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Network to Customer Installation Interfaces – Asymmetric Digital Subscriber Line (ADSL) Metallic Interface

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ATIS-0600413.2009(S024), *Network to Customer installation Interfaces – Asymmetric Digital Subscriber Line (ADSL) Metallic Interface*

Is an American National Standard developed by the **Network Access Interfaces (NAI)** Subcommittee under the **ATIS Copper/ Optical Access, Synchronization and Transport Committee (COAST)**.

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NETWORK TO CUSTOMER INSTALLATION INTERFACES -- ASYMMETRIC DIGITAL SUBSCRIBER LINE (ADSL) METALLIC INTERFACE

Alliance for Telecommunications Industry Solutions

Approved March 23, 2009

American National Standards Institute, Inc.

Abstract

This standard describes the interface between the telecommunications network and the customer installation in terms of their interaction and electrical characteristics. The requirements of this standard apply to a single asymmetric digital subscriber line (ADSL).

FOREWORD

The information contained in this Foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. As such, this Foreword may contain material that has not been subjected to public review or a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.

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ANSI guidelines specify two categories of requirements: mandatory and recommendation. The mandatory requirements are designated by the word *shall* and recommendations by the word *should*. Where both a mandatory requirement and a recommendation are specified for the same criterion, the recommendation represents a goal currently identifiable as having distinct compatibility or performance advantages.

Suggestions for improvement of this document are welcome. They should be sent to the Alliance for Telecommunications Industry Solutions, COAST, 1200 G Street NW, Suite 500, Washington, DC 20005.

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1 SCOPE & PURPOSE

1.1 Scope

This standard describes the interface between the telecommunications network and the customer installation in terms of their interaction and electrical characteristics. The requirements of this standard apply to a single asymmetric digital subscriber line (ADSL). ADSL allows the provision of voiceband services (including POTS and data services up to 56 kbit/s) and a variety of digital channels. In the direction from the network to the customer premises the digital bearer channels may consist of full-duplex low-speed bearer channels and simplex high-speed bearer channels; in the other direction, only low-speed bearer channels are provided.

The transmission system is designed to operate on two-wire twisted metallic cable pairs with mixed gauges. The standard is based on the use of cables without loading coils, but bridged taps are acceptable in all but a few unusual situations.

Specifically, this standard:

- Describes the transmission technique used to support the simultaneous transport of voiceband services and both simplex and duplex digital channels on a single twisted-pair.
- Defines the combined options and ranges of the digital simplex and full-duplex channels provided.
- Defines the line code and the spectral composition of the signals transmitted by both ATU-C and ATU-R.
- Specifies the transmit signals at both the ATU-C and ATU-R.
- Describes the electrical and mechanical specifications of the network interface.
- Describes the organization of transmitted and received data into frames.
- Defines the functions of the operations channel.
- Defines the ATU-R to service module(s) interface functions.
- Defines the Transmission Convergence Sub-layer for ATM transport.

1.2 Purpose

This interface standard defines the minimal set of requirements to provide satisfactory simultaneous transmission between the network and the customer interface of POTS and a variety of high-speed simplex and low-speed duplex channels. The standard permits network providers an expanded use of existing copper facilities. All Layer 1 aspects required to ensure compatibility