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Definitions of Managed Objects for  
Asymmetric Digital Subscriber Line 2 (ADSL2)

Status of This Memo

This document specifies an Internet standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "Internet Official Protocol Standards" (STD 1) for the standardization state and status of this protocol. Distribution of this memo is unlimited.

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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 parameters of the "Asymmetric Digital Subscriber Line" family of interface types: ADSL, ADSL2, ADSL2+, and their variants.

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## 1. The Internet-Standard Management Framework

For a detailed overview of the documents that describe the current Internet-Standard Management Framework, please refer to Section 7 of RFC 3410 [RFC3410].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This memo specifies a MIB module that is compliant to the SMIV2, which is described in STD 58, RFC 2578 [RFC2578], STD 58, RFC 2579 [RFC2579] and STD 58, RFC 2580 [RFC2580].

## 2. Overview

This document defines a Management Information Base (MIB) module for use with network management protocols in the Internet community for the purpose of managing ADSL, ADSL2, and ADSL2+ lines.

The MIB module described in RFC 2662 [RFC2662] describes objects used for managing Asymmetric Bit-Rate DSL (ADSL) interfaces per [T1E1.413], [G.992.1], and [G.992.2]. These object descriptions are based upon the specifications for the ADSL Embedded Operations Channel (EOC) as defined in American National Standards Institute (ANSI) T1E1.413/1995 [T1E1.413] and International Telecommunication Union (ITU-T) G.992.1 [G.992.1] and G.992.2 [G.992.2].

This document does not obsolete RFC 2662 [RFC2662], but rather provides a more comprehensive management model that includes the ADSL2 and ADSL2+ technologies per G.992.3, G.992.4, and G.992.5 ([G.992.3], [G.992.4], and [G.992.5] respectively). In addition, objects have been added to improve the management of ADSL, ADSL2, and ADSL2+ lines.

Additionally, the management framework for New Generation ADSL lines specified [TR-90] by the Digital Subscriber Line Forum (DSL Forum) has been taken into consideration. That framework is based on ITU-T G.997.1 standard [G.997.1] as well as on two amendments: ([G.997.1am1] and [G.997.1am2]). This document refers to all three documents as G.997.1. That is, a MIB attribute whose REFERENCE section provides a paragraph number in ITU-T G.997.1 is actually originated from either G.997.1 [G.997.1] or one of its amendment documents.

Note that the revised ITU-T G.997.1 standard also refers to the next generation of VDSL technology, known as VDSL2, as per ITU-T G.993.2 [G.993.2]. However, managing VDSL2 lines is currently beyond the scope of this document.

The MIB module is located in the MIB tree under MIB 2 transmission, as discussed in the IANA Considerations section of this document.

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].

## 2.1. Relationship to Other MIBs

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

### 2.1.1. General IF-MIB Integration (RFC 2863)

The ADSL2 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 ifTypes, which may be applicable for ADSL lines:

```
IANAifType ::= TEXTUAL-CONVENTION
...
SYNTAX INTEGER {
...
    channel(70),          -- Channel
    adsl(94),             -- Asymmetric Digital Subscriber Loop
...
    interleave(124),     -- Interleaved Channel
    fast(125),           -- Fast Channel
...
    adsl2plus(238),      -- Asymmetric Digital Subscriber Loop Version 2,
                        -- Version 2 Plus, and all variants
...
}
```

ADSL lines that are identified with ifType=adsl(94) MUST be managed with the MIB specified by RFC 2662. ADSL, ADSL2, and ADSL2+ lines identified with ifType=adsl2plus(238) MUST be managed with the MIB specified by this document.

In any case, the SNMP agent may use either `ifType=interleave(124)` or `fast(125)` for each channel, e.g., depending on whether or not it is capable of using an interleaver on that channel. It may use the `ifType=channel(70)` when all channels are capable of using an interleaver (e.g., for ADSL2 XTUs).

Note that the `ifFixedLengthGroup` from RFC 2863 [RFC2863] MUST be supported and that the `ifRcvAddressGroup` does not apply to this MIB module.

#### 2.1.2. Usage of `ifTable`

The MIB branch identified by `ifType` contains tables appropriate for the interface types described above. Most such tables extend the `ifEntry` table and are indexed by `ifIndex`. For interfaces in systems implementing this MIB module, those table entries indexed by `ifIndex` MUST be persistent.

The following attributes are part of the mandatory `ifGeneralInformationGroup` in the Interfaces MIB [RFC2863] and are not duplicated in the ADSL2 Line MIB.

=====

<code>ifIndex</code>	Interface index.
<code>ifDescr</code>	See interfaces MIB.
<code>ifType</code>	<code>adsl2plus(238)</code> or <code>channel(70)</code> or <code>interleave(124)</code> or <code>fast(125)</code> .
<code>ifSpeed</code>	Set as appropriate.
<code>ifPhysAddress</code>	This object MUST have an octet string with zero length.
<code>ifAdminStatus</code>	See interfaces MIB.
<code>ifOperStatus</code>	See interfaces MIB.
<code>ifLastChange</code>	See interfaces MIB.
<code>ifName</code>	See interfaces MIB.
<code>ifAlias</code>	See interfaces MIB.

ifLinkUpDownTrapEnable    Default to enabled(1).

ifHighSpeed                Set as appropriate.

ifConnectorPresent        Set as appropriate.

=====

Figure 1: Use of ifTable Objects

## 2.2. IANA Considerations

The IANA has allocated ifType=adsl2plus(238) for Asymmetric Digital Subscriber Loop Version 2. A separate ifType number was necessary to distinguish between ADSL lines that are managed with the RFC 2662 management model and ADSL/ADSL2 and ADSL2+ lines managed with the model defined in this document.

Also, the IANA has assigned transmission number 238 to the ADSL2-LINE-MIB module.

An assignment was in fact done when RFC 2662 was published, but as this MIB does not obsolete RFC 2662, it required a new assignment from IANA.

## 2.3. Conventions Used in the MIB Module

### 2.3.1. Naming Conventions

ATU	ADSL Transceiver Unit
ATU-C	ATU at the Central office end (i.e., network operator).
ATU-R	ATU at the Remote end (i.e., subscriber end of the loop).
XTU	A terminal unit; either an ATU-C or an ATU-R.
CRC	Cyclic Redundancy Check
DELT	Dual Ended Loop Test
ES	Errored Second
FEC	Forward Error Correction
LOF	Loss Of Frame
LOS	Loss Of Signal
LOSS	LOS Seconds
SES	Severely-Errored Second
SNR	Signal-to-Noise Ratio
UAS	Unavailable Seconds

### 2.3.2. Textual Conventions

The following textual conventions are defined to reflect the line topology in the MIB module (further discussed in the following section), the various transmission modes, power states, synchronization states, possible values for various configuration parameters, status parameters, and other parameter types.

#### o Adsl2Unit:

Attributes with this syntax uniquely identify each unit in the ADSL/ADSL2/ADSL2+ link. It mirrors the EOC addressing mechanism:

atuc(1)	- Central office ADSL transceiver unit (ATU-C).
atur(2)	- Remote ADSL transceiver unit (ATU-R).

#### o Adsl2Direction:

Attributes with this syntax uniquely identify a transmission direction in an ADSL/ADSL2/ADSL2+ link. Upstream direction is a transmission from the remote end (ATU-R) towards the central office end (ATU-C), while downstream direction is a transmission from the ATU-C towards the ATU-R.

upstream(1)	- Transmission from the ATU-R to the ATU-C.
downstream(2)	- Transmission from the ATU-C to the ATU-R.

#### o Adsl2TransmissionModeType:

Attributes with this syntax reference the list of possible transmission modes for ADSL/ADSL2 or ADSL2+.

Specified as a BITS construct, there are currently a few dozen transmission modes in the list.

#### o Adsl2RaMode:

Attributes with this syntax reference if and how Rate-Adaptive synchronization is being used on the respective ADSL/ADSL2 or ADSL2+ link:

manual(1)	- No Rate-Adaptation. The initialization process attempts to synchronize to a specified rate.
raInit(2)	- Rate-Adaptation during initialization process only, which attempts to synchronize to a rate between minimum and maximum specified values.

dynamicRa(3) - Dynamic Rate-Adaptation during initialization process as well as during SHOWTIME.

o Adsl2InitResult:

Attributes with this syntax reference the recent result of a full initialization attempt:

noFail(0)	- Successful initialization.
configError(1)	- Configuration failure.
configNotFeasible(2)	- Configuration details not supported.
commFail(3)	- Communication failure.
noPeerAtu(4)	- Peer ADSL Transceiver Unit (ATU) not detected.
otherCause(5)	- Other initialization failure reason.

o Adsl2OperationModes:

Attributes with this syntax uniquely identify an ADSL mode, which is a category associated with each transmission mode defined for the ADSL/ADSL2 or ADSL2+ link. Part of the line configuration profile depends on the ADSL Mode:

Specified as an enumeration construct, there are currently a few dozen transmission modes in the list.

o Adsl2PowerMngState:

Attributes with this syntax uniquely identify each power management state defined for the ADSL/ADSL2 or ADSL2+ link:

l0(1)	- L0 - Full power management state.
l1(2)	- L1 - Low power management state (for G.992.2).
l2(3)	- L2 - Low power management state (for G.992.3, G.992.4, and G.992.5).
l3(4)	- L3 - Idle power management state.

o Adsl2ConfPmsForce:

Attributes with this syntax are configuration parameters that reference the desired power management state for the ADSL/ADSL2 or ADSL2+ link:

l3toL0(0)	- Perform a transition from L3 to L0 (Full power management state).
l0toL2(2)	- Perform a transition from L0 to L2 (Low power management state).



l0orL2toL3(3) - Perform a transition into L3 (Idle power management state).

o Adsl2LConfProfPmMode:

Attributes with this syntax are configuration parameters that reference the power modes/states into which the ATU-C or ATU-R may autonomously transit.

This is a BITS structure that allows control of the following transit options:

allowTransitionsToIdle(0) - XTU may autonomously transit to idle (L3) state.  
 allowTransitionsToLowPower(1) - XTU may autonomously transit to low-power (L2) state.

o Adsl2LineLdsf:

Attributes with this syntax are configuration parameters that control the Loop Diagnostic mode for the ADSL/ADSL2 or ADSL2+ link:

inhibit(0) - Inhibit Loop Diagnostic mode.  
 force(1) - Force/Initiate Loop Diagnostic mode.

o Adsl2LdsfResult:

Attributes with this syntax are status parameters that report the result of the recent Loop Diagnostic mode issued for the ADSL/ADSL2 or ADSL2+ link:

none(1) - The default value, in case loop diagnostics mode forced (LDSF) was never requested for the associated line.  
 success(2) - The recent command completed successfully.  
 inProgress(3) - The Loop Diagnostics process is in progress.  
 unsupported(4) - The NE or the line card doesn't support LDSF.  
 cannotRun(5) - The NE cannot initiate the command, due to a nonspecific reason.  
 aborted(6) - The Loop Diagnostics process aborted.  
 failed(7) - The Loop Diagnostics process failed.  
 illegalMode(8) - The NE cannot initiate the command, due to the specific mode of the relevant line.

- adminUp(9) - The NE cannot initiate the command because the relevant line is administratively 'Up'.
- tableFull(10) - The NE cannot initiate the command, due to reaching the maximum number of rows in the results table.
- noResources(11) - The NE cannot initiate the command, due to lack of internal memory resources.

o Adsl2SymbolProtection:

Attributes with this syntax are configuration parameters that reference the minimum-length impulse noise protection (INP) in terms of number of symbols:

- noProtection(1) - INP not required.
- halfSymbol(2) - INP length = 1/2 symbol.
- singleSymbol(3) - INP length = 1 symbol.
- twoSymbols(4) - INP length = 2 symbols.
- threeSymbols(5) - INP length = 3 symbols.
- fourSymbols(6) - INP length = 4 symbols.
- fiveSymbols(7) - INP length = 5 symbols.
- sixSymbols(8) - INP length = 6 symbols.
- sevenSymbols(9) - INP length = 7 symbols.
- eightSymbols(10) - INP length = 8 symbols.
- nineSymbols(11) - INP length = 9 symbols.
- tenSymbols(12) - INP length = 10 symbols.
- elevenSymbols(13) - INP length = 11 symbols.
- twelveSymbols(14) - INP length = 12 symbols.
- thirteenSymbols(15) - INP length = 13 symbols.
- fourteenSymbols(16) - INP length = 14 symbols.
- fifteenSymbols(17) - INP length = 15 symbols.
- sixteenSymbols(18) - INP length = 16 symbols.

o Adsl2MaxBer:

Attributes with this syntax are configuration parameters that reference the maximum Bit Error Rate (BER):

- eminus3(1) - Maximum BER= $E^{-3}$ .
- eminus5(2) - Maximum BER= $E^{-5}$ .
- eminus7(3) - Maximum BER= $E^{-7}$ .

o Adsl2ScMaskDs:

Attributes with this syntax are configuration parameters that reference the downstream sub-carrier mask. It is a bitmap of up to 512 bits.

- o Adsl2ScMaskUs:

Attributes with this syntax are configuration parameters that reference the upstream sub-carrier mask. It is a bitmap of up to 64 bits.

- o Adsl2RfiDs:

Attributes with this syntax are configuration parameters that reference the downstream notch filters. It is a bitmap of up to 512 bits.

- o Adsl2PsdMaskDs:

Attributes with this syntax are configuration parameters that reference the downstream power spectrum density (PSD) mask. It is a structure of up to 32 breakpoints, where each breakpoint occupies 3 octets.

- o Adsl2PsdMaskUs:

Attributes with this syntax are configuration parameters that reference the upstream power spectrum density (PSD) mask. It is a structure of up to 4 breakpoints, where each breakpoint occupies 3 octets.

- o Adsl2Tssi:

Attributes with this syntax are status parameters that reference the transmit spectrum shaping (TSSi). It is a structure of up to 32 breakpoints, where each breakpoint occupies 3 octets.

- o Adsl2LastTransmittedState:

Attributes with this syntax reference the list of initialization states for ADSL/ADSL2 or ADSL2+ modems. The list of states for CO side modems (ATU-Cs) is different from the list of states for the remote side modems (ATU-Rs).

Specified as an enumeration type, there are currently a few dozen states in the list per each unit side (i.e., ATU-C or ATU-R).

- o Adsl2LineStatus:

Attributes with this syntax are status parameters that reflect the failure status for a given endpoint of ADSL/ADSL2 or ADSL2+ link.

This is a BITS structure that can report the following failures:

- noDefect(0) - This bit position positively reports that no defect or failure exists.
- lossOfFrame(1) - Loss of frame synchronization.
- lossOfSignal(2) - Loss of signal.
- lossOfPower(3) - Loss of power. Usually this failure may be reported for ATU-Rs only.
- initFailure(4) - Recent initialization process failed. Never active on ATU-R.

o Adsl2ChAtmStatus:

Attributes with this syntax are status parameters that reflect the failure status for Transmission Convergence (TC) layer of a given ATM interface (data path over an ADSL/ADSL2 or ADSL2+ link).

This is a BITS structure that can report the following failures:

- noDefect(0) - This bit position positively reports that no defect or failure exists.
- noCellDelineation(1) - The link was successfully initialized but cell delineation was never acquired on the associated ATM data path.
- lossOfCellDelineation(2) - Loss of cell delineation on the associated ATM data path.

o Adsl2ChPtmStatus:

Attributes with this syntax are status parameters that reflect the failure status for a given PTM interface (packet data path over an ADSL/ADSL2 or ADSL2+ link).

This is a BITS structure that can report the following failures:

- noDefect(0) - This bit position positively reports that no defect or failure exists.
- outOfSync(1) - Out of synchronization.

## 2.4. Structure

The MIB module is structured into following MIB groups:

o Line Configuration, Maintenance, and Status Group:

This group supports MIB objects for configuring parameters for the ADSL/ADSL2 or ADSL2+ line and retrieving line status information.

It also supports MIB objects for configuring a requested power state or initiating a Dual Ended Loop Test (DELT) process in the ADSL/ADSL2 or ADSL2+ line. It contains the following table:

- adsl2LineTable

- o Channel Status Group:

This group supports MIB objects for retrieving channel layer status information. It contains the following table:

- adsl2ChannelStatusTable

- o Subcarrier Status Group:

This group supports MIB objects for retrieving the sub-carrier layer status information, mostly collected by a Dual Ended Loop Test (DELT) process. It contains the following table:

- adsl2SCStatusTable

- o Unit Inventory Group:

This group supports MIB objects for retrieving Unit inventory information about units in ADSL/ADSL2 or ADSL2+ lines via the EOC. It contains the following table:

- adsl2LineInventoryTable

- o Current Performance Group:

This group supports MIB objects that provide the current performance information relating to ADSL/ADSL2 and ADSL2+ line, units and channels level. It contains the following tables:

- adsl2PMLineCurrTable
- adsl2PMLineCurrInitTable
- adsl2PMChCurrTable

- o 15-Minute Interval Performance Group:

This group supports MIB objects that provide historic performance information relating to ADSL/ADSL2 and ADSL2+ line, units and channels level in 15-minute intervals. It contains the following tables:

- adsl2PMLineHist15MinTable
- adsl2PMLineInitHist15MinTable
- adsl2PMChHist15MinTable

o 1-Day Interval Performance Group:

This group supports MIB objects that provide historic performance information relating to ADSL/ADSL2 and ADSL2+ line, units and channels level in 1-day intervals. It contains the following tables:

- adsl2PMLineHist1DayTable
- adsl2PMLineInitHist1DayTable
- adsl2PMChHist1DTable

o Configuration Template and Profile Group:

This group supports MIB objects for defining configuration profiles for ADSL/ADSL2 and ADSL2+ lines and channels, as well as configuration templates. Each configuration template is comprised of one line configuration profile and one or more channel configuration profiles. This group contains the following tables:

- adsl2LineConfTemplateTable
- adsl2LineConfProfTable
- adsl2LineConfProfModeSpecTable
- adsl2ChConfProfileTable

o Alarm Configuration Template and Profile Group:

This group supports MIB objects for defining alarm profiles for ADSL/ADSL2 and ADSL2+ lines and channels, as well as alarm templates. Each alarm template is comprised of one line alarm profile and one or more channel alarm profiles. This group contains the following tables:

- adsl2LineAlarmConfTemplateTable
- adsl2LineAlarmConfProfileTable
- adsl2ChAlarmConfProfileTable

o Notifications Group:

This group defines the notifications supported for ADSL/ADSL2 and ADSL2+ lines:

- adsl2LinePerfFECSThreshAtuc
- adsl2LinePerfFECSThreshAtur
- adsl2LinePerfESThreshAtuc

- adsl2LinePerfESThreshAtur
- adsl2LinePerfSESThreshAtuc
- adsl2LinePerfSESThreshAtur
- adsl2LinePerfLOSSThreshAtuc
- adsl2LinePerfLOSSThreshAtur
- adsl2LinePerfUASThreshAtuc
- adsl2LinePerfUASThreshAtur
- adsl2LinePerfCodingViolationsThreshAtuc
- adsl2LinePerfCodingViolationsThreshAtur
- adsl2LinePerfCorrectedThreshAtuc
- adsl2LinePerfCorrectedThreshAtur
- adsl2LinePerfFailedFullInitThresh
- adsl2LinePerfFailedShortInitThresh
- adsl2LineStatusChangeAtuc
- adsl2LineStatusChangeAtur

## 2.5. Persistence

All read-create objects and most read-write objects defined in this MIB module SHOULD be stored persistently. Following is an exhaustive list of these persistent objects:

```
adsl2LineCnfgTemplate
adsl2LineAlarmCnfgTemplate
adsl2LineCmndConfPmsf
adsl2LineCmndConfLdsf
adsl2LineCmndAutomodeColdStart
adsl2LConfTempTemplateName
adsl2LConfTempLineProfile
adsl2LConfTempChan1ConfProfile
adsl2LConfTempChan1RaRatioDs
adsl2LConfTempChan1RaRatioUs
adsl2LConfTempChan2ConfProfile
adsl2LConfTempChan2RaRatioDs
adsl2LConfTempChan2RaRatioUs
adsl2LConfTempChan3ConfProfile
adsl2LConfTempChan3RaRatioDs
adsl2LConfTempChan3RaRatioUs
adsl2LConfTempChan4ConfProfile
adsl2LConfTempChan4RaRatioDs
adsl2LConfTempChan4RaRatioUs
adsl2LConfTempRowStatus
adsl2LConfProfProfileName
adsl2LConfProfScMaskDs
adsl2LConfProfScMaskUs
adsl2LConfProfRfiBandsDs
adsl2LConfProfRaModeDs
adsl2LConfProfRaModeUs
```

adsl2LConfProfRaUsNrmDs  
adsl2LConfProfRaUsNrmUs  
adsl2LConfProfRaUsTimeDs  
adsl2LConfProfRaUsTimeUs  
adsl2LConfProfRaDsNrmsDs  
adsl2LConfProfRaDsNrmsUs  
adsl2LConfProfRaDsTimeDs  
adsl2LConfProfRaDsTimeUs  
adsl2LConfProfTargetSnrmDs  
adsl2LConfProfTargetSnrmUs  
adsl2LConfProfMaxSnrmDs  
adsl2LConfProfMaxSnrmUs  
adsl2LConfProfMinSnrmDs  
adsl2LConfProfMinSnrmUs  
adsl2LConfProfMsgMinUs  
adsl2LConfProfMsgMinDs  
adsl2LConfProfAtuTransSysEna  
adsl2LConfProfPmMode  
adsl2LConfProfL0Time  
adsl2LConfProfL2Time  
adsl2LConfProfL2AtpR  
adsl2LConfProfL2AtpRt  
adsl2LConfProfRowStatus  
adsl2LConfProfAdslMode  
adsl2LConfProfMaxNomPsdDs  
adsl2LConfProfMaxNomPsdUs  
adsl2LConfProfMaxNomAtpDs  
adsl2LConfProfMaxNomAtpUs  
adsl2LConfProfMaxAggrRxPwrUs  
adsl2LConfProfPsdMaskDs  
adsl2LConfProfPsdMaskUs  
adsl2LConfProfPsdMaskSelectUs  
adsl2LConfProfModeSpecRowStatus  
adsl2ChConfProfProfileName  
adsl2ChConfProfMinDataRateDs  
adsl2ChConfProfMinDataRateUs  
adsl2ChConfProfMinResDataRateDs  
adsl2ChConfProfMinResDataRateUs  
adsl2ChConfProfMaxDataRateDs  
adsl2ChConfProfMaxDataRateUs  
adsl2ChConfProfMinDataRateLowPwrDs  
adsl2ChConfProfMaxDelayDs  
adsl2ChConfProfMaxDelayUs  
adsl2ChConfProfMinProtectionDs  
adsl2ChConfProfMinProtectionUs  
adsl2ChConfProfMaxBerDs  
adsl2ChConfProfMaxBerUs  
adsl2ChConfProfUsDataRateDs



```
adsl2ChConfProfDsDataRateDs
adsl2ChConfProfUsDataRateUs
adsl2ChConfProfDsDataRateUs
adsl2ChConfProfImaEnabled
adsl2ChConfProfRowStatus
adsl2LAlarmConfTempTemplateName
adsl2LAlarmConfTempLineProfile
adsl2LAlarmConfTempChan1ConfProfile
adsl2LAlarmConfTempChan2ConfProfile
adsl2LAlarmConfTempChan3ConfProfile
adsl2LAlarmConfTempChan4ConfProfile
adsl2LAlarmConfTempRowStatus
adsl2LineAlarmConfProfileName
adsl2LineAlarmConfProfileAtucThresh15MinFecs
adsl2LineAlarmConfProfileAtucThresh15MinEs
adsl2LineAlarmConfProfileAtucThresh15MinSes
adsl2LineAlarmConfProfileAtucThresh15MinLoss
adsl2LineAlarmConfProfileAtucThresh15MinUas
adsl2LineAlarmConfProfileAturThresh15MinFecs
adsl2LineAlarmConfProfileAturThresh15MinEs
adsl2LineAlarmConfProfileAturThresh15MinSes
adsl2LineAlarmConfProfileAturThresh15MinLoss
adsl2LineAlarmConfProfileAturThresh15MinUas
adsl2LineAlarmConfProfileThresh15MinFailedFullInt
adsl2LineAlarmConfProfileThresh15MinFailedShrtInt
adsl2LineAlarmConfProfileRowStatus
adsl2ChAlarmConfProfileName
adsl2ChAlarmConfProfileAtucThresh15MinCodingViolations
adsl2ChAlarmConfProfileAtucThresh15MinCorrected
adsl2ChAlarmConfProfileAturThresh15MinCodingViolations
adsl2ChAlarmConfProfileAturThresh15MinCorrected
adsl2ChAlarmConfProfileRowStatus
```

Note also that the interface indices in this MIB are maintained persistently. View-based Access Control Model (VACM) data relating to these SHOULD be stored persistently as well [RFC3410].

## 2.6. Line Topology

An ADSL/ADSL2 and ADSL2+ Line consists of two units: ATU-C (the central office termination unit) and ATU-R (the remote termination unit). There are up to 4 channels, each carrying an independent information flow, as shown in the figure below.

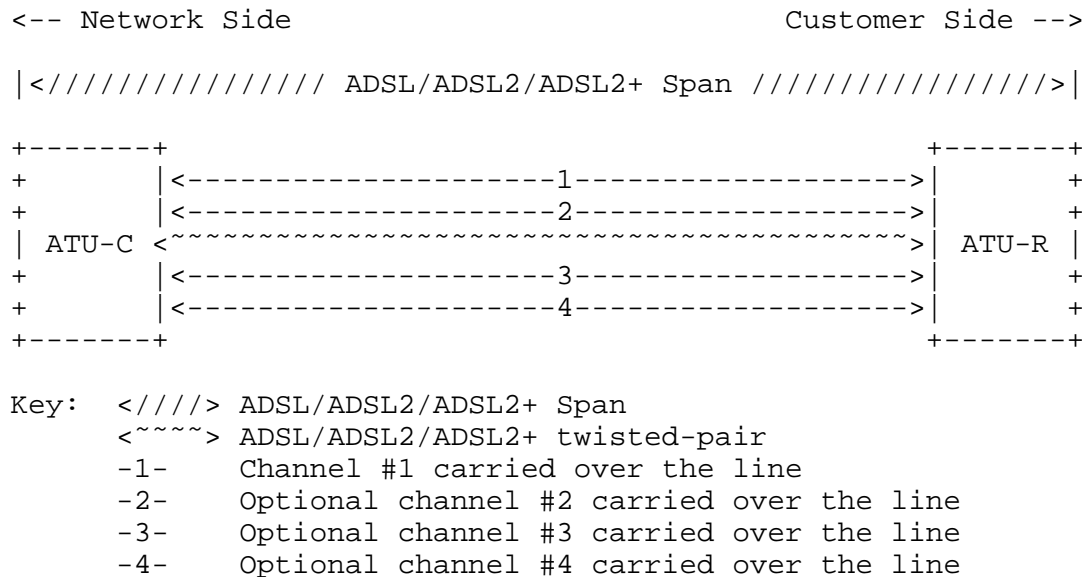


Figure 2: General topology for an ADSL/ADSL2/ADSL2+ Line

## 2.7. Counters, Interval Buckets, and Thresholds

### 2.7.1. Counters Managed

There are various types of counters specified in this MIB. Each counter refers either to the whole ADSL/ADSL2/ADSL2+ line, to one of the XTU entities, or to one of the bearer channels.

#### o On the whole line level

For full initializations, failed full initializations, short initializations, and failed short initializations, there are event counters, current 15-minute and 0 to 96 15-minute history bucket(s) of "interval-counters", as well as current and 0 to 30 previous 1-day interval-counter(s). Each current 15-minute "failed" event bucket has an associated threshold notification.

#### o On the XTU level

For the LOS Seconds, ES, SES, FEC seconds, and UAS, there are event counters, current 15-minute and 0 to 96 15-minute history bucket(s) of "interval-counters", as well as current and 0 to 30 previous 1-day interval-counter(s). Each current 15-minute event bucket has an associated threshold notification.

- o On the bearer channel level

For the coding violations (CRC anomalies) and corrected blocks (i.e., FEC events), there are event counters, current 15-minute and 0 to 96 15-minute history bucket(s) of "interval-counters", as well as current and 0 to 30 previous 1-day interval-counter(s). Each current 15-minute event bucket has an associated threshold notification.

#### 2.7.2. Minimum Number of Buckets

Although it is possible to support up to 96 15-minute history buckets of "interval-counters", systems implementing this MIB module SHOULD practically support at least 16 buckets, as specified in ITU-T G.997.1, paragraph 7.2.7.2.

Similarly, it is possible to support up to 30 previous 1-day "interval-counters", but systems implementing this MIB module SHOULD support at least 1 previous-day bucket.

#### 2.7.3. Interval Buckets Initialization

There is no requirement for an agent to ensure a fixed relationship between the start of a 15-minute interval and any wall clock; however, some implementations may align the 15-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 XTU is reinitialized, only when the agent is reset or reinitialized (or under specific request outside the scope of this MIB module).

#### 2.7.4. Interval Buckets Validity

As in RFC 3593 [RFC3593] and RFC 2662 [RFC2662], in case the data for an interval is suspect or known to be invalid, the agent MUST report the interval as invalid. If the current 15-minute event bucket is determined to be invalid, the element management system SHOULD ignore its content, and the agent MUST NOT generate notifications based upon the value of the event bucket.

A valid 15-minute event bucket SHOULD usually count the events for exactly 15 minutes. Similarly, a valid 1-day event bucket SHOULD usually count the events for exactly 24 hours. However, the following scenarios are exceptional:

- 1) For implementations that align the 15-minute intervals with quarter hours, and the 1-day intervals with start of a day, the management system may still start the PM process not aligned with the wall clock. Such a management system may wish to retrieve even partial information for the first event buckets, rather than declaring them all as invalid.
- 2) For an event bucket that suffered relatively short outages, the management system may wish to retrieve the available PM outcomes, rather than declare the whole event bucket as invalid. This is more important for 1-day event buckets.
- 3) An event bucket may be shorter or longer than the formal duration if a clock adjustment was performed during the interval.

This MIB allows supporting the exceptional scenarios described above by reporting the actual Monitoring Time of a monitoring interval. This parameter is relevant only for Valid intervals, but is useful for these exceptional scenarios:

- a) The management system MAY still declare a partial PM interval as Valid and report the actual number of seconds the interval lasted.
- b) If the interval was shortened or extended due to clock corrections, the management system SHOULD report the actual number of seconds the interval lasted, besides reporting that the interval is Valid.

## 2.8. Profiles

As a managed node can handle a large number of XTUs, (e.g., hundreds or perhaps thousands of lines), provisioning every parameter on every XTU may become burdensome. Moreover, most lines are provisioned identically with the same set of parameters. To simplify the provisioning process, this MIB module makes use of profiles and templates.

A configuration profile is a set of parameters that can be shared by multiple entities. There are configuration profiles to address the line-level provisioning, and another type of profile that addresses the channel-level provisioning parameters.

A configuration template is actually a profile-of-profiles. That is, a template is comprised of one line configuration profile and one or more channel configuration profiles. A template provides the complete configuration of a line. The same configuration can be shared by multiple lines.

Similarly to the configuration profiles and templates, this MIB module makes use of templates and profiles for specifying the alarm thresholds associated with performance parameters. This allows provisioning multiple lines with the same criteria for generating threshold crossing notifications.

The following paragraphs describe templates and profiles used in this MIB module

#### 2.8.1. Configuration Profiles and Templates

- o Line Configuration Profiles - Line configuration profiles contain parameters for configuring the low layer of ADSL/ADSL2 and ADSL2+ lines. They are defined in the `adsl2LineConfProfTable`.

The line configuration includes issues such as the specific ADSL/ADSL2 or ADSL2+ modes to enable on the respective line, power spectrum parameters, rate adaptation criteria, and SNR margin-related parameters. A subset of the line configuration parameters depends upon the specific ADSL Mode allowed (i.e., Does the profile allow ADSL, ADSL2, and/or ADSL2+) as well as what annex/annexes of the standard are allowed. This is the reason a line profile MUST include one or more mode-specific extensions.

- o Channel Configuration Profiles - Channel configuration profiles contain parameters for configuring bearer channels over the ADSL/ADSL2 and ADSL2+ lines. They are sometimes considered the service layer configuration of the ADSL/ADSL2 and ADSL2+ lines. They are defined in the `adsl2ChConfProfTable`.

The channel configuration includes issues such as the desired minimum and maximum rate on each traffic flow direction and impulse noise protection parameters.

- o Line Configuration Templates - Line configuration templates allow combining line configuration profiles and channel configuration profiles to a comprehensive configuration of the ADSL/ADSL2 and ADSL2+ line. They are defined in the `adsl2LineConfTemplateTable`.

The line configuration template includes one index (OID) of a line configuration profile and one to four indexes of channel configuration profiles. The template also addresses the issue of distributing the excess available data rate on each traffic flow direction (i.e., the data rate left after each channel is allocated a data rate to satisfy its minimum requested data rate) among the various channels.

### 2.8.2. Alarm Configuration Profiles and Templates

- o Line Alarm Configuration Profiles - Line-level Alarm configuration profiles contain the threshold values for Performance Monitoring (PM) parameters, counted either on the whole line level or on an XTU level. Thresholds are required only for failures and anomalies, e.g., there are thresholds for failed initializations and LOS seconds, but not for the aggregate number of full initializations. These profiles are defined in the `adsl2LineAlarmConfProfileTable`.
- o Channel Alarm Configuration Profiles - Channel-level Alarm configuration profiles contain the threshold values for PM parameters counted on a bearer channel level. Thresholds are defined for two types of anomalies: corrected blocks and coding violations. These profiles are defined in the `adsl2ChAlarmConfProfileTable`.
- o Line Alarm Configuration Templates - Line Alarm configuration templates allow combining line-level alarm configuration profiles and channel-level alarm configuration profiles to a comprehensive configuration of the PM thresholds for ADSL/ADSL2 and ADSL2+ line. They are defined in the `adsl2LineAlarmConfTemplateTable`.

The line alarm configuration template includes one index (OID) of a line-level alarm configuration profile and one to four indexes of channel-level alarm configuration profiles.

### 2.8.3. Managing Profiles and Templates

The index value for each profile and template is a locally-unique, administratively assigned name having the textual convention 'SnmpAdminString' (RFC 3411 [RFC3411]).

One or more lines may be configured to share parameters of a single configuration template (e.g., `adsl2LConfTemplateName` = 'silver') by setting its `adsl2LineCnfgTemplate` objects to the value of this template.

One or more lines may be configured to share parameters of a single Alarm configuration template (e.g., `adsl2LAlarmConfTempTemplateName` = 'silver') by setting its `adsl2LineAlarmCnfgTemplate` objects to the value of this template.

Before a template can be deleted or taken out of service, it MUST first be unreferenced from all associated lines. Implementations MAY also reject template modification while it is associated with any line.

Before a profile can be deleted or taken out of service, it MUST first be unreferenced from all associated templates. Implementations MAY also reject profile modification while it is referenced by any template.

Implementations MUST provide a default profile whose name is 'DEFVAL' for each profile and template type. The values of the associated parameters will be vendor-specific unless otherwise indicated in this document. Before a line's templates have been set, these templates will be automatically used by setting `adsl2LineCnfgTemplate` and `adsl2LineAlarmCnfgTemplate` to 'DEFVAL' where appropriate. This default profile name, 'DEFVAL', is considered reserved in the context of profiles and templates defined in this MIB module.

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

If the implementation allows modifying a profile or template while it is associated with a line, then such changes MUST take effect immediately. These changes MAY result in a restart (hard reset or soft restart) of the units on the line.

#### 2.8.4. Managing Multiple Bearer Channels

The number of bearer channels is configured by setting the template attributes `adsl2LConfTempChan1ConfProfile`, `adsl2LConfTempChan2ConfProfile`, `adsl2LConfTempChan3ConfProfile`, and `adsl2LConfTempChan4ConfProfile` and then assigning that template to a DSL line using the `adsl2LineCnfgTemplate` attribute. When the number of bearer channels for a DSL line changes, the SNMP agent will automatically create or destroy rows in channel-related tables associated with that line. For example, when a DSL line is operating with one bearer channel, there will be zero rows in channel-related tables for channels two, three, and four. The SNMP agent MUST create and destroy channel-related rows as follows:

- o When the number of bearer channels for a DSL line changes to a higher number, the SNMP agent will automatically create rows in the `adsl2ChannelStatusTable`, and `adsl2PMChCurrTable` tables for that line.
- o When the number of bearer channels for a DSL line changes to a lower number, the SNMP agent will automatically destroy rows in the `adsl2ChannelStatusTable`, `adsl2PMChCurrTable`, `adsl2PMChHist15MinTable`, and `adsl2PMChHist1DTable` tables for that line.

## 2.9. Notifications

The ability to generate the SNMP notifications coldStart/warmStart (per [RFC3418]), 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., ADSL/ADSL2 or ADSL2+ line), is REQUIRED.

A linkDown notification MAY be generated whenever any of ES, SES, CRC Anomaly, LOS, LOF, or UAS event occurs. The corresponding linkUp notification MAY be sent when all link failure conditions are cleared.

The notifications defined in this MIB module are for status change (e.g., initialization failure) and for the threshold crossings associated with the following events: full initialization failures, short initialization failures, ES, SES, FEC Seconds, LOS Seconds, UAS, FEC Seconds, FEC events, and CRC anomalies. Each threshold has its own enable/threshold value. When that value is 0, the notification is disabled.

The adsl2LineStatusAtur and adsl2LineStatusAtuc are bitmasks representing all outstanding error conditions associated with the ATU-R and ATU-C (respectively). Note that since the ATU-R status is obtained via the EOC, this information may be unavailable in case the ATU-R is 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 those two status objects are defined.

Note that there are other status parameters that refer to the ATU-R (e.g., downstream line attenuation). Those parameters also depend on the availability of EOC between the ATU-C and the ATU-R.

A threshold notification occurs whenever the corresponding current 15-minute interval error counter becomes equal to or exceeds the threshold value. Only one notification SHOULD be sent per interval per interface. Since the current 15-minute counter is 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.

Notifications, other than the threshold notifications listed above, SHOULD be rate-limited (throttled) such that there is an implementation-specific gap between the generation of consecutive notifications of the same event. When notifications are rate-



limited, they are dropped and not queued for sending at a future time. This is intended to be a general rate-limiting statement for notifications that otherwise have no explicit rate-limiting assertions in this document.

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.

### 3. Definitions

ADSL2-LINE-TC-MIB DEFINITIONS ::= BEGIN

IMPORTS

MODULE-IDENTITY,  
transmission  
FROM SNMPv2-SMI

TEXTUAL-CONVENTION  
FROM SNMPv2-TC;

adsl2TCMIB MODULE-IDENTITY

LAST-UPDATED "200610040000Z" -- October 4th, 2006

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"

#### DESCRIPTION

"This MIB Module provides Textual Conventions to be used by the ADSL2-LINE-MIB module for the purpose of managing ADSL, ADSL2, and ADSL2+ lines.

Copyright (C) The Internet Society (2006). This version of this MIB module is part of RFC 4706: see the RFC itself for full legal notices."

REVISION "200610040000Z" -- October 4th, 2006

DESCRIPTION "Initial version, published as RFC 4706."

::= { transmission 238 2 } -- adsl2MIB 2

```
-----
--          Textual Conventions          --
-----
```

Adsl2Unit ::= TEXTUAL-CONVENTION

STATUS current

#### DESCRIPTION

"Identifies a transceiver as being either an ATU-C or an ATU-R. An ADSL line consists of two transceivers, an ATU-C and an ATU-R. Attributes with this syntax reference the two sides of a line. Specified as an INTEGER, the two values

are:

```

    atuc(1)  -- Central office ADSL terminal unit (ATU-C).
    atur(2)  -- Remote ADSL terminal unit (ATU-R).
SYNTAX      INTEGER {
                atuc(1),
                atur(2)
            }

```

Adsl2Direction ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Identifies the direction of a band as being either upstream or downstream. Specified as an INTEGER, the two values are:  
upstream(1), and  
downstream(2)."

```

SYNTAX INTEGER {
    upstream(1),
    downstream(2)
}

```

Adsl2TransmissionModeType ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"A set of ADSL2 line transmission modes, with one bit per mode. The notes (F) and (L) denote Full-Rate and Lite/splitterless, respectively:

```

    Bit 00 : Regional Std. (ANSI T1.413) (F)
    Bit 01 : Regional Std. (ETSI DTS/TM06006) (F)
    Bit 02 : G.992.1 POTS non-overlapped (F)
    Bit 03 : G.992.1 POTS overlapped (F)
    Bit 04 : G.992.1 ISDN non-overlapped (F)
    Bit 05 : G.992.1 ISDN overlapped (F)
    Bit 06 : G.992.1 TCM-ISDN non-overlapped (F)
    Bit 07 : G.992.1 TCM-ISDN overlapped (F)
    Bit 08 : G.992.2 POTS non-overlapped (L)
    Bit 09 : G.992.2 POTS overlapped (L)
    Bit 10 : G.992.2 with TCM-ISDN non-overlapped (L)
    Bit 11 : G.992.2 with TCM-ISDN overlapped (L)
    Bit 12 : G.992.1 TCM-ISDN symmetric (F) -- not in G.997.1
    Bit 13-17: Reserved
    Bit 18 : G.992.3 POTS non-overlapped (F)
    Bit 19 : G.992.3 POTS overlapped (F)
    Bit 20 : G.992.3 ISDN non-overlapped (F)
    Bit 21 : G.992.3 ISDN overlapped (F)

```

```

Bit 22-23: Reserved
Bit 24 : G.992.4 POTS non-overlapped (L)
Bit 25 : G.992.4 POTS overlapped (L)
Bit 26-27: Reserved
Bit 28 : G.992.3 Annex I All-Digital non-overlapped (F)
Bit 29 : G.992.3 Annex I All-Digital overlapped (F)
Bit 30 : G.992.3 Annex J All-Digital non-overlapped (F)
Bit 31 : G.992.3 Annex J All-Digital overlapped (F)
Bit 32 : G.992.4 Annex I All-Digital non-overlapped (L)
Bit 33 : G.992.4 Annex I All-Digital overlapped (L)
Bit 34 : G.992.3 Annex L POTS non-overlapped, mode 1,
        wide U/S (F)
Bit 35 : G.992.3 Annex L POTS non-overlapped, mode 2,
        narrow U/S(F)
Bit 36 : G.992.3 Annex L POTS overlapped, mode 3,
        wide U/S (F)
Bit 37 : G.992.3 Annex L POTS overlapped, mode 4,
        narrow U/S (F)
Bit 38 : G.992.3 Annex M POTS non-overlapped (F)
Bit 39 : G.992.3 Annex M POTS overlapped (F)
Bit 40 : G.992.5 POTS non-overlapped (F)
Bit 41 : G.992.5 POTS overlapped (F)
Bit 42 : G.992.5 ISDN non-overlapped (F)
Bit 43 : G.992.5 ISDN overlapped (F)
Bit 44-45: Reserved
Bit 46 : G.992.5 Annex I All-Digital non-overlapped (F)
Bit 47 : G.992.5 Annex I All-Digital overlapped (F)
Bit 48 : G.992.5 Annex J All-Digital non-overlapped (F)
Bit 49 : G.992.5 Annex J All-Digital overlapped (F)
Bit 50 : G.992.5 Annex M POTS non-overlapped (F)
Bit 51 : G.992.5 Annex M POTS overlapped (F)
Bit 52-55: Reserved"

```

```
SYNTAX      BITS {
                ansit1413(0),
                etsi(1),
                g9921PotsNonOverlapped(2),
                g9921PotsOverlapped(3),
                g9921IsdnNonOverlapped(4),
                g9921IsdnOverlapped(5),
                g9921tcmIsdnNonOverlapped(6),
                g9921tcmIsdnOverlapped(7),
                g9922potsNonOverlapped(8),
                g9922potsOverlapped(9),
                g9922tcmIsdnNonOverlapped(10),
                g9922tcmIsdnOverlapped(11),
                g9921tcmIsdnSymmetric(12),
                reserved1(13),
                reserved2(14),
```

```

    reserved3(15),
    reserved4(16),
    reserved5(17),
    g9923PotsNonOverlapped(18),
    g9923PotsOverlapped(19),
    g9923IsdnNonOverlapped(20),
    g9923isdnOverlapped(21),
    reserved6(22),
    reserved7(23),
    g9924potsNonOverlapped(24),
    g9924potsOverlapped(25),
    reserved8(26),
    reserved9(27),
    g9923AnnexIAAllDigNonOverlapped(28),
    g9923AnnexIAAllDigOverlapped(29),
    g9923AnnexJAllDigNonOverlapped(30),
    g9923AnnexJAllDigOverlapped(31),
    g9924AnnexIAAllDigNonOverlapped(32),
    g9924AnnexIAAllDigOverlapped(33),
    g9923AnnexLModelNonOverlapped(34),
    g9923AnnexLMode2NonOverlapped(35),
    g9923AnnexLMode3Overlapped(36),
    g9923AnnexLMode4Overlapped(37),
    g9923AnnexMPotsNonOverlapped(38),
    g9923AnnexMPotsOverlapped(39),
    g9925PotsNonOverlapped(40),
    g9925PotsOverlapped(41),
    g9925IsdnNonOverlapped(42),
    g9925isdnOverlapped(43),
    reserved10(44),
    reserved11(45),
    g9925AnnexIAAllDigNonOverlapped(46),
    g9925AnnexIAAllDigOverlapped(47),
    g9925AnnexJAllDigNonOverlapped(48),
    g9925AnnexJAllDigOverlapped(49),
    g9925AnnexMPotsNonOverlapped(50),
    g9925AnnexMPotsOverlapped(51),
    reserved12(52),
    reserved13(53),
    reserved14(54),
    reserved15(55)
}

```

Adsl2RaMode ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Specifies the rate adaptation behavior for the line.  
The three possible behaviors are:

```

manual(1)      - No Rate-Adaptation.  The initialization
                  process attempts to synchronize to a
                  specified rate.
raInit(2)      - Rate-Adaptation during initialization process
                  only, which attempts to synchronize to a rate
                  between minimum and maximum specified values.
dynamicRa(3)   - Dynamic Rate-Adaptation during initialization
                  process as well as during SHOWTIME."
SYNTAX         INTEGER {
                  manual(1),
                  raInit(2),
                  dynamicRa(3)
                  }

```

Adsl2InitResult ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Specifies the result of a full initialization attempt; the six possible result values are:

```

noFail(0)      - Successful initialization.
configError(1) - Configuration failure.
configNotFeasible(2) - Configuration details not supported.
commFail(3)    - Communication failure.
noPeerAtu(4)   - Peer ATU not detected.
otherCause(5)  - Other initialization failure reason.

```

The values used are as defined in ITU-T G.997.1, paragraph 7.5.1.3"

```

SYNTAX         INTEGER {
                  noFail(0),
                  configError(1),
                  configNotFeasible(2),
                  commFail(3),
                  noPeerAtu(4),
                  otherCause(5)
                  }

```

Adsl2OperationModes ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"The ADSL2 management model specified includes an ADSL Mode attribute that identifies an instance of ADSL Mode-Specific PSD Configuration object in the ADSL Line Profile. The following classes of ADSL operating mode are defined. The notes (F) and (L) denote Full-Rate and Lite/splitterless respectively:

Value	ADSL operation mode description
1	- The default/generic PSD configuration. Default configuration will be used when no other matching mode-specific configuration can be found.
2	- ADSL family. The attributes included in the Mode-Specific PSD Configuration are irrelevant for ITU-T G.992.1 and G.992.2 ADSL modes. Hence, it is possible to map those modes to this generic class.
3-7	- Unused. Reserved for future ITU-T specification.
8	- G.992.3 POTS non-overlapped (F)
9	- G.992.3 POTS overlapped (F)
10	- G.992.3 ISDN non-overlapped (F)
11	- G.992.3 ISDN overlapped (F)
12-13	- Unused. Reserved for future ITU-T specification.
14	- G.992.4 POTS non-overlapped (L)
15	- G.992.4 POTS overlapped (L)
16-17	- Unused. Reserved for future ITU-T specification.
18	- G.992.3 Annex I All-Digital non-overlapped (F)
19	- G.992.3 Annex I All-Digital overlapped (F)
20	- G.992.3 Annex J All-Digital non-overlapped (F)
21	- G.992.3 Annex J All-Digital overlapped (F)
22	- G.992.4 Annex I All-Digital non-overlapped (L)
23	- G.992.4 Annex I All-Digital overlapped (L)
24	- G.992.3 Annex L POTS non-overlapped, mode 1, wide U/S (F)
25	- G.992.3 Annex L POTS non-overlapped, mode 2, narrow U/S (F)
26	- G.992.3 Annex L POTS overlapped, mode 3, wide U/S (F)
27	- G.992.3 Annex L POTS overlapped, mode 4, narrow U/S (F)
28	- G.992.3 Annex M POTS non-overlapped (F)
29	- G.992.3 Annex M POTS overlapped (F)
30	- G.992.5 POTS non-overlapped (F)
31	- G.992.5 POTS overlapped (F)
32	- G.992.5 ISDN non-overlapped (F)
33	- G.992.5 ISDN overlapped (F)
34-35	- Unused. Reserved for future ITU-T specification.
36	- G.992.5 Annex I All-Digital non-overlapped (F)
37	- G.992.5 Annex I All-Digital overlapped (F)
38	- G.992.5 Annex J All-Digital non-overlapped (F)
39	- G.992.5 Annex J All-Digital overlapped (F)
40	- G.992.5 Annex M POTS non-overlapped (F)
41	- G.992.5 Annex M POTS overlapped (F)

```

"
SYNTAX      INTEGER {
    defMode (1),
    adsl(2),
    g9923PotsNonOverlapped(8),
    g9923PotsOverlapped(9),
    g9923IsdnNonOverlapped(10),
    g9923isdnOverlapped(11),
    g9924potsNonOverlapped(14),
    g9924potsOverlapped(15),
    g9923AnnexIAllDigNonOverlapped(18),
    g9923AnnexIAllDigOverlapped(19),
    g9923AnnexJAllDigNonOverlapped(20),
    g9923AnnexJAllDigOverlapped(21),
    g9924AnnexIAllDigNonOverlapped(22),
    g9924AnnexIAllDigOverlapped(23),
    g9923AnnexLModelNonOverlapped(24),
    g9923AnnexLMode2NonOverlapped(25),
    g9923AnnexLMode3Overlapped(26),
    g9923AnnexLMode4Overlapped(27),
    g9923AnnexMPotsNonOverlapped(28),
    g9923AnnexMPotsOverlapped(29),
    g9925PotsNonOverlapped(30),
    g9925PotsOverlapped(31),
    g9925IsdnNonOverlapped(32),
    g9925isdnOverlapped(33),
    g9925AnnexIAllDigNonOverlapped(36),
    g9925AnnexIAllDigOverlapped(37),
    g9925AnnexJAllDigNonOverlapped(38),
    g9925AnnexJAllDigOverlapped(39),
    g9925AnnexMPotsNonOverlapped(40),
    g9925AnnexMPotsOverlapped(41)
}

```

Adsl2PowerMngState ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Attributes with this syntax uniquely identify each power management state defined for the ADSL/ADSL2 or ADSL2+ link.

The possible values are:

- 10(1) - L0 - Full power management state.
- 11(2) - L1 - Low power management state (for G.992.2).
- 12(3) - L2 - Low power management state (for G.992.3, G.992.4, and G.992.5).
- 13(4) - L3 - Idle power management state."

```

SYNTAX      INTEGER {

```



```

        10(1),
        11(2),
        12(3),
        13(4)
    }

```

Adsl2ConfPmsForce ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Attributes with this syntax are configuration parameters that reference the desired power management state for the ADSL/ADSL2 or ADSL2+ link:

```

    13toL0(0)      - Perform a transition from L3 to L0
                    (Full power management state).
    10toL2(2)      - Perform a transition from L0 to L2
                    (Low power management state).
    10orL2toL3(3)  - Perform a transition into L3 (Idle
                    power management state).

```

The values used are as defined in ITU-T G.997.1, paragraph 7.3.1.1.3"

```

SYNTAX      INTEGER {
                13toL0(0),
                10toL2(2),
                10orL2toL3(3)
            }

```

Adsl2LConfProfPmMode ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Attributes with this syntax are configuration parameters that reference the power modes/states into which the ATU-C or ATU-R may autonomously transit.

It is a BITS structure that allows control of the following transit options:

```

    allowTransitionsToIdle(0)      - XTU may autonomously transit
                                    to idle (L3) state.
    allowTransitionsToLowPower(1) - XTU may autonomously transit
                                    to low-power (L2) state."

```

```

SYNTAX BITS {
    allowTransitionsToIdle(0),
    allowTransitionsToLowPower(1)
}

```

Adsl2LineLdsf ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Attributes with this syntax are configuration parameters that control the Loop Diagnostic mode for the ADSL/ADSL2 or ADSL2+ link. The possible values are:

- inhibit(0) - Inhibit Loop Diagnostic mode.
- force(1) - Force/Initiate Loop Diagnostic mode.

The values used are as defined in ITU-T G.997.1, paragraph 7.3.1.1.8"

SYNTAX INTEGER {  
     inhibit(0),  
     force(1)  
 }

Adsl2LdsfResult ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Possible failure reasons associated with performing a Dual Ended Loop Test (DELT) on a DSL line.

Possible values are:

- none(1) - The default value in case LDSF was never requested for the associated line.
- success(2) - The recent command completed successfully.
- inProgress(3) - The Loop Diagnostics process is in progress.
- unsupported(4) - The NE or the line card doesn't support LDSF.
- cannotRun(5) - The NE cannot initiate the command, due to a nonspecific reason.
- aborted(6) - The Loop Diagnostics process aborted.
- failed(7) - The Loop Diagnostics process failed.
- illegalMode(8) - The NE cannot initiate the command, due to the specific mode of the relevant line.
- adminUp(9) - The NE cannot initiate the command, as the relevant line is administratively 'Up'.
- tableFull(10) - The NE cannot initiate the command, due to reaching the maximum number of rows in the results table.
- noResources(11) - The NE cannot initiate the command, due to lack of internal memory resources."

SYNTAX INTEGER {  
     none(1),  
     success(2),

```

    inProgress(3),
    unsupported(4),
    cannotRun(5),
    aborted(6),
    failed(7),
    illegalMode(8),
    adminUp(9),
    tableFull(10),
    noResources(11)
}

```

Adsl2SymbolProtection ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Attributes with this syntax are configuration parameters that reference the minimum-length impulse noise protection (INP) in terms of number of symbols. The possible values are: noProtection (i.e., INP not required), halfSymbol (i.e., INP length is 1/2 symbol), and 1-16 symbols in steps of 1 symbol."

```

SYNTAX      INTEGER {
    noProtection(1),
    halfSymbol(2),
    singleSymbol(3),
    twoSymbols(4),
    threeSymbols(5),
    fourSymbols(6),
    fiveSymbols(7),
    sixSymbols(8),
    sevenSymbols(9),
    eightSymbols(10),
    nineSymbols(11),
    tenSymbols(12),
    elevenSymbols(13),
    twelveSymbols(14),
    thirteenSymbols(15),
    fourteenSymbols(16),
    fifteenSymbols(17),
    sixteenSymbols(18)
}

```

Adsl2MaxBer ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Attributes with this syntax are configuration parameters that reference the maximum Bit Error Rate (BER). The possible values are:

eminus3(1) - Maximum BER=E<sup>-3</sup>

```
        eminus5(2)    - Maximum BER=E^-5
        eminus7(3)    - Maximum BER=E^-7"
SYNTAX      INTEGER {
                    eminus3(1),
                    eminus5(2),
                    eminus7(3)
                }

Adsl2ScMaskDs ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "Each one of the 512 bits in this OCTET
        STRING array represents the corresponding bin
        in the downstream direction. A value of one
        indicates that the bin is not in use."
    SYNTAX      OCTET STRING (SIZE(0..64))

Adsl2ScMaskUs ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "Each one of the 64 bits in this OCTET
        STRING array represents the corresponding bin
        in the upstream direction. A value of one
        indicates that the bin is not in use."
    SYNTAX      OCTET STRING (SIZE(0..8))

Adsl2RfiDs ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "Each one of the 512 bits in this OCTET
        STRING array represents the corresponding bin
        in the downstream direction. A value of one
        indicates that the bin is part of a notch
        filter."
    SYNTAX      OCTET STRING (SIZE(0..64))

Adsl2PsdMaskDs ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "This is a structure that represents up to
        32 PSD Mask breakpoints.
        Each breakpoint occupies 3 octets: The first
        two octets hold the index of the sub-carrier
        associated with the breakpoint. The third octet
        holds the PSD reduction at the breakpoint from 0
        (0 dBm/Hz) to 255 (-127.5 dBm/Hz) using units of
        0.5 dBm/Hz."
    SYNTAX      OCTET STRING (SIZE(0..96))
```

Adsl2PsdMaskUs ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"This is a structure that represents up to 4 PSD Mask breakpoints.

Each breakpoint occupies 3 octets: The first two octets hold the index of the sub-carrier associated with the breakpoint. The third octet holds the PSD reduction at the breakpoint from 0 (0 dBm/Hz) to 255 (-127.5 dBm/Hz) using units of 0.5 dBm/Hz."

SYNTAX OCTET STRING (SIZE(0..12))

Adsl2Tssi ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"This is a structure that represents up to 32 transmit spectrum shaping (TSSi) breakpoints. Each breakpoint occupies 3 octets: The first two octets hold the index of the sub-carrier associated with the breakpoint. The third octet holds the shaping parameter at the breakpoint. It is a value from 0 to 127 (units of -0.5 dB). The special value 127 indicates that the sub-carrier is not transmitted."

SYNTAX OCTET STRING (SIZE(0..96))

Adsl2LastTransmittedState ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"This parameter represents the last successfully transmitted initialization state in the last full initialization performed on the line. States are per the specific xDSL technology and are numbered from 0 (if G.994.1 is used) or 1 (if G.994.1 is not used) up to Showtime."

SYNTAX INTEGER {

atucG9941(0),  
atucQuiet1(1),  
atucComb1(2),  
atucQuiet2(3),  
atucComb2(4),  
atucIcomb1(5),  
atucLineprob(6),  
atucQuiet3(7),  
atucComb3(8),  
atucIComb2(9),  
atucMsgfmt(10),

```
atucMsgpcb(11),
atucQuiet4(12),
atucReverb1(13),
atucTref1(14),
atucReverb2(15),
atucEct(16),
atucReverb3(17),
atucTref2(18),
atucReverb4(19),
atucSegue1(20),
atucMsg1(21),
atucReverb5(22),
atucSegue2(23),
atucMedley(24),
atucExchmarker(25),
atucMsg2(26),
atucReverb6(27),
atucSegue3(28),
atucParams(29),
atucReverb7(30),
atucSegue4(31),
atucShowtime(32),
--
aturG9941(100),
aturQuiet1(101),
aturComb1(102),
aturQuiet2(103),
aturComb2(104),
aturIcomb1(105),
aturLineprob(106),
aturQuiet3(107),
aturComb3(108),
aturIcomb2(109),
aturMsgfmt(110),
aturMsgpcb(111),
aturReverb1(112),
aturQuiet4(113),
aturReverb2(114),
aturQuiet5(115),
aturReverb3(116),
aturEct(117),
aturReverb4(118),
aturSegue1(119),
aturReverb5(120),
aturSegue2(121),
aturMsg1(122),
aturMedley(123),
aturExchmarker(124),
```

```

    aturMsg2(125),
    aturReverb6(126),
    aturSegue3(127),
    aturParams(128),
    aturReverb7(129),
    aturSegue4(130),
    aturShowtime(131)
}

```

Adsl2LineStatus ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Attributes with this syntax are status parameters that reflect the failure status for a given endpoint of ADSL/ADSL2 or ADSL2+ link.

This BITS structure can report the following failures:

noDefect(0)	- This bit position positively reports that no defect or failure exists.
lossOfFrame(1)	- Loss of frame synchronization.
lossOfSignal(2)	- Loss of signal.
lossOfPower(3)	- Loss of power. Usually this failure may be reported for ATU-Rs only.
initFailure(4)	- Recent initialization process failed. Never active on ATU-R."

```

SYNTAX BITS {
    noDefect(0),
    lossOfFrame(1),
    lossOfSignal(2),
    lossOfPower(3),
    initFailure(4)
}

```

Adsl2ChAtmStatus ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Attributes with this syntax are status parameters that reflect the failure status for Transmission Convergence (TC) layer of a given ATM interface (data path over an ADSL/ADSL2 or ADSL2+ link).

This BITS structure can report the following failures:

noDefect(0)	- This bit position positively reports that no defect or failure exists.
noCellDelineation(1)	- The link was successfully

```

                                initialized, but cell delineation
                                was never acquired on the
                                associated ATM data path.
    lossOfCellDelineation(2) - Loss of cell delineation on the
                                associated ATM data path."

SYNTAX BITS {
    noDefect(0),
    noCellDelineation(1),
    lossOfCellDelineation(2)
}

Adsl2ChPtmStatus ::= TEXTUAL-CONVENTION
    STATUS current
    DESCRIPTION
        "Attributes with this syntax are status parameters that
        reflect the failure status for a given PTM interface (packet
        data path over an ADSL/ADSL2 or ADSL2+ link).

        This BITS structure can report the following failures:
            noDefect(0)      - This bit position positively
                             reports that no defect or failure exists.
            outOfSync(1)    - Out of synchronization."

    SYNTAX BITS {
        noDefect(0),
        outOfSync(1)
    }

END
```



```
ADSL2-LINE-MIB DEFINITIONS ::= BEGIN

IMPORTS
    MODULE-IDENTITY,
    OBJECT-TYPE,
    transmission,
    Unsigned32,
    NOTIFICATION-TYPE,
    Integer32,
    Counter32
        FROM SNMPv2-SMI

    ifIndex
        FROM IF-MIB

    TruthValue,
    RowStatus
        FROM SNMPv2-TC

    SnmpAdminString
        FROM SNMP-FRAMEWORK-MIB

    HCPperfIntervalThreshold,
    HCPperfTimeElapsed
        FROM HC-PerfHist-TC-MIB    -- [RFC3705]

    Adsl2Unit,
    Adsl2Direction,
    Adsl2TransmissionModeType,
    Adsl2RaMode,
    Adsl2InitResult,
    Adsl2OperationModes,
    Adsl2PowerMngState,
    Adsl2ConfPmsForce,
    Adsl2LConfProfPmMode,
    Adsl2LineLdsf,
    Adsl2LdsfResult,
    Adsl2SymbolProtection,
    Adsl2MaxBer,
    Adsl2ScMaskDs,
    Adsl2ScMaskUs,
    Adsl2RfiDs,
    Adsl2PsdMaskDs,
    Adsl2PsdMaskUs,
    Adsl2Tssi,
    Adsl2LastTransmittedState,
    Adsl2LineStatus,
    Adsl2ChAtmStatus,
```

Adsl2ChPtmStatus  
FROM ADSL2-LINE-TC-MIB -- [This document]

MODULE-COMPLIANCE,  
OBJECT-GROUP,  
NOTIFICATION-GROUP  
FROM SNMPv2-CONF;

adsl2MIB MODULE-IDENTITY  
LAST-UPDATED "200610040000Z" -- October 4th, 2006  
ORGANIZATION "ADSLMIB Working Group"  
CONTACT-INFO "WG-email: adslmib@ietf.org  
Info: <https://www1.ietf.org/mailman/listinfo/adslmib>

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"  
DESCRIPTION

"  
This document defines a Management Information Base (MIB) module for use with network management protocols in the Internet community for the purpose of managing ADSL, ADSL2, and ADSL2+ lines. The MIB module described in RFC 2662 [RFC2662] describes objects used for managing Asymmetric Bit-Rate DSL (ADSL) interfaces per [T1E1.413], [G.992.1], and [G.992.2]. These object descriptions are based upon the specifications for the ADSL Embedded Operations Channel (EOC) as defined in American National Standards Institute (ANSI) T1E1.413/1995 [T1E1.413] and International Telecommunication Union (ITU-T) G.992.1 [G.992.1] and G.992.2 [G.992.2].

This document does not obsolete RFC 2662 [RFC2662], but rather provides a more comprehensive management model that includes the ADSL2 and ADSL2+ technologies per G.992.3, G.992.4, and G.992.5 ([G.992.3], [G.992.4], and [G.992.5], respectively). In addition, objects have been added to improve the management of ADSL, ADSL2, and ADSL2+ lines.

Additionally, the management framework for New Generation ADSL lines specified by the Digital Subscriber Line Forum (DSL Forum) has been taken into consideration [TR-90]. That framework is based on ITU-T G.997.1 standard [G.997.1] as well as two amendments: [G.997.1am1] and [G.997.1am2].

Note that the revised ITU-T G.997.1 standard also refers to the next generation of VDSL technology, known as VDSL2, per ITU-T G.993.2 [G.993.2]. However, managing VDSL2 lines is currently beyond the scope of this document.

The MIB module is located in the MIB tree under MIB 2 transmission, as discussed in the IANA Considerations section of this document.

Copyright (C) The Internet Society (2006). This version of this MIB module is part of RFC 4706: see the RFC itself for full legal notices."

REVISION "200610040000Z" -- October 4th, 2006  
 DESCRIPTION "Initial version, published as RFC 4706."  
 ::= { transmission 238 }

adsl2 OBJECT IDENTIFIER ::= { adsl2MIB 1 }

-----  
 adsl2Line OBJECT IDENTIFIER ::= { adsl2 1 }  
 adsl2Status OBJECT IDENTIFIER ::= { adsl2 2 }  
 adsl2Inventory OBJECT IDENTIFIER ::= { adsl2 3 }  
 adsl2PM OBJECT IDENTIFIER ::= { adsl2 4 }  
 adsl2Profile OBJECT IDENTIFIER ::= { adsl2 5 }  
 adsl2Scalar OBJECT IDENTIFIER ::= { adsl2 6 }  
 adsl2Notifications OBJECT IDENTIFIER ::= { adsl2 0 }  
 adsl2Conformance OBJECT IDENTIFIER ::= { adsl2 7 }

-----  
 adsl2PMLine OBJECT IDENTIFIER ::= { adsl2PM 1 }  
 adsl2PMChannel OBJECT IDENTIFIER ::= { adsl2PM 2 }

-----  
 adsl2ProfileLine OBJECT IDENTIFIER ::= { adsl2Profile 1 }  
 adsl2ProfileChannel OBJECT IDENTIFIER ::= { adsl2Profile 2 }  
 adsl2ProfileAlarmConf OBJECT IDENTIFIER ::= { adsl2Profile 3 }

-----  
 adsl2ScalarSC OBJECT IDENTIFIER ::= { adsl2Scalar 1 }

-----  
 -- adsl2LineTable --  
 -----

adsl2LineTable OBJECT-TYPE  
 SYNTAX SEQUENCE OF Adsl2LineEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "The table adsl2LineTable contains configuration,  
 command, and status parameters of the ADSL2 line.  
 The index of this table is an interface index where the  
 interface has an ifType of adsl2plus(238).  
  
 Several objects in this table MUST be maintained in a  
 persistent manner."  
 ::= { adsl2Line 1 }

adsl2LineEntry OBJECT-TYPE  
 SYNTAX Adsl2LineEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION

"The table adsl2LineTable contains configuration, commands, and status parameters of the ADSL2 line"

```
INDEX { ifIndex }
 ::= { adsl2LineTable 1 }
```

```
Adsl2LineEntry ::=
SEQUENCE {
    adsl2LineCnfgTemplate          SnmpAdminString,
    adsl2LineAlarmCnfgTemplate    SnmpAdminString,
    adsl2LineCmndConfPmsf         Adsl2ConfPmsForce,
    adsl2LineCmndConfLdsf         Adsl2LineLdsf,
    adsl2LineCmndConfLdsfFailReason Adsl2LdsfResult,
    adsl2LineCmndAutomodeColdStart TruthValue,
    adsl2LineStatusAtuTransSys     Adsl2TransmissionModeType,
    adsl2LineStatusPwrMngState     Adsl2PowerMngState,
    adsl2LineStatusInitResult      Adsl2InitResult,
    adsl2LineStatusLastStateDs     Adsl2LastTransmittedState,
    adsl2LineStatusLastStateUs     Adsl2LastTransmittedState,
    adsl2LineStatusAtur            Adsl2LineStatus,
    adsl2LineStatusAtuc            Adsl2LineStatus,
    adsl2LineStatusLnAttenDs       Unsigned32,
    adsl2LineStatusLnAttenUs       Unsigned32,
    adsl2LineStatusSigAttenDs      Unsigned32,
    adsl2LineStatusSigAttenUs      Unsigned32,
    adsl2LineStatusSnrMarginDs     Integer32,
    adsl2LineStatusSnrMarginUs     Integer32,
    adsl2LineStatusAttainableRateDs Unsigned32,
    adsl2LineStatusAttainableRateUs Unsigned32,
    adsl2LineStatusActPsdDs        Integer32,
    adsl2LineStatusActPsdUs        Integer32,
    adsl2LineStatusActAtpDs        Integer32,
    adsl2LineStatusActAtpUs        Integer32
}
```

adsl2LineCnfgTemplate OBJECT-TYPE

SYNTAX SnmpAdminString (SIZE(1..32))

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The value of this object identifies the row in the ADSL2 Line Configuration Templates Table, (adsl2LineConfTemplateTable), which applies for this ADSL2 line.

This object MUST be maintained in a persistent manner."

REFERENCE "DSL Forum TR-90, paragraph 5.1.1"

DEFVAL { "DEFVAL" }

```
::= { adsl2LineEntry 1 }
```

**adsl2LineAlarmCnfgTemplate OBJECT-TYPE**

SYNTAX SnmpAdminString (SIZE(1..32))

MAX-ACCESS read-write

STATUS current

**DESCRIPTION**

"The value of this object identifies the row in the ADSL2 Line Alarm Configuration Template Table, (adsl2LineAlarmConfTemplateTable), which applies to this ADSL2 line.

This object MUST be maintained in a persistent manner."

REFERENCE "DSL Forum TR-90, paragraph 5.1.1"

DEFVAL { "DEFVAL" }

::= { adsl2LineEntry 2 }

**adsl2LineCmndConfPmsf OBJECT-TYPE**

SYNTAX Adsl2ConfPmsForce

MAX-ACCESS read-write

STATUS current

**DESCRIPTION**

"Power management state forced. Defines the line states to be forced by the near-end ATU on this line. The various possible values are:

l3toL0(0),

l0toL2(2), or

l0orL2toL3(3).

This object MUST be maintained in a persistent manner."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.1.3"

DEFVAL { l3toL0 }

::= { adsl2LineEntry 3 }

**adsl2LineCmndConfLdsf OBJECT-TYPE**

SYNTAX Adsl2LineLdsf

MAX-ACCESS read-write

STATUS current

**DESCRIPTION**

"Loop diagnostics mode forced (LDSF). Defines whether the line should be forced into the loop diagnostics mode by the near-end ATU on this line or only be responsive to loop diagnostics initiated by the far-end ATU.

This object MUST be maintained in a persistent manner.

However, in case the operator forces loop diagnostics mode then the access node should reset the object (inhibit) when loop diagnostics mode procedures are completed."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.1.8"

DEFVAL { inhibit }

```
::= { adsl2LineEntry 4 }
```

```
adsl2LineCmdConfLdsfFailReason OBJECT-TYPE
```

```
SYNTAX      Adsl2LdsfResult
```

```
MAX-ACCESS  read-only
```

```
STATUS      current
```

```
DESCRIPTION
```

"The status of the recent occasion the Loop diagnostics mode forced (LDSF) was issued for the associated line. Possible values are:

- none(1) - The default value in case LDSF was never requested for the associated line.
- success(2) - The recent command completed successfully.
- inProgress(3) - The Loop Diagnostics process is in progress.
- unsupported(4) - The NE or the line card doesn't support LDSF.
- cannotRun(5) - The NE cannot initiate the command, due to a nonspecific reason.
- aborted(6) - The Loop Diagnostics process aborted.
- failed(7) - The Loop Diagnostics process failed.
- illegalMode(8) - The NE cannot initiate the command, due to the specific mode of the relevant line.
- adminUp(9) - The NE cannot initiate the command, as the relevant line is administratively 'Up'.
- tableFull(10) - The NE cannot initiate the command, due to reaching the maximum number of rows in the results table.
- noResources(11) - The NE cannot initiate the command, due to lack of internal memory resources."

```
DEFVAL      { none }
```

```
::= { adsl2LineEntry 5 }
```

```
adsl2LineCmdAutomodeColdStart OBJECT-TYPE
```

```
SYNTAX      TruthValue
```

```
MAX-ACCESS  read-write
```

```
STATUS      current
```

```
DESCRIPTION
```

"Automode cold start forced. This parameter is defined in order to improve testing of the performance of ATUs supporting automode when it is enabled in the MIB. Change the value of this parameter to 'true' indicates a change in loop conditions applied to the devices under test. The ATUs shall reset any historical information used for automode and for shortening G.994.1 handshake

and initialization.

Automode is the case where multiple operation-modes are enabled through the adsl2LConfProfAtuTransSysEna object in the line configuration profile being used for the ADSL line, and where the selection of the actual operation-mode depends not only on the common capabilities of both ATUs (as exchanged in G.994.1), but also on achievable data rates under given loop conditions.

This object MUST be maintained in a persistent manner."

```
REFERENCE      "ITU-T G.997.1 (amendment 1), 7.3.1.1.10"
DEFVAL         { false }
::= { adsl2LineEntry 6 }
```

adsl2LineStatusAtuTransSys OBJECT-TYPE

SYNTAX Adsl2TransmissionModeType

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The ATU Transmission System (ATS) in use.

It is coded in a bit-map representation with only a single bit set to '1' (the selected coding for the ADSL line). This parameter may be derived from the handshaking procedures defined in Recommendation G.994.1. A set of ADSL2 line transmission modes, with one bit per mode."

```
REFERENCE      "ITU-T G.997.1, paragraph 7.3.1.1.1"
::= { adsl2LineEntry 7 }
```

adsl2LineStatusPwrMngState OBJECT-TYPE

SYNTAX Adsl2PowerMngState

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The current power management state. One of four possible power management states:

L0 - Synchronized and full transmission (i.e., Showtime).

L1 - Low Power with reduced net data rate (G.992.2 only).

L2 - Low Power with reduced net data rate (G.992.3 and G.992.4 only).

L3 - No power.

The various possible values are: 10(1), 11(2), 12(3), or 13(4)."

```
REFERENCE      "ITU-T G.997.1, paragraph 7.5.1.2"
::= { adsl2LineEntry 8 }
```



**adsl2LineStatusInitResult OBJECT-TYPE**

SYNTAX Adsl2InitResult

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"Indicates the result of the last full initialization performed on the line. It is an enumeration type with the following values: noFail(0), configError(1), configNotFeasible(2), commFail(3), noPeerAtu(4), or otherCause(5)."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.3"

::= { adsl2LineEntry 9 }

**adsl2LineStatusLastStateDs OBJECT-TYPE**

SYNTAX Adsl2LastTransmittedState

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"The last successful transmitted initialization state in the downstream direction in the last full initialization performed on the line."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.4"

::= { adsl2LineEntry 10 }

**adsl2LineStatusLastStateUs OBJECT-TYPE**

SYNTAX Adsl2LastTransmittedState

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"The last successful transmitted initialization state in the upstream direction in the last full initialization performed on the line."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.5"

::= { adsl2LineEntry 11 }

**adsl2LineStatusAtur OBJECT-TYPE**

SYNTAX Adsl2LineStatus

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"Indicates current state (existing failures) of the ATU-R. This is a bit-map of possible conditions."

REFERENCE "ITU-T G.997.1, paragraph 7.1.1.2"

::= { adsl2LineEntry 12 }

**adsl2LineStatusAtuc OBJECT-TYPE**

SYNTAX Adsl2LineStatus

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"Indicates current state (existing failures) of the ATU-C.  
This is a bit-map of possible conditions."

REFERENCE "ITU-T G.997.1, paragraph 7.1.1.1"  
 ::= { adsl2LineEntry 13 }

## adsl2LineStatusLnAttenDs OBJECT-TYPE

SYNTAX Unsigned32 (0..1270 | 2147483646 | 2147483647)

UNITS "0.1 dB"

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"The measured difference in the total power transmitted by the ATU-C and the total power received by the ATU-R over all sub-carriers during diagnostics mode and initialization. It ranges from 0 to 1270 units of 0.1 dB (physical values are 0 to 127 dB).

A special value of 0x7FFFFFFF (2147483647) indicates the line attenuation is out of range to be represented.

A special value of 0x7FFFFFFE (2147483646) indicates the line attenuation measurement is currently unavailable."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.6"  
 ::= { adsl2LineEntry 14 }

## adsl2LineStatusLnAttenUs OBJECT-TYPE

SYNTAX Unsigned32 (0..1270 | 2147483646 | 2147483647)

UNITS "0.1 dB"

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"The measured difference in the total power transmitted by the ATU-R and the total power received by the ATU-C over all sub-carriers during diagnostics mode and initialization. It ranges from 0 to 1270 units of 0.1 dB (physical values are 0 to 127 dB).

A special value of 0x7FFFFFFF (2147483647) indicates the line attenuation is out of range to be represented.

A special value of 0x7FFFFFFE (2147483646) indicates the line attenuation measurement is currently unavailable."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.7"  
 ::= { adsl2LineEntry 15 }

## adsl2LineStatusSigAttenDs OBJECT-TYPE

SYNTAX Unsigned32 (0..1270 | 2147483646 | 2147483647)

UNITS "0.1 dB"

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"The measured difference in the total power transmitted by the ATU-C and the total power received by the ATU-R over all sub-carriers during Showtime. It ranges from 0 to 1270 units of 0.1 dB (physical values are 0 to 127 dB).

A special value of 0x7FFFFFFF (2147483647) indicates the signal attenuation is out of range to be represented.

A special value of 0x7FFFFFFE (2147483646) indicates the signal attenuation measurement is currently unavailable."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.8"

::= { adsl2LineEntry 16 }

adsl2LineStatusSigAttenUs OBJECT-TYPE

SYNTAX Unsigned32 (0..1270 | 2147483646 | 2147483647)

UNITS "0.1 dB"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The measured difference in the total power transmitted by the ATU-R and the total power received by the ATU-C over all sub-carriers during Showtime. It ranges from 0 to 1270 units of 0.1 dB (physical values are 0 to 127 dB).

A special value of 0x7FFFFFFF (2147483647) indicates the signal attenuation is out of range to be represented.

A special value of 0x7FFFFFFE (2147483646) indicates the signal attenuation measurement is currently unavailable."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.9"

::= { adsl2LineEntry 17 }

adsl2LineStatusSnrMarginDs OBJECT-TYPE

SYNTAX Integer32 (-640..630 | 2147483646 | 2147483647)

UNITS "0.1 dB"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Downstream SNR Margin is the maximum increase in dB of the noise power received at the ATU-R, such that the BER requirements are met for all downstream bearer channels. It ranges from -640 to 630 units of 0.1 dB (physical values are -64 to 63 dB).

A special value of 0x7FFFFFFF (2147483647) indicates the SNR Margin is out of range to be represented.

A special value of 0x7FFFFFFE (2147483646) indicates the SNR Margin measurement is currently unavailable."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.10"

::= { adsl2LineEntry 18 }

adsl2LineStatusSnrMarginUs OBJECT-TYPE

SYNTAX Integer32 (-640..630 | 2147483646 | 2147483647)

```

UNITS          "0.1 dB"
MAX-ACCESS     read-only
STATUS         current
DESCRIPTION    "Upstream SNR Margin is the maximum increase in dB of the noise
                power received at the ATU-C, such that the BER requirements
                are met for all downstream bearer channels. It ranges from
                -640 to 630 units of 0.1 dB (physical values are -64 to
                63 dB).
                A special value of 0x7FFFFFFF (2147483647) indicates the
                SNR Margin is out of range to be represented.
                A special value of 0x7FFFFFFE (2147483646) indicates the
                SNR Margin measurement is currently unavailable."
REFERENCE      "ITU-T G.997.1, paragraph 7.5.1.11"
 ::= { adsl2LineEntry 19 }

```

```
adsl2LineStatusAttainableRateDs OBJECT-TYPE
```

```

SYNTAX         Unsigned32
UNITS          "bits/second"
MAX-ACCESS     read-only
STATUS         current
DESCRIPTION    "Maximum Attainable Data Rate Downstream.
                The maximum downstream net data rate currently attainable by
                the ATU-C transmitter and the ATU-R receiver, coded in
                bits/second."
REFERENCE      "ITU-T G.997.1, paragraph 7.5.1.12"
 ::= { adsl2LineEntry 20 }

```

```
adsl2LineStatusAttainableRateUs OBJECT-TYPE
```

```

SYNTAX         Unsigned32
UNITS          "bits/second"
MAX-ACCESS     read-only
STATUS         current
DESCRIPTION    "Maximum Attainable Data Rate Upstream.
                The maximum upstream net data rate currently attainable by the
                ATU-R transmitter and the ATU-C receiver, coded in
                bits/second."
REFERENCE      "ITU-T G.997.1, paragraph 7.5.1.13"
 ::= { adsl2LineEntry 21 }

```

```
adsl2LineStatusActPsdDs OBJECT-TYPE
```

```

SYNTAX         Integer32 (-900..0 | 2147483647)
UNITS          "0.1 dB"
MAX-ACCESS     read-only
STATUS         current
DESCRIPTION

```

"Actual Power Spectrum Density (PSD) Downstream. The average downstream transmit PSD over the sub-carriers used for downstream. It ranges from -900 to 0 units of 0.1 dB (physical values are -90 to 0 dBm/Hz).

A value of 0x7FFFFFFF (2147483647) indicates the measurement is out of range to be represented."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.14"

::= { adsl2LineEntry 22 }

#### adsl2LineStatusActPsdUs OBJECT-TYPE

SYNTAX Integer32 (-900..0 | 2147483647)

UNITS "0.1 dB"

MAX-ACCESS read-only

STATUS current

#### DESCRIPTION

"Actual Power Spectrum Density (PSD) Upstream. The average upstream transmit PSD over the sub-carriers used for upstream. It ranges from -900 to 0 units of 0.1 dB (physical values are -90 to 0 dBm/Hz).

A value of 0x7FFFFFFF (2147483647) indicates the measurement is out of range to be represented."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.15"

::= { adsl2LineEntry 23 }

#### adsl2LineStatusActAtpDs OBJECT-TYPE

SYNTAX Integer32 (-310..310 | 2147483647)

UNITS "0.1 dB"

MAX-ACCESS read-only

STATUS current

#### DESCRIPTION

"Actual Aggregate Transmit Power Downstream. The total amount of transmit power delivered by the ATU-C at the U-C reference point, at the instant of measurement. It ranges from -310 to 310 units of 0.1 dB (physical values are -31 to 31 dBm).

A value of 0x7FFFFFFF (2147483647) indicates the measurement is out of range to be represented."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.16"

::= { adsl2LineEntry 24 }

#### adsl2LineStatusActAtpUs OBJECT-TYPE

SYNTAX Integer32 (-310..310 | 2147483647)

UNITS "0.1 dB"

MAX-ACCESS read-only

STATUS current

#### DESCRIPTION

"Actual Aggregate Transmit Power Upstream. The total amount of transmit power delivered by the ATU-R at the U-R reference point, at the instant of measurement. It ranges

from -310 to 310 units of 0.1 dB (physical values are -31 to 31 dBm).

A value of 0x7FFFFFFF (2147483647) indicates the measurement is out of range to be represented."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.17"  
 ::= { adsl2LineEntry 25 }

```
-----
--          adsl2ChannelStatusTable          --
-----
```

adsl2ChannelStatusTable OBJECT-TYPE  
 SYNTAX SEQUENCE OF Adsl2ChannelStatusEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "The table adsl2ChannelStatusTable contains status parameters of the ADSL2 channel. This table contains live data from equipment."  
 ::= { adsl2Status 1 }

adsl2ChannelStatusEntry OBJECT-TYPE  
 SYNTAX Adsl2ChannelStatusEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "The table adsl2ChannelStatusTable contains status parameters of the ADSL2 channel.  
 The index of this table consists of an interface index, where the interface has an ifType value that is applicable for a DSL channel, along with a termination unit."  
 INDEX { ifIndex, adsl2ChStatusUnit }  
 ::= { adsl2ChannelStatusTable 1 }

Adsl2ChannelStatusEntry ::=

SEQUENCE {	
adsl2ChStatusUnit	Adsl2Unit,
adsl2ChStatusChannelNum	Unsigned32,
adsl2ChStatusActDataRate	Unsigned32,
adsl2ChStatusPrevDataRate	Unsigned32,
adsl2ChStatusActDelay	Unsigned32,
adsl2ChStatusAtmStatus	Adsl2ChAtmStatus,
adsl2ChStatusPtmStatus	Adsl2ChPtmStatus
}	

adsl2ChStatusUnit OBJECT-TYPE  
 SYNTAX Adsl2Unit  
 MAX-ACCESS not-accessible

```

STATUS          current
DESCRIPTION
    "The termination unit atuc(1) or atur(2)."
```

::= { adsl2ChannelStatusEntry 1 }

```

adsl2ChStatusChannelNum  OBJECT-TYPE
SYNTAX             Unsigned32
MAX-ACCESS         read-only
STATUS             current
DESCRIPTION
    "Provides the bearer channel number associated with this
    row (i.e., the channel ifIndex).
    This enables determining the channel configuration profile
    and the channel thresholds profile applicable for this
    bearer channel."
```

::= { adsl2ChannelStatusEntry 2 }

```

adsl2ChStatusActDataRate  OBJECT-TYPE
SYNTAX             Unsigned32(0..200000000)
UNITS              "bits/second"
MAX-ACCESS         read-only
STATUS             current
DESCRIPTION
    "The actual net data rate that the bearer channel is operating
    at, if in L0 power management state.  In L1 or L2 states, it
    relates to the previous L0 state.  The data rate is coded in
    bits/second."
```

REFERENCE "ITU-T G.997.1, paragraph 7.5.2.1"

::= { adsl2ChannelStatusEntry 3 }

```

adsl2ChStatusPrevDataRate  OBJECT-TYPE
SYNTAX             Unsigned32(0..200000000)
UNITS              "bits/second"
MAX-ACCESS         read-only
STATUS             current
DESCRIPTION
    "The previous net data rate that the bearer channel was
    operating at just before the latest rate change event.  This
    could be a full or short initialization, fast retrain, DRA or
    power management transitions, excluding transitions between L0
    state and L1 or L2 states.  The data rate is coded in
    bits/second."
```

REFERENCE "ITU-T G.997.1, paragraph 7.5.2.2"

::= { adsl2ChannelStatusEntry 4 }

```

adsl2ChStatusActDelay  OBJECT-TYPE
SYNTAX             Unsigned32(0..8176)
UNITS              "milliseconds"
```

```

MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
    "The actual one-way interleaving delay introduced by the
    PMS-TC in the direction of the bearer channel, if in L0
    power management state.  In L1 or L2 states, it relates to
    the previous L0 state.  It is coded in ms (rounded to the
    nearest ms)."
```

REFERENCE "ITU-T G.997.1, paragraph 7.5.2.3"

```
 ::= { adsl2ChannelStatusEntry 5 }
```

```
adsl2ChStatusAtmStatus  OBJECT-TYPE
SYNTAX                Adsl2ChAtmStatus
MAX-ACCESS            read-only
STATUS                current
DESCRIPTION
    "Indicates the current state (existing failures) of the ADSL
    channel in case its Data Path is ATM.  This is a bit-map of
    possible conditions.  The various bit positions are:
        noDefect(0),
        noCellDelineation(1), or
        lossOfCellDelineation(2).
    In the case where the channel is not an ATM Data Path, the
    object is set to '0'."
```

REFERENCE "ITU-T G.997.1, paragraph 7.1.4"

```
 ::= { adsl2ChannelStatusEntry 6 }
```

```
adsl2ChStatusPtmStatus  OBJECT-TYPE
SYNTAX                Adsl2ChPtmStatus
MAX-ACCESS            read-only
STATUS                current
DESCRIPTION
    "Indicates the current state (existing failures) of the ADSL
    channel in case its Data Path is PTM.  This is a bit-map of
    possible conditions.  The various bit positions are:
        noDefect(0), or
        outOfSync(1).
    In the case where the channel is not a PTM Data Path, the
    object is set to '0'."
```

REFERENCE "ITU-T G.997.1, paragraph 7.1.5"

```
 ::= { adsl2ChannelStatusEntry 7 }
```

```

-----
--          Scalars that relate to the adsl2SCStatusTable.
-----
```

```
adsl2ScalarSCMaxInterfaces  OBJECT-TYPE
```



SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This value determines the upper size of adsl2SCStatusTable.

The maximum number of entries in adsl2SCStatusTable is equal

to two times the value of this attribute."

::= { adsl2ScalarSC 1 }

adsl2ScalarSCAvailInterfaces OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This value determines the amount of space that is

currently available in adsl2SCStatusTable.

The number of entries available in adsl2SCStatusTable is equal

to two times the value of this attribute."

::= { adsl2ScalarSC 2 }

```
-----
--          adsl2SCStatusTable          --
-----
```

adsl2SCStatusTable OBJECT-TYPE

SYNTAX SEQUENCE OF Adsl2SCStatusEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The table adsl2SCStatusTable contains status parameters of the ADSL2 sub-carriers. The following points apply to this table:

1. The main purpose of this table is to hold the results of a DELT.
2. This table also holds parameters obtained at line initialization time.
3. The rows in this table are volatile; that is, they are lost if the SNMP agent is rebooted.
4. Due to the large OCTET STRING attributes in this table, the worst case memory requirements for this table are very high. The manager may use the row status attribute of this table to delete rows in order to reclaim memory.
5. The manager may create rows in this table. The SNMP agent may create rows in this table. Only the manager may delete rows in this table.
6. The maximum number of rows allowable in this table is indicated by the scalar attribute adsl2ScalarSCMaxInterfaces.

- The number of rows available in this table is indicated by the scalar attribute `adsl2ScalarSCAvailInterfaces`.
7. The SNMP agent is permitted to create rows in this table when a DELT completes successfully or when line initialization occurs. It is not mandatory for the SNMP agent to create rows in this table; hence, it may be necessary for the manager to create rows in this table before any results can be stored.
  8. If the manager attempts to create a row in this table and there are no more rows available, the creation attempt will fail, and the response to the SNMP SET PDU will contain the error `noCreation(11)`.
  9. If the SNMP agent attempts to create a row in this table and there are no more rows available, the creation attempt will fail, and the attribute `adsl2LineCmndConflDsfFailReason` will indicate the reason for the failure. The failure reason will be either `tableFull(10)` or `noResources(11)`.
  10. An example of use of this table is as follows:
    - Step 1. : The DELT is started by setting the  
          : `adsl2LineCmndConflDsf` from `inhibit` to `force`.
    - Step 2. : The DELT completes, and valid data is  
          : available.
    - Step 3. : The row in the `adsl2SCStatusTable` where the  
          : results will be stored does not yet exist so  
          : the SNMP agent attempts to create the row.
    - Step 4. : Due to a low memory condition, a row in the  
          : `adsl2SCStatusTable` table cannot be created at  
          : this time.
    - Step 5. : The reason for the failure, `tableFull(10)`, is  
          : indicated in the `adsl2LineCmndConflDsfFailReason`  
          : attribute.
  11. Another example of use of this table is as follows :
    - Step 1. : The DELT is started by setting the  
          : `adsl2LineCmndConflDsf` from `inhibit` to `force`.
    - Step 2. : The DELT completes and valid data is  
          : available.
    - Step 3. : The row in the `adsl2SCStatusTable` where the  
          : results will be stored does not yet exist so  
          : the SNMP agent attempts to create the row.
    - Step 4. : The row creation is successful.
    - Step 5. : The value of the attribute  
          : `adsl2LineCmndConflDsfFailReasonreason` is set  
          : to `success(2)`.
  12. Another example of use of this table is as follows:
    - Step 1. : The manager creates a row in `adsl2SCStatusTable`  
          : for a particular ADSL2 line.
    - Step 2. : The DELT is started on the above-mentioned

```

        : line by setting the adsl2LineCmndConfLdsf from
        : inhibit to force.
Step 3. : The DELT completes, and valid data is
        : available.
Step 4. : The value of the attribute
        : adsl2LineCmndConfLdsfFailReasonreason is set
        : to success(2).
 ::= { adsl2Status 2 }

adsl2SCStatusEntry OBJECT-TYPE
SYNTAX      Adsl2SCStatusEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The table Adsl2SCStatusEntry contains status parameters
    of the ADSL2 sub-carriers.
    The index of this table is an interface index where the
    interface has an ifType of adsl2plus(238)."
```

INDEX { ifIndex, adsl2SCStatusDirection }
::= { adsl2SCStatusTable 1 }

```

Adsl2SCStatusEntry ::=
SEQUENCE {
    adsl2SCStatusDirection      Adsl2Direction,
    adsl2SCStatusMtime          Unsigned32,
    adsl2SCStatusSnr            OCTET STRING,
    adsl2SCStatusBitsAlloc      OCTET STRING,
    adsl2SCStatusGainAlloc      OCTET STRING,
    adsl2SCStatusTssi           Adsl2Tssi,
    adsl2SCStatusLinScale       Unsigned32,
    adsl2SCStatusLinReal        OCTET STRING,
    adsl2SCStatusLinImg         OCTET STRING,
    adsl2SCStatusLogMt          Unsigned32,
    adsl2SCStatusLog            OCTET STRING,
    adsl2SCStatusQlnMt          Unsigned32,
    adsl2SCStatusQln            OCTET STRING,
    adsl2SCStatusLnAtten        Unsigned32,
    adsl2SCStatusSigAtten       Unsigned32,
    adsl2SCStatusSnrMargin      Integer32,
    adsl2SCStatusAttainableRate Unsigned32,
    adsl2SCStatusActAtp         Integer32,
    adsl2SCStatusRowStatus      RowStatus
}

adsl2SCStatusDirection OBJECT-TYPE
SYNTAX      Adsl2Direction
MAX-ACCESS  not-accessible
STATUS      current
```

## DESCRIPTION

"The direction of the sub-carrier is either upstream or downstream."

::= { adsl2SCStatusEntry 1 }

## adsl2SCStatusMtime OBJECT-TYPE

SYNTAX Unsigned32

UNITS "symbols"

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"SNR Measurement Time. The number of symbols used to measure the SNR values on the respective transmission direction. It should correspond to the value specified in the recommendation (e.g., the number of symbols in 1 second time interval for G.992.3). This parameter corresponds to 1 second in loop diagnostic procedure and should be updated otherwise."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.20.1 (SNRMTds)  
and paragraph 7.5.1.20.3 (SNRMTus)"

::= { adsl2SCStatusEntry 2 }

## adsl2SCStatusSnr OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0..512))

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"The SNR Margin per sub-carrier, expressing the ratio between the received signal power and received noise power per subscriber. It is an array of 512 octets, designed for supporting up to 512 (downstream) sub-carriers. The number of utilized octets on downstream direction depends on NSCds, and on upstream direction it depends on NSCus. This value is referred to here as NSC.

Octet  $i$  ( $0 \leq i < \text{NSC}$ ) is set to a value in the range 0 to 254 to indicate that the respective downstream or upstream sub-carrier  $i$  has SNR of:  $(-32 + \text{Adsl2SubcarrierSnr}(i)/2)$  in dB (i.e., -32 to 95dB).

The special value 255 means that no measurement could be done for the subcarrier because it is out of the PSD mask passband or that the noise PSD is out of range to be represented.

Each value in this array is 8 bits wide."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.20.2 (SNRpsds)  
and paragraph 7.5.1.20.4 (SNRpsus)"

::= { adsl2SCStatusEntry 3 }

## adsl2SCStatusBitsAlloc OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0..256))

```

UNITS          "bits"
MAX-ACCESS     read-only
STATUS         current
DESCRIPTION
    "The bits allocation per sub-carrier.  An array of 256 octets
    (512 nibbles), designed for supporting up to 512 (downstream)
    sub-carriers.
    The number of utilized nibbles on downstream direction depends
    on NSCds, and on upstream direction it depends on NSCus.  This
    value is referred to here as NSC.
    Nibble i (0 <= i < NSC) is set to a value in the range 0
    to 15 to indicate that the respective downstream or upstream
    sub-carrier i has the same amount of bits allocation."
REFERENCE      "ITU-T G.997.1, paragraph 7.5.1.21.1 (BITSpsds)
                and paragraph 7.5.1.21.2 (BITSpsus)"
 ::= { adsl2SCStatusEntry 4 }

adsl2SCStatusGainAlloc OBJECT-TYPE
SYNTAX         OCTET STRING (SIZE(0..1024))
MAX-ACCESS     read-only
STATUS         current
DESCRIPTION
    "The gain allocation per sub-carrier.  An array of 512 16-bits
    values, designed for supporting up to 512 (downstream) sub-
    carriers.
    The number of utilized octets on downstream direction depends
    on NSCds, and on upstream direction it depends on NSCus.  This
    value is referred to here as NSC.
    Value i (0 <= i < NSC) is in the range 0 to 4093 to indicate
    that the respective downstream or upstream sub-carrier i has the
    same amount of gain value.
    The gain value is represented as a multiple of 1/512 on a
    linear scale.  Each value in this array is 16 bits wide and is
    stored in big endian format."
REFERENCE      "ITU-T G.997.1, paragraph 7.5.1.21.3 (GAINSpds)
                and paragraph 7.5.1.21.4 (GAINSpus)"
 ::= { adsl2SCStatusEntry 5 }

adsl2SCStatusTssi OBJECT-TYPE
SYNTAX         Adsl2Tssi
MAX-ACCESS     read-only
STATUS         current
DESCRIPTION
    "The transmit spectrum shaping (TSSI) breakpoints expressed
    as the set of breakpoints exchanged during G.994.1.
    Each breakpoint is a pair of values occupying 3 octets with the
    following structure:
    First 2 octets - Index of the subcarrier used in the context of

```

the breakpoint.

Third octet - The shaping parameter at the breakpoint.  
Subcarrier index is an unsigned number in the range 1 to either NSCds (downstream direction) or NSCus (upstream direction).  
The shaping parameter value is in the range 0 to 127 (units of -0.5dB). The special value 127 indicates that the subcarrier is not transmitted."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.21.5 (TSSpsds)  
and paragraph 7.5.1.21.6 (TSSpsus)"  
::= { adsl2SCStatusEntry 6 }

adsl2SCStatusLinScale OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The scale factor to be applied to the H(f) linear representation values for the respective transmission direction. This parameter is only available after a loop diagnostic procedure."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.18.1 (HLINSCds)  
and paragraph 7.5.1.18.5 (HLINSCus)"  
::= { adsl2SCStatusEntry 7 }

adsl2SCStatusLinReal OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0..1024))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An array of up to 512 complex H(f) linear representation values in linear scale for the respective transmission direction. It is designed to support up to 512 (downstream) sub-carriers.

The number of utilized values on downstream direction depends on NSCds, and on upstream direction it depends on NSCus. This value is referred to here as NSC.

Each array entry represents the real component [referred to here as a(i)] of Hlin(f = i\*Df) value for a particular sub-carrier index i (0 <= i < NSC).

Hlin(f) is represented as ((scale/2<sup>15</sup>)\*((a(i)+j\*b(i))/2<sup>15</sup>)), where scale is Adsl2SubcarrierLinScale and a(i) and b(i) [provided by the Adsl2SubcarrierLinImg object] are in the range (-2<sup>15</sup>+1) to (+2<sup>15</sup>-1).

A special value a(i)=b(i)= -2<sup>15</sup> indicates that no measurement could be done for the subcarrier because it is out of the passband or that the attenuation is out of range to be represented. This parameter is only available after a loop diagnostic procedure.

Each value in this array is 16 bits wide and is stored in big endian format."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.18.2 (HLINpsds)  
and paragraph 7.5.1.18.6 (HLINpsds)"

::= { adsl2SCStatusEntry 8 }

adsl2SCStatusLinImg OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0..1024))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An array of up to 512 complex  $H(f)$  linear representation values in linear scale for the respective transmission direction. It is designed to support up to 512 (downstream) sub-carriers.

The number of utilized values on downstream direction depends on NSCds, and on upstream direction it depends on NSCus. This value is referred to here as NSC.

Each array entry represents the imaginary component [referred to here as  $b(i)$ ] of  $Hlin(f = i \cdot Df)$  value for a particular sub-carrier index  $i$  ( $0 \leq i < NSC$ ).

$Hlin(f)$  is represented as  $((scale/2^{15}) * ((a(i) + j * b(i)) / 2^{15}))$ , where scale is Adsl2SubcarrierLinScale and  $a(i)$  [provided by the Adsl2SubcarrierLinReal object] and  $b(i)$  are in the range  $(-2^{15} + 1)$  to  $(+2^{15} - 1)$ .

A special value  $a(i) = b(i) = -2^{15}$  indicates that no measurement could be done for the subcarrier because it is out of the passband or that the attenuation is out of range to be represented. This parameter is only available after a loop diagnostic procedure.

Each value in this array is 16 bits wide and is stored in big endian format."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.18.2 (HLINpsds)  
and paragraph 7.5.1.18.6 (HLINpsds)"

::= { adsl2SCStatusEntry 9 }

adsl2SCStatusLogMt OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of symbols used to measure the  $H(f)$  logarithmic measurement values for the respective transmission direction. This parameter should correspond to the value specified in the recommendation (e.g., the number of symbols in 1 second time interval for G.992.3). This parameter corresponds to 1 second in loop diagnostic procedure and should be updated in initialization"

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.18.3 (HLOGMTds)  
and paragraph 7.5.1.18.7 (HLOGMTus)"  
::= { adsl2SCStatusEntry 10 }

adsl2SCStatusLog OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0..1024))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"An array of up to 512 real H(f) logarithmic representation values in dB for the respective transmission direction. It is designed to support up to 512 (downstream) sub-carriers. The number of utilized values on downstream direction depends on NSCds, and on upstream direction it depends on NSCus. This value is referred to here as NSC.

Each array entry represents the real Hlog(f = i\*Df) value for a particular sub-carrier index i, (0 <= i < NSC).

The real Hlog(f) value is represented as (6-m(i)/10), with m(i) in the range 0 to 1022. A special value m=1023 indicates that no measurement could be done for the subcarrier because it is out of the passband or that the attenuation is out of range to be represented. This parameter is applicable in loop diagnostic procedure and initialization.

Each value in this array is 16 bits wide and is stored in big endian format."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.18.4 (HLOGpsds)  
and paragraph 7.5.1.18.8 (HLOGpsus)"  
::= { adsl2SCStatusEntry 11 }

adsl2SCStatusQlnMt OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of symbols used to measure the Quiet Line Noise values on the respective transmission direction. This parameter should correspond to the value specified in the recommendation (e.g., the number of symbols in 1 second time interval for G.992.3). This parameter corresponds to 1 second in loop diagnostic procedure and should be updated in initialization "

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.19.1 (QLNMTds)  
and paragraph 7.5.1.19.3 (QLNMTus)"  
::= { adsl2SCStatusEntry 12 }

adsl2SCStatusQln OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0..512))

UNITS "dBm/Hz"



MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION

"An array of up to 512 real Quiet Line Noise values in dBm/Hz for the respective transmission direction. It is designed for up to 512 (downstream) sub-carriers.

The number of utilized values on downstream direction depends on NSCds, and on upstream direction it depends on NSCus. This value is referred to here as NSC.

Each array entry represents the  $QLN(f = i \cdot Df)$  value for a particular sub-carrier index  $i$ , ( $0 \leq i < NSC$ ).

The  $QLN(f)$  is represented as  $(-23 - n(i)/2)$ , with  $n(i)$  in the range 0 to 254. A special value  $n(i)=255$  indicates that no measurement could be done for the subcarrier because it is out of the passband or that the noise PSD is out of range to be represented.

This parameter is applicable in loop diagnostic procedure and initialization. Each value in this array is 8 bits wide."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.19.2 (QLNpsds)  
 and paragraph 7.5.1.19.4 (QLNpsus)"

::= { adsl2SCStatusEntry 13 }

adsl2SCStatusLnAtten OBJECT-TYPE

SYNTAX Unsigned32 (0..1270 | 2147483646 | 2147483647)

UNITS "0.1 dB"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"When referring to the downstream direction, it is the measured difference in the total power transmitted by the ATU-C and the total power received by the ATU-R over all sub-carriers during diagnostics mode.

When referring to the upstream direction, it is the measured difference in the total power transmitted by the ATU-R and the total power received by the ATU-C over all sub-carriers during diagnostics mode.

It ranges from 0 to 1270 units of 0.1 dB (physical values are 0 to 127 dB).

A special value of 0x7FFFFFFF (2147483647) indicates the line attenuation is out of range to be represented.

A special value of 0x7FFFFFFE (2147483646) indicates the line attenuation measurement is unavailable.

This object reflects the value of the parameter following the most recent DELT performed on the associated line. Once the DELT process is over, the parameter no longer changes until the row is deleted or a new DELT process is initiated."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.6 (LATNds)  
 and paragraph 7.5.1.7 (LATNus)"

```
::= { adsl2SCStatusEntry 14 }
```

```
adsl2SCStatusSigAtten OBJECT-TYPE
```

```
SYNTAX      Unsigned32 (0..1270 | 2147483646 | 2147483647)
```

```
UNITS       "0.1 dB"
```

```
MAX-ACCESS  read-only
```

```
STATUS      current
```

```
DESCRIPTION
```

"When referring to the downstream direction, it is the measured difference in the total power transmitted by the ATU-C and the total power received by the ATU-R over all sub-carriers during Showtime after the diagnostics mode.

When referring to the upstream direction, it is the measured difference in the total power transmitted by the ATU-R and the total power received by the ATU-C over all sub-carriers during Showtime after the diagnostics mode.

It ranges from 0 to 1270 units of 0.1 dB (physical values are 0 to 127 dB).

A special value of 0x7FFFFFFF (2147483647) indicates the signal attenuation is out of range to be represented.

A special value of 0x7FFFFFFE (2147483646) indicates the signal attenuation measurement is unavailable.

This object reflects the value of the parameter following the most recent DELT performed on the associated line. Once the DELT process is over, the parameter no longer changes until the row is deleted or a new DELT process is initiated."

```
REFERENCE   "ITU-T G.997.1, paragraph 7.5.1.8 (SATNds)
              and paragraph 7.5.1.9 (SATNus)"
```

```
::= { adsl2SCStatusEntry 15 }
```

```
adsl2SCStatusSnrMargin OBJECT-TYPE
```

```
SYNTAX      Integer32 (-640..630 | 2147483646 | 2147483647)
```

```
UNITS       "0.1 dB"
```

```
MAX-ACCESS  read-only
```

```
STATUS      current
```

```
DESCRIPTION
```

"SNR Margin is the maximum increase in dB of the noise power received at the ATU (ATU-R on downstream direction and ATU-C on upstream direction), such that the BER requirements are met for all bearer channels received at the ATU. It ranges from -640 to 630 units of 0.1 dB (physical values are -64 to 63 dB).

A special value of 0x7FFFFFFF (2147483647) indicates the SNR Margin is out of range to be represented.

A special value of 0x7FFFFFFE (2147483646) indicates the SNR Margin measurement is currently unavailable.

This object reflects the value of the parameter following the most recent DELT performed on the associated line. Once

the DELT process is over, the parameter no longer changes until the row is deleted or a new DELT process is initiated."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.10 (SNRMds)  
and paragraph 7.5.1.11 (SNRMus)"

::= { adsl2SCStatusEntry 16 }

adsl2SCStatusAttainableRate OBJECT-TYPE

SYNTAX Unsigned32  
UNITS "bits/second"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION

"Maximum Attainable Data Rate. The maximum net data rate currently attainable by the ATU-C transmitter and ATU-R receiver (when referring to downstream direction) or by the ATU-R transmitter and ATU-C receiver (when referring to upstream direction). Value is coded in bits/second. This object reflects the value of the parameter following the most recent DELT performed on the associated line. Once the DELT process is over, the parameter no longer changes until the row is deleted or a new DELT process is initiated."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.12 (ATTNDRds)  
and paragraph 7.5.1.13 (ATTNDRus)"

::= { adsl2SCStatusEntry 17 }

adsl2SCStatusActAtp OBJECT-TYPE

SYNTAX Integer32  
UNITS "0.1 dB"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION

"Actual Aggregate Transmit Power from the ATU (ATU-R on downstream direction and ATU-C on upstream direction), at the instant of measurement. It ranges from -310 to 310 units of 0.1 dB (physical values are -31 to 31 dBm). A value of all 1's indicates the measurement is out of range to be represented. This object reflects the value of the parameter following the most recent DELT performed on the associated line. Once the DELT process is over, the parameter no longer changes until the row is deleted or a new DELT process is initiated."

REFERENCE "ITU-T G.997.1, paragraph 7.5.1.16 (ACTATPds)  
and paragraph 7.5.1.17 (ACTATPus)"

::= { adsl2SCStatusEntry 18 }

adsl2SCStatusRowStatus OBJECT-TYPE

SYNTAX RowStatus  
MAX-ACCESS read-create

```

STATUS      current
DESCRIPTION
    "Row Status.  The manager may create and delete rows
    of this table.  Please see the description of
    adsl2SCStatusTable above for more details."
 ::= { adsl2SCStatusEntry 19 }

-----
--          adsl2LineInventoryTable          --
-----
adsl2LineInventoryTable  OBJECT-TYPE
    SYNTAX      SEQUENCE OF Adsl2LineInventoryEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2LineInventoryTable contains inventory of the
        ADSL2 units."
    ::= { adsl2Inventory 1 }

adsl2LineInventoryEntry  OBJECT-TYPE
    SYNTAX      Adsl2LineInventoryEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2LineInventoryTable contains inventory of the
        ADSL2 units.
        The index of this table is an interface index where the
        interface has an ifType of adsl2plus(238)."
```

INDEX	{ ifIndex, adsl2LInvUnit }
-------	----------------------------

```

 ::= { adsl2LineInventoryTable 1 }

Adsl2LineInventoryEntry ::=
    SEQUENCE {
        adsl2LInvUnit                Adsl2Unit,
        adsl2LInvG994VendorId        OCTET STRING,
        adsl2LInvSystemVendorId      OCTET STRING,
        adsl2LInvVersionNumber       OCTET STRING,
        adsl2LInvSerialNumber        OCTET STRING,
        adsl2LInvSelfTestResult      Unsigned32,
        adsl2LInvTransmissionCapabilities  Adsl2TransmissionModeType
    }

adsl2LInvUnit  OBJECT-TYPE
    SYNTAX      Adsl2Unit
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The termination unit atuc(1) or atur(2)."
```

```
::= { adsl2LineInventoryEntry 1 }

adsl2LInvG994VendorId OBJECT-TYPE
    SYNTAX      OCTET STRING  (SIZE(8))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The ATU G.994.1 Vendor ID as inserted in the G.994.1 CL/CLR
        message. It consists of 8 binary octets, including a country
        code followed by a (regionally allocated) provider code, as
        defined in Recommendation T.35."
    REFERENCE   "ITU-T G.997.1, paragraph 7.4"
    ::= { adsl2LineInventoryEntry 2 }

adsl2LInvSystemVendorId OBJECT-TYPE
    SYNTAX      OCTET STRING  (SIZE(8))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The ATU System Vendor ID (identifies the ATU system
        integrator) as inserted in the Overhead Messages (both ATUs
        for G.992.3 and G.992.4) or in the Embedded Operations
        Channel (only ATU-R in G.992.1 and G.992.2). It consists of
        8 binary octets, with the same format as used for
        Adsl2InvG994VendorId."
    REFERENCE   "ITU-T G.997.1, paragraph 7.4"
    ::= { adsl2LineInventoryEntry 3 }

adsl2LInvVersionNumber OBJECT-TYPE
    SYNTAX      OCTET STRING  (SIZE(0..16))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The ATU version number (vendor-specific information) as
        inserted in the Overhead Messages (both ATUs for G.992.3 and
        G.992.4) or in the Embedded Operations Channel (only ATU-R in
        G.992.1 and G.992.2). It consists of up to 16 binary octets."
    REFERENCE   "ITU-T G.997.1, paragraph 7.4"
    ::= { adsl2LineInventoryEntry 4 }

adsl2LInvSerialNumber OBJECT-TYPE
    SYNTAX      OCTET STRING  (SIZE(0..32))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The ATU serial number (vendor-specific information) as
        inserted in the Overhead Messages (both ATUs for G.992.3 and
        G.992.4) or in the Embedded Operations Channel (only ATU-R in
```

G.992.1 and G.992.2). It is vendor-specific information. It consists of up to 32 ASCII characters."  
 REFERENCE "ITU-T G.997.1, paragraph 7.4"  
 ::= { adsl2LineInventoryEntry 5 }

adsl2LInvSelfTestResult OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The ATU self-test result, coded as a 32-bit value. The most significant octet of the result is '0' if the self-test passed, and '1' if the self-test failed. The interpretation of the other octets is vendor discretionary."

REFERENCE "ITU-T G.997.1, paragraph 7.4"

::= { adsl2LineInventoryEntry 6 }

adsl2LInvTransmissionCapabilities OBJECT-TYPE

SYNTAX Adsl2TransmissionModeType

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The ATU transmission system capability list of the different coding types. It is coded in a bit-map representation with 1 or more bits set. A bit set to '1' means that the ATU supports the respective coding. The value may be derived from the handshaking procedures defined in G.994.1. A set of ADSL2 line transmission modes, with one bit per mode."

REFERENCE "ITU-T G.997.1, paragraph 7.4"

::= { adsl2LineInventoryEntry 7 }

```
-----
--          adsl2LineConfTemplateTable          --
-----
```

adsl2LineConfTemplateTable OBJECT-TYPE

SYNTAX SEQUENCE OF Adsl2LineConfTemplateEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The table adsl2LineConfTemplateTable contains ADSL2 line configuration templates.

Entries in this table MUST be maintained in a persistent manner."

::= { adsl2ProfileLine 1 }

adsl2LineConfTemplateEntry OBJECT-TYPE

```

SYNTAX      Adsl2LineConfTemplateEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The table adsl2LineConfTemplateTable contains the ADSL2 line
    configuration template.
    A default template with an index of 'DEFVAL' will
    always exist, and its parameters will be set to vendor-
    specific values, unless otherwise specified in this document."
INDEX { adsl2LConfTempTemplateName }
 ::= { adsl2LineConfTemplateTable 1 }

```

```

Adsl2LineConfTemplateEntry ::=
SEQUENCE {
    adsl2LConfTempTemplateName      SnmpAdminString,
    adsl2LConfTempLineProfile       SnmpAdminString,
    adsl2LConfTempChan1ConfProfile  SnmpAdminString,
    adsl2LConfTempChan1RaRatioDs    Unsigned32,
    adsl2LConfTempChan1RaRatioUs    Unsigned32,
    adsl2LConfTempChan2ConfProfile  SnmpAdminString,
    adsl2LConfTempChan2RaRatioDs    Unsigned32,
    adsl2LConfTempChan2RaRatioUs    Unsigned32,
    adsl2LConfTempChan3ConfProfile  SnmpAdminString,
    adsl2LConfTempChan3RaRatioDs    Unsigned32,
    adsl2LConfTempChan3RaRatioUs    Unsigned32,
    adsl2LConfTempChan4ConfProfile  SnmpAdminString,
    adsl2LConfTempChan4RaRatioDs    Unsigned32,
    adsl2LConfTempChan4RaRatioUs    Unsigned32,
    adsl2LConfTempRowStatus         RowStatus
}

```

```

adsl2LConfTempTemplateName OBJECT-TYPE
SYNTAX      SnmpAdminString (SIZE(1..32))
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "This object identifies a row in this table."
REFERENCE   "DSL Forum TR-90, paragraph 5.1.4"
 ::= { adsl2LineConfTemplateEntry 1 }

```

```

adsl2LConfTempLineProfile OBJECT-TYPE
SYNTAX      SnmpAdminString (SIZE(1..32))
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The value of this object identifies the row in the ADSL2 Line
    Configuration Profile Table, (adsl2LineConfProfTable),
    which applies for this ADSL2 line."

```

```

REFERENCE      "DSL Forum TR-90, paragraph 5.1.4"
DEFVAL         { "DEFVAL" }
 ::= { adsl2LineConfTemplateEntry 2 }

adsl2LConfTempChan1ConfProfile  OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE(1..32))
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "The value of this object identifies the row in the ADSL2
        Channel Configuration Profile Table,
        (adsl2ChConfProfileTable) that applies to ADSL2 bearer
        channel #1. The channel profile name specified here must
        match the name of an existing row in the
        adsl2ChConfProfileTable table."
    DEFVAL       { "DEFVAL" }
    ::= { adsl2LineConfTemplateEntry 3 }

adsl2LConfTempChan1RaRatioDs  OBJECT-TYPE
    SYNTAX      Unsigned32(0..100)
    UNITS        "percent"
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "Rate Adaptation Ratio. The ratio (in %) that should be taken
        into account for the bearer channel #1 when performing rate
        adaptation on Downstream. The ratio refers to the available
        data rate in excess of the Minimum Data Rate, summed over all
        bearer channels. Also, the 100 -
        adsl2LConfTempChan1RaRatioDs is the ratio of excess data
        rate to be assigned to all other bearer channels on Downstream
        direction. The sum of rate adaptation ratios over all bearers
        on the same direction shall be equal to 100%."
    REFERENCE    "ITU-T G.997.1, paragraph 7.3.2.1"
    DEFVAL        { 100 }
    ::= { adsl2LineConfTemplateEntry 4 }

adsl2LConfTempChan1RaRatioUs  OBJECT-TYPE
    SYNTAX      Unsigned32(0..100)
    UNITS        "percent"
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "Rate Adaptation Ratio. The ratio (in %) that should be taken
        into account for the bearer channel #1 when performing rate
        adaptation on Upstream. The ratio refers to the available
        data rate in excess of the Minimum Data Rate, summed over all
        bearer channels. Also, the

```



100 - adsl2LConfTempChan1RaRatioUs is the ratio of excess data rate to be assigned to all other bearer channels on Upstream direction. The sum of rate adaptation ratios over all bearers on the same direction shall be equal to 100%."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.1"

DEFVAL { 100 }

::= { adsl2LineConfTemplateEntry 5 }

adsl2LConfTempChan2ConfProfile OBJECT-TYPE

SYNTAX SnmpAdminString (SIZE(0..32))

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The value of this object identifies the row in the ADSL2 Channel Configuration Profile Table (adsl2ChConfProfileTable) that applies to ADSL2 bearer channel #2. If the channel is unused, then the object is set to a zero-length string.

This object may be set to a zero-length string only if adsl2LConfTempChan3ConfProfile contains a zero-length string."

DEFVAL { "" }

::= { adsl2LineConfTemplateEntry 6 }

adsl2LConfTempChan2RaRatioDs OBJECT-TYPE

SYNTAX Unsigned32(0..100)

UNITS "percent"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Rate Adaptation Ratio. The ratio (in %) that should be taken into account for the bearer channel #2 when performing rate adaptation on Downstream. The ratio refers to the available data rate in excess of the Minimum Data Rate, summed over all bearer channels. Also, the

100 - adsl2LConfTempChan2RaRatioDs is the ratio of excess data rate to be assigned to all other bearer channels on Downstream direction. The sum of rate adaptation ratios over all bearers on the same direction shall be equal to 100%."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.1"

DEFVAL { 0 }

::= { adsl2LineConfTemplateEntry 7 }

adsl2LConfTempChan2RaRatioUs OBJECT-TYPE

SYNTAX Unsigned32(0..100)

UNITS "percent"

```

MAX-ACCESS    read-create
STATUS        current
DESCRIPTION
    "Rate Adaptation Ratio.  The ratio (in %) that should be taken
    into account for the bearer channel #2 when performing rate
    adaptation on Upstream.  The ratio refers to the available
    data rate in excess of the Minimum Data Rate, summed over all
    bearer channels.  Also, the
    100 - adsl2LConfTempChan2RaRatioUs is the ratio of excess
    data rate to be assigned to all other bearer channels on
    Upstream direction.  The sum of rate adaptation ratios over
    all bearers on the same direction shall be equal to 100%."
REFERENCE      "ITU-T G.997.1, paragraph 7.3.2.1"
DEFVAL         { 0 }
 ::= { adsl2LineConfTemplateEntry 8 }

adsl2LConfTempChan3ConfProfile  OBJECT-TYPE
SYNTAX          SnmpAdminString (SIZE(0..32))
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION
    "The value of this object identifies the row in the ADSL2
    Channel Configuration Profile Table
    (adsl2ChConfProfileTable) that applies to ADSL2 bearer
    channel #3.  If the channel is unused, then the object is set
    to a zero-length string.
    This object may be set to a zero-length string only if
    adsl2LConfTempChan4ConfProfile contains a zero-length
    string.
    This object may be set to a non-zero-length string only if
    adsl2LConfTempChan2ConfProfile contains a non-zero-length
    string."
DEFVAL          { "" }
 ::= { adsl2LineConfTemplateEntry 9 }

adsl2LConfTempChan3RaRatioDs  OBJECT-TYPE
SYNTAX          Unsigned32(0..100)
UNITS           "percent"
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION
    "Rate Adaptation Ratio.  The ratio (in %) that should be taken
    into account for the bearer channel #3 when performing rate
    adaptation on Downstream.  The ratio refers to the available
    data rate in excess of the Minimum Data Rate, summed over all
    bearer channels.  Also, the 100 -
    adsl2LConfTempChan3RaRatioDs is the ratio of excess data
    rate to be assigned to all other bearer channels on Downstream

```

direction. The sum of rate adaptation ratios over all bearers on the same direction shall be equal to 100%."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.1"

DEFVAL { 0 }

::= { adsl2LineConfTemplateEntry 10 }

adsl2LConfTempChan3RaRatioUs OBJECT-TYPE

SYNTAX Unsigned32(0..100)

UNITS "percent"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Rate Adaptation Ratio. The ratio (in %) that should be taken into account for the bearer channel #3 when performing rate adaptation on Upstream. The ratio refers to the available data rate in excess of the Minimum Data Rate, summed over all bearer channels. Also, the 100 - adsl2LConfTempChan3RaRatioUs is the ratio of excess data rate to be assigned to all other bearer channels on Upstream direction. The sum of rate adaptation ratios over all bearers on the same direction shall be equal to 100%."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.1"

DEFVAL { 0 }

::= { adsl2LineConfTemplateEntry 11 }

adsl2LConfTempChan4ConfProfile OBJECT-TYPE

SYNTAX SnmpAdminString (SIZE(0..32))

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The value of this object identifies the row in the ADSL2 Channel Configuration Profile Table (adsl2ChConfProfileTable) that applies to ADSL2 bearer channel #4. If the channel is unused, then the object is set to a zero-length string. This object may be set to a non-zero-length string only if adsl2LConfTempChan3ConfProfile contains a non-zero-length string."

DEFVAL { "" }

::= { adsl2LineConfTemplateEntry 12 }

adsl2LConfTempChan4RaRatioDs OBJECT-TYPE

SYNTAX Unsigned32(0..100)

UNITS "percent"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Rate Adaptation Ratio. The ratio (in %) that should be taken

into account for the bearer channel #4 when performing rate adaptation on Downstream. The ratio refers to the available data rate in excess of the Minimum Data Rate, summed over all bearer channels. Also, the 100 - adsl2LConfTempChan4RaRatioDs is the ratio of excess data rate to be assigned to all other bearer channels. The sum of rate adaptation ratios over all bearers on the same direction shall sum to 100%."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.1"

DEFVAL { 0 }

::= { adsl2LineConfTemplateEntry 13 }

adsl2LConfTempChan4RaRatioUs OBJECT-TYPE

SYNTAX Unsigned32(0..100)

UNITS "percent"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Rate Adaptation Ratio. The ratio (in %) that should be taken into account for the bearer channel #4 when performing rate adaptation on Upstream. The ratio refers to the available data rate in excess of the Minimum Data Rate, summed over all bearer channels. Also, the 100 - adsl2LConfTempChan4RaRatioUs is the ratio of excess data rate to be assigned to all other bearer channels. The sum of rate adaptation ratios over all bearers on the same direction shall sum to 100%."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.1"

DEFVAL { 0 }

::= { adsl2LineConfTemplateEntry 14 }

adsl2LConfTempRowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object is used to create a new row or to modify or delete an existing row in this table.

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

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

::= { adsl2LineConfTemplateEntry 15 }

```

-----
--          adsl2LineConfProfTable          --
-----
adsl2LineConfProfTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Adsl2LineConfProfEntry
    MAX-ACCESS   not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2LineConfProfTable contains ADSL2 line profile
        configuration.

        Entries in this table MUST be maintained in a
        persistent manner."
    ::= { adsl2ProfileLine 2 }

adsl2LineConfProfEntry OBJECT-TYPE
    SYNTAX      Adsl2LineConfProfEntry
    MAX-ACCESS   not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2LineConfProfTable contains ADSL2 line profile
        configuration.

        A default profile with an index of 'DEFVAL' will
        always exist, and its parameters will be set to vendor-
        specific values, unless otherwise specified in this document."
    INDEX { adsl2LConfProfProfileName }
    ::= { adsl2LineConfProfTable 1 }

Adsl2LineConfProfEntry ::=
    SEQUENCE {
        adsl2LConfProfProfileName          SnmpAdminString,
        adsl2LConfProfScMaskDs             Adsl2ScMaskDs,
        adsl2LConfProfScMaskUs             Adsl2ScMaskUs,
        adsl2LConfProfRfiBandsDs           Adsl2RfiDs,
        adsl2LConfProfRaModeDs             Adsl2RaMode,
        adsl2LConfProfRaModeUs             Adsl2RaMode,
        adsl2LConfProfRaUsNrmDs            Unsigned32,
        adsl2LConfProfRaUsNrmUs            Unsigned32,
        adsl2LConfProfRaUsTimeDs           Unsigned32,
        adsl2LConfProfRaUsTimeUs           Unsigned32,
        adsl2LConfProfRaDsNrmsDs           Unsigned32,
        adsl2LConfProfRaDsNrmsUs           Unsigned32,
        adsl2LConfProfRaDsTimeDs           Unsigned32,
        adsl2LConfProfRaDsTimeUs           Unsigned32,
        adsl2LConfProfTargetSnrmDs         Unsigned32,
        adsl2LConfProfTargetSnrmUs         Unsigned32,
        adsl2LConfProfMaxSnrmDs            Unsigned32,

```

```

    adsl2LConfProfMaxSnrmUs      Unsigned32,
    adsl2LConfProfMinSnrmDs      Unsigned32,
    adsl2LConfProfMinSnrmUs      Unsigned32,
    adsl2LConfProfMsgMinUs       Unsigned32,
    adsl2LConfProfMsgMinDs       Unsigned32,
    adsl2LConfProfAtuTransSysEna  Adsl2TransmissionModeType,
    adsl2LConfProfPmMode         Adsl2LConfProfPmMode,
    adsl2LConfProfL0Time         Unsigned32,
    adsl2LConfProfL2Time         Unsigned32,
    adsl2LConfProfL2Atpr         Unsigned32,
    adsl2LConfProfL2Atprt        Unsigned32,
    adsl2LConfProfRowStatus      RowStatus
}

```

adsl2LConfProfProfileName OBJECT-TYPE

SYNTAX SnmpAdminString (SIZE(1..32))

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This object identifies a row in this table."

::= { adsl2LineConfProfEntry 1 }

adsl2LConfProfScMaskDs OBJECT-TYPE

SYNTAX Adsl2ScMaskDs

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Sub-carriers mask. A bitmap of 512 bits that allows masking up to 512 downstream sub-carriers, depending on NSCds. If bit *i* ( $0 \leq i < \text{NSCds}$ ) is set to '1', the respective downstream sub-carrier *i* is masked, and if set to '0', the respective sub-carrier is unmasked. Note that there should always be unmasked sub-carriers (i.e., the object cannot be all 1's). Also note that if  $\text{NSCds} < 512$ , all bits  $i$  ( $\text{NSCds} < i \leq 512$ ) should be set to '1'."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.2.6"

::= { adsl2LineConfProfEntry 2 }

adsl2LConfProfScMaskUs OBJECT-TYPE

SYNTAX Adsl2ScMaskUs

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Sub-carriers mask. A bitmap of 64 bits that allows masking up to 64 downstream sub-carriers, depending on NSCds. If bit *i* ( $0 \leq i < \text{NSCus}$ ) is set to '1', the respective upstream sub-carrier *i* is masked, and if set to '0', the respective sub-carrier is unmasked. Note that there

should always be unmasked sub-carriers (i.e., the object cannot be all 1's). Also note that if NSCus < 64, all bits i (NSCus < i <= 64) should be set to '1'."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.2.7"

::= { adsl2LineConfProfEntry 3 }

#### adsl2LConfProfRfiBandsDs OBJECT-TYPE

SYNTAX Adsl2RfiDs  
 MAX-ACCESS read-create  
 STATUS current  
 DESCRIPTION

"The subset of downstream PSD mask breakpoints that shall be used to notch an RFI band.

The specific interpolation around these points is defined in G.992.5. It is a bitmap of 512 bits that allows referring to up to 512 downstream sub-carriers, depending on NSCds. If bit i (0 <= i < NSCds) is set to '1', the respective downstream sub-carrier i is part of a notch filter, and if set to '0', the respective sub-carrier is not part of a notch filter. This information complements the specification provided by adsl2LConfProfPsdMaskDs.

Note that if NSCds < 512, all bits i (NSCds < i < 512) should be set to '0'."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.2.9"

::= { adsl2LineConfProfEntry 4 }

#### adsl2LConfProfRaModeDs OBJECT-TYPE

SYNTAX Adsl2RaMode  
 MAX-ACCESS read-create  
 STATUS current  
 DESCRIPTION

"The mode of operation of a rate-adaptive ATU-C in the transmit direction. The parameter can take three values:

manual(1),  
 raInit(2), or  
 dynamicRa(3)."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.4.1"

DEFVAL { manual }

::= { adsl2LineConfProfEntry 5 }

#### adsl2LConfProfRaModeUs OBJECT-TYPE

SYNTAX Adsl2RaMode  
 MAX-ACCESS read-create  
 STATUS current  
 DESCRIPTION

"The mode of operation of a rate-adaptive ATU-R in the transmit direction. The parameter can take three values:

manual(1),

```

        raInit(2), or
        dynamicRa(3)."
REFERENCE      "ITU-T G.997.1, paragraph 7.3.1.4.2"
DEFVAL        { manual }
 ::= { adsl2LineConfProfEntry 6 }

adsl2LConfProfRaUsNrmDs  OBJECT-TYPE
SYNTAX         Unsigned32(0..310)
UNITS          "0.1 dB"
MAX-ACCESS     read-create
STATUS         current
DESCRIPTION    "The Downstream Up-Shift Noise Margin value, to be used when
               adsl2LConfProfRaModeDs is set to dynamicRa. If the downstream
               noise margin is above this value and stays above it for
               more than the time specified by the adsl2LConfProfRaUsTimeDs,
               the ATU-R shall attempt to increase the downstream net data
               rate. The Downstream Up-Shift Noise Margin ranges from 0 to
               310 units of 0.1 dB (physical values are 0 to 31 dB)."
```

```

REFERENCE      "ITU-T G.997.1, paragraph 7.3.1.4.3"
DEFVAL        { 10 }
 ::= { adsl2LineConfProfEntry 7 }

adsl2LConfProfRaUsNrmUs  OBJECT-TYPE
SYNTAX         Unsigned32(0..310)
UNITS          "0.1 dB"
MAX-ACCESS     read-create
STATUS         current
DESCRIPTION    "The Upstream Up-Shift Noise Margin value, to be used when
               adsl2LConfProfRaModeUs is set to dynamicRa. If the upstream
               noise margin is above this value and stays above it for more
               than the time specified by the adsl2LConfProfRaUsTimeUs, the
               ATU-C shall attempt to increase the upstream net data rate.
               The Upstream Up-Shift Noise Margin ranges from 0 to 310 units
               of 0.1 dB (physical values are 0 to 31 dB)."
```

```

REFERENCE      "ITU-T G.997.1, paragraph 7.3.1.4.4"
DEFVAL        { 10 }
 ::= { adsl2LineConfProfEntry 8 }

adsl2LConfProfRaUsTimeDs  OBJECT-TYPE
SYNTAX         Unsigned32(0..16383)
UNITS          "seconds"
MAX-ACCESS     read-create
STATUS         current
DESCRIPTION    "The Downstream Up-Shift Time Interval, to be used when
               adsl2LConfProfRaModeDs is set to dynamicRa. The interval of
```



time that the downstream noise margin should stay above the Downstream Up-Shift Noise Margin before the ATU-R shall attempt to increase the downstream net data rate. The time interval ranges from 0 to 16383 seconds."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.4.5"

DEFVAL { 3600 }

::= { adsl2LineConfProfEntry 9 }

adsl2LConfProfRaUsTimeUs OBJECT-TYPE

SYNTAX Unsigned32(0..16383)

UNITS "seconds"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The Upstream Up-Shift Time Interval, to be used when adsl2LConfProfRaModeUs is set to dynamicRa. The interval of time the upstream noise margin should stay above the Upstream Up-Shift Noise Margin before the ATU-C shall attempt to increase the upstream net data rate. The time interval ranges from 0 to 16383 seconds."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.4.6"

DEFVAL { 3600 }

::= { adsl2LineConfProfEntry 10 }

adsl2LConfProfRaDsNrmsDs OBJECT-TYPE

SYNTAX Unsigned32(0..310)

UNITS "0.1 dB"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The Downstream Down-Shift Noise Margin value, to be used when adsl2LConfProfRaModeDs is set to dynamicRa. If the downstream noise margin is below this value and stays below that for more than the time specified by the adsl2LConfProfRaDsTimeDs, the ATU-R shall attempt to decrease the downstream net data rate. The Downstream Down-Shift Noise Margin ranges from 0 to 310 units of 0.1 dB (physical values are 0 to 31 dB)."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.4.7"

DEFVAL { 10 }

::= { adsl2LineConfProfEntry 11 }

adsl2LConfProfRaDsNrmsUs OBJECT-TYPE

SYNTAX Unsigned32(0..310)

UNITS "0.1 dB"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The Upstream Down-Shift Noise Margin value, to be used when

adsl2LConfProfRaModeUs is set to dynamicRa. If the upstream noise margin is below this value and stays below that for more than the time specified by the adsl2LConfProfRaDsTimeUs, the ATU-C shall attempt to decrease the upstream net data rate. The Upstream Down-Shift Noise Margin ranges from 0 to 310 units of 0.1 dB (physical values are 0 to 31 dB)."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.4.8"

DEFVAL { 10 }

::= { adsl2LineConfProfEntry 12 }

adsl2LConfProfRaDsTimeDs OBJECT-TYPE

SYNTAX Unsigned32(0..16383)

UNITS "seconds"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The Downstream Down-Shift Time Interval, to be used when adsl2LConfProfRaModeDs is set to dynamicRa. The interval of time the downstream noise margin should stay below the Downstream Down-Shift Noise Margin before the ATU-R shall attempt to decrease the downstream net data rate. The time interval ranges from 0 to 16383 seconds."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.4.9"

DEFVAL { 3600 }

::= { adsl2LineConfProfEntry 13 }

adsl2LConfProfRaDsTimeUs OBJECT-TYPE

SYNTAX Unsigned32(0..16383)

UNITS "seconds"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The Upstream Down-Shift Time Interval, to be used when adsl2LConfProfRaModeUs is set to dynamicRa. The interval of time the upstream noise margin should stay below the Upstream Down-Shift Noise Margin before the ATU-C shall attempt to decrease the upstream net data rate. The time interval ranges from 0 to 16383 seconds."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.4.10"

DEFVAL { 3600 }

::= { adsl2LineConfProfEntry 14 }

adsl2LConfProfTargetSnrmDs OBJECT-TYPE

SYNTAX Unsigned32(0..310)

UNITS "0.1 dB"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The minimum Noise Margin the ATU-R receiver shall achieve, relative to the BER requirement for each of the downstream bearer channels, to successfully complete initialization. The target noise margin ranges from 0 to 310 units of 0.1 dB (physical values are 0 to 31 dB)."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.3.1"

DEFVAL { 60 }

::= { adsl2LineConfProfEntry 15 }

adsl2LConfProfTargetSnrmUs OBJECT-TYPE

SYNTAX Unsigned32(0..310)

UNITS "0.1 dB"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The minimum Noise Margin the ATU-C receiver shall achieve, relative to the BER requirement for each of the upstream bearer channels, to successfully complete initialization. The target noise margin ranges from 0 to 310 units of 0.1 dB (physical values are 0 to 31 dB)."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.3.2"

DEFVAL { 60 }

::= { adsl2LineConfProfEntry 16 }

adsl2LConfProfMaxSnrmDs OBJECT-TYPE

SYNTAX Unsigned32 (0..310 | 2147483647)

UNITS "0.1 dB"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The maximum Noise Margin the ATU-R receiver shall try to sustain. If the Noise Margin is above this level, the ATU-R shall request that the ATU-C reduce the ATU-C transmit power to get a noise margin below this limit (if this functionality is supported). The maximum noise margin ranges from 0 to 310 units of 0.1 dB (physical values are 0 to 31 dB). A value of 0x7FFFFFFF (2147483647) means that there is no maximum."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.3.3"

DEFVAL { 310 }

::= { adsl2LineConfProfEntry 17 }

adsl2LConfProfMaxSnrmUs OBJECT-TYPE

SYNTAX Unsigned32 (0..310 | 2147483647)

UNITS "0.1 dB"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The maximum Noise Margin the ATU-C receiver shall try to

sustain. If the Noise Margin is above this level, the ATU-C shall request that the ATU-R reduce the ATU-R transmit power to get a noise margin below this limit (if this functionality is supported). The maximum noise margin ranges from 0 to 310 units of 0.1 dB (physical values are 0 to 31 dB). A value of 0x7FFFFFFF (2147483647) means that there is no maximum."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.3.4"

DEFVAL { 310 }

::= { adsl2LineConfProfEntry 18 }

adsl2LConfProfMinSnrmDs OBJECT-TYPE

SYNTAX Unsigned32(0..310)

UNITS "0.1 dB"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The minimum Noise Margin the ATU-R receiver shall tolerate. If the noise margin falls below this level, the ATU-R shall request that the ATU-C increase the ATU-C transmit power. If an increase to ATU-C transmit power is not possible, a loss-of-margin (LOM) defect occurs, the ATU-R shall fail and attempt to reinitialize, and the NMS shall be notified. The minimum noise margin ranges from 0 to 310 units of 0.1 dB (physical values are 0 to 31 dB). A value of 0 means that there is no minimum."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.3.5"

DEFVAL { 10 }

::= { adsl2LineConfProfEntry 19 }

adsl2LConfProfMinSnrmUs OBJECT-TYPE

SYNTAX Unsigned32(0..310)

UNITS "0.1 dB"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The minimum Noise Margin the ATU-C receiver shall tolerate. If the noise margin falls below this level, the ATU-C shall request that the ATU-R increase the ATU-R transmit power. If an increase of ATU-R transmit power is not possible, a loss-of-margin (LOM) defect occurs, the ATU-C shall fail and attempt to reinitialize, and the NMS shall be notified. The minimum noise margin ranges from 0 to 310 units of 0.1 dB (physical values are 0 to 31 dB). A value of 0 means that there is no minimum."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.3.6"

DEFVAL { 10 }

::= { adsl2LineConfProfEntry 20 }

```

adsl2LConfProfMsgMinUs OBJECT-TYPE
    SYNTAX      Unsigned32(4000..63000)
    UNITS       "bits/second"
    MAX-ACCESS   read-create
    STATUS      current
    DESCRIPTION
        "Minimum Overhead Rate Upstream.  Defines the minimum rate of
         the message-based overhead that shall be maintained by the ATU
         in upstream direction.  Expressed in bits per second and
         ranges from 4000 to 63000 bps."
    REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.5.1"
    DEFVAL      { 4000 }
    ::= { adsl2LineConfProfEntry 21 }

adsl2LConfProfMsgMinDs OBJECT-TYPE
    SYNTAX      Unsigned32(4000..63000)
    UNITS       "bits/second"
    MAX-ACCESS   read-create
    STATUS      current
    DESCRIPTION
        "Minimum Overhead Rate Downstream.  Defines the minimum rate of
         the message-based overhead that shall be maintained by the ATU
         in downstream direction.  Expressed in bits per second and
         ranges from 4000 to 63000 bps."
    REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.5.2"
    DEFVAL      { 4000 }
    ::= { adsl2LineConfProfEntry 22 }

adsl2LConfProfAtuTransSysEna OBJECT-TYPE
    SYNTAX      Adsl2TransmissionModeType
    MAX-ACCESS   read-create
    STATUS      current
    DESCRIPTION
        "ATU Transmission System Enabling (ATSE).  A list of the
         different coding types enabled in this profile.  It is coded
         in a bit-map representation with 1 or more bits set.  A bit
         set to '1' means that the ATUs may apply the respective
         coding for the ADSL line.  A bit set to '0' means that
         the ATUs cannot apply the respective coding for the ADSL
         line.  All 'reserved' bits should be set to '0'."
    REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.1.1"
    ::= { adsl2LineConfProfEntry 23 }

adsl2LConfProfPmMode OBJECT-TYPE
    SYNTAX      Adsl2LConfProfPmMode
    MAX-ACCESS   read-create
    STATUS      current
    DESCRIPTION

```

"Power management state Enabling. Defines the power states the ATU-C or ATU-R may autonomously transition to on this line. The various bit positions are: allowTransitionsToIdle(0) and allowTransitionsToLowPower(1). A bit with a '1' value means that the ATU is allowed to transit into the respective state, and a '0' value means that the ATU is not allowed to transit into the respective state."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.1.4"

DEFVAL { { allowTransitionsToIdle, allowTransitionsToLowPower } }  
 ::= { adsl2LineConfProfEntry 24 }

adsl2LConfProfL0Time OBJECT-TYPE

SYNTAX Unsigned32 (0..255)

UNITS "seconds"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This minimum time (in seconds) between an Exit from the L2 state and the next Entry into the L2 state. It ranges from 0 to 255 seconds."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.1.5"

DEFVAL { 255 }

::= { adsl2LineConfProfEntry 25 }

adsl2LConfProfL2Time OBJECT-TYPE

SYNTAX Unsigned32 (0..255)

UNITS "seconds"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This minimum time (in seconds) between an Entry into the L2 state and the first Power Trim in the L2 state and between two consecutive Power Trims in the L2 State. It ranges from 0 to 255 seconds."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.1.6"

DEFVAL { 255 }

::= { adsl2LineConfProfEntry 26 }

adsl2LConfProfL2Atpr OBJECT-TYPE

SYNTAX Unsigned32 (0..31)

UNITS "dB"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The maximum aggregate transmit power reduction (in dB) that can be performed at transition of L0 to L2 state or through a single Power Trim in the L2 state. It ranges from 0 dB to 31 dB."

```

REFERENCE      "ITU-T G.997.1 (amendment 1), 7.3.1.1.7"
DEFVAL         { 10 }
 ::= { adsl2LineConfProfEntry 27 }

adsl2LConfProfL2Atprt OBJECT-TYPE
SYNTAX         Unsigned32 (0..31)
UNITS          "dB"
MAX-ACCESS     read-create
STATUS         current
DESCRIPTION
    "The total maximum aggregate transmit power reduction
    (in dB) that can be performed in an L2 state. This is the
    sum of all reductions of L2 Request (i.e., at transition of
    L0 to L2 state) and Power Trims."
REFERENCE      "ITU-T G.997.1 (amendment 1), 7.3.1.1.9"
DEFVAL         { 31 }
 ::= { adsl2LineConfProfEntry 28 }

adsl2LConfProfRowStatus OBJECT-TYPE
SYNTAX         RowStatus
MAX-ACCESS     read-create
STATUS         current
DESCRIPTION
    "This object is used to create a new row or to modify or
    delete an existing row in this table.

    A profile is 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 'notInService'),
    it must first be unreferenced from all associated
    templates."
 ::= { adsl2LineConfProfEntry 29 }

```

```

-----
--      adsl2LineConfProfModeSpecTable      --
-----
adsl2LineConfProfModeSpecTable OBJECT-TYPE
SYNTAX         SEQUENCE OF Adsl2LineConfProfModeSpecEntry
MAX-ACCESS     not-accessible
STATUS         current
DESCRIPTION
    "The table adsl2LineConfProfModeSpecTable extends the
    ADSL2 line configuration profile by ADSL Mode Specific
    parameters.
    A row in this table that has an index of

```

adsl2LConfProfAdslMode == defMode(1) is called a 'mandatory' row.  
 A row in this table that has an index such that adsl2LConfProfAdslMode is not equal to defMode(1) is called an 'optional' row.  
 When a row in the adsl2LineConfProfTable table (the parent row) is created, the SNMP agent will automatically create a 'mandatory' row in this table. When the parent row is deleted, the SNMP agent will automatically delete all associated rows in this table. Any attempt to delete the 'mandatory' row using the adsl2LConfProfModeSpecRowStatus attribute will be rejected by the SNMP agent.  
 The manager MAY create an 'optional' row in this table using the adsl2LConfProfModeSpecRowStatus attribute if the parent row exists.  
 The manager MAY delete an 'optional' row in this table using the adsl2LConfProfModeSpecRowStatus attribute at any time.  
 If the actual transmission mode of a DSL line does not match one of the 'optional' rows in this table, then the line will use the PSD configuration from the 'mandatory' row.

Entries in this table MUST be maintained in a persistent manner."

::= { adsl2ProfileLine 3 }

adsl2LineConfProfModeSpecEntry OBJECT-TYPE  
 SYNTAX Adsl2LineConfProfModeSpecEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "The table adsl2LineConfProfModeSpecTable extends the ADSL2 line configuration profile by ADSL Mode Specific parameters."  
 INDEX { adsl2LConfProfProfileName, adsl2LConfProfAdslMode }  
 ::= { adsl2LineConfProfModeSpecTable 1 }

Adsl2LineConfProfModeSpecEntry ::=

SEQUENCE {	
adsl2LConfProfAdslMode	Adsl2OperationModes,
adsl2LConfProfMaxNomPsdDs	Integer32,
adsl2LConfProfMaxNomPsdUs	Integer32,
adsl2LConfProfMaxNomAtpDs	Unsigned32,
adsl2LConfProfMaxNomAtpUs	Unsigned32,
adsl2LConfProfMaxAggRxPwrUs	Integer32,
adsl2LConfProfPsdMaskDs	Adsl2PsdMaskDs,



```

        adsl2LConfProfPsdMaskUs          Adsl2PsdMaskUs,
        adsl2LConfProfPsdMaskSelectUs    Unsigned32,
        adsl2LConfProfModeSpecRowStatus  RowStatus
    }

adsl2LConfProfAdslMode OBJECT-TYPE
    SYNTAX      Adsl2OperationModes
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The ADSL Mode is a way of categorizing the various ADSL
        transmission modes into groups; each group (ADSL Mode) shares
        the same PSD configuration.
        There should be multiple entries in this table for a given
        line profile in case multiple bits are set in
        adsl2LConfProfAtuTransSysEna for that profile."
    REFERENCE   "DSL Forum TR-90, paragraph 5.1.8"
    ::= { adsl2LineConfProfModeSpecEntry 1 }

adsl2LConfProfMaxNomPsdDs OBJECT-TYPE
    SYNTAX      Integer32(-600..-300)
    UNITS       "0.1 dBm/Hz"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The maximum nominal transmit PSD in the downstream
        direction during initialization and Showtime. It ranges from
        -600 to -300 units of 0.1 dBm/Hz (physical values are -60 to
        -30 dBm/Hz)."
    REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.2"
    DEFVAL      { -300 }
    ::= { adsl2LineConfProfModeSpecEntry 2 }

adsl2LConfProfMaxNomPsdUs OBJECT-TYPE
    SYNTAX      Integer32(-600..-300)
    UNITS       "0.1 dBm/Hz"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The maximum nominal transmit PSD in the upstream direction
        during initialization and Showtime. It ranges from -600 to
        -300 units of 0.1 dBm/Hz (physical values are -60 to
        -30 dBm/Hz)."
    REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.2"
    DEFVAL      { -300 }
    ::= { adsl2LineConfProfModeSpecEntry 3 }

adsl2LConfProfMaxNomAtpDs OBJECT-TYPE

```

```

SYNTAX      Unsigned32 (0..255)
UNITS       "0.1 dBm"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The maximum nominal aggregate transmit power in the
    downstream direction during initialization and Showtime. It
    ranges from 0 to 255 units of 0.1 dBm (physical values are 0
    to 25.5 dBm)."
```

```

REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.2"
DEFVAL      { 255 }
 ::= { adsl2LineConfProfModeSpecEntry 4 }
```

```

adsl2LConfProfMaxNomAtpUs  OBJECT-TYPE
SYNTAX      Unsigned32 (0..255)
UNITS       "0.1 dBm"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The maximum nominal aggregate transmit power in the upstream
    direction during initialization and Showtime. It ranges from
    0 to 255 units of 0.1 dBm (physical values are 0 to 25.5
    dBm)."
```

```

REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.2"
DEFVAL      { 255 }
 ::= { adsl2LineConfProfModeSpecEntry 5 }
```

```

adsl2LConfProfMaxAggRxPwrUs  OBJECT-TYPE
SYNTAX      Integer32(-255..255 | 2147483647)
UNITS       "0.1 dBm"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The maximum upstream aggregate receive power over the relevant
    set of sub-carriers. The ATU-C should verify that the
    upstream power cutback is such that this maximum aggregate
    receive power value is honored. It ranges from -255 to 255
    units of 0.1 dBm (physical values are -25.5 to 25.5 dBm).
    A value of 0x7FFFFFFF (2147483647) means that there is no
    limit."
```

```

REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.2"
DEFVAL      { 255 }
 ::= { adsl2LineConfProfModeSpecEntry 6 }
```

```

adsl2LConfProfPsdMaskDs  OBJECT-TYPE
SYNTAX      Adsl2PsdMaskDs
MAX-ACCESS  read-create
STATUS      current
```

## DESCRIPTION

"The downstream PSD mask applicable at the U-C2 reference point.

This parameter is used only for G.992.5, and it may impose PSD restrictions (breakpoints) in addition to the Limit PSD mask defined in G.992.5.

This is a string of 32 pairs of values in the following structure:

Octets 0+1 - Index of 1st sub-carrier used in the context of a first breakpoint.

Octet 2 - The PSD reduction for the sub-carrier indicated in octets 0 and 1.

Octets 3-5 - Same, for a 2nd breakpoint.

Octets 6-8 - Same, for a 3rd breakpoint.

This architecture continues until octets 94-95, which are associated with a 32nd breakpoint.

Each subcarrier index is an unsigned number in the range 1 to NSCs. Each PSD reduction value is in the range 0 (0dBm/Hz) to 255 (-127.5dBm/Hz) with steps of 0.5dBm/Hz. Valid values are in the range 0 to 190 (0 to -95dBm/Hz).

When the number of breakpoints is less than 32, all remaining octets are set to the value 0. Note that the content of this object should be correlated with the sub-carriers mask and with the RFI setup."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.2"

::= { adsl2LineConfProfModeSpecEntry 7 }

adsl2LConfProfPsdMaskUs OBJECT-TYPE

SYNTAX Adsl2PsdMaskUs

MAX-ACCESS read-create

STATUS current

## DESCRIPTION

"The upstream PSD mask applicable at the U-R2 reference point.

This parameter is used only for G.992.5, and it may impose PSD restrictions (breakpoints) in addition to the Limit PSD mask defined in G.992.5.

This is a string of 4 pairs of values in the following structure:

Octets 0+1 - Index of 1st sub-carrier used in the context of a first breakpoint.

Octet 2 - The PSD reduction for the sub-carrier indicated in octets 0 and 1.

Octets 3-5 - Same, for a 2nd breakpoint.

Octets 6-8 - Same, for a 3rd breakpoint.

This architecture continues until octets 9-11, which are associated with a 4th breakpoint.

Each subcarrier index is an unsigned number in the range 1 to

NSCus. Each PSD reduction value is in the range 0 (0dBm/Hz) to 255 (-127.5dBm/Hz) with steps of 0.5dBm/Hz. Valid values are in the range 0 to 190 (0 to -95dBm/Hz).

When the number of breakpoints is less than 4, all remaining octets are set to the value 0. Note that the content of this object should be correlated with the sub-carriers mask and with the RFI setup."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1.2"  
 ::= { adsl2LineConfProfModeSpecEntry 8 }

adsl2LConfProfPsdMaskSelectUs OBJECT-TYPE

SYNTAX Unsigned32(1..9)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The selected upstream PSD mask. This parameter is used only for annexes J and M of G.992.3 and G.992.5, and the same selection is used for all relevant enabled bits in adsl2LConfProfAtuTransSysEna."

REFERENCE "ITU-T G.997.1 (amendment 1), 7.3.1.2.10"

DEFVAL { 1 }

::= { adsl2LineConfProfModeSpecEntry 9 }

adsl2LConfProfModeSpecRowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object is used to create a new row or to modify or delete an existing row in this table.

A profile is 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 'notInService'), it must first be unreferenced from all associated templates."

::= { adsl2LineConfProfModeSpecEntry 10 }

```
-----
--          adsl2ChConfProfileTable          --
-----
```

adsl2ChConfProfileTable OBJECT-TYPE

SYNTAX SEQUENCE OF Adsl2ChConfProfileEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The table adsl2ChConfProfileTable contains ADSL2 channel profile configuration.

Entries in this table MUST be maintained in a persistent manner."

::= { adsl2ProfileChannel 1 }

adsl2ChConfProfileEntry OBJECT-TYPE

SYNTAX Adsl2ChConfProfileEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The table adsl2ChConfProfileTable contains ADSL2 channel profile configuration.

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

INDEX { adsl2ChConfProfProfileName }

::= { adsl2ChConfProfileTable 1 }

Adsl2ChConfProfileEntry ::=

SEQUENCE {

adsl2ChConfProfProfileName	SnmpAdminString,
adsl2ChConfProfMinDataRateDs	Unsigned32,
adsl2ChConfProfMinDataRateUs	Unsigned32,
adsl2ChConfProfMinResDataRateDs	Unsigned32,
adsl2ChConfProfMinResDataRateUs	Unsigned32,
adsl2ChConfProfMaxDataRateDs	Unsigned32,
adsl2ChConfProfMaxDataRateUs	Unsigned32,
adsl2ChConfProfMinDataRateLowPwrDs	Unsigned32,
adsl2ChConfProfMaxDelayDs	Unsigned32,
adsl2ChConfProfMaxDelayUs	Unsigned32,
adsl2ChConfProfMinProtectionDs	Adsl2SymbolProtection,
adsl2ChConfProfMinProtectionUs	Adsl2SymbolProtection,
adsl2ChConfProfMaxBerDs	Adsl2MaxBer,
adsl2ChConfProfMaxBerUs	Adsl2MaxBer,
adsl2ChConfProfUsDataRateDs	Unsigned32,
adsl2ChConfProfDsDataRateDs	Unsigned32,
adsl2ChConfProfUsDataRateUs	Unsigned32,
adsl2ChConfProfDsDataRateUs	Unsigned32,
adsl2ChConfProfImaEnabled	TruthValue,
adsl2ChConfProfRowStatus	RowStatus

}

adsl2ChConfProfProfileName OBJECT-TYPE

SYNTAX SnmpAdminString (SIZE(1..32))

```
MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION
    "This object identifies a row in this table."
 ::= { adsl2ChConfProfileEntry 1 }

adsl2ChConfProfMinDataRateDs  OBJECT-TYPE
SYNTAX        Unsigned32(0..2000000000)
UNITS         "bits/second"
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION
    "Minimum Data Rate on Downstream direction.  The minimum net
    data rate for the bearer channel, coded in bits/second."
REFERENCE     "ITU-T G.997.1, paragraph 7.3.2.1"
 ::= { adsl2ChConfProfileEntry 2 }

adsl2ChConfProfMinDataRateUs  OBJECT-TYPE
SYNTAX        Unsigned32(0..2000000000)
UNITS         "bits/second"
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION
    "Minimum Data Rate on Upstream direction.  The minimum net data
    rate for the bearer channel, coded in bits/second."
REFERENCE     "ITU-T G.997.1, paragraph 7.3.2.1"
 ::= { adsl2ChConfProfileEntry 3 }

adsl2ChConfProfMinResDataRateDs  OBJECT-TYPE
SYNTAX        Unsigned32(0..2000000000)
UNITS         "bits/second"
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION
    "Minimum Reserved Data Rate on Downstream direction.  The
    minimum reserved net data rate for the bearer channel, coded
    in bits/second.  This parameter is used only if the Rate
    Adaptation Mode in the direction of the bearer channel (i.e.,
    adsl2LConfProfRaModeDs) is set to dynamicRa."
REFERENCE     "ITU-T G.997.1, paragraph 7.3.2.1"
 ::= { adsl2ChConfProfileEntry 4 }

adsl2ChConfProfMinResDataRateUs  OBJECT-TYPE
SYNTAX        Unsigned32(0..2000000000)
UNITS         "bits/second"
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION
```

"Minimum Reserved Data Rate on Upstream direction. The minimum reserved net data rate for the bearer channel, coded in bits/second. This parameter is used only if the Rate Adaptation Mode in the direction of the bearer channel (i.e., adsl2LConfProfRaModeUs) is set to dynamicRa."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.1"

::= { adsl2ChConfProfileEntry 5 }

adsl2ChConfProfMaxDataRateDs OBJECT-TYPE

SYNTAX Unsigned32(0..200000000)

UNITS "bits/second"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Maximum Data Rate on Downstream direction. The maximum net data rate for the bearer channel, coded in bits/second."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.1"

::= { adsl2ChConfProfileEntry 6 }

adsl2ChConfProfMaxDataRateUs OBJECT-TYPE

SYNTAX Unsigned32(0..200000000)

UNITS "bits/second"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Maximum Data Rate on Upstream direction. The maximum net data rate for the bearer channel, coded in bits/second."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.1"

::= { adsl2ChConfProfileEntry 7 }

adsl2ChConfProfMinDataRateLowPwrDs OBJECT-TYPE

SYNTAX Unsigned32(0..200000000)

UNITS "bits/second"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"Minimum Data Rate in Low Power state on Downstream direction. The minimum net data rate for the bearer channel, coded in bits/second, during the low power state (L1 in G.992.2, L2 in G.992.3)."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.1"

::= { adsl2ChConfProfileEntry 8 }

adsl2ChConfProfMaxDelayDs OBJECT-TYPE

SYNTAX Unsigned32(0..63)

UNITS "milliseconds"

MAX-ACCESS read-create

STATUS current

## DESCRIPTION

"Maximum Interleave Delay on Downstream direction. The maximum one-way interleaving delay introduced by the PMS-TC on Downstream direction. The ATUs shall choose the S (factor) and D (depth) values such that the actual one-way interleaving delay (adsl2ChStatusActDelay) is as close as possible to, but less than or equal to, adsl2ChConfProfMaxDelayDs. The delay is coded in ms, with the value 0 indicating no delay bound is being imposed."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.2"

::= { adsl2ChConfProfileEntry 9 }

## adsl2ChConfProfMaxDelayUs OBJECT-TYPE

SYNTAX Unsigned32(0..63)

UNITS "milliseconds"

MAX-ACCESS read-create

STATUS current

## DESCRIPTION

"Maximum Interleave Delay on Upstream direction. The maximum one-way interleaving delay introduced by the PMS-TC on Upstream direction. The ATUs shall choose the S (factor) and D (depth) values such that the actual one-way interleaving delay (adsl2ChStatusActDelay) is as close as possible to, but less than or equal to, adsl2ChConfProfMaxDelayUs. The delay is coded in ms, with the value 0 indicating no delay bound is being imposed."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.2"

::= { adsl2ChConfProfileEntry 10 }

## adsl2ChConfProfMinProtectionDs OBJECT-TYPE

SYNTAX Adsl2SymbolProtection

UNITS "symbols"

MAX-ACCESS read-create

STATUS current

## DESCRIPTION

"Minimum Impulse Noise Protection on Downstream direction. The minimum impulse noise protection for the bearer channel, expressed in symbols. The parameter can take the following values: noProtection (i.e., INP not required), halfSymbol (i.e., INP length is 1/2 symbol), and 1-16 symbols in steps of 1 symbol."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.3"

DEFVAL { noProtection }

::= { adsl2ChConfProfileEntry 11 }

## adsl2ChConfProfMinProtectionUs OBJECT-TYPE

SYNTAX Adsl2SymbolProtection

UNITS "symbols"



```

MAX-ACCESS    read-create
STATUS        current
DESCRIPTION
    "Minimum Impulse Noise Protection on Upstream direction.  The
    minimum impulse noise protection for the bearer channel,
    expressed in symbols.  The parameter can take the following
    values: noProtection (i.e., INP not required), halfSymbol
    (i.e., INP length is 1/2 symbol), and 1-16 symbols in steps
    of 1 symbol."
REFERENCE     "ITU-T G.997.1, paragraph 7.3.2.3"
DEFVAL        { noProtection }
 ::= { adsl2ChConfProfileEntry 12 }

adsl2ChConfProfMaxBerDs  OBJECT-TYPE
SYNTAX        Adsl2MaxBer
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION
    "Maximum Bit Error Ratio on Downstream direction.  The maximum
    bit error ratio for the bearer channel.  The parameter can
    take the following values (for 1E-3, 1E-5 or 1E-7):
        eminus3(1),
        eminus5(2), or
        eminus7(3)."
```

```

REFERENCE     "ITU-T G.997.1, paragraph 7.3.2.4"
DEFVAL        { eminus5 }
 ::= { adsl2ChConfProfileEntry 13 }

adsl2ChConfProfMaxBerUs  OBJECT-TYPE
SYNTAX        Adsl2MaxBer
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION
    "Maximum Bit Error Ratio on Upstream direction.  The maximum
    bit error ratio for the bearer channel.  The parameter can
    take the following values (for 1E-3, 1E-5 or 1E-7):
        eminus3(1),
        eminus5(2), or
        eminus7(3)."
```

```

REFERENCE     "ITU-T G.997.1, paragraph 7.3.2.4"
DEFVAL        { eminus5 }
 ::= { adsl2ChConfProfileEntry 14 }

adsl2ChConfProfUsDataRateDs  OBJECT-TYPE
SYNTAX        Unsigned32(0..200000000)
UNITS         "bits/second"
MAX-ACCESS    read-create
STATUS        current
```

## DESCRIPTION

"Data Rate Threshold Up shift for downstream direction. An 'Up-shift rate change' event is triggered when the actual downstream data rate exceeds, by more than the threshold, the data rate at the last entry into Showtime. The parameter is coded in bits/second."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.6"

::= { adsl2ChConfProfileEntry 15 }

adsl2ChConfProfDsDataRateDs OBJECT-TYPE

SYNTAX Unsigned32(0..200000000)

UNITS "bits/second"

MAX-ACCESS read-create

STATUS current

## DESCRIPTION

"Data Rate Threshold Down-shift for downstream direction. A 'Down-shift rate change' event is triggered when the actual downstream data rate is below the data rate at the last entry into Showtime, by more than the threshold. The parameter is coded in bits/second."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.6"

::= { adsl2ChConfProfileEntry 16 }

adsl2ChConfProfUsDataRateUs OBJECT-TYPE

SYNTAX Unsigned32(0..200000000)

UNITS "bits/second"

MAX-ACCESS read-create

STATUS current

## DESCRIPTION

"Data Rate Threshold Up shift for upstream direction. An 'Up-shift rate change' event is triggered when the actual upstream data rate exceeds, by more than the threshold, the data rate at the last entry into Showtime. The parameter is coded in bits/second."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2.6"

::= { adsl2ChConfProfileEntry 17 }

adsl2ChConfProfDsDataRateUs OBJECT-TYPE

SYNTAX Unsigned32(0..200000000)

UNITS "bits/second"

MAX-ACCESS read-create

STATUS current

## DESCRIPTION

"Data Rate Threshold Down-shift for upstream direction. A 'Down-shift rate change' event is triggered when the actual upstream data rate is below the data rate at the last entry into Showtime, by more than the threshold. The parameter is coded in bits/second."

```

REFERENCE      "ITU-T G.997.1, paragraph 7.3.2.6"
 ::= { adsl2ChConfProfileEntry 18 }

adsl2ChConfProfImaEnabled  OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS   read-create
    STATUS      current
    DESCRIPTION
        "IMA Mode Enable.  The parameter enables the IMA operation mode
        in the ATM Data Path.  Relevant only if the channel is an ATM
        Data Path.  When in 'enable' state, the ATM data path should
        comply with the requirements for IMA transmission."
    REFERENCE    "ITU-T G.997.1, paragraph 7.3.4.1"
    DEFVAL       { false }
 ::= { adsl2ChConfProfileEntry 19 }

adsl2ChConfProfRowStatus  OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS   read-create
    STATUS      current
    DESCRIPTION
        "This object is used to create a new row or to modify or
        delete an existing row in this table.

        A profile is 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 'notInService'),
        it must first be unreferenced from all associated
        templates."
 ::= { adsl2ChConfProfileEntry 20 }

-----
--          adsl2LineAlarmConfTemplateTable          --
-----
adsl2LineAlarmConfTemplateTable  OBJECT-TYPE
    SYNTAX      SEQUENCE OF Adsl2LineAlarmConfTemplateEntry
    MAX-ACCESS   not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2LineAlarmConfTemplateTable contains
        ADSL2 line configuration templates.

        Entries in this table MUST be maintained in a
        persistent manner."
 ::= { adsl2ProfileAlarmConf 1 }

```

```

adsl2LineAlarmConfTemplateEntry OBJECT-TYPE
    SYNTAX      Adsl2LineAlarmConfTemplateEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2LineAlarmConfTemplateTable contains ADSL2
        line PM thresholds templates.
        A default template with an index of 'DEFVAL' will
        always exist, and its parameters will be set to vendor-
        specific values, unless otherwise specified in this
        document."
    INDEX { adsl2LAlarmConfTempTemplateName }
    ::= { adsl2LineAlarmConfTemplateTable 1 }

Adsl2LineAlarmConfTemplateEntry ::=
    SEQUENCE {
        adsl2LAlarmConfTempTemplateName      SnmpAdminString,
        adsl2LAlarmConfTempLineProfile        SnmpAdminString,
        adsl2LAlarmConfTempChan1ConfProfile   SnmpAdminString,
        adsl2LAlarmConfTempChan2ConfProfile   SnmpAdminString,
        adsl2LAlarmConfTempChan3ConfProfile   SnmpAdminString,
        adsl2LAlarmConfTempChan4ConfProfile   SnmpAdminString,
        adsl2LAlarmConfTempRowStatus          RowStatus
    }

adsl2LAlarmConfTempTemplateName OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE(1..32))
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object identifies a row in this table."
    ::= { adsl2LineAlarmConfTemplateEntry 1 }

adsl2LAlarmConfTempLineProfile OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE(1..32))
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The value of this object identifies the row in the ADSL2 Line
        Thresholds Configuration Profile Table
        (adsl2LineAlarmConfProfileTable) that applies to this ADSL2
        line."
    REFERENCE   "DSL Forum TR-90, paragraph 5.4.1"
    DEFVAL      { "DEFVAL" }
    ::= { adsl2LineAlarmConfTemplateEntry 2 }

adsl2LAlarmConfTempChan1ConfProfile OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE(1..32))

```

```

MAX-ACCESS    read-create
STATUS        current
DESCRIPTION
    "The value of this object identifies the row in the ADSL2
    Channel Thresholds Configuration Profile Table
    (adsl2ChAlarmConfProfileTable) that applies for ADSL2
    bearer channel #1. The channel profile name specified here
    must match the name of an existing row in the
    adsl2ChAlarmConfProfileTable table."
REFERENCE      "DSL Forum TR-90, paragraph 5.4.1"
DEFVAL        { "DEFVAL" }
 ::= { adsl2LineAlarmConfTemplateEntry 3 }

adsl2LAlarmConfTempChan2ConfProfile  OBJECT-TYPE
SYNTAX         SnmpAdminString (SIZE(0..32))
MAX-ACCESS     read-create
STATUS        current
DESCRIPTION
    "The value of this object identifies the row in the ADSL2
    Channel Thresholds Configuration Profile Table
    (adsl2ChAlarmConfProfileTable) that applies for ADSL2
    bearer channel #2. The channel profile name specified here
    must match the name of an existing row in the
    adsl2ChAlarmConfProfileTable table. If the channel is unused,
    then the object is set to a zero-length string."
REFERENCE      "DSL Forum TR-90, paragraph 5.4.1"
DEFVAL        { "" }
 ::= { adsl2LineAlarmConfTemplateEntry 4 }

adsl2LAlarmConfTempChan3ConfProfile  OBJECT-TYPE
SYNTAX         SnmpAdminString (SIZE(0..32))
MAX-ACCESS     read-create
STATUS        current
DESCRIPTION
    "The value of this object identifies the row in the ADSL2
    Channel Thresholds Configuration Profile Table
    (adsl2ChAlarmConfProfileTable) that applies for ADSL2
    bearer channel #3. The channel profile name specified here
    must match the name of an existing row in the
    adsl2ChAlarmConfProfileTable table.
    This object may be set to a non-zero-length string only if
    adsl2LAlarmConfTempChan2ConfProfile contains a non-zero-
    length string."
REFERENCE      "DSL Forum TR-90, paragraph 5.4.1"
DEFVAL        { "" }
 ::= { adsl2LineAlarmConfTemplateEntry 5 }

adsl2LAlarmConfTempChan4ConfProfile  OBJECT-TYPE

```

```

SYNTAX      SnmpAdminString (SIZE(0..32))
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The value of this object identifies the row in the ADSL2
    Channel Thresholds Configuration Profile Table
    (adsl2ChAlarmConfProfileTable) that applies for ADSL2
    bearer channel #4. The channel profile name specified here
    must match the name of an existing row in the
    adsl2ChAlarmConfProfileTable table.
    This object may be set to a non-zero-length string only if
    adsl2LAlarmConfTempChan3ConfProfile contains a non-zero-
    length string."
REFERENCE    "DSL Forum TR-90, paragraph 5.4.1"
DEFVAL      { "" }
 ::= { adsl2LineAlarmConfTemplateEntry 6 }

```

```
adsl2LAlarmConfTempRowStatus  OBJECT-TYPE
```

```

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

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

    Before a template can be deleted or taken out of service
    (by setting this object to 'destroy' or 'notInService'),
    it must first be unreferenced from all associated
    lines."
 ::= { adsl2LineAlarmConfTemplateEntry 7 }

```

```

-----
--      adsl2LineAlarmConfProfileTable      --
-----

```

```
adsl2LineAlarmConfProfileTable  OBJECT-TYPE
```

```

SYNTAX      SEQUENCE OF Adsl2LineAlarmConfProfileEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The table adsl2LineAlarmConfProfileTable contains ADSL2
    line PM thresholds profiles.

    Entries in this table MUST be maintained in a
    persistent manner."

```

```
::= { adsl2ProfileAlarmConf 2 }
```

```
adsl2LineAlarmConfProfileEntry OBJECT-TYPE
```

```
SYNTAX      Adsl2LineAlarmConfProfileEntry
```

```
MAX-ACCESS  not-accessible
```

```
STATUS      current
```

```
DESCRIPTION
```

```
"The table adsl2LineAlarmConfProfileTable contains ADSL2
line PM thresholds profiles.
```

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

```
INDEX { adsl2LineAlarmConfProfileName }
```

```
::= { adsl2LineAlarmConfProfileTable 1 }
```

```
Adsl2LineAlarmConfProfileEntry ::=
```

```
SEQUENCE {
```

```
adsl2LineAlarmConfProfileName          SnmpAdminString,
```

```
adsl2LineAlarmConfProfileAtucThresh15MinFecs
```

```
HCPerfIntervalThreshold,
```

```
adsl2LineAlarmConfProfileAtucThresh15MinEs
```

```
HCPerfIntervalThreshold,
```

```
adsl2LineAlarmConfProfileAtucThresh15MinSes
```

```
HCPerfIntervalThreshold,
```

```
adsl2LineAlarmConfProfileAtucThresh15MinLoss
```

```
HCPerfIntervalThreshold,
```

```
adsl2LineAlarmConfProfileAtucThresh15MinUas
```

```
HCPerfIntervalThreshold,
```

```
adsl2LineAlarmConfProfileAturThresh15MinFecs
```

```
HCPerfIntervalThreshold,
```

```
adsl2LineAlarmConfProfileAturThresh15MinEs
```

```
HCPerfIntervalThreshold,
```

```
adsl2LineAlarmConfProfileAturThresh15MinSes
```

```
HCPerfIntervalThreshold,
```

```
adsl2LineAlarmConfProfileAturThresh15MinLoss
```

```
HCPerfIntervalThreshold,
```

```
adsl2LineAlarmConfProfileAturThresh15MinUas
```

```
HCPerfIntervalThreshold,
```

```
adsl2LineAlarmConfProfileThresh15MinFailedFullInt
```

```
Unsigned32,
```

```
adsl2LineAlarmConfProfileThresh15MinFailedShrtInt
```

```
Unsigned32,
```

```
adsl2LineAlarmConfProfileRowStatus
```

```
RowStatus
```

```
}
```

```
adsl2LineAlarmConfProfileName OBJECT-TYPE
```

```
SYNTAX      SnmpAdminString (SIZE(1..32))
```

```

MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION
"This object identifies a row in this table."
 ::= { adsl2LineAlarmConfProfileEntry 1 }

```

```

adsl2LineAlarmConfProfileAtucThresh15MinFecs  OBJECT-TYPE
SYNTAX        HCPeIntervalThreshold
UNITS         "seconds"
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION
"A threshold for the adsl2PMLCurr15MFecs counter,
when adsl2PMLCurrUnit is atuc(1).
The value 0 means that no threshold is specified for the
associated counter."
REFERENCE     "ITU-T G.997.1, paragraph 7.3.1"
DEFVAL        { 0 }
 ::= { adsl2LineAlarmConfProfileEntry 2 }

```

```

adsl2LineAlarmConfProfileAtucThresh15MinEs  OBJECT-TYPE
SYNTAX        HCPeIntervalThreshold
UNITS         "seconds"
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION
"A threshold for the adsl2PMLCurr15MEs counter,
when adsl2PMLCurrUnit is atuc(1).
The value 0 means that no threshold is specified for the
associated counter."
REFERENCE     "ITU-T G.997.1, paragraph 7.3.1"
DEFVAL        { 0 }
 ::= { adsl2LineAlarmConfProfileEntry 3 }

```

```

adsl2LineAlarmConfProfileAtucThresh15MinSes  OBJECT-TYPE
SYNTAX        HCPeIntervalThreshold
UNITS         "seconds"
MAX-ACCESS    read-create
STATUS        current
DESCRIPTION
"A threshold for the adsl2PMLCurr15MSes counter,
when adsl2PMLCurrUnit is atuc(1).
The value 0 means that no threshold is specified for the
associated counter."
REFERENCE     "ITU-T G.997.1, paragraph 7.3.1"
DEFVAL        { 0 }
 ::= { adsl2LineAlarmConfProfileEntry 4 }

```



```

adsl2LineAlarmConfProfileAtucThresh15MinLoss  OBJECT-TYPE
    SYNTAX      HCPerfIntervalThreshold
    UNITS        "seconds"
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "A threshold for the adsl2PMLCurr15MLoss counter,
        when adsl2PMLCurrUnit is atuc(1).
        The value 0 means that no threshold is specified for the
        associated counter."
    REFERENCE    "ITU-T G.997.1, paragraph 7.3.1"
    DEFVAL       { 0 }
    ::= { adsl2LineAlarmConfProfileEntry 5 }

adsl2LineAlarmConfProfileAtucThresh15MinUas  OBJECT-TYPE
    SYNTAX      HCPerfIntervalThreshold
    UNITS        "seconds"
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "A threshold for the adsl2PMLCurr15MUas counter,
        when adsl2PMLCurrUnit is atuc(1).
        The value 0 means that no threshold is specified for the
        associated counter."
    REFERENCE    "ITU-T G.997.1, paragraph 7.3.1"
    DEFVAL       { 0 }
    ::= { adsl2LineAlarmConfProfileEntry 6 }

adsl2LineAlarmConfProfileAturThresh15MinFecs  OBJECT-TYPE
    SYNTAX      HCPerfIntervalThreshold
    UNITS        "seconds"
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "A threshold for the adsl2PMLCurr15MFecs counter,
        when adsl2PMLCurrUnit is atur(2).
        The value 0 means that no threshold is specified for the
        associated counter."
    REFERENCE    "ITU-T G.997.1, paragraph 7.3.1"
    DEFVAL       { 0 }
    ::= { adsl2LineAlarmConfProfileEntry 7 }

adsl2LineAlarmConfProfileAturThresh15MinEs  OBJECT-TYPE
    SYNTAX      HCPerfIntervalThreshold
    UNITS        "seconds"
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION

```

"A threshold for the adsl2PMLCurr15MEs counter, when adsl2PMLCurrUnit is atur(2). The value 0 means that no threshold is specified for the associated counter."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1"

DEFVAL { 0 }

::= { adsl2LineAlarmConfProfileEntry 8 }

adsl2LineAlarmConfProfileAturThresh15MinSes OBJECT-TYPE

SYNTAX HCPerfIntervalThreshold

UNITS "seconds"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"A threshold for the adsl2PMLCurr15MSes counter, when adsl2PMLCurrUnit is atur(2). The value 0 means that no threshold is specified for the associated counter."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1"

DEFVAL { 0 }

::= { adsl2LineAlarmConfProfileEntry 9 }

adsl2LineAlarmConfProfileAturThresh15MinLoss OBJECT-TYPE

SYNTAX HCPerfIntervalThreshold

UNITS "seconds"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"A threshold for the adsl2PMLCurr15MLoss counter, when adsl2PMLCurrUnit is atur(2). The value 0 means that no threshold is specified for the associated counter."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1"

DEFVAL { 0 }

::= { adsl2LineAlarmConfProfileEntry 10 }

adsl2LineAlarmConfProfileAturThresh15MinUas OBJECT-TYPE

SYNTAX HCPerfIntervalThreshold

UNITS "seconds"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"A threshold for the adsl2PMLCurr15MUas counter, when adsl2PMLCurrUnit is atur(2). The value 0 means that no threshold is specified for the associated counter."

REFERENCE "ITU-T G.997.1, paragraph 7.3.1"

DEFVAL { 0 }

```

 ::= { adsl2LineAlarmConfProfileEntry 11 }

adsl2LineAlarmConfProfileThresh15MinFailedFullInt OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "A threshold for the adsl2PMLCurrInit15MfailedFullInits
        counter.
        The value 0 means that no threshold is specified for the
        associated counter."
    REFERENCE    "ITU-T G.997.1, paragraph 7.3.1"
    DEFVAL       { 0 }
    ::= { adsl2LineAlarmConfProfileEntry 12 }

adsl2LineAlarmConfProfileThresh15MinFailedShrtInt OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "A threshold for the adsl2PMLCurrInit15MFailedShortInits
        counter.
        The value 0 means that no threshold is specified for the
        associated counter."
    REFERENCE    "ITU-T G.997.1, paragraph 7.3.1"
    DEFVAL       { 0 }
    ::= { adsl2LineAlarmConfProfileEntry 13 }

adsl2LineAlarmConfProfileRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "This object is used to create a new row or to modify or
        delete an existing row in this table.

        A profile is 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 'notInService'),
        it must first be unreferenced from all associated
        templates."
    ::= { adsl2LineAlarmConfProfileEntry 14 }

-----
--      adsl2ChAlarmConfProfileTable      --

```

```

-----

adsl2ChAlarmConfProfileTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Adsl2ChAlarmConfProfileEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2ChAlarmConfProfileTable contains ADSL2
        channel PM thresholds profiles.

        Entries in this table MUST be maintained in a
        persistent manner."
    ::= { adsl2ProfileAlarmConf 3 }

adsl2ChAlarmConfProfileEntry OBJECT-TYPE
    SYNTAX      Adsl2ChAlarmConfProfileEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2ChAlarmConfProfileTable contains ADSL2
        channel PM thresholds profiles.
        A default profile with an index of 'DEFVAL' will
        always exist, and its parameters will be set to vendor-
        specific values, unless otherwise specified in this document."
    INDEX { adsl2ChAlarmConfProfileName }
    ::= { adsl2ChAlarmConfProfileTable 1 }

Adsl2ChAlarmConfProfileEntry ::=
    SEQUENCE {
        adsl2ChAlarmConfProfileName
                                                    SnmpAdminString,
        adsl2ChAlarmConfProfileAtucThresh15MinCodingViolations
                                                    Unsigned32,
        adsl2ChAlarmConfProfileAtucThresh15MinCorrected
                                                    Unsigned32,
        adsl2ChAlarmConfProfileAturThresh15MinCodingViolations
                                                    Unsigned32,
        adsl2ChAlarmConfProfileAturThresh15MinCorrected
                                                    Unsigned32,
        adsl2ChAlarmConfProfileRowStatus
                                                    RowStatus
    }

adsl2ChAlarmConfProfileName OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE(1..32))
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object identifies a row in this table."
    ::= { adsl2ChAlarmConfProfileEntry 1 }

```

## adsl2ChAlarmConfProfileAtucThresh15MinCodingViolations OBJECT-TYPE

SYNTAX Unsigned32  
 MAX-ACCESS read-create  
 STATUS current

## DESCRIPTION

"A threshold for the adsl2PMChCurrl5MCodingViolations counter, when adsl2PMChCurrUnit is atuc(1). The value 0 means that no threshold is specified for the associated counter."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2"

DEFVAL { 0 }

::= { adsl2ChAlarmConfProfileEntry 2 }

## adsl2ChAlarmConfProfileAtucThresh15MinCorrected OBJECT-TYPE

SYNTAX Unsigned32  
 MAX-ACCESS read-create  
 STATUS current

## DESCRIPTION

"A threshold for the adsl2PMChCurrl5MCorrectedBlocks counter, when adsl2PMChCurrUnit is atuc(1). The value 0 means that no threshold is specified for the associated counter."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2"

DEFVAL { 0 }

::= { adsl2ChAlarmConfProfileEntry 3 }

## adsl2ChAlarmConfProfileAturThresh15MinCodingViolations OBJECT-TYPE

SYNTAX Unsigned32  
 MAX-ACCESS read-create  
 STATUS current

## DESCRIPTION

"A threshold for the adsl2PMChCurrl5MCodingViolations counter, when adsl2PMChCurrUnit is atur(2). The value 0 means that no threshold is specified for the associated counter."

REFERENCE "ITU-T G.997.1, paragraph 7.3.2"

DEFVAL { 0 }

::= { adsl2ChAlarmConfProfileEntry 4 }

## adsl2ChAlarmConfProfileAturThresh15MinCorrected OBJECT-TYPE

SYNTAX Unsigned32  
 MAX-ACCESS read-create  
 STATUS current

## DESCRIPTION

"A threshold for the adsl2PMChCurrl5MCorrectedBlocks counter, when adsl2PMChCurrUnit is atur(2). The value 0 means that no threshold is specified for the associated counter."

```

REFERENCE      "ITU-T G.997.1, paragraph 7.3.2"
DEFVAL         { 0 }
 ::= { adsl2ChAlarmConfProfileEntry 5 }

adsl2ChAlarmConfProfileRowStatus  OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is used to create a new row or to modify or
        delete an existing row in this table.

        A profile is 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 'notInService'),
        it must first be unreferenced from all associated
        templates."
    ::= { adsl2ChAlarmConfProfileEntry 6 }

-----
--          PM line current counters          --
-----
adsl2PMLineCurrTable  OBJECT-TYPE
    SYNTAX      SEQUENCE OF Adsl2PMLineCurrEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2PMLineCurrTable contains current Performance
        Monitoring results of ADSL2 lines."
    ::= { adsl2PMLine 1 }

adsl2PMLineCurrEntry  OBJECT-TYPE
    SYNTAX      Adsl2PMLineCurrEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2PMLineCurrTable contains current Performance
        Monitoring results of ADSL2 lines.
        The index of this table consists of an interface index, where
        the interface has an ifType of adsl2plus(238), along with a
        termination unit.
        The PM counters in the table are not reset even when the XTU
        is reinitialized. They are reinitialized only when the
        agent itself is reset or reinitialized."
    INDEX { ifIndex, adsl2PMLCurrUnit }
    ::= { adsl2PMLineCurrTable 1 }

```

```

Adsl2PMLineCurrEntry ::=
    SEQUENCE {
        adsl2PMLCurrUnit                Adsl2Unit,
        adsl2PMLCurrValidIntervals      Unsigned32,
        adsl2PMLCurrInvalidIntervals    Unsigned32,
        adsl2PMLCurr15MTimeElapsed      HCPerfTimeElapsed,
        adsl2PMLCurr15MFecs              Counter32,
        adsl2PMLCurr15MEs                Counter32,
        adsl2PMLCurr15MSes               Counter32,
        adsl2PMLCurr15MLoss              Counter32,
        adsl2PMLCurr15MUas               Counter32,
        adsl2PMLCurr1DayValidIntervals   Unsigned32,
        adsl2PMLCurr1DayInvalidIntervals Unsigned32,
        adsl2PMLCurr1DayTimeElapsed      HCPerfTimeElapsed,
        adsl2PMLCurr1DayFecs             Counter32,
        adsl2PMLCurr1DayEs               Counter32,
        adsl2PMLCurr1DaySes              Counter32,
        adsl2PMLCurr1DayLoss             Counter32,
        adsl2PMLCurr1DayUas              Counter32
    }

```

```

adsl2PMLCurrUnit OBJECT-TYPE
    SYNTAX      Adsl2Unit
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "The termination unit atuc(1) or atur(2)."
```

::= { adsl2PMLineCurrEntry 1 }

```

adsl2PMLCurrValidIntervals OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Valid intervals."
```

::= { adsl2PMLineCurrEntry 2 }

```

adsl2PMLCurrInvalidIntervals OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Invalid intervals."
```

::= { adsl2PMLineCurrEntry 3 }

```

adsl2PMLCurr15MTimeElapsed OBJECT-TYPE
    SYNTAX      HCPerfTimeElapsed
    UNITS        "seconds"
```

```

MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
    "Total elapsed seconds since this PM interval began.
    Note that the PM counters are not reset even when the XTU
    is reinitialized. They are reinitialized only when the
    agent itself is reset or reinitialized."
 ::= { adsl2PMLLineCurrEntry 4 }

adsl2PMLCurrl5MFecs OBJECT-TYPE
    SYNTAX      Counter32
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS      current
    DESCRIPTION
        "Count of seconds during this interval where there was at least
        one FEC correction event for one or more bearer channels in
        this line. This parameter is inhibited during UAS or SES."
    REFERENCE    "ITU-T G.997.1, paragraph 7.2.1"
    ::= { adsl2PMLLineCurrEntry 5 }

adsl2PMLCurrl5MEs OBJECT-TYPE
    SYNTAX      Counter32
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS      current
    DESCRIPTION
        "Count of seconds during this interval where there was:
        ATU-C: CRC-8 >= 1 for one or more bearer channels OR
              LOS >= 1 OR SEF >=1 OR LPR >= 1
        ATU-R: FEBE >= 1 for one or more bearer channels OR
              LOS-FE >=1 OR RDI >=1 OR LPR-FE >=1 .
        This parameter is inhibited during UAS."
    REFERENCE    "ITU-T G.997.1, paragraph 7.2.1"
    ::= { adsl2PMLLineCurrEntry 6 }

adsl2PMLCurrl5MSes OBJECT-TYPE
    SYNTAX      Counter32
    UNITS        "seconds"
    MAX-ACCESS   read-only
    STATUS      current
    DESCRIPTION
        "Count of seconds during this interval where there was:
        ATU-C: (CRC-8 summed over all bearer channels) >= 18 OR
              LOS >= 1 OR SEF >= 1 OR LPR >= 1
        ATU-R: (FEBE summed over all bearer channels) >= 18 OR
              LOS-FE >= 1 OR RDI >= 1 OR LPR-FE >= 1 .
        This parameter is inhibited during UAS."

```



REFERENCE "ITU-T G.997.1, paragraph 7.2.1"  
 ::= { adsl2PMLineCurrEntry 7 }

adsl2PMLCurr15MLoss OBJECT-TYPE

SYNTAX Counter32

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of seconds during this interval where there was LOS (or  
LOS-FE for ATU-R)."

REFERENCE "ITU-T G.997.1, paragraph 7.2.1"  
 ::= { adsl2PMLineCurrEntry 8 }

adsl2PMLCurr15MUas OBJECT-TYPE

SYNTAX Counter32

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of seconds in Unavailability State during this  
interval. Unavailability begins at the onset of 10  
contiguous severely-errored seconds, and ends at the  
onset of 10 contiguous seconds with no severely-errored  
seconds."

REFERENCE "ITU-T G.997.1, paragraph 7.2.1"  
 ::= { adsl2PMLineCurrEntry 9 }

adsl2PMLCurr1DayValidIntervals OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Valid intervals."

::= { adsl2PMLineCurrEntry 10 }

adsl2PMLCurr1DayInvalidIntervals OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Invalid intervals."

::= { adsl2PMLineCurrEntry 11 }

adsl2PMLCurr1DayTimeElapsed OBJECT-TYPE

SYNTAX HCPerfTimeElapsed

UNITS "seconds"

MAX-ACCESS read-only

```

STATUS      current
DESCRIPTION
    "Total elapsed seconds since this PM interval began.
    Note that the PM counters are not reset even when the XTU
    is reinitialized. They are reinitialized only when the
    agent itself is reset or reinitialized."
 ::= { adsl2PMLineCurrEntry 12 }

adsl2PMLCurr1DayFecs OBJECT-TYPE
SYNTAX      Counter32
UNITS       "seconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Count of seconds during this interval where there was at least
    one FEC correction event for one or more bearer channels in
    this line. This parameter is inhibited during UAS or SES."
REFERENCE   "ITU-T G.997.1, paragraph 7.2.1"
 ::= { adsl2PMLineCurrEntry 13 }

adsl2PMLCurr1DayEs OBJECT-TYPE
SYNTAX      Counter32
UNITS       "seconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Count of seconds during this interval where there was:
    ATU-C: CRC-8 >= 1 for one or more bearer channels OR
           LOS >= 1 OR SEF >= 1 OR LPR >= 1
    ATU-R: FEBE >= 1 for one or more bearer channels OR
           LOS-FE >= 1 OR RDI >= 1 OR LPR-FE >= 1.
    This parameter is inhibited during UAS."
REFERENCE   "ITU-T G.997.1, paragraph 7.2.1"
 ::= { adsl2PMLineCurrEntry 14 }

adsl2PMLCurr1DaySes OBJECT-TYPE
SYNTAX      Counter32
UNITS       "seconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Count of seconds during this interval where there was:
    ATU-C: (CRC-8 summed over all bearer channels) >= 18 OR
           LOS >= 1 OR SEF >= 1 OR LPR >= 1
    ATU-R: (FEBE summed over all bearer channels) >= 18 OR
           LOS-FE >= 1 OR RDI >= 1 OR LPR-FE >= 1
    This parameter is inhibited during UAS."
REFERENCE   "ITU-T G.997.1, paragraph 7.2.1"

```

```

 ::= { adsl2PMLineCurrEntry 15 }

adsl2PMLCurr1DayLoss OBJECT-TYPE
    SYNTAX      Counter32
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of seconds during this interval where there was LOS (or
        LOS-FE for ATU-R)."
```

REFERENCE "ITU-T G.997.1, paragraph 7.2.1"

```

 ::= { adsl2PMLineCurrEntry 16 }

adsl2PMLCurr1DayUas OBJECT-TYPE
    SYNTAX      Counter32
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of seconds in Unavailability State during this interval.
        Unavailability begins at the onset of 10 contiguous severely-
        errored seconds, and ends at the onset of 10 contiguous
        seconds with no severely-errored seconds."
```

REFERENCE "ITU-T G.997.1, paragraph 7.2.1"

```

 ::= { adsl2PMLineCurrEntry 17 }

-----
--                PM line init current counters                --
-----

adsl2PMLineCurrInitTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF Adsl2PMLineCurrInitEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2PMLineCurrInitTable contains current
        initialization counters of the ADSL2 line.
        The PM counters in the table are not reset even when the XTU
        is reinitialized. They are reinitialized only when the
        agent itself is reset or reinitialized."
    ::= { adsl2PMLine 2 }

adsl2PMLineCurrInitEntry OBJECT-TYPE
    SYNTAX      Adsl2PMLineCurrInitEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
```

"The table adsl2PMLineCurrInitTable contains current initialization counters of the ADSL2 line.  
The index of this table consists of an interface index, where the interface has an ifType of adsl2plus(238), and a termination unit."

```
INDEX { ifIndex }
 ::= { adsl2PMLineCurrInitTable 1 }
```

```
Adsl2PMLineCurrInitEntry ::=
```

```
SEQUENCE {
    adsl2PMLCurrInit15MTimeElapsed      Unsigned32,
    adsl2PMLCurrInit15MFullInits        Unsigned32,
    adsl2PMLCurrInit15MFailedFullInits  Unsigned32,
    adsl2PMLCurrInit15MShortInits       Unsigned32,
    adsl2PMLCurrInit15MFailedShortInits Unsigned32,
    adsl2PMLCurrInit1DayTimeElapsed     Unsigned32,
    adsl2PMLCurrInit1DayFullInits       Unsigned32,
    adsl2PMLCurrInit1DayFailedFullInits Unsigned32,
    adsl2PMLCurrInit1DayShortInits      Unsigned32,
    adsl2PMLCurrInit1DayFailedShortInits Unsigned32
}
```

```
adsl2PMLCurrInit15MTimeElapsed OBJECT-TYPE
```

```
SYNTAX      Unsigned32
```

```
UNITS       "seconds"
```

```
MAX-ACCESS  read-only
```

```
STATUS      current
```

```
DESCRIPTION
```

"Total elapsed seconds since this PM interval began.

Note that the PM counters are not reset even when the XTU is reinitialized. They are reinitialized only when the agent itself is reset or reinitialized."

```
 ::= { adsl2PMLineCurrInitEntry 1 }
```

```
adsl2PMLCurrInit15MFullInits OBJECT-TYPE
```

```
SYNTAX      Unsigned32
```

```
MAX-ACCESS  read-only
```

```
STATUS      current
```

```
DESCRIPTION
```

"Count of full initializations attempted on the line (successful and failed) during this interval."

```
REFERENCE   "ITU-T G.997.1, paragraph 7.2.1"
```

```
 ::= { adsl2PMLineCurrInitEntry 2 }
```

```
adsl2PMLCurrInit15MFailedFullInits OBJECT-TYPE
```

```
SYNTAX      Unsigned32
```

```
MAX-ACCESS  read-only
```

```
STATUS      current
```

DESCRIPTION  
"Count of failed full initializations on the line during this interval."  
REFERENCE "ITU-T G.997.1, paragraph 7.2.1"  
 ::= { adsl2PMLineCurrInitEntry 3 }

adsl2PMLCurrInit15MShortInits OBJECT-TYPE  
SYNTAX Unsigned32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"Count of short initializations attempted on the line (successful and failed) during this interval."  
REFERENCE "ITU-T G.997.1, paragraph 7.2.1"  
 ::= { adsl2PMLineCurrInitEntry 4 }

adsl2PMLCurrInit15MFailedShortInits OBJECT-TYPE  
SYNTAX Unsigned32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"Count of failed short initializations on the line during this interval."  
REFERENCE "ITU-T G.997.1, paragraph 7.2.1"  
 ::= { adsl2PMLineCurrInitEntry 5 }

adsl2PMLCurrInit1DayTimeElapsed OBJECT-TYPE  
SYNTAX Unsigned32  
UNITS "seconds"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"Total elapsed seconds since this PM interval began.  
Note that the PM counters are not reset even when the XTU is reinitialized. They are reinitialized only when the agent itself is reset or reinitialized."  
 ::= { adsl2PMLineCurrInitEntry 6 }

adsl2PMLCurrInit1DayFullInits OBJECT-TYPE  
SYNTAX Unsigned32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"Count of full initializations attempted on the line (successful and failed) during this interval."  
REFERENCE "ITU-T G.997.1, paragraph 7.2.1"  
 ::= { adsl2PMLineCurrInitEntry 7 }

```

adsl2PMLCurrInit1DayFailedFullInits  OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of failed full initializations on the line during this
        interval."
    REFERENCE    "ITU-T G.997.1, paragraph 7.2.1"
    ::= { adsl2PMLLineCurrInitEntry 8 }

adsl2PMLCurrInit1DayShortInits  OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of short initializations attempted on the line
        (successful and failed) during this interval."
    REFERENCE    "ITU-T G.997.1, paragraph 7.2.1"
    ::= { adsl2PMLLineCurrInitEntry 9 }

adsl2PMLCurrInit1DayFailedShortInits  OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of failed short initializations on the line during this
        interval."
    REFERENCE    "ITU-T G.997.1, paragraph 7.2.1"
    ::= { adsl2PMLLineCurrInitEntry 10 }

-----
--          PM line history 15 Minutes          --
-----

adsl2PMLLineHist15MinTable  OBJECT-TYPE
    SYNTAX      SEQUENCE OF Adsl2PMLLineHist15MinEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "The table adsl2PMLLineHist15MinTable contains PM line history
        for 15min intervals of the ADSL2 line."
    ::= { adsl2PMLLine 3 }

adsl2PMLLineHist15MinEntry  OBJECT-TYPE
    SYNTAX      Adsl2PMLLineHist15MinEntry
    MAX-ACCESS   not-accessible
    STATUS       current

```

## DESCRIPTION

"The table adsl2PMLineHist15MinTable contains PM line history for 15min intervals of the ADSL2 line.

The index of this table consists of an interface index, where the interface has an ifType of adsl2plus(238), along with a termination unit, and an interval number."

```
INDEX { ifIndex,
        adsl2PMLHist15MUnit,
        adsl2PMLHist15MInterval }
 ::= { adsl2PMLineHist15MinTable 1 }
```

Adsl2PMLineHist15MinEntry ::=

```
SEQUENCE {
    adsl2PMLHist15MUnit           Adsl2Unit,
    adsl2PMLHist15MInterval       Unsigned32,
    adsl2PMLHist15MMonitoredTime Unsigned32,
    adsl2PMLHist15MFecs           Counter32,
    adsl2PMLHist15MEs            Counter32,
    adsl2PMLHist15MSes           Counter32,
    adsl2PMLHist15MLOSS          Counter32,
    adsl2PMLHist15MUas           Counter32,
    adsl2PMLHist15MValidInterval TruthValue
}
```

adsl2PMLHist15MUnit OBJECT-TYPE

```
SYNTAX      Adsl2Unit
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The termination unit atuc(1) or atur(2)."
```

```
::= { adsl2PMLineHist15MinEntry 1 }
```

adsl2PMLHist15MInterval OBJECT-TYPE

```
SYNTAX      Unsigned32 (1..96)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The interval number."
```

```
::= { adsl2PMLineHist15MinEntry 2 }
```

adsl2PMLHist15MMonitoredTime OBJECT-TYPE

```
SYNTAX      Unsigned32
UNITS       "seconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Total seconds monitored in this interval."
```

```
::= { adsl2PMLineHist15MinEntry 3 }
```

## adsl2PMLHist15MFecs OBJECT-TYPE

SYNTAX Counter32  
UNITS "seconds"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION

"Count of seconds during this interval where there was at least one FEC correction event for one or more bearer channels in this line. This parameter is inhibited during UAS or SES."

REFERENCE "ITU-T G.997.1, paragraph 7.2.1"  
::= { adsl2PMLLineHist15MinEntry 4 }

## adsl2PMLHist15MEs OBJECT-TYPE

SYNTAX Counter32  
UNITS "seconds"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION

"Count of seconds during this interval where there was:  
ATU-C: CRC-8 >= 1 for one or more bearer channels OR  
LOS >= 1 OR SEF >= 1 OR LPR >= 1  
ATU-R: FEBE >= 1 for one or more bearer channels OR  
LOS-FE >= 1 OR RDI >= 1 OR LPR-FE >= 1.

This parameter is inhibited during UAS."

REFERENCE "ITU-T G.997.1, paragraph 7.2.1"  
::= { adsl2PMLLineHist15MinEntry 5 }

## adsl2PMLHist15MSes OBJECT-TYPE

SYNTAX Counter32  
UNITS "seconds"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION

"Count of seconds during this interval where there was:  
ATU-C: (CRC-8 summed over all bearer channels) >= 18 OR  
LOS >= 1 OR SEF >= 1 OR LPR >= 1  
ATU-R: (FEBE summed over all bearer channels) >= 18 OR  
LOS-FE >= 1 OR RDI >= 1 OR LPR-FE >= 1.

This parameter is inhibited during UAS."

REFERENCE "ITU-T G.997.1, paragraph 7.2.1"  
::= { adsl2PMLLineHist15MinEntry 6 }

## adsl2PMLHist15MLoss OBJECT-TYPE

SYNTAX Counter32  
UNITS "seconds"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION



"Count of seconds during this interval where there was LOS (or LOS-FE for ATU-R)."

REFERENCE "ITU-T G.997.1, paragraph 7.2.1"

::= { adsl2PMLineHist15MinEntry 7 }

adsl2PMLHist15MUas OBJECT-TYPE

SYNTAX Counter32

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of seconds in Unavailability State during this interval. Unavailability begins at the onset of 10 contiguous severely-errored seconds, and ends at the onset of 10 contiguous seconds with no severely-errored seconds."

REFERENCE "ITU-T G.997.1, paragraph 7.2.1"

::= { adsl2PMLineHist15MinEntry 8 }

adsl2PMLHist15MValidInterval OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This variable indicates if the data for this interval is valid."

::= { adsl2PMLineHist15MinEntry 9 }

```
-----
--          PM line history 1 Day          --
-----
```

adsl2PMLLineHist1DayTable OBJECT-TYPE

SYNTAX SEQUENCE OF Adsl2PMLLineHist1DayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The table adsl2PMLLineHist1DayTable contains PM line history for 24-hour intervals of the ADSL2 line."

::= { adsl2PMLLine 4 }

adsl2PMLLineHist1DayEntry OBJECT-TYPE

SYNTAX Adsl2PMLLineHist1DayEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The table adsl2PMLLineHist1DayTable contains PM line history for 24-hour intervals of the ADSL2 line."

The index of this table consists of an interface index, where the interface has an ifType of adsl2plus(238), along with a termination unit, and an interval number."

```
INDEX { ifIndex,
        adsl2PMLHist1DUnit,
        adsl2PMLHist1DInterval }
 ::= { adsl2PMLLineHist1DayTable 1 }
```

```
Adsl2PMLLineHist1DayEntry ::=
SEQUENCE {
    adsl2PMLHist1DUnit          Adsl2Unit,
    adsl2PMLHist1DInterval      Unsigned32,
    adsl2PMLHist1DMonitoredTime Unsigned32,
    adsl2PMLHist1DFecs          Counter32,
    adsl2PMLHist1DES            Counter32,
    adsl2PMLHist1DSes           Counter32,
    adsl2PMLHist1DLoss          Counter32,
    adsl2PMLHist1DUas           Counter32,
    adsl2PMLHist1DValidInterval TruthValue
}
```

```
adsl2PMLHist1DUnit OBJECT-TYPE
SYNTAX      Adsl2Unit
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The termination unit."
 ::= { adsl2PMLLineHist1DayEntry 1 }
```

```
adsl2PMLHist1DInterval OBJECT-TYPE
SYNTAX      Unsigned32 (1..30)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The interval number."
 ::= { adsl2PMLLineHist1DayEntry 2 }
```

```
adsl2PMLHist1DMonitoredTime OBJECT-TYPE
SYNTAX      Unsigned32
UNITS       "seconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Total seconds monitored in this interval."
 ::= { adsl2PMLLineHist1DayEntry 3 }
```

```
adsl2PMLHist1DFecs OBJECT-TYPE
SYNTAX      Counter32
```

```

UNITS          "seconds"
MAX-ACCESS     read-only
STATUS         current
DESCRIPTION    "Count of seconds during this interval where there was at least
               one FEC correction event for one or more bearer channels in
               this line. This parameter is inhibited during UAS or SES."
REFERENCE      "ITU-T G.997.1, paragraph 7.2.1"
 ::= { adsl2PMLineHist1DayEntry 4 }

adsl2PMLHist1DEs  OBJECT-TYPE
SYNTAX         Counter32
UNITS          "seconds"
MAX-ACCESS     read-only
STATUS         current
DESCRIPTION    "Count of seconds during this interval where there was:
               ATU-C: CRC-8 >= 1 for one or more bearer channels OR
               LOS >= 1 OR SEF >= 1 OR LPR >= 1
               ATU-R: FEBE >= 1 for one or more bearer channels OR
               LOS-FE >= 1 OR RDI >= 1 OR LPR-FE >= 1.
               This parameter is inhibited during UAS."
REFERENCE      "ITU-T G.997.1, paragraph 7.2.1"
 ::= { adsl2PMLineHist1DayEntry 5 }

adsl2PMLHist1DSes  OBJECT-TYPE
SYNTAX         Counter32
UNITS          "seconds"
MAX-ACCESS     read-only
STATUS         current
DESCRIPTION    "Count of seconds during this interval where there was:
               ATU-C: (CRC-8 summed over all bearer channels) >= 18 OR
               LOS >= 1 OR SEF >> 1 OR LPR >= 1
               ATU-R: (FEBE summed over all bearer channels) >= 18 OR
               LOS-FE >= 1 OR RDI >= 1 OR LPR-FE >= 1.
               This parameter is inhibited during UAS."
REFERENCE      "ITU-T G.997.1, paragraph 7.2.1"
 ::= { adsl2PMLineHist1DayEntry 6 }

adsl2PMLHist1DLoss  OBJECT-TYPE
SYNTAX         Counter32
UNITS          "seconds"
MAX-ACCESS     read-only
STATUS         current
DESCRIPTION    "Count of seconds during this interval where there was LOS (or
               LOS-FE for ATU-R)."
```

REFERENCE "ITU-T G.997.1, paragraph 7.2.1"  
 ::= { adsl2PMLineHist1DayEntry 7 }

adsl2PMLHist1DUas OBJECT-TYPE

SYNTAX Counter32

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of seconds in Unavailability State during this interval. Unavailability begins at the onset of 10 contiguous severely-errored seconds, and ends at the onset of 10 contiguous seconds with no severely-errored seconds."

REFERENCE "ITU-T G.997.1, paragraph 7.2.1"  
 ::= { adsl2PMLineHist1DayEntry 8 }

adsl2PMLHist1DValidInterval OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This variable indicates if the data for this interval is valid."

::= { adsl2PMLineHist1DayEntry 9 }

-----  
 -- PM line init history 15 Minutes --  
 -----

adsl2PMLineInitHist15MinTable OBJECT-TYPE

SYNTAX SEQUENCE OF Adsl2PMLineInitHist15MinEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The table adsl2PMLineInitHist15MinTable contains PM line initialization history for 15-minute intervals of the ADSL2 line."

::= { adsl2PMLine 5 }

adsl2PMLineInitHist15MinEntry OBJECT-TYPE

SYNTAX Adsl2PMLineInitHist15MinEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The table adsl2PMLineInitHist15MinTable contains PM line

initialization history for 15 minutes intervals of the ADSL2 line.

The index of this table consists of an interface index, where the interface has an ifType of adsl2plus(238), and an interval number."

```
INDEX { ifIndex,
        adsl2PMLHistInit15MInterval }
 ::= { adsl2PMLLineInitHist15MinTable 1 }
```

```
Adsl2PMLLineInitHist15MinEntry ::=
SEQUENCE {
    adsl2PMLHistInit15MInterval          Unsigned32,
    adsl2PMLHistInit15MMonitoredTime     Unsigned32,
    adsl2PMLHistInit15MFullInits         Unsigned32,
    adsl2PMLHistInit15MFailedFullInits   Unsigned32,
    adsl2PMLHistInit15MShortInits        Unsigned32,
    adsl2PMLHistInit15MFailedShortInits   Unsigned32,
    adsl2PMLHistInit15MValidInterval     TruthValue
}
```

```
adsl2PMLHistInit15MInterval OBJECT-TYPE
SYNTAX      Unsigned32 (1..96)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The interval number."
 ::= { adsl2PMLLineInitHist15MinEntry 1 }
```

```
adsl2PMLHistInit15MMonitoredTime OBJECT-TYPE
SYNTAX      Unsigned32
UNITS       "seconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Total seconds monitored in this interval."
 ::= { adsl2PMLLineInitHist15MinEntry 2 }
```

```
adsl2PMLHistInit15MFullInits OBJECT-TYPE
SYNTAX      Unsigned32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Count of full initializations attempted on the line
    (successful and failed) during this interval."
REFERENCE   "ITU-T G.997.1, paragraph 7.2.1"
 ::= { adsl2PMLLineInitHist15MinEntry 3 }
```

```
adsl2PMLHistInit15MFailedFullInits OBJECT-TYPE
```

```

SYNTAX      Unsigned32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Count of failed full initializations on the line during this
    interval."
REFERENCE   "ITU-T G.997.1, paragraph 7.2.1"
 ::= { adsl2PMLineInitHist15MinEntry 4 }

adsl2PMLHistInit15MShortInits  OBJECT-TYPE
SYNTAX      Unsigned32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Count of short initializations attempted on the line
    (successful and failed) during this interval."
REFERENCE   "ITU-T G.997.1, paragraph 7.2.1"
 ::= { adsl2PMLineInitHist15MinEntry 5 }

adsl2PMLHistInit15MFailedShortInits  OBJECT-TYPE
SYNTAX      Unsigned32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Count of failed short initializations on the line during this
    interval."
REFERENCE   "ITU-T G.997.1, paragraph 7.2.1"
 ::= { adsl2PMLineInitHist15MinEntry 6 }

adsl2PMLHistInit15MValidInterval  OBJECT-TYPE
SYNTAX      TruthValue
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This variable indicates if the data for this interval is
    valid."
 ::= { adsl2PMLineInitHist15MinEntry 7 }

-----
--          PM line init history 1 Day          --
-----
adsl2PMLLineInitHist1DayTable  OBJECT-TYPE
SYNTAX      SEQUENCE OF Adsl2PMLLineInitHist1DayEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION

```

```

    "The table adsl2PMLineInitHist1DayTable contains PM line
    initialization history for 24-hour intervals of the ADSL2
    line."
 ::= { adsl2PMLine 6 }

adsl2PMLineInitHist1DayEntry OBJECT-TYPE
    SYNTAX      Adsl2PMLineInitHist1DayEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2PMLineInitHist1DayTable contains PM line
        initialization history for 24-hour intervals of the ADSL2
        line.
        The index of this table consists of an interface index, where
        the interface has an ifType of adsl2plus(238), and an interval
        number."
    INDEX { ifIndex,
            adsl2PMLHistinit1DInterval }
 ::= { adsl2PMLineInitHist1DayTable 1 }

Adsl2PMLineInitHist1DayEntry ::=
    SEQUENCE {
        adsl2PMLHistinit1DInterval      Unsigned32,
        adsl2PMLHistinit1DMonitoredTime Unsigned32,
        adsl2PMLHistinit1DFullInits     Unsigned32,
        adsl2PMLHistinit1DFailedFullInits Unsigned32,
        adsl2PMLHistinit1DShortInits    Unsigned32,
        adsl2PMLHistinit1DFailedShortInits Unsigned32,
        adsl2PMLHistinit1DValidInterval TruthValue
    }

adsl2PMLHistinit1DInterval OBJECT-TYPE
    SYNTAX      Unsigned32 (1..30)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The interval number."
 ::= { adsl2PMLineInitHist1DayEntry 1 }

adsl2PMLHistinit1DMonitoredTime OBJECT-TYPE
    SYNTAX      Unsigned32
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total seconds monitored in this interval."
 ::= { adsl2PMLineInitHist1DayEntry 2 }

```

```
adsl2PMLHistinit1DFullInits  OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of full initializations attempted on the line
         (successful and failed) during this interval."
    REFERENCE    "ITU-T G.997.1, paragraph 7.2.1"
    ::= { adsl2PMLLineInitHist1DayEntry 3 }

adsl2PMLHistinit1DFailedFullInits  OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of failed full initializations on the line during this
         interval."
    REFERENCE    "ITU-T G.997.1, paragraph 7.2.1"
    ::= { adsl2PMLLineInitHist1DayEntry 4 }

adsl2PMLHistinit1DShortInits  OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of short initializations attempted on the line
         (successful and failed) during this interval."
    REFERENCE    "ITU-T G.997.1, paragraph 7.2.1"
    ::= { adsl2PMLLineInitHist1DayEntry 5 }

adsl2PMLHistinit1DFailedShortInits  OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "Count of failed short initializations on the line during this
         interval."
    REFERENCE    "ITU-T G.997.1, paragraph 7.2.1"
    ::= { adsl2PMLLineInitHist1DayEntry 6 }

adsl2PMLHistinit1DValidInterval  OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "This variable indicates if the data for this interval is
         valid."
    ::= { adsl2PMLLineInitHist1DayEntry 7 }
```



```

-----
--                PM channel current counters                --
-----
adsl2PMChCurrTable      OBJECT-TYPE
    SYNTAX      SEQUENCE OF Adsl2PMChCurrEntry
    MAX-ACCESS   not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2PMChCurrTable contains current Performance
        Monitoring results of the ADSL2 channel.
        The PM counters in the table are not reset even when the XTU
        is reinitialized. They are reinitialized only when the
        agent itself is reset or reinitialized."
    ::= { adsl2PMChannel 1 }

adsl2PMChCurrEntry      OBJECT-TYPE
    SYNTAX      Adsl2PMChCurrEntry
    MAX-ACCESS   not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2PMChCurrTable contains current Performance
        Monitoring results of the ADSL2 channel.
        The index of this table consists of an interface index, where
        the interface has an ifType value that is applicable
        for a DSL channel, along with a termination unit."
    INDEX { ifIndex, adsl2PMChCurrUnit }
    ::= { adsl2PMChCurrTable 1 }

Adsl2PMChCurrEntry ::=
    SEQUENCE {
        adsl2PMChCurrUnit                Adsl2Unit,
        adsl2PMChCurrValidIntervals      Unsigned32,
        adsl2PMChCurrInvalidIntervals     Unsigned32,
        adsl2PMChCurr15MTimeElapsed      HCPerfTimeElapsed,
        adsl2PMChCurr15MCodingViolations Unsigned32,
        adsl2PMChCurr15MCorrectedBlocks  Unsigned32,
        adsl2PMChCurr1DayValidIntervals   Unsigned32,
        adsl2PMChCurr1DayInvalidIntervals Unsigned32,
        adsl2PMChCurr1DayTimeElapsed      HCPerfTimeElapsed,
        adsl2PMChCurr1DayCodingViolations Unsigned32,
        adsl2PMChCurr1DayCorrectedBlocks  Unsigned32
    }

adsl2PMChCurrUnit      OBJECT-TYPE
    SYNTAX      Adsl2Unit
    MAX-ACCESS   not-accessible
    STATUS      current
    DESCRIPTION

```

```

    "The termination unit."
    ::= { adsl2PMChCurrEntry 1 }

adsl2PMChCurrValidIntervals OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Valid intervals."
    ::= { adsl2PMChCurrEntry 2 }

adsl2PMChCurrInvalidIntervals OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Invalid intervals."
    ::= { adsl2PMChCurrEntry 3 }

adsl2PMChCurr15MTimeElapsed OBJECT-TYPE
    SYNTAX      HCPerfTimeElapsed
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total elapsed seconds since this PM interval began.
        Note that the PM counters are not reset even when the XTU
        is reinitialized. They are reinitialized only when the
        agent itself is reset or reinitialized."
    ::= { adsl2PMChCurrEntry 4 }

adsl2PMChCurr15MCodingViolations OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of CRC-8 (FEBE for ATU-R) anomalies occurring in the
        channel during the interval. This parameter is inhibited
        during UAS or SES. If the CRC is applied over multiple
        channels, then each related CRC-8 (or FEBE) anomaly should
        increment each of the counters related to the individual
        channels."
    REFERENCE   "ITU-T G.997.1, paragraph 7.2.2"
    ::= { adsl2PMChCurrEntry 5 }

adsl2PMChCurr15MCorrectedBlocks OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only

```

STATUS current

DESCRIPTION

"Count of FEC (FFEC for ATU-R) anomalies (corrected code words) occurring in the channel during the interval. This parameter is inhibited during UAS or SES. If the FEC is applied over multiple channels, then each related FEC (or FFEC) anomaly should increment each of the counters related to the individual channels."

REFERENCE "ITU-T G.997.1, paragraph 7.2.2"

::= { adsl2PMChCurrEntry 6 }

adsl2PMChCurr1DayValidIntervals OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Valid intervals."

::= { adsl2PMChCurrEntry 7 }

adsl2PMChCurr1DayInvalidIntervals OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Invalid intervals."

::= { adsl2PMChCurrEntry 8 }

adsl2PMChCurr1DayTimeElapsed OBJECT-TYPE

SYNTAX HCPerfTimeElapsed

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Total elapsed seconds since this PM interval began.

Note that the PM counters are not reset even when the XTU is reinitialized. They are reinitialized only when the agent itself is reset or reinitialized."

::= { adsl2PMChCurrEntry 9 }

adsl2PMChCurr1DayCodingViolations OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of CRC-8 (FEBE for ATU-R) anomalies occurring in the channel during the interval. This parameter is inhibited during UAS or SES. If the CRC is applied over multiple channels, then each related CRC-8 (or FEBE) anomaly should

```

        increment each of the counters related to the individual
        channels."
REFERENCE      "ITU-T G.997.1, paragraph 7.2.2"
 ::= { adsl2PMChCurrEntry 10 }

adsl2PMChCurr1DayCorrectedBlocks  OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of FEC (FFEC for ATU-R) anomalies (corrected code words)
        occurring in the channel during the interval. This parameter
        is inhibited during UAS or SES. If the FEC is applied over
        multiple channels, then each related FEC (or FFEC) anomaly
        should increment each of the counters related to the
        individual channels."
REFERENCE      "ITU-T G.997.1, paragraph 7.2.2"
 ::= { adsl2PMChCurrEntry 11 }

-----
--      PM channel history 15 Minutes      --
-----
adsl2PMChHist15MinTable          OBJECT-TYPE
    SYNTAX      SEQUENCE OF Adsl2PMChHist15MinEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2PMChCurrTable contains current Performance
        Monitoring results of the ADSL2 channel."
 ::= { adsl2PMChannel 2 }

adsl2PMChHist15MinEntry  OBJECT-TYPE
    SYNTAX      Adsl2PMChHist15MinEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The table adsl2PMChCurrTable contains current Performance
        Monitoring results of the ADSL2 channel.
        The index of this table consists of an interface index, where
        the interface has an ifType value that is applicable
        for a DSL channel, along with a termination unit, and the
        interval number."
    INDEX { ifIndex,
            adsl2PMChHist15MUnit,
            adsl2PMChHist15MInterval }
 ::= { adsl2PMChHist15MinTable 1 }

```

```

Adsl2PMChHist15MinEntry ::=
    SEQUENCE {
        adsl2PMChHist15MUnit          Adsl2Unit,
        adsl2PMChHist15MInterval      Unsigned32,
        adsl2PMChHist15MMonitoredTime Unsigned32,
        adsl2PMChHist15MCodingViolations Unsigned32,
        adsl2PMChHist15MCorrectedBlocks Unsigned32,
        adsl2PMChHist15MValidInterval TruthValue
    }

adsl2PMChHist15MUnit OBJECT-TYPE
    SYNTAX      Adsl2Unit
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The termination unit."
    ::= { adsl2PMChHist15MinEntry 1 }

adsl2PMChHist15MInterval OBJECT-TYPE
    SYNTAX      Unsigned32 (1..96)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The interval number."
    ::= { adsl2PMChHist15MinEntry 2 }

adsl2PMChHist15MMonitoredTime OBJECT-TYPE
    SYNTAX      Unsigned32
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total seconds monitored in this interval."
    ::= { adsl2PMChHist15MinEntry 3 }

adsl2PMChHist15MCodingViolations OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of CRC-8 (FEBE for ATU-R) anomalies occurring in the
        channel during the interval.  This parameter is inhibited
        during UAS or SES.  If the CRC is applied over multiple
        channels, then each related CRC-8 (or FEBE) anomaly should
        increment each of the counters related to the individual
        channels."
    REFERENCE   "ITU-T G.997.1, paragraph 7.2.2"
    ::= { adsl2PMChHist15MinEntry 4 }

```

adsl2PMChHist15MCorrectedBlocks OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of FEC (FFEC for ATU-R) anomalies (corrected code words) occurring in the channel during the interval. This parameter is inhibited during UAS or SES. If the FEC is applied over multiple channels, then each related FEC (or FFEC) anomaly should increment each of the counters related to the individual channels."

REFERENCE "ITU-T G.997.1, paragraph 7.2.2"

::= { adsl2PMChHist15MinEntry 5 }

adsl2PMChHist15MValidInterval OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This variable indicates if the data for this interval is valid."

::= { adsl2PMChHist15MinEntry 6 }

```
-----
--          PM channel history 1 Day          --
-----
```

adsl2PMChHist1DTable OBJECT-TYPE

SYNTAX SEQUENCE OF Adsl2PMChHist1DEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The table adsl2PMChHist1DayTable contains PM channel history for 1-day intervals of ADSL2."

::= { adsl2PMChannel 3 }

adsl2PMChHist1DEntry OBJECT-TYPE

SYNTAX Adsl2PMChHist1DEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The table adsl2PMChHist1DayTable contains PM channel history for 1-day intervals of ADSL2.

The index of this table consists of an interface index, where the interface has an ifType value that is applicable for a DSL channel, along with a termination unit, and the interval number."

```

INDEX { ifIndex,
         adsl2PMChHist1DUnit,
         adsl2PMChHist1DInterval }
 ::= { adsl2PMChHist1DTable 1 }

Adsl2PMChHist1DEntry ::=
SEQUENCE {
    adsl2PMChHist1DUnit                Adsl2Unit,
    adsl2PMChHist1DInterval            Unsigned32,
    adsl2PMChHist1DMonitoredTime       Unsigned32,
    adsl2PMChHist1DCodingViolations    Unsigned32,
    adsl2PMChHist1DCorrectedBlocks     Unsigned32,
    adsl2PMChHist1DValidInterval       TruthValue
}

adsl2PMChHist1DUnit OBJECT-TYPE
SYNTAX      Adsl2Unit
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The termination unit."
 ::= { adsl2PMChHist1DEntry 1 }

adsl2PMChHist1DInterval OBJECT-TYPE
SYNTAX      Unsigned32 (1..30)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The interval number."
 ::= { adsl2PMChHist1DEntry 2 }

adsl2PMChHist1DMonitoredTime OBJECT-TYPE
SYNTAX      Unsigned32
UNITS       "seconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Total seconds monitored in this interval."
 ::= { adsl2PMChHist1DEntry 3 }

adsl2PMChHist1DCodingViolations OBJECT-TYPE
SYNTAX      Unsigned32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Count of CRC-8 (FEBE for ATU-R) anomalies occurring in the
     channel during the interval.  This parameter is inhibited
     during UAS or SES.  If the CRC is applied over multiple

```

channels, then each related CRC-8 (or FEBE) anomaly should increment each of the counters related to the individual channels."

REFERENCE "ITU-T G.997.1, paragraph 7.2.2"  
 ::= { adsl2PMChHist1Dentry 4 }

adsl2PMChHist1DCorrectedBlocks OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Count of FEC (FFEC for ATU-R) anomalies (corrected code words) occurring in the channel during the interval. This parameter is inhibited during UAS or SES. If the FEC is applied over multiple channels, then each related FEC (or FFEC) anomaly should increment each of the counters related to the individual channels."

REFERENCE "ITU-T G.997.1, paragraph 7.2.2"  
 ::= { adsl2PMChHist1Dentry 5 }

adsl2PMChHist1DValidInterval OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This variable indicates if the data for this interval is valid."

::= { adsl2PMChHist1Dentry 6 }

-----  
 -- Notifications Group --  
 -----

adsl2LinePerfFECSTreshAtuc NOTIFICATION-TYPE

OBJECTS

{  
 adsl2PMLCurr15MFecs,  
 adsl2LineAlarmConfProfileAtucThresh15MinFecs  
 }

STATUS current

DESCRIPTION

"This notification indicates that the FEC seconds threshold has been reached/exceeded for the referred ATU-C."

::= { adsl2Notifications 1 }

adsl2LinePerfFECSTreshAtur NOTIFICATION-TYPE

OBJECTS

{



```
adsl2PMLCurr15MFecs,
adsl2LineAlarmConfProfileAturThresh15MinFecs
}
STATUS      current
DESCRIPTION
    "This notification indicates that the FEC seconds threshold
      has been reached/exceeded for the referred ATU-R."
 ::= { adsl2Notifications 2 }

adsl2LinePerfESThreshAtuc NOTIFICATION-TYPE
OBJECTS
{
adsl2PMLCurr15MEs,
adsl2LineAlarmConfProfileAtucThresh15MinEs
}
STATUS      current
DESCRIPTION
    "This notification indicates that the errored seconds threshold
      has been reached/exceeded for the referred ATU-C."
 ::= { adsl2Notifications 3 }

adsl2LinePerfESThreshAtur NOTIFICATION-TYPE
OBJECTS
{
adsl2PMLCurr15MEs,
adsl2LineAlarmConfProfileAturThresh15MinEs
}
STATUS      current
DESCRIPTION
    "This notification indicates that the errored seconds threshold
      has been reached/exceeded for the referred ATU-R."
 ::= { adsl2Notifications 4 }

adsl2LinePerfSESThreshAtuc NOTIFICATION-TYPE
OBJECTS
{
adsl2PMLCurr15MSes,
adsl2LineAlarmConfProfileAtucThresh15MinSes
}
STATUS      current
DESCRIPTION
    "This notification indicates that the severely-errored seconds
      threshold has been reached/exceeded for the referred ATU-C."
 ::= { adsl2Notifications 5 }

adsl2LinePerfSESThreshAtur NOTIFICATION-TYPE
OBJECTS
{
```

```

    adsl2PMLCurr15MSes,
    adsl2LineAlarmConfProfileAturThresh15MinSes
  }
  STATUS      current
  DESCRIPTION
    "This notification indicates that the severely-errored seconds
    threshold has been reached/exceeded for the referred ATU-R."
    ::= { adsl2Notifications 6 }

adsl2LinePerfLOSSThreshAtuc NOTIFICATION-TYPE
  OBJECTS
  {
    adsl2PMLCurr15MLoss,
    adsl2LineAlarmConfProfileAtucThresh15MinLoss
  }
  STATUS      current
  DESCRIPTION
    "This notification indicates that the LOS seconds
    threshold has been reached/exceeded for the referred ATU-C."
    ::= { adsl2Notifications 7 }

adsl2LinePerfLOSSThreshAtur NOTIFICATION-TYPE
  OBJECTS
  {
    adsl2PMLCurr15MLoss,
    adsl2LineAlarmConfProfileAturThresh15MinLoss
  }
  STATUS      current
  DESCRIPTION
    "This notification indicates that the LOS seconds
    threshold has been reached/exceeded for the referred ATU-R."
    ::= { adsl2Notifications 8 }

adsl2LinePerfUASThreshAtuc NOTIFICATION-TYPE
  OBJECTS
  {
    adsl2PMLCurr15MUas,
    adsl2LineAlarmConfProfileAtucThresh15MinUas
  }
  STATUS      current
  DESCRIPTION
    "This notification indicates that the unavailable seconds
    threshold has been reached/exceeded for the referred ATU-C."
    ::= { adsl2Notifications 9 }

adsl2LinePerfUASThreshAtur NOTIFICATION-TYPE
  OBJECTS
  {

```

```
adsl2PMLCurr15MUas,
adsl2LineAlarmConfProfileAturThresh15MinUas
}
STATUS      current
DESCRIPTION
    "This notification indicates that the unavailable seconds
    threshold has been reached/exceeded for the referred ATU-R."
 ::= { adsl2Notifications 10 }

adsl2LinePerfCodingViolationsThreshAtuc NOTIFICATION-TYPE
OBJECTS
{
    adsl2PMChCurr15MCodingViolations,
    adsl2ChAlarmConfProfileAtucThresh15MinCodingViolations
}
STATUS      current
DESCRIPTION
    "This notification indicates that the coding violations
    threshold has been reached/exceeded for the referred ATU-C."
 ::= { adsl2Notifications 11 }

adsl2LinePerfCodingViolationsThreshAtur NOTIFICATION-TYPE
OBJECTS
{
    adsl2PMChCurr15MCodingViolations,
    adsl2ChAlarmConfProfileAturThresh15MinCodingViolations
}
STATUS      current
DESCRIPTION
    "This notification indicates that the coding violations
    threshold has been reached/exceeded for the referred ATU-R."
 ::= { adsl2Notifications 12 }

adsl2LinePerfCorrectedThreshAtuc NOTIFICATION-TYPE
OBJECTS
{
    adsl2PMChCurr15MCorrectedBlocks,
    adsl2ChAlarmConfProfileAtucThresh15MinCorrected
}
STATUS      current
DESCRIPTION
    "This notification indicates that the corrected blocks
    (FEC events) threshold has been reached/exceeded for the
    referred ATU-C."
 ::= { adsl2Notifications 13 }

adsl2LinePerfCorrectedThreshAtur NOTIFICATION-TYPE
OBJECTS
```

```
{
  adsl2PMChCurr15MCorrectedBlocks,
  adsl2ChAlarmConfProfileAturThresh15MinCorrected
}
STATUS      current
DESCRIPTION
  "This notification indicates that the corrected blocks
   (FEC events) threshold has been reached/exceeded for the
   referred ATU-R."
 ::= { adsl2Notifications 14 }

adsl2LinePerfFailedFullInitThresh NOTIFICATION-TYPE
OBJECTS
{
  adsl2PMLCurrInit15MFailedFullInits,
  adsl2LineAlarmConfProfileThresh15MinFailedFullInt
}
STATUS      current
DESCRIPTION
  "This notification indicates that the failed full
   initializations threshold has been reached/exceeded for the
   referred ADSL/ADSL2 or ADSL2+ line."
 ::= { adsl2Notifications 15 }

adsl2LinePerfFailedShortInitThresh NOTIFICATION-TYPE
OBJECTS
{
  adsl2PMLCurrInit15MFailedShortInits,
  adsl2LineAlarmConfProfileThresh15MinFailedShrtInt
}
STATUS      current
DESCRIPTION
  "This notification indicates that the failed short
   initializations threshold has been reached/exceeded for the
   referred ADSL/ADSL2 or ADSL2+ line."
 ::= { adsl2Notifications 16 }

adsl2LineStatusChangeAtuc NOTIFICATION-TYPE
OBJECTS
{
  adsl2LineStatusAtuc
}
STATUS      current
DESCRIPTION
  "This notification indicates that a status change is
   detected for the referred ATU-C."
 ::= { adsl2Notifications 17 }
```

```

adsl2LineStatusChangeAtur NOTIFICATION-TYPE
OBJECTS
{
  adsl2LineStatusAtur
}
STATUS      current
DESCRIPTION
  "This notification indicates that a status change is
   detected for the referred ATU-R."
 ::= { adsl2Notifications 18 }

-- conformance information

adsl2Groups OBJECT IDENTIFIER ::= { adsl2Conformance 1 }
adsl2Compliances OBJECT IDENTIFIER ::= { adsl2Conformance 2 }

adsl2LineMibCompliance MODULE-COMPLIANCE
STATUS      current
DESCRIPTION
  "The compliance statement for SNMP entities that
   manage ADSL/ADSL2 or ADSL2+ interfaces."
MODULE -- this module
MANDATORY-GROUPS
{
  adsl2LineGroup,
  adsl2ChannelStatusGroup,
  adsl2SCStatusGroup,
  adsl2LineInventoryGroup,
  adsl2LineConfTemplateGroup,
  adsl2LineConfProfGroup,
  adsl2LineConfProfModeSpecGroup,
  adsl2ChConfProfileGroup,
  adsl2LineAlarmConfTemplateGroup,
  adsl2PMLineCurrGroup,
  adsl2PMLineCurrInitGroup,
  adsl2PMLineHist15MinGroup,
  adsl2PMLineHist1DayGroup,
  adsl2PMLineInitHist15MinGroup,
  adsl2PMLineInitHist1DayGroup,
  adsl2PMChCurrGroup,
  adsl2PMChHist15MinGroup,
  adsl2PMChHist1DGroup
}

GROUP adsl2ChannelStatusAtmGroup
DESCRIPTION
  "The group of status objects required when the data path

```

is ATM."

GROUP adsl2ChannelStatusPtmGroup

DESCRIPTION

"The group of status objects required when the data path is PTM."

GROUP adsl2LineConfProfRaGroup

DESCRIPTION

"The group of objects required for controlling the rate-adaptive behavior of the line."

GROUP adsl2LineConfProfMsgMinGroup

DESCRIPTION

"The group of objects required for controlling the rate reserved for Overhead traffic."

GROUP adsl2LineAlarmConfProfileGroup

DESCRIPTION

"The group of objects that define the alarm thresholds on line-level PM counters."

GROUP adsl2ChAlarmConfProfileGroup

DESCRIPTION

"The group of objects that define the alarm thresholds on channel-level PM counters."

GROUP adsl2ChConfProfileAtmGroup

DESCRIPTION

"The group of configuration objects required when the data path is ATM."

GROUP adsl2ChConfProfileMinResGroup

DESCRIPTION

"The group of configuration objects required for the reserved data rate."

GROUP adsl2PMLineCurrInitShortGroup

DESCRIPTION

"The group of PM counters for the current interval's short initializations."

GROUP adsl2PMLineInitHist15MinShortGroup

DESCRIPTION

"The group of PM counters for the previous 15-minute interval's short initializations."

GROUP adsl2PMLineInitHist1DayShortGroup

## DESCRIPTION

"The group of PM counters for the previous 24-hour interval's short initializations."

## GROUP adsl2ScalarSCGroup

## DESCRIPTION

"The group of objects that report the available memory resources for DELT processes."

## GROUP adsl2ThreshNotificationGroup

## DESCRIPTION

"The group of threshold crossing notifications."

## GROUP adsl2StatusChangeNotificationGroup

## DESCRIPTION

"The group of status change notifications."

::= { adsl2Compliances 1 }

-- units of conformance

## adsl2LineGroup OBJECT-GROUP

## OBJECTS

```
{
  adsl2LineCnfgTemplate,
  adsl2LineAlarmCnfgTemplate,
  adsl2LineCmndConfPmsf,
  adsl2LineCmndConfLdsf,
  adsl2LineCmndConfLdsfFailReason,
  adsl2LineCmndAutomodeColdStart,
  adsl2LineStatusAtuTransSys,
  adsl2LineStatusPwrMngState,
  adsl2LineStatusInitResult,
  adsl2LineStatusLastStateDs,
  adsl2LineStatusLastStateUs,
  adsl2LineStatusAtur,
  adsl2LineStatusAtuc,
  adsl2LineStatusLnAttenDs,
  adsl2LineStatusLnAttenUs,
  adsl2LineStatusSigAttenDs,
  adsl2LineStatusSigAttenUs,
  adsl2LineStatusSnrMarginDs,
  adsl2LineStatusSnrMarginUs,
  adsl2LineStatusAttainableRateDs,
  adsl2LineStatusAttainableRateUs,
  adsl2LineStatusActPsdDs,
  adsl2LineStatusActPsdUs,
  adsl2LineStatusActAtpDs,
```

```
        adsl2LineStatusActAtpUs
    }
    STATUS          current
    DESCRIPTION
        "The group of configuration, status, and commands objects
        on the line level."
    ::= { adsl2Groups 1 }

adsl2ChannelStatusGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2ChStatusChannelNum,
            adsl2ChStatusActDataRate,
            adsl2ChStatusPrevDataRate,
            adsl2ChStatusActDelay
        }
    STATUS          current
    DESCRIPTION
        "The group of status objects on the channel level."
    ::= { adsl2Groups 2 }

adsl2ChannelStatusAtmGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2ChStatusAtmStatus
        }
    STATUS          current
    DESCRIPTION
        "The group of status objects on the data path level
        when it is ATM."
    ::= { adsl2Groups 3 }

adsl2ChannelStatusPtmGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2ChStatusPtmStatus
        }
    STATUS          current
    DESCRIPTION
        "The group of status objects on the data path level
        when it is PTM."
    ::= { adsl2Groups 4 }

adsl2SCStatusGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2SCStatusMtime,
            adsl2SCStatusSnr,
```



```

    adsl2SCStatusBitsAlloc,
    adsl2SCStatusGainAlloc,
    adsl2SCStatusTssi,
    adsl2SCStatusLinScale,
    adsl2SCStatusLinReal,
    adsl2SCStatusLinImg,
    adsl2SCStatusLogMt,
    adsl2SCStatusLog,
    adsl2SCStatusQlnMt,
    adsl2SCStatusQln,
    adsl2SCStatusLnAtten,
    adsl2SCStatusSigAtten,
    adsl2SCStatusSnrMargin,
    adsl2SCStatusAttainableRate,
    adsl2SCStatusActAtp,
    adsl2SCStatusRowStatus
  }
STATUS      current
DESCRIPTION
    "The group of status objects on the sub-carrier level.
    They are updated as a result of a DELT process."
 ::= { adsl2Groups 5 }

```

```

adsl2LineInventoryGroup OBJECT-GROUP
OBJECTS
  {
    adsl2LInvG994VendorId,
    adsl2LInvSystemVendorId,
    adsl2LInvVersionNumber,
    adsl2LInvSerialNumber,
    adsl2LInvSelfTestResult,
    adsl2LInvTransmissionCapabilities
  }
STATUS      current
DESCRIPTION
    "The group of inventory objects per XTU."
 ::= { adsl2Groups 6 }

```

```

adsl2LineConfTemplateGroup OBJECT-GROUP
OBJECTS
  {
    adsl2LConfTempLineProfile,
    adsl2LConfTempChan1ConfProfile,
    adsl2LConfTempChan1RaRatioDs,
    adsl2LConfTempChan1RaRatioUs,
    adsl2LConfTempChan2ConfProfile,
    adsl2LConfTempChan2RaRatioDs,
    adsl2LConfTempChan2RaRatioUs,
  }

```

```

        adsl2LConfTempChan3ConfProfile,
        adsl2LConfTempChan3RaRatioDs,
        adsl2LConfTempChan3RaRatioUs,
        adsl2LConfTempChan4ConfProfile,
        adsl2LConfTempChan4RaRatioDs,
        adsl2LConfTempChan4RaRatioUs,
        adsl2LConfTempRowStatus
    }
    STATUS          current
    DESCRIPTION
        "The group of objects in a line configuration template."
    ::= { adsl2Groups 7 }

```

#### adsl2LineConfProfGroup OBJECT-GROUP

```

    OBJECTS
    {
        adsl2LConfProfScMaskDs,
        adsl2LConfProfScMaskUs,
        adsl2LConfProfRfiBandsDs,
        adsl2LConfProfRaModeDs,
        adsl2LConfProfRaModeUs,
        adsl2LConfProfTargetSnrmDs,
        adsl2LConfProfTargetSnrmUs,
        adsl2LConfProfMaxSnrmDs,
        adsl2LConfProfMaxSnrmUs,
        adsl2LConfProfMinSnrmDs,
        adsl2LConfProfMinSnrmUs,
        adsl2LConfProfAtuTransSysEna,
        adsl2LConfProfPmMode,
        adsl2LConfProfL0Time,
        adsl2LConfProfL2Time,
        adsl2LConfProfL2Atpr,
        adsl2LConfProfL2Atprt,
        adsl2LConfProfRowStatus
    }
    STATUS          current
    DESCRIPTION
        "The group of objects in a line configuration profile."
    ::= { adsl2Groups 8 }

```

#### adsl2LineConfProfRaGroup OBJECT-GROUP

```

    OBJECTS
    {
        adsl2LConfProfRaUsNrmDs,
        adsl2LConfProfRaUsNrmUs,
        adsl2LConfProfRaUsTimeDs,
        adsl2LConfProfRaUsTimeUs,
        adsl2LConfProfRaDsNrmsDs,

```

```
        adsl2LConfProfRaDsNrmsUs,
        adsl2LConfProfRaDsTimeDs,
        adsl2LConfProfRaDsTimeUs
    }
    STATUS          current
    DESCRIPTION
        "The group of objects required for controlling the rate-
        adaptive behavior of the line."
    ::= { adsl2Groups 9 }

adsl2LineConfProfMsgMinGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2LConfProfMsgMinUs,
            adsl2LConfProfMsgMinDs
        }
    STATUS          current
    DESCRIPTION
        "The group of objects required for controlling the rate
        reserved for Overhead traffic."
    ::= { adsl2Groups 10 }

adsl2LineConfProfModeSpecGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2LConfProfMaxNomPsdDs,
            adsl2LConfProfMaxNomPsdUs,
            adsl2LConfProfMaxNomAtpDs,
            adsl2LConfProfMaxNomAtpUs,
            adsl2LConfProfMaxAggRxPwrUs,
            adsl2LConfProfPsdMaskDs,
            adsl2LConfProfPsdMaskUs,
            adsl2LConfProfPsdMaskSelectUs,
            adsl2LConfProfModeSpecRowStatus
        }
    STATUS          current
    DESCRIPTION
        "The group of objects in a line configuration profile
        that have an instance for each operation mode allowed."
    ::= { adsl2Groups 11 }

adsl2ChConfProfileGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2ChConfProfMinDataRateDs,
            adsl2ChConfProfMinDataRateUs,
            adsl2ChConfProfMaxDataRateDs,
            adsl2ChConfProfMaxDataRateUs,
```

```

        adsl2ChConfProfMinDataRateLowPwrDs,
        adsl2ChConfProfMaxDelayDs,
        adsl2ChConfProfMaxDelayUs,
        adsl2ChConfProfMinProtectionDs,
        adsl2ChConfProfMinProtectionUs,
        adsl2ChConfProfMaxBerDs,
        adsl2ChConfProfMaxBerUs,
        adsl2ChConfProfUsDataRateDs,
        adsl2ChConfProfDsDataRateDs,
        adsl2ChConfProfUsDataRateUs,
        adsl2ChConfProfDsDataRateUs,
        adsl2ChConfProfRowStatus
    }
    STATUS          current
    DESCRIPTION
        "The group of objects in a channel configuration profile."
    ::= { adsl2Groups 12 }

adsl2ChConfProfileAtmGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2ChConfProfImaEnabled,
            adsl2ChStatusAtmStatus
        }
    STATUS          current
    DESCRIPTION
        "The group of configuration objects required when the data
        path is ATM."
    ::= { adsl2Groups 13 }

adsl2ChConfProfileMinResGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2ChConfProfMinResDataRateDs,
            adsl2ChConfProfMinResDataRateUs
        }
    STATUS          current
    DESCRIPTION
        "The group of configuration objects required for the
        reserved data rate."
    ::= { adsl2Groups 14 }

adsl2LineAlarmConfTemplateGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2LAlarmConfTempLineProfile,
            adsl2LAlarmConfTempChan1ConfProfile,
            adsl2LAlarmConfTempChan2ConfProfile,

```

```

        adsl2LAlarmConfTempChan3ConfProfile,
        adsl2LAlarmConfTempChan4ConfProfile,
        adsl2LAlarmConfTempRowStatus
    }
    STATUS          current
    DESCRIPTION
        "The group of objects in a line alarm
        template."
    ::= { adsl2Groups 15 }

adsl2LineAlarmConfProfileGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2LineAlarmConfProfileAtucThresh15MinFecs,
            adsl2LineAlarmConfProfileAtucThresh15MinEs,
            adsl2LineAlarmConfProfileAtucThresh15MinSes,
            adsl2LineAlarmConfProfileAtucThresh15MinLoss,
            adsl2LineAlarmConfProfileAtucThresh15MinUas,
            adsl2LineAlarmConfProfileAturThresh15MinFecs,
            adsl2LineAlarmConfProfileAturThresh15MinEs,
            adsl2LineAlarmConfProfileAturThresh15MinSes,
            adsl2LineAlarmConfProfileAturThresh15MinLoss,
            adsl2LineAlarmConfProfileAturThresh15MinUas,
            adsl2LineAlarmConfProfileThresh15MinFailedFullInt,
            adsl2LineAlarmConfProfileThresh15MinFailedShrtInt,
            adsl2LineAlarmConfProfileRowStatus
        }
    STATUS          current
    DESCRIPTION
        "The group of objects in a line alarm profile."
    ::= { adsl2Groups 16 }

adsl2ChAlarmConfProfileGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2ChAlarmConfProfileAtucThresh15MinCodingViolations,
            adsl2ChAlarmConfProfileAtucThresh15MinCorrected,
            adsl2ChAlarmConfProfileAturThresh15MinCodingViolations,
            adsl2ChAlarmConfProfileAturThresh15MinCorrected,
            adsl2ChAlarmConfProfileRowStatus
        }
    STATUS          current
    DESCRIPTION
        "The group of objects in a channel alarm profile."
    ::= { adsl2Groups 17 }

adsl2PMLineCurrGroup OBJECT-GROUP
    OBJECTS

```

```

        {
            adsl2PMLCurrValidIntervals,
            adsl2PMLCurrInvalidIntervals,
            adsl2PMLCurr15MTimeElapsed,
            adsl2PMLCurr15MFecs,
            adsl2PMLCurr15MEs,
            adsl2PMLCurr15MSes,
            adsl2PMLCurr15MLoss,
            adsl2PMLCurr15MUas,
            adsl2PMLCurr1DayValidIntervals,
            adsl2PMLCurr1DayInvalidIntervals,
            adsl2PMLCurr1DayTimeElapsed,
            adsl2PMLCurr1DayFecs,
            adsl2PMLCurr1DayEs,
            adsl2PMLCurr1DaySes,
            adsl2PMLCurr1DayLoss,
            adsl2PMLCurr1DayUas
        }
    STATUS      current
    DESCRIPTION
        "The group of objects that report the line-level
        counters for current PM intervals."
    ::= { adsl2Groups 18 }

adsl2PMLLineCurrInitGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2PMLCurrInit15MTimeElapsed,
            adsl2PMLCurrInit15MFullInits,
            adsl2PMLCurrInit15MFailedFullInits,
            adsl2PMLCurrInit1DayTimeElapsed,
            adsl2PMLCurrInit1DayFullInits,
            adsl2PMLCurrInit1DayFailedFullInits
        }
    STATUS      current
    DESCRIPTION
        "The group of objects that report the full
        initialization counters for current PM intervals."
    ::= { adsl2Groups 19 }

adsl2PMLLineCurrInitShortGroup OBJECT-GROUP
    OBJECTS
        {
            adsl2PMLCurrInit15MShortInits,
            adsl2PMLCurrInit15MFailedShortInits,
            adsl2PMLCurrInit1DayShortInits,
            adsl2PMLCurrInit1DayFailedShortInits
        }

```

```
STATUS      current
DESCRIPTION
    "The group of objects that report the short
    initialization counters for current PM intervals."
 ::= { adsl2Groups 20 }
```

adsl2PMLHist15MinGroup OBJECT-GROUP

```
OBJECTS
{
    adsl2PMLHist15MMonitoredTime,
    adsl2PMLHist15MFecs,
    adsl2PMLHist15MEs,
    adsl2PMLHist15MSes,
    adsl2PMLHist15MLoss,
    adsl2PMLHist15MUas,
    adsl2PMLHist15MValidInterval
}
STATUS      current
DESCRIPTION
    "The group of line-level PM counters for the previous
    15-minute interval."
 ::= { adsl2Groups 21 }
```

adsl2PMLHist1DayGroup OBJECT-GROUP

```
OBJECTS
{
    adsl2PMLHist1DMonitoredTime,
    adsl2PMLHist1DFecs,
    adsl2PMLHist1DEs,
    adsl2PMLHist1DSes,
    adsl2PMLHist1DLoss,
    adsl2PMLHist1DUas,
    adsl2PMLHist1DValidInterval
}
STATUS      current
DESCRIPTION
    "The group of line-level PM counters for the previous
    24-hour interval."
 ::= { adsl2Groups 22 }
```

adsl2PMLHistInit15MinGroup OBJECT-GROUP

```
OBJECTS
{
    adsl2PMLHistInit15MMonitoredTime,
    adsl2PMLHistInit15MFullInits,
    adsl2PMLHistInit15MFailedFullInits,
    adsl2PMLHistInit15MValidInterval
}
```

```
STATUS      current
DESCRIPTION
    "The group of PM counters for the previous 15-minute
    interval's full initializations."
 ::= { adsl2Groups 23 }

adsl2PMLineInitHist15MinShortGroup OBJECT-GROUP
OBJECTS
    {
        adsl2PMLHistInit15MShortInits,
        adsl2PMLHistInit15MFailedShortInits
    }
STATUS      current
DESCRIPTION
    "The group of PM counters for the previous 15-minute
    interval's short initializations."
 ::= { adsl2Groups 24 }

adsl2PMLineInitHist1DayGroup OBJECT-GROUP
OBJECTS
    {
        adsl2PMLHistinit1DMonitoredTime,
        adsl2PMLHistinit1DFullInits,
        adsl2PMLHistinit1DFailedFullInits,
        adsl2PMLHistinit1DValidInterval
    }
STATUS      current
DESCRIPTION
    "The group of PM counters for the previous 24-hour
    interval's full initializations."
 ::= { adsl2Groups 25 }

adsl2PMLineInitHist1DayShortGroup OBJECT-GROUP
OBJECTS
    {
        adsl2PMLHistinit1DShortInits,
        adsl2PMLHistinit1DFailedShortInits
    }
STATUS      current
DESCRIPTION
    "The group of PM counters for the previous 24-hour
    interval's short initializations."
 ::= { adsl2Groups 26 }

adsl2PMChCurrGroup OBJECT-GROUP
OBJECTS
    {
        adsl2PMChCurrValidIntervals,
```



```
    adsl2PMChCurrInvalidIntervals,
    adsl2PMChCurr15MTimeElapsed,
    adsl2PMChCurr15MCodingViolations,
    adsl2PMChCurr15MCorrectedBlocks,
    adsl2PMChCurr1DayValidIntervals,
    adsl2PMChCurr1DayInvalidIntervals,
    adsl2PMChCurr1DayTimeElapsed,
    adsl2PMChCurr1DayCodingViolations,
    adsl2PMChCurr1DayCorrectedBlocks
  }
  STATUS      current
  DESCRIPTION
    "The group of objects that report the channel-level
    counters for current PM intervals."
  ::= { adsl2Groups 27 }

adsl2PMChHist15MinGroup OBJECT-GROUP
  OBJECTS
    {
      adsl2PMChHist15MMonitoredTime,
      adsl2PMChHist15MCodingViolations,
      adsl2PMChHist15MCorrectedBlocks,
      adsl2PMChHist15MValidInterval
    }
  STATUS      current
  DESCRIPTION
    "The group of objects that report the channel-level
    counters for previous 15-minute PM intervals."
  ::= { adsl2Groups 28 }

adsl2PMChHist1DGroup OBJECT-GROUP
  OBJECTS
    {
      adsl2PMChHist1DMonitoredTime,
      adsl2PMChHist1DCodingViolations,
      adsl2PMChHist1DCorrectedBlocks,
      adsl2PMChHist1DValidInterval
    }
  STATUS      current
  DESCRIPTION
    "The group of objects that report the channel-level
    counters for previous 24-hour PM intervals."
  ::= { adsl2Groups 29 }

adsl2ScalarSCGroup OBJECT-GROUP
  OBJECTS
    {
      adsl2ScalarSCMaxInterfaces,
```

```
        adsl2ScalarSCAvailInterfaces
    }
    STATUS          current
    DESCRIPTION
        "The group of objects that report the available memory
        resources for DELT processes."
    ::= { adsl2Groups 30 }
```

```
adsl2ThreshNotificationGroup NOTIFICATION-GROUP
    NOTIFICATIONS
    {
        adsl2LinePerfFECSThreshAtuc,
        adsl2LinePerfFECSThreshAtur,
        adsl2LinePerfESThreshAtuc,
        adsl2LinePerfESThreshAtur,
        adsl2LinePerfSESThreshAtuc,
        adsl2LinePerfSESThreshAtur,
        adsl2LinePerfLOSSThreshAtuc,
        adsl2LinePerfLOSSThreshAtur,
        adsl2LinePerfUASThreshAtuc,
        adsl2LinePerfUASThreshAtur,
        adsl2LinePerfCodingViolationsThreshAtuc,
        adsl2LinePerfCodingViolationsThreshAtur,
        adsl2LinePerfCorrectedThreshAtuc,
        adsl2LinePerfCorrectedThreshAtur,
        adsl2LinePerfFailedFullInitThresh,
        adsl2LinePerfFailedShortInitThresh
    }
    STATUS          current
    DESCRIPTION
        "This group supports notifications of significant conditions
        associated with ADSL/ADSL2/ADSL2+ lines."
    ::= { adsl2Groups 31 }
```

```
adsl2StatusChangeNotificationGroup NOTIFICATION-GROUP
    NOTIFICATIONS
    {
        adsl2LineStatusChangeAtuc,
        adsl2LineStatusChangeAtur
    }
    STATUS          current
    DESCRIPTION
        "This group supports notifications of threshold crossing
        associated with ADSL/ADSL2/ADSL2+ lines."
    ::= { adsl2Groups 32 }
```

END

#### 4. Implementation Analysis

A management application intended to manage ADSL links (e.g., G.992.1) with this MIB module must be modified to adapt itself to certain differences between RFC 2662 [RFC2662] and this MIB module, including the following aspects:

- o Although the configuration templates/profiles allow referring to 1-4 bearer channels, ADSL links are limited to 2 channels at most.
- o Although the channel configuration profile allows higher data rates, ADSL links are limited to downstream/upstream data rates as assumed in RFC 2662 [RFC2662].
- o The Impulse Noise Protection (INP) configuration parameters are given by minimum protection and maximum delay parameters.
- o The line configuration profile includes a sub-table that addresses mode-specific parameters. For ADSL links, the management application SHOULD create a row in that table for the 'adsl' mode.
- o The line configuration profile includes parameters that are irrelevant for ADSL links. Similarly, many status parameters in the MIB are irrelevant for certain ADSL modes. Therefore, it is advised to consult with ITU G.997.1 standard [G.997.1] regarding the scope and relevance of each parameter in this MIB.

#### 5. Security Considerations

There are a number of management objects defined in this MIB module with 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. These are the tables and objects and their sensitivity/vulnerability:

- o adsl2LineTable

The table consists of the following objects that support SET operations:

- \* adsl2LineCnfgTemplate
- \* adsl2LineAlarmCnfgTemplate
- \* adsl2LineCmndConfPmsf
- \* adsl2LineCmndConfLdsf
- \* adsl2LineCmndAutomodeColdStart

Unauthorized changes to `adsl2LineCnfgTemplate` could have a major adverse operational effect on many lines simultaneously.

Unauthorized changes to `adsl2LineAlarmCnfgTemplate` could have a contrary effect on notifications.

Unauthorized changes to `adsl2LineCmndConfPmsf` could have an adverse affect on the power consumption of a line and may disrupt an operational service.

Unauthorized changes to `adsl2LineCmndConfLdsf` could cause an unscheduled line test to be carried out on the line.

Unauthorized changes to `adsl2LineCmndAutomodeColdStart` could cause an unscheduled cold reset to the line.

- o `adsl2SCStatusTable`

This table contains one object, `adsl2SCStatusRowStatus`, that supports SET operations. Unauthorized changes could result in line test results being deleted prematurely.

- o `adsl2LineConfTemplateTable`

The table consists of the following objects that support SET operations:

- \* `adsl2LConfTempLineProfile`
- \* `adsl2LConfTempChan1ConfProfile`
- \* `adsl2LConfTempChan1RaRatioDs`
- \* `adsl2LConfTempChan1RaRatioUs`
- \* `adsl2LConfTempChan2ConfProfile`
- \* `adsl2LConfTempChan2RaRatioDs`
- \* `adsl2LConfTempChan2RaRatioUs`
- \* `adsl2LConfTempChan3ConfProfile`
- \* `adsl2LConfTempChan3RaRatioDs`
- \* `adsl2LConfTempChan3RaRatioUs`
- \* `adsl2LConfTempChan4ConfProfile`
- \* `adsl2LConfTempChan4RaRatioDs`
- \* `adsl2LConfTempChan4RaRatioUs`
- \* `adsl2LConfTempRowStatus`

Unauthorized changes to `adsl2LConfTempLineProfile`, `adsl2LConfTempChan1ConfProfile`, `adsl2LConfTempChan2ConfProfile`, `adsl2LConfTempChan3ConfProfile`, or `adsl2LConfTempChan4ConfProfile` could have an adverse operational effect on several lines; could

change several lines over to running in unwanted levels of operation; or could result in several services undergoing changes in the number of channels that carry the service.

Unauthorized changes to `adsl2LConfTempChan1RaRatioDs`, `adsl2LConfTempChan2RaRatioDs`, `adsl2LConfTempChan3RaRatioDs`, or `adsl2LConfTempChan4RaRatioDs`, would alter the relative rate allocations among all channels belonging to a line. This could have an adverse operational effect on several lines.

Unauthorized changes to `adsl2LConfTempRowStatus` could result in templates being created or brought into service prematurely; or could result in templates being inadvertently deleted or taken out of service.

o `adsl2LineConfProfTable`

The table consists of the following objects that support SET operations:

- \* `adsl2LConfProfScMaskDs`
- \* `adsl2LConfProfScMaskUs`
- \* `adsl2LConfProfRfiBandsDs`
- \* `adsl2LConfProfRaModeDs`
- \* `adsl2LConfProfRaModeUs`
- \* `adsl2LConfProfRaUsNrmDs`
- \* `adsl2LConfProfRaUsNrmUs`
- \* `adsl2LConfProfRaUsTimeDs`
- \* `adsl2LConfProfRaUsTimeUs`
- \* `adsl2LConfProfRaDsNrmsDs`
- \* `adsl2LConfProfRaDsNrmsUs`
- \* `adsl2LConfProfRaDsTimeDs`
- \* `adsl2LConfProfRaDsTimeUs`
- \* `adsl2LConfProfTargetSnrmDs`
- \* `adsl2LConfProfTargetSnrmUs`
- \* `adsl2LConfProfMaxSnrmDs`
- \* `adsl2LConfProfMaxSnrmUs`
- \* `adsl2LConfProfMinSnrmDs`
- \* `adsl2LConfProfMinSnrmUs`
- \* `adsl2LConfProfMsgMinUs`
- \* `adsl2LConfProfMsgMinDs`
- \* `adsl2LConfProfAtuTransSysEna`
- \* `adsl2LConfProfPmMode`
- \* `adsl2LConfProfL0Time`
- \* `adsl2LConfProfL2Time`
- \* `adsl2LConfProfL2Atpr`
- \* `adsl2LConfProfL2Atprt`
- \* `adsl2LConfProfRowStatus`

Unauthorized changes resulting in the setting of any of the above objects to an incorrect value could have an adverse operational effect on several lines.

Also, unauthorized changes to `adsl2LConfProfRowStatus` could result in unwanted line profiles being created or brought into service prematurely; or could result in line profiles being inadvertently deleted or taken out of service.

o `adsl2LineConfProfModeSpecTable`

The table consists of the following objects that support SET operations:

- \* `adsl2LConfProfMaxNomPsdDs`
- \* `adsl2LConfProfMaxNomPsdUs`
- \* `adsl2LConfProfMaxNomAtpDs`
- \* `adsl2LConfProfMaxNomAtpUs`
- \* `adsl2LConfProfMaxAggRxPwrUs`
- \* `adsl2LConfProfPsdMaskDs`
- \* `adsl2LConfProfPsdMaskUs`
- \* `adsl2LConfProfPsdMaskSelectUs`
- \* `adsl2LConfProfModeSpecRowStatus`

Unauthorized changes resulting in the setting of any of the above objects to an incorrect value could have an adverse operational effect on several lines.

Also, unauthorized changes to `adsl2LConfProfModeSpecRowStatus` could result in unwanted PSD configurations being created or brought into service prematurely; or could result in PSD configurations being inadvertently deleted or taken out of service.

o `adsl2ChConfProfileTable`

The table consists of the following objects that support SET operations:

- \* `adsl2ChConfProfMinDataRateDs`
- \* `adsl2ChConfProfMinDataRateUs`
- \* `adsl2ChConfProfMinResDataRateDs`
- \* `adsl2ChConfProfMinResDataRateUs`
- \* `adsl2ChConfProfMaxDataRateDs`
- \* `adsl2ChConfProfMaxDataRateUs`
- \* `adsl2ChConfProfMinDataRateLowPwrDs`
- \* `adsl2ChConfProfMaxDelayDs`
- \* `adsl2ChConfProfMaxDelayUs`

- \* adsl2ChConfProfMinProtectionDs
- \* adsl2ChConfProfMinProtectionUs
- \* adsl2ChConfProfMaxBerDs
- \* adsl2ChConfProfMaxBerUs
- \* adsl2ChConfProfUsDataRateDs
- \* adsl2ChConfProfDsDataRateDs
- \* adsl2ChConfProfUsDataRateUs
- \* adsl2ChConfProfDsDataRateUs
- \* adsl2ChConfProfImaEnabled
- \* adsl2ChConfProfRowStatus

Unauthorized changes resulting in the setting of any of the above objects to an incorrect value could have an adverse operational effect on several lines.

Also, unauthorized changes to adsl2ChConfProfRowStatus could result in unwanted channel profiles being created or brought into service prematurely; or could result in channel profiles being inadvertently deleted or taken out of service.

o adsl2LineAlarmConfTemplateTable

The table consists of the following objects that support SET operations:

- \* adsl2LAlarmConfTempLineProfile
- \* adsl2LAlarmConfTempChan1ConfProfile
- \* adsl2LAlarmConfTempChan2ConfProfile
- \* adsl2LAlarmConfTempChan3ConfProfile
- \* adsl2LAlarmConfTempChan4ConfProfile
- \* adsl2LAlarmConfTempRowStatus

Unauthorized changes to adsl2LAlarmConfTempLineProfile, adsl2LAlarmConfTempChan1ConfProfile, adsl2LAlarmConfTempChan2ConfProfile, adsl2LAlarmConfTempChan3ConfProfile, or adsl2LAlarmConfTempChan4ConfProfile could have an adverse effect on the management of notifications generated at the scope of several to many lines; or could change several to many lines over to running with unwanted management rates for generated notifications.

Unauthorized changes to adsl2LAlarmConfTempRowStatus could result in alarm templates being created or brought into service prematurely; or could result in alarm templates being inadvertently deleted or taken out of service.

o adsl2LineAlarmConfProfileTable

The table consists of the following objects that support SET operations:

- \* adsl2LineAlarmConfProfileAtucThresh15MinFecs
- \* adsl2LineAlarmConfProfileAtucThresh15MinEs
- \* adsl2LineAlarmConfProfileAtucThresh15MinSes
- \* adsl2LineAlarmConfProfileAtucThresh15MinLoss
- \* adsl2LineAlarmConfProfileAtucThresh15MinUas
- \* adsl2LineAlarmConfProfileAturThresh15MinFecs
- \* adsl2LineAlarmConfProfileAturThresh15MinEs
- \* adsl2LineAlarmConfProfileAturThresh15MinSes
- \* adsl2LineAlarmConfProfileAturThresh15MinLoss
- \* adsl2LineAlarmConfProfileAturThresh15MinUas
- \* adsl2LineAlarmConfProfileThresh15MinFailedFullInt
- \* adsl2LineAlarmConfProfileThresh15MinFailedShrtInt
- \* adsl2LineAlarmConfProfileRowStatus

Increasing any of the threshold values could result in a notification being suppressed or deferred. Setting a threshold to 0 could result in a notification being suppressed. Suppressing or deferring a notification could prevent the timely delivery of important diagnostic information. Decreasing any of the threshold values could result in a notification being sent from the network falsely reporting a threshold crossing.

Changing a threshold value could also have an impact on the amount of notifications the agent sends. The Notifications Section of this document has a paragraph that provides general guidance on the rate-limiting of notifications. Agent implementations not providing rate-limiting could result in notifications being generated at an uncontrolled rate. Unauthorized changes to a threshold value could result in an undesired notification rate.

Unauthorized changes to row status could result in unwanted line alarm profiles being created or brought into service. Also, changes to the row status could result in line alarm profiles being inadvertently deleted or taken out of service.

o adsl2ChAlarmConfProfileTable

The table consists of the following objects that support SET operations:



```
* adsl2ChAlarmConfProfileAtucThresh15MinCodingViolations
* adsl2ChAlarmConfProfileAtucThresh15MinCorrected
* adsl2ChAlarmConfProfileAturThresh15MinCodingViolations
* adsl2ChAlarmConfProfileAturThresh15MinCorrected
* adsl2ChAlarmConfProfileRowStatus
* adsl2LineAlarmConfProfileAturThresh15MinFecs
* adsl2LineAlarmConfProfileAturThresh15MinEs
* adsl2LineAlarmConfProfileAturThresh15MinSes
* adsl2LineAlarmConfProfileAturThresh15MinLoss
* adsl2LineAlarmConfProfileAturThresh15MinUas
* adsl2LineAlarmConfProfileThresh15MinFailedFullInt
* adsl2LineAlarmConfProfileThresh15MinFailedShrtInt
* adsl2LineAlarmConfProfileRowStatus
```

Increasing any of the threshold values could result in a notification being suppressed or deferred. Setting a threshold to 0 could result in a notification being suppressed. Suppressing or deferring a notification could prevent the timely delivery of important diagnostic information. Decreasing any of the threshold values could result in a notification being sent from the network falsely reporting a threshold crossing.

Changing a threshold value could also have an impact on the amount of notifications the agent sends. The Notifications Section of this document has a paragraph that provides general guidance on the rate-limiting of notifications. Agent implementations not providing rate-limiting could result in notifications being generated at an uncontrolled rate. Unauthorized changes to a threshold value could result in an undesired notification rate.

Unauthorized changes to row status could result in unwanted channel alarm profiles being created or brought into service. Also, changes to the row status could result in channel alarm profiles being inadvertently deleted or taken out of service.

Some of the readable objects in this MIB module (i.e., objects with a MAX-ACCESS other than not-accessible) may be considered sensitive or vulnerable in some network environments. It is thus important to control even GET and/or NOTIFY access to these objects and possibly to even encrypt the values of these objects when sending them over the network via SNMP. These are the tables and objects and their sensitivity/vulnerability:

o adsl2LineInventoryTable

Access to these objects would allow an intruder to obtain information about which vendor's equipment is in use on the network. Further, such information is considered sensitive in many environments for competitive reasons.

- \* adsl2LInvG994VendorId
- \* adsl2LInvSystemVendorId
- \* adsl2LInvVersionNumber
- \* adsl2LInvSerialNumber
- \* adsl2LInvSelfTestResult
- \* adsl2LInvTransmissionCapabilities

SNMP versions prior to SNMPv3 did not include adequate security. 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 module.

It is RECOMMENDED that implementers consider the security features as provided by the SNMPv3 framework (see [RFC3410], Section 8), including full support for the SNMPv3 cryptographic mechanisms (for authentication and privacy).

It is RECOMMENDED to deploy SNMPv3 and to enable cryptographic security. It is then a customer/operator responsibility to ensure that the SNMP entity giving access to an instance of this MIB module is properly configured to give access only to those objects whose principals (users) have legitimate rights to indeed GET or SET (change/create/delete) them.

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## 7. References

### 7.1. Normative References

- [G.992.1] "Asymmetric digital subscriber line (ADSL) transceivers", ITU-T G.992.1, 1999.
- [G.992.2] "Splitterless asymmetric digital subscriber line (ADSL) transceivers", ITU-T G.992.2, 1999.
- [G.992.3] "Asymmetric digital subscriber line transceivers 2 (ADSL2)", ITU-T G.992.3, 2002.
- [G.992.4] "Splitterless asymmetric digital subscriber line transceivers 2 (Splitterless ADSL2)", ITU-T G.992.4, 2002.
- [G.992.5] "Asymmetric digital subscriber line (ADSL) transceivers - Extended bandwidth ADSL2 (ADSL2+)", ITU-T G.992.5, 2003.
- [G.993.2] "Very-high speed Digital Subscriber Line Transceivers 2 (VDSL2 draft)", ITU-T G.993.2, July 2005.
- [G.997.1] "Physical layer management for digital subscriber line (DSL) transceivers", ITU-T G.997.1, May 2003.

- [G.997.1am1] "Physical layer management for digital subscriber line (DSL) transceivers Amendment 1", ITU-T G.997.1 Amendment 1, December 2003.
- [G.997.1am2] "Physical layer management for digital subscriber line (DSL) transceivers Amendment 2", ITU-T G.997.1 Amendment 2, January 2005.
- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.
- [RFC2578] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Structure of Management Information Version 2 (SMIv2)", STD 58, RFC 2578, April 1999.
- [RFC2579] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Textual Conventions for SMIv2", STD 58, RFC 2579, April 1999.
- [RFC2580] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Conformance Statements for SMIv2", STD 58, RFC 2580, April 1999.
- [RFC2863] McCloghrie, K. and F. Kastenholz, "The Interfaces Group MIB", RFC 2863, June 2000.
- [RFC3411] Harrington, D., Presuhn, R., and B. Wijnen, "An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks", STD 62, RFC 3411, December 2002.
- [RFC3593] Tesink, K., "Textual Conventions for MIB Modules Using Performance History Based on 15 Minute Intervals", RFC 3593, September 2003.
- [RFC3705] Ray, B. and R. Abbi, "High Capacity Textual Conventions for MIB Modules Using Performance History Based on 15 Minute Intervals", RFC 3705, February 2004.
- [T1E1.413] J. Bingham & F. Van der Putten, "Network and Customer Installation Interfaces - Asymmetric Digital Subscriber Line (ADSL) Metallic Interface. (T1.413 Issue 2)", ANSI T1E1.413-1998, June 1998.

- [TR-90] Abbi, R., "Protocol Independent Object Model for Managing Next Generation ADSL Technologies", DSL Forum TR-90, December 2004.

## 7.2. Informative References

- [RFC2662] Bathrick, G. and F. Ly, "Definitions of Managed Objects for the ADSL Lines", RFC 2662, August 1999.
- [RFC3410] Case, J., Mundy, R., Partain, D., and B. Stewart, "Introduction and Applicability Statements for Internet-Standard Management Framework", RFC 3410, December 2002.
- [RFC3418] Presuhn, R., "Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)", STD 62, RFC 3418, December 2002.

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