix 2 }

hds12ShdslPerfESThreshTrap NOTIFICATION-TYPE  
OBJECTS

```
{
ifIndex,
hds12ShdslInvIndex,
hds12ShdslEndpointSide,
hds12ShdslEndpointWirePair,
hds12ShdslEndpointCurr15MinES,
hds12ShdslEndpointThreshES
}
```

STATUS current

#### DESCRIPTION

"This trap indicates that the errored seconds threshold (as per the hds12ShdslEndpointThreshES value) has been reached/exceeded for the HDSL2/SHDSL segment endpoint identified by the ifIndex, hds12ShdslInvIndex, hds12ShdslEndpointSide, and hds12ShdslEndpointWirePair values."

::= { hds12ShdslTrapsPrefix 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."

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::= { 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,
}
```



```

hds12Shds1EndpointThreshLOSWS
}
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."
::= { hds12Shds1TrapsPrefix 6 }

```

#### hds12Shds1PerfUASThreshTrap NOTIFICATION-TYPE

```

OBJECTS
{
ifIndex,
hds12Shds1InvIndex,
hds12Shds1EndpointSide,
hds12Shds1EndpointWirePair,
hds12Shds1EndpointCurr15MinUAS,
hds12Shds1EndpointThreshUAS
}
STATUS      current
DESCRIPTION
    "This trap indicates that the unavailable seconds threshold (as

```

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```

    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,
hds12Shds1SpanConfNumRepeaters
}
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 hds12Shds1SpanConfNumRepeaters object
    and the actual number of repeater/regenerator units discovered
    via the EOC."
::= { hds12Shds1TrapsPrefix 8 }

```

#### hds12Shds1LoopbackFailure NOTIFICATION-TYPE



```

OBJECTS
{
  ifIndex,
  hds12ShdslInvIndex,
  hds12ShdslEndpointSide,
  hds12ShdslMaintLoopbackConfig
}
STATUS      current
DESCRIPTION
  "This trap indicates that an endpoint maintenance loopback
  command failed for an HDSL2/SHDSL segment."
 ::= { hds12ShdslTrapsPrefix 9 }

```

#### hds12ShdslpowerBackoff NOTIFICATION-TYPE

```

OBJECTS
{
  ifIndex,
  hds12ShdslInvIndex,
  hds12ShdslEndpointSide,
  hds12ShdslEndpointWirePair
}
STATUS      current
DESCRIPTION
  "This trap indicates that the bit setting for powerBackoff
  in the hds12ShdslEndpointCurrStatus object for this endpoint
  has changed."
 ::= { hds12ShdslTrapsPrefix 10 }

```

#### hds12ShdsldeviceFault NOTIFICATION-TYPE

```

OBJECTS
{

```

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```

  ifIndex,
  hds12ShdslInvIndex,
  hds12ShdslEndpointSide,
  hds12ShdslEndpointWirePair
}
STATUS      current
DESCRIPTION
  "This trap indicates that the bit setting for deviceFault
  in the hds12ShdslEndpointCurrStatus object for this endpoint
  has changed."
 ::= { hds12ShdslTrapsPrefix 11 }

```

#### hds12ShdslcdcContinuityFault NOTIFICATION-TYPE

```

OBJECTS
{

```



```

ifIndex,
hdl2ShdslInvIndex,
hdl2ShdslEndpointSide,
hdl2ShdslEndpointWirePair
}
STATUS    current
DESCRIPTION
    "This trap indicates that the bit setting for dcContinuityFault
    in the hdl2ShdslEndpointCurrStatus object for this endpoint
    has changed."
 ::= { hdl2ShdslTrapsPrefix 12 }

```

#### hdl2ShdslconfigInitFailure NOTIFICATION-TYPE

```

OBJECTS
{
ifIndex,
hdl2ShdslInvIndex,
hdl2ShdslEndpointSide,
hdl2ShdslEndpointWirePair
}
STATUS    current
DESCRIPTION
    "This trap indicates that the bit setting for configInitFailure
    in the hdl2ShdslEndpointCurrStatus object for this endpoint
    has changed."
 ::= { hdl2ShdslTrapsPrefix 13 }

```

#### hdl2ShdslprotocolInitFailure NOTIFICATION-TYPE

```

OBJECTS
{
ifIndex,
hdl2ShdslInvIndex,
hdl2ShdslEndpointSide,
hdl2ShdslEndpointWirePair
}
STATUS    current
DESCRIPTION
    "This trap indicates that the bit setting for

```

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```

    protocolInitFailure in the hdl2ShdslEndpointCurrStatus object
    for this endpoint has changed."
 ::= { hdl2ShdslTrapsPrefix 14 }

```

#### hdl2ShdslnoNeighborPresent NOTIFICATION-TYPE

```

OBJECTS
{
ifIndex,

```



```

hds12Shds1InvIndex,
hds12Shds1EndpointSide,
hds12Shds1EndpointWirePair
}
STATUS    current
DESCRIPTION
    "This trap indicates that the bit setting for noNeighborPresent
    in the hds12Shds1EndpointCurrStatus object for this endpoint
    has changed."
::= { hds12Shds1TrapsPrefix 15 }

```

#### hds12Shds1localPowerLoss NOTIFICATION-TYPE

```

OBJECTS
{
ifIndex,
hds12Shds1InvIndex
}
STATUS    current
DESCRIPTION
    "This trap indicates impending unit failure due to loss of
    local power (last gasp)."
::= { hds12Shds1TrapsPrefix 16 }

```

```

-- conformance information
--

```

```

hds12Shds1Conformance OBJECT IDENTIFIER ::= { hds12Shds1LineMib 3 }
hds12Shds1Groups      OBJECT IDENTIFIER ::= { hds12Shds1Conformance 1 }
hds12Shds1Compliances OBJECT IDENTIFIER ::= { hds12Shds1Conformance 2 }

```

```

-- agent compliance statements

```

#### hds12Shds1LineMibCompliance MODULE-COMPLIANCE

```

STATUS    current
DESCRIPTION
    "The section outlines compliance requirements for this MIB."
MODULE
MANDATORY-GROUPS
{
hds12Shds1SpanConfGroup,
hds12Shds1SpanStatusGroup,
hds12Shds1InventoryGroup,
hds12Shds1EndpointConfGroup,
hds12Shds1EndpointCurrGroup,
hds12Shds115MinIntervalGroup,

```

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```

hds12Shds11DayIntervalGroup,

```



```
hds12ShdslMaintenanceGroup,  
hds12ShdslEndpointAlarmConfGroup,  
hds12ShdslNotificationGroup  
}
```

```
GROUP hds12ShdslInventoryShdslGroup  
DESCRIPTION  
    "Support for this group is only required for implementations  
    supporting SHDSL lines."
```

```
GROUP hds12ShdslSpanShdslStatusGroup  
DESCRIPTION  
    "Support for this group is only required for implementations  
    supporting SHDSL lines."
```

```
GROUP hds12ShdslSpanConfProfileGroup  
DESCRIPTION  
    "Support for this group is only required for implementations  
    supporting SHDSL lines."
```

```
::= { hds12ShdslCompliances 1 }
```

```
-- units of conformance  
--
```

```
hds12ShdslSpanConfGroup OBJECT-GROUP  
    OBJECTS  
    {  
        hds12ShdslSpanConfNumRepeaters,  
        hds12ShdslSpanConfProfile,  
        hds12ShdslSpanConfAlarmProfile  
    }  
    STATUS      current  
    DESCRIPTION  
        "This group supports objects for configuring span related  
        parameters for HDSL2/SHDSL lines."  
    ::= { hds12ShdslGroups 1 }
```

```
hds12ShdslSpanStatusGroup OBJECT-GROUP  
    OBJECTS  
    {  
        hds12ShdslStatusNumAvailRepeaters  
    }  
    STATUS      current  
    DESCRIPTION  
        "This group supports objects for retrieving span related  
        status for HDSL2/SHDSL lines."  
    ::= { hds12ShdslGroups 2 }
```

```
hds12ShdslInventoryShdslGroup OBJECT-GROUP  
    OBJECTS
```



{

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```
hds12ShdslInvTransmissionModeCapability
}
```

STATUS current

DESCRIPTION

"This group supports objects for retrieving SHDSL-specific  
inventory information."

::= { hds12ShdslGroups 3 }

hds12ShdslSpanShdslStatusGroup OBJECT-GROUP

OBJECTS

{

```
hds12ShdslStatusMaxAttainableLineRate,
hds12ShdslStatusActualLineRate,
hds12ShdslStatusTransmissionModeCurrent
```

}

STATUS current

DESCRIPTION

"This group supports objects for retrieving SHDSL-specific  
span related status."

::= { hds12ShdslGroups 4 }

hds12ShdslInventoryGroup 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 5 }

hds12ShdslEndpointConfGroup OBJECT-GROUP

OBJECTS

{



```
hds12ShdslEndpointSide,  
hds12ShdslEndpointWirePair,  
hds12ShdslEndpointAlarmConfProfile  
}
```

```
STATUS          current
```

```
DESCRIPTION
```

```
    "This group supports objects for configuring parameters for  
    segment endpoints in HDSL2/SHDSL lines."
```

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```
::= { hds12ShdslGroups 6 }
```

hds12ShdslEndpointCurrGroup OBJECT-GROUP

```
OBJECTS
```

```
{  
hds12ShdslEndpointSide,  
hds12ShdslEndpointWirePair,  
hds12ShdslEndpointCurrAtn,  
hds12ShdslEndpointCurrSnrMgn,  
hds12ShdslEndpointCurrStatus,  
hds12ShdslEndpointES,  
hds12ShdslEndpointSES,  
hds12ShdslEndpointCRCAnomalies,  
hds12ShdslEndpointLOSWS,  
hds12ShdslEndpointUAS,  
hds12ShdslEndpointCurr15MinTimeElapsed,  
hds12ShdslEndpointCurr15MinES,  
hds12ShdslEndpointCurr15MinSES,  
hds12ShdslEndpointCurr15MinCRCAnomalies,  
hds12ShdslEndpointCurr15MinLOSWS,  
hds12ShdslEndpointCurr15MinUAS,  
hds12ShdslEndpointCurr1DayTimeElapsed,  
hds12ShdslEndpointCurr1DayES,  
hds12ShdslEndpointCurr1DaySES,  
hds12ShdslEndpointCurr1DayCRCAnomalies,  
hds12ShdslEndpointCurr1DayLOSWS,  
hds12ShdslEndpointCurr1DayUAS  
}
```

```
STATUS          current
```

```
DESCRIPTION
```

```
    "This group supports objects which provide current status and  
    performance measurements relating to segment endpoints in  
    HDSL2/SHDSL lines."
```

```
::= { hds12ShdslGroups 7 }
```

hds12Shdsl15MinIntervalGroup 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 HDLS2/SHDSL lines
    in 15-minute intervals."
::= { hds12Shds1Groups 8 }

```

hds12Shds11DayIntervalGroup OBJECT-GROUP  
OBJECTS

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```

{
hds12Shds11DayIntervalMoniSecs,
hds12Shds11DayIntervalES,
hds12Shds11DayIntervalSES,
hds12Shds11DayIntervalCRCAnomalies,
hds12Shds11DayIntervalLOSWS,
hds12Shds11DayIntervalUAS
}
STATUS      current
DESCRIPTION
    "This group supports objects which maintain historic performance
    measurements relating to segment endpoints in HDLS2/SHDSL lines
    in 1-day intervals."
::= { hds12Shds1Groups 9 }

```

hds12Shds1MaintenanceGroup OBJECT-GROUP  
OBJECTS

```

{
hds12Shds1MaintLoopbackConfig,
hds12Shds1MaintTipRingReversal,
hds12Shds1MaintPowerBackOff,
hds12Shds1MaintSoftRestart,
hds12Shds1MaintLoopbackTimeout,
hds12Shds1MaintUnitPowerSource
}
STATUS      current
DESCRIPTION
    "This group supports objects that provide support for
    maintenance actions for HDLS2/SHDSL lines."
::= { hds12Shds1Groups 10 }

```



hds12ShdslEndpointAlarmConfGroup OBJECT-GROUP

OBJECTS

```
{
hds12ShdslEndpointThreshLoopAttenuation,
hds12ShdslEndpointThreshSNRMargin,
hds12ShdslEndpointThreshES,
hds12ShdslEndpointThreshSES,
hds12ShdslEndpointThreshCRCAnomalies,
hds12ShdslEndpointThreshLOSWS,
hds12ShdslEndpointThreshUAS,
hds12ShdslEndpointAlarmConfProfileRowStatus
}
```

STATUS current

DESCRIPTION

"This group supports objects that allow configuration of alarm thresholds for various performance parameters for HDSL2/SHDSL lines."

::= { hds12ShdslGroups 11 }

hds12ShdslNotificationGroup NOTIFICATION-GROUP

NOTIFICATIONS

```
{
```

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```
hds12ShdslLoopAttenCrossingTrap,
hds12ShdslSNRMarginCrossingTrap,
hds12ShdslPerfESThreshTrap,
hds12ShdslPerfSESThreshTrap,
hds12ShdslPerfCRCAnomaliesThreshTrap,
hds12ShdslPerfLOSWSThreshTrap,
hds12ShdslPerfUASThreshTrap,
hds12ShdslSpanInvalidNumRepeaters,
hds12ShdslLoopbackFailure,
hds12ShdslpowerBackoff,
hds12ShdsldeviceFault,
hds12ShdsldcContinuityFault,
hds12ShdslconfigInitFailure,
hds12ShdslprotocolInitFailure,
hds12ShdslnoNeighborPresent,
hds12ShdsllocalPowerLoss
}
```

STATUS current

DESCRIPTION

"This group supports traps that enable notification of significant events/conditions associated with HDSL2/SHDSL lines."

::= { hds12ShdslGroups 12 }



```

hds12Shds1SpanConfProfileGroup OBJECT-GROUP
    OBJECTS
    {
        hds12Shds1SpanConfWireInterface,
        hds12Shds1SpanConfMinLineRate,
        hds12Shds1SpanConfMaxLineRate,
        hds12Shds1SpanConfPSD,
        hds12Shds1SpanConfTransmissionMode,
        hds12Shds1SpanConfRemoteEnabled,
        hds12Shds1SpanConfPowerFeeding,
        hds12Shds1SpanConfCurrCondTargetMarginDown,
        hds12Shds1SpanConfWorstCaseTargetMarginDown,
        hds12Shds1SpanConfCurrCondTargetMarginUp,
        hds12Shds1SpanConfWorstCaseTargetMarginUp,
        hds12Shds1SpanConfUsedTargetMargins,
        hds12Shds1SpanConfProfileRowStatus
    }
    STATUS      current
    DESCRIPTION
        "This group supports objects that constitute configuration
        profiles for configuring span related parameters in SHDSL
        lines."
    ::= { hds12Shds1Groups 13 }

END

```

## 7. Security Considerations

There are a number of management objects defined in this MIB that

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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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Mike Sneed (ECI)

Aron Wahl (Memotec)

Michael Wrobel (Memotec)

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