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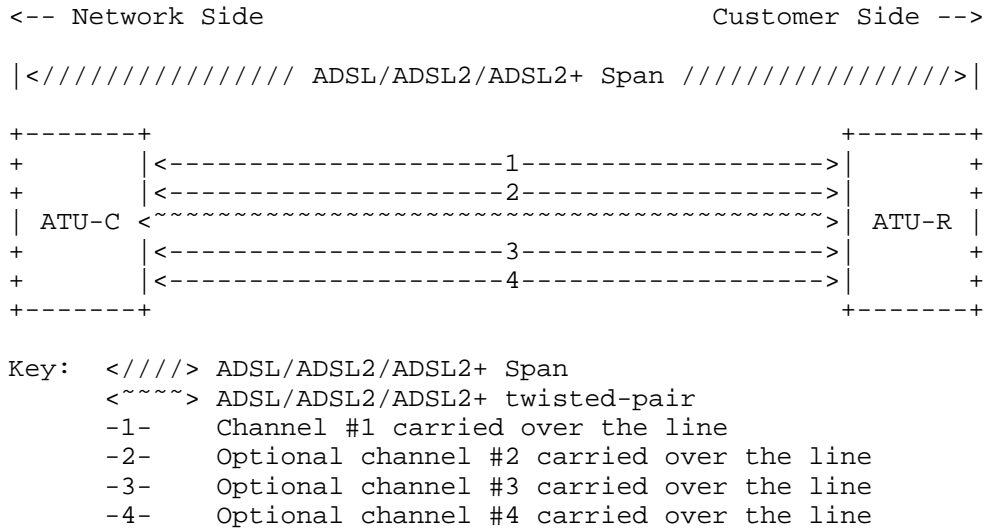
   Figure 2: General topology for an ADSL/ADSL2/ADSL2+ Line

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

               Chair: Mike Sneed
                          Sand Channel Systems
               Postal: P.O. Box 37324
                          Raleigh NC 27627-732
               Email: sneedmike@hotmail.com
               Phone: +1 206 600 7022

               Co-Chair & Co-editor:
                          Menachem Dodge
                          ECI Telecom Ltd.
               Postal: 30 Hasivim St.
                          Petach Tikva 49517,
                          Israel.
               Email: mbdodge@ieee.org
               Phone: +972 3 926 8421

                    Co-editor: Moti Morgenstern
                               ECI Telecom Ltd.
                    Postal: 30 Hasivim St.
                               Petach Tikva 49517,
                               Israel.
                    Email: moti.morgenstern@ecitele.com
                    Phone: +972 3 926 6258

                    Co-editor: Scott Baillie
                               NEC Australia
                    Postal: 649-655 Springvale Road,
                               Mulgrave, Victoria 3170,
                               Australia.
                    Email: scott.baillie@nec.com.au
                    Phone: +61 3 9264 3986

                    Co-editor: Umberto Bonollo
                               NEC Australia
                    Postal: 649-655 Springvale Road,
                               Mulgrave, Victoria 3170,
                               Australia.
                    Email: umberto.bonollo@nec.com.au
                    Phone: +61 3 9264 3385
                       "
        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


                 Chair:     Mike Sneed
                            Sand Channel Systems
                 Postal:    P.O. Box 37324
                            Raleigh NC 27627-732
                 Email:     sneedmike@hotmail.com
                 Phone:     +1 206 600 7022

                 Co-Chair & Co-editor:
                            Menachem Dodge
                            ECI Telecom Ltd.
                 Postal:    30 Hasivim St.
                            Petach Tikva 49517,
                            Israel.
                 Email:     mbdodge@ieee.org
                 Phone:     +972 3 926 8421

                 Co-editor: Moti Morgenstern
                            ECI Telecom Ltd.
                 Postal:    30 Hasivim St.
                            Petach Tikva 49517,
                            Israel.
                 Email:     moti.morgenstern@ecitele.com
                 Phone:     +972 3 926 6258

                 Co-editor: Scott Baillie
                            NEC Australia
                 Postal:    649-655 Springvale Road,
                            Mulgrave, Victoria 3170,
                            Australia.
                 Email:     scott.baillie@nec.com.au
                 Phone:     +61 3 9264 3986

                 Co-editor: Umberto Bonollo
```

                    NEC Australia
          Postal: 649-655 Springvale Road,
                      Mulgrave, Victoria 3170,
                      Australia.
          Email: umberto.bonollo@nec.com.au
          Phone: +61 3 9264 3385
                "
      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.

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       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
```

```
        100 - adsl2LConfTempChan1RaRatioUs is the ratio of excess
        data rate to be assigned to all other bearer channels on
        Upstream direction.  The sum of rate adaptation ratios over
        all bearers on the same direction shall be equal to 100%."
    REFERENCE    "ITU-T G.997.1, paragraph 7.3.2.1"
    DEFVAL       { 100 }
    ::= { adsl2LineConfTemplateEntry 5 }

adsl2LConfTempChan2ConfProfile  OBJECT-TYPE
    SYNTAX       SnmpAdminString (SIZE(0..32))
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
       "The value of this object identifies the row in the ADSL2
        Channel Configuration Profile Table
        (adsl2ChConfProfileTable) that applies to ADSL2 bearer
        channel #2.  If the channel is unused, then the object is set
        to a zero-length string.
        This object may be set to a zero-length string only if
        adsl2LConfTempChan3ConfProfile contains a zero-length
        string."

    DEFVAL       { "" }
    ::= { adsl2LineConfTemplateEntry 6 }

adsl2LConfTempChan2RaRatioDs  OBJECT-TYPE
    SYNTAX       Unsigned32(0..100)
    UNITS        "percent"
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
       "Rate Adaptation Ratio.  The ratio (in %) that should be taken
        into account for the bearer channel #2 when performing rate
        adaptation on Downstream.  The ratio refers to the available
        data rate in excess of the Minimum Data Rate, summed over all
        bearer channels.  Also, the
        100 - adsl2LConfTempChan2RaRatioDs is the ratio of excess
        data rate to be assigned to all other bearer channels on
        Downstream direction.  The sum of rate adaptation ratios
        over all bearers on the same direction shall be equal to
        100%."
    REFERENCE    "ITU-T G.997.1, paragraph 7.3.2.1"
    DEFVAL       { 0 }
    ::= { adsl2LineConfTemplateEntry 7 }

adsl2LConfTempChan2RaRatioUs  OBJECT-TYPE
    SYNTAX       Unsigned32(0..100)
    UNITS        "percent"
```

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

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

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

          direction. The sum of rate adaptation ratios over all bearers
          on the same direction shall be equal to 100%."
       REFERENCE   "ITU-T G.997.1, paragraph 7.3.2.1"
       DEFVAL   { 0 }
       ::= { adsl2LineConfTemplateEntry 10 }

    adsl2LConfTempChan3RaRatioUs OBJECT-TYPE
       SYNTAX   Unsigned32(0..100)
       UNITS   "percent"
       MAX-ACCESS   read-create
       STATUS   current
       DESCRIPTION
          "Rate Adaptation Ratio. The ratio (in %) that should be taken
           into account for the bearer channel #3 when performing rate
           adaptation on Upstream. The ratio refers to the available
           data rate in excess of the Minimum Data Rate, summed over all
           bearer channels. Also, the
           100 - adsl2LConfTempChan3RaRatioUs is the ratio of excess
           data rate to be assigned to all other bearer channels on
           Upstream direction. The sum of rate adaptation ratios over
           all bearers on the same direction shall be equal to 100%."
       REFERENCE   "ITU-T G.997.1, paragraph 7.3.2.1"
       DEFVAL   { 0 }
       ::= { adsl2LineConfTemplateEntry 11 }

    adsl2LConfTempChan4ConfProfile OBJECT-TYPE
       SYNTAX   SnmpAdminString (SIZE(0..32))
       MAX-ACCESS   read-create
       STATUS   current
       DESCRIPTION
          "The value of this object identifies the row in the ADSL2
           Channel Configuration Profile Table
           (adsl2ChConfProfileTable) that applies to ADSL2 bearer
           channel #4. If the channel is unused, then the object is set
           to a zero-length string.
           This object may be set to a non-zero-length string only if
           adsl2LConfTempChan3ConfProfile contains a non-zero-length
           string."
       DEFVAL   { "" }
       ::= { adsl2LineConfTemplateEntry 12 }

    adsl2LConfTempChan4RaRatioDs OBJECT-TYPE
       SYNTAX   Unsigned32(0..100)
       UNITS   "percent"
       MAX-ACCESS   read-create
       STATUS   current
       DESCRIPTION
          "Rate Adaptation Ratio. The ratio (in %) that should be taken

        into account for the bearer channel #4 when performing rate
        adaptation on Downstream. The ratio refers to the available
        data rate in excess of the Minimum Data Rate, summed over all
        bearer channels. Also, the 100 -
        adsl2LConfTempChan4RaRatioDs is the ratio of
        excess data rate to be assigned to all other bearer channels.
        The sum of rate adaptation ratios over all bearers on the same
        direction shall sum to 100%."
    REFERENCE   "ITU-T G.997.1, paragraph 7.3.2.1"
    DEFVAL   { 0 }
    ::= { adsl2LineConfTemplateEntry 13 }

adsl2LConfTempChan4RaRatioUs OBJECT-TYPE
    SYNTAX   Unsigned32(0..100)
    UNITS   "percent"
    MAX-ACCESS   read-create
    STATUS   current
    DESCRIPTION
        "Rate Adaptation Ratio. The ratio (in %) that should be taken
         into account for the bearer channel #4 when performing rate
         adaptation on Upstream. The ratio refers to the available
         data rate in excess of the Minimum Data Rate, summed over
         all bearer channels. Also, the 100 -
         adsl2LConfTempChan4RaRatioUs is the
         ratio of excess data rate to be assigned to all other bearer
         channels. The sum of rate adaptation ratios over all bearers
         on the same direction shall sum to 100%."
    REFERENCE   "ITU-T G.997.1, paragraph 7.3.2.1"
    DEFVAL   { 0 }
    ::= { adsl2LineConfTemplateEntry 14 }

adsl2LConfTempRowStatus OBJECT-TYPE
    SYNTAX   RowStatus
    MAX-ACCESS   read-create
    STATUS   current
    DESCRIPTION
        "This object is used to create a new row or to modify or
        delete an existing row in this table.

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

        Before a template can be deleted or taken out of service
        (by setting this object to 'destroy' or 'notInService'),
        it must first be unreferenced from all associated
        lines."
    ::= { adsl2LineConfTemplateEntry 15 }

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

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

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

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

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

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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

        adsl2LConfProfRaModeUs is set to dynamicRa. If the upstream
        noise margin is below this value and stays below that for more
        than the time specified by the adsl2LConfProfRaDsTimeUs, the
        ATU-C shall attempt to decrease the upstream net data rate.
        The Upstream Down-Shift Noise Margin ranges from 0 to 310
        units of 0.1 dB (physical values are 0 to 31 dB)."
     REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.4.8"
     DEFVAL   { 10 }
     ::= { adsl2LineConfProfEntry 12 }

   adsl2LConfProfRaDsTimeDs OBJECT-TYPE
     SYNTAX   Unsigned32(0..16383)
     UNITS   "seconds"
     MAX-ACCESS   read-create
     STATUS   current
     DESCRIPTION
        "The Downstream Down-Shift Time Interval, to be used when
        adsl2LConfProfRaModeDs is set to dynamicRa. The interval of
        time the downstream noise margin should stay below the
        Downstream Down-Shift Noise Margin before the ATU-R shall
        attempt to decrease the downstream net data rate. The time
        interval ranges from 0 to 16383 seconds."
     REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.4.9"
     DEFVAL   { 3600 }
     ::= { adsl2LineConfProfEntry 13 }

   adsl2LConfProfRaDsTimeUs OBJECT-TYPE
     SYNTAX   Unsigned32(0..16383)
     UNITS   "seconds"
     MAX-ACCESS   read-create
     STATUS   current
     DESCRIPTION
        "The Upstream Down-Shift Time Interval, to be used when
        adsl2LConfProfRaModeUs is set to dynamicRa. The interval of
        time the upstream noise margin should stay below the Upstream
        Down-Shift Noise Margin before the ATU-C shall attempt to
        decrease the upstream net data rate. The time interval ranges
        from 0 to 16383 seconds."
     REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.4.10"
     DEFVAL   { 3600 }
     ::= { adsl2LineConfProfEntry 14 }

   adsl2LConfProfTargetSnrmDs OBJECT-TYPE
     SYNTAX   Unsigned32(0..310)
     UNITS   "0.1 dB"
     MAX-ACCESS   read-create
     STATUS   current
     DESCRIPTION

         "The minimum Noise Margin the ATU-R receiver shall achieve,
          relative to the BER requirement for each of the downstream
          bearer channels, to successfully complete initialization.
          The target noise margin ranges from 0 to 310 units of 0.1 dB
          (physical values are 0 to 31 dB)."
      REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.3.1"
      DEFVAL   { 60 }
      ::= { adsl2LineConfProfEntry 15 }

   adsl2LConfProfTargetSnrmUs OBJECT-TYPE
      SYNTAX   Unsigned32(0..310)
      UNITS   "0.1 dB"
      MAX-ACCESS   read-create
      STATUS   current
      DESCRIPTION
         "The minimum Noise Margin the ATU-C receiver shall achieve,
          relative to the BER requirement for each of the upstream
          bearer channels, to successfully complete initialization.
          The target noise margin ranges from 0 to 310 units of 0.1 dB
          (physical values are 0 to 31 dB)."
      REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.3.2"
      DEFVAL   { 60 }
      ::= { adsl2LineConfProfEntry 16 }

   adsl2LConfProfMaxSnrmDs OBJECT-TYPE
      SYNTAX   Unsigned32 (0..310 | 2147483647)
      UNITS   "0.1 dB"
      MAX-ACCESS   read-create
      STATUS   current
      DESCRIPTION
         "The maximum Noise Margin the ATU-R receiver shall try to
          sustain. If the Noise Margin is above this level, the ATU-R
          shall request that the ATU-C reduce the ATU-C transmit power
          to get a noise margin below this limit (if this functionality
          is supported). The maximum noise margin ranges from 0 to 310
          units of 0.1 dB (physical values are 0 to 31 dB). A value of
          0x7FFFFFFF (2147483647) means that there is no maximum."
      REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.3.3"
      DEFVAL   { 310 }
      ::= { adsl2LineConfProfEntry 17 }

   adsl2LConfProfMaxSnrmUs OBJECT-TYPE
      SYNTAX   Unsigned32 (0..310 | 2147483647)
      UNITS   "0.1 dB"
      MAX-ACCESS   read-create
      STATUS   current
      DESCRIPTION
         "The maximum Noise Margin the ATU-C receiver shall try to

           sustain. If the Noise Margin is above this level, the ATU-C
           shall request that the ATU-R reduce the ATU-R transmit power
           to get a noise margin below this limit (if this functionality
           is supported). The maximum noise margin ranges from 0 to 310
           units of 0.1 dB (physical values are 0 to 31 dB). A value of
           0x7FFFFFFF (2147483647) means that there is no maximum."
        REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.3.4"
        DEFVAL   { 310 }
        ::= { adsl2LineConfProfEntry 18 }

    adsl2LConfProfMinSnrmDs OBJECT-TYPE
        SYNTAX   Unsigned32(0..310)
        UNITS   "0.1 dB"
        MAX-ACCESS   read-create
        STATUS   current
        DESCRIPTION
           "The minimum Noise Margin the ATU-R receiver shall tolerate.
           If the noise margin falls below this level, the ATU-R shall
           request that the ATU-C increase the ATU-C transmit power.
           If an increase to ATU-C transmit power is not possible, a
           loss-of-margin (LOM) defect occurs, the ATU-R shall fail and
           attempt to reinitialize, and the NMS shall be notified. The
           minimum noise margin ranges from 0 to 310 units of
           0.1 dB (physical values are 0 to 31 dB). A value of 0 means
           that there is no minimum."
        REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.3.5"
        DEFVAL   { 10 }
        ::= { adsl2LineConfProfEntry 19 }

    adsl2LConfProfMinSnrmUs OBJECT-TYPE
        SYNTAX   Unsigned32(0..310)
        UNITS   "0.1 dB"
        MAX-ACCESS   read-create
        STATUS   current
        DESCRIPTION
           "The minimum Noise Margin the ATU-C receiver shall tolerate.
           If the noise margin falls below this level, the ATU-C shall
           request that the ATU-R increase the ATU-R transmit power.
           If an increase of ATU-R transmit power is not possible, a
           loss-of-margin (LOM) defect occurs, the ATU-C shall fail and
           attempt to reinitialize, and the NMS shall be notified. The
           minimum noise margin ranges from 0 to 310 units of
           0.1 dB (physical values are 0 to 31 dB). A value of 0 means
           that there is no minimum."
        REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.3.6"
        DEFVAL   { 10 }
        ::= { adsl2LineConfProfEntry 20 }

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

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

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

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

          "Power management state Enabling. Defines the power states the
           ATU-C or ATU-R may autonomously transition to on this line.
           The various bit positions are: allowTransitionsToIdle(0) and
           allowTransitionsToLowPower(1). A bit with a '1' value means
           that the ATU is allowed to transit into the respective state,
           and a '0' value means that the ATU is not allowed
           to transit into the respective state."
       REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.1.4"
       DEFVAL { { allowTransitionsToIdle, allowTransitionsToLowPower } }
       ::= { adsl2LineConfProfEntry 24 }

   adsl2LConfProfL0Time OBJECT-TYPE
       SYNTAX   Unsigned32 (0..255)
       UNITS   "seconds"
       MAX-ACCESS read-create
       STATUS   current
       DESCRIPTION
          "This minimum time (in seconds) between an Exit from the L2
           state and the next Entry into the L2 state. It ranges from 0
           to 255 seconds."
       REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.1.5"
       DEFVAL   { 255 }
       ::= { adsl2LineConfProfEntry 25 }

   adsl2LConfProfL2Time OBJECT-TYPE
       SYNTAX   Unsigned32 (0..255)
       UNITS   "seconds"
       MAX-ACCESS read-create
       STATUS   current
       DESCRIPTION
          "This minimum time (in seconds) between an Entry into the
           L2 state and the first Power Trim in the L2 state and between
           two consecutive Power Trims in the L2 State.
           It ranges from 0 to 255 seconds."
       REFERENCE   "ITU-T G.997.1, paragraph 7.3.1.1.6"
       DEFVAL   { 255 }
       ::= { adsl2LineConfProfEntry 26 }

   adsl2LConfProfL2Atpr OBJECT-TYPE
       SYNTAX   Unsigned32 (0..31)
       UNITS   "dB"
       MAX-ACCESS read-create
       STATUS   current
       DESCRIPTION
          "The maximum aggregate transmit power reduction (in dB) that
           can be performed at transition of L0 to L2 state or through a
           single Power Trim in the L2 state.
           It ranges from 0 dB to 31 dB."

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

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

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

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

         Before a profile can be deleted or taken out of service
         (by setting this object to 'destroy' or 'notInService'),
         it must first be unreferenced from all associated
         templates."
      ::= { adsl2LineConfProfEntry 29 }


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

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

          Entries in this table MUST be maintained in a
          persistent manner."
       ::= { adsl2ProfileLine 3 }

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

   Adsl2LineConfProfModeSpecEntry ::=
       SEQUENCE {
           adsl2LConfProfAdslMode   Adsl2OperationModes,
           adsl2LConfProfMaxNomPsdDs   Integer32,
           adsl2LConfProfMaxNomPsdUs   Integer32,
           adsl2LConfProfMaxNomAtpDs   Unsigned32,
           adsl2LConfProfMaxNomAtpUs   Unsigned32,
           adsl2LConfProfMaxAggRxPwrUs   Integer32,
           adsl2LConfProfPsdMaskDs   Adsl2PsdMaskDs,

```
      adsl2LConfProfPsdMaskUs              Adsl2PsdMaskUs,
      adsl2LConfProfPsdMaskSelectUs        Unsigned32,
      adsl2LConfProfModeSpecRowStatus      RowStatus
   }

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

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

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

adsl2LConfProfMaxNomAtpDs  OBJECT-TYPE
```

```
      SYNTAX        Unsigned32 (0..255)
      UNITS         "0.1 dBm"
      MAX-ACCESS    read-create
      STATUS        current
      DESCRIPTION
         "The maximum nominal aggregate transmit power in the
          downstream direction during initialization and Showtime.  It
          ranges from 0 to 255 units of 0.1 dBm (physical values are 0
          to 25.5 dBm)."
      REFERENCE     "ITU-T G.997.1, paragraph 7.3.1.2"
      DEFVAL        { 255 }
      ::= { adsl2LineConfProfModeSpecEntry 4 }

   adsl2LConfProfMaxNomAtpUs  OBJECT-TYPE
      SYNTAX        Unsigned32 (0..255)
      UNITS         "0.1 dBm"
      MAX-ACCESS    read-create
      STATUS        current
      DESCRIPTION
         "The maximum nominal aggregate transmit power in the upstream
          direction during initialization and Showtime.  It ranges from
          0 to 255 units of 0.1 dBm (physical values are 0 to 25.5
          dBm)."
      REFERENCE     "ITU-T G.997.1, paragraph 7.3.1.2"
      DEFVAL        { 255 }
      ::= { adsl2LineConfProfModeSpecEntry 5 }

   adsl2LConfProfMaxAggRxPwrUs  OBJECT-TYPE
      SYNTAX        Integer32(-255..255 | 2147483647)
      UNITS         "0.1 dBm"
      MAX-ACCESS    read-create
      STATUS        current
      DESCRIPTION
         "The maximum upstream aggregate receive power over the relevant
          set of sub-carriers.  The ATU-C should verify that the
          upstream power cutback is such that this maximum aggregate
          receive power value is honored.  It ranges from -255 to 255
          units of 0.1 dBm (physical values are -25.5 to 25.5 dBm).
          A value of 0x7FFFFFFF (2147483647) means that there is no
          limit."
      REFERENCE     "ITU-T G.997.1, paragraph 7.3.1.2"
      DEFVAL        { 255 }
      ::= { adsl2LineConfProfModeSpecEntry 6 }

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

       DESCRIPTION
         "The downstream PSD mask applicable at the U-C2 reference
          point.
         This parameter is used only for G.992.5, and it may impose PSD
         restrictions (breakpoints) in addition to the Limit PSD mask
         defined in G.992.5.
         This is a string of 32 pairs of values in the following
         structure:
         Octets 0+1 - Index of 1st sub-carrier used in the context
                      of a first breakpoint.
         Octet 2   - The PSD reduction for the sub-carrier indicated in
                      octets 0 and 1.
         Octets 3-5 - Same, for a 2nd breakpoint.
         Octets 6-8 - Same, for a 3rd breakpoint.
         This architecture continues until octets 94-95, which are
         associated with a 32nd breakpoint.
         Each subcarrier index is an unsigned number in the range 1 to
         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.

6. Acknowledgements

   The authors are deeply grateful to the authors of the HDSL2 LINE MIB
   (RFC 4319), Clay Sikes and Bob Ray, for contributing to accelerating
   the work on this document. The structure of this document as well as
   several paragraphs originate in their document.

   Special thanks to Bert Wijnen for his meticulous review of this text.

   Other contributions and advice were received from the following:

               Bert Wijnen   (Lucent)
               Bob Ray   (Pesa)
               Chen Jian   (Huawei)
               Clay Sikes   (Zhone)
               Mauro Molinari   (Marconi)
               Narendranath Nair (Wipro)
               Randy Presuhn   (Mindspring)
               Veena Naidu   (Wipro)

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Authors' Addresses

    Moti Morgenstern
    ECI Telecom Ltd.
    30 Hasivim St.
    Petach Tikva 49517
    Israel

    Phone: +972 3 926 6258
    Fax: +972 3 928 7342
    EMail: moti.Morgenstern@ecitele.com

    Menachem Dodge
    ECI Telecom Ltd.
    30 Hasivim St.
    Petach Tikva 49517
    Israel

    Phone: +972 3 926 8421
    Fax: +972 3 928 7342
    EMail: mbdodge@ieee.org

    Scott Baillie
    NEC Australia
    649-655 Springvale Road
    Mulgrave, Victoria 3170
    Australia

    Phone: +61 3 9264 3986
    Fax: +61 3 9264 3892
    EMail: scott.baillie@nec.com.au

    Umberto Bonollo
    NEC Australia
    649-655 Springvale Road
    Mulgrave, Victoria 3170
    Australia

    Phone: +61 3 9264 3385
    Fax: +61 3 9264 3892
    EMail: umberto.bonollo@nec.com.au

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Acknowledgement