

Technical Report TR-026

T1.413 Issue 2 ATM based ADSL ICS

September 9, 1999

'1999 Asymmetric Digital Subscriber Line Forum. All Rights Reserved.

ADSL Forum technical reports may be copied, downloaded, stored on a server or otherwise re-distributed in their entirety only.

Notwithstanding anything to the contrary, The ADSL Forum makes no representation or warranty, expressed or implied, concerning this publication, its contents or the completeness, accuracy, or applicability of any information contained in this publication. No liability of any kind shall be assumed by The ADSL Forum as a result of reliance upon any information contained in this publication. The ADSL Forum does not assume any responsibility to update or correct any information in this publication.

The receipt or any use of this document or its contents does not in any way create by implication or otherwise any express or implied license or right to or under any patent, copyright, trademark or trade secret rights which are or may be associated with the ideas, techniques, concepts or expressions contained herein.

Table of Contents

1. REVISION HISTORY	4
2. INTRODUCTION	4
3. SCOPE	4
4. A GUIDE TO THE USE OF THE ADSL ICS PROFORMA	4
4.1 Abbreviations and conventions	4
4.2 Instructions for completing the ICS proforma	6
4.3 Examples	6
5. REFERENCES	7
ANNEX A : CONFORMANCE STATEMENT	7
A.1 Identification of the implementation	7
A.2 Date of the statement	8
A.3 Implementation Under Test (IUT) identification	8
A.4 System Under Test (SUT) identification	8
A.5 Product supplier Name	8
A.6 Client (if different from product supplier) Name	9
A.7 Identification of the reference standard	10
A.8 Global statement of conformance	10
ANNEX B : PHYSICAL LAYER ADSL ICS	11
B.1 Initialization sequence	11
B.1.1 Activation and acknowledgment	11
B.2 Transceiver Training	12
B.2.1 Method of loop timing acquisition	12
B.2.2 Tones used in REVERB	13
B.2.3 Used tones during SEGUE	13
B.2.4 ECT Signal	14
B.2.5 R-QUIET3/R-REVERB2 symbol alignment	14
B.3 Channel analysis	14

B.3.1	MSG1 messages	15
B.3.2	RATES1 messages	16
B.3.3	Tones used in MEDLEY	18
B.4	Exchange	18
B.4.1	MSG-RA messages	19
B.4.2	RATES-RA messages	19
B.4.3	MSG2 messages	20
B.4.4	RATES2 messages	20
B.4.5	B&G tables	21
B.5	Showtime	22
B.5.1	Steady state PSD	22
B.5.2	Framing	22
B.5.3	Embedded Operations Channel (EOC)	23
B.5.4	ADSL Overhead Channel (AOC)	24
B.6	OAM	24
B.6.1	Indicator bits, ADSL line related	25
B.6.2	Indicator bits, ATM data path related	25
B.6.3	ADSL line related failures and counters	26
B.6.4	ATM data path related failures and counters	27
B.6.5	Performance monitoring	28
B.6.6	Test parameter Support	29
ANNEX C	: ELECTRICAL ADSL ICS	30
C.1	ATU and HPF Characteristics	30
C.1.1	ATU AND HPF DC CHARACTERISTICS	30
C.1.2	ATU and HPF Input Impedance	30
C.1.3	ATU and HPF Longitudinal Balance	30
C.2	POTS Splitter Voice Band Characteristics	30
C.2.1	POTS Splitter DC Characteristics	30
C.2.2	POTS Splitter Voice Band Insertion Loss	31
C.2.3	POTS Splitter Voice Band Attenuation Distortion	31
C.2.4	POTS Splitter Voice Band Delay Distortion	32
C.2.5	POTS Splitter Voice Band Return Loss	32
C.2.6	POTS Splitter Harmonic Distortion	33
C.2.7	POTS Splitter Longitudinal Balance	33
C.2.8	POTS Splitter Transparent Testing Capacitance	33
C.3	POTS Splitter ADSL Band Characteristics	34
C.3.1	POTS Splitter ADSL Band Attenuation	34
C.3.2	POTS Splitter Input Impedance	34
LIST OF TABLES		35

1. Revision History

Date (M/D/Y)	Version	Major Changes.
12/1/98	1	Creation, First draft.
3/1/99	2	Swap body and annex, 3 annexes
3/24/99	3	Include contributions 99-014,99-004
5/26/99	4	Prepare for first straw ballot
9/1/1999, 9/9/99	5	Comments from 99-179,99-233 as agreed at Hawaii meeting. Minor edits (spaces, table of contents, etc.)

2. Introduction

The ADSL Forum Testing & Interoperability Working Group has developed this ADSL ICS (ADSL Implementation Conformance Statement).

The ADSL ICS can be used for several purposes:

1. As a starting document used by two equipment vendors to determine their respective implementations and their degree of interoperability.
2. As a guide for selection of the appropriate test cases to build a test suite.
3. For self-verification or certification of compliance to a specific standard, when comparing to an ADSL ICS filled out with the requirements of this standard.

When this proforma list is filled out by both parties and a match is obtained, then interoperability should be possible. Having a match for interoperability does not imply that the systems are [ANSI] compliant.

3. Scope

This Technical Report presents an ADSL ICS list targeting an [ANSI] compliant system. This ADSL ICS contains an ICS for an ATM based implementation. An STM based ICS is for further study.

Three types of ICS exist:

1. Electrical ICS,
2. Physical Layer ICS, and
3. Protocol ICS (also called PICS).

The format of the ADSL ICS is according to the guidelines specified in [ETR212]. [ETR212] also references [ISO9646].

ANNEX A contains the Conformance statement.

ANNEX B contains the Physical layer ADSL ICS.

ANNEX C contains the electrical ADSL ICS. Each ANNEX can be used as a proforma.

The Protocol ICS is for further study.

4. A guide to the use of the ADSL ICS proforma

4.1 Abbreviations and conventions

The information in this document is comprised of information in tabular form in accordance with the guidelines of [ETR212] and [ISO9646]. A detailed description of how to create or fill out the ICS can be found in these documents.

The item column contains a number which identifies the item in the table. The item description column describes in free text each respective item (e.g., parameters, timers). It implicitly means "is <item description> supported by the implementation?".

Status column

The following notations, defined in [ISO9646], are used for the status column:

- m mandatory - the capability is required to be supported.
- o optional - the capability may be supported or not.
- n/a not applicable - in the given context, it is impossible to use the capability.
- x prohibited (excluded) - there is a requirement not to use this capability in the given context.
- o.i qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which identifies an unique group of related optional items and the logic of their selection which is defined immediately following the table.

NOTE: In the case where items of the group do not always belong to the same table, all o.i shall be defined in the last sub-clause of the ICS proforma.

- c.i conditional - the requirement on the capability ("m", "o", "x" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying an unique conditional status expression which is defined immediately following the table.

Reference column

The reference column makes references to [ANSI], except where explicitly stated otherwise.

Support column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in [ISO9646], are used for the support column:

- Y or y supported by the implementation
- N or n not supported by the implementation
- N/A, n/a or - no answer required (allowed only if the status is n/a, directly or after evaluation of a conditional status)

Values allowed column

The values allowed column contains the type, the list, the range, or the length of values allowed. The following notations are used:

- range of values: <min value> .. <max value>
example: 5 .. 20
- list of values: <value1>, <value2>,, <valueN>
example: 2 ,4 ,6 ,8, 9
example: '1101'B, '1011'B,
example: '0A'H, '34'H, '2F'H
- list of named values: <name1>(<val1>), <name2>(<val2>),, <nameN>(<valN>)
example: reject(1), accept(2)
- length: size (<min size> .. <max size>)
example: size (1 .. 8)
- comment: one can give additional useful information an item in the form Ô- <comment>Ó
For example in case of a list of values, a unit of measurement can be added
example: 1..63 -- dB

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.