



ATIS-1000059.2024

**Emergency Telecommunications Service
Wireline Access Requirements**

AMERICAN NATIONAL STANDARD FOR TELECOMMUNICATIONS



As a leading technology and solutions development organization, the Alliance for Telecommunications Industry Solutions (ATIS) brings together the top global ICT companies to advance the industry's most pressing business priorities. ATIS' nearly 200 member companies are currently working to address the All-IP transition, 5G, network functions virtualization, big data analytics, cloud services, device solutions, emergency services, M2M, cyber security, network evolution, quality of service, billing support, operations, and much more. These priorities follow a fast-track development lifecycle — from design and innovation through standards, specifications, requirements, business use cases, software toolkits, open source solutions, and interoperability testing.

ATIS is accredited by the American National Standards Institute (ANSI). The organization is the North American Organizational Partner for the 3rd Generation Partnership Project (3GPP), a founding Partner of the oneM2M global initiative, a member of the International Telecommunication Union (ITU), as well as a member of the Inter-American Telecommunication Commission (CITEL). For more information, visit www.atis.org.

AMERICAN NATIONAL STANDARD

Approval of an American National Standard requires review by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made towards their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Notice of Disclaimer & Limitation of Liability

The information provided in this document is directed solely to professionals who have the appropriate degree of experience to understand and interpret its contents in accordance with generally accepted engineering or other professional standards and applicable regulations. No recommendation as to products or vendors is made or should be implied.

NO REPRESENTATION OR WARRANTY IS MADE THAT THE INFORMATION IS TECHNICALLY ACCURATE OR SUFFICIENT OR CONFORMS TO ANY STATUTE, GOVERNMENTAL RULE OR REGULATION, AND FURTHER, NO REPRESENTATION OR WARRANTY IS MADE OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR AGAINST INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. ATIS SHALL NOT BE LIABLE, BEYOND THE AMOUNT OF ANY SUM RECEIVED IN PAYMENT BY ATIS FOR THIS DOCUMENT, AND IN NO EVENT SHALL ATIS BE LIABLE FOR LOST PROFITS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. ATIS EXPRESSLY ADVISES THAT ANY AND ALL USE OF OR RELIANCE UPON THE INFORMATION PROVIDED IN THIS DOCUMENT IS AT THE RISK OF THE USER.

NOTE - The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, no position is taken with respect to whether use of an invention covered by patent rights will be required, and if any such use is required no position is taken regarding the validity of this claim or any patent rights in connection therewith. Please refer to [<http://www.atis.org/legal/patentinfo.asp>] to determine if any statement has been filed by a patent holder indicating a willingness to grant a license either without compensation or on reasonable and non-discriminatory terms and conditions to applicants desiring to obtain a license.

ATIS-1000059.2024, *Emergency Telecommunications Service Wireline Access Requirements*

Is an American National Standard developed by the ATIS **Packet Technologies and Systems Committee (PTSC)**.

Published by

Alliance for Telecommunications Industry Solutions
1200 G Street, NW, Suite 500
Washington, DC 20005

Copyright © 2024 by Alliance for Telecommunications Industry Solutions
All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher. For information contact ATIS at 202.628.6380. ATIS is online at < <http://www.atis.org> >.

ATIS-1000059.2024

American National Standard for Telecommunications

Emergency Telecommunications Service Wireline Access Requirements

Alliance for Telecommunications Industry Solutions

Approved April 2, 2024

American National Standards Institute, Inc.

Abstract

This standard specifies Emergency Telecommunications Service (ETS) network element requirements for wireline access in support of ETS Voice and ETS Video. These requirements are based on the procedures defined in the ETS in IP Networks Phase 1 standard [ATIS-1000010]. In addition, Operations, Administration, Maintenance, and Provisioning (OAM&P) requirements are specified.

Foreword

The Alliance for Telecommunication Industry Solutions (ATIS) serves the public through improved understanding between providers, customers, and manufacturers. The Packet Technologies and Systems Committee (PTSC) develops and recommends standards and technical reports related to services, architectures, and signaling, in addition to related subjects under consideration in other North American and international standards bodies. PTSC coordinates and develops standards and technical reports relevant to telecommunications networks in the U.S., reviews and prepares contributions on such matters for submission to U.S. ITU-T and U.S. ITU-R Study Groups or other standards organizations, and reviews for acceptability or per contra the positions of other countries in related standards development and takes or recommends appropriate actions.

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. The word *may* denotes an optional capability that could augment the standard. The standard is fully functional without the incorporation of this optional capability.

NOTE - The user's attention is called to the possibility that compliance with this standard may require use of an invention covered by patent rights. By publication of this standard, no position is taken with respect to whether use of an invention covered by patent rights will be required, and if any such use is required no position is taken regarding the validity of this claim or any patent rights in connection therewith. Please refer to [<https://www.atis.org/policy/patent-assurances/>] to determine if any statement has been filed by a patent holder indicating a willingness to grant a license either without compensation or on reasonable and non-discriminatory terms and conditions to applicants desiring to obtain a license.

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

At the time of consensus on this document, PTSC, which was responsible for its development, had the following leadership:

M. Dolly, PTSC Chair (AT&T)

V. Shaikh, PTSC Vice Chair and Technical Editor (Peraton Labs)

Table of Contents

Foreword	ii
Table of Contents	iii
Table of Figures	iv
1 Scope & Purpose	1
1.1 Scope.....	1
1.2 Purpose.....	1
2 References.....	1
2.1 ANSI References	1
2.2 ITU	2
2.3 Other.....	2
2.3.1 ETSI.....	2
2.3.2 CableLabs	2
2.3.3 Broadband Forum	2
2.3.4 Metro Ethernet Forum	3
2.3.5 Federal Communications Commission	3
3 Definitions, Acronyms, & Abbreviations.....	3
3.1 Definitions	3
3.2 Acronyms & Abbreviations	3
4 Network Architecture Models	5
4.1 DSL Access Network.....	5
4.2 Fiber Access Network	6
4.3 Cable Access Network	7
4.4 Ethernet Access Network	8
5 Assumptions & General Principles	9
5.1 Assumptions	9
5.2 General Principles.....	10
6 Network Element Requirements.....	10
6.1 DSL Access Network Functional Entity Requirements.....	10
6.1.1 Common Requirements	10
6.1.2 CPE Access Gateway	11
6.1.3 DSL Access Network FE-Specific Requirements.....	11
6.1.4 Core Network.....	15
6.1.5 OAM&P.....	15
6.2 Fiber Access Network	16
6.2.1 Common Requirements	16
6.2.2 Fiber Access Network FE-Specific Requirements	16
6.2.3 Core Network.....	17
6.2.4 OAM&P.....	17
6.3 Cable Access Network	18
6.3.1 Common Requirements	18
6.3.2 General Requirements	18
6.3.3 FE-Specific Requirements.....	20
6.3.4 Core Network.....	23
6.3.5 OAM&P.....	24

6.4 Ethernet Access Network27

6.4.1 Common Requirements 27

6.4.2 NID, Edge Ethernet Switch, & Ethernet Switch..... 27

6.4.3 Ethernet Aggregation 27

6.4.4 Broadband Network Gateway 27

6.4.5 Regional Broadband Network 29

6.4.6 Core Network..... 29

6.4.7 OAM&P..... 29

Table of Figures

Figure 4.1 – DSL Access Network Architecture 6

Figure 4.2 – Fiber Access PON Reference Architecture 7

Figure 4.3 – Use of PON in the DSL Access Network..... 7

Figure 4.4 – PacketCable Reference Architecture 8

Figure 4.5 – Ethernet Access Network Architecture 9

American National Standard for Telecommunications –

ETS Wireline Access Requirements

1 Scope & Purpose

1.1 Scope

This standard specifies Emergency Telecommunications Service (ETS) network element requirements for wireline access in support of ETS Voice and ETS Video. These requirements are based on the procedures defined in the ETS in IP Networks Phase 1 standard [ATIS-1000010]. In addition, Operations, Administration, Maintenance, and Provisioning (OAM&P) requirements are specified.

This Standard defines network element requirements for the following wireline access technologies:

- Digital Subscriber Line (DSL)
- Fiber
- Cable
- Ethernet

1.2 Purpose

The purpose of this document is to specify network element requirements for wireline access networks in support of ETS. The wireline access technologies discussed in this document are Digital Subscriber Line (DSL), Fiber (Broadband and Ethernet Passive Optical Networks [PONs]), Cable, and Metro Ethernet Access Networks. This Standard is intended to provide requirements for vendors to use in developing ETS capabilities for their equipment and for Service Providers to use in developing and delivering ETS. In addition, the purpose of this document is to demonstrate that ETS is implementable and interoperable in a multi-vendor environment for various wireline access network deployments.

2 References

2.1 ANSI References¹

[ATIS-1000010]	ATIS-1000010, <i>Support of Emergency Telecommunications Service (ETS) in IP Networks</i> .
[ATIS-1000049]	ATIS-1000049, <i>End-to-End NGN GETS Call Flows</i> .
[ATIS-1000056]	ATIS-1000056, <i>Access Networks Architecture Technical Report</i> .
[ATIS-1000066]	ATIS-1000066, <i>Emergency Telecommunications Service (ETS) Network Element Requirements for IMS-based Next Generation Network (NGN) Phase 2</i> .

¹ These documents are available from the Alliance for Telecommunications Industry Solutions (ATIS) at: < <https://www.atis.org> >.