Definitions of Managed Objects
for the ADSL Lines

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2. 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.

3.   The SNMP Network Management Framework

The SNMP Management Framework presently consists of five major
components:

o   An overall architecture, described in RFC 2271 [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 RFC 1155 [14], RFC 1212 [15] and RFC 1215 [16].
      The second version, called SMIv2, is described in RFC 1902
      [1], RFC 1903 [2] and RFC 1904 [17].

o   Message protocols for transferring management information.
      The first version of the SNMP message protocol is called
      SNMPv1 and described in 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
      2272 [20] and RFC 2274 [21].

o   Protocol operations for accessing management information.
      The first set of protocol operations and associated PDU
      formats is described in 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 2273 [22]
      and the view-based access control mechanism described in RFC
      2275 [23].

Managed objects are accessed via a virtual information store, termed
the Management Information Base or MIB. Objects in the MIB are
defined using the mechanisms defined in the SMI.

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.

4. 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.

5. 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".

5.1 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 6.4 Profiles.

5.1.1 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
```
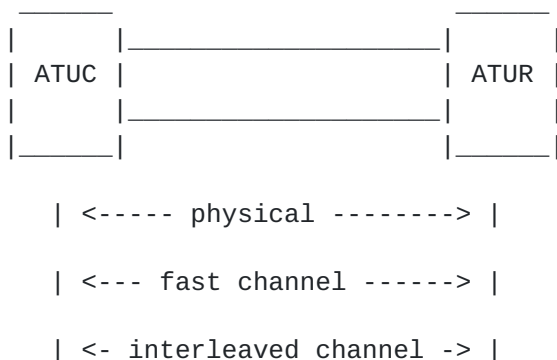
5.1.2 Use of IF-MIB (Interface MIB RFC 2233) [5]

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, 6.4).

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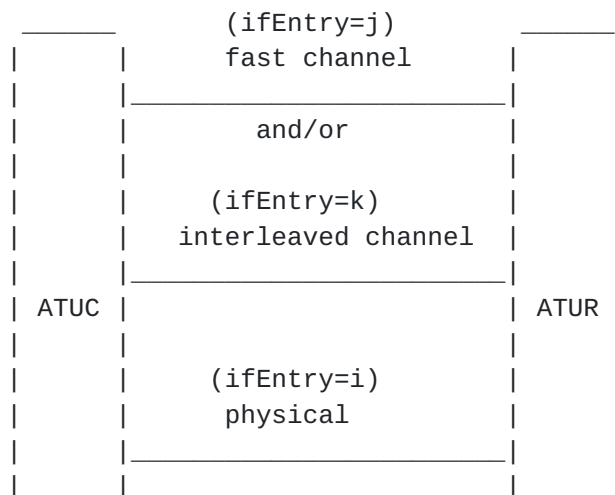
              Figure 3: Use of ifStackTable (part 1)

   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.

   5.2 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.

   6. Conventions used in the MIB

   6.1 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

   6.2 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.

6.2.1 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
```

6.3 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.

6.4 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.

6.4.1 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'
(RFC2271[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.

6.4.2 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

6.5 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:

$$CurrTxRate >= PrevTxRate \text{ plus } ThreshRateUp$$

$$or$$

$$CurrTxRate <= PrevTxRate \text{ minus } ThreshRateDown$$

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.

7. Conformance and Compliance

See the conformance and compliance statements within the information
module.

8. Definitions

ADSL-TC-MIB DEFINITIONS ::= BEGIN

IMPORTS
    MODULE-IDENTITY, Gauge32,
    OBJECT-TYPE, mib-2   FROM SNMPv2-SMI

```
      TEXTUAL-CONVENTION                      FROM SNMPv2-TC;

   adsltcmib MODULE-IDENTITY

   LAST-UPDATED "9905052200Z"

   ORGANIZATION "IETF ADSL MIB Working Group"

   CONTACT-INFO
       "
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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."
       ::= { mib-2 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 "9905052200Z"

   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
          " ::= { 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
                profile is created in one step with all necessary
                parameter values and adslLineConfProfileRowStatus set
                to createAndGo.  This RowStatus object is also used
                to destroy profiles.

                Also 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 (-640..640)
            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 (-640..640)
            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 (-640..640)
            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 (-640..640)
            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 (-640..640)
            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 (-640..640)
            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 (-640..640)
            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 (-640..640)
            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 (-640..640)
            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 (-640..640)
            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
             profile is created in one step with all necessary
             parameter values and adslLineConfProfileRowStatus set
             to createAndGo.  This RowStatus object is also used
             to destroy profiles.

             Also 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   adslAtucIntervalNumber
                SYNTAX   INTEGER (1..1)
                DESCRIPTION
                    "It is allowable to implement only one ATU-C 15-minute
                    performance interval."

                OBJECT   adslAturIntervalNumber
                SYNTAX   INTEGER (1..1)
                DESCRIPTION
                    "It is allowable to implement only one ATU-R 15-minute
                    performance interval."

                OBJECT   adslAtucChanIntervalNumber
                SYNTAX   INTEGER (1..1)
                DESCRIPTION
                    "It is allowable to implement only one ATU-C
                    channel 15-minute performance interval."

                OBJECT   adslAturChanIntervalNumber
                SYNTAX   INTEGER (1..1)
                DESCRIPTION
                    "It is allowable to implement only one ATU-R
                    channel 15-minute performance interval."

                OBJECT   adslLineConfProfile
                MIN-ACCESS read-only
                DESCRIPTION
                    "Read-only 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   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   adslAtucIntervalNumber
          SYNTAX   INTEGER (1..1)
          DESCRIPTION
              "It is allowable to implement only one ATU-C 15-minute
              performance interval."

          OBJECT   adslAturIntervalNumber
          SYNTAX   INTEGER (1..1)
          DESCRIPTION
              "It is allowable to implement only one ATU-R 15-minute
              performance interval."

          OBJECT   adslAtucChanIntervalNumber
          SYNTAX   INTEGER (1..1)
          DESCRIPTION
              "It is allowable to implement only one ATU-C
              channel 15-minute performance interval."

          OBJECT   adslAturChanIntervalNumber
          SYNTAX   INTEGER (1..1)
          DESCRIPTION
              "It is allowable to implement only one ATU-R
              channel 15-minute performance interval."

          OBJECT   adslLineAlarmConfProfile
          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
            }
        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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    11. 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 7.4) 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 2274 [21] and the View-based Access Control Model
RFC 2275 [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.

12. Authors' Addresses

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