                      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 (DSLF) 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.

===

    ifIndex   Interface index.

    ifDescr   See interfaces MIB.

    ifType   adsl2plus(238) or
                        channel(70) or
                        interleave(124) or
                        fast(125).

    ifSpeed   Set as appropriate.

    ifPhysAddress   This object MUST have an octet string
                        with zero length.

    ifAdminStatus   See interfaces MIB.

    ifOperStatus   See interfaces MIB.

    ifLastChange   See interfaces MIB.

    ifName   See interfaces MIB.

    ifAlias   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.
        thirteeSymbols(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
        adsl2LConfProfMaxAggRxPwrUs
        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.

```
     <-- Network Side                             Customer Side -->

     |<//////////////// ADSL/ADSL2/ADSL2+ Span ////////////////>|

     +-------+                                         +-------+
     +       |<-------------------1------------------>|       +
     +       |<-------------------2------------------>|       +
     | ATU-C <~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~>| ATU-R |
     +       |<-------------------3------------------>|       +
     +       |<-------------------4------------------>|       +
     +-------+                                         +-------+

     Key:  <////> ADSL/ADSL2/ADSL2+ Span
           <~~~~> ADSL/ADSL2/ADSL2+ twisted-pair
           -1-    Channel #1 carried over the line
           -2-    Optional channel #2 carried over the line
           -3-    Optional channel #3 carried over the line
           -4-    Optional channel #4 carried over the line
```
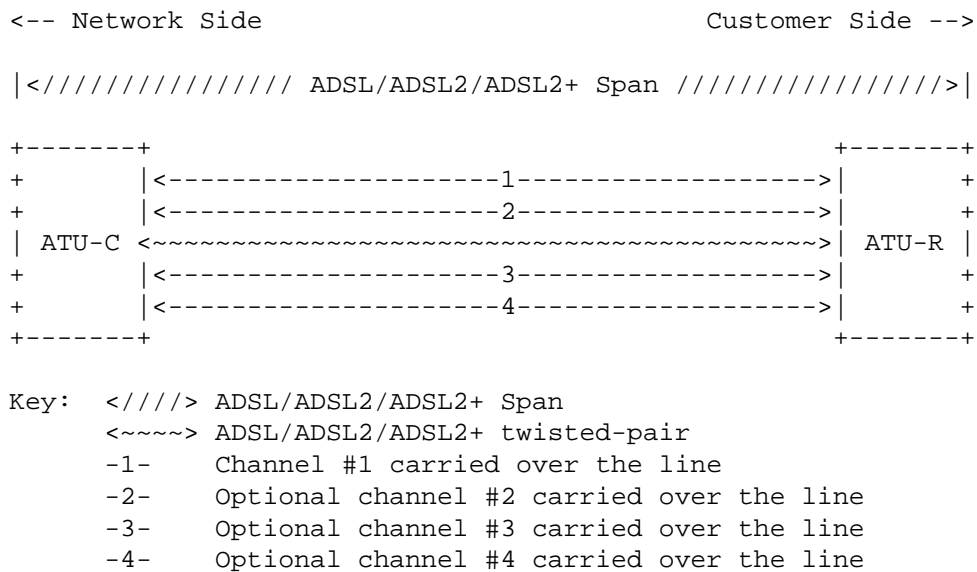
   Figure 2: General topology for an ADSL/ADSL2/ADSL2+ Line

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., adsl2LConfTempTemplateName = '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
      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 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),
                      g9923AnnexIAllDigNonOverlapped(28),
                      g9923AnnexIAllDigOverlapped(29),
                      g9923AnnexJAllDigNonOverlapped(30),
                      g9923AnnexJAllDigOverlapped(31),
                      g9924AnnexIAllDigNonOverlapped(32),
                      g9924AnnexIAllDigOverlapped(33),
                      g9923AnnexLMode1NonOverlapped(34),
                      g9923AnnexLMode2NonOverlapped(35),
                      g9923AnnexLMode3Overlapped(36),
                      g9923AnnexLMode4Overlapped(37),
                      g9923AnnexMPotsNonOverlapped(38),
                      g9923AnnexMPotsOverlapped(39),
                      g9925PotsNonOverlapped(40),
                      g9925PotsOverlapped(41),
                      g9925IsdnNonOverlapped(42),
                      g9925isdnOverlapped(43),
                      reserved10(44),
                      reserved11(45),
                      g9925AnnexIAllDigNonOverlapped(46),
                      g9925AnnexIAllDigOverlapped(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),
                    g9923AnnexLMode1NonOverlapped(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:
               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."

        SYNTAX        INTEGER {
```

```
                          l0(1),
                          l1(2),
                          l2(3),
                          l3(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:
             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).

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

       SYNTAX      INTEGER {
                       l3toL0(0),
                       l0toL2(2),
                       l0orL2toL3(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),
              thirteeSymbols(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^-3
```

```
                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

        HCPerfIntervalThreshold,
        HCPerfTimeElapsed
           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
          (DSLF) 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 }

   adsl2LineCmndConfLdsfFailReason  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 }

      adsl2LineCmndAutomodeColdStart   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: l0(1), l1(2), l2(3), or
           l3(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 <= i < 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 + 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 (GAINSpsds)
                   and paragraph 7.5.1.21.4 (GAINSpsus)"
     ::= { 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/2^15)*((a(i)+j*b(i))/2^15)),
          where scale is Adsl2SubcarrierLinScale and a(i) and b(i)
          [provided by the Adsl2SubcarrierLinImg object] 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 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*Df) value for a particular sub-
     carrier index i (0 <= 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*Df) value for a
         particular sub-carrier index i, (0 <= 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
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```
        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 }

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   -------------------------------------------
   --          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,
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        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 <= i < 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 NSCds < 512, all bits
       i (NSCds < i <= 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 <= i < 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

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      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
```

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        "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
          NSCds. 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..200000000)
      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..200000000)
      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..200000000)
      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..200000000)
      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      HCPerfIntervalThreshold
        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      HCPerfIntervalThreshold
        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      HCPerfIntervalThreshold
        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 adsl2PMChCurr15MCodingViolations
    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 adsl2PMChCurr15MCorrectedBlocks
    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 adsl2PMChCurr15MCodingViolations
    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 adsl2PMChCurr15MCorrectedBlocks
    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."
      ::= { adsl2PMLineCurrEntry 4 }

   adsl2PMLCurr15MFecs 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 5 }

   adsl2PMLCurr15MEs 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 6 }

   adsl2PMLCurr15MSes 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"
      ::= { adsl2PMLineCurrInitEntry 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"
      ::= { adsl2PMLineCurrInitEntry 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"
      ::= { adsl2PMLineCurrInitEntry 10 }




   --------------------------------------------
   --        PM line history 15 Minutes     --
   --------------------------------------------
   adsl2PMLineHist15MinTable   OBJECT-TYPE
      SYNTAX       SEQUENCE  OF  Adsl2PMLineHist15MinEntry
      MAX-ACCESS   not-accessible
      STATUS       current
      DESCRIPTION
         "The table adsl2PMLineHist15MinTable contains PM line history
          for 15min intervals of the ADSL2 line."
      ::= { adsl2PMLine 3 }

   adsl2PMLineHist15MinEntry  OBJECT-TYPE
      SYNTAX       Adsl2PMLineHist15MinEntry
      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"
    ::= { adsl2PMLineHist15MinEntry 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"
    ::= { adsl2PMLineHist15MinEntry 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"
    ::= { adsl2PMLineHist15MinEntry 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       --
   ---------------------------------------
adsl2PMLineHist1DayTable    OBJECT-TYPE
   SYNTAX       SEQUENCE  OF  Adsl2PMLineHist1DayEntry
   MAX-ACCESS   not-accessible
   STATUS       current
   DESCRIPTION
      "The table adsl2PMLineHist1DayTable contains PM line history
       for 24-hour intervals of the ADSL2 line."
   ::= { adsl2PMLine 4 }

adsl2PMLineHist1DayEntry  OBJECT-TYPE
   SYNTAX       Adsl2PMLineHist1DayEntry
   MAX-ACCESS   not-accessible
   STATUS       current
   DESCRIPTION
      "The table adsl2PMLineHist1DayTable 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 }
   ::= { adsl2PMLineHist1DayTable 1 }

Adsl2PMLineHist1DayEntry  ::=
   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."
   ::= { adsl2PMLineHist1DayEntry 1 }

adsl2PMLHist1DInterval  OBJECT-TYPE
   SYNTAX      Unsigned32 (1..30)
   MAX-ACCESS  not-accessible
   STATUS      current
   DESCRIPTION
      "The interval number."
   ::= { adsl2PMLineHist1DayEntry 2 }

adsl2PMLHist1DMonitoredTime  OBJECT-TYPE
   SYNTAX      Unsigned32
   UNITS       "seconds"
   MAX-ACCESS  read-only
   STATUS      current
   DESCRIPTION
      "Total seconds monitored in this interval."
   ::= { adsl2PMLineHist1DayEntry 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 }
       ::= { adsl2PMLineInitHist15MinTable 1 }

    Adsl2PMLineInitHist15MinEntry ::=
       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."
       ::= { adsl2PMLineInitHist15MinEntry 1 }

    adsl2PMLHistInit15MMonitoredTime OBJECT-TYPE
       SYNTAX   Unsigned32
       UNITS   "seconds"
       MAX-ACCESS read-only
       STATUS   current
       DESCRIPTION
          "Total seconds monitored in this interval."
       ::= { adsl2PMLineInitHist15MinEntry 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"
       ::= { adsl2PMLineInitHist15MinEntry 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      --
   -------------------------------------------
   adsl2PMLineInitHist1DayTable       OBJECT-TYPE
      SYNTAX      SEQUENCE  OF  Adsl2PMLineInitHist1DayEntry
      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"
    ::= { adsl2PMLineInitHist1DayEntry 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"
   ::= { adsl2PMLineInitHist1DayEntry 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"
   ::= { adsl2PMLineInitHist1DayEntry 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"
   ::= { adsl2PMLineInitHist1DayEntry 6 }

adsl2PMLHistinit1DValidInterval  OBJECT-TYPE
   SYNTAX      TruthValue
   MAX-ACCESS  read-only
   STATUS      current
   DESCRIPTION
      "This variable indicates if the data for this interval is
       valid."
   ::= { adsl2PMLineInitHist1DayEntry 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           --
--------------------------------------------

adsl2LinePerfFECSThreshAtuc 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 }

adsl2LinePerfFECSThreshAtur 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 }

    adsl2PMLineCurrInitGroup 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 }

    adsl2PMLineCurrInitShortGroup 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 }

    adsl2PMLineHist15MinGroup 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 }

    adsl2PMLineHist1DayGroup 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 }

    adsl2PMLineInitHist15MinGroup 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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