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                                               September 29, 2005

   **Definitions of Managed Objects for New Generation Digital Subscriber
                           Lines (NG-XDSL)**
                    draft-ietf-adslmib-adsl2-02.txt

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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
   "Asymmetric Digital Subscriber Line" family of interface types,

especially including ADSL, ADSL2, and ADSL2+.

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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].

    The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",
    "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this
    document are to be interpreted as described in RFC 2119 [RFC2119].

2. **Overview**

    This document 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 also 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.997.1
    am1] and [G.997.1 am2]) to it. The document refer to all three
    documents as G.997.1. That is, a MIB attribute that its REFERENCE
    section provides a 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 future revision of ITU-T G.997.1 standard will refer also
to 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 the MIB this document specifies.

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

2.1. Relationship 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 New Generation xDSL 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
    ...
    ADSL2 (xx),      -- Asymmetric Digital Subscriber Loop 2
    ...
    }
```

ADSL lines that are identified with ifType=ADSL (94) SHOULD be
managed with the MIB specified by RFC2662. ADSL, ADSL2 and ADSL2+
lines identified with ifType=ADSL2 (xx) SHOULD be managed with the
MIB specified by this document.

In any case the management system may use either ifType=Interleave
(124) or Fast (125) for each channel, e.g., depending on whether or
not it activates the interleaver on that channel. It can also use
the ifType=channel (70).

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 New Generation DSL MIB.

```
=================================================================


    ifIndex              Interface index.

    ifDescr              See interfaces MIB.

    ifType               ADSL2 (xxx) or
                         Channel (70) or
                         Ineterleave (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 NGDSL-LINE-MIB module requires the allocation of a new ifType
   value for Asymmetric Digital Subscriber Loop Version 2, to
   distinguish between ADSL lines that are managed with the RFC2662
   management model and ADSL/ADSL2 and ADSL2+ lines managed with the
   model defined in this document.

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

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

2.3. Conventions used in the MIB Module

2.3.1. Naming Conventions

   A. AtuC refers to a central site terminal unit;
   B. AtuR refers to a remote site terminal unit;
   C. xtu refers to a terminal unit; either an AtuC or AtuR.
   D. CRC is cyclic redundancy check.
   E. DELT means Dual Ended Loop Test.
   F. ES means errored second.
   G. FEC means Forward Error Correction.
   H. LOF means loss of framing.
   I. LOS means loss of signal.
   J. LOSS means LOS Second.
   K. SES means severely errored second.
   L. SNR means signal-to-noise ratio.
   M. UAS means unavailable second.

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 (CO) terminal unit
    atur(2)   - customer premises equipment (CPE)
                                 terminal unit

o Adsl2Direction:

   Attributes with this syntax uniquely identify a transmission
   direction in a ADSL/ADSL2/ADSL2+ link. Upstream direction is a
   transmission from the customer premises equipment (CPE) towards
   the central office (CO), while downstream direction is a
   transmission from the CO towards the CPE.

    upstream(1)   - Transmission from the CPE to the CO
    downstream(2)   - Transmission from the CO to the CPE

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 few dozens of
   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 full
   initialization attempt:

```
            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
```

   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:

```
            defMode (1),            - The default/generic PSD configuration.
                                      The default configuration will be used
                                      when no other matching mode specific
                                      configuration can be found.
            adsl (2),               - ADSL (POTS or ISDN)
            adsl2Pots (3),          - ADSL2 (ISDN)
            adsl2Isdn (4),          - ADSL2 (ISDN)
            adsl2PlusPots (5),      - ADSL2+ (POTS)
            adsl2PlusIsdn (6),      - ADSL2+ (ISDN)
            adsl2ReachExtended (7)- Reach Extended ADSL2
```

   o Adsl2PowerMngState:

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

```
            l0(0)       - L0 - Full power management state
            l1(1)       - L1 - Low power management state (for G.992.2)
            l2(2)       - L2 - Low power management state (for G.992.3,
                             G.992.4, and G.992.5)
            l3(3)       - 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 (1)       - 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.

      The is a BITS structure that allows controlling 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 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 non specific 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.
```

   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 is different from the list of states for the CPE side
      modems.

      Specified as an enumeration type, there are currently few dozens
      of states in the list per each unit side (i.e. CO and CPE).

   o Adsl2LineStatus:

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

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

         noDefect (0)   - This bit position positively reports that
                              no defect or failure exist.
         lossOfFraming (1) - Loss of frame synchronization
         lossOfSignal (2) - Loss of signal
         lossOfPower (3)   - Loss of power. Usually this failure may
                              be reported for CPE units only
         initFailure (4)   - Recent initialization process failed.

   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).

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

         noDefect (0)   - This bit position positively reports
                                    that no defect or failure exist.
         noCellDelineation (1)   - Cell delineation never acquired on
                                    the associated ATM data path since
                                    the link successfully initialized.
         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).

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

         noDefect (0)   - This bit position positively reports that no
                             defect or failure exist.
         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 Line 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 Line
      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 that each is a selection of line
         configuration profile and one or more channel configuration
         profiles. It 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 that each is a selection of line alarm profile and one
         or more channel alarm profiles. It 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](). **Line Topology**

     An ADSL/ADSL2 and ADSL2+ Line consists of two units - atuc (the
     central termination unit) and an atur (the remote termination unit),
     consisting of up to 4 channels, each carries an independent
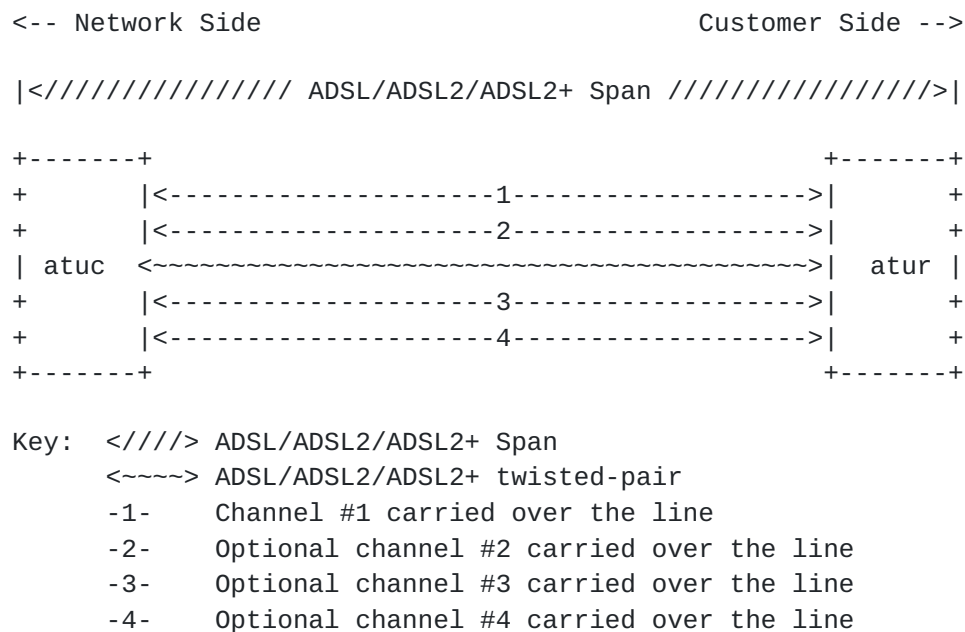   information flow, as shown in the figure below.

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


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


      +-------+                                        +-------+
      +       |<--------------------1------------------>|       +
      +       |<--------------------2------------------>|       +
      | atuc  <~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~>|  atur |
      +       |<--------------------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

2.6. Counters, Interval Buckets and Thresholds

2.6.1. 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 for 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.

2.6.2. 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 buckets.

2.6.3. Interval Buckets Initialization

There is no requirement for an agent to ensure a fixed relationship
between the start of a fifteen minute interval and any wall clock;
however some implementations may align the fifteen minute intervals
with quarter hours. Likewise, an implementation may choose to align
one day intervals with the start of a day.

Counters are not reset when an xtU is reinitialized, only when the
agent is reset or reinitialized (or under specific request outside
the scope of this MIB module).

2.6.4. 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 fifteen 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 declaring 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
      in case a clock adjustment has been 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 it useful for
   those 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) In case the interval was shortened or extended due to clock
      corrections the management system SHOULD report the actual number
      of seconds the interval lasted, beside reporting that the interval
      is Valid.

2.7. 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 profiles that addresses
   the channel level provisioning parameters.

   A configuration template is actually a profile-of-profiles. That is,
   a template is a selection of one line configuration profile and one
   or more channel configuration profiles. A template provides the
   complete configuration of a line. 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 identically in respect of generating

threshold crossing notifications.

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

2.7.1. 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 as 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.

2.7.2. 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 a 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 adsl2LineAlarmConfProfTable.

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
   adsl2ChAlarmConfProfTable.

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.

2.7.3. 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 adsl2LCnfgLineTemplate 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 adsl2LCnfgAlarmTemplate objects to the value
of this template.

Before a template can be deleted or taken out of service it MUST be
first 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 be
first 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 adsl2LCnfgLineTemplate and
adsl2LCnfgAlarmTemplate 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.

2.7.4. 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.

2.8. 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 adsl2LStatusStatusAtur and adsl2LStatusStatusAtuc are bitmask
representing all outstanding error conditions associated with the
AtuR and AtuC (respectively). Note that since the AtuR status is
obtained via the EOC, this information may be unavailable in case the
AtuR 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 AtuR
(e.g., downstream line attenuation). Those parameters also depend on
the availability of EOC between the central office xtu and the remote
xtu.

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, and 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
notification 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 have no explicit rate limiting assertions in this document
otherwise.

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

    NGDSL-LINE-MIB DEFINITIONS ::= BEGIN

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

        ifIndex
            FROM IF-MIB

        TruthValue,
        RowStatus,
        TEXTUAL-CONVENTION
            FROM SNMPv2-TC

        SnmpAdminString
            FROM SNMP-FRAMEWORK-MIB

        HCPerfIntervalThreshold,
        HCPerfTimeElapsed
            FROM HC-PerfHist-TC-MIB   -- [RFC3705]

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

    ngdslMIB MODULE-IDENTITY
        LAST-UPDATED "200509260000Z" -- September 26, 2005
        ORGANIZATION "ADSLMIB Working Group"
        CONTACT-INFO "WG-email: adslmib@ietf.org

Info: https://www1.ietf.org/mailman/listinfo/adslmib

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

                  This document does not obsolete RFC 2662 [RFC2662] but
                  rather provides a more comprehensive management model that
                  includes also 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 on two
                  amendments [G.997.1 am1] and [G.997.1 am2] for it.

                  Note that the revised ITU-T G.997.1 standard refers also to
                  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 MIB-2 Integration (RFC 2863
                  [RFC2863]) section of this document.

                  Copyright (C) The Internet Society (2005). This version of
                  this MIB module is part of RFC XXXX: see the RFC itself for
                  full legal notices."

        -- RFC Ed.: replace XXXX with assigned number & remove this note
           REVISION "200509260000Z" --   September 26, 2005
           DESCRIPTION "Initial version, published as RFC XXXX."
        -- RFC Ed.: replace XX with assigned number & remove this note
             ::= { transmission xxx }

```
   -- RFC Ed.: we suggest to put it under { transmission 230 } because
   --          this is the first available number.
```

```
   adsl2             OBJECT IDENTIFIER ::= { ngdslMIB 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 8 }
   ----------------------------------------------------
   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 }
   ----------------------------------------------------
```

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

   Adsl2Unit ::= TEXTUAL-CONVENTION
     STATUS      current
     DESCRIPTION
        "Identifies a transceiver as being either atuc or
         atur.  An ADSL line consists of two transceivers, an atuc
         and an atur.  Attributes with this syntax reference the two
         sides of a line.  Specified as an INTEGER, the two values
         are:
          atuc(1)  -- central site transceiver
          atur(2)  -- remote site transceiver"

     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)
               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),
               q9921PotsNonOverlapped(2),
               q9921PotsOverlapped(3),
               q9921IsdnNonOverlapped(4),
               q9921isdnOverlapped(5),
               q9921tcmIsdnNonOverlapped(6),
               q9921tcmIsdnOverlapped(7),
               q9922potsNonOverlapeed(8),
               q9922potsOverlapped(9),
               q9922tcmIsdnNonOverlapped(10),
               q9922tcmIsdnOverlapped(11),
               q9921tcmIsdnSymmetric(12),
               reserved1(13),
               reserved2(14),
               reserved3(15),
               reserved4(16),
               reserved5(17),
               q9923PotsNonOverlapped(18),
               q9923PotsOverlapped(19),
               q9923IsdnNonOverlapped(20),
               q9923isdnOverlapped(21),
               reserved6(22),
               reserved7(23),
               q9924potsNonOverlapeed(24),
```

```
                        q9924potsOverlapped(25),
                        reserved8(26),
                        reserved9(27),
                        q9923AnnexIAllDigNonOverlapped(28),
                        q9923AnnexIAllDigOverlapped(29),
                        q9923AnnexJAllDigNonOverlapped(30),
                        q9923AnnexJAllDigOverlapped(31),
                        q9924AnnexIAllDigNonOverlapped(32),
                        q9924AnnexIAllDigOverlapped(33),
                        q9923AnnexLMode1NonOverlapped(34),
                        q9923AnnexLMode2NonOverlapped(35),
                        q9923AnnexLMode3Overlapped(36),
                        q9923AnnexLMode4Overlapped(37),
                        q9923AnnexMPotsNonOverlapped(38),
                        q9923AnnexMPotsOverlapped(39),
                        q9925PotsNonOverlapped(40),
                        q9925PotsOverlapped(41),
                        q9925IsdnNonOverlapped(42),
                        q9925isdnOverlapped(43),
                        reserved10(44),
                        reserved11(45),
                        q9925AnnexIAllDigNonOverlapped(46),
                        q9925AnnexIAllDigOverlapped(47),
                        q9925AnnexJAllDigNonOverlapped(48),
                        q9925AnnexJAllDigOverlapped(49),
                        q9925AnnexMPotsNonOverlapped(50),
                        q9925AnnexMPotsOverlapped(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 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"

      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 which identifies an instance of ADSL Mode-Specific
          PSD Configuration object in the ADSL Line Profile.  The
          following classes of ADSL operating mode are defined. "
      SYNTAX      INTEGER {
                    defMode (1),
                    adsl (2),
                    adsl2Pots (3),
                    adsl2Isdn (4),
                    adsl2PlusPots (5),
                    adsl2PlusIsdn (6),
                    adsl2ReachExtended (7)
                }

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

     SYNTAX   INTEGER {
                    l0(0),
                    l1(1),
                    l2(2),
                    l3(3)
                  }

  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 (1)   - 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)"

     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 controlling 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"


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

   Adsl2LdsfResult ::= TEXTUAL-CONVENTION
       STATUS current
       DESCRIPTION
         "Possible failure reasons associated with performing
          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 non specific 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 downstream 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
          (0dBm/Hz) to 255 (-127.5 dBm/Hz) using units of
          0.5dBm/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
          (0dBm/Hz) to 255 (-127.5 dBm/Hz) using units of
          0.5dBm/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 -0.5dB). The
          special value 127 indicates that the subcarrier
          is not transmitted."
       SYNTAX   OCTET STRING (SIZE(0..96))

    Adsl2LastTransmittedState ::= TEXTUAL-CONVENTION
        STATUS current
        DESCRIPTION
          "This parameter represents the last successful
           transmitted initialization state in the last full
           initialization performed on the line."
       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 exist.
           lossOfFraming (1) - Loss of frame synchronization
           lossOfSignal (2)  - Loss of signal
           lossOfPower (3)   - Loss of power.  Usually this failure may
                                be reported for CPE units only
           initFailure (4)   - Recent initialization process failed."

      SYNTAX BITS {
          noDefect(0),
          lossOfFraming(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
                                          exist.
          noCellDelineation (1)     - Cell delineation never acquired on
                                          the associated ATM data path since
                                          the link successfully initialized.
          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 exist.
             outOfSync (1)   - Out of synchronization. "

         SYNTAX BITS {
             noDefect(0),
             outOfSync(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 a ifType of adsl2(xx)."
      ::= { 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, (Adsl2ConfTemplatesTable),
          which applies for this ADSL2 line."
      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."
      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),
             l0orL2toL3 (3)."
      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.  "
      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 non specific 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 does not only depend on the common
                capabilities of both ATUs (as exchanged in G.994.1), but
```

            depends also on achievable data rates under given loop
            conditions. "
         REFERENCE   "ITU-T G.997.1, paragraph 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 one 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(0), l1(1), l2(2), l3(3)."
       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: noFailure(0), configError(1), configNotFeasible(2),
           commFail(3), noPeerAtu(4), 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. States are per the specific ADSL type
           and are counted from 0 (if G.994.1 is used) or 1 (if G.994.1
           is not used) up to Showtime."
       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. States are per the specific ADSL type and are
           counted from 0 (if G.994.1 is used) or 1 (if G.994.1 is not
           used) up to Showtime."
       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. The various bit
           positions are: noFailure(0), lossOfFraming(1),
           lossOfSignal(2), lossOfPower(3),
           initFailure(4) - never active on ATU-R"
       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. The various bit
           positions are: noFailure(0), lossOfFraming(1),
           lossOfSignal(2), lossOfPower(3), initFailure(4)"

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

  adsl2LineStatusLnAttenDs  OBJECT-TYPE
      SYNTAX      Unsigned32
      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 value of all 1's indicates the line
         attenuation is out of range to be represented."
      REFERENCE    "ITU-T G.997.1, paragraph 7.5.1.6"
      ::= { adsl2LineEntry 14 }

  adsl2LineStatusLnAttenUs  OBJECT-TYPE
      SYNTAX      Unsigned32
      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 value of all 1's indicates the line
         attenuation is out of range to be represented."
      REFERENCE    "ITU-T G.997.1, paragraph 7.5.1.7"
      ::= { adsl2LineEntry 15 }

  adsl2LineStatusSigAttenDs  OBJECT-TYPE
      SYNTAX      Unsigned32
      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 value of all
         1's indicates the line attenuation is out of range to be
         represented."
      REFERENCE    "ITU-T G.997.1, paragraph 7.5.1.8"
      ::= { adsl2LineEntry 16 }
```

    adsl2LineStatusSigAttenUs OBJECT-TYPE
       SYNTAX   Unsigned32
       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 value of all
          1's indicates the line attenuation is out of range to be
          represented."
       REFERENCE   "ITU-T G.997.1, paragraph 7.5.1.9"
       ::= { adsl2LineEntry 17 }

    adsl2LineStatusSnrMarginDs OBJECT-TYPE
       SYNTAX   Integer32
       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 value of all 1's indicates the line
          attenuation is out of range to be represented."
       REFERENCE   "ITU-T G.997.1, paragraph 7.5.1.10"
       ::= { adsl2LineEntry 18 }

    adsl2LineStatusSnrMarginUs OBJECT-TYPE
       SYNTAX   Integer32
       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 value of all 1's indicates the line attenuation
          is out of range to be represented."
       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 bit/s."
    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 bit/s."
    REFERENCE    "ITU-T G.997.1, paragraph 7.5.1.13"
    ::= { adsl2LineEntry 21 }

 adsl2LineStatusActPsdDs OBJECT-TYPE
    SYNTAX      Integer32
    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 all 1's
        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
    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 all 1's 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
       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 all 1's 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
       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 all 1's 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 ADSL2 channel."
       ::= { adsl2Status 1 }

    adsl2ChannelStatusEntry  OBJECT-TYPE
       SYNTAX       Adsl2ChannelStatusEntry
       MAX-ACCESS   not-accessible
       STATUS       current
       DESCRIPTION
```

```
         "The table adsl2ChannelStatusTable contains status
          parameters of ADSL2 channel.
          The indexes of this table is an interface index where
          the interface has a ifType value which is applicable
          for a DSL channel and the 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 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
```

```
         bit/s."
      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 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 bit/s."
      REFERENCE    "ITU-T G.997.1, paragraph 7.5.2.2"
      ::= { adsl2ChannelStatusEntry 4 }

   adsl2ChStatusActDelay  OBJECT-TYPE
      SYNTAX       Unsigned32(0..64)
      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 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:
             noFailure(0),
             noCellDelineation(1),
             lossOfCellDelineation (2).
          In case the channel is not of 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 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:
             noFailure(0),
             outOfSync (1).
         In case the channel is not of 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 ADSL2 sub carriers."
         ::= { adsl2Status 2 }

     adsl2SCStatusEntry OBJECT-TYPE
         SYNTAX   Adsl2SCStatusEntry
         MAX-ACCESS not-accessible
         STATUS   current
         DESCRIPTION
            "The table Hfadsl2SCStatusEntry contains status parameters
             of ADSL2 sub carriers.
             The index of this table is an interface index where the
             interface has a ifType of adsl2(xx)."
         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 subcarrier 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 bytes, 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 here as NSC.
         Byte 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 bytes
          (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 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 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
         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 here as NSC.
       Each array entry represents the real component [referred 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 here as NSC.
           Each array entry represents the imaginary component [referred
           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 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 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
   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 value of all 1's indicates the line
       attenuation 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 7.5.1.6 (LATNds)
               and paragraph 7.5.1.7 (LATNus)"
      ::= { adsl2SCStatusEntry 14 }

adsl2SCStatusSigAtten OBJECT-TYPE
   SYNTAX   Unsigned32
   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 value of all 1's indicates the line
             attenuation 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 7.5.1.8 (SATNds)
                     and paragraph 7.5.1.9 (SATNus)"
         ::= { adsl2SCStatusEntry 15 }

      adsl2SCStatusSnrMargin OBJECT-TYPE
         SYNTAX   Integer32
         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 value of all 1's indicates the SNR margin 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 7.5.1.10 (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/s.
         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 7.5.1.14 (ACTPSDds)
                  and paragraph 7.5.1.15 (ACTPSDus)"
      ::= { adsl2SCStatusEntry 18 }

   adsl2SCStatusRowStatus  OBJECT-TYPE
        SYNTAX       RowStatus
        MAX-ACCESS   read-write
        STATUS       current
        DESCRIPTION
        "Row Status.  The SNMP agent should create a row in this
         table for storing the results of a DELT performed on the
         associated line, if such a row does not already exist.
         The SNMP agent may have a limited resources and therefore in
         case multiple rows co-exist in the table it may fail to add
         new rows to the table or allocate memory resources for a new
         DELT process.  If that occurs the SNMP agent responds with
         either the value 'tableFull' or the value
         'noResources' (for adsl2LineCmndConfLdsfFailReason
         object in adsl2LineTable)
         The management system (the operator) may delete rows according
```

```
         to any scheme.  E.g., after retrieving the results."
       ::= { adsl2SCStatusEntry 19 }

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

   adsl2LineInventoryEntry  OBJECT-TYPE
      SYNTAX       Adsl2LineInventoryEntry
      MAX-ACCESS   not-accessible
      STATUS       current
      DESCRIPTION
         "The table adsl2LineInventoryTable contains inventory of ADSL2
          unit.
          The index of this table is an interface index where the
          interface has a ifType of adsl2(xx)."
      INDEX  { ifIndex, adsl2LInvUnit }
      ::= { adsl2LineInventoryTable 1 }

   Adsl2LineInventoryEntry  ::=
      SEQUENCE {
         adsl2LInvUnit                     Adsl2Unit,
         adsl2LInvG994VendorId             OCTET STRING,
         adsl2LInvSystemVendorId           OCTET STRING,
         adsl2LInvVersionNumber            OCTET STRING,
         adsl2LInvSerialNumber             OCTET STRING,
         adsl2LInvSelfTestResult           OCTET STRING,
         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(0..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(0..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 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   OCTET STRING (SIZE(0..4))
       MAX-ACCESS read-only
       STATUS   current
       DESCRIPTION
          "The ATU self-test result, coded as a 32-bit integer. The
           most significant octet of this object 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 template."
       ::= { adsl2ProfileLine 1 }

    adsl2LineConfTemplateEntry OBJECT-TYPE
       SYNTAX   Adsl2LineConfTemplateEntry
       MAX-ACCESS not-accessible
       STATUS   current
       DESCRIPTION
          "The table adsl2LineConfTemplateTable contains ADSL2 line
           configuration template.
           A default template with an index of 'DEFVAL', will
           always exist and its parameters will be set to vendor

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         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, (Adsl2LineConfProfileTable),
        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,
          (Adsl2ChanConfProfileTable), which applies for 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       "percents"
      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 1- Adsl2ConfTemplateChan1RaRatioDs
          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       "percents"
      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
          1 - Adsl2ConfTemplateChan1RaRatioUs 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,
           (Adsl2ChanConfProfileTable), which applies for ADSL2 bearer
           channel #2. If 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   "percents"
       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
           1 - Adsl2ConfTemplateChan2RaRatioDs 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   "percents"
       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

```
         1 - Adsl2ConfTemplateChan2RaRatioUs 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,
          (Adsl2ChanConfProfileTable), which applies for ADSL2 bearer
          channel #3.  If 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        "percents"
      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 1- Adsl2ConfTemplateChan3RaRatioDs
          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        "percents"
      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
          1 - Adsl2ConfTemplateChan3RaRatioUs 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,
          (Adsl2ChanConfProfileTableDs), which applies for ADSL2 bearer
          channel #4.  If 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        "percents"
      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 1 - Chan4RaRatio 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   "percents"
        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 1 - Chan4RaRatio 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 modify or
           delete an existing row in this table.

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

           Before a profile can be deleted or taken out of service
           (by setting this object to 'destroy' or 'outOfService'),
           it must be first unreferenced from all associated
           lines."
        ::= { 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."
        ::= { adsl2ProfileLine 2 }


   adsl2LineConfProfEntry  OBJECT-TYPE
       SYNTAX      Adsl2LineConfProfEntry
       MAX-ACCESS  not-accessible
       STATUS      current
       DESCRIPTION
          "The table adsl2LineConfProfTable contains ADSL2 line profile
           configuration.
           A default profile with an index of 'DEFVAL', will
           always exist and its parameters will be set to vendor
           specific values, unless otherwise specified in this
           document"
       INDEX  { adsl2LConfProfProfileName }
       ::= { adsl2LineConfProfTable 1 }


   Adsl2LineConfProfEntry  ::=
       SEQUENCE {
           adsl2LConfProfProfileName          SnmpAdminString,
           adsl2LConfProfScMaskDs             Adsl2ScMaskDs,
           adsl2LConfProfScMaskUs             Adsl2ScMaskUs,
           adsl2LConfProfRfiBandsDs           Adsl2RfiDs,
           adsl2LConfProfRaModeDs             Adsl2RaMode,
           adsl2LConfProfRaModeUs             Adsl2RaMode,
           adsl2LConfProfRaUsNrmDs            Unsigned32,
           adsl2LConfProfRaUsNrmUs            Unsigned32,
           adsl2LConfProfRaUsTimeDs           Unsigned32,
           adsl2LConfProfRaUsTimeUs           Unsigned32,
           adsl2LConfProfRaDsNrmsDs           Unsigned32,
           adsl2LConfProfRaDsNrmsUs           Unsigned32,
           adsl2LConfProfRaDsTimeDs           Unsigned32,
           adsl2LConfProfRaDsTimeUs           Unsigned32,
           adsl2LConfProfTargetSnrmDs         Unsigned32,
           adsl2LConfProfTargetSnrmUs         Unsigned32,
           adsl2LConfProfMaxSnrmDs            Unsigned32,
           adsl2LConfProfMaxSnrmUs            Unsigned32,
           adsl2LConfProfMinSnrmDs            Unsigned32,
           adsl2LConfProfMinSnrmUs            Unsigned32,
           adsl2LConfProfMsgMinUs             Unsigned32,
           adsl2LConfProfMsgMinDs             Unsigned32,
           adsl2LConfProfAtuTransSysEna       Adsl2TransmissionModeType,
           adsl2LConfProfPmMode               Adsl2LConfProfPmMode,
           adsl2LConfProfL0Time               Unsigned32,
           adsl2LConfProfL2Time               Unsigned32,
           adsl2LConfProfL2Atpr               Unsigned32,
           adsl2LConfProfL2Atprt              Unsigned32,
           adsl2LConfProfRowStatus            RowStatus
```

```
       }

   adsl2LConfProfProfileName  OBJECT-TYPE
      SYNTAX       SnmpAdminString (SIZE(1..32))
      MAX-ACCESS  not-accessible
      STATUS       current
      DESCRIPTION
         "This object identifies a row in this table."
        ::= { adsl2LineConfProfEntry 1 }

   adsl2LConfProfScMaskDs  OBJECT-TYPE
      SYNTAX       Adsl2ScMaskDs
      MAX-ACCESS  read-create
      STATUS       current
      DESCRIPTION
         "Sub-carriers mask.  A bitmap of 512 bits, that allows masking
          up to 512 downstream sub-carriers, depending on NSCds.  If bit
          i (0 <= 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 be
          always unmasked sub carriers (i.e., the object cannot be all
          1's).  Also note that in case 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 be always unmasked sub carriers (i.e., the object
          cannot be all 1's).  Also note that in case 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 in case 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),
          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),
          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
         Adsl2LineConfRaModeDs is set to DynamicRa.  If the downstream
         noise margin is above this value and stays above that for
         more than the time specified by the Adsl2LineConfRaUsTimeDs,
         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
         Adsl2LineConfRaModeUs is set to DynamicRa.  If the upstream
         noise margin is above this value and stays above that for more
         than the time specified by the Adsl2LineConfRaUsTimeUs, 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
         Adsl2LineConfRaModeDs is set to DynamicRa.  The interval of
         time 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
           Adsl2LineConfRaModeUs 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
           Adsl2LineConfRaModeDs 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 Adsl2LineConfRaDsTimeDs, 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 Downshift Noise Margin value, to be used when
           Adsl2LineConfRaModeUs 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 Adsl2LineConfRaDsTimeUs, 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 Downshift Time Interval, to be used when
            Adsl2LineConfRaModeDs 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
            Adsl2LineConfRaModeUs 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 Noise Margin the ATU-R receiver shall achieve, relative
            to the BER requirement for each of the downstream bearer
            channels, or better, 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 Noise Margin the ATU-C receiver shall achieve, relative
         to the BER requirement for each of the upstream bearer
         channels, or better, 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
      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 the ATU-C to 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
         all 1's  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
      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 the ATU-R to 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
         all 1's  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 the ATU-C to 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 the ATU-R to 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 re-initialize 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 modify or
        delete an existing row in this table.

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

        Before a profile can be deleted or taken out of service
        (by setting this object to 'destroy' or 'outOfService'),
        it must be first unreferenced from all associated
        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."
        ::= { 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) share
            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..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 all ones 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 and until octets 94-95 that are
           associated with a 32nd breakpoint.
```

        Each subcarrier index is an unsigned number in the range 1 and
        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 and until octets 9-11 that are
        associated with a 4th breakpoint.
        Each subcarrier index is an unsigned number in the range 1 and
        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), 7.3.1.10"
      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 modify or
         delete an existing row in this table.

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

         Before a profile can be deleted or taken out of service
         (by setting this object to 'destroy' or 'outOfService'),
         it must be first unreferenced from all associated
         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."
      ::= { 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,
        adsl2ChConfProfMinDataRateLowPwrUs 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 bit/s."
     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 bit/s."
       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 bit/s.  This parameter is used only if the Rate Adaptation
           Mode in the direction of the bearer channel (i.e.,
           Adsl2LineConfRaModeDs) 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
           bit/s.  This parameter is used only if the Rate Adaptation
           Mode in the direction of the bearer channel (i.e.,
           Adsl2LineConfRaModeUs) 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 bit/s."
       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 bit/s."
    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
        bit/s., 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 }

 adsl2ChConfProfMinDataRateLowPwrUs  OBJECT-TYPE
    SYNTAX       Unsigned32(0..200000000)
    UNITS        "bits/second"
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
       "Minimum Data Rate in Low Power state on Upstream direction.
        The minimum net data rate for the bearer channel, coded in
        bit/s., 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 9 }

 adsl2ChConfProfMaxDelayDs  OBJECT-TYPE
    SYNTAX       Unsigned32(0..64)
    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 (Adsl2ChanStatusActDelay) is as close to but less or
      equal than Adsl2ChanConfMaxDelayDs.  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 }

adsl2ChConfProfMaxDelayUs  OBJECT-TYPE
   SYNTAX       Unsigned32(0..64)
   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 (Adsl2ChanStatusActDelay) is as close to but less or
      equal than Adsl2ChanConfMaxDelayUs.  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 11 }

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 12 }

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 (1),
            halfSymbol (2),
            singleSymbol (3),
            twoSymbols (4),
            fourSymbols (5),
            eightSymbols (6),
            sixteenSymbols (7)."
      REFERENCE   "ITU-T G.997.1, paragraph 7.3.2.3"
      DEFVAL   { noProtection }
      ::= { adsl2ChConfProfileEntry 13 }

   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),
             eminus7 (3)"
      REFERENCE   "ITU-T G.997.1, paragraph 7.3.2.4"
      DEFVAL   { eminus5 }
     ::= { adsl2ChConfProfileEntry 14 }

   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),
             eminus7 (3)"
      REFERENCE   "ITU-T G.997.1, paragraph 7.3.2.4"
      DEFVAL   { eminus5 }
      ::= { adsl2ChConfProfileEntry 15 }

   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 bit/s."
      REFERENCE   "ITU-T G.997.1, paragraph 7.3.2.6"
      ::= { adsl2ChConfProfileEntry 16 }

   adsl2ChConfProfDsDataRateDs OBJECT-TYPE
      SYNTAX   Unsigned32(0..200000000)
      UNITS   "bits/second"
      MAX-ACCESS   read-create
      STATUS   current
      DESCRIPTION
         "Data Rate Threshold Downshift 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 bit/s."
      REFERENCE   "ITU-T G.997.1, paragraph 7.3.2.6"
      ::= { adsl2ChConfProfileEntry 17 }

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

   adsl2ChConfProfDsDataRateUs OBJECT-TYPE
      SYNTAX   Unsigned32(0..200000000)
      UNITS   "bits/second"
      MAX-ACCESS   read-create
      STATUS   current
      DESCRIPTION
         "Data Rate Threshold Downshift 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 bit/s."

```
      REFERENCE     "ITU-T G.997.1, paragraph 7.3.2.6"
      ::= { adsl2ChConfProfileEntry 19 }

   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 of 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 20 }

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

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

         Before a profile can be deleted or taken out of service
         (by setting this object to 'destroy' or 'outOfService'),
         it must be first unreferenced from all associated
         templates."
      ::= { adsl2ChConfProfileEntry 21 }

   ---------------------------------------------------
   --         adsl2LineAlarmConfTemplateTable       --
   ---------------------------------------------------
   adsl2LineAlarmConfTemplateTable  OBJECT-TYPE
      SYNTAX        SEQUENCE  OF  Adsl2LineAlarmConfTemplateEntry
      MAX-ACCESS    not-accessible
      STATUS        current
      DESCRIPTION
         "The table adsl2LineConfTemplateTable contains ADSL2 line
          configuration template."
      ::= { adsl2ProfileAlarmConf 1 }

   adsl2LineAlarmConfTemplateEntry  OBJECT-TYPE
      SYNTAX        Adsl2LineAlarmConfTemplateEntry
      MAX-ACCESS    not-accessible
```

```
         STATUS      current
         DESCRIPTION
            "The table adsl2LineAlarmConfTemplateTable contains ADSL2
            line PM thresholds 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  { 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), which applies for 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), which 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), which 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 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), which 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), which 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 modify or
             delete an existing row in this table.

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

             Before a profile can be deleted or taken out of service
             (by setting this object to 'destroy' or 'outOfService'),
             it must be first unreferenced from all associated
             lines."
          ::= { 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."
           ::= { 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 modify or
       delete an existing row in this table.

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

       Before a profile can be deleted or taken out of service
       (by setting this object to 'destroy' or 'outOfService'),
       it must be first unreferenced from all associated
       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."
         ::= { 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 modify or
          delete an existing row in this table.

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

          Before a profile can be deleted or taken out of service
          (by setting this object to 'destroy' or 'outOfService'),
          it must be first unreferenced from all associated
          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 line."
      ::= { adsl2PMLine 1 }

   adsl2PMLineCurrEntry  OBJECT-TYPE
      SYNTAX      Adsl2PMLineCurrEntry
      MAX-ACCESS  not-accessible
      STATUS      current
      DESCRIPTION
         "The table adsl2PMLineCurrTable contains current Performance
          Monitoring results of ADSL2 line.
          The indexes of this table is an interface index where the
          interface has a ifType of adsl2(xx) and the termination
          unit."
      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 in this interval"
    ::= { adsl2PMLineCurrEntry 4 }

adsl2PMLCurr15MFecs  OBJECT-TYPE
    SYNTAX      Counter32
    UNITS       "seconds"
    MAX-ACCESS  read-only
```

```
         STATUS       current
         DESCRIPTION
            "Count of seconds during this interval that 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 that 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 that 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 that 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 in this interval."
      ::= { adsl2PMLineCurrEntry 12 }

   adsl2PMLCurr1DayFecs  OBJECT-TYPE
      SYNTAX      Counter32
      UNITS       "seconds"
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
         "Count of seconds during this interval that 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 that 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 that 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 that 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 ADSL2 line."
        ::= { adsl2PMLine 2 }

     adsl2PMLineCurrInitEntry  OBJECT-TYPE
        SYNTAX       Adsl2PMLineCurrInitEntry
        MAX-ACCESS   not-accessible
        STATUS       current
        DESCRIPTION
           "The table adsl2PMLineCurrInitTable contains current
            initialization counters of ADSL2 line.
            The index of this table is an interface index where the
            interface has a ifType of adsl2(xx) and the 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 in this interval."
     ::= { 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 in this interval."
      ::= { 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 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 ADSL2 line.
         The indexes of this table is an interface index where the
         interface has a ifType of adsl2(xx), the 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
      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 that 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 that 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 that 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 that 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 hours intervals of 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 hours intervals of ADSL2 line.
        The indexes of this table is an interface index where the
        interface has a ifType of adsl2(xx), the 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
          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 that 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 that 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 that 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 that 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 minutes intervals of 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 ADSL2
           line.
           The indexes of this table is an interface index where the
           interface has a ifType of adsl2(xx) 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
       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 hours intervals of 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 hours intervals of ADSL2
          line.
          The indexes of this table is an interface index where the
          interface has a ifType of adsl2(xx) 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
       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 ADSL2 channel."
      ::= { adsl2PMChannel 1 }

   adsl2PMChCurrEntry  OBJECT-TYPE
      SYNTAX       Adsl2PMChCurrEntry
      MAX-ACCESS   not-accessible
      STATUS       current
      DESCRIPTION
         "The table adsl2PMChCurrTable contains current Performance
          Monitoring results of ADSL2 channel.
          The indexes of this table is an interface index where
          the interface has a ifType value which is applicable
          for a DSL channel and the 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 in this interval."
   ::= { 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 in this interval."
```

```
        ::= { 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 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 ADSL2 channel.
          The indexes of this table is an interface index where
          the interface has a ifType value which is applicable
          for a DSL channel, the 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
      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 indexes of this table is an interface index where
          the interface has a ifType value which is applicable
          for a DSL channel, the 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
      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 which
            manage 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 intervals
           short initializations."

      GROUP   adsl2PMLineInitHist15MinShortGroup
         DESCRIPTION
           "The group of PM counters for the previous 15 minutes
           intervals short initializations."

      GROUP   adsl2PMLineInitHist1DayShortGroup
         DESCRIPTION
           "The group of PM counters for the previous 24 hours
           intervals short initializations."

      GROUP   adsl2ScalarSCGroup
         DESCRIPTION
           "The group of objects that report the available memory
           resources for DELT processes."

      GROUP   adsl2ThreshNotificationGroup
         DESCRIPTION
           "The group of thresholds 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.
            Those 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,
            adsl2ChConfProfMinDataRateLowPwrUs,
            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
               initializations 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
               initializations 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 minutes intervals."
            ::= { 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 hours intervals."
            ::= { adsl2Groups 22 }

        adsl2PMLineInitHist15MinGroup OBJECT-GROUP
            OBJECTS
                {
                adsl2PMLHistInit15MMonitoredTime,
                adsl2PMLHistInit15MFullInits,
                adsl2PMLHistInit15MFailedFullInits,
                adsl2PMLHistInit15MValidInterval
                }
            STATUS     current
            DESCRIPTION
              "The group of PM counters for the previous 15 minutes
               intervals full initializations."
            ::= { adsl2Groups 23 }

        adsl2PMLineInitHist15MinShortGroup OBJECT-GROUP
            OBJECTS
                {
                adsl2PMLHistInit15MShortInits,
                adsl2PMLHistInit15MFailedShortInits
                }
            STATUS     current
            DESCRIPTION
              "The group of PM counters for the previous 15 minutes
               intervals short initializations."
            ::= { adsl2Groups 24 }

        adsl2PMLineInitHist1DayGroup OBJECT-GROUP
            OBJECTS
                {
                adsl2PMLHistinit1DMonitoredTime,
                adsl2PMLHistinit1DFullInits,
                adsl2PMLHistinit1DFailedFullInits,
                adsl2PMLHistinit1DValidInterval
                }
            STATUS     current
            DESCRIPTION
              "The group of PM counters for the previous 24 hours
               intervals full initializations."
            ::= { adsl2Groups 25 }

        adsl2PMLineInitHist1DayShortGroup OBJECT-GROUP
```

```
             OBJECTS
                 {
                 adsl2PMLHistinit1DShortInits,
                 adsl2PMLHistinit1DFailedShortInits
                 }
             STATUS    current
             DESCRIPTION
               "The group of PM counters for the previous 24 hours
                intervals 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 minutes 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 hours 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 ADSL2 lines."
       ::= { adsl2Groups 31 }
```

```
     adsl2StatusChangeNotificationGroup NOTIFICATION-GROUP
        NOTIFICATIONS
        {
        adsl2LineStatusChangeAtuc,
        adsl2LineStatusChangeAtur
        }
        STATUS      current
        DESCRIPTION
          "This group supports notifications of thresholds crossing
          associated with 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 Though the configuration templates/profiles allow referring to 1-4
   bearer channels, ADSL links are limited to 2 channels at most
o Though the channel configuration profile allows higher data rates,
   ADSL links are limited to downstream/upstream data rate 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. It is therefore
   advised to consult with ITU G.997.1 standard [G.997.1] regarding
   to 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
   *   adsl2ChConfProfMinDataRateLowPwrUs
   *   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 which 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 which 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. Acknowledgments

The authors are deeply grateful to the authors of the HDSL2 LINE MIB
(RFC xxxx), 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.

Other contributions and advice were received from the following:

        Randy Presuhn (Mindspring)
        Chen Jian   (Huawei)
        Bert Wijnen (Lucent)
        Clay Sikes   (Paradyne)

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