1. Status of this Memo

This document is an Internet-Draft. Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

To view the entire list of current Internet-Drafts, please check the "id-abstracts.txt" listing contained in the Internet-Drafts Shadow Directories on ftp.is.co.za (Africa), ftp.nordu.net (Northern Europe), ftp.nis.garr.it (Southern Europe), munnari.oz.au (Pacific Rim), ftp.ietf.org (US East Coast), or ftp.isi.edu (US West Coast).

2. Abstract

This document defines a standard SNMP MIB for ADSL lines based on the ADSL Forum standard data model [9]. The model assumed by this MIB is that the SNMP agent’s perspective is from the ATU-C side which acts as a proxy for the ATU-R. Each MIB instance includes information for both ends of a single line, i.e., both the ATU-C and ATU-R.

It should be noted that much of the content for the first version of this document came from work completed by the ADSL Forum’s Network
Management working group and documented in ADSL Forum TR-006 "SNMP-based ADSL Line MIB"[9]. See Acknowledgement Section for a list individuals of those involved with this effort.

3. The SNMP Network Management Framework

The SNMP Management Framework presently consists of five major components:

- An overall architecture, described in RFC 2271 [13].

- 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].

- 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].

- 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 [9].

- 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 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. Introduction

This document describes an ADSL Line MIB which is intended to work within the SNMP Network Management Framework (section 3). All MIB definitions are backward compatible for SNMPv1 implementation.

The MIB definitions are attached. The MIB will eventually be located in the MIB tree under MIB 2 transmission, as discussed in the MIB-2 Integration (RFCs 1213 [4] and 2233 [5]) section of this document. Until approved by the IETF, vendors may also choose to support it under their own enterprise IDs.

    adslLineMIB MODULE-IDENTITY ::= { VendorEnterpriseID nnn}

6. Relationship of the ADSL LINE MIB with standard MIBs

This section outlines the relationship of this MIB with other MIBs described in RFCs and in various degrees of "standardization". MIB-2 (RFC 1213 [4] and 2233 [5]) and the Entity MIB (RFC 2037 [25]) are discussed below.

6.1 General MIB-2 Integration (RFCs 1213 [4] and 2233 [5])

The ADSL LINE MIB specifies the detailed attributes of a data interface. As such, it needs to integrate with MIB-2 ([4] and [5]). The IANA has assigned the following ifType(s) for XDSL:
IANAifType ::= TEXTUAL-CONVENTION

SYNTAX INTEGER {

adsl(94), -- Asymmetric Digital Subscriber Loop
radsl(95), -- Rate-Adapt. Digital Subscriber Loop
sdsl(96), -- Symmetric Digital Subscriber Loop
vdsl(97), -- Very H-Speed Digital Subcrib. Loop

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

Of these, only adsl, adslFast, and adslInterleave are used with this MIB. Use of radsl, sdsl, and vdsl is for further study (or they may have their own MIBs).

Therefore, pending approval of the IETF, RFC 2233 [5] mandates that this MIB will be accessed through mib-2.transmission.ifType as shown:

adslPhysIf ::= { transmission 94 } -- Physical tables
adslInterIf ::= { transmission 124 } -- Interleaved Channel tables
adslFastIf ::= { transmission 125 } -- Fast Channel tables

with each MIB branch containing the appropriate tables for that interface type, as discussed below. Most such tables extends the ifEntry table, and are indexed by ifIndex. In addition, there are two "profile" tables which may be accessed by ifIndex, or profileIndex depending on the profile mode implemented. This is explained in detail in section 7.4 Profiles.

6.1.1 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

6.1.2 Use of Interface MIB  RFC 2233 [5]

The following attributes are part of the mandatory ifGeneralInformationGroup object group specified in RFC 2233 [5], and are not duplicated in the ADSL MIB. Remember that these objects apply to the line, not either end in particular.

- **ifDescr** - "manufacturer’s name, model number, version number" associated with all ADSL interface entry types
- **ifType** - 94, 124, or 125, for physical, interleaved, and fast interface entries respectively
- **ifSpeed** - transmit rate from the perspective of the ATU-C interface, aka the "downstream" rate
- **ifPhysAddress** - not applicable for ADSL interface entries, must be 0-length string
ifAdminStatus, ifOperStatus - normal use, supplemented by
adslAtucCurrStatus and adslAturCurrStatus for physical interfaces
entry types only

ifLastChange - The value of the last state change for all ADSL
interface entry types

ifLinkUpDownTrapEnable - default to Enable (1) for physical layer
entry types, and to Disable (2) for interleaved, and fast
interface channel entry types.

ifConnectorPresent - set to True (1) for physical layer entries,
and to False (2) interleaved, and fast interface entry types

ifHighSpeed - As ADSL operates at a maximum rate of about 8Mbps
circa 1997, ifHighSpeed is irrelevant, and is set to zero.

ifName - Textual name for the interface allowing the network
manager ability to associate an ifEntry with a specific
node/shelf/slot/port of the ADSL equipment.

ifNumber - The total number of ADSL network interfaces present on
the system.

ifAlias - A configurable textual name for the interface allowing
the network manager ability to associate an ifEntry with a
specific node/shelf/slot/port of the ADSL equipment. This
information is held in non-volatile storage.

ifTableLastChange - The value of sysUpTime at the time of the last
creation or deletion of an entry in the ifTable.

The following attributes are from the ifFixedLengthGroup [5] which is
optional, but is the closest set to ADSL. They may optionally be
implemented when appropriate.

ifInOctets, ifOutOctets - counted from the perspective of the
ATU-C interface for all ADSL interface entry types

ifInUnknownProtos, ifInErrors, ifOutErrors - counted from the
perspective of the ATU-C interface for all ADSL interface entry
types

The table below shows this information in a more concise format.
"Normal" means the object is used as specified by RFC 2233. The
designations "i", "j", and "k" indicate three arbitrary ifIndex
values, corresponding to the physical, interleaved, and fast entries
for a single ADSL Line. These designations are used throughout this
Use 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 ifEntries need the ifStackTable to find their associated physical-layer entry and thus their configuration parameters. (See Profile section, 7.4).

```
  (ifEntry=k)
    fast channel
  and/or
  (ifEntry=j)
    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
-------------|-----------
     k        |     i
     j        |     i
```

Figure 4: Use of ifStackTable (part 2)

6.2 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 MIB-2, ifIndex, and ifStackTable. 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 implemented, the Entity MIB should include entities for the ATU-C and ATU-R in the entPhysicalTable. The MIB’s entAliasMappingTable would contain mapping information identifying the 'ifIndex' object associated with each ATU-C and 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.

7. Conventions used in the MIB

7.1 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, adslAtucChanConfMaxTxRate defines the "downstream" rate, while adslAturChanConfMaxTxRate 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.,
   - DMT = Discrete MultiTone
   - CAP = Carrierless Amplitude and Phase modulation and
   - QAM = Quadrature Amplitude Modulation

I. Vendor (in the Inventory objects) refers to the manufacturer or 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).

7.2 Structure

The MIB has multiple parallel tables. There are tables for:
   - line - common attributes
   - atuc and atur status
   - atuc and atur performance
     - Current and up to 96 buckets of 15 min performance history
     - Current and Previous 1-day bucket performance history
   - 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.

Finally, there are separate LCS tables, also for each end. These are currently stubs. These will each be separate MIB 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>
<thead>
<tr>
<th>Table</th>
<th>Phys</th>
<th>Fast</th>
<th>Interleaved</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Channels (1)</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fast Only (2)</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Interleaved Only (3)</td>
<td>Y</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>Fast or Interleaved (4)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Fast and Interleaved (5)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

**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>
<thead>
<tr>
<th>Table</th>
<th>Phys</th>
<th>Fast</th>
<th>Interleaved</th>
</tr>
</thead>
<tbody>
<tr>
<td>adslLineTable</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adslAtucPhysTable</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adslAturPhysTable</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adslAtucChanTable</td>
<td></td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>adslAturChanTable</td>
<td></td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>adslAtucPerfDataTable</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adslAturPerfDataTable</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adslAtucIntervalTable</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adslAturIntervalTable</td>
<td>Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adslAtucChanPerfDataTable</td>
<td></td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>adslAturChanPerfDataTable</td>
<td></td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>adslAtucChanIntervalTable</td>
<td></td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>adslAturChanIntervalTable</td>
<td></td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

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

NOTE: For 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.
7.3 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.

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.

In all cases, the sum of the corresponding 15-minute interval timers for the current day should equal the current 1-day timers. However, in most cases, this will not be the sum of all 96 intervals, as they represent a rolling set of data.

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

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

Every physical layer object with a 15 minute current bucket also has a 15-min threshold trap.

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

7.4 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. This concept is similar to the one used in ATM MIB (RFC 1695[24]) to define ATM traffic descriptor sets.

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.

7.4.1 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 arbitrary integer in the range 1..N, where N is the maximum number of profiles supported by the equipment and is implementation specific.

One or more ADSL lines may be configured to share parameters of a single profile (say adsLineConfProfileIndex = ‘n’) by setting their adsLineConfProfile objects to the value of profile’s index (n). If a change is made to Profile-n, all lines that refer to it will be re-configured to the changed parameters.

The next figure shows an example of how this mode can be implemented. In the example, ADSL lines ‘1’ and ‘x’ share the configuration in Profile-n, while line ‘2’ uses Profile-1. Please note that all three entries for each ADSL line, physical layer, the fast channel, and the interleaved channel, are represented by "i", "j", and "k" as before. However, only the physical-layer entry "i" contains an adsLineTable entry, so only those entries contain pointers to the adsConfProfileEntry. The ifStackTable (see rfc2233 [5]) must be used to link the channel entries to the corresponding physical layer entry to get the channel’s configuration parameters.

<table>
<thead>
<tr>
<th>ADSL</th>
<th>ifIndex</th>
<th>ifTable</th>
<th>Configuration Line</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>i1</td>
<td>ADSL Line --</td>
<td>---&gt; Profile 1</td>
</tr>
<tr>
<td></td>
<td>j1</td>
<td>Fast Chan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>k1</td>
<td>Int Chan</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>v</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 2    | i2      | ADSL Line --------->---- |
|      | j2      | Fast Chan |         |
|      | k2      | Int Chan |         |
The same is true for the alarm profile (not shown), although there is no requirement that its index (call it "m") be the same as the configuration profile.

In this mode, profiles are allocated and deleted dynamically, and six objects:

- adslLineConfProfile
- adslLineConfProfileIndexNext
- adslLineConfProfileRowStatus
- adslLineAlarmProfile
- adslLineAlarmConfProfileIndexNext
- adslLineAlarmConfProfileRowStatus

are all used in conjunction with profiles.

### 7.4.2 MODE-II : Static Profiles

Implementations with this mode will automatically create a profile one-for-one with each ADSL line physical entry with the profileIndex being the same as the ifIndex of the corresponding ADSL line entry ("ix"). In this mode, the Agent will not allow a Manager to create/delete profiles in this mode. Therefore, the adslLineConfProfile, adslLineConfProfileIndexNext, adslLineConfProfileRowStatus, adslLineAlarmProfile, adslLineAlarmConfProfileIndexNext, and adslLineAlarmConfProfileRowStatus objects are not used in this mode as each line has a unique, fixed profile that is not shared with other lines.

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

---

### 7.4.2 MODE-II : Static Profiles

Implementations with this mode will automatically create a profile one-for-one with each ADSL line physical entry with the profileIndex being the same as the ifIndex of the corresponding ADSL line entry ("ix"). In this mode, the Agent will not allow a Manager to create/delete profiles in this mode. Therefore, the adslLineConfProfile, adslLineConfProfileIndexNext, adslLineConfProfileRowStatus, adslLineAlarmProfile, adslLineAlarmConfProfileIndexNext, and adslLineAlarmConfProfileRowStatus objects are not used in this mode as each line has a unique, fixed profile that is not shared with other lines.

The figure below shows an example of this mode. In the example, ADSL lines ’1’, ’2’, and ’x’ each have their own profiles.
Figure 8: User Profiles in MODE II

7.5 Traps

These MIB-2 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, or Lpr 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 thresholds 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 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 co-resides with the ATU-C, adslAturCurrStatus may be incomplete. For example, when there are errors on the line, the ATU-R may not be able to correctly report this condition. Therefore, not all conditions are included in adslAturCurrStatus.

A threshold trap occurs whenever the corresponding current 15-minute interval error counter becomes equal to the threshold value. 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, 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 \text{adsl}(x)\text{Thresh}(y)\text{RateDown} or decreases by \text{adsl}(x)\text{Thresh}(y)\text{RateDown}. The trap is per direction: (x) == \text{Atuc} or \text{Atur}, and per channel: (y) == \text{Fast} or \text{Interleave}. In other words, the trap is sent whenever the rate changes in either direction on either channel and:

\[ \text{CurrTxRate} \geq \text{PrevTxRate} + \text{ThreshRateUp} \]

or

\[ \text{CurrTxRate} \leq \text{PrevTxRate} - \text{ThreshRateDown} \]

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 exceeds the threshold.

8. Conformance and Compliance

See ASN.1 within.

9. Definitions

\[
\text{ADSL-LINE-MIB DEFINITIONS ::= BEGIN}
\]

\[
\text{IMPORTS}
\]

\[
\text{MODULE-IDENTITY, OBJECT-TYPE, Counter32,}
\]

\[
\text{Gauge32, NOTIFICATION-TYPE, Integer32,}
\]

\[
\text{OBJECT-IDENTITY, transmission} \quad \text{FROM SNMPv2-SMI}
\]

Expires February 1999 [Page 16]
RowStatus, TruthValue FROM SNMPv2-TC
MODULE-COMPLIANCE, OBJECT-GROUP FROM SNMPv2-CONF
ifIndex FROM IF-MIB -- rfc2233
Utf8String FROM SYSAPPL-MIB -- rfc2287

AdslLineProfileType ::= INTEGER

adslMIB MODULE-IDENTITY

LAST-UPDATED "9808070000Z"

ORGANIZATION "IETF ADSL-MIB WG"

CONTACT-INFO

Gregory Bathrick
AG Communication Systems
2500 W Utopia Rd.
Phoenix, AZ 85027 USA
Tel: +1 602-582-7679
Fax: +1 602-582-7697
E-mail: bathricg@agcs.com

John Burgess
Predictive Systems, Inc.
25A Vreeland Rd.
Florham Park, NJ 07932 USA
Tel: +1 973-301-5610
Fax: +1 973-301-5699
E-mail: jtburgess@predictive.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 is
indexed by ifIndex and appears as an interface on a central
dSLAM (Digital Subscriber Line Access Mux.) Attributes on the
ATUR are proxied by the DSLAM.

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
link the entries together."
Naming Conventions:

Atuc -- (ATUC) modem at near (Central) end of line
Atur -- (ATUR) modem at Remote end of line
Curr -- Current
Prev -- Previous
Atn -- Attenuation
ES -- Errored Second.
LCS -- Line Code Specific
Lof -- Loss of Frame
Lol -- Loss of Link
Los -- Loss of Signal
Lpr -- Loss of Power

xxxs-- interval of Seconds in which xxx occurs
   (e.g., xxx=Lof, Los, Lpr)
Max -- Maximum
Mgn -- Margin
Min -- Minimum

Psd -- Power Spectral Density
Snr -- Signal to Noise Ratio
Tx -- Transmit

Blks-- Blocks, a data unit, see
       adslAtuXChanCrcBlockLength

"REVISION      "98080700000Z"
DESCRIPTION
"Changes taken at the March 98 ADSL WG meeting:
 - Added Conformance Statement
 - SNMPv3 conformance
 - RFC-2233 conformance

Comments from Technical Advisors, Wijnen and Tesink:
 - DisplayString -> UTF-8 String
 - minimized # of mandatory performance counts
 - Corrected Syntax of current status objects.
 - Corrected use of SNMP SMI.

Lessons learned through implementation of MIB (ADSLF TR006):
 - clarified definition of channel block size, SNR
   Interleave Delay, Attenuation, and Output power.
 - corrected UNITS and SYNTAX of adsl rate objects,
   Version#, VendorID.
 - added missing line activation objects.

General editorial cleanup.

Added Security Statement (Dave Allan)
"

"REVISION      "98080712000Z"
DESCRIPTION
"General editorial cleanup."

::= { transmission 94 }

adslLineMib OBJECT IDENTIFIER ::= { adslMIB 1 }
adslMibObjects OBJECT IDENTIFIER ::= { adslLineMib 1 }

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           INTEGER,
    adslLineType             INTEGER,
    adslLineSpecific         OBJECT IDENTIFIER,
    adslLineConfProfile      AdslLineProfileType,
    adslLineAlarmConfProfile AdslLineProfileType
}

adslLineCoding OBJECT-TYPE
SYNTAX        INTEGER {
    other (1),
    dmt (2), -- Discrete MultiTone
    cap (3), -- Carrierless Amplitude & Phase modulation
    qam (4)  -- Quadrature Amplitude Modulation
}
MAX-ACCESS    read-only
STATUS        current

Expires February 1999                                           [Page 19]
"Specifies the ADSL coding type used on this line. Other types may be added in the future."
::= { 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 OBJECT IDENTIFIER
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 AdslLineProfileType
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. In the case which the configuration profile has not been set, the value will be set to ‘0’.

If the implementator of this MIB has chosen not to implement ‘dynamic assignment’ of profiles, this object is not useful and should return noSuchObject upon SNMP request."

::= { adslLineEntry 4 }

adslLineAlarmConfProfile OBJECT-TYPE
SYNTAX AdslLineProfileType
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. In the case which the configuration profile has not been set, the value will be set to ‘0’.

If the implementator of this MIB has chosen not to implement ‘dynamic assignment’ of profiles, this object is not useful and should return noSuchObject upon SNMP request."

::= { 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   Utf8String,
    adslAtucInvVendorID       Utf8String,
    adslAtucInvVersionNumber  Utf8String,
    adslAtucCurrSnrMgn        Integer32,
    adslAtucCurrAtn           Integer32,
    adslAtucCurrStatus        BITS,
    adslAtucCurrOutputPwr     Integer32,
    adslAtucCurrAttainableRate Integer32
}  

-- 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       Utf8String  
MAX-ACCESS   read-only  
STATUS       current  
DESCRIPTION   "Vendor specific string that identifies the vendor
equipment."
::= { adslAtucPhysEntry 1 }

adslAtucInvVendorID OBJECT-TYPE
SYNTAX       Utf8String  
MAX-ACCESS   read-only  
STATUS       current  
DESCRIPTION   "The vendor ID assigned by T1E1.413 according to its
Annex D.[10]"
::= { adslAtucPhysEntry 2 }

adslAtucInvVersionNumber OBJECT-TYPE
SYNTAX       Utf8String  
MAX-ACCESS   read-only  
STATUS       current  
DESCRIPTION   "Vendor specific version number sent by this ATU as
part of the initialization messages."
::= { adslAtucPhysEntry 3 }

-- current status group

adslAtucCurrSnrMgn OBJECT-TYPE
SYNTAX Integer32(0..310)
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 Integer32(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. This value is determined in accordance with T1.413[10]."
::= { adslAtucPhysEntry 5 }

adslAtucCurrStatus OBJECT-TYPE
SYNTAX BITS {
noDefect(0),
lossOfFraming(1),
lossOfSignal(2),
lossOfPower(3),
lossOfLink(4),
lossOfSignalQuality(5),
dataInitFailure(6),
configInitFailure(7),
protocolInitFailure(8),
noPeerAtuPresent(9)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Status indicates current state 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. **lossOfLink**
   ATUC failure due to inability to link with ATUR.

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

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.

```pascal
::= { adslAtucPhysEntry 6 }

adslAtucCurrOutputPwr OBJECT-TYPE
SYNTAX     Integer32(0..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      Integer32
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         Utf8String,
adslAturInvVendorID             Utf8String,
adslAturInvVersionNumber        Utf8String,
adslAturCurrSnrMgn              Integer32,
adslAturCurrAtn                 Integer32,
adslAturCurrStatus              BITS,
adslAturCurrOutputPwr           Integer32,
adslAturCurrAttainableRate      Integer32
}

-- inventory group
--
adslAturInvSerialNumber  OBJECT-TYPE
SYNTAX      Utf8String
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"Vendor specific string that identifies the vendor
equipment."
::= { adslAturPhysEntry 1 }

adslAturInvVendorID OBJECT-TYPE
SYNTAX     Utf8String
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"The vendor ID assigned by T1E1.413 according to its
Annex D."
::= { adslAturPhysEntry 2 }

adslAturInvVersionNumber OBJECT-TYPE
SYNTAX     Utf8String
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"Vendor specific version number sent by this ATU as
part of the initialization messages."
::= { adslAturPhysEntry 3 }

-- current status group
--
adslAturCurrSnrMgn OBJECT-TYPE
SYNTAX     Integer32(0..310)
UNITS      "tenth dB"
MAX-ACCESS read-only
STATUS     current
DESCRIPTION
"Noise Margin as seen by this ATU with respect to its
received signal. This value is determined in
accordance with T1.413 [10]."
::= { adslAturPhysEntry 4 }

adslAturCurrAtn OBJECT-TYPE
SYNTAX     Integer32(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.
This value is determined in accordance with
T1.413[10]."
::= { adslAturPhysEntry 5 }
adslAturCurrStatus OBJECT-TYPE
SYNTAX     BITS {
    noDefect(0),
    lossOfFraming(1),
    lossOfSignal(2),
    lossOfPower(3),
    lossOfSignalQuality(4)
}
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"Status indicates current state 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, cannot 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     Integer32(0..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      Integer32
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 accessible-for-notify
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
"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 accessible-for-notify
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 INTEGER,
adslAtucPerfCurr15MinLofs       Gauge32,
adslAtucPerfCurr15MinLoss       Gauge32,
adslAtucPerfCurr15MinLols       Gauge32,
adslAtucPerfCurr15MinLprs       Gauge32,
adslAtucPerfCurr15MinESs        Gauge32,
adslAtucPerfCurr15MinInits      Gauge32,
adslAtucPerfCurr1DayTimeElapsed INTEGER,
adslAtucPerfCurr1DayLofs        Gauge32,
adslAtucPerfCurr1DayLoss        Gauge32,
adslAtucPerfCurr1DayLols        Gauge32,
adslAtucPerfCurr1DayLprs        Gauge32,
adslAtucPerfCurr1DayESs         Gauge32,
adslAtucPerfCurr1DayInits       Gauge32,
adslAtucPerfPrev1DayMoniSecs    INTEGER,
adslAtucPerfPrev1DayLofs        Gauge32,
adslAtucPerfPrev1DayLoss        Gauge32,
adslAtucPerfPrev1DayLols        Gauge32,
adslAtucPerfPrev1DayLprs        Gauge32,
adslAtucPerfPrev1DayESs         Gauge32,
adslAtucPerfPrev1DayInits Gauge32
}

-- 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
"Number of previous 15-minute intervals in the
adslAtucInterval Table for which valid data
has been stored. This value will be equal to the
maximum # of intervals that are kept (n) unless the
device was brought online within the last (nx15)
minutes. 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
for which valid data is available."
 ::= { adslAtucPerfDataEntry 7 }

adslAtucPerfInvalidIntervals OBJECT-TYPE
SYNTAX INTEGER(0..96)
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of 15 minute intervals in which no valid
data is available."
 ::= { adslAtucPerfDataEntry 8 }

-- 15 min current performance group
--
adslAtucPerfCurr15MinTimeElapsed OBJECT-TYPE
SYNTAX       INTEGER(0..899)
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  
  "Total elapsed seconds in this interval.
  A full interval is 900 seconds."
::= { adslAtucPerfDataEntry 9 }

adslAtucPerfCurr15MinLofs OBJECT-TYPE
SYNTAX       Gauge32
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       Gauge32
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       Gauge32
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       Gauge32
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       Gauge32
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       Gauge32
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       INTEGER(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       Gauge32
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       Gauge32
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 Gauge32
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 Gauge32
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 Gauge32
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 Gauge32
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..899)
UNITS       "seconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The time in the previous 1-day interval over which
the performance monitoring information is actually
counted. This value will normally be the same as the
total interval duration except in a situation where
performance monitoring data can not be collected
for any reason. Typically Elapsed 1-day time will be
copied into Monitored Seconds when the 1-day roll-over
occurs."
 ::= { adslAtucPerfDataEntry 23 }

adslAtucPerfPrev1DayLofs OBJECT-TYPE
SYNTAX      Gauge32
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      Gauge32
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      Gauge32
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        Gauge32
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        Gauge32
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        Gauge32
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 INTEGER,
adslAturPerfCurr15MinLofs       Gauge32,
adslAturPerfCurr15MinLoss       Gauge32,
adslAturPerfCurr15MinLprs       Gauge32,
adslAturPerfCurr15MinESs        Gauge32,
adslAturPerfCurr1DayTimeElapsed INTEGER,
adslAturPerfCurr1DayLofs        Gauge32,
adslAturPerfCurr1DayLoss        Gauge32,
adslAturPerfCurr1DayLprs        Gauge32,
adslAturPerfCurr1DayESs         Gauge32,
adslAturPerfPrev1DayMoniSecs    INTEGER,
adslAturPerfPrev1DayLofs        Gauge32,
adslAturPerfPrev1DayLoss        Gauge32,
adslAturPerfPrev1DayLprs        Gauge32,
adslAturPerfPrev1DayESs         Gauge32
}

-- 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
INTERNET-DRAFT               ADSL Line MIB                August 7, 1998
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
"Number of previous 15-minute intervals in the
adslAturInterval Table for which valid data
has been stored. This value will be equal to the
maximum # of intervals that are kept (n) unless the
device was brought online within the last (nx15) min.
In the case where the agent is a proxy, it is possible

Expires February 1999                                          [Page 41]
that some intervals are unavailable. In this case, this
interval is the maximum interval for which valid data
is available."
::= { adslAturPerfDataEntry 5 }

adslAturPerfInvalidIntervals OBJECT-TYPE
SYNTAX      INTEGER(0..96)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
 "The number of 15 minute intervals in which no valid
data is available."
 ::= { adslAturPerfDataEntry 6 }

-- 15 min current performance group
--
adslAturPerfCurr15MinTimeElapsed OBJECT-TYPE
SYNTAX      INTEGER(0..899)
UNITS       "seconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
 "Total elapsed seconds in this interval.
   A full interval is 900 seconds."
 ::= { adslAturPerfDataEntry 7 }

adslAturPerfCurr15MinLofs OBJECT-TYPE
SYNTAX      Gauge32
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      Gauge32
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      Gauge32
INTERNET-DRAFT               ADSL Line MIB                August 7, 1998

adslAturPerfCurr15MinESs OBJECT-TYPE
SYNTAX    Gauge32
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    Gauge32
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    INTEGER(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    Gauge32
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    Gauge32
UNITS     "seconds"
MAX-ACCESS read-only
adslAturPerfCurr1DayLprs  OBJECT-TYPE
SYNTAX       Gauge32
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 14 }

adslAturPerfCurr1DayESs  OBJECT-TYPE
SYNTAX       Gauge32
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..899)
UNITS        "seconds"
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION  "The time in the previous 1-day interval over which the performance monitoring information is actually counted. This value will normally be the same as the total interval duration except in a situation where performance monitoring data can not be collected for any reason. Typically Elapsed 1-day time will be copied into Monitored Seconds when the 1-day roll-over occurs."
 ::= { adslAturPerfDataEntry 17 }

adslAturPerfPrev1DayLofs  OBJECT-TYPE
SYNTAX Gauge32
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 Gauge32
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 Gauge32
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 Gauge32
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            Gauge32,
   adslAtucIntervalLoss            Gauge32,
   adslAtucIntervalLols            Gauge32,
   adslAtucIntervalLprs            Gauge32,
   adslAtucIntervalESs             Gauge32,
   adslAtucIntervalInits           Gauge32,
   adslAtucIntervalValidData       TruthValue
}
```
```
adslAtucIntervalNumber OBJECT-TYPE
SYNTAX        INTEGER(1..96)
MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION   "Performance Data Interval number. 1 is the most recent interval; interval 96 is 24 hours ago. Intervals 2..96 are optional."
 ::= { adslAtucIntervalEntry 1 }
```
```
adslAtucIntervalLofs OBJECT-TYPE
SYNTAX        Gauge32
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     Gauge32
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     Gauge32
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     Gauge32
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     Gauge32
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     Gauge32
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 object indicates if there is valid data
for this interval."
::= { 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 Gauge32,
   adslAturIntervalLoss Gauge32,
   adslAturIntervalLprs Gauge32,
   adslAturIntervalESs Gauge32,
   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 interval; interval 96 is 24
hours ago. Intervals 2..96 are optional.
::= { adslAturIntervalEntry 1 }

adslAturIntervalLofs OBJECT-TYPE
SYNTAX Gauge32
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 Gauge32
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 Gauge32
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 Gauge32
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
This object indicates if there is valid data for this interval.

::= { 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 INTEGER,
adslAtucChanPerfCurr15MinReceivedBlks Gauge32,
adslAtucChanPerfCurr15MinTransmittedBlks Gauge32,
adslAtucChanPerfCurr15MinCorrectedBlks Gauge32,
adslAtucChanPerfCurr15MinUncorrectBlks Gauge32,
adslAtucChanPerfCurr1DayTimeElapsed INTEGER,
adslAtucChanPerfCurr1DayReceivedBlks Gauge32,
adslAtucChanPerfCurr1DayTransmittedBlks Gauge32,
adslAtucChanPerfCurr1DayCorrectedBlks Gauge32,
adslAtucChanPerfCurr1DayUncorrectBlks Gauge32,
adslAtucChanPerfPrev1DayMoniSecs INTEGER,
adslAtucChanPerfPrev1DayReceivedBlks Gauge32,
adslAtucChanPerfPrev1DayTransmittedBlks Gauge32,
adslAtucChanPerfPrev1DayCorrectedBlks Gauge32,
adslAtucChanPerfPrev1DayUncorrectBlks Gauge32

-- 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
"Number of previous 15-minute intervals in the
adslAtucChanIntervalTable Table for which valid data
has been stored. This value will be equal to the max
number of intervals that are kept (n) unless the device
was brought online within the last (nx15) minutes. 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 for which valid
data is available."
::= { adslAtucChanPerfDataEntry 5 }

adslAtucChanPerfInvalidIntervals OBJECT-TYPE
SYNTAX      INTEGER(0..96)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The number of 15 minute intervals in which no valid
data is available."
::= { adslAtucChanPerfDataEntry 6 }

-- 15 min current performance group
--
adslAtucChanPerfCurr15MinTimeElapsed OBJECT-TYPE
SYNTAX      INTEGER(0..899)
UNITS       "seconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"Total elapsed seconds in this interval.
A full interval is 900 seconds."
::= { adslAtucChanPerfDataEntry 7 }

adslAtucChanPerfCurr15MinReceivedBlks OBJECT-TYPE
SYNTAX      Gauge32
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      Gauge32
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       Gauge32
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       Gauge32
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       INTEGER(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       Gauge32
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    Gauge32
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    Gauge32
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    Gauge32
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..86399)
UNITS      "seconds"
MAX-ACCESS read-only
STATUS    current
DESCRIPTION
"The time in the previous 1-day interval over which
the performance monitoring information is actually
counted. This value will normally be the same as the
total interval duration except in a situation where
performance monitoring information can not be collected
for any reason. Typically Elapsed 1-day time will be
copied into Monitored Seconds when the 1-day roll-over
occurs."
 ::= { adslAtucChanPerfDataEntry 17 }

adslAtucChanPerfPrev1DayReceivedBlks  OBJECT-TYPE
SYNTAX    Gauge32
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      Gauge32
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      Gauge32
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      Gauge32
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 INTEGER,
adslAturChanPerfCurr15MinReceivedBlks Gauge32,
adslAturChanPerfCurr15MinTransmittedBlks Gauge32,
adslAturChanPerfCurr15MinCorrectedBlks Gauge32,
adslAturChanPerfCurr15MinUncorrectBlks Gauge32,
adslAturChanPerfCurr1DayTimeElapsed INTEGER,
adslAturChanPerfCurr1DayReceivedBlks Gauge32,
adslAturChanPerfCurr1DayTransmittedBlks Gauge32,
adslAturChanPerfCurr1DayCorrectedBlks Gauge32,
adslAturChanPerfCurr1DayUncorrectBlks Gauge32,
adslAturChanPerfPrev1DayMoniSecs INTEGER,
adslAturChanPerfPrev1DayReceivedBlks Gauge32,
adslAturChanPerfPrev1DayTransmittedBlks Gauge32,
adslAturChanPerfPrev1DayCorrectedBlks Gauge32,
adslAturChanPerfPrev1DayUncorrectBlks Gauge32
}

-- 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
"Number of previous 15-minute intervals in the adslAturChanIntervalTable Table for which valid data has been stored. This value will be equal to the max # of intervals that are kept (n) unless the device was brought online within the last (nx15) minutes. 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 for which valid data is available."
 ::= { adslAturChanPerfDataEntry 5 }

adslAturChanPerfInvalidIntervals OBJECT-TYPE
SYNTAX INTEGER(0..96)
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of 15 minute intervals in which no valid
data is available."
::= { adslAturChanPerfDataEntry 6 }

-- 15 min current performance group
--
adslAturChanPerfCurr15MinTimeElapsed OBJECT-TYPE
SYNTAX INTEGER(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 Gauge32
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 Gauge32
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 Gauge32
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 Gauge32
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 INTEGER(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 Gauge32
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 Gauge32
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 Gauge32
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 Gauge32
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..86399)
UNITS "seconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The time in the previous 1-day interval over which the performance monitoring information is actually counted. This value will normally be the same as the total interval duration except in a situation where performance monitoring information can not be collected for any reason. Typically Elapsed 1-day time will be copied into Monitored Seconds when the 1-day roll-over occurs."

::= { adslAturChanPerfDataEntry 17 }

adslAturChanPerfPrev1DayReceivedBlks OBJECT-TYPE
SYNTAX Gauge32
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 Gauge32
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      Gauge32
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      Gauge32
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 {
    adslAtucChanIntervalNumberOf INTEGER,
adslAtucChanIntervalReceivedBlks Gauge32,
adslAtucChanIntervalTransmittedBlks Gauge32,
adslAtucChanIntervalCorrectedBlks Gauge32,
adslAtucChanIntervalUncorrectBlks Gauge32,
adslAtucChanIntervalValidData       TruthValue
adslAtucChanIntervalNumber OBJECT-TYPE
SYNTAX      INTEGER(1..96)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
  "Performance Data Interval number. 1 is the
  most recent interval; interval 96 is 24
  hours ago. Interval 2..96 are optional."
::= { adslAtucChanIntervalEntry 1 }

adslAtucChanIntervalReceivedBlks OBJECT-TYPE
SYNTAX      Gauge32
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      Gauge32
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      Gauge32
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      Gauge32
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 object indicates if there is valid data for this interval."
 ::= { 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         Gauge32,
    adslAturChanIntervalTransmittedBlks      Gauge32,
    adslAturChanIntervalCorrectedBlks        Gauge32,
    adslAturChanIntervalUncorrectBlks        Gauge32,
    adslAturChanIntervalValidData            TruthValue
}

adslAturChanIntervalNumber OBJECT-TYPE
SYNTAX      INTEGER(1..96)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
"Performance Data Interval number.  1 is the most recent interval; interval 96 is 24 hours ago.  Interval 2..96 are optional."
 ::= { adslAturChanIntervalEntry 1 }
adslAturChanIntervalReceivedBlks OBJECT-TYPE
SYNTAX      Gauge32
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      Gauge32
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      Gauge32
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      Gauge32
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 object indicates if there is valid data
for this interval."
::= { adslAturChanIntervalEntry 6 }

-- Profile Group
--
adslLineConfProfileIndexNext OBJECT-TYPE
SYNTAX INTEGER
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object contains an appropriate value to be used for adslLineConfProfileIndex when creating entries in the adslLineConfProfileTable. The value '0' indicates that no unassigned entries are available. To obtain the adslLineConfProfileIndexNext value for a new entry, the manager issues a management protocol retrieval operation to obtain the current value of this object. After each retrieval, the agent should modify the value to the next unassigned index.

If the implementator of this MIB has chosen not to implement 'dynamic assignment' of profiles, this object is not useful and should return noSuchObject upon SNMP request."
 ::= { adslMibObjects 14}

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 15}

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. A profile is created in one step with all necessary parameter values and adslLineProfileRowStatus set to createAndGo. This RowStatus object is also used to delete destroy profiles."
INDEX { adslLineConfProfileIndex}
 ::= { adslLineConfProfileTable 1}

AdslLineConfProfileEntry ::=
SEQUENCE {
  adslLineConfProfileIndex
  AdslLineProfileType,
  adslAtucConfRateMode INTEGER,
  adslAtucConfRateChanRatio INTEGER,
  adslAtucConfTargetSnrMgn INTEGER,
  adslAtucConfMaxSnrMgn INTEGER,
  adslAtucConfMinSnrMgn INTEGER,
  adslAtucConfDownshiftSnrMgn INTEGER,
  adslAtucConfUpshiftSnrMgn INTEGER,
  adslAtucConfMinUpshiftTime INTEGER,
  adslAtucConfMinDownshiftTime INTEGER,
  adslAtucChanConfFastMinTxRate INTEGER,
  adslAtucChanConfFastMaxTxRate INTEGER,
  adslAtucChanConfInterleaveMinTxRate INTEGER,
  adslAtucChanConfInterleaveMaxTxRate INTEGER,
  adslAtucChanConfMaxInterleaveDelay INTEGER,
  adslAturConfRateMode INTEGER,
  adslAturConfRateChanRatio INTEGER,
  adslAturConfTargetSnrMgn INTEGER,
  adslAturConfMaxSnrMgn INTEGER,
  adslAturConfMinSnrMgn INTEGER,
  adslAturConfDownshiftSnrMgn INTEGER,
  adslAturConfUpshiftSnrMgn INTEGER,
  adslAturConfMinUpshiftTime INTEGER,
  adslAturConfMinDownshiftTime INTEGER,
  adslAturChanConfFastMinTxRate INTEGER,
  adslAturChanConfFastMaxTxRate INTEGER,
  adslAturChanConfInterleaveMinTxRate INTEGER,
  adslAturChanConfInterleaveMaxTxRate INTEGER,
  adslAturChanConfMaxInterleaveDelay INTEGER,
  adslLineConfProfileRowStatus RowStatus
}

adslLineConfProfileIndex OBJECT-TYPE
SYNTAX      AdslLineProfileType
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"
 ::= { 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 (i.e., RADSL)
}
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"Defines what form of transmit rate adaptation is
configured on this modem.  See ADSL Forum TR-005 [3]
for more information."
::= { adslLineConfProfileEntry 2 }

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

adslAtucConfRateChanRatio =

    [Fast / (Fast + Interleaved)] * 100

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

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

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

::= { adslLineConfProfileEntry 5 }

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

::= { adslLineConfProfileEntry 6 }

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

::= { adslLineConfProfileEntry 7 }

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

::= { adslLineConfProfileEntry 8 }

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

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

adslAtucChanConfFastMinTxRate  OBJECT-TYPE
SYNTAX      INTEGER
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      INTEGER
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      INTEGER
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 INTEGER
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 (i.e., RADSL)
}
Max-Access: read-create
INTERNET-DRAFT               ADSL Line MIB                August 7, 1998

STATUS      current
DESCRIPTION
"Defines what form of transmit rate adaptation is
configured on this modem. See ADSL Forum TR-005 [3]
for more information."
::= { adslLineConfProfileEntry 16 }

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

[Fast / (Fast + Interleaved)] * 100

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

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

adslAturConfMaxSnrMgn OBJECT-TYPE
SYNTAX      INTEGER(0..310)
UNITS       "tenth dB"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
"Configured Maximum acceptable Signal/Noise Margin.
If the Noise Margin is above this the modem should
attempt to reduce its power output to optimize its
operation."
::= { adslLineConfProfileEntry 19 }

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

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

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

adslAturConfMinUpshiftTime OBJECT-TYPE
SYNTAX      INTEGER(0..16383)
UNITS       "seconds"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
"Minimum time that the current margin is above
UpshiftSnrMgn before an upshift occurs.
In the case that RADSL is not present, the value will
be '0'.

::= { adslLineConfProfileEntry 23 }

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

::= { adslLineConfProfileEntry 24 }

adslAturChanConfFastMinTxRate  OBJECT-TYPE
SYNTAX INTEGER
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 INTEGER
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 INTEGER
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 INTEGER
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.

If the implementator of this MIB has chosen not to implement 'dynamic assignment' of profiles, this object is not useful and should return noSuchObject upon SNMP request."

::= { adslLineConfProfileEntry 30 }
adslLineAlarmConfProfileIndexNext OBJECT-TYPE
SYNTAX INTEGER
MAX-ACCESS read-only
STATUS current
DESCRIPTION "This object contains an appropriate value to be used for adslLineAlarmConfProfileIndex when creating entries in the adslLineAlarmConfTable. The value '0' indicates that no unassigned entries are available. To obtain the adslLineAlarmConfProfileIndexNext value for a new entry, the manager issues a management protocol retrieval operation to obtain the current value of this object. After each retrieval, the agent should modify the value to the next unassigned index.

If the implementator of this MIB has chosen not to implement 'dynamic assignment' of profiles, this object is not useful and should return noSuchObject upon SNMP request."
 ::= { adslMibObjects 16}

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 17}

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. A profile is created in one step with all necessary parameter values and adslLineAlarmConfProfileRowStatus set to createAndGo. This RowStatus object is also used to delete destroy profiles."
INDEX { adslLineAlarmConfProfileIndex}
 ::= { adslLineAlarmConfProfileTable 1}

AdslLineAlarmConfProfileEntry ::=
SEQUENCE {
  adslLineAlarmConfProfileIndex
  AdslLineProfileType,
  adslAtucThresh15MinLofs                INTEGER,
  adslAtucThresh15MinLoss                INTEGER,
  adslAtucThresh15MinLols                INTEGER,
  adslAtucThresh15MinLprs                INTEGER,
  adslAtucThresh15MinESs                 INTEGER,
  adslAtucThreshFastRateUp               Integer32,
  adslAtucThreshInterleaveRateUp         Integer32,
  adslAtucThreshFastRateDown             Integer32,
  adslAtucThreshInterleaveRateDown       Integer32,
  adslAtucInitFailureTrapEnable          INTEGER,
  adslAturThresh15MinLofs                INTEGER,
  adslAturThresh15MinLoss                INTEGER,
  adslAturThresh15MinLols                INTEGER,
  adslAturThresh15MinLprs                INTEGER,
  adslAturThresh15MinESs                 INTEGER,
  adslAturThreshFastRateUp               Integer32,
  adslAturThreshInterleaveRateUp         Integer32,
  adslAturThreshFastRateDown             Integer32,
  adslAturThreshInterleaveRateDown       Integer32,
  adslLineAlarmConfProfileRowStatus      RowStatus
}

adslLineAlarmConfProfileIndex OBJECT-TYPE
SYNTAX      AdslLineProfileType
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"
::= { 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. Limit of one trap will be sent for any one interval. 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. Limit of one trap will be sent for any one interval. 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. Limit of one trap will be sent for any one interval. 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. Limit of one trap will be sent for any one interval. A value of '0' will disable the trap."
 ::= { adslLineAlarmConfProfileEntry 5}

adslAtucThresh15MinESs OBJECT-TYPE
SYNTAX INTEGER(0..900)
INTERNET-DRAFT               ADSL Line MIB                August 7, 1998

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.
Limit of one trap will be sent for any one interval.
A value of '0' will disable the trap."
 ::= { adslLineAlarmConfProfileEntry 6}

adslAtucThreshFastRateUp OBJECT-TYPE
SYNTAX      Integer32
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. Set to '0' to disable."
 ::= { adslLineAlarmConfProfileEntry 7}

adslAtucThreshInterleaveRateUp OBJECT-TYPE
SYNTAX      Integer32
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. Set to '0' to disable."
 ::= { adslLineAlarmConfProfileEntry 8}

adslAtucThreshFastRateDown OBJECT-TYPE
SYNTAX      Integer32
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. Set to ’0’ to disable.

::=  {  adslLineAlarmConfProfileEntry 9  }

adslAtucThreshInterleaveRateDown OBJECT-TYPE
SYNTAX        Integer32
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. Set to ’0’ to disable."

 ::=  {  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 adslAtucPerfLofsThreshTrap. Limit of one trap will be sent for any one interval. 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 adslAtucPerfLossThreshTrap. Limit of one trap will be sent for any one interval. 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 adslAtucPerfLprsThreshTrap. Limit of one trap will be sent for any one interval. 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 adslAtucPerfESsThreshTrap. Limit of one trap will be sent for any one interval. A value of '0' will disable the trap."
::= { adslLineAlarmConfProfileEntry 15 }

adslAturThreshFastRateUp OBJECT-TYPE
SYNTAX Integer32
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. Set to '0' to disable."
::= { adslLineAlarmConfProfileEntry 16 }

adslAturThreshInterleaveRateUp OBJECT-TYPE
SYNTAX Integer32
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. Set to '0' to disable."
::= { adslLineAlarmConfProfileEntry 17 }

adslAturThreshFastRateDown OBJECT-TYPE
SYNTAX Integer32
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. Set to '0' to disable."
::= { adslLineAlarmConfProfileEntry 18 }

adslAturThreshInterleaveRateDown OBJECT-TYPE
SYNTAX Integer32
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. Set to '0' to disable."
::= { 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.

If the implementator of this MIB has chosen not to implement 'dynamic assignment' of profiles, this object is not useful and should return noSuchObject upon SNMP request."
 ::= { adslLineAlarmConfProfileEntry 20 }

-- Line Code Specific Tables

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

adslLCSTable OBJECT IDENTIFIER ::= { adslMibObjects 18 }

-- conformance information

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

-- compliance statements

adslLineMibCompliance MODULE-COMPLIANCE
 STATUS  current
 DESCRIPTION
 "The compliance statement for SNMP entities which have ADSL interfaces."

MODULE  -- this module
MANDATORY-GROUPS
 { adslLineGroup, adslPhysicalGroup, adslChannelGroup, adslAtucPhysPerfIntervalGroup, adslAturPhysPerfIntervalGroup, adslLineProfileGroup, adslLineAlarmProfileGroup }

GROUP       adslLineProfileControlGroup
 DESCRIPTION
"This group is mandatory only when the dynamic profile mode is implemented."

GROUP       adslAtucPhysPerfRawCounterGroup
DESCRIPTION  
"This group is optional."

GROUP       adslAturPhysPerfRawCounterGroup
DESCRIPTION  
"This group is optional."

GROUP       adslAtucChanPerformanceGroup
DESCRIPTION  
"This group is optional."

GROUP       adslAturChanPerformanceGroup
DESCRIPTION  
"This group is optional."

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

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

::= { adslCompliances 1 }

-- units of conformance
adslLineGroup OBJECT-GROUP
OBJECTS { 
INTERNET-DRAFT  ADSL Line MIB  August 7, 1998

ads1LineCoding, ads1LineType, ads1LineSpecific
)
STATUS     current
DESCRIPTION
  "A collection of objects providing configuration
  information about an ADSL Line."
::= { adslGroups 1 }

adslPhysicalGroup  OBJECT-GROUP
OBJECTS {
  ads1AtucInvSerialNumber, ads1AtucInvVendorID,
  ads1AtucInvVersionNumber, ads1AtucCurrSnrMgn,
  ads1AtucCurrAtn, ads1AtucCurrStatus,
  ads1AtucCurrOutputPwr, ads1AtucCurrAttainableRate,
  ads1AturInvSerialNumber, ads1AturInvVendorID,
  ads1AturInvVersionNumber, ads1AturCurrSnrMgn,
  ads1AturCurrAtn, ads1AturCurrStatus,
  ads1AturCurrOutputPwr, ads1AturCurrAttainableRate
}
STATUS     current
DESCRIPTION
  "A collection of objects providing physical
  configuration information of the ADSL Line."
::= { adslGroups 2 }

adslChannelGroup  OBJECT-GROUP
OBJECTS {
  ads1AtucChanInterleaveDelay, ads1AtucChanCurrTxRate,
  ads1AtucChanPrevTxRate, ads1AtucChanCrcBlockLength,
  ads1AturChanInterleaveDelay, ads1AturChanCurrTxRate,
  ads1AturChanPrevTxRate, ads1AturChanCrcBlockLength
}
STATUS     current
DESCRIPTION
  "A collection of objects providing configuration
  information about an ADSL channel."
::= { adslGroups 3 }

adslAtucPhysPerfRawCounterGroup OBJECT-GROUP
OBJECTS {
  ads1AtucPerfLofs, ads1AtucPerfLoss,
  ads1AtucPerfLosls, ads1AtucPerfLprs,
  ads1AtucPerfESs, ads1AtucPerfInits
}
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 }
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
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 }

adslLineProfileGroup OBJECT-GROUP
OBJECTS {
  adslAtucConfRateMode, adslAtucConfRateChanRatio,
  adslAtucConfTargetSnrMgn, adslAtucConfMaxSnrMgn,
  adslAtucConfMinSnrMgn,
  adslAtucConfDownshiftSnrMgn,
  adslAtucConfUpshiftSnrMgn,
  adslAtucConfMinUpshiftTime,
INTERNET-DRAFT  ADSL Line MIB  August 7, 1998

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 }

adslLineAlarmProfileGroup 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 }

adslLineProfileControlGroup OBJECT-GROUP

OBJECTS 

Expires February 1999

[Page 88]
adslLineConfProfile, adslLineAlarmConfProfile,
adslLineConfProfileIndexNext,
adslLineConfProfileRowStatus,
adslLineAlarmConfProfileIndexNext,
adslLineAlarmConfProfileRowStatus

STATUS current
DESCRIPTION
"A collection of objects providing 'dynamic' profile control for the ADSL system."
 ::= { adslGroups 12 }

-- trap definitions

adslTraps OBJECT IDENTIFIER ::= { adslLineMib 3 }
adslAtucTraps OBJECT IDENTIFIER ::= { adslTraps 1 }

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

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

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

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

adslAtucRateChangeTrap NOTIFICATION-TYPE
OBJECTS { ifIndex, adslAtucChanCurrTxRate,
adslAtucChanPrevTxRate 

STATUS current
DESCRIPTION "The ATUCs transmit rate has changed (RADSL mode only)"
::= { adslAtucTraps 0 5 }

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

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

adslAturTraps OBJECT IDENTIFIER ::= { adslTraps 2 }

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

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

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

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

adslAturRateChangeTrap  NOTIFICATION-TYPE
 OBJECTS {ifIndex, adslAturChanCurrTxRate,
          adslAturChanPrevTxRate }
 STATUS  current
 DESCRIPTION
"The ATURs transmit rate has changed (RADSL mode only)"
 ::= { adslAturTraps 0 5 }

-- no adslAturPerfLolsThreshTrap possible { 6 }

-- no adslAturInitFailureTrap possible { 7 }

-- these are defined for use as ifTestTypes (see RFC2233[5])
-- additional vendor-specific tests are easily supported
-- (just define in vendor MIB)

--
adslTestTypes OBJECT-IDENTITY
 STATUS      current
 DESCRIPTION
"Integer values as follows:
 atuSelfTest (1),
 aturSelfTest (2)
"
 ::= { adslLineMib 4 }

adslTestCodes OBJECT IDENTIFIER ::= { adslLineMib 5 }

END

10. Acknowledgments

ADSL Forum’s TR006[9] editors:

 Gregory Bathrick (AG Communication Systems)
 John Burgess (Predictive Systems)

The technical leader of the ADSL Forum network management working
group was:

 Chi-Lin Tom (AFC)

Contributions were received from the following contributors.

 Rajesh Abbi (Alcatel)
11. References


12. 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) Security issues of unauthorized access, unauthorized disclosure, and tampering posed by direct network level connectivity to the ADSL Access Node can be addressed by the use of SNMPv3.

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.

13. Authors’ Addresses

    Gregory Bathrick
    AG Communication Systems
    2500 W Utopia Rd.
    Phoenix, AZ 85027 USA
    Tel: +1 602-582-7679
    Fax: +1 602-582-7697
    E-MAIL: bathricg@agcs.com

Table of Contents

1. Status of this Memo .................................... 1
2. Abstract ................................................... 1
3. The SNMP Network Management Framework ................. 2
4. Object Definitions ....................................... 3
5. Introduction ............................................. 3
6. Relationship of the ADSL LINE MIB with standard MIBs ... 3
7. Conventions used in the MIB ............................ 9
8. Conformance and Compliance ............................ 16
9. Definitions ............................................. 16
10. Acknowledgments ...................................... 91
11. References ............................................ 92

Expires February 1999
12. Security Considerations ........................................ 94

13. Authors’ Addresses ................................................ 95