Definitions of Managed Objects for Very High Speed Digital Subscriber Lines (VDSL)
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Abstract

This document defines a Management Information Base (MIB) module for use with network management protocols in the Internet community. In particular, it describes objects used for managing Very high speed Digital Subscriber Line (VDSL) interfaces [T1E1311, T1E1011, T1E1013, ETSI2701, ETSI2702, ITU9931, ITU9971].

This document specifies a MIB module in a manner that is compliant to the SMIv2 (STD 58 [RFC2578, RFC2579, RFC2580]).
1. The SNMP Management Framework

The SNMP Management Framework presently consists of five major components:

   o An overall architecture, described in RFC 2571 [RFC2571].

   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 [RFC1155, RFC1212] and RFC 1215 [RFC1215]. The second version, called SMIv2, is described in STD 58 [RFC2578, RFC2579, RFC2580].

   o Message protocols for transferring management information. The first version of the SNMP message protocol is called SNMPv1 and described in STD 15 [RFC1157]. A second version of the SNMP message protocol, which is not an Internet standards track protocol, is called SNMPv2c and described in RFC 1901 [RFC1901] and RFC 1906 [RFC1906]. The third version of the message protocol is called SNMPv3 and described in RFC 1906 [RFC1906], RFC 2572 [RFC2572] and RFC 2574 [RFC2574].

   o Protocol operations for accessing management information. The first set of protocol operations and associated PDU formats is described in STD 15 [RFC1157]. A second set of protocol operations and associated PDU formats is described in RFC 1905 [RFC1905].

   o A set of fundamental applications described in RFC 2573 [RFC2573].
and the view-based access control mechanism described in RFC 2575 [RFC2575].

A more detailed introduction to the current SNMP Management Framework can be found in RFC 2570 [RFC2570].

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 [RFC2119].

2. Overview

This document describes an SNMP MIB for managing VDSL Lines. These definitions are based upon the specifications for VDSL as defined in T1E1, ETSI, and ITU documentation [T1E1311, T1E1011, T1E1013, ETSI2701, ETSI2702, ITU9931, ITU9971].

The MIB is located in the MIB tree under MIB 2 transmission, as discussed in the MIB-2 Integration (RFC 2863 [RFC2863]) section of this document.

2.1 Relationship of the VDSL Line MIB to other MIBs

This section outlines the relationship of this MIB with other MIBs described in RFCs. Specifically, IF-MIB as presented RFC 2863 [RFC2863] is discussed.

2.1.1 General IF-MIB Integration (RFC 2863)

The VDSL Line MIB specifies the detailed attributes of a data interface. As such, it needs to integrate with RFC 2863 [RFC2863]. The IANA has assigned the following ifType to VDSL:

IANAifType ::= TEXTUAL-CONVENTION
...
SYNTAX INTEGER {
...
Additionally, a VDSL line may contain an optional fast channel and an optional interleaved channel which also integrate into RFC 2863 [RFC2863]. The IANA has assigned the following ifTypes to these channels:

IANAIfType ::= TEXTUAL-CONVENTION
...
SYNTAX INTEGER {
...
  interleaved (124), -- Interleave channel
  fast (125),       -- Fast channel
...
}

2.1.2 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. For interfaces in systems implementing this MIB, those table entries indexed by ifIndex MUST be persistent.

The following attributes are part of the mandatory ifGeneral group in RFC 2863 [RFC2863], and are not duplicated in the VDSL Line MIB.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ifIndex</td>
<td>Interface index.</td>
</tr>
<tr>
<td>ifDescr</td>
<td>See interfaces MIB [RFC2863].</td>
</tr>
<tr>
<td>ifType</td>
<td>vdsl(97), interleaved(124), or fast(125)</td>
</tr>
<tr>
<td>ifSpeed</td>
<td>Set as appropriate.</td>
</tr>
<tr>
<td>ifPhysAddress</td>
<td>This object MUST have an octet string with zero length.</td>
</tr>
<tr>
<td>ifAdminStatus</td>
<td>See interfaces MIB [RFC2863].</td>
</tr>
<tr>
<td>ifOperStatus</td>
<td>See interfaces MIB [RFC2863].</td>
</tr>
<tr>
<td>ifLastChange</td>
<td>See interfaces MIB [RFC2863].</td>
</tr>
<tr>
<td>ifName</td>
<td>See interfaces MIB [RFC2863].</td>
</tr>
<tr>
<td>ifLinkUpDownTrapEnable</td>
<td>Default to enabled(1).</td>
</tr>
</tbody>
</table>
ifHighSpeed Set as appropriate.

ifConnectorPresent Set as appropriate.

Figure 1: Use of ifTable Objects

Section 2.3, below, describes the structure of this MIB in relation to ifEntry in greater detail.

2.2 Conventions used in the MIB

2.2.1 Naming Conventions

A. Vtuc -- (VTUC) modem at near (Central) end of line
B. Vtur -- (VTUR) modem at Remote end of line
C. Vtu -- One of either Vtuc or Vtur
D. Curr -- Current
E. Prev -- Previous
F. Atn -- Attenuation
G. ES -- Errored Second
H. SES -- Severely Errored Second
I. UAS -- Unavailable Second
J. LCS -- Line Code Specific
K. Lof -- Loss of Frame
L. Lol -- Loss of Link
M. Los -- Loss of Signal
N. Lpr -- Loss of Power
O. xxxs -- interval of Seconds in which xxx occurs (e.g., xxx=Lof, Los, Lpr)
P. Max -- Maximum
Q. Mgn -- Margin
R. Min -- Minimum
S. Psd -- Power Spectral Density
T. Snr -- Signal to Noise Ratio
U. Tx -- Transmit
V. Blks -- Blocks

2.2.2 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 behavior of the statistics to be maintained by an agent.

o VdslLineCodingType:

Attributes with this syntax identify the line coding used. Specified as an INTEGER, the three values are:

other(1) -- none of the following
o VdslLineEntity :

Attributes with this syntax reference the two sides of a line. Specified as an INTEGER, the two values are:

vtuc(1) -- central site modem
vtur(2) -- remote site modem

2.3 Structure

The MIB is structured into following MIB groups:

o vdslGroup :

This group supports all line code independent MIB objects found in this MIB. The following tables contain objects permitted for ifType vdsl(97):

- vdslLineTable
- vdslPhysTable
- vdslPerfDataTable
- vdslPerfIntervalTable
- vdslPerf1DayIntervalTable
- vdslLineConfProfileTable
- vdslLineAlarmConfProfileTable

The following tables contain objects permitted for ifTypes interleaved(124) and (fast):

- vdslChanTable
- vdslChanPerfDataTable
- vdslChanPerfIntervalTable
- vdslChanPerf1DayIntervalTable

o vdslMCMGroup :

This group supports MIB objects for defining configuration profiles for Multiple Carrier Modulation (MCM) VDSL modems. It contains the following tables:

- vdslLineMCMConfProfileTable
- vdslLineMCMConfProfileTxBandTable
- vdslLineMCMConfProfileRxBandTable
- vdslLineMCMConfProfileTxPSDTable
- vdslLineMCMConfProfileMaxTxPSDTable
- vdslLineMCMConfProfileMaxRxPSDTable

Objects in this group MUST be implemented for MCM VDSL lines.
o vdslSCMGroup:

This group supports MIB objects for defining configuration profiles for Single Carrier Modulation (SCM) VDSL modems. It contains the following tables:

- vdslLineSCMConfProfileTable
- vdslLineSCMConfProfileTxBandTable

This group also supports the following line code dependent tables:

- vdslSCMPhysBandTable

Objects in this group MUST be implemented for SCM VDSL lines.

Figure 2, below, displays the relationship of the tables in the vdslGroup to ifEntry (and each other):

ifEntry(ifType=97) ----> vdslLineTableEntry 1:(0..1)

vdslLineTableEntry ----> vdslPhysTableEntry 1:(0..2)
    ----> vdslPerfDataEntry 1:(0..2)
    ----> vdslLineConfProfileEntry 1:(0..1)
    ----> vdslLineAlarmConfProfileEntry 1:(0..1)

vdslPhysTableEntry ----> vdslPerfIntervalEntry 1:(0..96)
    ----> vdslPerf1DayIntervalEntry 1:(0..30)

ifEntry(ifType=124) ----> vdslChanEntry 1:(0..2)
    ----> vdslChanPerfDataEntry 1:(0..2)

ifEntry(ifType=125) ----> vdslChanEntry 1:(0..2)
    ----> vdslChanPerfDataEntry 1:(0..2)

vdslChanEntry ----> vdslchanPerfIntervalEntry 1:(0..96)
    ----> vdslchan1DayPerfIntervalEntry 1:(0..30)

Figure 2: Table Relationships

2.3.1 Line Topology

A VDSL Line consists of a two units - Vtuc (the central termination unit) and a Vtur (the remote termination unit).

<-- Network Side Customer Side -->

|<------------- VDSL Line /-------------/|

+--------+    +--------+
|         |    |         |
| Vtuc    |    | Vtur    |

Expires March 23, 2002
2.4 Counters, Interval Buckets and Thresholds

For Loss of Frame (lof), Loss of Link (lol), Loss of Signal (los), and Loss of Power (lpr), Errored Seconds (ES), Severely Errored Seconds (SES), and Unavailable Seconds (UAS) there are event counters, current 15-minute, 0 to 96 15-minute history bucket(s), and 0 to 30 1-day history bucket(s) of "interval-counters". Each current 15-minute event bucket has an associated threshold notification.

Each of these counters uses the textual conventions defined in the HC-PerfHist-TC-MIB. The HC-PerfHist-TC-MIB is a work-in-progress, but simply defines 64-bit versions of the textual conventions found in RFC 2493 [RFC2493].

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 Vtu is reinitialized, only when the agent is reset or reinitialized (or under specific request outside the scope of this MIB).

2.5 Profiles

As a managed node can handle a large number of Vtus, (e.g., hundreds or perhaps thousands of lines), provisioning every parameter on every Vtu 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:

- Line Configuration Profiles - Line configuration profiles contain parameters for configuring VDSL lines. They are defined in nine tables:
  - vdsllineConfProfileTable
  - vdsllineMCMConfProfileTable
  - vdsllineMCMConfProfileTxBandTable
  - vdsllineMCMConfProfileRxBandTable
  - vdsllineMCMConfProfileTxPSDTable
  - vdsllineMCMConfProfileMaxTxPSDTable
  - vdsllineMCMConfProfileMaxRxPSDTable
As noted above, the latter eight tables in the above list are line code specific.

The object, `vdslLineConfProfileIndex`, is used as a common index for all of the above tables. A profile, then, consists of the combination of a line code independent configuration (i.e. an entry in `vdslLineConfProfileTable`) and a set of line code dependent configurations (i.e. entries in either `vdslLineMCMConfProfilexxx` or `vdslLineSCMConfProfilexxx`).

- **Alarm Configuration Profiles** - These profiles contain parameters for configuring alarm thresholds for VDSL modems. These profiles are defined in the `vdslLineAlarmConfProfileTable`.

One or more lines may be configured to share parameters of a single profile by setting its `vdslLineConfProfile` 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 with an index value of 1 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 `vdslLineConfProfile` and `vdslLineAlarmConfProfile` to 1 where appropriate. This default profile entry is considered reserved in the context of profiles defined in this MIB.

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.

### 2.6 Notifications

The ability to generate the SNMP notifications `coldStart/WarmStart` (per [RFC2863]) which are per agent (e.g., per Digital Subscriber Line Access Multiplexer, or DSLAM, in such a device), and `linkUp/linkDown` (per [RFC2863]) which are per interface (i.e., VDSL line) is required.

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

A linkDown notification MAY be generated whenever any of lof, lol, los, lpr, ES, SES, or UAS threshold crossing event (as defined in this MIB) occurs. The corresponding linkUp notification MAY be sent when all link failure conditions are cleared.

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

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

Note that the Network Management System, or NMS, may receive a linkDown notification, as well, if enabled (via ifLinkUpDownTrapEnable [RFC2863]). At the beginning of the next 15 minute interval, the counter is reset. When the first second goes by and the event occurs, the current interval bucket will be 1, which equals the threshold and the notification will be sent again.

2.7 Persistence

All objects defined in this MIB which may be set (read-write or read-create), should be stored persistently. Following is an exhaustive list of these persistent objects:

- vdslLineConfProfile
- vdslLineAlarmConfProfile
- vdslLineConfProfileIndex
- vdslLineConfProfileName
- vdslLineConfDownstreamMaxPwr
- vdslLineConfUpstreamMaxPwr
- vdslLineConfDownstreamMaxSnrMgn
- vdslLineConfDownstreamMinSnrMgn
- vdslLineConfDownstreamTargetSnrMgn
- vdslLineConfUpstreamMaxSnrMgn
- vdslLineConfUpstreamMinSnrMgn
- vdslLineConfUpstreamTargetSnrMgn
- vdslLineConfDownstreamFastMaxDataRate
- vdslLineConfDownstreamFastMinDataRate
It should also be noted that interface indices in this MIB are maintained persistently. VACM data relating to these should be stored persistently as well.

3. Conformance and Compliance

For VDSL lines, the following group is mandatory:

- vds1Group

For MCM VDSL lines, the following group is optional:

- vds1SCMGroup

For SCM VDSL lines, the following group is optional:

- vds1MCMGroup

4. Definitions

VDSDLINE-MIB DEFINITIONS ::= BEGIN

IMPORTS

MODULE-IDENTITY, OBJECT-TYPE, Counter64,

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Gauge32,
Integer32,
Unsigned32,
NOTIFICATION-TYPE,
transmission FROM SNMPv2-SMI
TEXTUAL-CONVENTION,
RowStatus,
TruthValue FROM SNMPv2-TC
HCPerfValidIntervals,
HCPerfInvalidIntervals,
HCPerfTimeElapsed,
HCPerfIntervalThreshold,
HCPerfCurrentCount,
HCPerfIntervalCount FROM HC-PerfHist-TC-MIB
MODULE-COMPLIANCE,
OBJECT-GROUP,
NOTIFICATION-GROUP FROM SNMPv2-CONF
ifIndex FROM IF-MIB
SnmpAdminString FROM SNMP-FRAMEWORK-MIB;

vdslMIB MODULE-IDENTITY
LAST-UPDATED "200209230000Z" -- September 23, 2002
ORGANIZATION "ADSLMIB Working Group"
CONTACT-INFO "WG-email: adslmib@ietf.org
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"

DESCRIPTION
"The MIB module defining objects for the management of a pair of
VDSL modems at each end of the VDSL line. Each such line has
an entry in an ifTable which may include multiple modem lines.
An agent may reside at either end of the VDSL line however the
MIB is designed to require no management communication between
VDSL lines may support optional Fast or Interleaved channels. If these are supported, additional entries corresponding to the supported channels must be created in the ifTable. Thus a VDSL line that supports both channels will have three entries in the ifTable, one for each physical, fast, and interleaved, whose ifType values are equal to vdsl(97), fast(125), and interleaved(124), respectively. The ifStackTable is used to represent the relationship between the entries.

Naming Conventions:

Vtuc -- (VTUC) modem at near (Central) end of line
Vtur -- (VTUR) modem at Remote end of line
Vtu -- One of either Vtuc or Vtur
Curr -- Current
Prev -- Previous
Attn -- Attenuation
ES -- Errored Second.
LCS -- Line Code Specific
Lof -- Loss of Frame
Lol -- Loss of Link
Los -- Loss of Signal
Lpr -- Loss of Power
xxxx -- interval of Seconds in which xxx occurs
   (e.g., xxxx=Lof, Los, Lpr)
Max -- Maximum
Mgn -- Margin
Min -- Minimum
Psd -- Power Spectral Density
Snr -- Signal to Noise Ratio
Tx -- Transmit
Blks -- Blocks

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DESCRIPTION "Removed use of IMPLIED profile indices."

REVISION "2002061600000Z" -- June 16, 2002
DESCRIPTION "Revised per input from DSL Forum."

REVISION "2002092300000Z" -- September 23, 2002
DESCRIPTION "Revised per more input from DSL Forum."

::= { transmission xxxx }
vds1LineMib OBJECT IDENTIFIER ::= { vdslMIB 1 }
vds1MibObjects OBJECT IDENTIFIER ::= { vds1LineMib 1 }

--
-- textual conventions used in this MIB
--

VdslLineCodingType ::= TEXTUAL-CONVENTION
   STATUS    current
   DESCRIPTION
     "This data type is used as the syntax for the VDSL Line Code."
   SYNTAX  INTEGER
     { other(1), -- none of the following
       mcm(2),   -- Multiple Carrier Modulation
       scm(3)    -- Single Carrier Modulation
     }

VdslLineEntity ::= TEXTUAL-CONVENTION
   STATUS    current
   DESCRIPTION
     "Identifies a modem as being either Vtuc or Vtur. A VDSL line consists of two modems, a Vtuc and a Vtur."
   SYNTAX  INTEGER
     { vtuc(1), -- central site modem
       vtur(2)  -- remote site modem
     }

--
-- objects
--

vds1LineTable OBJECT-TYPE
   SYNTAX       SEQUENCE OF VdslLineEntry
   MAX-ACCESS   not-accessible
   STATUS       current
   DESCRIPTION
     "This table includes common attributes describing both ends of the line. It is required for all VDSL physical interfaces. VDSL physical interfaces are those ifEntries where ifType is equal to vdsl(97)."
   ::= { vds1MibObjects 1 }

vds1LineEntry OBJECT-TYPE
   SYNTAX       VdslLineEntry
   MAX-ACCESS   not-accessible
   STATUS       current
   DESCRIPTION  "An entry in the vds1LineTable."
   INDEX { ifIndex }
   ::= { vds1LineTable 1 }

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VdslLineEntry ::=  
SEQUENCE  
{  
vdslLineCoding VdslLineCodingType,  
vdslLineType INTEGER,  
vdslLineConfProfile Integer32,  
vdslLineAlarmConfProfile Integer32  
}  

vdslLineCoding OBJECT-TYPE  
SYNTAX VdslLineCodingType  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION "Specifies the VDSL coding type used on this line."  
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec  
::= { vdslLineEntry 1 }  

vdslLineType OBJECT-TYPE  
SYNTAX INTEGER  
{  
noChannel(1), -- no channels exist  
fastOnly(2), -- fast channel only  
slowOnly(3), -- slow channel only  
either(4), -- either fast or slow channel exist  
both(5) -- both fast and slow channels exist  
}  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION "Defines the type of VDSL physical line entity that exists, by defining whether and how the line is channelized. If the line is channelized, the value will be other than noChannel(1). This object defines which channel type(s) are supported. In the case that the line is channelized, the manager can use the ifStackTable to determine the ifIndex for the associated channel(s). Note that slow and interleaved refer to the same channel."  
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec  
::= { vdslLineEntry 2 }  

vdslLineConfProfile OBJECT-TYPE  
SYNTAX Integer32  
MAX-ACCESS read-write  
STATUS current  
DESCRIPTION "The value of this object identifies the row
in the VDSL Line Configuration Profile Table,
( vdslLineConfProfileTable ), which applies for this
VDSL line, and channels if applicable."
::= { vdslLineEntry 3 }

vdslLineAlarmConfProfile OBJECT-TYPE
SYNTAX       Integer32
MAX-ACCESS   read-write
STATUS       current
DESCRIPTION  "The value of this object identifies the row in the VDSL
Line Alarm Configuration Profile Table,
( vdslLineAlarmConfProfileTable ), which applies to this
VDSL line, and channels if applicable."
::= { vdslLineEntry 4 }

vdslPhysTable OBJECT-TYPE
SYNTAX       SEQUENCE OF VdslPhysEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION  "This table provides one row for each Vtu. Each row
contains the Physical Layer Parameters table for that
Vtu. VDSL physical interfaces are those ifEntries where
ifType is equal to vdsl(97)."
::= { vdslMibObjects 2 }

vdslPhysEntry OBJECT-TYPE
SYNTAX       VdslPhysEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION  "An entry in the vdslPhysTable."
INDEX { ifIndex,
       vdslPhysSide }
::= { vdslPhysTable 1 }

VdslPhysEntry ::= SEQUENCE
{  
  vdslPhysSide                           VdslLineEntity,
  vdslInvSerialNumber                    SnmpAdminString,
  vdslInvVendorID                        SnmpAdminString,
  vdslInvVersionNumber                   SnmpAdminString,
  vdslCurrSnrMgn                         Integer32,
  vdslCurrAtn                            Gauge32,
  vdslCurrStatus                         BITS,
  vdslCurrOutputPwr                      Integer32,
  vdslCurrAttainableRate                 Gauge32
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Identifies whether the modem is the Vtuc or Vtur."
::= { vdslPhysEntry 1 }

vdslInvSerialNumber OBJECT-TYPE
SYNTAX SnmpAdminString(SIZE (0..32))
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The vendor specific string that identifies the
vendor equipment."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslPhysEntry 2 }

vdslInvVendorID OBJECT-TYPE
SYNTAX SnmpAdminString(SIZE (0..16))
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The vendor ID code is a copy of the binary vendor
identification field expressed as readable characters."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslPhysEntry 3 }

vdslInvVersionNumber OBJECT-TYPE
SYNTAX SnmpAdminString(SIZE (0..16))
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The vendor specific version number sent by this Vtu
as part of the initialization messages. It is a copy
of the binary version number field expressed as
readable characters."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslPhysEntry 4 }

vdslCurrSnrMgn OBJECT-TYPE
SYNTAX Integer32 (-127..127)
UNITS "0.25dBm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Noise Margin as seen by this Vtu with respect to its
received signal in 0.25dB. The effective range is
-31.75 to +31.75dB."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslPhysEntry 5 }

vdslCurrAttn OBJECT-TYPE
SYNTAX Gauge32 (0..255)
UNITS "0.25dBm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Measured difference in the total power transmitted by the peer Vtu and the total power received by this Vtu. The effective range is 0 to +63.75dB."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslPhysEntry 6 }

vdslCurrStatus OBJECT-TYPE
SYNTAX BITS
{
  noDefect(0),
  lossOfFraming(1),
  lossOfSignal(2),
  lossOfPower(3),
  lossOfSignalQuality(4),
  lossOfLink(5),
  dataInitFailure(6),
  configInitFailure(7),
  protocolInitFailure(8),
  noPeerVtuPresent(9)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Indicates current state of the Vtu line. This is a bit-map of possible conditions. The various bit positions are:

0  noDefect            There no defects on the line
1  lossOfFraming       Vtu failure due to not receiving valid frame.
2  lossOfSignal        Vtu failure due to not receiving signal.
3  lossOfPower         Vtu failure due to loss of power.
4  lossOfSignalQuality Loss of Signal Quality is declared when the Noise Margin falls below the Minimum Noise Margin, or the bit-error-rate exceeds 10^-7.
5  lossOfLink          Vtu failure due to inability to link with peer Vtu.
6  dataInitFailure     Vtu failure during initialization due to bit errors corrupting startup exchange data."
7 configInitFailure Vtu failure during initialization due to peer Vtu not able to support requested configuration.

8 protocolInitFailure Vtu failure during initialization due to incompatible protocol used by the peer Vtu.

9 noPeerVtuPresent Vtu failure during initialization due to no activation sequence detected from peer Vtu.

This is intended to supplement ifOperStatus.

REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslPhysEntry 7 }

vdslCurrOutputPwr OBJECT-TYPE
SYNTAX Integer32 (0..160)
UNITS "0.1dBm"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Measured total output power transmitted by this VTU. This is the measurement that was reported during the last activation sequence."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslPhysEntry 8 }

vdslCurrAttainableRate OBJECT-TYPE
SYNTAX Gauge32
UNITS "kbps"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Indicates the maximum currently attainable data rate in steps of 1024 bits/second by the Vtu. This value will be equal or greater than the current line rate. Note that for SCM, the minimum and maximum data rates are equal."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslPhysEntry 9 }

vdslChanTable OBJECT-TYPE
SYNTAX SEQUENCE OF VdslChanEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "This table provides one row for each Vtu channel. VDSL channel interfaces are those ifEntries where ifType is equal to interleave(124) or fast(125)."
::= { vdslMibObjects 3 }
vdslChanEntry OBJECT-TYPE
SYNTAX      VdslChanEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
"An entry in the vdslChanTable."
INDEX { ifIndex, 
        vdslPhysSide }
::= { vdslChanTable 1 }

VdslChanEntry ::= SEQUENCE
{ 
  vdslChanInterleaveDelay                Gauge32, 
  vdslChanCrcBlockLength                 Gauge32 
}

vdslChanInterleaveDelay OBJECT-TYPE
SYNTAX      Gauge32
UNITS        "ms"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
"Interleave Delay for this channel.

Interleave delay applies only to the interleave
(slow) channel and defines the mapping (relative spacing) between subsequent input bytes at the
interleaver input and their placement in the bit stream at the interleaver output. Larger numbers
provide greater separation between consecutive input bytes in the output bit stream allowing for
improved impulse noise immunity at the expense of payload latency.

In the case where the ifType is fast(125), use
noSuchObject."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdslChanEntry 1 }

vdslChanCrcBlockLength OBJECT-TYPE
SYNTAX      Gauge32
UNITS        "byte"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
"Indicates the length of the channel data-block on which the CRC operates."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdslChanEntry 2 }
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vdslPerfDataTable       OBJECT-TYPE
SYNTAX       SEQUENCE OF VdslPerfDataEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION
 "This table provides one row for each VDSL physical
 interface.  VDSL physical interfaces are those ifEntries
 where ifType is equal to vdsl(97)."
 ::= { vdslMibObjects 4 }

vdslPerfDataEntry       OBJECT-TYPE
SYNTAX        VdslPerfDataEntry
MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION
 "An entry in the vdslPerfDataTable."
INDEX { ifIndex,
       vdslPhysSide }
 ::= { vdslPerfDataTable 1 }

VdslPerfDataEntry ::= SEQUENCE
 {
   vdslPerfValidIntervals             HCPerfValidIntervals,
   vdslPerfInvalidIntervals           HCPerfInvalidIntervals,
   vdslPerfLofs                        Counter64,
   vdslPerfLoss                       Counter64,
   vdslPerfLprs                       Counter64,
   vdslPerfESs                        Counter64,
   vdslPerfSESs                       Counter64,
   vdslPerfUASs                       Counter64,
   vdslPerfInits                      Counter64,
   vdslPerfCurr15MinTimeElapsed       HCPerfTimeElapsed,
   vdslPerfCurr15MinLofs              HCPerfCurrentCount,
   vdslPerfCurr15MinLoss              HCPerfCurrentCount,
   vdslPerfCurr15MinLprs              HCPerfCurrentCount,
   vdslPerfCurr15MinESs               HCPerfCurrentCount,
   vdslPerfCurr15MinSESs              HCPerfCurrentCount,
   vdslPerfCurr15MinUASs              HCPerfCurrentCount,
   vdslPerf1DayValidIntervals         HCPerfValidIntervals,
   vdslPerf1DayInvalidIntervals       HCPerfInvalidIntervals,
   vdslPerf1DayTimeElapsed            HCPerfTimeElapsed,
   vdslPerf1DayLofs                   Counter64,
   vdslPerf1DayLoss                   Counter64,
   vdslPerf1DayLprs                   Counter64,
   vdslPerf1DayESs                    Counter64,
   vdslPerf1DaySESs                   Counter64,
   vdslPerf1DayUASs                   Counter64,
   vdslPerf1DayInits                  Counter64
}
vdslPerfValidIntervals OBJECT-TYPE
SYNTAX     HCPerfValidIntervals
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"Valid Intervals per definition found in
HC-PerfHist-TC-MIB."
::= { vdslPerfDataEntry 1 }

vdslPerfInvalidIntervals OBJECT-TYPE
SYNTAX     HCPerfInvalidIntervals
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"Invalid Intervals per definition found in
HC-PerfHist-TC-MIB."
::= { vdslPerfDataEntry 2 }

vdslPerfLofs OBJECT-TYPE
SYNTAX     Counter64
UNITS      "seconds"
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"Count of seconds since the unit was last reset that there
was Loss of Framing."
REFERENCE  "T1E1.4/2000-009R3"  -- Part 1, common spec
::= { vdslPerfDataEntry 3 }

vdslPerfLoss OBJECT-TYPE
SYNTAX     Counter64
UNITS      "seconds"
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"Count of seconds since the unit was last reset that there
was Loss of Signal."
REFERENCE  "T1E1.4/2000-009R3"  -- Part 1, common spec
::= { vdslPerfDataEntry 4 }

vdslPerfLprs OBJECT-TYPE
SYNTAX     Counter64
UNITS      "seconds"
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"Count of seconds since the unit was last reset that there
was Loss of Power."
REFERENCE  "T1E1.4/2000-009R3"  -- Part 1, common spec
::= { vdslPerfDataEntry 5 }

vdslPerfESs OBJECT-TYPE
SYNTAX Counter64
UNITS "seconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Count of Errored Seconds since the unit was last reset.
An Errored Second is a one-second interval containing one
or more crc anomalies, or one or more los or lof defects."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
 ::= { vdslPerfDataEntry 6 }

vdslPerfSESs OBJECT-TYPE
SYNTAX Counter64
UNITS "seconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Count of Severely Errored Seconds since the unit was last
reset."
 ::= { vdslPerfDataEntry 7 }

vdslPerfUASs OBJECT-TYPE
SYNTAX Counter64
UNITS "seconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Count of Unavailable Seconds since the unit was last
reset."
 ::= { vdslPerfDataEntry 8 }

vdslPerfInits OBJECT-TYPE
SYNTAX Counter64
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Count of the line initialization attempts since the unit
was last reset. This count includes both successful and
failed attempts."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
 ::= { vdslPerfDataEntry 9 }

vdslPerfCurr15MinTimeElapsed OBJECT-TYPE
SYNTAX HCPerfTimeElapsed
UNITS "seconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Total elapsed seconds in this interval."
 ::= { vdslPerfDataEntry 10 }

vdslPerfCurr15MinLofs OBJECT-TYPE
SYNTAX       HCPerfCurrentCount
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  "Count of seconds during this interval that there
              was Loss of Framing."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdslPerfDataEntry 11 }

vdslPerfCurr15MinLoss OBJECT-TYPE
SYNTAX       HCPerfCurrentCount
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  "Count of seconds during this interval that there
              was Loss of Signal."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdslPerfDataEntry 12 }

vdslPerfCurr15MinLprs OBJECT-TYPE
SYNTAX       HCPerfCurrentCount
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  "Count of seconds during this interval that there
              was Loss of Power."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdslPerfDataEntry 13 }

vdslPerfCurr15MinESs OBJECT-TYPE
SYNTAX       HCPerfCurrentCount
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  "Count of Errored Seconds during this interval. An Errored
              Second is a one-second interval containing one or more crc
              anomalies, or one or more los or lof defects."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdslPerfDataEntry 14 }

vdslPerfCurr15MinSESs OBJECT-TYPE
SYNTAX       HCPerfCurrentCount
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  "Count of Severely Errored Seconds during this interval."
::= { vdslPerfDataEntry 15 }
vdslPerfCurr15MinUASs OBJECT-TYPE
SYNTAX       HCPerfCurrentCount
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  "Count of Unavailable Seconds during this interval."
 ::= { vdslPerfDataEntry 16 }

vdslPerfCurr15MinInits OBJECT-TYPE
SYNTAX       HCPerfCurrentCount
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  "Count of the line initialization attempts during this interval. This count includes both successful and failed attempts."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
 ::= { vdslPerfDataEntry 17 }

vdslPerf1DayValidIntervals OBJECT-TYPE
SYNTAX       HCPerfValidIntervals
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  "Valid Intervals per definition found in HC-PerfHist-TC-MIB."
 ::= { vdslPerfDataEntry 18 }

vdslPerf1DayInvalidIntervals OBJECT-TYPE
SYNTAX       HCPerfInvalidIntervals
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  "Invalid Intervals per definition found in HC-PerfHist-TC-MIB."
 ::= { vdslPerfDataEntry 19 }

vdslPerfCurr1DayTimeElapsed OBJECT-TYPE
SYNTAX       HCPerfTimeElapsed
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  "Number of seconds that have elapsed since the beginning of the current 1-day interval."
 ::= { vdslPerfDataEntry 20 }

vdslPerfCurr1DayLofs OBJECT-TYPE
SYNTAX       Counter64
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
 "Count of Loss of Framing (LOF) Seconds since the
beginning of the current 1-day interval." 
::= { vdslPerfDataEntry 21 }

vdslPerfCurr1DayLoss OBJECT-TYPE
SYNTAX       Counter64
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
 "Count of Loss of Signal (LOS) Seconds since the beginning
of the current 1-day interval." 
::= { vdslPerfDataEntry 22 }

vdslPerfCurr1DayLprs OBJECT-TYPE
SYNTAX       Counter64
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
 "Count of Loss of Power (LPR) Seconds since the beginning
of the current 1-day interval." 
::= { vdslPerfDataEntry 23 }

vdslPerfCurr1DayESs OBJECT-TYPE
SYNTAX       Counter64
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
 "Count of Errored Seconds (ES) since the beginning
of the current 1-day interval." 
::= { vdslPerfDataEntry 24 }

vdslPerfCurr1DaySESs OBJECT-TYPE
SYNTAX       Counter64
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
 "Count of Severely Errored Seconds (SES) since the
beginning of the current 1-day interval." 
::= { vdslPerfDataEntry 25 }

vdslPerfCurr1DayUAsS OBJECT-TYPE
SYNTAX       Counter64
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
"Count of Unavailable Seconds (UAS) since the beginning of the current 1-day interval."
::= { vdslPerfDataEntry 26 }

vdslPerfCurr1DayInits OBJECT-TYPE
SYNTAX Counter64
UNITS "seconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Count of the line initialization attempts since the beginning of the current 1-day interval. This count includes both successful and failed attempts."
::= { vdslPerfDataEntry 27 }

vdslPerfIntervalTable OBJECT-TYPE
SYNTAX SEQUENCE OF VdslPerfIntervalEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"This table provides one row for each Vtu performance data collection interval. VDSL physical interfaces are those ifEntries where ifType is equal to vdsl(97)."
::= { vdslMibObjects 5 }

VdslPerfIntervalEntry OBJECT-TYPE
SYNTAX VdslPerfIntervalEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"An entry in the vdslPerfIntervalTable."
INDEX { ifIndex, vdslPhysSide, vdslIntervalNumber }
::= { vdslPerfIntervalTable 1 }

VdslPerfIntervalEntry ::= SEQUENCE
{
    vdslIntervalNumber             Unsigned32,
    vdslIntervalLofs               HCPercIntervalCount,
    vdslIntervalLoss               HCPercIntervalCount,
    vdslIntervalLprs               HCPercIntervalCount,
    vdslIntervalESs                HCPercIntervalCount,
    vdslIntervalSESs               HCPercIntervalCount,
    vdslIntervalUASs               HCPercIntervalCount,
    vdslIntervalInits              HCPercIntervalCount
}

vdslIntervalNumberOfbject-TYPE
SYNTAX Unsigned32 (1..96)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Performance Data Interval number 1 is the most recent previous interval; interval 96 is 24 hours ago. Intervals 2..96 are optional."
 ::= { vdslPerfIntervalEntry 1 }

vdslIntervalLofs OBJECT-TYPE
SYNTAX  HCPerfIntervalCount
UNITS   "seconds"
MAX-ACCESS read-only
STATUS  current
DESCRIPTION
"Count of seconds in the interval when there was Loss of Framing."
REFERENCE  "T1E1.4/2000-009R3"    -- Part 1, common spec
 ::= { vdslPerfIntervalEntry 2 }

vdslIntervalLoss OBJECT-TYPE
SYNTAX  HCPerfIntervalCount
UNITS   "seconds"
MAX-ACCESS read-only
STATUS  current
DESCRIPTION
"Count of seconds in the interval when there was Loss of Signal."
REFERENCE  "T1E1.4/2000-009R3"    -- Part 1, common spec
 ::= { vdslPerfIntervalEntry 3 }

vdslIntervalLprs OBJECT-TYPE
SYNTAX  HCPerfIntervalCount
UNITS   "seconds"
MAX-ACCESS read-only
STATUS  current
DESCRIPTION
"Count of seconds in the interval when there was Loss of Power."
REFERENCE  "T1E1.4/2000-009R3"    -- Part 1, common spec
 ::= { vdslPerfIntervalEntry 4 }

vdslIntervalESs OBJECT-TYPE
SYNTAX  HCPerfIntervalCount
UNITS   "seconds"
MAX-ACCESS read-only
STATUS  current
DESCRIPTION
"Count of Errored Seconds (ES) in the interval. An Errored Second is a one-second interval containing one or more crc anomalies, one or more los or lof defects."
REFERENCE  "T1E1.4/2000-009R3"    -- Part 1, common spec
 ::= { vdslPerfIntervalEntry 5 }

Expires March 23, 2002
vdslIntervalSEsS OBJECT-TYPE
SYNTAX        HCPerfIntervalCount
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION   "Count of Severely Errored Seconds in the interval."
::= { vdslPerfIntervalEntry 6 }

vdslIntervalUASs OBJECT-TYPE
SYNTAX        HCPerfIntervalCount
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION   "Count of Unavailable Seconds in the interval."
::= { vdslPerfIntervalEntry 7 }

vdslIntervalInits OBJECT-TYPE
SYNTAX        HCPerfIntervalCount
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION   "Count of the line initialization attempts during this
interval. This count includes both successful and
failed attempts."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdslPerfIntervalEntry 8 }

vdsl1DayIntervalTable OBJECT-TYPE
SYNTAX        SEQUENCE OF Vdsl1DayIntervalEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION   "This table provides one row for each VDSL performance
data collection interval. This table contains live data
from equipment. As such, it is NOT persistent."
::= { vdslMibObjects 6 }

vdsl1DayIntervalEntry OBJECT-TYPE
SYNTAX        Vdsl1DayIntervalEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION   "An entry in the vdsl1DayIntervalTable."
INDEX { ifIndex,
         vdslPhysSide,
         vdsl1DayIntervalNumber }
::= { vdsl1DayIntervalTable 1 }

Vdsl1DayIntervalEntry ::=
SEQUENCE
{
  vdsl1DayIntervalNumber                 Unsigned32,
  vdsl1DayIntervalMoniSecs               HCPerfTimeElapsed,
  vdsl1DayIntervalLofs                   Counter64,
  vdsl1DayIntervalLoss                   Counter64,
  vdsl1DayIntervalLprs                   Counter64,
  vdsl1DayIntervalESs                    Counter64,
  vdsl1DayIntervalSESs                   Counter64,
  vdsl1DayIntervalUASs                   Counter64,
  vdsl1DayIntervalInits                  Counter64
}

vdsl1DayIntervalNumber OBJECT-TYPE
SYNTAX       Unsigned32 (1..30)
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION
  "History Data Interval number. Interval 1 is the most
  recent previous day; interval 30 is 30 days ago. Intervals
  2...30 are optional."
::= { vdsl1DayIntervalEntry 1 }

vdsl1DayIntervalMoniSecs OBJECT-TYPE
SYNTAX       HCPerfTimeElapsed
UNITS        "seconds"
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."
::= { vdsl1DayIntervalEntry 2 }

vdsl1DayIntervalLofs OBJECT-TYPE
SYNTAX       Counter64
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
  "Count of Loss of Frame (LOF) Seconds during the 1-day
  interval as measured by vdsl1DayIntervalMoniSecs."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdsl1DayIntervalEntry 3 }

vdsl1DayIntervalLoss OBJECT-TYPE
SYNTAX       Counter64
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current

Expires March 23, 2002
DESCRIPTION
"Count of Loss of Signal (LOS) Seconds during the 1-day interval as measured by vdsl1DayIntervalMoniSecs."
REFERENCE "T1E1.4/2000-009R3"  -- Part 1, common spec
::= { vdsl1DayIntervalEntry 4 }

vdsl1DayIntervalLprs OBJECT-TYPE
SYNTAX     Counter64
UNITS      "seconds"
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"Count of Loss of Power (LPR) Seconds during the 1-day interval as measured by vdsl1DayIntervalMoniSecs."
REFERENCE "T1E1.4/2000-009R3"  -- Part 1, common spec
::= { vdsl1DayIntervalEntry 5 }

vdsl1DayIntervalESs OBJECT-TYPE
SYNTAX     Counter64
UNITS      "seconds"
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"Count of Errored Seconds (ES) during the 1-day interval as measured by vdsl1DayIntervalMoniSecs."
REFERENCE "T1E1.4/2000-009R3"  -- Part 1, common spec
::= { vdsl1DayIntervalEntry 6 }

vdsl1DayIntervalSESs OBJECT-TYPE
SYNTAX     Counter64
UNITS      "seconds"
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"Count of Severely Errored Seconds (SES) during the 1-day interval as measured by vdsl1DayIntervalMoniSecs."
::= { vdsl1DayIntervalEntry 7 }

vdsl1DayIntervalUASs OBJECT-TYPE
SYNTAX     Counter64
UNITS      "seconds"
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"Count of Unavailable Seconds (UAS) during the 1-day interval as measured by vdsl1DayIntervalMoniSecs."
::= { vdsl1DayIntervalEntry 8 }

vdsl1DayIntervalInits OBJECT-TYPE
SYNTAX     Counter64
UNITS      "seconds"
MAX-ACCESS read-only
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STATUS       current
DESCRIPTION  "Count of the line initialization attempts during the
1-day interval as measured by vds11DayIntervalMoniSecs.
This count includes both successful and failed attempts."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vds11DayIntervalEntry 9 }

vdslChanPerfDataTable       OBJECT-TYPE
SYNTAX       SEQUENCE OF VdslChanPerfDataEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION  "This table provides one row for each Vtu channel.
VDSL channel interfaces are those ifEntries where
ifType is equal to interleave(124) or fast(125)."
::= { vds1MibObjects 7 }

vdslChanPerfDataEntry OBJECT-TYPE
SYNTAX       VdslChanPerfDataEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION  "An entry in the vdslChanPerfDataTable."
INDEX { ifIndex,
         vdslPhysSide }
::= { vdslChanPerfDataTable 1 }

VdslChanPerfDataEntry ::==
SEQUENCE      {
      vdslChanPerfValidIntervals           HCPerfValidIntervals,
      vdslChanPerfInvalidIntervals         HCPerfInvalidIntervals,
      vdslChanCorrectedOctets              Counter64,
      vdslChanUncorrectBlks                Counter64,
      vdslChanPerfCurr15MinTimeElapsed     HCPerfTimeElapsed,
      vdslChanPerfCurr15MinCorrectedOctets HCPerfCurrentCount,
      vdslChanPerfCurr15MinUncorrectBlks   HCPerfCurrentCount,
      vdslChanPerf1DayValidIntervals       HCPerfValidIntervals,
      vdslChanPerf1DayInvalidIntervals     HCPerfInvalidIntervals,
      vdslChanPerfCurr1DayTimeElapsed      HCPerfTimeElapsed,
      vdslChanPerfCurr1DayCorrectedOctets  HCPerfCurrentCount,
      vdslChanPerfCurr1DayUncorrectBlks    HCPerfCurrentCount }

vdslChanPerfValidIntervals OBJECT-TYPE
SYNTAX       HCPerfValidIntervals
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  "Valid Intervals per definition found in
HC-PerfHist-TC-MIB."
::= { vdslChanPerfDataEntry 1 }

vdslChanPerfInvalidIntervals OBJECT-TYPE
SYNTAX        HCPerfInvalidIntervals
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION    "Invalid Intervals per definition found in HC-PerfHist-TC-MIB."
::= { vdslChanPerfDataEntry 2 }

vdslChanCorrectedOctets OBJECT-TYPE
SYNTAX        Counter64
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION    "Count of corrected octets since the unit was last reset."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdslChanPerfDataEntry 3 }

vdslChanUncorrectBlks OBJECT-TYPE
SYNTAX        Counter64
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION    "Count of uncorrected blocks since the unit was last reset."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdslChanPerfDataEntry 4 }

vdslChanPerfCurr15MinTimeElapsed OBJECT-TYPE
SYNTAX        HCPerfTimeElapsed
UNITS         "seconds"
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION    "Total elapsed seconds in this interval."
::= { vdslChanPerfDataEntry 5 }

vdslChanPerfCurr15MinCorrectedOctets OBJECT-TYPE
SYNTAX        HCPerfCurrentCount
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION    "Count of corrected octets in this interval."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdslChanPerfDataEntry 6 }

vdslChanPerfCurr15MinUncorrectBlks OBJECT-TYPE
SYNTAX        HCPerfCurrentCount
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
"Count of uncorrected blocks in this interval."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslChanPerfDataEntry 7 }

vdslChanPerf1DayValidIntervals OBJECT-TYPE
SYNTAX HCPerfValidIntervals
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Valid Intervals per definition found in
HC-PerfHist-TC-MIB."
::= { vdslChanPerfDataEntry 8 }

vdslChanPerf1DayInvalidIntervals OBJECT-TYPE
SYNTAX HCPerfInvalidIntervals
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Invalid Intervals per definition found in
HC-PerfHist-TC-MIB."
::= { vdslChanPerfDataEntry 9 }

vdslChanPerfCurr1DayTimeElapsed OBJECT-TYPE
SYNTAX HCPerfTimeElapsed
UNITS "seconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Number of seconds that have elapsed since the beginning
of the current 1-day interval."
::= { vdslChanPerfDataEntry 10 }

vdslChanPerfCurr1DayCorrectedOctets OBJECT-TYPE
SYNTAX HCPerfCurrentCount
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Count of corrected octets since the beginning of the
current 1-day interval."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslChanPerfDataEntry 11 }

vdslChanPerfCurr1DayUncorrectBlks OBJECT-TYPE
SYNTAX HCPerfCurrentCount
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Count of uncorrected blocks since the beginning of the
current 1-day interval."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslChanPerfDataEntry 12 }

Expires March 23, 2002
vdslChanIntervalTable OBJECT-TYPE
SYNTAX SEQUENCE OF VdslChanIntervalEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "This table provides one row for each Vtu channel data
collection interval. VDSL channel interfaces are those
ifEntries where ifType is equal to interleave(124) or
fast(125)."
::= { vdslMibObjects 8 }

vdslChanIntervalEntry OBJECT-TYPE
SYNTAX VdslChanIntervalEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "An entry in the vdslChanIntervalTable."
INDEX { ifIndex,
    vdslPhysSide,
    vdslChanIntervalNumber }
::= { vdslChanIntervalTable 1 }

VdslChanIntervalEntry ::= SEQUENCE
{
    vdslChanIntervalNumber                 Unsigned32,
    vdslChanIntervalCorrectedOctets        HCPerfIntervalCount,
    vdslChanIntervalUncorrectBlks          HCPerfIntervalCount
}

vdslChanIntervalNumber OBJECT-TYPE
SYNTAX Unsigned32 (0..96)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "Performance Data Interval number 1 is the most
recent previous interval; interval 96 is 24 hours ago.
Intervals 2..96 are optional."
::= { vdslChanIntervalEntry 1 }

vdslChanIntervalCorrectedOctets OBJECT-TYPE
SYNTAX HCPerfIntervalCount
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Count of corrected octets in this interval."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslChanIntervalEntry 2 }

vdslChanIntervalUncorrectBlks OBJECT-TYPE
SYNTAX HCPerfIntervalCount
MAX-ACCESS read-only
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STATUS        current
DESCRIPTION   "Count of uncorrected blocks in this interval."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
 ::= { vdslChanIntervalEntry 3 }

vdslChan1DayIntervalTable OBJECT-TYPE
SYNTAX       SEQUENCE OF VdslChan1DayIntervalEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION   "This table provides one row for each VDSL performance
data collection interval. This table contains live data
from equipment. As such, it is NOT persistent."
 ::= { vdslMibObjects 9 }

vdslChan1DayIntervalEntry OBJECT-TYPE
SYNTAX       VdslChan1DayIntervalEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION   "An entry in the vdslChan1DayIntervalTable."
INDEX { ifIndex,
         vdslPhysSide,
         vdslChan1DayIntervalNumber }
 ::= { vdslChan1DayIntervalTable 1 }

VdslChan1DayIntervalEntry ::= SEQUENCE
{ vdlChan1DayIntervalNumber             Unsigned32,
  vdlChan1DayIntervalMoniSecs           HCPerfTimeElapsed,
  vdlChan1DayIntervalCorrectedOctets    HCPerfCurrentCount,
  vdlChan1DayIntervalUncorrectBlks      HCPerfCurrentCount
}

vdslChan1DayIntervalNumber OBJECT-TYPE
SYNTAX       Unsigned32 (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."
 ::= { vdlChan1DayIntervalEntry 1 }

vdslChan1DayIntervalMoniSecs OBJECT-TYPE
SYNTAX       HCPerfTimeElapsed
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION   "Count of uncorrected blocks in this interval."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
 ::= { vdlChan1DayIntervalEntry 3 }

vdlChan1DayIntervalCorrectedOctets OBJECT-TYPE
SYNTAX       HCPerfCurrentCount
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION   "Count of uncorrected blocks in this interval."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
 ::= { vdlChan1DayIntervalEntry 3 }

vdlChan1DayIntervalUncorrectBlks OBJECT-TYPE
SYNTAX       HCPerfCurrentCount
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION   "Count of uncorrected blocks in this interval."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
 ::= { vdlChan1DayIntervalEntry 3 }

Expires March 23, 2002
"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."

::= { vdslChan1DayIntervalEntry 2 }

vdslChan1DayIntervalCorrectedOctets OBJECT-TYPE
SYNTAX        HCPerfCurrentCount
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION    "Count of corrected octets in this interval."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdslChan1DayIntervalEntry 3 }

vdslChan1DayIntervalUncorrectBlks OBJECT-TYPE
SYNTAX        HCPerfCurrentCount
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION    "Count of uncorrected blocks in this interval."
REFERENCE    "T1E1.4/2000-009R3"    -- Part 1, common spec
::= { vdslChan1DayIntervalEntry 4 }

--
-- SCM physical band status
--

vdslSCMPhysBandTable OBJECT-TYPE
SYNTAX       SEQUENCE OF VdslSCMPhysBandEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION    "This table provides one row for each SCM Vtu band."
::= { vdslMibObjects 10 }

vdslSCMPhysBandEntry OBJECT-TYPE
SYNTAX        VdslSCMPhysBandEntry
MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION    "An entry in the vdslSCMPhysBandTable."
INDEX { ifIndex,
      vdslPhysSide,
      vdslSCMPhysTxBandNumber }
::= { vdslSCMPhysBandTable 1 }

VdslSCMPhysBandEntry ::= SEQUENCE
{
    vdslSCMPhysTxBandNumber INTEGER,
vdslSCMPhysBandSnrMgn OBJECT-TYPE
SYNTAX        Integer32
UNITS         "0.25 dBm"
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
"Noise margin as seen by this Vtu and band with respect
to its received signal in 0.25 dB."
::= { vdslSCMPhysBandEntry 2 }

vdslSCMPhysBandAttn OBJECT-TYPE
SYNTAX        Unsigned32 (0..255)
UNITS         "0.25 dBm"
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
"Measured difference in the total power transmitted by
the peer Vtu on this band and the total power received
by this Vtu on this band in 0.25 dB."
::= { vdslSCMPhysBandEntry 3 }

--
-- profile tables
--

vdslLineConfProfileTable OBJECT-TYPE
SYNTAX        SEQUENCE OF VdslLineConfProfileEntry
MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION
"This table contains information on the VDSL line
configuration. One entry in this table reflects a
profile defined by a manager which can be used to
configure the VDSL line."
::= { vdslMibObjects 11 }
vdslLineConfProfileEntry OBJECT-TYPE
SYNTAX         VdslLineConfProfileEntry
MAX-ACCESS     not-accessible
STATUS         current
DESCRIPTION    "Each entry consists of a list of parameters that represents the configuration of a VDSL line. A default profile with an index of 1 will always exist and its parameters will be set to vendor specific values, unless otherwise specified in this document."
INDEX { vdslLineConfProfileIndex }
 ::= { vdslLineConfProfileTable 1 }

VdslLineConfProfileEntry ::= SEQUENCE {
    vdslLineConfProfileIndex               Unsigned32,
    vdslLineConfProfileName                SnmpAdminString,
    vdslLineConfDownstreamMaxPwr           Unsigned32,
    vdslLineConfUpstreamMaxPwr             Unsigned32,
    vdslLineConfDownstreamMaxSnrMgn        Unsigned32,
    vdslLineConfDownstreamMinSnrMgn        Unsigned32,
    vdslLineConfDownstreamTargetSnrMgn     Unsigned32,
    vdslLineConfUpstreamMaxSnrMgn          Unsigned32,
    vdslLineConfUpstreamMinSnrMgn          Unsigned32,
    vdslLineConfUpstreamTargetSnrMgn       Unsigned32,
    vdslLineConfDownstreamFastMaxDataRate  Unsigned32,
    vdslLineConfDownstreamFastMinDataRate  Unsigned32,
    vdslLineConfDownstreamSlowMaxDataRate  Unsigned32,
    vdslLineConfDownstreamSlowMinDataRate  Unsigned32,
    vdslLineConfUpstreamFastMaxDataRate    Unsigned32,
    vdslLineConfUpstreamFastMinDataRate    Unsigned32,
    vdslLineConfUpstreamSlowMaxDataRate    Unsigned32,
    vdslLineConfUpstreamSlowMinDataRate    Unsigned32,
    vdslLineConfRateAdaptationRatio        Unsigned32,
    vdslLineConfUpstreamDataRate           Unsigned32,
    vdslLineConfDownstreamDataRate         Unsigned32,
    vdslLineConfDownstreamMaxInterDelay    Unsigned32,
    vdslLineConfUpstreamMaxInterDelay      Unsigned32,
    vdslLineConfUpstreamPboControl         INTEGER,
    vdslLineConfDownstreamPboControl       INTEGER,
    vdslLineConfDeploymentScenario         INTEGER,
    vdslLineConfAdslOccupy                 TruthValue,
    vdslLineConfApplicableStandard         INTEGER,
    vdslLineConfBandPlan                   INTEGER,
    vdslLineConfBandPlanFx                 Unsigned32,
    vdslLineConfBandU0Usage                INTEGER,
    vdslLineConfUpstreamPsdTemplate        INTEGER,
    vdslLineConfDownstreamPsdTemplate      INTEGER,
    vdslLineConfProfileRowStatus           RowStatus
}

Expires March 23, 2002
vdslLineConfProfileIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-create
STATUS current
DESCRIPTION "This object identifies a row in this table. A default profile with an index of 1 MUST always exist and its parameters will be set to vendor specific values, unless otherwise specified in this document."
::= { vdslLineConfProfileEntry 1 }

vdslLineConfProfileName OBJECT-TYPE
SYNTAX SnmpAdminString (SIZE (1..32))
MAX-ACCESS read-create
STATUS current
DESCRIPTION "The name for this profile as specified by a user."
::= { vdslLineConfProfileEntry 2 }

vdslLineConfDownstreamMaxPwr OBJECT-TYPE
SYNTAX Unsigned32 (0..58)
UNITS "0.25dBm"
MAX-ACCESS read-create
STATUS current
DESCRIPTION "Specifies the maximum aggregate downstream power level in the range 0..14.5dBm."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslLineConfProfileEntry 3 }

vdslLineConfUpstreamMaxPwr OBJECT-TYPE
SYNTAX Unsigned32 (0..58)
UNITS "0.25dBm"
MAX-ACCESS read-create
STATUS current
DESCRIPTION "Specifies the maximum aggregate upstream power level in the range 0..14.5dBm."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslLineConfProfileEntry 4 }

vdslLineConfDownstreamMaxSnrMgn OBJECT-TYPE
SYNTAX Unsigned32 (0..127)
UNITS "0.25dBm"
MAX-ACCESS read-create
STATUS current
DESCRIPTION "Specifies the maximum downstream Signal/Noise Margin in units of 0.25 dB, for a range of 0..31.75 dB."
REFERENCE "T1E1.4/2000-009R3" -- Part 1, common spec
::= { vdslLineConfProfileEntry 5 }

vdslLineConfDownstreamMinSnrMgn OBJECT-TYPE
SYNTAX     Unsigned32 (0..127)
UNITS      "0.25dBm"
MAX-ACCESS read-create
STATUS     current
DESCRIPTION
"Specifies the minimum downstream Signal/Noise Margin in units of 0.25 dB, for a range of 0..31.75 dB."
REFERENCE  "T1E1.4/2000-009R3"  -- Part 1, common spec
::= { vdslLineConfProfileEntry 6 }

vdslLineConfDownstreamTargetSnrMgn OBJECT-TYPE
SYNTAX     Unsigned32 (0..127)
UNITS      "0.25dBm"
MAX-ACCESS read-create
STATUS     current
DESCRIPTION
"Specifies the target downstream Signal/Noise Margin in units of 0.25 dB, for a range of 0..31.75 dB. This is the Noise Margin the modems must achieve with a BER of 10-7 or better to successfully complete initialization."
REFERENCE  "T1E1.4/2000-009R3"  -- Part 1, common spec
::= { vdslLineConfProfileEntry 7 }

vdslLineConfUpstreamMaxSnrMgn OBJECT-TYPE
SYNTAX     Unsigned32 (0..127)
UNITS      "0.25dBm"
MAX-ACCESS read-create
STATUS     current
DESCRIPTION
"Specifies the maximum upstream Signal/Noise Margin in units of 0.25 dB, for a range of 0..31.75 dB."
REFERENCE  "T1E1.4/2000-009R3"  -- Part 1, common spec
::= { vdslLineConfProfileEntry 8 }

vdslLineConfUpstreamMinSnrMgn OBJECT-TYPE
SYNTAX     Unsigned32 (0..127)
UNITS      "0.25dBm"
MAX-ACCESS read-create
STATUS     current
DESCRIPTION
"Specifies the minimum upstream Signal/Noise Margin in units of 0.25 dB, for a range of 0..31.75 dB."
REFERENCE  "T1E1.4/2000-009R3"  -- Part 1, common spec
::= { vdslLineConfProfileEntry 9 }

vdslLineConfUpstreamTargetSnrMgn OBJECT-TYPE
SYNTAX     Unsigned32 (0..127)
UNITS      "0.25dBm"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION   "Specifies the target upstream Signal/Noise Margin in units of 0.25 dB, for a range of 0..31.75 dB. This is the Noise Margin the modems must achieve with a BER of 10^-7 or better to successfully complete initialization."
REFERENCE    "T1E1.4/2000-009R3"   -- Part 1, common spec
::= { vdslLineConfProfileEntry 10 }

vdslLineConfDownstreamFastMaxDataRate OBJECT-TYPE
SYNTAX       Unsigned32
UNIT         "kbps"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION   "Specifies the maximum downstream fast channel data rate in steps of 1024 bits/second."
::= { vdslLineConfProfileEntry 11 }

vdslLineConfDownstreamFastMinDataRate OBJECT-TYPE
SYNTAX       Unsigned32
UNIT         "kbps"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION   "Specifies the minimum downstream fast channel data rate in steps of 1024 bits/second."
::= { vdslLineConfProfileEntry 12 }

vdslLineConfDownstreamSlowMaxDataRate OBJECT-TYPE
SYNTAX       Unsigned32
UNIT         "kbps"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION   "Specifies the maximum downstream slow channel data rate in steps of 1024 bits/second."
::= { vdslLineConfProfileEntry 13 }

vdslLineConfDownstreamSlowMinDataRate OBJECT-TYPE
SYNTAX       Unsigned32
UNIT         "kbps"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION   "Specifies the minimum downstream slow channel data rate in steps of 1024 bits/second."
::= { vdslLineConfProfileEntry 14 }

vdslLineConfUpstreamFastMaxDataRate OBJECT-TYPE
SYNTAX       Unsigned32
UNIT         "kbps"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION   "Specifies the target upstream Signal/Noise Margin in units of 0.25 dB, for a range of 0..31.75 dB. This is the Noise Margin the modems must achieve with a BER of 10^-7 or better to successfully complete initialization."
REFERENCE    "T1E1.4/2000-009R3"   -- Part 1, common spec
::= { vdslLineConfProfileEntry 10 }
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UNITS        "kbps"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION
   "Specifies the maximum upstream fast channel
data rate in steps of 1024 bits/second."
::= { vdslLineConfProfileEntry 15 }

vdslLineConfUpstreamFastMinDataRate OBJECT-TYPE
SYNTAX       Unsigned32
UNITS        "kbps"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION
   "Specifies the minimum upstream fast channel
data rate in steps of 1024 bits/second."
::= { vdslLineConfProfileEntry 16 }

vdslLineConfUpstreamSlowMaxDataRate OBJECT-TYPE
SYNTAX       Unsigned32
UNITS        "kbps"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION
   "Specifies the maximum upstream slow channel
data rate in steps of 1024 bits/second."
::= { vdslLineConfProfileEntry 17 }

vdslLineConfUpstreamSlowMinDataRate OBJECT-TYPE
SYNTAX       Unsigned32
UNITS        "kbps"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION
   "Specifies the minimum upstream slow channel
data rate in steps of 1024 bits/second."
::= { vdslLineConfProfileEntry 18 }

vdslLineConfRateAdaptationRatio OBJECT-TYPE
SYNTAX       Unsigned32 (0..100)
UNITS        "percent"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION
   "For dynamic rate adaptation at startup, the allocation
   of data rate in excess of the minimum data rate for each
   channel is controlled by the object. This object specifies
   the ratio of the allocation of the excess data rate between
   the fast and the slow channels. This allocation represents
   Fast Channel Allocation / Slow Channel Allocation."
::= { vdslLineConfProfileEntry 19 }

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vdsLineConfUpstreamDataRate OBJECT-TYPE
SYNTAX Unsigned32
UNITS "kbps"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Aggregate upstream transmit speed for this line in steps of 1024 bits/second."
::= { vdsLineConfProfileEntry 20 }

vdsLineConfDownstreamDataRate OBJECT-TYPE
SYNTAX Unsigned32
UNITS "kbps"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Aggregate downstream transmit speed for this line in steps of 1024 bits/second."
::= { vdsLineConfProfileEntry 21 }

vdsLineConfDownstreamMaxInterDelay OBJECT-TYPE
SYNTAX Unsigned32 (0..255)
UNITS "ms"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Specifies the maximum interleave delay for the downstream slow channel."
::= { vdsLineConfProfileEntry 22 }

vdsLineConfUpstreamMaxInterDelay OBJECT-TYPE
SYNTAX Unsigned32 (0..255)
UNITS "ms"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Specifies the maximum interleave delay for the upstream slow channel."
::= { vdsLineConfProfileEntry 23 }

vdsLineConfUpstreamPboControl OBJECT-TYPE
SYNTAX INTEGER
{ disabled(1),
  enabled(2) }
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Upstream power backoff (PBO) control for this line. For modems which do not support upstream PBO control, this object MUST be fixed at disabled(1)."
::= { vdslLineConfProfileEntry 24 }

vdslLineConfDownstreamPboControl OBJECT-TYPE
SYNTAX INTEGER
{ disabled(1),
  enabled(2) }
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Downstream power backoff (PBO) control for this line. For modems which do not support downstream PBO control, this object MUST be fixed at disabled(1)."
::= { vdslLineConfProfileEntry 25 }

vdslLineConfDeploymentScenario OBJECT-TYPE
SYNTAX INTEGER
{ fttCab(1),
  fttEx(2),
  other(3) }
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The VDSL line deployment scenario. When using fttCab(1), the VTU-C is located in a street cabinet. When using fttEx(2), the VTU-C is located at the central office."
::= { vdslLineConfProfileEntry 26 }

vdslLineConfAdslOccupy OBJECT-TYPE
SYNTAX TruthValue
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Indicates if the VDSL line can occupy the ADSL frequency range."
::= { vdslLineConfProfileEntry 27 }

vdslLineConfApplicableStandard OBJECT-TYPE
SYNTAX INTEGER
{ ansi(1),
  etsi(2),
  itu(3),
  other(4) }
MAX-ACCESS read-create
STATUS current
DESCRIPTION
Expires March 23, 2002
vds1LineConfBandPlan OBJECT-TYPE
SYNTAX     INTEGER
          {
            bandPlan997(1),
            bandPlan998(2),
            bandPlanFx(3),
            other(4)
          }
MAX-ACCESS read-create
STATUS     current
DESCRIPTION "The VDSL band plan to be used for the line.

bandPlan997(1) is to be used for
ITU-T G.993.1 Bandplan-B
ETSI Bandplan
ANSI Plan 997

bandPlan998(2) is to be used for
ITU-T G.993.1 Bandplan-A
ANSI Plan 998

bandPlanFx(3) is to be used for
ITU-T G.993.1 Bandplan-C.

other(4) is to be used for
non-standard bandplans.

If this object is set to bandPlanFx(3), then
the object vds1LineConfBandPlanFx MUST also be set."
 ::= { vds1LineConfProfileEntry 29 }

vds1LineConfBandPlanFx OBJECT-TYPE
SYNTAX     Unsigned32 (3750..12000)
UNITS      "kHz"
MAX-ACCESS read-create
STATUS     current
DESCRIPTION "The frequency limit between bands D2 and U2 when
vds1LineConfBandPlan is set to bandPlanFx(3)."
 ::= { vds1LineConfProfileEntry 30 }

vds1LineConfBandU0Usage OBJECT-TYPE
SYNTAX     INTEGER
          {
            unused(1),
            upstream(2),
            downstream(3)
MAX-ACCESS    read-create
STATUS       current
DESCRIPTION   "Defines the VDSL link use of the frequency range [25kHz - 138kHz] (U0)."
 ::= { vdslLineConfProfileEntry 31 }

vdslLineConfUpstreamPsdTemplate OBJECT-TYPE
SYNTAX       INTEGER
             {
             templateMask1(1),
             templateMask2(2)
             }
MAX-ACCESS    read-create
STATUS       current
DESCRIPTION   "The upstream PSD template to be used for the line."
 ::= { vdslLineConfProfileEntry 32 }

vdslLineConfDownstreamPsdTemplate OBJECT-TYPE
SYNTAX       INTEGER
             {
             templateMask1(1),
             templateMask2(2)
             }
MAX-ACCESS    read-create
STATUS       current
DESCRIPTION   "The downstream PSD template to be used for the line."
 ::= { vdslLineConfProfileEntry 33 }

vdslLineConfProfileRowStatus OBJECT-TYPE
SYNTAX       RowStatus
MAX-ACCESS    read-create
STATUS       current
DESCRIPTION   "This object is used to create a new row or modify or delete an existing row in this table.

A profile activated by setting this object to ‘active’. When ‘active’ is set, the system will validate the profile.

Before a profile can be deleted or taken out of service, (by setting this object to ‘destroy’ or ‘outOfService’) it must be first unreferenced from all associated lines."
 ::= { vdslLineConfProfileEntry 34 }

--
-- Multiple carrier modulation (MCM) configuration profile tables
--
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vdslLineMCMConfProfileTable OBJECT-TYPE
SYNTAX       SEQUENCE OF VdslLineMCMConfProfileEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION
"This table contains information on the VDSL line configuration. One entry in this table reflects a profile defined by a manager which can be used to configure the VDSL line.

This table MUST be implemented for multiple carrier VDSL lines. This table MUST NOT be implemented for Single carrier VDSL lines."
::= { vdslMibObjects 12 }

vdslLineMCMConfProfileEntry OBJECT-TYPE
SYNTAX       VdslLineMCMConfProfileEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION
"Each entry consists of a list of parameters that represents the configuration of a multiple carrier modulation VDSL modem. A default profile with an index of 1 will always exist and its parameters will be set to vendor specific values, unless otherwise specified in this document."
INDEX { vdslLineConfProfileIndex }
::= { vdslLineMCMConfProfileTable 1 }

VdslLineMCMConfProfileEntry ::=
SEQUENCE
{
  vdslMCMConfProfileTxWindowLength       Unsigned32,
  vdslMCMConfProfileRowStatus            RowStatus
}

vdslMCMConfProfileTxWindowLength OBJECT-TYPE
SYNTAX       Unsigned32 (1..255)
UNITS        "samples"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION
"Specifies the length of the transmit window, counted in samples at the sampling rate corresponding to the negotiated value of N."
REFERENCE    "T1E1.4/2000-013R4"    -- Part 3, MCM
::= { vdslLineMCMConfProfileEntry 1 }

vdslMCMConfProfileRowStatus OBJECT-TYPE
SYNTAX       RowStatus
MAX-ACCESS   read-create

Expires March 23, 2002
This object is used to create a new row or modify or delete an existing row in this table.

A profile activated by setting this object to 'active'. When 'active' is set, the system will validate the profile.

Before a profile can be deleted or taken out of service, (by setting this object to 'destroy' or 'outOfService') it must be first unreferenced from all associated lines.

::= { vdslLineMCMConfProfileEntry 2 }

vdslLineMCMConfProfileTxBandTable OBJECT-TYPE
SYNTAX        SEQUENCE OF VdslLineMCMConfProfileTxBandEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION
"This table contains transmit band descriptor configuration information for a VDSL line. Each entry in this table reflects the configuration for one of possibly many bands with a multiple carrier modulation (MCM) VDSL line. These entries are defined by a manager and can be used to configure the VDSL line.

This table MUST be implemented for multiple carrier modulation (MCM) VDSL lines. This table MUST NOT be implemented for single carrier modulation VDSL lines."
::= { vdslMibObjects 13 }

VdslLineMCMConfProfileTxBandEntry ::=
SEQUENCE
{ vdslMCMConfProfileTxBandNumber           Unsigned32,
  vdslMCMConfProfileTxBandStart            Unsigned32,
  vdslMCMConfProfileTxBandStop             Unsigned32,
}
vds1MCMConfProfileTxBandRowStatus \( \text{RowStatus} \)

vds1MCMConfProfileTxBandNumber \( \text{OBJECT-TYPE} \)
SYNTAX \( \text{Unsigned32} \)
MAX-ACCESS read-create
STATUS current
DESCRIPTION "The index for this band descriptor entry."
::= { vds1LineMCMConfProfileTxBandEntry 1 }

vds1MCMConfProfileTxBandStart \( \text{OBJECT-TYPE} \)
SYNTAX \( \text{Unsigned32} \)
MAX-ACCESS read-create
STATUS current
DESCRIPTION "Start tone index for this band."
REFERENCE "T1E1.4/2000-013R4" -- Part 3, MCM
::= { vds1LineMCMConfProfileTxBandEntry 2 }

vds1MCMConfProfileTxBandStop \( \text{OBJECT-TYPE} \)
SYNTAX \( \text{Unsigned32} \)
MAX-ACCESS read-create
STATUS current
DESCRIPTION "Stop tone index for this band."
REFERENCE "T1E1.4/2000-013R4" -- Part 3, MCM
::= { vds1LineMCMConfProfileTxBandEntry 3 }

vds1MCMConfProfileTxBandRowStatus \( \text{OBJECT-TYPE} \)
SYNTAX \( \text{RowStatus} \)
MAX-ACCESS read-create
STATUS current
DESCRIPTION "This object is used to create a new row or modify or delete an existing row in this table.

A profile activated by setting this object to ‘active’. When ‘active’ is set, the system will validate the profile.

Before a profile can be deleted or taken out of service, (by setting this object to ‘destroy’ or ‘outOfService’) it must be first unreferenced from all associated lines."
::= { vds1LineMCMConfProfileTxBandEntry 4 }

vds1LineMCMConfProfileRxBandTable \( \text{OBJECT-TYPE} \)
SYNTAX \( \text{SEQUENCE OF VdslLineMCMConfProfileRxBandEntry} \)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "This table contains receive band descriptor configuration"
information for a VDSL line. Each entry in this table reflects the configuration for one of possibly many bands with a multiple carrier modulation (MCM) VDSL line. These entries are defined by a manager and can be used to configure the VDSL line.

This table MUST be implemented for multiple carrier modulation (MCM) VDSL lines. This table MUST NOT be implemented for single carrier modulation VDSL lines.

::= { vdslMibObjects 14 }

vdslLineMCMConfProfileRxBandEntry OBJECT-TYPE
SYNTAX VdslLineMCMConfProfileRxBandEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Each entry consists of a transmit band descriptor, which is defined by a start and a stop tone index.

A default profile with an index of 1 will always exist and its parameters will be set to vendor specific values, unless otherwise specified in this document."
INDEX { vdslLineConfProfileIndex, 
               vdslMCMConfProfileRxBandNumber }
::= { vdslLineMCMConfProfileRxBandTable 1 }

VdslLineMCMConfProfileRxBandEntry ::= SEQUENCE {
    vdslMCMConfProfileRxBandNumber           Unsigned32,
    vdslMCMConfProfileRxBandStart            Unsigned32,
    vdslMCMConfProfileRxBandStop             Unsigned32,
    vdslMCMConfProfileRxBandRowStatus        RowStatus
}

vdslMCMConfProfileRxBandNumber OBJECT-TYPE
SYNTAX     Unsigned32
MAX-ACCESS read-create
STATUS      current
DESCRIPTION
"The index for this band descriptor entry."
::= { vdslLineMCMConfProfileRxBandEntry 1 }

vdslMCMConfProfileRxBandStart OBJECT-TYPE
SYNTAX     Unsigned32
MAX-ACCESS read-create
STATUS      current
DESCRIPTION
"Start tone index for this band."
REFERENCE   "T1E1.4/2000-013R4"    -- Part 3, MCM
::= { vdslLineMCMConfProfileRxBandEntry 2 }
vdslMCMConfProfileRxBandStop OBJECT-TYPE
SYNTAX       Unsigned32
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION   "Stop tone index for this band."
REFERENCE    "T1E1.4/2000-013R4" -- Part 3, MCM
::= { vdslLineMCMConfProfileRxBandEntry 3 }

vdslMCMConfProfileRxBandRowStatus OBJECT-TYPE
SYNTAX       RowStatus
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION   "This object is used to create a new row or modify or delete an existing row in this table.
A profile activated by setting this object to 'active'. When 'active' is set, the system will validate the profile.
Before a profile can be deleted or taken out of service, (by setting this object to 'destroy' or 'outOfService') it must be first unreferenced from all associated lines."
::= { vdslLineMCMConfProfileRxBandEntry 4 }

vdslLineMCMConfProfileTxPSDTable OBJECT-TYPE
SYNTAX       SEQUENCE OF VdslLineMCMConfProfileTxPSDEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION   "This table contains transmit PSD mask descriptor configuration information for a VDSL line. Each entry in this table reflects the configuration for one tone within a multiple carrier modulation (MCM) VDSL line. These entries are defined by a manager and can be used to configure the VDSL line.
This table MUST be implemented for multiple carrier modulation (MCM) VDSL lines. This table MUST NOT be implemented for single carrier modulation VDSL lines."
::= { vDSLLineMCMConfProfileTxPSDEntry 15 }

vdslLineMCMConfProfileTxPSDEntry OBJECT-TYPE
SYNTAX       VdslLineMCMConfProfileTxPSDEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION   "Each entry consists of a transmit PSD mask descriptor, which defines the power spectral density (PSD) for a tone.
A default profile with an index of 1 will always exist and
its parameters will be set to vendor specific values, unless otherwise specified in this document.

INDEX { vdslLineConfProfileIndex, 
  vdslMCMConfProfileTxPSDNumber } 

::= { vdslLineMCMConfProfileTxPSDTable 1 }

VdslLineMCMConfProfileTxPSDEntry ::= SEQUENCE 
  {
    vdslMCMConfProfileTxPSDNumber            Unsigned32, 
    vdslMCMConfProfileTxPSDTone              Unsigned32, 
    vdslMCMConfProfileTxPSDPsd               Unsigned32, 
    vdslMCMConfProfileTxPSDRowStatus         RowStatus
  }

vdslMCMConfProfileTxPSDNumber OBJECT-TYPE 
SYNTAX       Unsigned32 
MAX-ACCESS   read-create 
STATUS       current 
DESCRIPTION   "The index for this mask descriptor entry." 
::= { vdslLineMCMConfProfileTxPSDEntry 1 }

vdslMCMConfProfileTxPSDTone OBJECT-TYPE 
SYNTAX       Unsigned32 
MAX-ACCESS   read-create 
STATUS       current 
DESCRIPTION   "The tone index for which the PSD is being specified." 
REFERENCE    "T1E1.4/2000-013R4"    -- Part 3, MCM 
::= { vdslLineMCMConfProfileTxPSDEntry 2 }

vdslMCMConfProfileTxPSDPsd OBJECT-TYPE 
SYNTAX       Unsigned32 
UNITS        "0.5dBm" 
MAX-ACCESS   read-create 
STATUS       current 
DESCRIPTION   "Power Spectral Density level in steps of 0.5dB with an offset of -140dbm/Hz." 
REFERENCE    "T1E1.4/2000-013R4"    -- Part 3, MCM 
::= { vdslLineMCMConfProfileTxPSDEntry 3 }

vdslMCMConfProfileTxPSDRowStatus OBJECT-TYPE 
SYNTAX       RowStatus 
MAX-ACCESS   read-create 
STATUS       current 
DESCRIPTION   "This object is used to create a new row or modify or delete an existing row in this table.

A profile activated by setting this object to 'active'.

Expires March 23, 2002
When ‘active’ is set, the system will validate the profile.

Before a profile can be deleted or taken out of service, (by setting this object to ‘destroy’ or ‘outOfService’) it must be first unreferenced from all associated lines.

::= { vdslLineMCMConfProfileTxPSDEntry 4 }

vdslLineMCMConfProfileMaxTxPSDTable OBJECT-TYPE
SYNTAX       SEQUENCE OF VdslLineMCMConfProfileMaxTxPSDEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION
"This table contains transmit maximum PSD mask descriptor configuration information for a VDSL line. Each entry in this table reflects the configuration for one tone within a multiple carrier modulation (MCM) VDSL modem. These entries are defined by a manager and can be used to configure the VDSL line.

This table MUST be implemented for multiple carrier modulation (MCM) VDSL lines. This table MUST NOT be implemented for single carrier modulation VDSL lines."
::= { vdslMibObjects 16 }

vdslLineMCMConfProfileMaxTxPSDEntry OBJECT-TYPE
SYNTAX       VdslLineMCMConfProfileMaxTxPSDEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION
"Each entry consists of a transmit PSD mask descriptor, which defines the maximum power spectral density (PSD) for a tone.

A default profile with an index of 1 MUST always exist and its parameters will be set to vendor specific values, unless otherwise specified in this document."
INDEX { vdslLineConfProfileIndex, vdslMCMConfProfileMaxTxPSDNumber }
::= { vdslLineMCMConfProfileMaxTxPSDTable 1 }

VdslLineMCMConfProfileMaxTxPSDEntry ::= SEQUENCE
{
  vdslMCMConfProfileMaxTxPSDNumber             Unsigned32,
  vdslMCMConfProfileMaxTxPSDTone              Unsigned32,
  vdslMCMConfProfileMaxTxPSDPSD                Unsigned32,
  vdslMCMConfProfileMaxTxPSDRowStatus          RowStatus
}

vdslMCMConfProfileMaxTxPSDNumber OBJECT-TYPE
SYNTAX       Unsigned32

Expires March 23, 2002
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION   "The index for this band descriptor entry."
::= { vdslLineMCMConfProfileMaxTxPSDEntry 1 }

vdslMCMConfProfileMaxTxPSDTone OBJECT-TYPE
SYNTAX        Unsigned32
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION   "The tone index for which the PSD is being specified."
REFERENCE     "T1E1.4/2000-013R4"    -- Part 3, MCM
::= { vdslLineMCMConfProfileMaxTxPSDEntry 2 }

vdslMCMConfProfileMaxTxPSDPSD OBJECT-TYPE
SYNTAX        Unsigned32
UNITS         "0.5dBm"
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION   "Power Spectral Density level in steps of 0.5dB with
an offset of -140dbm/Hz."
REFERENCE     "T1E1.4/2000-013R4"    -- Part 3, MCM
::= { vdslLineMCMConfProfileMaxTxPSDEntry 3 }

vdslMCMConfProfileMaxTxPSDRowStatus OBJECT-TYPE
SYNTAX        RowStatus
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION   "This object is used to create a new row or modify or
delete an existing row in this table.

A profile activated by setting this object to ‘active’. When ‘active’ is set, the system will validate the profile.

Before a profile can be deleted or taken out of service, (by setting this object to ‘destroy’ or ‘outOfService’) it must be first unreferenced from all associated lines."
::= { vdslLineMCMConfProfileMaxTxPSDEntry 4 }

vdslLineMCMConfProfileMaxRxPSDTable OBJECT-TYPE
SYNTAX        SEQUENCE OF VdslLineMCMConfProfileMaxRxPSDEntry
MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION   "This table contains maximum receive PSD mask descriptor configuration information for a VDSL line. Each entry in this table reflects the configuration for one tone within a multiple carrier modulation (MCM) VDSL modem. These
entries are defined by a manager and can be used to configure the VDSL line.

This table MUST be implemented for multiple carrier modulation (MCM) VDSL lines. This table MUST NOT be implemented for single carrier modulation VDSL lines.

```plaintext
::= { vdslMibObjects 17 }
```

`vdsllineMCMConfProfileMaxRxPSDEntry OBJECT-TYPE
SYNTAX VdslLineMCMConfProfileMaxRxPSDEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Each entry consists of a transmit PSD mask descriptor, which defines the power spectral density (PSD) for a tone.

A default profile with an index of 1 will always exist and its parameters will be set to vendor specific values, unless otherwise specified in this document."
INDEX { vdsllineConfProfileIndex,
vdsllineMCMConfProfileMaxRxPSDNumber }
::= { vdsllineMCMConfProfileMaxRxPSDTable 1 }
```

`VdslLineMCMConfProfileMaxRxPSDEntry ::= SEQUENCE

{ vdsllineMCMConfProfileMaxRxPSDNumber Unsigned32,
vdsllineMCMConfProfileMaxRxPSDTone Unsigned32,
vdsllineMCMConfProfileMaxRxPSDSPSD Unsigned32,
vdsllineMCMConfProfileMaxRxPSDRowStatus RowStatus }
```

`vdsllineMCMConfProfileMaxRxPSDNumber OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The index for this band descriptor entry."
::= { vdsllineMCMConfProfileMaxRxPSDEntry 1 }
```

`vdsllineMCMConfProfileMaxRxPSDTone OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The tone index for which the PSD is being specified."
REFERENCE "T1E1.4/2000-013R4" -- Part 3, MCM
::= { vdsllineMCMConfProfileMaxRxPSDEntry 2 }
```

`vdsllineMCMConfProfileMaxRxPSDSPSD OBJECT-TYPE
SYNTAX Unsigned32
Expires March 23, 2002
INTERNET-DRAFT                 VDSL-LINE MIB              September 2002

UNITS        "0.5dBm"
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION
  "Power Spectral Density level in steps of 0.5dB with
an offset of -140dbm/Hz."
REFERENCE    "T1E1.4/2000-013R4"    -- Part 3, MCM
 ::= { vdslLineMCMConfProfileMaxRxPSDEntry 3 }  

vdslMCMConfProfileMaxRxPSDRowStatus OBJECT-TYPE
SYNTAX       RowStatus
MAX-ACCESS   read-create
STATUS       current
DESCRIPTION
  "This object is used to create a new row or modify or
delete an existing row in this table.

A profile activated by setting this object to 'active'.
When 'active' is set, the system will validate the profile.

Before a profile can be deleted or taken out of
service, (by setting this object to 'destroy' or
'outOfService') it must be first unreferenced
from all associated lines."
 ::= { vdslLineMCMConfProfileMaxRxPSDEntry 4 }  

--
-- Single carrier modulation (SCM) configuration profile tables
--

vdslLineSCMConfProfileTable OBJECT-TYPE
SYNTAX       SEQUENCE OF VdslLineSCMConfProfileEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION
  "This table contains information on the VDSL line
configuration. One entry in this table reflects a
profile defined by a manager which can be used to
configure the VDSL line.

This table MUST be implemented for single carrier
modulation (SCM) VDSL lines. This table MUST NOT be
implemented for multiple carrier modulation (MCM) VDSL
lines."
 ::= { vdslMibObjects 18 }  

vdslLineSCMConfProfileEntry OBJECT-TYPE
SYNTAX       VdslLineSCMConfProfileEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION
  "Each entry consists of a list of parameters that
represents the configuration of a single carrier modulation VDSL modem.

A default profile with an index of 1 MUST always exist and its parameters will be set to vendor specific values, unless otherwise specified in this document.

INDEX { vdslLineConfProfileIndex } ::= { vdslLineSCMConfProfileTable 1 }

VdslLineSCMConfProfileEntry ::= SEQUENCE {
  vdslSCMConfProfileDownInterleaveDepth  Unsigned32,
  vdslSCMConfProfileUpInterleaveDepth    Unsigned32,
  vdslSCMConfProfileDownNumCarriers      INTEGER,
  vdslSCMConfProfileUpNumCarriers        INTEGER,
  vdslSCMConfProfileDownFastCodewordSize Unsigned32,
  vdslSCMConfProfileUpFastCodewordSize   Unsigned32,
  vdslSCMConfProfileTransmitPSDMask      BITS,
  vdslSCMConfProfileVendorNotch1Start    Unsigned32,
  vdslSCMConfProfileVendorNotch1Stop     Unsigned32,
  vdslSCMConfProfileVendorNotch2Start    Unsigned32,
  vdslSCMConfProfileVendorNotch2Stop     Unsigned32,
  vdslSCMConfProfileDownFastFecSize      INTEGER,
  vdslSCMConfProfileUpFastFecSize        INTEGER,
  vdslSCMConfProfileDownSlowBlockSize    INTEGER,
  vdslSCMConfProfileUpSlowBlockSize      INTEGER,
  vdslSCMConfProfileRowStatus            RowStatus
}

vdslSCMConfProfileDownInterleaveDepth OBJECT-TYPE
SYNTAX    Unsigned32 (0..64)
MAX-ACCESS read-create
STATUS     current
DESCRIPTION "Specifies the downstream interleaving depth."
REFERENCE  "T1E1.4/2000-011R3" -- Part 2, SCM
 ::= { vdslLineSCMConfProfileEntry 1 }

vdslSCMConfProfileUpInterleaveDepth OBJECT-TYPE
SYNTAX    Unsigned32 (0..64)
MAX-ACCESS read-create
STATUS     current
DESCRIPTION "Specifies the upstream interleaving depth."
REFERENCE  "T1E1.4/2000-011R3" -- Part 2, SCM
 ::= { vdslLineSCMConfProfileEntry 2 }

vdslSCMConfProfileDownNumCarriers OBJECT-TYPE
SYNTAX    INTEGER
{ oneCarrier(1),
twoCarriers(2)
}
MAX-ACCESS read-create
STATUS current
DESCRIPTION "Specifies the number of downstream carriers."
REFERENCE "T1E1.4/2000-011R3" -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 3 }

vdslSCMConfProfileUpNumCarriers OBJECT-TYPE
SYNTAX INTEGER
{
  oneCarrier(1),
  twoCarriers(2)
}
MAX-ACCESS read-create
STATUS current
DESCRIPTION "Specifies the number of upstream carriers."
REFERENCE "T1E1.4/2000-011R3" -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 4 }

vdslSCMConfProfileDownFastCodewordSize OBJECT-TYPE
SYNTAX Unsigned32 (0..180)
UNITS "octets"
MAX-ACCESS read-create
STATUS current
DESCRIPTION "Specifies the length in octets of the downstream fast codeword. A value of 0 indicates that the single latency transport class is to be utilized."
REFERENCE "T1E1.4/2000-011R3" -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 5 }

vdslSCMConfProfileUpFastCodewordSize OBJECT-TYPE
SYNTAX Unsigned32 (0..180)
UNITS "octets"
MAX-ACCESS read-create
STATUS current
DESCRIPTION "Specifies the length in octets of the upstream fast codeword. A value of 0 indicates that the single latency transport class is to be utilized."
REFERENCE "T1E1.4/2000-011R3" -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 6 }

vdslSCMConfProfileTransmitPSDMask OBJECT-TYPE
SYNTAX BITS
{
  vendorNotch1(0), -- vendor specific notch
  vendorNotch2(1), -- vendor specific notch
  amateurBand30m(2), -- amateur radio band notch
}
amateurBand40m(3), -- amateur radio band notch
amateurBand80m(4), -- amateur radio band notch
amateurBand160m(5) -- amateur radio band notch

MAX-ACCESS  read-create
STATUS       current
DESCRIPTION  "The transmit power spectral density mask code.

Amateur radio band notching is defined in the VDSL spectrum as follows:

<table>
<thead>
<tr>
<th>Band</th>
<th>Start Frequency</th>
<th>Stop Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>30m</td>
<td>1810 kHz</td>
<td>2000 kHz</td>
</tr>
<tr>
<td>40m</td>
<td>3500 kHz</td>
<td>3800 kHz (ETSI); 4000 kHz (ANSI)</td>
</tr>
<tr>
<td>80m</td>
<td>7000 kHz</td>
<td>7100 kHz (ETSI); 7300 kHz (ANSI)</td>
</tr>
<tr>
<td>160m</td>
<td>10100 kHz</td>
<td>10150 kHz</td>
</tr>
</tbody>
</table>

Notching for each standard band can be enabled or disabled via the bit mask.

Two custom, or vendor specific, notches may be specified. If either of these are enabled via the bit mask, then the following objects MUST be specified:

If vendorNotch1 is enabled, then both
  vdslSCMConfProfileVendorNotch1Start
  vdslSCMConfProfileVendorNotch1Stop
MUST be specified.

If vendorNotch2 is enabled, then both
  vdslSCMConfProfileVendorNotch2Start
  vdslSCMConfProfileVendorNotch2Stop
MUST be specified."

REFERENCE  "T1E1.4/2000-011R3"  -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 7 }

vdslSCMConfProfileVendorNotch1Start OBJECT-TYPE
SYNTAX    Unsigned32
UNITS     "kHz"
MAX-ACCESS read-create
STATUS    current
DESCRIPTION  "Specifies the start frequency of the vendor-specific amateur radio notch 1."
REFERENCE  "T1E1.4/2000-011R3"  -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 8 }

vdslSCMConfProfileVendorNotch1Stop OBJECT-TYPE
SYNTAX    Unsigned32
UNITS     "kHz"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Specifies the stop frequency of the vendor-specific amateur radio notch 1."
REFERENCE  "T1E1.4/2000-011R3" -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 9 }

vdslSCMConfProfileVendorNotch2Start OBJECT-TYPE
SYNTAX  Unsigned32
UNITS "kHz"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Specifies the start frequency of the vendor-specific amateur radio notch 2."
REFERENCE  "T1E1.4/2000-011R3" -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 10 }

vdslSCMConfProfileVendorNotch2Stop OBJECT-TYPE
SYNTAX  Unsigned32
UNITS "kHz"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Specifies the stop frequency of the vendor-specific amateur radio notch 2."
REFERENCE  "T1E1.4/2000-011R3" -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 11 }

vdslSCMConfProfileDownFastFecSize OBJECT-TYPE
SYNTAX  INTEGER
{ noFEC(1),
  fecSize2(2),
  fecSize4(3),
  fecSize16(4) }
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"When fast channel is being used, this object specifies the size of the downstream forward error correction (FEC) codeword."
REFERENCE  "T1E1.4/2000-011R3" -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 12 }

vdslSCMConfProfileUpFastFecSize OBJECT-TYPE
SYNTAX  INTEGER
{ noFEC(1),
  fecSize2(2),
fecSize4(3),
fecSize16(4)
}
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"When fast channel is being used, this object specifies
the size of the upstream forward error correction (FEC)
codeword."
REFERENCE  "T1E1.4/2000-011R3"  -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 13 }

vdslSCMConfProfileDownSlowBlockSize OBJECT-TYPE
SYNTAX   INTEGER
{  
s8(1),
  s4(2),
  s2(3)
}
MAX-ACCESS read-create
STATUS   current
DESCRIPTION
"Specifies the downstream slow channel interleaved
block size. Options are s/8, s/4, or s/2."
REFERENCE  "T1E1.4/2000-011R3"  -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 14 }

vdslSCMConfProfileUpSlowBlockSize OBJECT-TYPE
SYNTAX   INTEGER
{  
s8(1),
  s4(2),
  s2(3)
}
MAX-ACCESS read-create
STATUS   current
DESCRIPTION
"Specifies the upstream slow channel interleaved
block size. Options are s/8, s/4, or s/2."
REFERENCE  "T1E1.4/2000-011R3"  -- Part 2, SCM
::= { vdslLineSCMConfProfileEntry 15 }

vdslSCMConfProfileRowStatus OBJECT-TYPE
SYNTAX   RowStatus
MAX-ACCESS read-create
STATUS   current
DESCRIPTION
"This object is used to create a new row or modify or
delete an existing row in this table.
A profile activated by setting this object to ‘active’.
When ‘active’ is set, the system will validate the profile."
Before a profile can be deleted or taken out of service, (by setting this object to 'destroy' or 'outOfService') it must be first unreferenced from all associated lines."

::= { vdslLineSCMConfProfileEntry 16 }

vdslLineSCMConfProfileTxBandTable OBJECT-TYPE
SYNTAX       SEQUENCE OF VdslLineSCMConfProfileTxBandEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION
"This table contains transmit band descriptor configuration information for a VDSL line. Each entry in this table reflects the configuration for one of possibly three bands with a single carrier modulation (SCM) VDSL line. These entries are defined by a manager and can be used to configure the VDSL line.

This table MUST be implemented for single carrier modulation (SCM) VDSL lines. This table MUST NOT be implemented for multiple carrier modulation (MCM) VDSL lines."

::= { vdslMibObjects 19 }

vdslLineSCMConfProfileTxBandEntry OBJECT-TYPE
SYNTAX       VdslLineSCMConfProfileTxBandEntry
MAX-ACCESS   not-accessible
STATUS       current
DESCRIPTION
"Each entry consists of a list of parameters that represents the configuration of a single carrier modulation VDSL modem transmit band.

A default profile with an index of 1 MUST always exist and its parameters will be set to vendor specific values, unless otherwise specified in this document."

INDEX { vdslLineConfProfileIndex,
          vdslSCMConfProfileTxBandSide,
          vdslSCMConfProfileTxBandNumber }

::= { vdslLineSCMConfProfileTxBandTable 1 }

VdslLineSCMConfProfileTxBandEntry ::= SEQUENCE
{   vdslSCMConfProfileTxBandSide               VdslLineEntity,
    vdslSCMConfProfileTxBandNumber             INTEGER,
    vdslSCMConfProfileTxBandTransmitPSDLevel   Unsigned32,
    vdslSCMConfProfileTxBandSymbolRateProfile  Unsigned32,
    vdslSCMConfProfileTxBandConstellationSize  Unsigned32,
    vdslSCMConfProfileTxBandCenterFrequency    Unsigned32,
    vdslSCMConfProfileTxBandRowStatus          RowStatus
}

Expires March 23, 2002

[Page 64]
vds1SCMConfProfileTxBandSide OBJECT-TYPE
SYNTAX       VdslLineEntity
MAX-ACCESS  read-create
STATUS       current
DESCRIPTION
"Identifies whether this band entry describes
downstream or upstream transmission."
::= { vds1LineSCMConfProfileTxBandEntry 1 }

vds1SCMConfProfileTxBandNumber OBJECT-TYPE
SYNTAX       INTEGER
             { band1(1),
              band2(2),
              upstreamU0(3) }
MAX-ACCESS  read-create
STATUS       current
DESCRIPTION
"The SCN transmit band number for this entry."
::= { vds1LineSCMConfProfileTxBandEntry 2 }

vds1SCMConfProfileTxBandTransmitPSDLevel OBJECT-TYPE
SYNTAX       Unsigned32
UNITS        "-dBm/Hz"
MAX-ACCESS  read-create
STATUS       current
DESCRIPTION
"The transmit power spectral density for the VDSL modem."
REFERENCE    "T1E1.4/2000-011R3"    -- Part 2, SCM
::= { vds1LineSCMConfProfileTxBandEntry 3 }

vds1SCMConfProfileTxBandSymbolRateProfile OBJECT-TYPE
SYNTAX       Unsigned32
UNITS        "kbaud"
MAX-ACCESS  read-create
STATUS       current
DESCRIPTION
"The symbol rate profile calculated as S = SR/BSR, where
SR is the required symbol rate in kbaud, BSR = 67.5."
REFERENCE    "T1E1.4/2000-011R3"    -- Part 2, SCM
::= { vds1LineSCMConfProfileTxBandEntry 4 }

vds1SCMConfProfileTxBandConstellationSize OBJECT-TYPE
SYNTAX       Unsigned32 (0..8)
UNITS        "log2"
MAX-ACCESS  read-create
STATUS       current
DESCRIPTION
"Specifies the constellation size."
REFERENCE "T1E1.4/2000-011R3" -- Part 2, SCM
::= { vdslLineSCMConfProfileTxBandEntry 5 }

vdslSCMConfProfileTxBandCenterFrequency OBJECT-TYPE
SYNTAX Unsigned32 (0..511)
UNITS "33.75kHz"
MAX-ACCESS read-create
STATUS current
DESCRIPTION "Specifies the center frequency profile K."
REFERENCE "T1E1.4/2000-011R3" -- Part 2, SCM
::= { vdslLineSCMConfProfileTxBandEntry 6 }

vdslSCMConfProfileTxBandRowStatus OBJECT-TYPE
SYNTAX RowStatus
MAX-ACCESS read-create
STATUS current
DESCRIPTION "This object is used to create a new row or modify or delete an existing row in this table.

A profile activated by setting this object to ‘active’. When ‘active’ is set, the system will validate the profile.

Before a profile can be deleted or taken out of service, (by setting this object to ‘destroy’ or ‘outOfService’) it must be first unreferenced from all associated lines."
::= { vdslLineSCMConfProfileTxBandEntry 7 }

--
-- Alarm configuration profile table
--

vdslLineAlarmConfProfileTable OBJECT-TYPE
SYNTAX SEQUENCE OF VdslLineAlarmConfProfileEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "This table contains information on the VDSL line alarm configuration. One entry in this table reflects a profile defined by a manager which can be used to configure the VDSL line alarm thresholds."
::= { vdslMibObjects 20 }

vdslLineAlarmConfProfileEntry OBJECT-TYPE
SYNTAX VdslLineAlarmConfProfileEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "Each entry consists of a list of parameters that represents the configuration of a VDSL line alarm
A default profile with an index of 1 MUST always exist and its parameters will be set to vendor specific values, unless otherwise specified in this document.

INDEX { vdslLineAlarmConfProfileIndex }
::= { vdslLineAlarmConfProfileTable 1 }

VdslLineAlarmConfProfileEntry ::= SEQUENCE {
  vdslLineAlarmConfProfileIndex      Unsigned32,
  vdslLineAlarmConfProfileName       SnmpAdminString,
  vdslThresh15MinLofs                HCPerfIntervalThreshold,
  vdslThresh15MinLoss                HCPerfIntervalThreshold,
  vdslThresh15MinLprs                HCPerfIntervalThreshold,
  vdslThresh15MinESs                 HCPerfIntervalThreshold,
  vdslThresh15MinSESs                HCPerfIntervalThreshold,
  vdslThresh15MinUASs                HCPerfIntervalThreshold,
  vdslInitFailureNotificationEnable  TruthValue,
  vdslLineAlarmConfProfileRowStatus  RowStatus
}
vdslPerfLofsThreshNotification notification will be generated. No more than one notification will be sent per interval."

::= { vdslLineAlarmConfProfileEntry 3 }

vdslThresh15MinLoss OBJECT-TYPE
SYNTAX     HCPerfIntervalThreshold
UNITS       "seconds"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
 "This object configures the threshold for the number of loss of signal seconds (loss) within any given 15-minute performance data collection interval. If the value of loss of frame seconds in a particular 15-minute collection interval reaches/exceeds this value, a vdslPerfLossThreshNotification notification will be generated. One notification will be sent per interval per endpoint."

::= { vdslLineAlarmConfProfileEntry 4 }

vdslThresh15MinLprs OBJECT-TYPE
SYNTAX     HCPerfIntervalThreshold
UNITS       "seconds"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
 "This object configures the threshold for the number of loss of power seconds (lprs) within any given 15-minute performance data collection interval. If the value of loss of frame seconds in a particular 15-minute collection interval reaches/exceeds this value, a vdslPerfLprsThreshNotification notification will be generated. No more than one notification will be sent per interval."

::= { vdslLineAlarmConfProfileEntry 5 }

vdslThresh15MinESs OBJECT-TYPE
SYNTAX     HCPerfIntervalThreshold
UNITS       "seconds"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
 "This object configures the threshold for the number of errored seconds (ESs) 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 vdslPerfESsThreshNotification notification will be generated. No more than one notification will be sent per interval."

::= { vdslLineAlarmConfProfileEntry 6 }
vdslThresh15MinSESs OBJECT-TYPE
SYNTAX        HCPerfIntervalThreshold
UNITS         "seconds"
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION   "This object configures the threshold for the number of severely errored seconds (SESs) 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 vdslPerfSESsThreshNotification notification will be generated. No more than one notification will be sent per interval."
 ::= { vdslLineAlarmConfProfileEntry 7 }

vdslThresh15MinUASs OBJECT-TYPE
SYNTAX        HCPerfIntervalThreshold
UNITS         "seconds"
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION   "This object configures the threshold for the number of unavailable seconds (UASs) within any given 15-minute performance data collection interval. If the value of unavailable seconds in a particular 15-minute collection interval reaches/exceeds this value, a vdslPerfUASsThreshNotification notification will be generated. No more than one notification will be sent per interval."
 ::= { vdslLineAlarmConfProfileEntry 8 }

vdslInitFailureNotificationEnable OBJECT-TYPE
SYNTAX        TruthValue
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION   "This object specifies if a vdslInitFailureNotification notification will be generated if an initialization failure occurs."
 ::= { vdslLineAlarmConfProfileEntry 9 }

vdslLineAlarmConfProfileRowStatus OBJECT-TYPE
SYNTAX        RowStatus
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION   "This object is used to create a new row or modify or delete an existing row in this table. A profile activated by setting this object to ‘active’.
When 'active' is set, the system will validate the profile.

Before a profile can be deleted or taken out of service, (by setting this object to 'destroy' or 'outOfService') it must be first unreferenced from all associated lines.

```
::= { vdslLineAlarmConfProfileEntry 10 }
```

-- Notification definitions

vdslNotifications OBJECT IDENTIFIER ::= { vdslLineMib 0 }

vdslPerfLoFsThreshNotification NOTIFICATION-TYPE

OBJECTS

{ vdslPerfCurr15MinLoFs,
  vdslThresh15MinLoFs
}

STATUS current

DESCRIPTION

"Loss of Framing 15-minute interval threshold reached."

::= { vdslNotifications 1 }

vdslPerfLossThreshNotification NOTIFICATION-TYPE

OBJECTS

{ vdslPerfCurr15MinLoss,
  vdslThresh15MinLoss
}

STATUS current

DESCRIPTION

"Loss of Signal 15-minute interval threshold reached."

::= { vdslNotifications 2 }

vdslPerfLprsThreshNotification NOTIFICATION-TYPE

OBJECTS

{ vdslPerfCurr15MinLprs,
  vdslThresh15MinLprs
}

STATUS current

DESCRIPTION

"Loss of Power 15-minute interval threshold reached."

::= { vdslNotifications 3 }

vdslPerfESsThreshNotification NOTIFICATION-TYPE

OBJECTS

{ vdslPerfCurr15MinESs,
  vdslThresh15MinESs
}

STATUS current

DESCRIPTION

"Errored Seconds 15-minute interval threshold reached."

::= { vdslNotifications 4 }
vdslPerfSESsThreshNotification NOTIFICATION-TYPE
OBJECTS
{ vdslPerfCurr15MinSESs,
  vdslThresh15MinSESs }
STATUS current
DESCRIPTION
"Severely Errored Seconds 15-minute interval threshold reached."
::= { vdslNotifications 5 }

vdslPerfUASsThreshNotification NOTIFICATION-TYPE
OBJECTS
{ vdslPerfCurr15MinUASs,
  vdslThresh15MinUASs }
STATUS current
DESCRIPTION
"Unavailable Seconds 15-minute interval threshold reached."
::= { vdslNotifications 6 }

vdslDownMaxSnrMgnExceededNotification NOTIFICATION-TYPE
OBJECTS
{ vdslCurrSnrMgn,
  vdslLineConfDownstreamMaxSnrMgn }
STATUS current
DESCRIPTION
"The downstream Signal to Noise Margin exceeded vdslLineConfDownstreamMaxSnrMgn. The object vdslCurrSnrMgn will contain the Signal to Noise margin as measured by the VTU-R."
::= { vdslNotifications 7 }

vdslDownMinSnrMgnExceededNotification NOTIFICATION-TYPE
OBJECTS
{ vdslCurrSnrMgn,
  vdslLineConfDownstreamMinSnrMgn }
STATUS current
DESCRIPTION
"The downstream Signal to Noise Margin fell below vdslLineConfDownstreamMinSnrMgn. The object vdslCurrSnrMgn will contain the Signal to Noise margin as measured by the VTU-R."
::= { vdslNotifications 8 }

vdslUpMaxSnrMgnExceededNotification NOTIFICATION-TYPE
OBJECTS
{ vdslCurrSnrMgn,
  vdslLineConfUpstreamMaxSnrMgn }

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STATUS        current
DESCRIPTION
 "The upstream Signal to Noise Margin exceeded
vdslLineConfDownstreamMaxSnrMgn.  The object
vdslCurrSnrMgn will contain the Signal to Noise
margin as measured by the VTU-C."
 ::= { vdslNotifications 9 }

vdslUpMinSnrMgnExceededNotification NOTIFICATION-TYPE
OBJECTS       {
        vdslCurrSnrMgn,
        vdslLineConfUpstreamMinSnrMgn
     }
STATUS        current
DESCRIPTION
 "The upstream Signal to Noise Margin fell below
vdslLineConfDownstreamMinSnrMgn.  The object
vdslCurrSnrMgn will contain the Signal to Noise
margin as measured by the VTU-C."
 ::= { vdslNotifications 10 }

vdslInitFailureNotification NOTIFICATION-TYPE
OBJECTS       {
        vdslCurrStatus
     }
STATUS        current
DESCRIPTION
 "Vtu initialization failed.  See vdslCurrStatus for
potential reasons."
 ::= { vdslNotifications 11 }

-- conformance information

vdslConformance OBJECT IDENTIFIER ::= { vdslLineMib 3 }
vdslGroups OBJECT IDENTIFIER ::= { vdslConformance 1 }
vdslCompliances OBJECT IDENTIFIER ::= { vdslConformance 2 }

vdslLineMibCompliance MODULE-COMPLIANCE
STATUS  current
DESCRIPTION
 "The compliance statement for SNMP entities which
manage VDSL interfaces."

MODULE  -- this module
MANDATORY-GROUPS
     {
         vdslGroup
     }

GROUP       vdslMCMGroup
DESCRIPTION
 "This group is mandatory for VDSL Lines which
utilize multiple carrier modulation.

This group should not be implemented for VDSL lines which utilize single carrier modulation.

GROUP vdslSCMGroup
DESCRIPTION "This group is mandatory for VDSL lines which utilize single carrier modulation.

This group should not be implemented for VDSL lines which utilize multiple carrier modulation"
::= { vdslCompliances 1 }

-- units of conformance

vdslGroup OBJECT-GROUP
OBJECTS
{
  vdslLineCoding,
  vdslLineType,
  vdslLineConfProfile,
  vdslLineAlarmConfProfile,
  vdslPhysSide,
  vdslInvSerialNumber,
  vdslInvVendorID,
  vdslInvVersionNumber,
  vdslCurrSnrMgn,
  vdslCurrAttn,
  vdslCurrStatus,
  vdslCurrOutputPwr,
  vdslCurrAttainableRate,
  vdslChanInterleaveDelay,
  vdslChanCrcBlockLength,
  vdslPerfValidIntervals,
  vdslPerfInvalidIntervals,
  vdslPerfLofs,
  vdslPerfLoss,
  vdslPerfLprs,
  vdslPerfESs,
  vdslPerfSESs,
  vdslPerfUASs,
  vdslPerfInits,
  vdslPerfCurr15MinTimeElapsed,
  vdslPerfCurr15MinLofs,
  vdslPerfCurr15MinLoss,
  vdslPerfCurr15MinLprs,
  vdslPerfCurr15MinESs,
  vdslPerfCurr15MinSESs,
  vdslPerfCurr15MinUASs,
  vdslPerfCurr15MinInits,
  vdslPerf1DayValidIntervals,
vdslPerf1DayInvalidIntervals,
vds1PerfCurriDayTimeElapsed,
vds1PerfCurriDayLofs,
vds1PerfCurriDayLoss,
vds1PerfCurriDayLprs,
vds1PerfCurriDayESs,
vds1PerfCurriDaySESs,
vds1PerfCurriDayUASs,
vds1PerfCurriDayInits,
vds1IntervalLofs,
vds1IntervalLoss,
vds1IntervalLprs,
vds1IntervalESs,
vds1IntervalSESs,
vds1IntervalUASs,
vds1IntervalInits,
vds11DayIntervalMoniSecs,
vds11DayIntervalLofs,
vds11DayIntervalLoss,
vds11DayIntervalLprs,
vds11DayIntervalESs,
vds11DayIntervalSESs,
vds11DayIntervalUASs,
vds11DayIntervalInits,
vds1ChanPerfValidIntervals,
vds1ChanPerfInvalidIntervals,
vds1ChanCorrectedOctets,
vds1ChanUncorrectBlks,
vds1ChanPerfCurr15MinTimeElapsed,
vds1ChanPerfCurr15MinCorrectedOctets,
vds1ChanPerfCurr15MinUncorrectBlks,
vds1ChanPerf1DayValidIntervals,
vds1ChanPerf1DayValidIntervals,
vds1ChanPerf1DayInvalidIntervals,
vds1ChanPerf1DayTimeElapsed,
vds1ChanPerf1DayCorrectedOctets,
vds1ChanPerf1DayUncorrectBlks,
vds1ChanIntervalCorrectedOctets,
vds1ChanIntervalUncorrectBlks,
vds1Chan1DayIntervalMoniSecs,
vds1Chan1DayIntervalCorrectedOctets,
vds1Chan1DayIntervalUncorrectBlks,
vds1LineConfProfileIndex,
vds1LineConfProfileName,
vds1LineConfDownstreamMaxPwr,
vds1LineConfUpstreamMaxPwr,
vds1LineConfDownstreamMaxSnrMgn,
vds1LineConfDownstreamMinSnrMgn,
vds1LineConfDownstreamTargetSnrMgn,
vds1LineConfUpstreamMaxSnrMgn,
vds1LineConfUpstreamMinSnrMgn,
vds1LineConfUpstreamTargetSnrMgn,
vds1LineConfDownstreamFastMaxDataRate,
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vdslLineConfDownstreamFastMinDataRate,
vdslLineConfDownstreamSlowMaxDataRate,
vdslLineConfDownstreamSlowMinDataRate,
vdslLineConfUpstreamFastMaxDataRate,
vdslLineConfUpstreamFastMinDataRate,
vdslLineConfUpstreamSlowMaxDataRate,
vdslLineConfUpstreamSlowMinDataRate,
vdslLineConfRateAdaptationRatio,
vdslLineConfUpstreamDataRate,
vdslLineConfDownstreamDataRate,
vdslLineConfDownstreamMaxInterDelay,
vdslLineConfUpstreamMaxInterDelay,
vdslLineConfUpstreamPboControl,
vdslLineConfDownstreamPboControl,
vdslLineConfDeploymentScenario,
vdslLineConfAdslOccupy,
vdslLineConfApplicableStandard,
vdslLineConfBandPlan,
vdslLineConfBandPlanFx,
vdslLineConfBandU0Usage,
vdslLineConfUpstreamPsdTemplate,
vdslLineConfDownstreamPsdTemplate,
vdslLineConfProfileRowStatus,
vdslLineAlarmConfProfileIndex,
vdslLineAlarmConfProfileName,
vsl1Thresh15MinLofs,
vsl1Thresh15MinLoss,
vsl1Thresh15MinLprs,
vsl1Thresh15MinESs,
vsl1Thresh15MinSESs,
vsl1Thresh15MinUASs,
vsl1InitFailureNotificationEnable,
vdslLineAlarmConfProfileRowStatus

STATUS     current
DESCRIPTION
"A collection of objects providing information about
a VDSL Line."
::= { vdslGroups 1 }

vds1MCMGroup OBJECT-GROUP
OBJECTS
{
  vds1MCMConfProfileTxWindowLength,
vds1MCMConfProfileRowStatus,
vds1MCMConfProfileTxBandNumber,
vds1MCMConfProfileTxBandStart,
vds1MCMConfProfileTxBandStop,
vds1MCMConfProfileRxBandNumber,
vds1MCMConfProfileRxBandStart,
vds1MCMConfProfileRxBandStop,
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vdslMCMConfProfileRxBandRowStatus,
vdslMCMConfProfileTxPSDNumber,
vdslMCMConfProfileTxPSDTone,
vdslMCMConfProfileTxPSDPSD,
vdslMCMConfProfileTxPSDRowStatus,
vdslMCMConfProfileMaxTxPSDNumber,
vdslMCMConfProfileMaxTxPSDTone,
vdslMCMConfProfileMaxTxPSDPSD,
vdslMCMConfProfileMaxTxPSDRowStatus,
vdslMCMConfProfileMaxRxPSDNumber,
vdslMCMConfProfileMaxRxPSDTone,
vdslMCMConfProfileMaxRxPSDPSD,
vdslMCMConfProfileMaxRxPSDRowStatus
}
STATUS     current
DESCRIPTION
"A collection of objects providing configuration
information for a VDSL line based upon multiple carrier
modulation modem."
::= { vdslGroups 2 }

vdslSCMGroup    OBJECT-GROUP
OBJECTS
{
vdslSCMPhysBandSnrMgn,
vdslSCMPhysBandAtn,
vdslSCMConfProfileDownInterleaveDepth,
vdslSCMConfProfileUpInterleaveDepth,
vdslSCMConfProfileDownNumCarriers,
vdslSCMConfProfileUpNumCarriers,
vdslSCMConfProfileDownFastCodewordSize,
vdslSCMConfProfileUpFastCodewordSize,
vdslSCMConfProfileTransmitPSDMask,
vdslSCMConfProfileVendorNotch1Start,
vdslSCMConfProfileVendorNotch1Stop,
vdslSCMConfProfileVendorNotch2Start,
vdslSCMConfProfileVendorNotch2Stop,
vdslSCMConfProfileDownFastFecSize,
vdslSCMConfProfileUpFastFecSize,
vdslSCMConfProfileDownSlowBlockSize,
vdslSCMConfProfileUpSlowBlockSize,
vdslSCMConfProfileRowStatus,
vdslSCMConfProfileTxBandSide,
vdslSCMConfProfileTxBandNumber,
vdslSCMConfProfileTxBandTransmitPSDLevel,
vdslSCMConfProfileTxBandSymbolRateProfile,
vdslSCMConfProfileTxBandConstellationSize,
vdslSCMConfProfileTxBandCenterFrequency,
vdslSCMConfProfileTxBandRowStatus
}
STATUS     current
DESCRIPTION
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"A collection of objects providing configuration information for a VDSL line based upon single carrier modulation modem."

::= { vdslGroups 3 }

vdslNotificationGroup NOTIFICATION-GROUP

{ vdslPerfLofsThreshNotification, vdslPerfLossThreshNotification, vdslPerfLprsThreshNotification, vdslPerfESsThreshNotification, vdslPerfSESsThreshNotification, vdslPerfUASSsThreshNotification, vdslDownMaxSnrMgnExceededNotification, vdslDownMinSnrMgnExceededNotification, vdslUpMaxSnrMgnExceededNotification, vdslUpMinSnrMgnExceededNotification, vdslInitFailureNotification }

STATUS current

DESCRIPTION "This group supports notifications of significant conditions associated with VDSL Lines."

::= { vdslGroups 4 }

END

Normative References

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[T1E1311] ANSI T1E1.4/2001-311, "Very-high-bit-rate Digital
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Technical Specification for a Single-Carrier Modulation
Informative References


Security Considerations

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

VDSL layer connectivity from the Vtur will permit the subscriber to manipulate both the VDSL link directly and the VDSL embedded operations channel (EOC) for their own loop. For example, unchecked or unfiltered fluctuations initiated by the subscriber could generate sufficient notifications to potentially overwhelm either the management interface to the network or the element manager.

For this reason, there are a number of managed objects in this MIB that may contain sensitive information. These are:

  vdslThresh15MinLofs
  vdslThresh15MinLoss
It is thus important to control even GET access to these objects and possibly to even encrypt the values of these objects when sending them over the network via SNMP. Not all versions of SNMP provide features for such a secure environment.

Further, notifications generated by agents implementing this MIB will contain the above threshold 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.

IANA Considerations

The VDSL-LINE-MIB MIB module requires the allocation of a single object identifier for its MODULE-IDENTITY. IANA should allocate this object identifier in the transmission subtree.

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