

# Technical Report TR-007

## Interfaces and System Configurations for ADSL: Customer Premises

March 1998

**ABSTRACT:**

This project describes interfaces and system configurations for the ADSL customer premises. It covers electrical interfaces, connectorization, and wiring topologies with emphasis on POTS splitter issues, customer interfaces, and Premises Distribution Networks. Where possible, technical information will be obtained by reference to existing specifications, and by liaison to technical standards groups.

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# Interfaces/System Configuration for ADSL: Customer Premises

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## 1. Introduction

### 1.1 Statement of project

This project intends to define electrical interfaces, connectorization, and wiring topology for ADSL customer premises installations. Where possible, technical information will be obtained by reference to existing specifications, and by liaison to technical standards groups. The work on this project is limited to addressing the interfaces necessary to support existing single user connections methods as well as multi-user connection methods utilizing Premises Distribution Networks (passive and active) for Bit Synchronous data, ATM data, and Packet data. Future work may be undertaken that addresses the use of emerging Premises Distribution Networks and the interfaces required to support them.

### 1.2 List of Acronyms

AC	Alternating Current
ADSL	Asymmetric Digital Subscriber Line
AMI	Alternate Mark Inversion
ANSI	American National Standards Institute
ATM	Asynchronous Transfer Mode
ATU-C	ADSL Transmission Unit at the Central Office End
ATU-R	ADSL Transmission Unit at the CPE End
CD	Compact Disk
CPE	Customer Premises Equipment
CEBus	Consumer Electronics Bus
CSMA/CD	Carrier Sense Multiple Access Collision Detect
DVCR	Digital Videocassette Recorder
ETSI	European Telecommunications Standards Institute
HPF	High Pass Filter
HDB3	High Density Bipolar Three
IEEE	Institute of Electrical and Electronics Engineers
I/O	Input Output
ISA	Industry Standard Architecture (A PC bus standard)
ISDN	Integrated Services Digital Network
ITU	International Telecommunications Union
ITU G.703	Physical/Electrical Characteristics of Hierarchical Digital Interfaces
ITU G.704	Synchronous Frame Structures Used at Primary and Secondary Hierarchy Levels
LPF	Low Pass Filter
MDSL	Moderate speed Digital Subscriber Line
NID	Network Interface Device
P1394	An IEEE Serial Bus Standard
PC	Personal Computer
PCI	Peripheral Component Interconnect
PCMCIA	Personal Computer Memory Card International Association
POTS	Plain Old Telephony Service
PSTN	Public Switched Telephone Network
RJ45	10BASE-T Connector Standard for Connecting UTP Cabling
TIA422	A Medium Range (typically up to 300m or more) Serial Data Transmission Standard
SONET	Synchronous Optical Network
T1	A Telecommunications Standard Committee
T1.403	Carrier to Customer Installation DS1 Metallic Interface
T1.413-1995	ANSI Standard for ADSL modems
T1E1.4	An ANSI committee for Interfaces, Network Power & Protection Digital Subscriber Loop Access
TBD	To be determined
T.E.	Terminal Equipment
TPA	P1394 signal link
TPB	P1394 signal link
TR41	User Premises Telecom Requirements Committee
TV	Television
UTP	Unshielded Twisted Pair
WT	Working Text
WT-003	Bit Synchronous Mode Working Text

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