               Definitions of Managed Objects for the ADSL Lines

Status of this Memo

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

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Table of Contents

1. **Abstract**

   This document defines a standard SNMP MIB for ADSL lines based on the
   ADSL Forum standard data model [9]. The ADSL standard describes
   ATU-C and ATU-R as two sides of the ADSL line. This MIB covers both
   ATU-C and ATU-R agent's perspectives. Each instance defined in the

   MIB represents a single ADSL line.

It should be noted that the ADSL Forum Network Management Working
Group provided input towards the content of this document. See the
Acknowledgement Section for a list of individuals who made this
document possible.

2. **The SNMP Network Management Framework**

The SNMP Management Framework presently consists of five major
components:

o An overall architecture, described in RFC 2571 [13].

o Mechanisms for describing and naming objects and events for the
   purpose of management. The first version of this Structure of
   Management Information (SMI) is called SMIv1 and described in STD
   16, RFC 1155 [14], STD 16, RFC 1212 [15] and RFC 1215 [16]. The
   second version, called SMIv2, is described in STD 58, RFC 2578
   [1], STD 58, RFC 2579 [2] and STD 58, RFC 2580 [17].

o Message protocols for transferring management information. The
   first version of the SNMP message protocol is called SNMPv1 and
   described in STD 15, RFC 1157 [7]. A second version of the SNMP
   message protocol, which is not an Internet standards track
   protocol, is called SNMPv2c and described in RFC 1901 [18] and RFC
   1906 [19]. The third version of the message protocol is called
   SNMPv3 and described in RFC 1906 [19], RFC 2572 [20] and RFC 2574
   [21].

o Protocol operations for accessing management information. The
   first set of protocol operations and associated PDU formats is
   described in STD 15, RFC 1157 [7]. A second set of protocol
   operations and associated PDU formats is described in RFC 1905
   [8].

o A set of fundamental applications described in RFC 2573 [22] and
   the view-based access control mechanism described in RFC 2575
   [23].

This document specifies a MIB module that is compliant to the SMIv2.
A MIB conforming to the SMIv1 can be produced through the appropriate
translations. The resulting translated MIB must be semantically
equivalent, except where objects or events are omitted because no
translation is possible (e.g., use of Counter64). Some machine
readable information in SMIv2 will be converted into textual
descriptions in SMIv1 during the translation process. However, this
loss of machine readable information is not considered to change the
semantics of the MIB.

[3](#). Object Definitions

   Managed objects are accessed via a virtual information store, termed
   the Management Information Base or MIB. Objects in the MIB are
   defined using the extended subset of Abstract Syntax Notation One
   (ASN.1) defined in the SMI. In particular, each object type is named
   by an OBJECT IDENTIFIER, an administratively assigned name. The
   object type together with an object instance serves to uniquely
   identify a specific instantiation of the object. For human
   convenience, we often use a textual string, termed the descriptor, to
   also refer to the object type.

[4](#). Relationship of the ADSL LINE MIB with standard MIBs

   This section outlines the relationship of ADSL Line MIB with other
   MIBs described in RFCs and in their various degrees of
   "standardization".

[4.1](#) Use of the IfTable

   The ADSL LINE MIB specifies the detailed attributes of a data
   interface. As such, it needs to integrate with IF-MIB [[5](#)]. The IANA
   has assigned the following ifType(s) relative to ADSL:

```
    IANAifType ::= TEXTUAL-CONVENTION

        . . .

    SYNTAX INTEGER {

            . . .

        adsl(94),    -- Asymmetric Digital Subscriber Loop

            . . .

        adslInterleave(124),    -- ADSL Interleaved Channel
        adslFast(125),          -- ADSL Fast Channel

            . . .           }
```

   Interfaces of each of these types are modeled by this document. Most
   MIB tables in this document represent information of one of these
   interface types and are indexed by ifIndex. Remaining are `profile'
   tables which may be accessed by the profileIndex. This is explained
   in more detail in [section 5.4](#) Profiles.

4.1.1 **ADSL Interface Types**

   As shown below, three ADSL interface types are defined in this
   document, namely physical, interleaved channel, and fast channel.
   The physical interface represents characteristics of the physical
   media associated with both the ATUC and ATUR. The interleaved and
   fast channel interface represent the characteristics of the two types
   of ADSL channels.

   For each ADSL Line, a physical interface always exists.   Depending
   on which ADSL operational configuration is present (as listed in
   Figure 5), the channel interfaces (fast or interleaved) may or may
   not exist.

```
             _____                        _____
            |       |_____|      |
            |       |_____|      |
            | ATUC  |                        | ATUR |
            |       |_____|      |
            |       |_____|      |
            |_____|                        |_____|

            | <----- physical -------> |

            | <--- fast channel ------> |

            | <- interleaved channel -> |

                Figure 1: ADSL Model
```
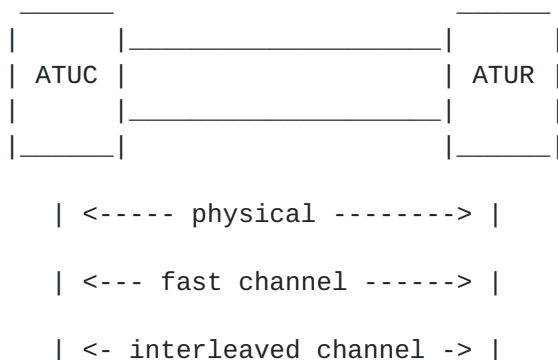
4.1.2 **Use of IF-MIB** (Interface MIB RFC 2233) [5]

   The following attributes are part of the required
   ifGeneralInformationGroup object group specified in RFC 2233 [5], and
   are not duplicated in the ADSL MIB. Keep in mind that these objects
   apply to the agent's view of the line.

```
            ifTable Object    Use for ADSL
    ================================================================
            ifIndex           Interface index.

            ifDescr           See interfaces MIB [5]

            ifType            physical    - adsl(94)
                              fast        - adslFast(125)
                              interleaved - adslInterleave(124)

            ifSpeed           Transmit rate from the perspective
                              of the agent.

                              physical      - line rate
                              fast          - channel rate
                              interleaved   - channel rate

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

            ifAdminStatus     See interfaces MIB [5]

            ifOperStatus      See interfaces MIB [5]

                              Supplemented by adslAturCurrStatus and
                              adslAturCurrStatus

            ifLastChange      See interfaces MIB [5]

            ifName            See interfaces MIB [5]

            ifLinkUpDownTrapEnable    See interfaces MIB [5]

                              Default set as follows:

                              physical      - enabled(1)
                              fast          - disabled(2)
                              interleaved   - disabled(2)

            ifHighSpeed       Speed of line in Mega-bits per second
                              (ifSpeed/1,000,000)

            ifConnectorPresent See interfaces MIB [5]

                              Default set as follows:

                              physical      - true(1)
                              fast          - false(2)
```

```
                         interleaved    - false(2)

          ifAlias            See interfaces MIB [5]

          ifTableLastChange See interfaces MIB [5]

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

   Figure 2: Use of ifTable Objects: ifGeneralInformationGroup

Use of the ifStackTable to associate the entries for physical, fast,
interleaved channels, and higher layers (e.g., ATM) is shown below in
figure 3. Use of ifStackTable is necessary, because configuration
information is stored in profile tables associated with the
physical-layer ifEntry only. The channels' ifEntrys need the
ifStackTable to find their associated physical-layer entry and thus
their configuration parameters. (See Profile section, 5.4).

```
           _____        (ifEntry=j)         _____
          |      |        fast channel       |      |
          |      |_____     |      |
          |      |            and/or     |   |      |
          |      |                       |   |      |
          |      |        (ifEntry=k)    |   |      |
          |      |     interleaved channel   |      |
          |      |_____     |      |
          | ATUC |                       |   | ATUR |
          |      |                       |   |      |
          |      |        (ifEntry=i)    |   |      |
          |      |         physical      |   |      |
          |      |_____     |      |
          |_____|                       |   |_____|
```
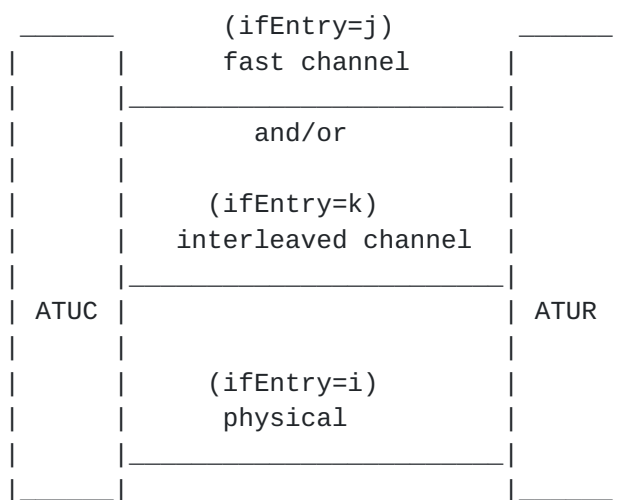
          Figure 3: Use of ifStackTable (part 1)

The ifStackTable is then used to show the relationships between the
various ADSL interfaces, as illustrated below in figure 4.

```
            HigherLayer    LowerLayer
            --------------------------
                 j              i
                 k              i
```

        Figure 4: Use of ifStackTable (part 2)

The ifRcvAddressTable is not applicable for ADSL interfaces.

4.2 Relationship with RFC 2037 [25]

   Implementation of the Entity MIB [25] is optional. It in no way
   alters the information required in the adslLineMib, nor does it alter
   the relationship with IF-MIB.

   The Entity MIB introduces a standardized way of presenting the
   components of complex systems, such as a Digital Subscriber Line
   Access Multiplexer (DSLAM), that may contain multiple racks, shelves,
   line cards, and/or ports.   The Entity MIB's main goal is to present
   these system components, their containment relationship, and mapping
   information with other MIBs such as the Interface MIB and the
   adslLineMib.

   If ATU-C agent is implemented, the Entity MIB should include entities
   for the ATU-C in the entPhysicalTable. The MIB's
   entAliasMappingTable would contain mapping information identifying
   the 'ifIndex' object associated with each ATU-C. However, if ATU-R
   agent is implemented, the Entity MIB should include entities for the
   ATU-R in the entPhysicalTable. In this case, the MIB's
   entAliasMappingTable would contain mapping information identifying
   the 'ifIndex' object associated with each ATU-R.

   Also associating the relationship between the ifTable and Entity MIB,
   the entPhysicalTable contains an 'entPhysicalName' object, which
   approximates the semantics of the 'ifName' object from the Interface
   MIB.

5. Conventions used in the MIB

5.1 Naming Conventions

   A. Atuc/Atur are used for the ATU-C and ATU-R. In other RFCs, these
      are sometimes referred to as the Near End (Ne) and Far End (Fe)
      respectively, but not in this document.

   B. The terms, "transmit" and "receive", are from the perspective of
      the corresponding table's end of the line. For example, in the
      case of Fast channels, adslAtucChanConfFastMaxTxRate defines the
      "downstream" rate, while adslAturChanConfFastMaxTxRate defines the
      "upstream" rate for a particular channel.

   C. There are two possible channels: fast, and interleaved. None, one
      or both may be implemented on a particular ADSL Line. Figure 5
      illustrates all possible operational configurations.

   D. Lof, Lol, Los, Lpr mean Loss of Framing, Link, Signal, and Power,
      respectively. Lpr is used by T1E1, so it is used for consistency
      (rather than Lop).

      A Loss of Link condition is declared at the ATU-C if a Loss of
      Signal is not preceded by a `dying-gasp' message from the ATU-R.
      Note that Loss of Link is only supported by the ATU-C.

   E. ES means errored second. An Errored Second is any second
      containing one or more CRC anomaly, or one or more Los(s) or
      Severely Errored Frame (Sef) defect(s).

   F. A "block" is a physical-layer `data buffer' over which CRCs are
      calculated. For example, in DMT, the block is defined as the ADSL
      superframe. The block duration is 250 micro-seconds so the block
      length in bytes, as defined in adslAtu*ChanCrcBlockLength, varies
      with data rate. See Line Code Specific MIBs [[11](#)] [[12](#)] for more
      line code specific information.

   G. Atn means Attenuation, Psd is Power Spectral Density and Snr is
      Signal to Noise Ratio.

   H. LCS means line code specific, e.g.,

      o DMT = Discrete MultiTone

      o CAP = Carrierless Amplitude and Phase modulation and

      o QAM = Quadrature Amplitude Modulation

   I. Vendor (in the Inventory objects) refers to the manufacturer of
      the ATU-C or ATU-R assembly, not the modem chip vendor. When in
      doubt, use the manufacturer of the smallest field replaceable unit
      (e.g., stand-alone modem box, plug-in board).

   J. RADSL - Rate Adaptive Asymmetric Digital Subscriber Loop

[5.2](#) Structure

   The MIB has multiple parallel tables. There are tables for:

      o line - common attributes

      o atuc and atur status

   o atuc and atur performance

      - Current and up to 96 buckets of 15 min performance history

      - Current and Previous 1-day bucket performance history

   o profiles - configuration parameters and alarm parameters

There are separate tables for Physical and Channel layers. Since
their attributes are similar, only one set of "channel" tables are
defined to be used for both fast and interleaved channels. The
corresponding ifType gives the proper interpretation for that
ifEntry.

It is intented that Line Code Specific MIBs be located under
adslLCSMib. These MIBs will be defined in separate modules.

There could have been fewer tables by combining the ATU-C and ATU-R
information into shared tables. However, the tables are more easily
read when there are two identical sets of data.

The figure below lists the five possible ADSL operational
configurations. (indicated by the value of the adslLineType). In all
configurations, the physical line interface entry will exist.
However, the existence of the ADSL channel varies in each case, as
shown below.

```
     Table                     Phys    Fast  Interleaved
   _____

   No Channels (1)           |  Y   |      |       |
   Fast Only (2)             |  Y   |  Y   |       |
   Interleaved Only (3)      |  Y   |      |   Y   |
   Fast or Interleaved (4)   |  Y   |  Y   |   Y   |
   Fast and Interleaved (5)  |  Y   |  Y   |   Y   |
```

             Figure 5: ADSL Operational configurations

NOTE: In (4), channel exists of either Fast or Interleaved type, but
not both.   The Manager may select the type of channel to be used.

Depending on which operation configuration exists, some or all ADSL
MIB tables could be supported, as shown in below. See Conformance
Statements for more information on which objects are mandatory.

Table	Phys	Fast	Interleaved
adslLineTable	Y		
adslAtucPhysTable	Y		
adslAturPhysTable	Y		
adslAtucChanTable		Y	Y
adslAturChanTable		Y	Y
adslAtucPerfDataTable	Y		
adslAturPerfDataTable	Y		
adslAtucIntervalTable	Y		
adslAturIntervalTable	Y		
adslAtucChanPerfDataTable		Y	Y
adslAturChanPerfDataTable		Y	Y
adslAtucChanIntervalTable		Y	Y
adslAturChanIntervalTable		Y	Y

Figure 6: Use of ADSL MIB Tables with various ifIndex values

NOTE: The adslLineConfProfileTable and adslLineAlarmConfProfileTable
will be present for all scenarios. See Profile Section of this
document for implementation details such as profile creation,
assignment, and indexing.

[5.2.1](#) Structure of Conformance Groups

The MIB is organized to cover both ends of the ADSL line, ATU-C and
ATU-R. Objects defined can be categorized into two groups: the
ATU-C group which provides objects that are supported by ATU-C agents
and the ATU-R group which provides objects that are supported by
ATU-R agents. These two groups are defined by the conformance
section of the MIB. All objects defined in the MIB module are
supported by the ATU-C agent and only portions of the objects are
supported by the ATU-R agent. Figure 7 lists all tables/objects that
are supported by the ATU-R agent.

```
          Table                         Objects

          _____
          adslLineTable                 adslLineCoding
          adslAtucPhysTable             adslAtucInvVendorID
                                        adslAtucInvVersionNumber
                                        adslAtucCurrStatus (Partial)
                                        adslAtucCurrOutputPwr
                                        adslAtucCurrAttainableRate
          adslAturPhysTable             all are supported
          adslAtucChanTable             all except
                                        adslAtucChanCrcBlockLength
                                        are supported
          adslAtucPerfDataTable         all except
                                        adslAtucPerfLols,
adslAtucPerfLprs

                                        adslAtucPerfCurr15MinLols,
                                        adslAtucPerfCurr15MinLprs,
                                        adslAtucPerfCurr1DayLols,
                                        adslAtucPerfCurr1DayLprs,
                                        adslAtucPerfPrev1DayLols and
                                        adslAtucPerfPrev1DayLprs
                                        are supported
          adslAturPerfDataTable         all are supported
          adslAtucIntervalTable         adslAtucIntervalLofs
                                        adslAtucIntervalLoss
                                        adslAtucIntervalESs
                                        adslAtucIntervalInits
                                        adslAtucIntervalValidData
          adslAturIntervalTable         all are supported
          adslAtucChanPerfDataTable     all are supported
          adslAturChanPerfDataTable     all are supported
          adslAtucChanIntervalTable     all are supported
          adslAturChanIntervalTable     all are supported
          adslLineConfProfileTable      not supported
          adslLineAlarmConfProfileTable all are supported except
                                        adslAtucThresh15MinLols
                                        and adslAtucThresh15MinLprs
     ----------------------------------------------------------------
```

Figure 7: MIB Tables and Objects Supported by the ATU-R Agent

All traps supported by the ATU-R agent are also listed:

                    adslAtucPerfLofsThreshTrap
                    adslAtucPerfLossThreshTrap
                    adslAtucPerfESsThreshTrap
                    adslAtucRateChangeTrap
                    adslAturPerfLofsThreshTrap
                    adslAturPerfLossThreshTrap
                    adslAturPerfLprsThreshTrap
                    adslAturPerfESsThreshTrap
                    adslAturRateChangeTrap

5.3 Counters, Interval Buckets and Thresholds

For physical-level ES, Los, Lof, Lol, Lpr and line initialization
attempts, there are event counters, current 15-minute and one (up to
96) 15-minute history bucket(s) of "interval-counters", as well as
current and previous 1-day interval-counters. Each physical-layer
current 15-minute event bucket has threshold trap.

At the channel level, there are counters for total received blocks,
received-and-corrected blocks, received-but-uncorrectable blocks, and
transmitted blocks. There are the same set of 15-minute and 1-day
buckets as at the physical-layer.

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

Separate tables are provided for the 96 interval-counters. They are
indexed by {ifIndex, AdslAtu*IntervalNumber}.

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

The 15-minute event counters are of type PerfCurrentCount and
PerfIntervalCount. The 1-day event counters are of type
AdslPerfCurrDayCount and AdslPerfPrevDayCount. Both 15-minute and 1-
day time elapsed counters are of type AdslPerfTimeElapsed.

5.4 Profiles

As a managed node can handle a large number of ATU-Cs (e.g., hundreds
or perhaps thousands of ADSL lines), provisioning every parameter on
every ATU-C may become burdensome. In response, two MIB tables have
been created to define ADSL equipment configuration data profiles, as
well as a mechanism to associate the equipment to these profiles.

Profile tables may be implemented in one of two ways, but not
simultaneously:

   o MODE-I: Dynamic Profiles - one profile shared by one or
      multiple ADSL lines.

   o MODE-II: Static Profiles - one profile per ADSL physical line
      always.

5.4.1 MODE-I : Dynamic Profiles

Implementations using this mode will enable the manager to
dynamically create and delete profiles as needed. The index of the
profile is an locally-unique administratively assigned name for the
profile having the textual convention `SnmpAdminString' (RFC2571
[13]).

One or more ADSL lines may be configured to share parameters of a
single profile (e.g., adslLineConfProfileName = `silver') by setting
its adslLineConfProfile objects to the index value of this profile.
If a change is made to the profile, all lines that refer to it will
be re-configured to the changed parameters. Before a profile can be
deleted or taken out of service it must be first unreferenced from
all associated lines.

This figure below shows an example of how this mode can be
implemented. In the example, ADSL lines `1' and `x' share the
configuration of the `silver' profile, while line `2' uses the
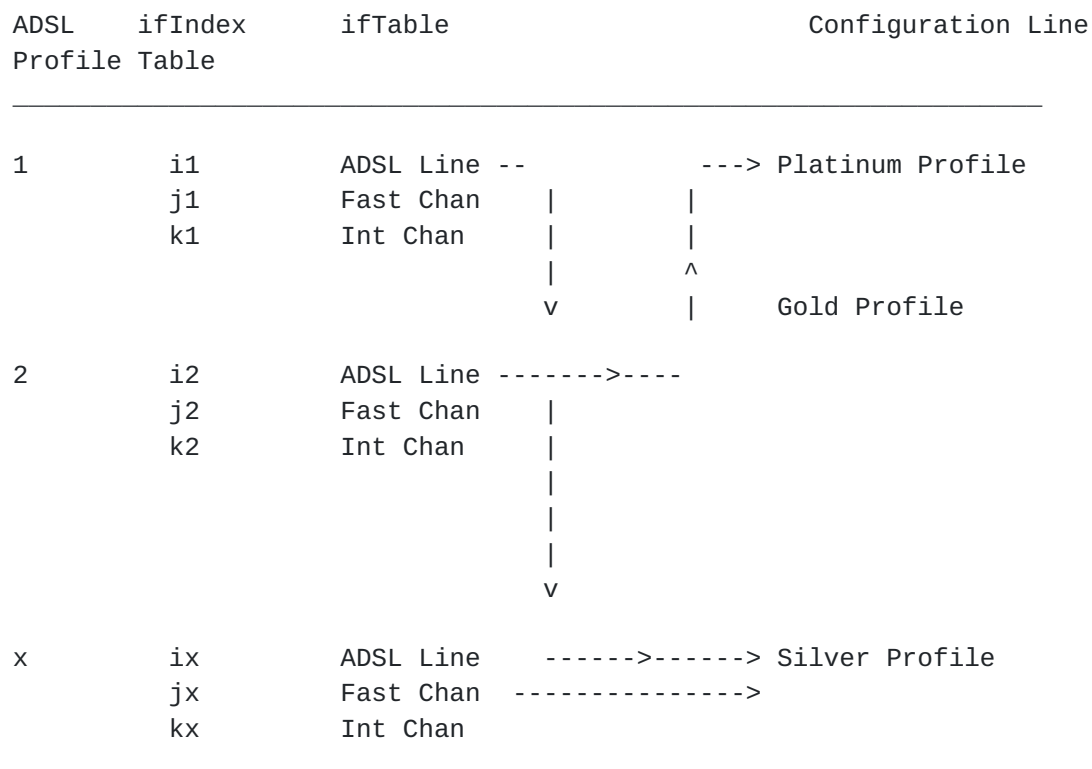`platinum' profile.  The `gold' profile has no lines associated with
it.

```
ADSL    ifIndex    ifTable                      Configuration Line
Profile Table
_____


1         i1         ADSL Line --            ---> Platinum Profile
          j1         Fast Chan    |         |
          k1         Int Chan     |         |
                                  |         ^
                                  v         |     Gold Profile


2         i2         ADSL Line ------->----
          j2         Fast Chan    |
          k2         Int Chan     |
                                  |
                                  |
                                  |
                                  v


x         ix         ADSL Line    ------>------> Silver Profile
          jx         Fast Chan  --------------->
          kx         Int Chan
_____
```

                    Figure 8: Use of Dynamic Profiles: MODE-I

In the figure above, note that three interface entries of an ADSL
line, physical, fast channel, and interleaved channel, are
represented by `i', `j', and `k'.  Only the physical-layer entry `i'
contains an adslLineTable entry, therefore only those entries contain
pointers to the adslLineConfProfileTable. The ifStackTable (see
[rfc2233](#) [[5](#)]) can be used to link the channel entries to the
corresponding physical-layer entry to get the channel's configuration
parameters. See figure 4 for use of the ifStackTable.

The same characteristics and mechanisms are present for the alarm
profile type. There is no requirement that its index be the same as
the configuration profile.

Implementations of this mode, must provide a default profile whose
name is `DEFVAL' for each profile type: Configuration and Alarm. The
values of the associated parameters will be vendor specific unless
otherwise indicated in this document. Before a line's profiles have
been set, these profiles will be automatically used by setting
adslLineConfProfile and adslLineAlarmConfProfile to `DEFVAL'.

   In this mode, profiles are created, assigned, and deleted dynamically
   using these four objects: adslLineConfProfile,
   adslLineConfProfileRowStatus, adslLineAlarmConfProfile, and
   adslLineAlarmConfProfileRowStatus.

[5.4.2](#) MODE-II : Static Profiles

   Implementations with this mode will automatically create a profile
   one-for-one with each ADSL line physical entry. The name of this
   profile is a system generated read-only object whose value is
   equivalent to the index of the physical line. The Agent will not
   allow a Manager to create/delete profiles in this mode. Therefore,
   adslLineConfProfile, adslLineConfProfileRowStatus,
   adslLineAlarmConfProfile, and adslLineAlarmConfProfileRowStatus
   objects have minimal value in this mode and are read-only.

   The figure below shows an example of this mode. In the example, ADSL
   lines `1', `2', and `x' each have their own profiles.

```
ADSL     ifIndex      ifTable                        Configuration Line
Profile Table

_____

1         i1          ADSL Line     ------------>  Profile
          j1          Fast Chan
          k1          Int Chan

2         i2          ADSL Line     ------------>  Profile
          j2          Fast Chan

          k2          Int Chan

x         ix          ADSL Line     ------------>  Profile
          jx          Fast Chan
          kx          Int Chan

_____
```

                  Figure 9: Use of Static Profiles: MODE II

[5.5](#) Traps

   These SNMP traps are required: coldStart / warmStart (per [6]) --
   which are per agent (e.g., per DSLAM in such a device), and linkUp /
   linkDown (per [5]) -- which are per interface (i.e., ADSL line).
   Note: [RFC 2233](#) [5] recommends that linkUp / linkDown only be used at
   a physical-layer ifEntry, as discussed above.

A linkDown trap is generated whenever any of Lof, Los, Lol, Loss of
Signal Quality, or Lpr events occurs. At this operational point, a
manager can use adslAtu*CurrStatus for additional detailed
information. The corresponding linkUp trap is sent when all link
failure conditions are cleared.

The traps defined in this MIB are for initialization failure, rate
change, and for the threshold crossings associated with the following
events: Lofs, Lols, Loss, Lprs, and ESs. Each threshold has its own
enable/threshold value. When that value is 0, the trap is disabled.

The current status objects (adslAtu*CurrStatus) indicate, through a
bitmask, all outstanding error conditions or that the line is
operational. Note that each object claims to represent the status of
the modem at that end of the line. However, since the SNMP agent
likely co-resides with only one end of the line, the corresponding
far-end current status object may be incomplete. For example, when
there are errors on the line, the far-end ATU may not be able to
correctly report this condition. Therefore, not all conditions are
included in its current status.

A threshold trap occurs whenever the corresponding current 15-minute
interval error counter becomes equal and/or exceeds to the threshold
value. One trap will be sent per interval per interface. Since the
current 15-minute counter are reset to 0 every 15 minutes, if the
condition persists, the trap may recur as often as every 15 minutes.
For example, to get a trap whenever a "loss of" event occurs (but at
most once every 15 minutes), set the corresponding "Thresh15Min" to
1. The agent will generate a trap when the event originally occurs.

Note that the NMS will get a linkDown trap, as well, if enabled. 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 trap
will be sent again.

The rate change trap is invoked when the transmit rate on a channel
either increases by adsl(x)Thresh(y)RateUp or decreases by
adsl(x)Thresh(y)RateDown. The trap is per direction:(x) == Atuc or
Atur, and per channel: (y) == Fast or Interleave. In other words, the
trap is sent whenever the rate changes in either direction on either
channel and:

                 CurrTxRate >= PrevTxRate plus ThreshRateUp

                               or

                 CurrTxRate <= PrevTxRate minus ThreshRateDown

   No trap is sent on initialization.

   It can be disabled by setting the Up (and/or) Down threshold rates to
   0.

   The PrevTxRate object is set to the current value at initialization
   and when a trap is sent. Thus rate changes are cumulative until the
   total change reaches the threshold.

[6](#). **Conformance and Compliance**

   See the conformance and compliance statements within the information
   module.

[7](#). **Definitions**

   ADSL-TC-MIB DEFINITIONS ::= BEGIN

   IMPORTS
       transmission,
       MODULE-IDENTITY, Gauge32   FROM SNMPv2-SMI
       TEXTUAL-CONVENTION   FROM SNMPv2-TC;

   adsltcmib MODULE-IDENTITY

   LAST-UPDATED "9908190000Z"

   ORGANIZATION "IETF ADSL MIB Working Group"

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```
        IETF ADSL MIB Working Group (adsl@xlist.agcs.com)
        "
        DESCRIPTION
            "The MIB module which provides a ADSL
            Line Coding Textual Convention to be used
            by ADSL Lines."

        --  Revision history
        REVISION       "9908190000Z"  -- 19 August 1999, midnight
        DESCRIPTION  "Initial Version, published as RFC 2662"

        ::= { transmission 94 2 } -- adslMIB 2

        AdslLineCodingType ::= TEXTUAL-CONVENTION
            STATUS       current
            DESCRIPTION
                "This data type is used as the syntax for the ADSL
                Line Code."
            SYNTAX  INTEGER {
                other(1),-- none of the following
                dmt (2), -- Discrete MultiTone
                cap (3), -- Carrierless Amplitude & Phase modulation
                qam (4)  -- Quadrature Amplitude Modulation
            }

        AdslPerfCurrDayCount ::= TEXTUAL-CONVENTION
            STATUS  current
            DESCRIPTION
                "A counter associated with interface performance
                measurements in a current 1-day (24 hour) measurement
                interval.

                The value of this counter starts at zero at the
                beginning of an interval and is increased when
                associated events occur, until the end of the
                1-day interval.  At that time the value of the
                counter is stored in the previous 1-day history
                interval, if available, and the current interval
                counter is restarted at zero.

                In the case where the agent has no valid data available
                for this interval the corresponding object
                instance is not available and upon a retrieval
                request a corresponding error message shall be
                returned to indicate that this instance does
                not exist (for example, a noSuchName error for
                SNMPv1 and a noSuchInstance for SNMPv2 GET
                operation)."
```

```
        SYNTAX  Gauge32

    AdslPerfPrevDayCount ::= TEXTUAL-CONVENTION
        STATUS  current
        DESCRIPTION
            "A counter associated with interface performance
            measurements during the most previous 1-day (24 hour)
            measurement interval.  The value of this counter is
            equal to the value of the current day counter at
            the end of its most recent interval.

            In the case where the agent has no valid data available
            for this interval the corresponding object
            instance is not available and upon a retrieval
            request a corresponding error message shall be
            returned to indicate that this instance does
            not exist (for example, a noSuchName error for
            SNMPv1 and a noSuchInstance for SNMPv2 GET
            operation)."
        SYNTAX  Gauge32

    AdslPerfTimeElapsed ::= TEXTUAL-CONVENTION
        STATUS current
        DESCRIPTION
            "The number of seconds that have elapsed since
            the beginning of the current measurement period.
            If, for some reason, such as an adjustment in the
            system's time-of-day clock, the current interval
            exceeds the maximum value, the agent will return
            the maximum value."
        SYNTAX  Gauge32

END

ADSL-LINE-MIB DEFINITIONS ::= BEGIN

IMPORTS
    MODULE-IDENTITY, OBJECT-TYPE,
    Counter32, Gauge32,
    NOTIFICATION-TYPE,
    transmission, Unsigned32        FROM SNMPv2-SMI
    RowStatus,
    TruthValue, VariablePointer     FROM SNMPv2-TC
    MODULE-COMPLIANCE, OBJECT-GROUP,
    NOTIFICATION-GROUP              FROM SNMPv2-CONF
    ifIndex                        FROM IF-MIB
    PerfCurrentCount,
    PerfIntervalCount              FROM PerfHist-TC-MIB
```

```
      SnmpAdminString                    FROM SNMP-FRAMEWORK-MIB
      AdslPerfCurrDayCount,
      AdslPerfPrevDayCount,
      AdslPerfTimeElapsed,
      AdslLineCodingType                 FROM ADSL-TC-MIB
      ;

  adslMIB MODULE-IDENTITY

  LAST-UPDATED "9908190000Z"

  ORGANIZATION "IETF ADSL MIB Working Group"

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      IETF ADSL MIB Working Group (adsl@xlist.agcs.com)
      "

  DESCRIPTION
      "The MIB module defining objects for the management of a pair of
      ADSL modems at each end of the ADSL line.  Each such line has
```

an entry in an ifTable which may include multiple modem lines.
An agent may reside at either end of the ADSL line however the
MIB is designed to require no management communication between
them beyond that inherent in the low-level ADSL line protocol.
The agent may monitor and control this protocol for its needs.

ADSL lines may support optional Fast or Interleaved channels.
If these are supported, additional entries corresponding to the
supported channels must be created in the ifTable. Thus an ADSL
line that supports both channels will have three entries in the
ifTable, one for each physical, fast, and interleaved, whose
ifType values are equal to adsl(94), fast(125), and
interleaved(124), respectively. The ifStackTable is used to
represent the relationship between the entries.

Naming Conventions:
        Atuc -- (ATUC) modem at near (Central) end of line
        Atur -- (ATUR) modem at Remote end of line
        Curr -- Current
        Prev -- Previous
        Atn -- Attenuation
        ES -- Errored Second.
        LCS -- Line Code Specific
        Lof -- Loss of Frame
        Lol -- Loss of Link
        Los -- Loss of Signal
        Lpr -- Loss of Power
        xxxs-- interval of Seconds in which xxx occurs
                (e.g., xxx=Lof, Los, Lpr)
        Max -- Maximum
        Mgn -- Margin
        Min -- Minimum
        Psd -- Power Spectral Density
        Snr -- Signal to Noise Ratio
        Tx -- Transmit
        Blks-- Blocks, a data unit, see
                adslAtuXChanCrcBlockLength
    "
    -- Revision history
    REVISION   "9908190000Z" -- 19 August 1999, midnight
    DESCRIPTION "Initial Version, published as RFC 2662"

::= { transmission 94 }

adslLineMib OBJECT IDENTIFIER ::= { adslMIB 1 }

adslMibObjects OBJECT IDENTIFIER ::= { adslLineMib 1 }

```
    -- objects
        adslLineTable   OBJECT-TYPE
            SYNTAX           SEQUENCE OF AdslLineEntry
            MAX-ACCESS       not-accessible
            STATUS           current
            DESCRIPTION
                "This table includes common attributes describing
                both ends of the line.  It is required for all ADSL
                physical interfaces.  ADSL physical interfaces are
                those ifEntries where ifType is equal to adsl(94)."
         ::= { adslMibObjects 1 }

        adslLineEntry   OBJECT-TYPE
            SYNTAX           AdslLineEntry
            MAX-ACCESS       not-accessible
            STATUS           current
            DESCRIPTION      "An entry in adslLineTable."
            INDEX            { ifIndex }
         ::= { adslLineTable 1 }

        AdslLineEntry ::=
            SEQUENCE {
            adslLineCoding           AdslLineCodingType,
            adslLineType             INTEGER,
            adslLineSpecific         VariablePointer,
            adslLineConfProfile      SnmpAdminString,
            adslLineAlarmConfProfile SnmpAdminString
            }

        adslLineCoding OBJECT-TYPE
            SYNTAX      AdslLineCodingType
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Specifies the ADSL coding type used on this
                line."
         ::= { adslLineEntry 1 }

      adslLineType OBJECT-TYPE
          SYNTAX      INTEGER {
              noChannel (1),        -- no channels exist
              fastOnly (2),         -- fast channel exists only
              interleavedOnly (3),  -- interleaved channel exists
                                    -- only
              fastOrInterleaved (4),-- either fast or interleaved
                                    -- channels can exist, but
                                    -- only one at any time
              fastAndInterleaved (5)-- both fast or interleaved
```

```
                                     -- channels exist
             }
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Defines the type of ADSL physical line
            entity that exists, by defining whether and how
            the line is channelized.  If the line is channelized,
            the value will be other than noChannel(1).  This
            object defines which channel type(s) are supported.

            In the case that the line is channelized, the manager
            can use the ifStackTable to determine the ifIndex for
            the associated channel(s)."
        ::= { adslLineEntry 2 }

    adslLineSpecific OBJECT-TYPE
        SYNTAX      VariablePointer
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "OID instance in vendor-specific MIB. The Instance may
            be used to determine shelf/slot/port of the ATUC
            interface in a DSLAM."
        ::= { adslLineEntry 3 }

    adslLineConfProfile OBJECT-TYPE
        SYNTAX      SnmpAdminString (SIZE (1..32))
        MAX-ACCESS  read-write
        STATUS      current
        DESCRIPTION
            "The value of this object identifies the row
            in the ADSL Line Configuration Profile Table,
            (adslLineConfProfileTable), which applies for this
            ADSL line, and channels if applicable.

            For `dynamic' mode, in the case which the
            configuration profile has not been set, the
            value will be set to `DEFVAL'.

            If the implementator of this MIB has chosen not
            to implement `dynamic assignment' of profiles, this
            object's MIN-ACCESS is read-only."
        ::= { adslLineEntry 4 }

    adslLineAlarmConfProfile OBJECT-TYPE
        SYNTAX      SnmpAdminString (SIZE (1..32))
        MAX-ACCESS  read-write
```

```
        STATUS        current
        DESCRIPTION
            "The value of this object identifies the row
            in the ADSL Line Alarm Configuration Profile Table,
            (adslLineAlarmConfProfileTable), which applies to this
            ADSL line, and channels if applicable.

            For `dynamic' mode, in the case which the
            alarm profile has not been set, the
            value will be set to `DEFVAL'.

            If the implementator of this MIB has chosen not
            to implement `dynamic assignment' of profiles, this
            object's MIN-ACCESS is read-only."
    ::= { adslLineEntry 5 }

    adslAtucPhysTable        OBJECT-TYPE
        SYNTAX          SEQUENCE OF AdslAtucPhysEntry
        MAX-ACCESS      not-accessible
        STATUS          current
        DESCRIPTION
            "This table provides one row for each ATUC.
            Each row contains the Physical Layer Parameters
            table for that ATUC. ADSL physical interfaces are
            those ifEntries where ifType is equal to adsl(94)."
    ::= { adslMibObjects 2 }

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

    AdslAtucPhysEntry ::=
        SEQUENCE {
        adslAtucInvSerialNumber        SnmpAdminString,
        adslAtucInvVendorID            SnmpAdminString,
        adslAtucInvVersionNumber       SnmpAdminString,
        adslAtucCurrSnrMgn             INTEGER,
        adslAtucCurrAtn                Gauge32,
        adslAtucCurrStatus             BITS,
        adslAtucCurrOutputPwr          INTEGER,
        adslAtucCurrAttainableRate     Gauge32
        }

    -- inventory group
```

```
--
-- These items should describe the lowest level identifiable
-- component, be it a stand-alone modem, a card in a rack,
-- a child-board, etc.
--
adslAtucInvSerialNumber OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE (0..32))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The vendor specific string that identifies the
        vendor equipment."
::= { adslAtucPhysEntry 1 }

adslAtucInvVendorID OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE (0..16))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The vendor ID code is a copy of the binary
        vendor identification field defined by the
        PHY[10] and expressed as readable characters."

    REFERENCE "ANSI T1.413[10]"
::= { adslAtucPhysEntry 2 }

adslAtucInvVersionNumber OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE (0..16))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The vendor specific version number sent by this ATU
        as part of the initialization messages.  It is a copy
        of the binary version number field defined by the
        PHY[10] and expressed as readable characters."
    REFERENCE "ANSI T1.413[10]"
::= { adslAtucPhysEntry 3 }

-- current status group
--
adslAtucCurrSnrMgn OBJECT-TYPE
    SYNTAX      INTEGER (-640..640)
    UNITS       "tenth dB"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Noise Margin as seen by this ATU with respect to its
        received signal in tenth dB."
```

```
          ::= { adslAtucPhysEntry 4 }

      adslAtucCurrAtn OBJECT-TYPE
          SYNTAX      Gauge32(0..630)
          UNITS       "tenth dB"
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
              "Measured difference in the total power transmitted by
              the peer ATU and the total power received by this ATU."
       ::= { adslAtucPhysEntry 5 }

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

        0     noDefect            There no defects on the line

        1     lossOfFraming       ATUC failure due to not
                                  receiving valid frame.

        2     lossOfSignal        ATUC failure due to not
                                  receiving signal.

        3     lossOfPower         ATUC failure due to loss of
                                  power.
                                  Note: the Agent may still
                                  function.

        4     lossOfSignalQuality Loss of Signal Quality is
                                  declared when the Noise Margin
                                  falls below the Minimum Noise
```

```
                                  Margin, or the bit-error-rate
                                  exceeds 10^-7.

     5      lossOfLink           ATUC failure due to inability
                                  to link with ATUR.

     6      dataInitFailure      ATUC failure during
                                  initialization due to bit
                                  errors corrupting startup
                                  exchange data.

     7      configInitFailure    ATUC failure during
                                  initialization due to peer
                                  ATU not able to support
                                  requested configuration

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

     9      noPeerAtuPresent     ATUC failure during
                                  initialization due to no
                                  activation sequence detected
                                  from peer ATU.

          This is intended to supplement ifOperStatus."
     ::= { adslAtucPhysEntry 6 }

     adslAtucCurrOutputPwr OBJECT-TYPE
         SYNTAX      INTEGER (-310..310)
         UNITS       "tenth dBm"
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
             "Measured total output power transmitted by this ATU.
             This is the measurement that was reported during
             the last activation sequence."
     ::= { adslAtucPhysEntry 7 }

     adslAtucCurrAttainableRate OBJECT-TYPE
         SYNTAX      Gauge32
         UNITS       "bps"
         MAX-ACCESS  read-only
         STATUS      current
         DESCRIPTION
             "Indicates the maximum currently attainable data rate
             by the ATU.  This value will be equal or greater than
```

```
        the current line rate."
::= { adslAtucPhysEntry 8 }

adslAturPhysTable       OBJECT-TYPE
    SYNTAX          SEQUENCE OF AdslAturPhysEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This table provides one row for each ATUR
        Each row contains the Physical Layer Parameters
        table for that ATUR. ADSL physical interfaces are
        those ifEntries where ifType is equal to adsl(94)."
::= { adslMibObjects 3 }

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

AdslAturPhysEntry ::=
    SEQUENCE {
    adslAturInvSerialNumber         SnmpAdminString,
    adslAturInvVendorID             SnmpAdminString,
    adslAturInvVersionNumber        SnmpAdminString,
    adslAturCurrSnrMgn              INTEGER,
    adslAturCurrAtn                 Gauge32,
    adslAturCurrStatus              BITS,
    adslAturCurrOutputPwr           INTEGER,
    adslAturCurrAttainableRate      Gauge32
    }

-- inventory group
--
adslAturInvSerialNumber OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE (0..32))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The vendor specific string that identifies the
        vendor equipment."
::= { adslAturPhysEntry 1 }

adslAturInvVendorID OBJECT-TYPE
    SYNTAX      SnmpAdminString (SIZE (0..16))
    MAX-ACCESS  read-only
```

```
        STATUS      current
        DESCRIPTION
            "The vendor ID code is a copy of the binary
            vendor identification field defined by the
            PHY[10] and expressed as readable characters."
        REFERENCE "ANSI T1.413"
    ::= { adslAturPhysEntry 2 }

    adslAturInvVersionNumber OBJECT-TYPE
        SYNTAX      SnmpAdminString (SIZE (0..16))
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The vendor specific version number sent by this ATU
            as part of the initialization messages.  It is a copy
            of the binary version number field defined by the
            PHY[10] and expressed as readable characters."
        REFERENCE "ANSI T1.413"
    ::= { adslAturPhysEntry 3 }

    -- current status group
    --
    adslAturCurrSnrMgn OBJECT-TYPE
        SYNTAX      INTEGER (-640..640)
        UNITS       "tenth dB"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Noise Margin as seen by this ATU with respect to its
            received signal in tenth dB."
    ::= { adslAturPhysEntry 4 }

    adslAturCurrAtn OBJECT-TYPE
        SYNTAX      Gauge32(0..630)
        UNITS       "tenth dB"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Measured difference in the total power transmitted by
            the peer ATU and the total power received by this ATU."
    ::= { adslAturPhysEntry 5 }

    adslAturCurrStatus OBJECT-TYPE
        SYNTAX      BITS {
                        noDefect(0),
                        lossOfFraming(1),
                        lossOfSignal(2),
                        lossOfPower(3),
```

                          lossOfSignalQuality(4)
                        }
          MAX-ACCESS read-only
          STATUS   current
          DESCRIPTION
              "Indicates current state of the ATUR line. This is a
              bit-map of possible conditions. Due to the isolation
              of the ATUR when line problems occur, many state
              conditions like loss of power, loss of quality signal,
              and initialization errors, can not be determined.
              While trouble shooting ATUR, also use object,
              adslAtucCurrStatus. The various bit positions are:

       0   noDefect   There no defects on the line

       1   lossOfFraming   ATUR failure due to not
                                    receiving valid frame

       2   lossOfSignal   ATUR failure due to not
                                    receiving signal

       3   lossOfPower   ATUR failure due to loss of
                                    power

       4   lossOfSignalQuality   Loss of Signal Quality is
                                    declared when the Noise Margin
                                    falls below the Minimum Noise
                                    Margin, or the
                                    bit-error-rate exceeds 10^{-7}.

              This is intended to supplement ifOperStatus."
          ::= { adslAturPhysEntry 6 }

      adslAturCurrOutputPwr OBJECT-TYPE
          SYNTAX   INTEGER (-310..310)
          UNITS   "tenth dBm"
          MAX-ACCESS read-only
          STATUS   current
          DESCRIPTION
              "Measured total output power transmitted by this ATU.
              This is the measurement that was reported during
              the last activation sequence."
          ::= { adslAturPhysEntry 7 }

      adslAturCurrAttainableRate OBJECT-TYPE
          SYNTAX   Gauge32
          UNITS   "bps"
          MAX-ACCESS read-only

```
        STATUS      current
        DESCRIPTION
            "Indicates the maximum currently attainable data rate
            by the ATU.  This value will be equal or greater than
            the current line rate."
    ::= { adslAturPhysEntry 8 }

    adslAtucChanTable      OBJECT-TYPE
        SYNTAX           SEQUENCE OF AdslAtucChanEntry
        MAX-ACCESS       not-accessible
        STATUS           current
        DESCRIPTION
            "This table provides one row for each ATUC channel.
            ADSL channel interfaces are those ifEntries
            where ifType is equal to adslInterleave(124)
            or adslFast(125)."
    ::= { adslMibObjects 4 }

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

    AdslAtucChanEntry ::=
        SEQUENCE {
        adslAtucChanInterleaveDelay     Gauge32,
        adslAtucChanCurrTxRate          Gauge32,
        adslAtucChanPrevTxRate          Gauge32,
        adslAtucChanCrcBlockLength      Gauge32
        }

    -- current group
    --
    adslAtucChanInterleaveDelay OBJECT-TYPE
        SYNTAX      Gauge32
        UNITS       "milli-seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Interleave Delay for this channel.

            Interleave delay applies only to the
            interleave channel and defines the mapping
            (relative spacing) between subsequent input
            bytes at the interleaver input and their placement
```

```
            in the bit stream at the interleaver output.
            Larger numbers provide greater separation between
            consecutive input bytes in the output bit stream
            allowing for improved impulse noise immunity at
            the expense of payload latency.

            In the case where the ifType is Fast(125), use
            noSuchObject."
    ::= { adslAtucChanEntry 1 }

    adslAtucChanCurrTxRate  OBJECT-TYPE
        SYNTAX      Gauge32
        UNITS       "bps"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Actual transmit rate on this channel."
    ::= { adslAtucChanEntry 2 }

    adslAtucChanPrevTxRate OBJECT-TYPE
        SYNTAX      Gauge32
        UNITS        "bps"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "The rate at the time of the last
            adslAtucRateChangeTrap event. It is also set at
            initialization to prevent a trap being sent.

            Rate changes less than adslAtucThresh(*)RateDown
            or less than adslAtucThresh(*)RateUp will not
            cause a trap or cause this object to change.
            (*) == Fast or Interleave.
            See AdslLineAlarmConfProfileEntry."
    ::= { adslAtucChanEntry 3 }

    adslAtucChanCrcBlockLength OBJECT-TYPE
        SYNTAX      Gauge32
        UNITS        "byte"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Indicates the length of the channel data-block
            on which the CRC operates.  Refer to Line Code
            Specific MIBs, [11] and [12] for more
            information."
    ::= { adslAtucChanEntry 4 }
```

         adslAturChanTable   OBJECT-TYPE
             SYNTAX   SEQUENCE OF AdslAturChanEntry
             MAX-ACCESS   not-accessible
             STATUS   current
             DESCRIPTION
                 "This table provides one row for each ATUR channel.
                 ADSL channel interfaces are those ifEntries
                 where ifType is equal to adslInterleave(124)
                 or adslFast(125)."
         ::= { adslMibObjects 5 }

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

         AdslAturChanEntry ::=
             SEQUENCE {
             adslAturChanInterleaveDelay   Gauge32,
             adslAturChanCurrTxRate   Gauge32,
             adslAturChanPrevTxRate   Gauge32,
             adslAturChanCrcBlockLength   Gauge32
             }

         -- current group
         --
         adslAturChanInterleaveDelay OBJECT-TYPE
             SYNTAX   Gauge32
             UNITS   "milli-seconds"
             MAX-ACCESS read-only
             STATUS   current
             DESCRIPTION
                 "Interleave Delay for this channel.

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

                 In the case where the ifType is Fast(125), use

```
                  noSuchObject."
        ::= { adslAturChanEntry 1 }

        adslAturChanCurrTxRate  OBJECT-TYPE
            SYNTAX      Gauge32
            UNITS       "bps"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Actual transmit rate on this channel."
        ::= { adslAturChanEntry 2 }

        adslAturChanPrevTxRate OBJECT-TYPE
            SYNTAX      Gauge32
            UNITS       "bps"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
               "The rate at the time of the last
                adslAturRateChangeTrap event. It is also set at
                initialization to prevent a trap being sent.
                Rate changes less than adslAturThresh(*)RateDown
                or less than adslAturThresh(*)RateUp will not
                cause a trap or cause this object to change.
                (*) == Fast or Interleave.
                See AdslLineAlarmConfProfileEntry."
        ::= { adslAturChanEntry 3 }

        adslAturChanCrcBlockLength OBJECT-TYPE
            SYNTAX      Gauge32
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Indicates the length of the channel data-block
                on which the CRC operates.  Refer to Line Code
                Specific MIBs, [11] and [12] for more
                information."
        ::= { adslAturChanEntry 4 }

        adslAtucPerfDataTable   OBJECT-TYPE
            SYNTAX          SEQUENCE OF AdslAtucPerfDataEntry
            MAX-ACCESS      not-accessible
            STATUS          current
            DESCRIPTION
                "This table provides one row for each ATUC.
                ADSL physical interfaces are
                those ifEntries where ifType is equal to adsl(94)."
        ::= { adslMibObjects 6 }
```

```
adslAtucPerfDataEntry      OBJECT-TYPE
    SYNTAX          AdslAtucPerfDataEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION     "An entry in adslAtucPerfDataTable."
    INDEX           { ifIndex }
::= { adslAtucPerfDataTable 1 }

AdslAtucPerfDataEntry ::=
    SEQUENCE {
    adslAtucPerfLofs                 Counter32,
    adslAtucPerfLoss                 Counter32,
    adslAtucPerfLols                 Counter32,
    adslAtucPerfLprs                 Counter32,
    adslAtucPerfESs                  Counter32,
    adslAtucPerfInits                Counter32,
    adslAtucPerfValidIntervals       INTEGER,
    adslAtucPerfInvalidIntervals     INTEGER,
    adslAtucPerfCurr15MinTimeElapsed AdslPerfTimeElapsed,
    adslAtucPerfCurr15MinLofs        PerfCurrentCount,
    adslAtucPerfCurr15MinLoss        PerfCurrentCount,
    adslAtucPerfCurr15MinLols        PerfCurrentCount,
    adslAtucPerfCurr15MinLprs        PerfCurrentCount,
    adslAtucPerfCurr15MinESs         PerfCurrentCount,
    adslAtucPerfCurr15MinInits       PerfCurrentCount,
    adslAtucPerfCurr1DayTimeElapsed  AdslPerfTimeElapsed,
    adslAtucPerfCurr1DayLofs         AdslPerfCurrDayCount,
    adslAtucPerfCurr1DayLoss         AdslPerfCurrDayCount,
    adslAtucPerfCurr1DayLols         AdslPerfCurrDayCount,
    adslAtucPerfCurr1DayLprs         AdslPerfCurrDayCount,
    adslAtucPerfCurr1DayESs          AdslPerfCurrDayCount,
    adslAtucPerfCurr1DayInits        AdslPerfCurrDayCount,
    adslAtucPerfPrev1DayMoniSecs     INTEGER,
    adslAtucPerfPrev1DayLofs         AdslPerfPrevDayCount,
    adslAtucPerfPrev1DayLoss         AdslPerfPrevDayCount,
    adslAtucPerfPrev1DayLols         AdslPerfPrevDayCount,
    adslAtucPerfPrev1DayLprs         AdslPerfPrevDayCount,
    adslAtucPerfPrev1DayESs          AdslPerfPrevDayCount,
    adslAtucPerfPrev1DayInits        AdslPerfPrevDayCount
    }

-- Event Counters
--
-- Also see adslAtucIntervalTable for 15 minute interval
-- elapsed counters.
--
adslAtucPerfLofs OBJECT-TYPE
    SYNTAX      Counter32
```

```
     MAX-ACCESS  read-only
     STATUS      current
     DESCRIPTION
         "Count of the number of Loss of Framing failures since
         agent reset."
 ::= { adslAtucPerfDataEntry 1 }

 adslAtucPerfLoss  OBJECT-TYPE
     SYNTAX      Counter32
     MAX-ACCESS  read-only
     STATUS      current
     DESCRIPTION
         "Count of the number of Loss of Signal failures since
         agent reset."
 ::= { adslAtucPerfDataEntry 2 }

 adslAtucPerfLols OBJECT-TYPE
     SYNTAX      Counter32
     MAX-ACCESS  read-only
     STATUS      current
     DESCRIPTION
         "Count of the number of Loss of Link failures since
         agent reset."
 ::= { adslAtucPerfDataEntry 3 }

 adslAtucPerfLprs OBJECT-TYPE
     SYNTAX      Counter32
     MAX-ACCESS  read-only
     STATUS      current
     DESCRIPTION
         "Count of the number of Loss of Power failures since
         agent reset."
 ::= { adslAtucPerfDataEntry 4 }

 adslAtucPerfESs OBJECT-TYPE
     SYNTAX      Counter32
     MAX-ACCESS  read-only
     STATUS      current
     DESCRIPTION
         "Count of the number of Errored Seconds since agent
         reset.  The errored second parameter is a count of
         one-second intervals containing one or more crc
         anomalies, or one or more los or sef defects."
 ::= { adslAtucPerfDataEntry 5 }

 adslAtucPerfInits OBJECT-TYPE
     SYNTAX      Counter32
     MAX-ACCESS  read-only
```

```
        STATUS       current
        DESCRIPTION
            "Count of the line initialization attempts since
            agent reset. Includes both successful and failed
            attempts."
    ::= { adslAtucPerfDataEntry 6 }

    -- general 15 min interval information
    --

    adslAtucPerfValidIntervals OBJECT-TYPE
        SYNTAX       INTEGER(0..96)
        MAX-ACCESS  read-only
        STATUS       current
        DESCRIPTION
            "The number of previous 15-minute intervals in the
            interval table for which data was collected.  Given
            that <n> is the maximum # of intervals supported.
            The value will be <n> unless the measurement was
            (re-)started within the last (<n>*15) minutes, in which
            case the value will be the number of complete 15
            minute intervals for which the agent has at least
            some data. In certain cases (e.g., in the case
            where the agent is a proxy) it is possible that some
            intervals are unavailable.  In this case, this
            interval is the maximum interval number for
            which data is available."
    ::= { adslAtucPerfDataEntry 7 }

    adslAtucPerfInvalidIntervals OBJECT-TYPE
        SYNTAX       INTEGER(0..96)
        MAX-ACCESS  read-only
        STATUS       current
        DESCRIPTION
            "The number of intervals in the range from
            0 to the value of adslAtucPerfValidIntervals
            for which no data is available. This object
            will typically be zero except in cases where
            the data for some intervals are not available
            (e.g., in proxy situations)."
    ::= { adslAtucPerfDataEntry 8 }

    -- 15 min current performance group
    --
    adslAtucPerfCurr15MinTimeElapsed OBJECT-TYPE
        SYNTAX       AdslPerfTimeElapsed(0..899)
        UNITS        "seconds"
        MAX-ACCESS  read-only
```

```
        STATUS      current
        DESCRIPTION
            "Total elapsed seconds in this interval."
    ::= { adslAtucPerfDataEntry 9 }

    adslAtucPerfCurr15MinLofs OBJECT-TYPE
        SYNTAX      PerfCurrentCount
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of seconds in the current 15 minute interval
            when there was Loss of Framing."
    ::= { adslAtucPerfDataEntry 10 }

    adslAtucPerfCurr15MinLoss  OBJECT-TYPE
        SYNTAX      PerfCurrentCount
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of seconds in the current 15 minute interval
            when there was Loss of Signal."
    ::= { adslAtucPerfDataEntry 11 }

    adslAtucPerfCurr15MinLols  OBJECT-TYPE
        SYNTAX      PerfCurrentCount
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of seconds in the current 15 minute interval
            when there was Loss of Link."
    ::= { adslAtucPerfDataEntry 12 }

    adslAtucPerfCurr15MinLprs  OBJECT-TYPE
        SYNTAX      PerfCurrentCount
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of seconds in the current 15 minute interval
            when there was Loss of Power."
    ::= { adslAtucPerfDataEntry 13 }

    adslAtucPerfCurr15MinESs OBJECT-TYPE
        SYNTAX      PerfCurrentCount
        UNITS       "seconds"
```

```
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of Errored Seconds in the current 15 minute
            interval.  The errored second parameter is a count of
            one-second intervals containing one or more crc
            anomalies, or one or more los or sef defects."
    ::= { adslAtucPerfDataEntry 14 }

    adslAtucPerfCurr15MinInits  OBJECT-TYPE
        SYNTAX      PerfCurrentCount
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of the line initialization attempts in the
            current 15 minute interval. Includes both successful
            and failed attempts."
    ::= { adslAtucPerfDataEntry 15 }

    -- 1-day current and previous performance group
    --
    adslAtucPerfCurr1DayTimeElapsed OBJECT-TYPE
        SYNTAX      AdslPerfTimeElapsed(0..86399)
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Number of seconds that have elapsed since the
            beginning of the current 1-day interval."
    ::= { adslAtucPerfDataEntry 16 }

    adslAtucPerfCurr1DayLofs  OBJECT-TYPE
        SYNTAX      AdslPerfCurrDayCount
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of the number of seconds when there was Loss of
            Framing during the current day as measured by
            adslAtucPerfCurr1DayTimeElapsed."
    ::= { adslAtucPerfDataEntry 17 }

    adslAtucPerfCurr1DayLoss  OBJECT-TYPE
        SYNTAX      AdslPerfCurrDayCount
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
```

```
            "Count of the number of seconds when there was Loss of
            Signal during the current day as measured by
            adslAtucPerfCurr1DayTimeElapsed."
    ::= { adslAtucPerfDataEntry 18 }

    adslAtucPerfCurr1DayLols  OBJECT-TYPE
        SYNTAX      AdslPerfCurrDayCount
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of the number of seconds when there was Loss of
            Link during the current day as measured by
            adslAtucPerfCurr1DayTimeElapsed."
    ::= { adslAtucPerfDataEntry 19 }

    adslAtucPerfCurr1DayLprs  OBJECT-TYPE
        SYNTAX      AdslPerfCurrDayCount
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of the number of seconds when there was Loss of
            Power during the current day as measured by
            adslAtucPerfCurr1DayTimeElapsed."
    ::= { adslAtucPerfDataEntry 20 }

    adslAtucPerfCurr1DayESs OBJECT-TYPE
        SYNTAX      AdslPerfCurrDayCount
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of Errored Seconds during the current day as
            measured by adslAtucPerfCurr1DayTimeElapsed.
            The errored second parameter is a count of
            one-second intervals containing one or more crc
            anomalies, or one or more los or sef defects."
    ::= { adslAtucPerfDataEntry 21 }

    adslAtucPerfCurr1DayInits  OBJECT-TYPE
        SYNTAX      AdslPerfCurrDayCount
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of the line initialization attempts in the
            day as measured by adslAtucPerfCurr1DayTimeElapsed.
            Includes both successful and failed attempts."
```

```
        ::= { adslAtucPerfDataEntry 22 }

        adslAtucPerfPrev1DayMoniSecs OBJECT-TYPE
            SYNTAX      INTEGER(0..86400)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The amount of time in the previous 1-day interval
                over which the performance monitoring information
                is actually counted. This value will be the same as
                the interval duration except in a situation where
                performance monitoring data could not be collected
                for any reason."
        ::= { adslAtucPerfDataEntry 23 }

        adslAtucPerfPrev1DayLofs  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Framing within the most recent previous
                1-day period."
        ::= { adslAtucPerfDataEntry 24 }

        adslAtucPerfPrev1DayLoss  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Signal within the most recent previous
                1-day period."
        ::= { adslAtucPerfDataEntry 25 }

        adslAtucPerfPrev1DayLols  OBJECT-TYPE
            SYNTAX      AdslPerfPrevDayCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Link within the most recent previous
                1-day period."
        ::= { adslAtucPerfDataEntry 26 }
```

```
adslAtucPerfPrev1DayLprs  OBJECT-TYPE
    SYNTAX      AdslPerfPrevDayCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of seconds in the interval when there was
        Loss of Power within the most recent previous
        1-day period."
::= { adslAtucPerfDataEntry 27 }

adslAtucPerfPrev1DayESs OBJECT-TYPE
    SYNTAX      AdslPerfPrevDayCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of Errored Seconds within the most recent
        previous 1-day period. The errored second parameter is
        a count of one-second intervals containing one or more
        crc anomalies, or one or more los or sef defects."
::= { adslAtucPerfDataEntry 28 }

adslAtucPerfPrev1DayInits  OBJECT-TYPE
    SYNTAX      AdslPerfPrevDayCount
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of the line initialization attempts in the most
        recent previous 1-day period. Includes both successful
        and failed attempts."
::= { adslAtucPerfDataEntry 29 }

adslAturPerfDataTable   OBJECT-TYPE
    SYNTAX          SEQUENCE OF AdslAturPerfDataEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This table provides one row for each ATUR.
        ADSL physical interfaces are
        those ifEntries where ifType is equal to adsl(94)."
::= { adslMibObjects 7 }

adslAturPerfDataEntry       OBJECT-TYPE
    SYNTAX          AdslAturPerfDataEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION     "An entry in adslAturPerfDataTable."
```

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

    AdslAturPerfDataEntry ::=
        SEQUENCE {
        adslAturPerfLofs                Counter32,
        adslAturPerfLoss                Counter32,
        adslAturPerfLprs                Counter32,
        adslAturPerfESs                 Counter32,
        adslAturPerfValidIntervals      INTEGER,
        adslAturPerfInvalidIntervals    INTEGER,
        adslAturPerfCurr15MinTimeElapsed AdslPerfTimeElapsed,
        adslAturPerfCurr15MinLofs       PerfCurrentCount,
        adslAturPerfCurr15MinLoss       PerfCurrentCount,
        adslAturPerfCurr15MinLprs       PerfCurrentCount,
        adslAturPerfCurr15MinESs        PerfCurrentCount,
        adslAturPerfCurr1DayTimeElapsed AdslPerfTimeElapsed,
        adslAturPerfCurr1DayLofs        AdslPerfCurrDayCount,
        adslAturPerfCurr1DayLoss        AdslPerfCurrDayCount,
        adslAturPerfCurr1DayLprs        AdslPerfCurrDayCount,
        adslAturPerfCurr1DayESs         AdslPerfCurrDayCount,
        adslAturPerfPrev1DayMoniSecs    INTEGER,
        adslAturPerfPrev1DayLofs        AdslPerfPrevDayCount,
        adslAturPerfPrev1DayLoss        AdslPerfPrevDayCount,
        adslAturPerfPrev1DayLprs        AdslPerfPrevDayCount,
        adslAturPerfPrev1DayESs         AdslPerfPrevDayCount
        }

    -- Event (Raw) Counters
    --
    -- Also see adslAturIntervalTable for 15 minute interval
    -- elapsed counters.
    --
    adslAturPerfLofs OBJECT-TYPE
        SYNTAX      Counter32
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of the number of Loss of Framing failures since
            agent reset."
    ::= { adslAturPerfDataEntry 1 }

    adslAturPerfLoss  OBJECT-TYPE
        SYNTAX      Counter32
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
```

```
        DESCRIPTION
            "Count of the number of Loss of Signal failures since
            agent reset."
     ::= { adslAturPerfDataEntry 2 }


    adslAturPerfLprs  OBJECT-TYPE
        SYNTAX       Counter32
        UNITS        "seconds"
        MAX-ACCESS   read-only
        STATUS       current
        DESCRIPTION
            "Count of the number of Loss of Power failures since
            agent reset."
     ::= { adslAturPerfDataEntry 3 }


    adslAturPerfESs  OBJECT-TYPE
        SYNTAX       Counter32
        UNITS        "seconds"
        MAX-ACCESS   read-only
        STATUS       current
        DESCRIPTION
            "Count of the number of Errored Seconds since agent
            reset.  The errored second parameter is a count of
            one-second intervals containing one or more crc
            anomalies, or one or more los or sef defects."
     ::= { adslAturPerfDataEntry 4 }


    -- general 15 min interval information
    --
    adslAturPerfValidIntervals OBJECT-TYPE
        SYNTAX       INTEGER(0..96)
        MAX-ACCESS   read-only
        STATUS       current
        DESCRIPTION
            "The number of previous 15-minute intervals in the
            interval table for which data was collected.  Given
            that <n> is the maximum # of intervals supported.
            The value will be <n> unless the measurement was
            (re-)started within the last (<n>*15) minutes, in which
            case the value will be the number of complete 15
            minute intervals for which the agent has at least
            some data. In certain cases (e.g., in the case
            where the agent is a proxy) it is possible that some
            intervals are unavailable.  In this case, this
            interval is the maximum interval number for
            which data is available."
     ::= { adslAturPerfDataEntry 5 }
```

```
adslAturPerfInvalidIntervals OBJECT-TYPE
    SYNTAX      INTEGER(0..96)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of intervals in the range from
        0 to the value of adslAturPerfValidIntervals
        for which no data is available. This object
        will typically be zero except in cases where
        the data for some intervals are not available
        (e.g., in proxy situations)."
::= { adslAturPerfDataEntry 6 }

-- 15 min current performance group
--
adslAturPerfCurr15MinTimeElapsed OBJECT-TYPE
    SYNTAX      AdslPerfTimeElapsed(0..899)
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total elapsed seconds in this interval."
::= { adslAturPerfDataEntry 7 }

adslAturPerfCurr15MinLofs OBJECT-TYPE
    SYNTAX      PerfCurrentCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of seconds in the current 15 minute interval
        when there was Loss of Framing."
::= { adslAturPerfDataEntry 8 }

adslAturPerfCurr15MinLoss  OBJECT-TYPE
    SYNTAX      PerfCurrentCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of seconds in the current 15 minute interval
        when there was Loss of Signal."
::= { adslAturPerfDataEntry 9 }

adslAturPerfCurr15MinLprs  OBJECT-TYPE
    SYNTAX      PerfCurrentCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
```

        STATUS   current
        DESCRIPTION
            "Count of seconds in the current 15 minute interval
            when there was Loss of Power."
    ::= { adslAturPerfDataEntry 10 }

    adslAturPerfCurr15MinESs OBJECT-TYPE
        SYNTAX   PerfCurrentCount
        UNITS   "seconds"
        MAX-ACCESS read-only
        STATUS   current
        DESCRIPTION
            "Count of Errored Seconds in the current 15 minute
            interval. The errored second parameter is a count of
            one-second intervals containing one or more crc
            anomalies, or one or more los or sef defects."

    ::= { adslAturPerfDataEntry 11 }

    -- 1-day current and previous performance group
    --
    adslAturPerfCurr1DayTimeElapsed OBJECT-TYPE
        SYNTAX   AdslPerfTimeElapsed(0..86399)
        UNITS   "seconds"
        MAX-ACCESS read-only
        STATUS   current
        DESCRIPTION
            "Number of seconds that have elapsed since the
            beginning of the current 1-day interval."
    ::= { adslAturPerfDataEntry 12 }

    adslAturPerfCurr1DayLofs OBJECT-TYPE
        SYNTAX   AdslPerfCurrDayCount
        UNITS   "seconds"
        MAX-ACCESS read-only
        STATUS   current
        DESCRIPTION
            "Count of the number of seconds when there was Loss
            of Framing during the current day as measured by
            adslAturPerfCurr1DayTimeElapsed."
    ::= { adslAturPerfDataEntry 13 }

    adslAturPerfCurr1DayLoss OBJECT-TYPE
        SYNTAX   AdslPerfCurrDayCount
        UNITS   "seconds"
        MAX-ACCESS read-only
        STATUS   current
        DESCRIPTION

```
                  "Count of the number of seconds when there was Loss
                  of Signal during the current day as measured by
                  adslAturPerfCurr1DayTimeElapsed."
          ::= { adslAturPerfDataEntry 14 }

          adslAturPerfCurr1DayLprs  OBJECT-TYPE
              SYNTAX      AdslPerfCurrDayCount
              UNITS       "seconds"
              MAX-ACCESS  read-only
              STATUS      current
              DESCRIPTION
                  "Count of the number of seconds when there was Loss
                  of Power during the current day as measured by
                  adslAturPerfCurr1DayTimeElapsed."
          ::= { adslAturPerfDataEntry 15 }

      adslAturPerfCurr1DayESs OBJECT-TYPE
              SYNTAX      AdslPerfCurrDayCount
              UNITS       "seconds"
              MAX-ACCESS  read-only
              STATUS      current
              DESCRIPTION
                  "Count of Errored Seconds during the current day as
                  measured by adslAturPerfCurr1DayTimeElapsed.
                  The errored second parameter is a count of
                  one-second intervals containing one or more crc
                  anomalies, or one or more los or sef defects."
          ::= { adslAturPerfDataEntry 16 }

          adslAturPerfPrev1DayMoniSecs OBJECT-TYPE
              SYNTAX      INTEGER(0..86400)
              UNITS       "seconds"
              MAX-ACCESS  read-only
              STATUS      current
              DESCRIPTION
                  "The amount of time in the previous 1-day interval
                  over which the performance monitoring information
                  is actually counted. This value will be the same as
                  the interval duration except in a situation where
                  performance monitoring data could not be collected
                  for any reason."
          ::= { adslAturPerfDataEntry 17 }

          adslAturPerfPrev1DayLofs  OBJECT-TYPE
              SYNTAX      AdslPerfPrevDayCount
              UNITS       "seconds"
              MAX-ACCESS  read-only
              STATUS      current
```

```
        DESCRIPTION
            "Count of seconds in the interval when there was
            Loss of Framing within the most recent previous
            1-day period."
    ::= { adslAturPerfDataEntry 18 }

    adslAturPerfPrev1DayLoss  OBJECT-TYPE
        SYNTAX      AdslPerfPrevDayCount
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of seconds in the interval when there was
            Loss of Signal within the most recent previous
            1-day period."
    ::= { adslAturPerfDataEntry 19 }

    adslAturPerfPrev1DayLprs  OBJECT-TYPE
        SYNTAX      AdslPerfPrevDayCount
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of seconds in the interval when there was
            Loss of Power within the most recent previous
            1-day period."
    ::= { adslAturPerfDataEntry 20 }

    adslAturPerfPrev1DayESs OBJECT-TYPE
        SYNTAX      AdslPerfPrevDayCount
        UNITS       "seconds"
        MAX-ACCESS  read-only
        STATUS      current
        DESCRIPTION
            "Count of Errored Seconds within the most recent
            previous 1-day period. The errored second parameter is
            a count of one-second intervals containing one or more
            crc anomalies, or one or more los or sef defects."
    ::= { adslAturPerfDataEntry 21 }

    adslAtucIntervalTable   OBJECT-TYPE
        SYNTAX          SEQUENCE OF AdslAtucIntervalEntry
        MAX-ACCESS      not-accessible
        STATUS          current
        DESCRIPTION
            "This table provides one row for each ATUC
            performance data collection interval.
            ADSL physical interfaces are
```

                  those ifEntries where ifType is equal to adsl(94)."
          ::= { adslMibObjects 8 }

          adslAtucIntervalEntry   OBJECT-TYPE
              SYNTAX   AdslAtucIntervalEntry
              MAX-ACCESS   not-accessible
              STATUS   current
              DESCRIPTION   "An entry in the adslAtucIntervalTable."
              INDEX   { ifIndex, adslAtucIntervalNumber }
          ::= { adslAtucIntervalTable 1 }

          AdslAtucIntervalEntry ::=
              SEQUENCE {
              adslAtucIntervalNumber   INTEGER,
              adslAtucIntervalLofs   PerfIntervalCount,
              adslAtucIntervalLoss   PerfIntervalCount,
              adslAtucIntervalLols   PerfIntervalCount,
              adslAtucIntervalLprs   PerfIntervalCount,
              adslAtucIntervalESs   PerfIntervalCount,
              adslAtucIntervalInits   PerfIntervalCount,
              adslAtucIntervalValidData   TruthValue
              }

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

          adslAtucIntervalLofs OBJECT-TYPE
              SYNTAX   PerfIntervalCount
              UNITS   "seconds"
              MAX-ACCESS read-only
              STATUS   current
              DESCRIPTION
                  "Count of seconds in the interval when there was Loss
                  of Framing."
          ::= { adslAtucIntervalEntry 2 }

          adslAtucIntervalLoss OBJECT-TYPE
              SYNTAX   PerfIntervalCount
              UNITS   "seconds"
              MAX-ACCESS read-only

```
     STATUS      current
     DESCRIPTION
         "Count of seconds in the interval when there was Loss
         of Signal."
::= { adslAtucIntervalEntry 3 }

adslAtucIntervalLols  OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of seconds in the interval when there was Loss
        of Link."
::= { adslAtucIntervalEntry 4 }

adslAtucIntervalLprs  OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of seconds in the interval when there was Loss
        of Power."
::= { adslAtucIntervalEntry 5 }

adslAtucIntervalESs OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    UNITS       "seconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of Errored Seconds in the interval.
        The errored second parameter is a count of
        one-second intervals containing one or more crc
        anomalies, or one or more los or sef defects."
::= { adslAtucIntervalEntry 6 }

adslAtucIntervalInits  OBJECT-TYPE
    SYNTAX      PerfIntervalCount
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Count of the line initialization attempts
        during the interval. Includes both successful
        and failed attempts."
::= { adslAtucIntervalEntry 7 }
```

```
adslAtucIntervalValidData OBJECT-TYPE
    SYNTAX TruthValue
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "This variable indicates if the data for this
        interval is valid."
::= { adslAtucIntervalEntry 8 }

adslAturIntervalTable   OBJECT-TYPE
    SYNTAX          SEQUENCE OF AdslAturIntervalEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This table provides one row for each ATUR
        performance data collection interval.
        ADSL physical interfaces are those
        ifEntries where ifType is equal to adsl(94)."
::= { adslMibObjects 9 }

adslAturIntervalEntry   OBJECT-TYPE
    SYNTAX          AdslAturIntervalEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION     "An entry in the adslAturIntervalTable."
    INDEX           { ifIndex, adslAturIntervalNumber }
::= { adslAturIntervalTable 1 }

AdslAturIntervalEntry ::=
    SEQUENCE {
    adslAturIntervalNumber          INTEGER,
    adslAturIntervalLofs            PerfIntervalCount,
    adslAturIntervalLoss            PerfIntervalCount,
    adslAturIntervalLprs            PerfIntervalCount,
    adslAturIntervalESs             PerfIntervalCount,
    adslAturIntervalValidData       TruthValue
    }

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

```
        adslAturIntervalLofs OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Framing."
        ::= { adslAturIntervalEntry 2 }

        adslAturIntervalLoss  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Signal."
        ::= { adslAturIntervalEntry 3 }

        adslAturIntervalLprs  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of seconds in the interval when there was
                Loss of Power."
        ::= { adslAturIntervalEntry 4 }

        adslAturIntervalESs OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of Errored Seconds in the interval.
                The errored second parameter is a count of
                one-second intervals containing one or more crc
                anomalies, or one or more los or sef defects."
        ::= { adslAturIntervalEntry 5 }

        adslAturIntervalValidData OBJECT-TYPE
            SYNTAX TruthValue
            MAX-ACCESS read-only
            STATUS current
            DESCRIPTION
                "This variable indicates if the data for this
```

             interval is valid."
         ::= { adslAturIntervalEntry 6 }

         adslAtucChanPerfDataTable   OBJECT-TYPE
             SYNTAX   SEQUENCE OF AdslAtucChanPerfDataEntry
             MAX-ACCESS   not-accessible
             STATUS   current
             DESCRIPTION
                 "This table provides one row for each ATUC channel.
                 ADSL channel interfaces are those ifEntries
                 where ifType is equal to adslInterleave(124)
                 or adslFast(125)."
         ::= { adslMibObjects 10 }

         adslAtucChanPerfDataEntry   OBJECT-TYPE

             SYNTAX   AdslAtucChanPerfDataEntry
             MAX-ACCESS   not-accessible
             STATUS   current
             DESCRIPTION   "An entry in adslAtucChanPerfDataTable."
             INDEX   { ifIndex }
         ::= { adslAtucChanPerfDataTable 1 }

         AdslAtucChanPerfDataEntry ::=
          SEQUENCE {
          adslAtucChanReceivedBlks   Counter32,
          adslAtucChanTransmittedBlks   Counter32,
          adslAtucChanCorrectedBlks   Counter32,
          adslAtucChanUncorrectBlks   Counter32,
          adslAtucChanPerfValidIntervals   INTEGER,
          adslAtucChanPerfInvalidIntervals   INTEGER,
          adslAtucChanPerfCurr15MinTimeElapsed   AdslPerfTimeElapsed,
          adslAtucChanPerfCurr15MinReceivedBlks   PerfCurrentCount,
          adslAtucChanPerfCurr15MinTransmittedBlks PerfCurrentCount,
          adslAtucChanPerfCurr15MinCorrectedBlks   PerfCurrentCount,
          adslAtucChanPerfCurr15MinUncorrectBlks   PerfCurrentCount,
          adslAtucChanPerfCurr1DayTimeElapsed   AdslPerfTimeElapsed,
          adslAtucChanPerfCurr1DayReceivedBlks   AdslPerfCurrDayCount,
          adslAtucChanPerfCurr1DayTransmittedBlks AdslPerfCurrDayCount,
          adslAtucChanPerfCurr1DayCorrectedBlks   AdslPerfCurrDayCount,
          adslAtucChanPerfCurr1DayUncorrectBlks   AdslPerfCurrDayCount,
          adslAtucChanPerfPrev1DayMoniSecs   INTEGER,
          adslAtucChanPerfPrev1DayReceivedBlks   AdslPerfPrevDayCount,
          adslAtucChanPerfPrev1DayTransmittedBlks AdslPerfPrevDayCount,
          adslAtucChanPerfPrev1DayCorrectedBlks   AdslPerfPrevDayCount,
          adslAtucChanPerfPrev1DayUncorrectBlks   AdslPerfPrevDayCount
         }
         -- performance group

```
          --
          -- Note: block is intended to be the length of the channel
          --        data-block on which the CRC operates. See
          --        adslAtucChanCrcBlockLength for more information.
          --
          adslAtucChanReceivedBlks OBJECT-TYPE
              SYNTAX      Counter32
              MAX-ACCESS  read-only
              STATUS      current
              DESCRIPTION
                  "Count of all encoded blocks received on this channel
                  since agent reset."
          ::= { adslAtucChanPerfDataEntry 1 }

          adslAtucChanTransmittedBlks  OBJECT-TYPE
              SYNTAX      Counter32
              MAX-ACCESS  read-only
              STATUS      current
              DESCRIPTION
                  "Count of all encoded blocks transmitted on this
                  channel since agent reset."
          ::= { adslAtucChanPerfDataEntry 2 }

          adslAtucChanCorrectedBlks  OBJECT-TYPE
              SYNTAX      Counter32
              MAX-ACCESS  read-only
              STATUS      current
              DESCRIPTION
                  "Count of all blocks received with errors that were
                  corrected since agent reset.  These blocks are passed
                  on as good data."
          ::= { adslAtucChanPerfDataEntry 3 }

          adslAtucChanUncorrectBlks  OBJECT-TYPE
              SYNTAX      Counter32
              MAX-ACCESS  read-only
              STATUS      current
              DESCRIPTION
                  "Count of all blocks received with uncorrectable
                  errors since agent reset."
          ::= { adslAtucChanPerfDataEntry 4 }

          -- general 15 min interval information
          --
          adslAtucChanPerfValidIntervals OBJECT-TYPE
              SYNTAX      INTEGER(0..96)
              MAX-ACCESS  read-only
              STATUS      current
```

          DESCRIPTION
              "The number of previous 15-minute intervals in the
              interval table for which data was collected. Given
              that <n> is the maximum # of intervals supported.
              The value will be <n> unless the measurement was
              (re-)started within the last (<n>*15) minutes, in which
              case the value will be the number of complete 15
              minute intervals for which the agent has at least
              some data. In certain cases (e.g., in the case
              where the agent is a proxy) it is possible that some
              intervals are unavailable. In this case, this
              interval is the maximum interval number for
              which data is available."
      ::= { adslAtucChanPerfDataEntry 5 }

      adslAtucChanPerfInvalidIntervals OBJECT-TYPE
          SYNTAX   INTEGER(0..96)
          MAX-ACCESS read-only
          STATUS   current
          DESCRIPTION
              "The number of intervals in the range from
              0 to the value of adslAtucChanPerfValidIntervals
              for which no data is available. This object
              will typically be zero except in cases where
              the data for some intervals are not available
              (e.g., in proxy situations)."
      ::= { adslAtucChanPerfDataEntry 6 }

      -- 15 min current performance group
      --
      adslAtucChanPerfCurr15MinTimeElapsed OBJECT-TYPE
          SYNTAX   AdslPerfTimeElapsed(0..899)
          UNITS   "seconds"
          MAX-ACCESS read-only
          STATUS   current
          DESCRIPTION
              "Total elapsed seconds in this interval."
      ::= { adslAtucChanPerfDataEntry 7 }

      adslAtucChanPerfCurr15MinReceivedBlks OBJECT-TYPE
          SYNTAX   PerfCurrentCount
          MAX-ACCESS read-only
          STATUS   current
          DESCRIPTION
              "Count of all encoded blocks received on this channel
              within the current 15 minute interval."
      ::= { adslAtucChanPerfDataEntry 8 }

        adslAtucChanPerfCurr15MinTransmittedBlks OBJECT-TYPE
            SYNTAX   PerfCurrentCount
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                "Count of all encoded blocks transmitted on this
                channel within the current 15 minute interval."
        ::= { adslAtucChanPerfDataEntry 9 }

        adslAtucChanPerfCurr15MinCorrectedBlks OBJECT-TYPE
            SYNTAX   PerfCurrentCount
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                "Count of all blocks received with errors that were
                corrected on this channel within the current 15 minute
                interval."
        ::= { adslAtucChanPerfDataEntry 10 }

        adslAtucChanPerfCurr15MinUncorrectBlks OBJECT-TYPE
            SYNTAX   PerfCurrentCount
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                "Count of all blocks received with uncorrectable
                errors on this channel within the current 15 minute
                interval."
        ::= { adslAtucChanPerfDataEntry 11 }

        -- 1-day current and previous performance group
        --
        adslAtucChanPerfCurr1DayTimeElapsed OBJECT-TYPE
            SYNTAX   AdslPerfTimeElapsed(0..86399)
            UNITS   "seconds"
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                "Number of seconds that have elapsed since the
                beginning of the current 1-day interval."
        ::= { adslAtucChanPerfDataEntry 12 }

        adslAtucChanPerfCurr1DayReceivedBlks OBJECT-TYPE
            SYNTAX   AdslPerfCurrDayCount
            MAX-ACCESS   read-only
            STATUS   current
            DESCRIPTION
                "Count of all encoded blocks received on this
                channel during the current day as measured by

```
            adslAtucChanPerfCurr1DayTimeElapsed."
        ::= { adslAtucChanPerfDataEntry 13 }

        adslAtucChanPerfCurr1DayTransmittedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks transmitted on this
                channel during the current day as measured by
                adslAtucChanPerfCurr1DayTimeElapsed."
        ::= { adslAtucChanPerfDataEntry 14 }

        adslAtucChanPerfCurr1DayCorrectedBlks  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with errors that were
                corrected on this channel during the current day as
                measured by adslAtucChanPerfCurr1DayTimeElapsed."
        ::= { adslAtucChanPerfDataEntry 15 }

        adslAtucChanPerfCurr1DayUncorrectBlks  OBJECT-TYPE
            SYNTAX      AdslPerfCurrDayCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with uncorrectable
                errors on this channel during the current day as
                measured by adslAtucChanPerfCurr1DayTimeElapsed."
        ::= { adslAtucChanPerfDataEntry 16 }

        adslAtucChanPerfPrev1DayMoniSecs OBJECT-TYPE
            SYNTAX      INTEGER(0..86400)
            UNITS       "seconds"
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "The amount of time in the previous 1-day interval
                over which the performance monitoring information
                is actually counted. This value will be the same as
                the interval duration except in a situation where
                performance monitoring data could not be collected
                for any reason."
        ::= { adslAtucChanPerfDataEntry 17 }

        adslAtucChanPerfPrev1DayReceivedBlks  OBJECT-TYPE
```

```
      SYNTAX      AdslPerfPrevDayCount
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
          "Count of all encoded blocks received on this
          channel within the most recent previous 1-day
          period."
  ::= { adslAtucChanPerfDataEntry 18 }

  adslAtucChanPerfPrev1DayTransmittedBlks  OBJECT-TYPE
      SYNTAX      AdslPerfPrevDayCount
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
          "Count of all encoded blocks transmitted on this
          channel within the most recent previous 1-day
          period."
  ::= { adslAtucChanPerfDataEntry 19 }

  adslAtucChanPerfPrev1DayCorrectedBlks  OBJECT-TYPE
      SYNTAX      AdslPerfPrevDayCount
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
          "Count of all blocks received with errors that were
          corrected on this channel within the most recent
          previous 1-day period."
  ::= { adslAtucChanPerfDataEntry 20 }

  adslAtucChanPerfPrev1DayUncorrectBlks  OBJECT-TYPE
      SYNTAX      AdslPerfPrevDayCount
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
          "Count of all blocks received with uncorrectable
          errors on this channel within the most recent previous
          1-day period."
  ::= { adslAtucChanPerfDataEntry 21 }

  adslAturChanPerfDataTable      OBJECT-TYPE
      SYNTAX          SEQUENCE OF AdslAturChanPerfDataEntry
      MAX-ACCESS      not-accessible
      STATUS          current
      DESCRIPTION
          "This table provides one row for each ATUR channel.
          ADSL channel interfaces are those ifEntries
          where ifType is equal to adslInterleave(124)
          or adslFast(125)."
```

```
            ::= { adslMibObjects 11 }

            adslAturChanPerfDataEntry       OBJECT-TYPE
                SYNTAX          AdslAturChanPerfDataEntry
                MAX-ACCESS      not-accessible
                STATUS          current
                DESCRIPTION     "An entry in adslAturChanPerfDataTable."
                INDEX           { ifIndex }
            ::= { adslAturChanPerfDataTable 1 }

            AdslAturChanPerfDataEntry ::=
             SEQUENCE {
             adslAturChanReceivedBlks                 Counter32,
             adslAturChanTransmittedBlks              Counter32,
             adslAturChanCorrectedBlks                Counter32,
             adslAturChanUncorrectBlks                Counter32,
             adslAturChanPerfValidIntervals           INTEGER,
             adslAturChanPerfInvalidIntervals         INTEGER,
             adslAturChanPerfCurr15MinTimeElapsed     AdslPerfTimeElapsed,
             adslAturChanPerfCurr15MinReceivedBlks    PerfCurrentCount,
             adslAturChanPerfCurr15MinTransmittedBlks PerfCurrentCount,
             adslAturChanPerfCurr15MinCorrectedBlks   PerfCurrentCount,
             adslAturChanPerfCurr15MinUncorrectBlks   PerfCurrentCount,
             adslAturChanPerfCurr1DayTimeElapsed      AdslPerfTimeElapsed,
             adslAturChanPerfCurr1DayReceivedBlks     AdslPerfCurrDayCount,
             adslAturChanPerfCurr1DayTransmittedBlks  AdslPerfCurrDayCount,
             adslAturChanPerfCurr1DayCorrectedBlks    AdslPerfCurrDayCount,
             adslAturChanPerfCurr1DayUncorrectBlks    AdslPerfCurrDayCount,
             adslAturChanPerfPrev1DayMoniSecs         INTEGER,
             adslAturChanPerfPrev1DayReceivedBlks     AdslPerfPrevDayCount,
             adslAturChanPerfPrev1DayTransmittedBlks  AdslPerfPrevDayCount,
             adslAturChanPerfPrev1DayCorrectedBlks    AdslPerfPrevDayCount,
             adslAturChanPerfPrev1DayUncorrectBlks    AdslPerfPrevDayCount
             }
            -- performance group
            --
            -- Note: block is intended to be the length of the channel
            --       data-block on which the CRC operates. See
            --       adslAturChanCrcBlockLength for more information.
            --
            adslAturChanReceivedBlks OBJECT-TYPE
                SYNTAX      Counter32
                MAX-ACCESS  read-only
                STATUS      current
                DESCRIPTION
                    "Count of all encoded blocks received on this channel
                    since agent reset."
            ::= { adslAturChanPerfDataEntry 1 }
```

            adslAturChanTransmittedBlks OBJECT-TYPE
                SYNTAX   Counter32
                MAX-ACCESS   read-only
                STATUS   current
                DESCRIPTION
                    "Count of all encoded blocks transmitted on this
                    channel since agent reset."
            ::= { adslAturChanPerfDataEntry 2 }

            adslAturChanCorrectedBlks OBJECT-TYPE
                SYNTAX   Counter32
                MAX-ACCESS   read-only
                STATUS   current
                DESCRIPTION
                    "Count of all blocks received with errors that were
                    corrected since agent reset. These blocks are passed
                    on as good data."
            ::= { adslAturChanPerfDataEntry 3 }

            adslAturChanUncorrectBlks OBJECT-TYPE
                SYNTAX   Counter32
                MAX-ACCESS   read-only
                STATUS   current
                DESCRIPTION
                    "Count of all blocks received with uncorrectable
                    errors since agent reset."
            ::= { adslAturChanPerfDataEntry 4 }

            -- general 15 min interval information
            --
            adslAturChanPerfValidIntervals OBJECT-TYPE
                SYNTAX   INTEGER(0..96)
                MAX-ACCESS   read-only
                STATUS   current
                DESCRIPTION
                    "The number of previous 15-minute intervals in the
                    interval table for which data was collected. Given
                    that <n> is the maximum # of intervals supported.
                    The value will be <n> unless the measurement was
                    (re-)started within the last (<n>*15) minutes, in which
                    case the value will be the number of complete 15
                    minute intervals for which the agent has at least
                    some data. In certain cases (e.g., in the case
                    where the agent is a proxy) it is possible that some
                    intervals are unavailable. In this case, this
                    interval is the maximum interval number for
                    which data is available."
            ::= { adslAturChanPerfDataEntry 5 }

          adslAturChanPerfInvalidIntervals OBJECT-TYPE
              SYNTAX   INTEGER(0..96)
              MAX-ACCESS   read-only
              STATUS   current
              DESCRIPTION
                  "The number of intervals in the range from
                  0 to the value of adslAturChanPerfValidIntervals
                  for which no data is available. This object
                  will typically be zero except in cases where
                  the data for some intervals are not available
                  (e.g., in proxy situations)."
          ::= { adslAturChanPerfDataEntry 6 }

          -- 15 min current performance group
          --
          adslAturChanPerfCurr15MinTimeElapsed OBJECT-TYPE
              SYNTAX   AdslPerfTimeElapsed(0..899)
              UNITS   "seconds"
              MAX-ACCESS   read-only
              STATUS   current
              DESCRIPTION
                  "Total elapsed seconds in this interval.
                  A full interval is 900 seconds."
          ::= { adslAturChanPerfDataEntry 7 }

          adslAturChanPerfCurr15MinReceivedBlks OBJECT-TYPE
              SYNTAX   PerfCurrentCount
              MAX-ACCESS   read-only
              STATUS   current
              DESCRIPTION
                  "Count of all encoded blocks received on this
                  channel within the current 15 minute interval."
          ::= { adslAturChanPerfDataEntry 8 }

          adslAturChanPerfCurr15MinTransmittedBlks OBJECT-TYPE
              SYNTAX   PerfCurrentCount
              MAX-ACCESS   read-only
              STATUS   current
              DESCRIPTION
                  "Count of all encoded blocks transmitted on this
                  channel within the current 15 minute interval."
          ::= { adslAturChanPerfDataEntry 9 }

          adslAturChanPerfCurr15MinCorrectedBlks OBJECT-TYPE
              SYNTAX   PerfCurrentCount
              MAX-ACCESS   read-only
              STATUS   current
              DESCRIPTION

              "Count of all blocks received with errors that were
              corrected on this channel within the current 15 minute
              interval."
          ::= { adslAturChanPerfDataEntry 10 }

          adslAturChanPerfCurr15MinUncorrectBlks OBJECT-TYPE
              SYNTAX   PerfCurrentCount
              MAX-ACCESS read-only
              STATUS   current
              DESCRIPTION
                  "Count of all blocks received with uncorrectable
                  errors on this channel within the current 15 minute
                  interval."
          ::= { adslAturChanPerfDataEntry 11 }

          -- 1-day current and previous performance group
          --
          adslAturChanPerfCurr1DayTimeElapsed OBJECT-TYPE
              SYNTAX   AdslPerfTimeElapsed(0..86399)
              UNITS   "seconds"
              MAX-ACCESS read-only
              STATUS   current
              DESCRIPTION
                  "Number of seconds that have elapsed since the
                  beginning of the current 1-day interval."
          ::= { adslAturChanPerfDataEntry 12 }

          adslAturChanPerfCurr1DayReceivedBlks OBJECT-TYPE
              SYNTAX   AdslPerfCurrDayCount
              MAX-ACCESS read-only
              STATUS   current
              DESCRIPTION
                  "Count of all encoded blocks received on this
                  channel during the current day as measured by
                  adslAturChanPerfCurr1DayTimeElapsed."
          ::= { adslAturChanPerfDataEntry 13 }

          adslAturChanPerfCurr1DayTransmittedBlks OBJECT-TYPE
              SYNTAX   AdslPerfCurrDayCount
              MAX-ACCESS read-only
              STATUS   current
              DESCRIPTION
                  "Count of all encoded blocks transmitted on this
                  channel during the current day as measured by
                  adslAturChanPerfCurr1DayTimeElapsed."

          ::= { adslAturChanPerfDataEntry 14 }

         adslAturChanPerfCurr1DayCorrectedBlks OBJECT-TYPE
             SYNTAX   AdslPerfCurrDayCount
             MAX-ACCESS read-only
             STATUS   current
             DESCRIPTION
                 "Count of all blocks received with errors that were
                 corrected on this channel during the current day as
                 measured by adslAturChanPerfCurr1DayTimeElapsed."
         ::= { adslAturChanPerfDataEntry 15 }

         adslAturChanPerfCurr1DayUncorrectBlks OBJECT-TYPE
             SYNTAX   AdslPerfCurrDayCount
             MAX-ACCESS read-only
             STATUS   current
             DESCRIPTION
                 "Count of all blocks received with uncorrectable
                 errors on this channel during the current day as
                 measured by adslAturChanPerfCurr1DayTimeElapsed."
         ::= { adslAturChanPerfDataEntry 16 }

         adslAturChanPerfPrev1DayMoniSecs OBJECT-TYPE
             SYNTAX   INTEGER(0..86400)
             UNITS   "seconds"
             MAX-ACCESS read-only
             STATUS   current
             DESCRIPTION
                 "The amount of time in the previous 1-day interval
                 over which the performance monitoring information
                 is actually counted. This value will be the same as
                 the interval duration except in a situation where
                 performance monitoring data could not be collected
                 for any reason."
         ::= { adslAturChanPerfDataEntry 17 }

         adslAturChanPerfPrev1DayReceivedBlks OBJECT-TYPE
             SYNTAX   AdslPerfPrevDayCount
             MAX-ACCESS read-only
             STATUS   current
             DESCRIPTION
                 "Count of all encoded blocks received on this
                 channel within the most recent previous 1-day
                 period."
         ::= { adslAturChanPerfDataEntry 18 }

         adslAturChanPerfPrev1DayTransmittedBlks OBJECT-TYPE
             SYNTAX   AdslPerfPrevDayCount
             MAX-ACCESS read-only
             STATUS   current

```
      DESCRIPTION
          "Count of all encoded blocks transmitted on this
          channel within the most recent previous 1-day
          period."
      ::= { adslAturChanPerfDataEntry 19 }

      adslAturChanPerfPrev1DayCorrectedBlks  OBJECT-TYPE
          SYNTAX      AdslPerfPrevDayCount
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
              "Count of all blocks received with errors that were
              corrected on this channel within the most recent
              previous 1-day period."
      ::= { adslAturChanPerfDataEntry 20 }

      adslAturChanPerfPrev1DayUncorrectBlks  OBJECT-TYPE
          SYNTAX      AdslPerfPrevDayCount
          MAX-ACCESS  read-only
          STATUS      current
          DESCRIPTION
              "Count of all blocks received with uncorrectable
              errors on this channel within the most recent previous
              1-day period."
      ::= { adslAturChanPerfDataEntry 21 }

      adslAtucChanIntervalTable   OBJECT-TYPE
          SYNTAX          SEQUENCE OF AdslAtucChanIntervalEntry
          MAX-ACCESS      not-accessible
          STATUS          current
          DESCRIPTION
              "This table provides one row for each ATUC channel's
              performance data collection interval.
              ADSL channel interfaces are those ifEntries
              where ifType is equal to adslInterleave(124)
              or adslFast(125)."
      ::= { adslMibObjects 12 }

      adslAtucChanIntervalEntry   OBJECT-TYPE
          SYNTAX          AdslAtucChanIntervalEntry
          MAX-ACCESS      not-accessible
          STATUS          current
          DESCRIPTION     "An entry in the adslAtucIntervalTable."
          INDEX           { ifIndex, adslAtucChanIntervalNumber }
      ::= { adslAtucChanIntervalTable 1 }

      AdslAtucChanIntervalEntry ::=
          SEQUENCE {
```

```
            adslAtucChanIntervalNumber          INTEGER,
            adslAtucChanIntervalReceivedBlks    PerfIntervalCount,
            adslAtucChanIntervalTransmittedBlks PerfIntervalCount,
            adslAtucChanIntervalCorrectedBlks   PerfIntervalCount,
            adslAtucChanIntervalUncorrectBlks   PerfIntervalCount,
            adslAtucChanIntervalValidData       TruthValue
            }
        adslAtucChanIntervalNumber OBJECT-TYPE
            SYNTAX      INTEGER(1..96)
            MAX-ACCESS  not-accessible
            STATUS      current
            DESCRIPTION
                "Performance Data Interval number 1 is the
                the most recent previous interval; interval
                96 is 24 hours ago.  Intervals 2..96 are
                optional."
        ::= { adslAtucChanIntervalEntry 1 }

        adslAtucChanIntervalReceivedBlks OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks received on this channel
                during this interval."
        ::= { adslAtucChanIntervalEntry 2 }

        adslAtucChanIntervalTransmittedBlks  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all encoded blocks transmitted on this
                channel during this interval."
        ::= { adslAtucChanIntervalEntry 3 }

        adslAtucChanIntervalCorrectedBlks  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            MAX-ACCESS  read-only
            STATUS      current
            DESCRIPTION
                "Count of all blocks received with errors that were
                corrected on this channel during this interval."
        ::= { adslAtucChanIntervalEntry 4 }

        adslAtucChanIntervalUncorrectBlks  OBJECT-TYPE
            SYNTAX      PerfIntervalCount
            MAX-ACCESS  read-only
```

```
        STATUS        current
        DESCRIPTION
            "Count of all blocks received with uncorrectable
            errors on this channel during this interval."
    ::= { adslAtucChanIntervalEntry 5 }


    adslAtucChanIntervalValidData OBJECT-TYPE
        SYNTAX TruthValue
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
            "This variable indicates if the data for this
            interval is valid."
    ::= { adslAtucChanIntervalEntry 6 }


    adslAturChanIntervalTable   OBJECT-TYPE
        SYNTAX          SEQUENCE OF AdslAturChanIntervalEntry
        MAX-ACCESS      not-accessible
        STATUS          current
        DESCRIPTION
            "This table provides one row for each ATUR channel's
            performance data collection interval.
            ADSL channel interfaces are those ifEntries
            where ifType is equal to adslInterleave(124)
            or adslFast(125)."
    ::= { adslMibObjects 13 }


    adslAturChanIntervalEntry   OBJECT-TYPE
        SYNTAX          AdslAturChanIntervalEntry
        MAX-ACCESS      not-accessible
        STATUS          current
        DESCRIPTION     "An entry in the adslAturIntervalTable."
        INDEX           { ifIndex, adslAturChanIntervalNumber }
    ::= { adslAturChanIntervalTable 1 }


    AdslAturChanIntervalEntry ::=
        SEQUENCE {
        adslAturChanIntervalNumber              INTEGER,
        adslAturChanIntervalReceivedBlks        PerfIntervalCount,
        adslAturChanIntervalTransmittedBlks     PerfIntervalCount,
        adslAturChanIntervalCorrectedBlks       PerfIntervalCount,
        adslAturChanIntervalUncorrectBlks       PerfIntervalCount,
        adslAturChanIntervalValidData           TruthValue
        }
    adslAturChanIntervalNumber OBJECT-TYPE
        SYNTAX      INTEGER(1..96)
        MAX-ACCESS  not-accessible
        STATUS      current
```

          DESCRIPTION
              "Performance Data Interval number 1 is the
              the most recent previous interval; interval
              96 is 24 hours ago. Intervals 2..96 are
              optional."
      ::= { adslAturChanIntervalEntry 1 }

      adslAturChanIntervalReceivedBlks OBJECT-TYPE
          SYNTAX   PerfIntervalCount
          MAX-ACCESS   read-only
          STATUS   current
          DESCRIPTION
              "Count of all encoded blocks received on this channel
              during this interval."
      ::= { adslAturChanIntervalEntry 2 }

      adslAturChanIntervalTransmittedBlks OBJECT-TYPE
          SYNTAX   PerfIntervalCount
          MAX-ACCESS   read-only
          STATUS   current
          DESCRIPTION
              "Count of all encoded blocks transmitted on this
              channel during this interval."
      ::= { adslAturChanIntervalEntry 3 }

      adslAturChanIntervalCorrectedBlks OBJECT-TYPE
          SYNTAX   PerfIntervalCount
          MAX-ACCESS   read-only
          STATUS   current
          DESCRIPTION
              "Count of all blocks received with errors that were
              corrected on this channel during this interval."
      ::= { adslAturChanIntervalEntry 4 }

      adslAturChanIntervalUncorrectBlks OBJECT-TYPE
          SYNTAX   PerfIntervalCount
          MAX-ACCESS   read-only
          STATUS   current
          DESCRIPTION
              "Count of all blocks received with uncorrectable
              errors on this channel during this interval."
      ::= { adslAturChanIntervalEntry 5 }

      adslAturChanIntervalValidData OBJECT-TYPE
          SYNTAX TruthValue
          MAX-ACCESS read-only
          STATUS current
          DESCRIPTION

                    "This variable indicates if the data for this
                    interval is valid."
            ::= { adslAturChanIntervalEntry 6 }

            -- Profile Group
            --

            adslLineConfProfileTable   OBJECT-TYPE
                SYNTAX   SEQUENCE OF AdslLineConfProfileEntry
                MAX-ACCESS   not-accessible
                STATUS   current
                DESCRIPTION
                    "This table contains information on the ADSL line
                    configuration. One entry in this table reflects a
                    profile defined by a manager which can be used to
                    configure the ADSL line."
            ::= { adslMibObjects 14}

            adslLineConfProfileEntry   OBJECT-TYPE
                SYNTAX   AdslLineConfProfileEntry
                MAX-ACCESS   not-accessible
                STATUS   current
                DESCRIPTION
                    "Each entry consists of a list of parameters that
                    represents the configuration of an ADSL modem.

                    When `dynamic' profiles are implemented, a default
                    profile will always exist. This profile's name will
                    be set to `DEFVAL' and its parameters will be set
                    to vendor specific values, unless otherwise specified
                    in this document.

                    When `static' profiles are implemented, profiles
                    are automaticly created or destroyed as ADSL
                    physical lines are discovered and removed by
                    the system. The name of the profile will be
                    equivalent to the decimal value of the line's
                    interface index.
                    "
                INDEX { IMPLIED adslLineConfProfileName}
            ::= { adslLineConfProfileTable 1}

            AdslLineConfProfileEntry ::=
                SEQUENCE {
                adslLineConfProfileName   SnmpAdminString,
                adslAtucConfRateMode   INTEGER,
                adslAtucConfRateChanRatio   INTEGER,
                adslAtucConfTargetSnrMgn   INTEGER,

```
        adslAtucConfMaxSnrMgn                   INTEGER,
        adslAtucConfMinSnrMgn                   INTEGER,
        adslAtucConfDownshiftSnrMgn             INTEGER,
        adslAtucConfUpshiftSnrMgn               INTEGER,
        adslAtucConfMinUpshiftTime              INTEGER,
        adslAtucConfMinDownshiftTime            INTEGER,
        adslAtucChanConfFastMinTxRate           Unsigned32,
        adslAtucChanConfInterleaveMinTxRate     Unsigned32,
        adslAtucChanConfFastMaxTxRate           Unsigned32,
        adslAtucChanConfInterleaveMaxTxRate     Unsigned32,
        adslAtucChanConfMaxInterleaveDelay      INTEGER,
        adslAturConfRateMode                    INTEGER,
        adslAturConfRateChanRatio               INTEGER,
        adslAturConfTargetSnrMgn                INTEGER,
        adslAturConfMaxSnrMgn                   INTEGER,
        adslAturConfMinSnrMgn                   INTEGER,
        adslAturConfDownshiftSnrMgn             INTEGER,
        adslAturConfUpshiftSnrMgn               INTEGER,
        adslAturConfMinUpshiftTime              INTEGER,
        adslAturConfMinDownshiftTime            INTEGER,
        adslAturChanConfFastMinTxRate           Unsigned32,
        adslAturChanConfInterleaveMinTxRate     Unsigned32,
        adslAturChanConfFastMaxTxRate           Unsigned32,
        adslAturChanConfInterleaveMaxTxRate     Unsigned32,
        adslAturChanConfMaxInterleaveDelay      INTEGER,
        adslLineConfProfileRowStatus            RowStatus
    }

adslLineConfProfileName    OBJECT-TYPE
        SYNTAX          SnmpAdminString (SIZE (1..32))
        MAX-ACCESS      not-accessible
        STATUS          current
        DESCRIPTION
        "This object is used by the line configuration table
        in order to identify a row of this table.

        When `dynamic' profiles are implemented, the profile
        name is user specified.  Also, the system will always
        provide a default profile whose name is `DEFVAL'.

        When `static' profiles are implemented, there is an
        one-to-one relationship between each line and its
        profile.  In which case, the profile name will
        need to algorithmicly represent the Line's ifIndex.
        Therefore, the profile's name is a decimalized string
        of the ifIndex that is fixed-length (i.e., 10) with
        leading zero(s).  For example, the profile name for
        ifIndex which equals '15' will be '0000000015'."
```

```
            ::= { adslLineConfProfileEntry 1 }

        adslAtucConfRateMode OBJECT-TYPE
            SYNTAX       INTEGER {
                fixed (1),              -- no rate adaptation
                adaptAtStartup (2),     -- perform rate adaptation
                                        -- only at initialization
                adaptAtRuntime (3)      -- perform rate adaptation at
                                        -- any time
            }
            MAX-ACCESS   read-create
            STATUS       current
            DESCRIPTION
                "Defines what form of transmit rate adaptation is
                configured on this modem.  See ADSL Forum TR-005 [3]
                for more information."
        ::= { adslLineConfProfileEntry 2 }

        adslAtucConfRateChanRatio OBJECT-TYPE
            SYNTAX       INTEGER(0..100)
            UNITS        "%"
            MAX-ACCESS   read-create
            STATUS       current
            DESCRIPTION
                "Configured allocation ratio of excess transmit
                bandwidth between fast and interleaved channels.  Only
                applies when two channel mode and RADSL are supported.
                Distribute bandwidth on each channel in excess of the
                corresponding ChanConfMinTxRate so that:
                adslAtucConfRateChanRatio =

                        [Fast / (Fast + Interleaved)] * 100

                In other words this value is the fast channel
                percentage."
        ::= { adslLineConfProfileEntry 3 }

       adslAtucConfTargetSnrMgn OBJECT-TYPE
            SYNTAX       INTEGER (0..310)
            UNITS        "tenth dB"
            MAX-ACCESS   read-create
            STATUS       current
            DESCRIPTION
                "Configured Target Signal/Noise Margin.
                This is the Noise Margin the modem must achieve
                with a BER of 10-7 or better to successfully complete
                initialization."
        ::= { adslLineConfProfileEntry 4 }
```

```
     adslAtucConfMaxSnrMgn OBJECT-TYPE
          SYNTAX      INTEGER (0..310)
          UNITS       "tenth dB"
          MAX-ACCESS  read-create
          STATUS      current
          DESCRIPTION
              "Configured Maximum acceptable Signal/Noise Margin.
              If the Noise Margin is above this the modem should
              attempt to reduce its power output to optimize its
              operation."
       ::= { adslLineConfProfileEntry 5 }

     adslAtucConfMinSnrMgn  OBJECT-TYPE
          SYNTAX      INTEGER (0..310)
          UNITS       "tenth dB"
          MAX-ACCESS  read-create
          STATUS      current
          DESCRIPTION
              "Configured Minimum acceptable Signal/Noise Margin.
              If the noise margin falls below this level, the modem
              should attempt to increase its power output.  If that
              is not possible the modem will attempt to
              re-initialize or shut down."
       ::= { adslLineConfProfileEntry 6 }

     adslAtucConfDownshiftSnrMgn  OBJECT-TYPE
          SYNTAX      INTEGER (0..310)
          UNITS       "tenth dB"
          MAX-ACCESS  read-create
          STATUS      current
          DESCRIPTION
              "Configured Signal/Noise Margin for rate downshift.
              If the noise margin falls below this level, the modem
              should attempt to decrease its transmit rate.  In
              the case that RADSL mode is not present,
              the value will be `0'."
       ::= { adslLineConfProfileEntry 7 }

     adslAtucConfUpshiftSnrMgn  OBJECT-TYPE
          SYNTAX      INTEGER (0..310)
          UNITS       "tenth dB"
          MAX-ACCESS  read-create
          STATUS      current
          DESCRIPTION
              "Configured Signal/Noise Margin for rate upshift.
              If the noise margin rises above this level, the modem
              should attempt to increase its transmit rate.    In
              the case that RADSL is not present, the value will
```

```
            be `0'."
    ::= { adslLineConfProfileEntry 8 }


adslAtucConfMinUpshiftTime OBJECT-TYPE
    SYNTAX      INTEGER(0..16383)
    UNITS       "seconds"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Minimum time that the current margin is above
        UpshiftSnrMgn before an upshift occurs.
        In the case that RADSL is not present, the value will
        be `0'."
 ::= { adslLineConfProfileEntry 9 }
adslAtucConfMinDownshiftTime OBJECT-TYPE
    SYNTAX      INTEGER(0..16383)
    UNITS       "seconds"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Minimum time that the current margin is below
        DownshiftSnrMgn before a downshift occurs.
        In the case that RADSL mode is not present,
        the value will be `0'."
 ::= { adslLineConfProfileEntry 10 }


adslAtucChanConfFastMinTxRate  OBJECT-TYPE
    SYNTAX      Unsigned32
    UNITS       "bps"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Configured Minimum Transmit rate for `Fast' channels,
        in bps.  See adslAtucConfRateChanRatio for information
        regarding RADSL mode and ATUR transmit rate for
        ATUC receive rates."
 ::= { adslLineConfProfileEntry 11 }


adslAtucChanConfInterleaveMinTxRate OBJECT-TYPE
    SYNTAX      Unsigned32
    UNITS       "bps"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Configured Minimum Transmit rate for `Interleave'
        channels, in bps.  See adslAtucConfRateChanRatio for
        information regarding RADSL mode and see
        ATUR transmit rate for receive rates."
```

```
         ::= { adslLineConfProfileEntry 12 }

         adslAtucChanConfFastMaxTxRate  OBJECT-TYPE
             SYNTAX      Unsigned32
             UNITS       "bps"
             MAX-ACCESS  read-create
             STATUS      current
             DESCRIPTION
                 "Configured Maximum Transmit rate for `Fast' channels,
                 in bps.  See adslAtucConfRateChanRatio for information
                 regarding RADSL mode and see ATUR transmit rate for
                 ATUC receive rates."
         ::= { adslLineConfProfileEntry 13 }

         adslAtucChanConfInterleaveMaxTxRate OBJECT-TYPE
             SYNTAX      Unsigned32
             UNITS       "bps"
             MAX-ACCESS  read-create
             STATUS      current
             DESCRIPTION
                 "Configured Maximum Transmit rate for `Interleave'
                 channels, in bps.  See adslAtucConfRateChanRatio for
                 information regarding RADSL mode and ATUR transmit
                 rate for ATUC receive rates."
         ::= { adslLineConfProfileEntry 14 }

         adslAtucChanConfMaxInterleaveDelay OBJECT-TYPE
             SYNTAX      INTEGER(0..255)
             UNITS        "milli-seconds"
             MAX-ACCESS  read-create
             STATUS      current
             DESCRIPTION
                 "Configured maximum Interleave Delay for this channel.

                 Interleave delay applies only to the interleave channel
                 and defines the mapping (relative spacing) between
                 subsequent input bytes at the interleaver input and
                 their placement in the bit stream at the interleaver
                 output.  Larger numbers provide greater separation
                 between consecutive input bytes in the output bit
                 stream allowing for improved impulse noise immunity
                 at the expense of payload latency."
         ::= { adslLineConfProfileEntry 15 }

         adslAturConfRateMode OBJECT-TYPE
             SYNTAX      INTEGER {
                 fixed (1),              -- no rate adaptation
                 adaptAtStartup (2),     -- perform rate adaptation
```

```
                                     -- only at initialization
            adaptAtRuntime (3)      -- perform rate adaptation at
                                    -- any time
        }
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Defines what form of transmit rate adaptation is
            configured on this modem.  See ADSL Forum TR-005 [3]
            for more information."
    ::= { adslLineConfProfileEntry 16 }

    adslAturConfRateChanRatio OBJECT-TYPE
        SYNTAX      INTEGER(0..100)
        UNITS        "%"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Configured allocation ratio of excess transmit
            bandwidth between fast and interleaved channels.  Only
            applies when two channel mode and RADSL are supported.
            Distribute bandwidth on each channel in excess of the
            corresponding ChanConfMinTxRate so that:
            adslAturConfRateChanRatio =

                     [Fast / (Fast + Interleaved)] * 100

            In other words this value is the fast channel
            percentage."
    ::= { adslLineConfProfileEntry 17 }

    adslAturConfTargetSnrMgn OBJECT-TYPE
        SYNTAX      INTEGER (0..310)
        UNITS       "tenth dB"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Configured Target Signal/Noise Margin.
            This is the Noise Margin the modem must achieve
            with a BER of 10-7 or better to successfully complete
            initialization."
    ::= { adslLineConfProfileEntry 18 }

    adslAturConfMaxSnrMgn OBJECT-TYPE
        SYNTAX      INTEGER (0..310)
        UNITS       "tenth dB"
        MAX-ACCESS  read-create
        STATUS      current
```

           DESCRIPTION
               "Configured Maximum acceptable Signal/Noise Margin.
               If the Noise Margin is above this the modem should
               attempt to reduce its power output to optimize its
               operation."
        ::= { adslLineConfProfileEntry 19 }

       adslAturConfMinSnrMgn OBJECT-TYPE
           SYNTAX   INTEGER (0..310)
           UNITS   "tenth dB"
           MAX-ACCESS   read-create
           STATUS   current
           DESCRIPTION
               "Configured Minimum acceptable Signal/Noise Margin.
               If the noise margin falls below this level, the modem
               should attempt to increase its power output. If that
               is not possible the modem will attempt to
               re-initialize or shut down."
        ::= { adslLineConfProfileEntry 20 }

       adslAturConfDownshiftSnrMgn OBJECT-TYPE
           SYNTAX   INTEGER (0..310)
           UNITS   "tenth dB"
           MAX-ACCESS   read-create
           STATUS   current
           DESCRIPTION
               "Configured Signal/Noise Margin for rate downshift.
               If the noise margin falls below this level, the modem
               should attempt to decrease its transmit rate.
               In the case that RADSL mode is not present,
               the value will be `0'."
        ::= { adslLineConfProfileEntry 21 }

       adslAturConfUpshiftSnrMgn OBJECT-TYPE
           SYNTAX   INTEGER (0..310)
           UNITS   "tenth dB"
           MAX-ACCESS   read-create
           STATUS   current
           DESCRIPTION
               "Configured Signal/Noise Margin for rate upshift.
               If the noise margin rises above this level, the modem
               should attempt to increase its transmit rate.
               In the case that RADSL is not present,
               the value will be `0'."
        ::= { adslLineConfProfileEntry 22 }

       adslAturConfMinUpshiftTime OBJECT-TYPE
           SYNTAX   INTEGER(0..16383)

```
        UNITS          "seconds"
        MAX-ACCESS  read-create
        STATUS         current
        DESCRIPTION
            "Minimum time that the current margin is above
            UpshiftSnrMgn before an upshift occurs.
            In the case that RADSL is not present, the value will
            be `0'."
    ::= { adslLineConfProfileEntry 23 }

    adslAturConfMinDownshiftTime OBJECT-TYPE
        SYNTAX         INTEGER(0..16383)
        UNITS          "seconds"
        MAX-ACCESS  read-create
        STATUS         current
        DESCRIPTION
            "Minimum time that the current margin is below
            DownshiftSnrMgn before a downshift occurs.
            In the case that RADSL mode is not present,
            the value will be `0'."
    ::= { adslLineConfProfileEntry 24 }

    adslAturChanConfFastMinTxRate  OBJECT-TYPE
        SYNTAX         Unsigned32
        UNITS          "bps"
        MAX-ACCESS  read-create
        STATUS         current
        DESCRIPTION
            "Configured Minimum Transmit rate for `Fast' channels,
            in bps.  See adslAturConfRateChanRatio for information
            regarding RADSL mode and ATUC transmit rate
            for ATUR receive rates."
    ::= { adslLineConfProfileEntry 25 }

    adslAturChanConfInterleaveMinTxRate OBJECT-TYPE
        SYNTAX         Unsigned32
        UNITS          "bps"
        MAX-ACCESS  read-create
        STATUS         current
        DESCRIPTION
            "Configured Minimum Transmit rate for `Interleave'
            channels, in bps.  See adslAturConfRateChanRatio for
            information regarding RADSL mode and ATUC transmit rate
            for ATUR receive rates."
    ::= { adslLineConfProfileEntry 26 }

    adslAturChanConfFastMaxTxRate  OBJECT-TYPE
        SYNTAX         Unsigned32
```

```
        UNITS         "bps"
        MAX-ACCESS    read-create
        STATUS        current
        DESCRIPTION
            "Configured Maximum Transmit rate for `Fast' channels,
            in bps.  See adslAturConfRateChanRatio for information
            regarding RADSL mode and ATUC transmit rate
            for ATUR receive rates."
    ::= { adslLineConfProfileEntry 27 }

    adslAturChanConfInterleaveMaxTxRate OBJECT-TYPE
        SYNTAX        Unsigned32
        UNITS         "bps"
        MAX-ACCESS    read-create
        STATUS        current
        DESCRIPTION
            "Configured Maximum Transmit rate for `Interleave'
            channels, in bps.  See adslAturConfRateChanRatio for
            information regarding RADSL mode and see
            ATUC transmit rate for ATUR receive rates."
    ::= { adslLineConfProfileEntry 28 }

    adslAturChanConfMaxInterleaveDelay OBJECT-TYPE
        SYNTAX        INTEGER(0..255)
        UNITS          "milli-seconds"
        MAX-ACCESS    read-create
        STATUS        current
        DESCRIPTION
            "Configured maximum Interleave Delay for this channel.

            Interleave delay applies only to the interleave channel
            and defines the mapping (relative spacing) between
            subsequent input bytes at the interleaver input and
            their placement in the bit stream at the interleaver
            output.  Larger numbers provide greater separation
            between consecutive input bytes in the output bit
            stream allowing for improved impulse noise immunity
            at the expense of payload latency."
    ::= { adslLineConfProfileEntry 29 }

    adslLineConfProfileRowStatus 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.

          If the implementator of this MIB has chosen not
          to implement `dynamic assignment' of profiles, this
          object's MIN-ACCESS is read-only and its value
          is always to be `active'."
     ::= { adslLineConfProfileEntry 30 }

     adslLineAlarmConfProfileTable   OBJECT-TYPE
         SYNTAX   SEQUENCE OF AdslLineAlarmConfProfileEntry
         MAX-ACCESS   not-accessible
         STATUS   current
         DESCRIPTION
             "This table contains information on the ADSL line
             configuration. One entry in this table reflects a
             profile defined by a manager which can be used to
             configure the modem for a physical line"
     ::= { adslMibObjects 15}

     adslLineAlarmConfProfileEntry   OBJECT-TYPE
         SYNTAX   AdslLineAlarmConfProfileEntry
         MAX-ACCESS   not-accessible
         STATUS   current
         DESCRIPTION
             "Each entry consists of a list of parameters that
             represents the configuration of an ADSL modem.

             When `dynamic' profiles are implemented, a default
             profile will always exist. This profile's name will
             be set to `DEFVAL' and its parameters will be set to
             vendor specific values, unless otherwise specified
             in this document.

             When `static' profiles are implemented, profiles
             are automaticly created or destroyed as ADSL
             physical lines are discovered and removed by
             the system. The name of the profile will be
             equivalent to the decimal value of the line's
             interface index.
             "
         INDEX { IMPLIED adslLineAlarmConfProfileName}

```
            ::= { adslLineAlarmConfProfileTable 1}

            AdslLineAlarmConfProfileEntry ::=
                SEQUENCE {
                adslLineAlarmConfProfileName          SnmpAdminString,
                adslAtucThresh15MinLofs               INTEGER,
                adslAtucThresh15MinLoss               INTEGER,
                adslAtucThresh15MinLols               INTEGER,
                adslAtucThresh15MinLprs               INTEGER,
                adslAtucThresh15MinESs                INTEGER,
                adslAtucThreshFastRateUp              Unsigned32,
                adslAtucThreshInterleaveRateUp        Unsigned32,
                adslAtucThreshFastRateDown            Unsigned32,
                adslAtucThreshInterleaveRateDown      Unsigned32,
                adslAtucInitFailureTrapEnable         INTEGER,
                adslAturThresh15MinLofs               INTEGER,
                adslAturThresh15MinLoss               INTEGER,
                adslAturThresh15MinLprs               INTEGER,
                adslAturThresh15MinESs                INTEGER,
                adslAturThreshFastRateUp              Unsigned32,
                adslAturThreshInterleaveRateUp        Unsigned32,
                adslAturThreshFastRateDown            Unsigned32,
                adslAturThreshInterleaveRateDown      Unsigned32,
                adslLineAlarmConfProfileRowStatus     RowStatus
                }

            adslLineAlarmConfProfileName    OBJECT-TYPE
                SYNTAX          SnmpAdminString (SIZE (1..32))
                MAX-ACCESS      not-accessible
                STATUS          current
                DESCRIPTION
                    "This object is used by the line alarm configuration
                    table in order to identify a row of this table.

                    When `dynamic' profiles are implemented, the profile
                    name is user specified.  Also, the system will always
                    provide a default profile whose name is `DEFVAL'.

                    When `static' profiles are implemented, there is an
                    one-to-one relationship between each line and its
                    profile.  In which case, the profile name will
                    need to algorithmicly represent the Line's ifIndex.
                    Therefore, the profile's name is a decimalized string
                    of the ifIndex that is fixed-length (i.e., 10) with
                    leading zero(s).  For example, the profile name for
                    ifIndex which equals '15' will be '0000000015'."
            ::= { adslLineAlarmConfProfileEntry 1}
```

            adslAtucThresh15MinLofs OBJECT-TYPE
                SYNTAX   INTEGER(0..900)
                UNITS   "seconds"
                MAX-ACCESS read-create
                STATUS   current
                DESCRIPTION
                    "The number of Loss of Frame Seconds
                    encountered by an ADSL interface within any given 15
                    minutes performance data collection period, which
                    causes the SNMP agent to send an
                    adslAtucPerfLofsThreshTrap.
                    One trap will be sent per interval per interface.
                    A value of `0' will disable the trap."
            ::= { adslLineAlarmConfProfileEntry 2}

            adslAtucThresh15MinLoss OBJECT-TYPE
                SYNTAX   INTEGER(0..900)
                UNITS   "seconds"
                MAX-ACCESS read-create
                STATUS   current
                DESCRIPTION
                    "The number of Loss of Signal Seconds
                    encountered by an ADSL interface within any given 15
                    minutes performance data collection period, which
                    causes the SNMP agent to send an
                    adslAtucPerfLossThreshTrap.
                    One trap will be sent per interval per interface.
                    A value of `0' will disable the trap."
            ::= { adslLineAlarmConfProfileEntry 3}

            adslAtucThresh15MinLols OBJECT-TYPE
                SYNTAX   INTEGER(0..900)
                UNITS   "seconds"
                MAX-ACCESS read-create
                STATUS   current
                DESCRIPTION
                    "The number of Loss of Link Seconds
                    encountered by an ADSL interface within any given 15
                    minutes performance data collection period, which
                    causes the SNMP agent to send an
                    adslAtucPerfLolsThreshTrap.
                    One trap will be sent per interval per interface.
                    A value of `0' will disable the trap."
            ::= { adslLineAlarmConfProfileEntry 4}

            adslAtucThresh15MinLprs OBJECT-TYPE
                SYNTAX   INTEGER(0..900)
                UNITS   "seconds"

```
       MAX-ACCESS  read-create
       STATUS      current
       DESCRIPTION
           "The number of Loss of Power Seconds
           encountered by an ADSL interface within any given 15
           minutes performance data collection period, which
           causes the SNMP agent to send an
           adslAtucPerfLprsThreshTrap.
           One trap will be sent per interval per interface.
           A value of `0' will disable the trap."
   ::= { adslLineAlarmConfProfileEntry 5}

   adslAtucThresh15MinESs  OBJECT-TYPE
       SYNTAX      INTEGER(0..900)
       UNITS       "seconds"
       MAX-ACCESS  read-create
       STATUS      current
       DESCRIPTION
           "The number of Errored Seconds
           encountered by an ADSL interface within any given 15
           minutes performance data collection period, which
           causes the SNMP agent to send an
           adslAtucPerfESsThreshTrap.
           One trap will be sent per interval per interface.
           A value of `0' will disable the trap."
   ::= { adslLineAlarmConfProfileEntry 6}

   adslAtucThreshFastRateUp OBJECT-TYPE
       SYNTAX      Unsigned32
       UNITS       "bps"
       MAX-ACCESS  read-create
       STATUS      current
       DESCRIPTION
           "Applies to `Fast' channels only.
           Configured change in rate causing an
           adslAtucRateChangeTrap. A trap is produced when:
           ChanCurrTxRate >= ChanPrevTxRate plus the value of
           this object. A value of `0' will disable the trap."
   ::= { adslLineAlarmConfProfileEntry 7}

   adslAtucThreshInterleaveRateUp OBJECT-TYPE
       SYNTAX      Unsigned32
       UNITS       "bps"
       MAX-ACCESS  read-create
       STATUS      current
       DESCRIPTION
           "Applies to `Interleave' channels only.
           Configured change in rate causing an
```

```
            adslAtucRateChangeTrap.  A trap is produced when:
            ChanCurrTxRate >= ChanPrevTxRate plus the value of
            this object. A value of `0' will disable the trap."
    ::= { adslLineAlarmConfProfileEntry 8}

    adslAtucThreshFastRateDown OBJECT-TYPE
        SYNTAX      Unsigned32
        UNITS       "bps"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Applies to `Fast' channels only.
            Configured change in rate causing an
            adslAtucRateChangeTrap.  A trap is produced when:
            ChanCurrTxRate <= ChanPrevTxRate minus the value of
            this object. A value of `0' will disable the trap."
    ::= { adslLineAlarmConfProfileEntry 9 }

    adslAtucThreshInterleaveRateDown OBJECT-TYPE
        SYNTAX      Unsigned32
        UNITS       "bps"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Applies to `Interleave' channels only.
            Configured change in rate causing an
            adslAtucRateChangeTrap.  A trap is produced when:
            ChanCurrTxRate <= ChanPrevTxRate minus the value of
            this object. A value of `0' will disable the trap."
    ::= { adslLineAlarmConfProfileEntry 10 }

    adslAtucInitFailureTrapEnable OBJECT-TYPE
        SYNTAX      INTEGER {
            enable (1),
            disable (2)
        }
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "Enables and disables the InitFailureTrap.  This
            object is defaulted disable(2)."
    DEFVAL { disable }
    ::= { adslLineAlarmConfProfileEntry 11 }

    adslAturThresh15MinLofs OBJECT-TYPE
        SYNTAX      INTEGER(0..900)
        UNITS       "seconds"
        MAX-ACCESS  read-create
```

```
        STATUS      current
        DESCRIPTION
            "The number of Loss of Frame Seconds
            encountered by an ADSL interface within any given 15
            minutes performance data collection period, which
            causes the SNMP agent to send an
            adslAturPerfLofsThreshTrap.
            One trap will be sent per interval per interface.
            A value of `0' will disable the trap."
    ::= { adslLineAlarmConfProfileEntry 12 }

    adslAturThresh15MinLoss  OBJECT-TYPE
        SYNTAX      INTEGER(0..900)
        UNITS       "seconds"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The number of Loss of Signal Seconds
            encountered by an ADSL interface within any given 15
            minutes performance data collection period, which
            causes the SNMP agent to send an
            adslAturPerfLossThreshTrap.
            One trap will be sent per interval per interface.
            A value of `0' will disable the trap."
    ::= { adslLineAlarmConfProfileEntry 13 }

    adslAturThresh15MinLprs  OBJECT-TYPE
        SYNTAX      INTEGER(0..900)
        UNITS       "seconds"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The number of Loss of Power Seconds
            encountered by an ADSL interface within any given 15
            minutes performance data collection period, which
            causes the SNMP agent to send an
            adslAturPerfLprsThreshTrap.
            One trap will be sent per interval per interface.
            A value of `0' will disable the trap."
    ::= { adslLineAlarmConfProfileEntry 14 }

    adslAturThresh15MinESs  OBJECT-TYPE
        SYNTAX      INTEGER(0..900)
        UNITS       "seconds"
        MAX-ACCESS  read-create
        STATUS      current
        DESCRIPTION
            "The number of Errored Seconds
```

```
                  encountered by an ADSL interface within any given 15
                  minutes performance data collection period, which
                  causes the SNMP agent to send an
                  adslAturPerfESsThreshTrap.
                  One trap will be sent per interval per interface.
                  A value of `0' will disable the trap."
            ::= { adslLineAlarmConfProfileEntry 15 }

            adslAturThreshFastRateUp OBJECT-TYPE
                SYNTAX      Unsigned32
                UNITS       "bps"
                MAX-ACCESS  read-create
                STATUS      current
                DESCRIPTION
                    "Applies to `Fast' channels only.
                    Configured change in rate causing an
                    adslAturRateChangeTrap.  A trap is produced when:
                    ChanCurrTxRate >= ChanPrevTxRate plus the value of
                    this object. A value of `0' will disable the trap."
            ::= { adslLineAlarmConfProfileEntry 16 }

            adslAturThreshInterleaveRateUp OBJECT-TYPE
                SYNTAX      Unsigned32
                UNITS       "bps"
                MAX-ACCESS  read-create
                STATUS      current
                DESCRIPTION
                    "Applies to `Interleave' channels only.
                    configured change in rate causing an
                    adslAturRateChangeTrap.  A trap is produced when:
                    ChanCurrTxRate >= ChanPrevTxRate plus the value of
                    this object. A value of `0' will disable the trap."
            ::= { adslLineAlarmConfProfileEntry 17 }

            adslAturThreshFastRateDown OBJECT-TYPE
                SYNTAX      Unsigned32
                UNITS       "bps"
                MAX-ACCESS  read-create
                STATUS      current
                DESCRIPTION
                    "Applies to `Fast' channels only.
                    Configured change in rate causing an
                    adslAturRateChangeTrap.  A trap is produced when:
                    ChanCurrTxRate <= ChanPrevTxRate minus the value of
                    this object. A value of `0' will disable the trap."
            ::= { adslLineAlarmConfProfileEntry 18 }

            adslAturThreshInterleaveRateDown OBJECT-TYPE
```

```
            SYNTAX      Unsigned32
            UNITS       "bps"
            MAX-ACCESS  read-create
            STATUS      current
            DESCRIPTION
                "Applies to `Interleave' channels only.
                Configured change in rate causing an
                adslAturRateChangeTrap.  A trap is produced when:
                ChanCurrTxRate <= ChanPrevTxRate minus the value of
                this object. A value of `0' will disable the trap."
        ::= { adslLineAlarmConfProfileEntry 19 }

        adslLineAlarmConfProfileRowStatus 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.

                If the implementator of this MIB has chosen not
                to implement `dynamic assignment' of profiles, this
                object's MIN-ACCESS is read-only and its value
                is always to be `active'."
        ::= { adslLineAlarmConfProfileEntry 20 }

        -- Line Code Specific Tables

        -- These are place holders for the Line Code Specific MIBs
        -- once they become available.

        adslLCSMib  OBJECT IDENTIFIER ::= { adslMibObjects 16 }

    -- trap definitions

    adslTraps OBJECT IDENTIFIER ::= { adslLineMib 2 }

    adslAtucTraps OBJECT IDENTIFIER ::= { adslTraps 1 }
```

```
adslAtucPerfLofsThreshTrap     NOTIFICATION-TYPE
    OBJECTS { adslAtucPerfCurr15MinLofs,
              adslAtucThresh15MinLofs }
    STATUS  current
    DESCRIPTION
        "Loss of Framing 15-minute interval threshold reached."
::= { adslAtucTraps 0 1 }

adslAtucPerfLossThreshTrap     NOTIFICATION-TYPE
    OBJECTS { adslAtucPerfCurr15MinLoss,
              adslAtucThresh15MinLoss }
    STATUS  current
    DESCRIPTION
        "Loss of Signal 15-minute interval threshold reached."
::= { adslAtucTraps 0 2 }

adslAtucPerfLprsThreshTrap     NOTIFICATION-TYPE
    OBJECTS { adslAtucPerfCurr15MinLprs,
              adslAtucThresh15MinLprs }
    STATUS  current
    DESCRIPTION
        "Loss of Power 15-minute interval threshold reached."
::= { adslAtucTraps 0 3 }

adslAtucPerfESsThreshTrap      NOTIFICATION-TYPE
    OBJECTS { adslAtucPerfCurr15MinESs,
              adslAtucThresh15MinESs }
    STATUS  current
    DESCRIPTION
        "Errored Second 15-minute interval threshold reached."
::= { adslAtucTraps 0 4 }

adslAtucRateChangeTrap  NOTIFICATION-TYPE
    OBJECTS { adslAtucChanCurrTxRate,
              adslAtucChanPrevTxRate }
    STATUS  current
    DESCRIPTION
        "The ATUCs transmit rate has changed (RADSL mode only)"
::= { adslAtucTraps 0 5 }

adslAtucPerfLolsThreshTrap     NOTIFICATION-TYPE
    OBJECTS { adslAtucPerfCurr15MinLols,
              adslAtucThresh15MinLols }
    STATUS  current
    DESCRIPTION
        "Loss of Link 15-minute interval threshold reached."
::= { adslAtucTraps 0 6 }
```

        adslAtucInitFailureTrap NOTIFICATION-TYPE
            OBJECTS { adslAtucCurrStatus }
            STATUS current
            DESCRIPTION
                "ATUC initialization failed. See adslAtucCurrStatus
                for potential reasons."
        ::= { adslAtucTraps 0 7 }

    adslAturTraps OBJECT IDENTIFIER ::= { adslTraps 2 }

        adslAturPerfLofsThreshTrap   NOTIFICATION-TYPE
            OBJECTS { adslAturPerfCurr15MinLofs,
                      adslAturThresh15MinLofs }
            STATUS current
            DESCRIPTION
                "Loss of Framing 15-minute interval threshold reached."
        ::= { adslAturTraps 0 1 }

        adslAturPerfLossThreshTrap   NOTIFICATION-TYPE
            OBJECTS { adslAturPerfCurr15MinLoss,
                      adslAturThresh15MinLoss }
            STATUS current
            DESCRIPTION
                "Loss of Signal 15-minute interval threshold reached."
        ::= { adslAturTraps 0 2 }

        adslAturPerfLprsThreshTrap   NOTIFICATION-TYPE
            OBJECTS { adslAturPerfCurr15MinLprs,
                      adslAturThresh15MinLprs }
            STATUS current
            DESCRIPTION
                "Loss of Power 15-minute interval threshold reached."
        ::= { adslAturTraps 0 3 }

        adslAturPerfESsThreshTrap   NOTIFICATION-TYPE
            OBJECTS { adslAturPerfCurr15MinESs,
                      adslAturThresh15MinESs }
            STATUS current
            DESCRIPTION
                "Errored Second 15-minute interval threshold reached."
        ::= { adslAturTraps 0 4 }

        adslAturRateChangeTrap NOTIFICATION-TYPE
            OBJECTS { adslAturChanCurrTxRate,
                      adslAturChanPrevTxRate }
            STATUS current
            DESCRIPTION
                "The ATURs transmit rate has changed (RADSL mode only)"

```
        ::= { adslAturTraps 0 5 }

        -- no adslAturPerfLolsThreshTrap possible { 0 6 }

        -- no adslAturInitFailureTrap possible { 0 7 }

   -- conformance information

   adslConformance OBJECT IDENTIFIER ::= { adslLineMib 3 }

   adslGroups OBJECT IDENTIFIER ::= { adslConformance 1 }
   adslCompliances OBJECT IDENTIFIER ::= { adslConformance 2 }

        -- ATU-C agent compliance statements

        adslLineMibAtucCompliance MODULE-COMPLIANCE
            STATUS  current
            DESCRIPTION
                "The compliance statement for SNMP entities
                 which manage ADSL ATU-C interfaces."

            MODULE  -- this module
            MANDATORY-GROUPS
               {
               adslLineGroup, adslPhysicalGroup, adslChannelGroup,
               adslAtucPhysPerfIntervalGroup,
               adslAturPhysPerfIntervalGroup, adslLineConfProfileGroup,
               adslLineAlarmConfProfileGroup,
               adslLineConfProfileControlGroup
               }

            GROUP        adslAtucPhysPerfRawCounterGroup
            DESCRIPTION
                "This group is optional.  Implementations which
                 require continuous ATU-C physical event counters
                 should implement this group."

            GROUP        adslAturPhysPerfRawCounterGroup
            DESCRIPTION
                "This group is optional.  Implementations which
                 require continuous ATU-R physical event counters
                 should implement this group."

            GROUP        adslAtucChanPerformanceGroup
            DESCRIPTION
                "This group is optional.  Implementations which
                 require ATU-C channel block event counters should
                 implement this group."
```

```
                GROUP         adslAturChanPerformanceGroup
                DESCRIPTION
                    "This group is optional.  Implementations which
                     require ATU-R channel block event counters should
                     implement this group."

                OBJECT        adslLineConfProfile
                MIN-ACCESS  read-only
                DESCRIPTION
                    "Read-only access is applicable when static
                     profiles are implemented."

                OBJECT        adslAtucConfRateMode
                MIN-ACCESS  read-write
                DESCRIPTION
                    "Read-write access is applicable when
                     static profiles are implemented."

                OBJECT        adslAtucConfRateChanRatio
                MIN-ACCESS  read-write
                DESCRIPTION
                    "Read-write access is applicable when
                     static profiles are implemented."

                OBJECT        adslAtucConfTargetSnrMgn
                MIN-ACCESS  read-write
                DESCRIPTION
                    "Read-write access is applicable when
                     static profiles are implemented."

                OBJECT        adslAtucConfMaxSnrMgn
                MIN-ACCESS  read-write
                DESCRIPTION
                    "Read-write access is applicable when
                     static profiles are implemented."

                OBJECT        adslAtucConfMinSnrMgn
                MIN-ACCESS  read-wr
                MIN-ACCESS  read-write
                DESCRIPTION
                    "Read-write access is applicable when
                     static profiles are implemented."

                OBJECT        adslAtucConfDownshiftSnrMgn
                MIN-ACCESS  read-write
                DESCRIPTION
                    "Read-write access is applicable when
                     static profiles are implemented."
```

```
            OBJECT      adslAtucConfUpshiftSnrMgn
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucConfMinUpshiftTime
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucConfMinDownshiftTime
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucChanConfFastMinTxRate
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucChanConfInterleaveMinTxRate
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucChanConfFastMaxTxRate
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucChanConfInterleaveMaxTxRate
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT      adslAtucChanConfMaxInterleaveDelay
            MIN-ACCESS  read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."
```

```
            OBJECT       adslAturConfRateMode
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslAturConfRateChanRatio
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslAturConfTargetSnrMgn
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslAturConfMaxSnrMgn
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslAturConfMinSnrMgn
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslAturConfDownshiftSnrMgn
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslAturConfUpshiftSnrMgn
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslAturConfMinUpshiftTime
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."
```

```
            OBJECT       adslAturConfMinDownshiftTime
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslAturChanConfFastMinTxRate
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslAturChanConfInterleaveMinTxRate
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslAturChanConfFastMaxTxRate
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslAturChanConfInterleaveMaxTxRate
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslAturChanConfMaxInterleaveDelay
            MIN-ACCESS   read-write
            DESCRIPTION
                "Read-write access is applicable when
                 static profiles are implemented."

            OBJECT       adslLineConfProfileRowStatus
            MIN-ACCESS   read-only
            DESCRIPTION
                "Read-only access is applicable only when static
                 profiles are implemented."

            OBJECT       adslLineAlarmConfProfile
            MIN-ACCESS   read-only
            DESCRIPTION
                "Read-only access is applicable only when static
                 profiles are implemented."
```

```
        OBJECT       adslAtucThresh15MinLofs
        MIN-ACCESS   read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT       adslAtucThresh15MinLoss
        MIN-ACCESS   read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT       adslAtucThresh15MinLols
        MIN-ACCESS   read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT       adslAtucThresh15MinLprs
        MIN-ACCESS   read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT       adslAtucThresh15MinESs
        MIN-ACCESS   read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT       adslAtucThreshFastRateUp
        MIN-ACCESS   read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT       adslAtucThreshInterleaveRateUp
        MIN-ACCESS   read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT       adslAtucThreshFastRateDown
        MIN-ACCESS   read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."
```

```
           OBJECT      adslAtucThreshInterleaveRateDown
           MIN-ACCESS  read-write
           DESCRIPTION
               "Read-write access is applicable when
                static profiles are implemented."

           OBJECT      adslAtucInitFailureTrapEnable
           MIN-ACCESS  read-write
           DESCRIPTION
               "Read-write access is applicable when
                static profiles are implemented."

           OBJECT      adslAturThresh15MinLofs
           MIN-ACCESS  read-write
           DESCRIPTION
               "Read-write access is applicable when
                static profiles are implemented."

           OBJECT      adslAturThresh15MinLoss
           MIN-ACCESS  read-write
           DESCRIPTION
               "Read-write access is applicable when
                static profiles are implemented."

           OBJECT      adslAturThresh15MinLprs
           MIN-ACCESS  read-write
           DESCRIPTION
               "Read-write access is applicable when
                static profiles are implemented."

           OBJECT      adslAturThresh15MinESs
           MIN-ACCESS  read-write
           DESCRIPTION
               "Read-write access is applicable when
                static profiles are implemented."

           OBJECT      adslAturThreshFastRateUp
           MIN-ACCESS  read-write
           DESCRIPTION
               "Read-write access is applicable when
                static profiles are implemented."

           OBJECT      adslAturThreshInterleaveRateUp
           MIN-ACCESS  read-write
           DESCRIPTION
               "Read-write access is applicable when
                static profiles are implemented."
```

```
        OBJECT      adslAturThreshFastRateDown
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslAturThreshInterleaveRateDown
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslLineAlarmConfProfileRowStatus
        MIN-ACCESS  read-only
        DESCRIPTION
            "Read-only access is applicable only when static
             profiles are implemented."

    ::= { adslCompliances 1 }

    -- ATU-R agent compliance statements

    adslLineMibAturCompliance MODULE-COMPLIANCE
        STATUS  current
        DESCRIPTION
            "The compliance statement for SNMP entities
             which manage ADSL ATU-R interfaces."

        MODULE  -- this module
        MANDATORY-GROUPS
            {
            adslAturLineGroup, adslAturPhysicalGroup,
            adslAturChannelGroup,
            adslAturAtucPhysPerfIntervalGroup,
            adslAturAturPhysPerfIntervalGroup,
            adslAturLineAlarmConfProfileGroup,
            adslAturLineConfProfileControlGroup
            }

        GROUP       adslAturAtucPhysPerfRawCounterGroup
        DESCRIPTION
            "This group is optional.  Implementations which
             require continuous ATU-C physical event counters
             should implement this group."

        GROUP       adslAturAturPhysPerfRawCounterGroup
        DESCRIPTION
            "This group is optional.  Implementations which
```

```
            require continuous ATU-R physical event counters
            should implement this group."

    GROUP        adslAturAtucChanPerformanceGroup
    DESCRIPTION
        "This group is optional.  Implementations which
         require ATU-C channel block event counters should
         implement this group."

    GROUP        adslAturAturChanPerformanceGroup
    DESCRIPTION
        "This group is optional.  Implementations which
         require ATU-R channel block event counters should
         implement this group."

    OBJECT       adslLineAlarmConfProfile
    MIN-ACCESS   read-only
    DESCRIPTION
        "Read-only access is applicable only when static
         profiles are implemented."

    OBJECT       adslAtucThresh15MinLofs
    MIN-ACCESS   read-write
    DESCRIPTION
        "Read-write access is applicable when
         static profiles are implemented."

    OBJECT       adslAtucThresh15MinLoss
    MIN-ACCESS   read-write
    DESCRIPTION
        "Read-write access is applicable when
         static profiles are implemented."

    OBJECT       adslAtucThresh15MinESs
    MIN-ACCESS   read-write
    DESCRIPTION
        "Read-write access is applicable when
         static profiles are implemented."

    OBJECT       adslAtucThreshFastRateUp
    MIN-ACCESS   read-write
    DESCRIPTION
        "Read-write access is applicable when
         static profiles are implemented."

    OBJECT       adslAtucThreshInterleaveRateUp
    MIN-ACCESS   read-write
    DESCRIPTION
```

         "Read-write access is applicable when
          static profiles are implemented."

     OBJECT   adslAtucThreshFastRateDown
     MIN-ACCESS read-write
     DESCRIPTION
         "Read-write access is applicable when
          static profiles are implemented."

     OBJECT   adslAtucInitFailureTrapEnable
     MIN-ACCESS read-write

     DESCRIPTION
         "Read-write access is applicable when
          static profiles are implemented."

     OBJECT   adslAturThresh15MinLofs
     MIN-ACCESS read-write
     DESCRIPTION
         "Read-write access is applicable when
          static profiles are implemented."

     OBJECT   adslAturThresh15MinLoss
     MIN-ACCESS read-write
     DESCRIPTION
         "Read-write access is applicable when
          static profiles are implemented."

     OBJECT   adslAturThresh15MinLprs
     MIN-ACCESS read-write
     DESCRIPTION
         "Read-write access is applicable when
          static profiles are implemented."

     OBJECT   adslAturThresh15MinESs
     MIN-ACCESS read-write
     DESCRIPTION
         "Read-write access is applicable when
          static profiles are implemented."

     OBJECT   adslAturThreshFastRateUp
     MIN-ACCESS read-write
     DESCRIPTION
         "Read-write access is applicable when
          static profiles are implemented."

     OBJECT   adslAturThreshInterleaveRateUp
     MIN-ACCESS read-write

```
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslAturThreshFastRateDown
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslAturThreshInterleaveRateDown
        MIN-ACCESS  read-write
        DESCRIPTION
            "Read-write access is applicable when
             static profiles are implemented."

        OBJECT      adslLineAlarmConfProfileRowStatus
        MIN-ACCESS  read-only
        DESCRIPTION
            "Read-only access is applicable only when static
             profiles are implemented."

        OBJECT     adslAtucCurrStatus
        SYNTAX   BITS {
                    noDefect(0),
                    lossOfFraming(1),
                    lossOfSignal(2)
                  }
        DESCRIPTION
            "It is allowable to implement only noDefect(0),
            lossOfFraming(1) and lossOfSignal(2) by the ATU-R
            agent."

    ::= { adslCompliances 2 }

    -- units of conformance
    adslLineGroup    OBJECT-GROUP
        OBJECTS {
            adslLineCoding, adslLineType, adslLineSpecific
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing configuration
            information about an ADSL Line."
    ::= { adslGroups 1 }

    adslPhysicalGroup    OBJECT-GROUP
        OBJECTS {
```

```
            adslAtucInvSerialNumber, adslAtucInvVendorID,
            adslAtucInvVersionNumber, adslAtucCurrSnrMgn,
            adslAtucCurrAtn, adslAtucCurrStatus,
            adslAtucCurrOutputPwr, adslAtucCurrAttainableRate,
            adslAturInvSerialNumber, adslAturInvVendorID,
            adslAturInvVersionNumber, adslAturCurrSnrMgn,
            adslAturCurrAtn, adslAturCurrStatus,
            adslAturCurrOutputPwr, adslAturCurrAttainableRate
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing physical
            configuration information of the ADSL Line."
    ::= { adslGroups 2 }

    adslChannelGroup    OBJECT-GROUP
        OBJECTS {
            adslAtucChanInterleaveDelay, adslAtucChanCurrTxRate,
            adslAtucChanPrevTxRate, adslAtucChanCrcBlockLength,
            adslAturChanInterleaveDelay, adslAturChanCurrTxRate,
            adslAturChanPrevTxRate, adslAturChanCrcBlockLength
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing configuration
            information about an ADSL channel."
    ::= { adslGroups 3 }

    adslAtucPhysPerfRawCounterGroup OBJECT-GROUP
        OBJECTS {
            adslAtucPerfLofs, adslAtucPerfLoss,
            adslAtucPerfLols, adslAtucPerfLprs,
            adslAtucPerfESs, adslAtucPerfInits
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing raw performance
            counts on an ADSL Line (ATU-C end)."
    ::= { adslGroups 4 }

    adslAtucPhysPerfIntervalGroup OBJECT-GROUP
        OBJECTS {
            adslAtucPerfValidIntervals,
            adslAtucPerfInvalidIntervals,
            adslAtucPerfCurr15MinTimeElapsed,
            adslAtucPerfCurr15MinLofs, adslAtucPerfCurr15MinLoss,
            adslAtucPerfCurr15MinLols, adslAtucPerfCurr15MinLprs,
            adslAtucPerfCurr15MinESs, adslAtucPerfCurr15MinInits,
```

```
            adslAtucPerfCurr1DayLofs, adslAtucPerfCurr1DayLoss,
            adslAtucPerfCurr1DayLols, adslAtucPerfCurr1DayLprs,
            adslAtucPerfCurr1DayESs, adslAtucPerfCurr1DayInits,
            adslAtucPerfPrev1DayMoniSecs,
            adslAtucPerfPrev1DayLofs, adslAtucPerfPrev1DayLoss,
            adslAtucPerfPrev1DayLols, adslAtucPerfPrev1DayLprs,
            adslAtucPerfPrev1DayESs, adslAtucPerfPrev1DayInits,
            adslAtucIntervalLofs, adslAtucIntervalLoss,
            adslAtucIntervalLols, adslAtucIntervalLprs,
            adslAtucIntervalESs, adslAtucIntervalInits,
            adslAtucIntervalValidData
            }

        STATUS      current
        DESCRIPTION
            "A collection of objects providing current 15-minute,
             1-day; and previous 1-day performance counts on
             ADSL Line (ATU-C end) ."
    ::= { adslGroups 5 }

    adslAturPhysPerfRawCounterGroup OBJECT-GROUP
        OBJECTS {
            adslAturPerfLofs, adslAturPerfLoss,
            adslAturPerfLprs, adslAturPerfESs
            }
        STATUS      current
        DESCRIPTION
            "A collection of objects providing raw performance
             counts on an ADSL Line (ATU-R end)."
    ::= { adslGroups 6 }

    adslAturPhysPerfIntervalGroup OBJECT-GROUP
        OBJECTS {
            adslAturPerfValidIntervals,
            adslAturPerfInvalidIntervals,
            adslAturPerfCurr15MinTimeElapsed,
            adslAturPerfCurr15MinLofs, adslAturPerfCurr15MinLoss,
            adslAturPerfCurr15MinLprs, adslAturPerfCurr15MinESs,
            adslAturPerfCurr1DayTimeElapsed,
            adslAturPerfCurr1DayLofs, adslAturPerfCurr1DayLoss,
            adslAturPerfCurr1DayLprs, adslAturPerfCurr1DayESs,
            adslAturPerfPrev1DayMoniSecs,
            adslAturPerfPrev1DayLofs, adslAturPerfPrev1DayLoss,
            adslAturPerfPrev1DayLprs, adslAturPerfPrev1DayESs,
            adslAturIntervalLofs,
            adslAturIntervalLoss, adslAturIntervalLprs,
            adslAturIntervalESs, adslAturIntervalValidData
            }
```

```
        STATUS      current
        DESCRIPTION
            "A collection of objects providing current 15-minute,
             1-day; and previous 1-day performance counts on
             ADSL Line (ATU-R end)."
    ::= { adslGroups 7 }

    adslAtucChanPerformanceGroup OBJECT-GROUP
        OBJECTS {
            adslAtucChanReceivedBlks,
            adslAtucChanTransmittedBlks,
            adslAtucChanCorrectedBlks,
            adslAtucChanUncorrectBlks,
            adslAtucChanPerfValidIntervals,
            adslAtucChanPerfInvalidIntervals,
            adslAtucChanPerfCurr15MinTimeElapsed,
            adslAtucChanPerfCurr15MinReceivedBlks,
            adslAtucChanPerfCurr15MinTransmittedBlks,
            adslAtucChanPerfCurr15MinCorrectedBlks,
            adslAtucChanPerfCurr15MinUncorrectBlks,
            adslAtucChanPerfCurr1DayTimeElapsed,
            adslAtucChanPerfCurr1DayReceivedBlks,
            adslAtucChanPerfCurr1DayTransmittedBlks,
            adslAtucChanPerfCurr1DayCorrectedBlks,
            adslAtucChanPerfCurr1DayUncorrectBlks,
            adslAtucChanPerfPrev1DayMoniSecs,
            adslAtucChanPerfPrev1DayReceivedBlks,
            adslAtucChanPerfPrev1DayTransmittedBlks,
            adslAtucChanPerfPrev1DayCorrectedBlks,
            adslAtucChanPerfPrev1DayUncorrectBlks,
            adslAtucChanIntervalReceivedBlks,
            adslAtucChanIntervalTransmittedBlks,
            adslAtucChanIntervalCorrectedBlks,
            adslAtucChanIntervalUncorrectBlks,
            adslAtucChanIntervalValidData
            }
        STATUS      current
        DESCRIPTION
            "A collection of objects providing channel block
             performance information on an ADSL channel
             (ATU-C end)."
    ::= { adslGroups 8 }

    adslAturChanPerformanceGroup OBJECT-GROUP
        OBJECTS {
            adslAturChanReceivedBlks,
            adslAturChanTransmittedBlks,
            adslAturChanCorrectedBlks,
```

```
            adslAturChanUncorrectBlks,
            adslAturChanPerfValidIntervals,
            adslAturChanPerfInvalidIntervals,
            adslAturChanPerfCurr15MinTimeElapsed,
            adslAturChanPerfCurr15MinReceivedBlks,
            adslAturChanPerfCurr15MinTransmittedBlks,
            adslAturChanPerfCurr15MinCorrectedBlks,
            adslAturChanPerfCurr15MinUncorrectBlks,
            adslAturChanPerfCurr1DayTimeElapsed,
            adslAturChanPerfCurr1DayReceivedBlks,
            adslAturChanPerfCurr1DayTransmittedBlks,
            adslAturChanPerfCurr1DayCorrectedBlks,
            adslAturChanPerfCurr1DayUncorrectBlks,
            adslAturChanPerfPrev1DayMoniSecs,
            adslAturChanPerfPrev1DayReceivedBlks,
            adslAturChanPerfPrev1DayTransmittedBlks,
            adslAturChanPerfPrev1DayCorrectedBlks,
            adslAturChanPerfPrev1DayUncorrectBlks,
            adslAturChanIntervalReceivedBlks,
            adslAturChanIntervalTransmittedBlks,
            adslAturChanIntervalCorrectedBlks,
            adslAturChanIntervalUncorrectBlks,
            adslAturChanIntervalValidData
            }
        STATUS      current
        DESCRIPTION
            "A collection of objects providing channel block
             performance information on an ADSL channel
             (ATU-C end)."
        ::= { adslGroups 9 }

    adslLineConfProfileGroup OBJECT-GROUP
        OBJECTS {
            adslAtucConfRateMode, adslAtucConfRateChanRatio,
            adslAtucConfTargetSnrMgn, adslAtucConfMaxSnrMgn,
            adslAtucConfMinSnrMgn,
            adslAtucConfDownshiftSnrMgn,
            adslAtucConfUpshiftSnrMgn,
            adslAtucConfMinUpshiftTime,
            adslAtucConfMinDownshiftTime,
            adslAtucChanConfFastMinTxRate,
            adslAtucChanConfInterleaveMinTxRate,
            adslAtucChanConfFastMaxTxRate,
            adslAtucChanConfInterleaveMaxTxRate,
            adslAtucChanConfMaxInterleaveDelay,
            adslAturConfRateMode, adslAturConfRateChanRatio,
            adslAturConfTargetSnrMgn, adslAturConfMaxSnrMgn,
            adslAturConfMinSnrMgn, adslAturConfDownshiftSnrMgn,
```

```
            adslAturConfUpshiftSnrMgn,
            adslAturConfMinUpshiftTime,
            adslAturConfMinDownshiftTime,
            adslAturChanConfFastMinTxRate,
            adslAturChanConfInterleaveMinTxRate,
            adslAturChanConfFastMaxTxRate,
            adslAturChanConfInterleaveMaxTxRate,
            adslAturChanConfMaxInterleaveDelay
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing provisioning
             information about an ADSL Line."
        ::= { adslGroups 10 }

    adslLineAlarmConfProfileGroup OBJECT-GROUP
        OBJECTS {
            adslAtucThresh15MinLofs, adslAtucThresh15MinLoss,
            adslAtucThresh15MinLols, adslAtucThresh15MinLprs,
            adslAtucThresh15MinESs, adslAtucThreshFastRateUp,
            adslAtucThreshInterleaveRateUp,
            adslAtucThreshFastRateDown,
            adslAtucThreshInterleaveRateDown,
            adslAtucInitFailureTrapEnable,
            adslAturThresh15MinLofs, adslAturThresh15MinLoss,
            adslAturThresh15MinLprs, adslAturThresh15MinESs,
            adslAturThreshFastRateUp,
            adslAturThreshInterleaveRateUp,
            adslAturThreshFastRateDown,
            adslAturThreshInterleaveRateDown
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing alarm provisioning
             information about an ADSL Line."
        ::= { adslGroups 11 }

    adslLineConfProfileControlGroup OBJECT-GROUP
        OBJECTS {
            adslLineConfProfile, adslLineAlarmConfProfile,
            adslLineConfProfileRowStatus,
            adslLineAlarmConfProfileRowStatus
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing profile
             control for the ADSL system."
        ::= { adslGroups 12 }
```

         adslNotificationsGroup NOTIFICATION-GROUP
            NOTIFICATIONS {
               adslAtucPerfLofsThreshTrap,
               adslAtucPerfLossThreshTrap,
               adslAtucPerfLprsThreshTrap,
               adslAtucPerfESsThreshTrap,
               adslAtucRateChangeTrap,
               adslAtucPerfLolsThreshTrap,
               adslAtucInitFailureTrap,
               adslAturPerfLofsThreshTrap,
               adslAturPerfLossThreshTrap,
               adslAturPerfLprsThreshTrap,
               adslAturPerfESsThreshTrap,
               adslAturRateChangeTrap
               }
            STATUS   current
            DESCRIPTION
               "The collection of adsl notifications."
         ::= { adslGroups 13 }

   -- units of conformance for ATU-R agent

         adslAturLineGroup   OBJECT-GROUP
            OBJECTS {
               adslLineCoding
               }
            STATUS   current
            DESCRIPTION
               "A collection of objects providing configuration
               information about an ADSL Line on the ATU-R side."
         ::= { adslGroups 14 }

         adslAturPhysicalGroup   OBJECT-GROUP
            OBJECTS {
               adslAtucInvVendorID,
               adslAtucInvVersionNumber,
               adslAtucCurrOutputPwr, adslAtucCurrAttainableRate,
               adslAturInvSerialNumber, adslAturInvVendorID,
               adslAturInvVersionNumber, adslAturCurrSnrMgn,
               adslAturCurrAtn, adslAturCurrStatus,
               adslAturCurrOutputPwr, adslAturCurrAttainableRate,
               adslAtucCurrStatus
               }
            STATUS   current
            DESCRIPTION
               "A collection of objects providing physical
               configuration information of the ADSL Line on the
               ATU-R side."

```
            ::= { adslGroups 15 }

            adslAturChannelGroup    OBJECT-GROUP
                OBJECTS {
                    adslAtucChanInterleaveDelay, adslAtucChanCurrTxRate,
                    adslAtucChanPrevTxRate,
                    adslAturChanInterleaveDelay, adslAturChanCurrTxRate,
                    adslAturChanPrevTxRate, adslAturChanCrcBlockLength
                    }
                STATUS     current
                DESCRIPTION
                    "A collection of objects providing configuration
                    information about an ADSL channel on the ATU-R
                    side."
            ::= { adslGroups 16 }

            adslAturAtucPhysPerfRawCounterGroup OBJECT-GROUP
                OBJECTS {
                    adslAtucPerfLofs, adslAtucPerfLoss,
                    adslAtucPerfESs, adslAtucPerfInits
                    }
                STATUS     current
                DESCRIPTION
                    "A collection of objects providing raw performance
                    counts on an ADSL Line (ATU-C end) provided by the
                    ATU-R agent."
            ::= { adslGroups 17 }

            adslAturAtucPhysPerfIntervalGroup OBJECT-GROUP
                OBJECTS {
                    adslAtucPerfValidIntervals,
                    adslAtucPerfInvalidIntervals,
                    adslAtucPerfCurr15MinTimeElapsed,
                    adslAtucPerfCurr15MinLofs, adslAtucPerfCurr15MinLoss,
                    adslAtucPerfCurr15MinESs, adslAtucPerfCurr15MinInits,
                    adslAtucPerfCurr1DayTimeElapsed,
                    adslAtucPerfCurr1DayLofs, adslAtucPerfCurr1DayLoss,
                    adslAtucPerfCurr1DayESs, adslAtucPerfCurr1DayInits,
                    adslAtucPerfPrev1DayMoniSecs,
                    adslAtucPerfPrev1DayLofs, adslAtucPerfPrev1DayLoss,
                    adslAtucPerfPrev1DayESs, adslAtucPerfPrev1DayInits,
                    adslAtucIntervalLofs, adslAtucIntervalLoss,
                    adslAtucIntervalESs, adslAtucIntervalInits,
                    adslAtucIntervalValidData
                    }
                STATUS     current
                DESCRIPTION
                    "A collection of objects providing current
```

                    15-minute, 1-day; and previous 1-day performance
                    counts on ADSL Line (ATU-C end) provided by the
                    ATU-R agent."
                ::= { adslGroups 18 }

        adslAturAturPhysPerfRawCounterGroup OBJECT-GROUP
            OBJECTS {
                adslAturPerfLofs, adslAturPerfLoss,
                adslAturPerfLprs, adslAturPerfESs
                }
            STATUS   current
            DESCRIPTION
                "A collection of objects providing raw performance
                counts on an ADSL Line (ATU-R end) provided by the
                ATU-R agent."
        ::= { adslGroups 19 }

        adslAturAturPhysPerfIntervalGroup OBJECT-GROUP
            OBJECTS {
                adslAturPerfValidIntervals,
                adslAturPerfInvalidIntervals,
                adslAturPerfCurr15MinTimeElapsed,
                adslAturPerfCurr15MinLofs, adslAturPerfCurr15MinLoss,
                adslAturPerfCurr15MinLprs, adslAturPerfCurr15MinESs,
                adslAturPerfCurr1DayTimeElapsed,
                adslAturPerfCurr1DayLofs, adslAturPerfCurr1DayLoss,
                adslAturPerfCurr1DayLprs, adslAturPerfCurr1DayESs,
                adslAturPerfPrev1DayMoniSecs,
                adslAturPerfPrev1DayLofs, adslAturPerfPrev1DayLoss,
                adslAturPerfPrev1DayLprs, adslAturPerfPrev1DayESs,
                adslAturIntervalLofs,
                adslAturIntervalLoss, adslAturIntervalLprs,
                adslAturIntervalESs, adslAturIntervalValidData
                }
            STATUS   current
            DESCRIPTION
                "A collection of objects providing current
                15-minute, 1-day; and previous 1-day performance
                counts on ADSL Line (ATU-R end) provided by the
                ATU-R agent."
        ::= { adslGroups 20 }

        adslAturAtucChanPerformanceGroup OBJECT-GROUP
            OBJECTS {
                adslAtucChanReceivedBlks,
                adslAtucChanTransmittedBlks,
                adslAtucChanCorrectedBlks,
                adslAtucChanUncorrectBlks,

```
            adslAtucChanPerfCurr15MinTimeElapsed,
            adslAtucChanPerfCurr15MinReceivedBlks,
            adslAtucChanPerfCurr15MinTransmittedBlks,
            adslAtucChanPerfCurr15MinCorrectedBlks,
            adslAtucChanPerfCurr15MinUncorrectBlks,
            adslAtucChanPerfCurr1DayTimeElapsed,
            adslAtucChanPerfCurr1DayReceivedBlks,
            adslAtucChanPerfCurr1DayTransmittedBlks,
            adslAtucChanPerfCurr1DayCorrectedBlks,
            adslAtucChanPerfCurr1DayUncorrectBlks,
            adslAtucChanPerfPrev1DayMoniSecs,
            adslAtucChanPerfPrev1DayReceivedBlks,
            adslAtucChanPerfPrev1DayTransmittedBlks,
            adslAtucChanPerfPrev1DayCorrectedBlks,
            adslAtucChanPerfPrev1DayUncorrectBlks,
            adslAtucChanPerfValidIntervals,
            adslAtucChanPerfInvalidIntervals,
            adslAtucChanIntervalReceivedBlks,
            adslAtucChanIntervalTransmittedBlks,
            adslAtucChanIntervalCorrectedBlks,
            adslAtucChanIntervalUncorrectBlks,
            adslAtucChanIntervalValidData
            }
        STATUS      current
        DESCRIPTION
            "A collection of objects providing channel block
             performance information on an ADSL channel
             (ATU-C end) provided by the ATU-R agent."
        ::= { adslGroups 21 }

        adslAturAturChanPerformanceGroup OBJECT-GROUP
            OBJECTS {
                adslAturChanReceivedBlks,
                adslAturChanTransmittedBlks,
                adslAturChanCorrectedBlks,
                adslAturChanUncorrectBlks,
                adslAturChanPerfValidIntervals,
                adslAturChanPerfInvalidIntervals,
                adslAturChanPerfCurr15MinTimeElapsed,
                adslAturChanPerfCurr15MinReceivedBlks,
                adslAturChanPerfCurr15MinTransmittedBlks,
                adslAturChanPerfCurr15MinCorrectedBlks,
                adslAturChanPerfCurr15MinUncorrectBlks,
                adslAturChanPerfCurr1DayTimeElapsed,
                adslAturChanPerfCurr1DayReceivedBlks,
                adslAturChanPerfCurr1DayTransmittedBlks,
                adslAturChanPerfCurr1DayCorrectedBlks,
                adslAturChanPerfCurr1DayUncorrectBlks,
```

```
            adslAturChanPerfPrev1DayMoniSecs,
            adslAturChanPerfPrev1DayReceivedBlks,
            adslAturChanPerfPrev1DayTransmittedBlks,
            adslAturChanPerfPrev1DayCorrectedBlks,
            adslAturChanPerfPrev1DayUncorrectBlks,
            adslAturChanIntervalReceivedBlks,
            adslAturChanIntervalTransmittedBlks,
            adslAturChanIntervalCorrectedBlks,
            adslAturChanIntervalUncorrectBlks,
            adslAturChanIntervalValidData
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing channel block
            performance information on an ADSL channel
            (ATU-R end) provided by the ATU-R agent."
        ::= { adslGroups 22 }

    adslAturLineAlarmConfProfileGroup OBJECT-GROUP
        OBJECTS {
            adslAtucThresh15MinLofs, adslAtucThresh15MinLoss,
            adslAtucThresh15MinESs, adslAtucThreshFastRateUp,
            adslAtucThreshInterleaveRateUp,
            adslAtucThreshFastRateDown,
            adslAtucThreshInterleaveRateDown,
            adslAtucInitFailureTrapEnable,
            adslAturThresh15MinLofs, adslAturThresh15MinLoss,
            adslAturThresh15MinLprs, adslAturThresh15MinESs,
            adslAturThreshFastRateUp,
            adslAturThreshInterleaveRateUp,
            adslAturThreshFastRateDown,
            adslAturThreshInterleaveRateDown
            }
        STATUS     current
        DESCRIPTION
            "A collection of objects providing alarm
    provisioning
            information about an ADSL Line provided by the
            ATU-R agent."
        ::= { adslGroups 23 }

    adslAturLineConfProfileControlGroup OBJECT-GROUP
        OBJECTS {
            adslLineAlarmConfProfile,
            adslLineAlarmConfProfileRowStatus
            }
        STATUS     current
        DESCRIPTION
```

                    "A collection of objects providing profile
                    control for the ADSL system by the ATU-R agent."
            ::= { adslGroups 24 }

            adslAturNotificationsGroup NOTIFICATION-GROUP
                NOTIFICATIONS {
                    adslAtucPerfLofsThreshTrap,
                    adslAtucPerfLossThreshTrap,
                    adslAtucPerfESsThreshTrap,
                    adslAtucRateChangeTrap,
                    adslAturPerfLofsThreshTrap,
                    adslAturPerfLossThreshTrap,
                    adslAturPerfLprsThreshTrap,
                    adslAturPerfESsThreshTrap,
                    adslAturRateChangeTrap
                    }
                STATUS   current
                DESCRIPTION
                    "The collection of ADSL notifications implemented by
                    the ATU-R agent."
            ::= { adslGroups 25 }

    END

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10. Security Considerations

   1) Blocking unauthorized access to the ADSL MIB via the element
   management system is outside the scope of this document. It should be
   noted that access to the MIB permits the unauthorized entity to
   modify the profiles (sect 6.4) such that both subscriber service and
   network operations can be interfered with. Subscriber service can be
   altered by modifying any of a number of service characteristics such
   as rate partitioning and maximum transmission rates. Network
   operations can be impacted by modification of trap thresholds such as
   SNR margins.

   2) There are a number of managed objects in this MIB that may be
   considered to contain sensitive information. In particular, the
   certain objects may be considered sensitive in many environments,
   since it would allow an intruder to obtain information about which
   vendor's equipment is in use on the network. Therefore, it may be
   important in some environments to control read access to these
   objects and possibly to even encrypt the values of these object when
   sending them over the network via SNMP. Not all versions of SNMP
   provide features for such a secure environment.

   SNMPv1 by itself is such an insecure environment. Even if the
   network itself is secure (for example by using IPSec), even then,
   there is no control as to who on the secure network is allowed to
   access and GET (read) the objects in this MIB. It is recommended
   that the implementors consider the security features as provided by
   the SNMPv3 framework. Specifically, the use of the User-based
   Security Model RFC 2574 [21] and the View-based Access Control Model
   RFC 2575 [23] is recommended.

   It is then a customer/user responsibility to ensure that the SNMP
   entity giving access to an instance of this MIB, is properly
   configured to give access to those objects only to those principals
   (users) that have legitimate rights to access them.

   3) ADSL layer connectivity from the ATU-R will permit the subscriber
   to manipulate both the ADSL link directly and the AOC/EOC channels
   for their own loop. For example, unchecked or unfiltered
   fluctuations initiated by the subscriber could generate sufficient
   traps to potentially overwhelm either the management interface to the
   network or the element manager. Other attacks affecting the ATU-R
   portions of the MIB may also be possible.

11. Intellectual Property Notice

[12](#). Authors' Addresses

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13. Full Copyright Statement

Acknowledgement