ATIS-0300231.04.2019

SONET – Layer 1 In-Service Digital Transmission Performance Monitoring

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American National Standard for Telecommunications

SONET-- Layer 1 In-Service Digital Transmission Performance Monitoring

Alliance for Telecommunications Industry Solutions

Approved August 1, 2019

American National Standards Institute, Inc.

Abstract

This standard provides performance monitoring (PM) functions and requirements applicable to SONET digital transmission. This standard provides functional requirements to support maintenance and is not meant to be an equipment specification. This standard is one of a set of standards which are applications utilizing the common criteria as specified in ATIS-0300231.

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.

The Alliance for Telecommunication Industry Solutions (ATIS) serves the public through improved understanding between providers, customers, and manufacturers. The Telecom Management and Operations Committee (TMOC) develops operations, administration, maintenance and provisioning standards, and other documentation related to Operations Support System (OSS) and Network Element (NE) functions and interfaces for communications networks - with an emphasis on standards development related to U.S.A. communication networks in coordination with the development of international standards.

This standard specifies a basic set of monitoring requirements and provides criteria that are common to a set of standards, the ATIS-0300231 series, which define applications for a specific level in the digital hierarchy. The documents, which are included in the ATIS-0300231 series (at the time that this document is approved), are listed below:

- ATIS-0300231, *Layer 1 In-Service Transmission Performance Monitoring*.
- ATIS-0300231.01, *DSL – Layer 1 In-Service Digital Transmission Performance Monitoring*.
- ATIS-0300231.02, *DS1 – Layer 1 In-Service Digital Transmission Performance Monitoring*.
- ATIS-0300231.03, *DS3 – Layer 1 In-Service Digital Transmission Performance Monitoring*.
- ATIS-0300231.04, *SONET – Layer 1 In-Service Digital Transmission Performance Monitoring*.

This particular standard will be useful to anyone engaged in the design, provisioning, or operation of telecommunications equipment or services utilizing SONET digital transmission technology. The standard establishes uniform and consistent performance monitoring (PM) functions and requirements applicable to Layer 1 SONET digital transmission signals for the covered levels of the North American digital transmission hierarchy. This standard is intended to be a living document, subject to revision and updating as warranted by advances in digital transmission technology

Compliance with the standard should provide uniform and consistent measurement parameters and techniques for SONET circuits, facilities, and networks. In some cases, location-oriented options are needed to ensure compatibility: this need for options is imposed by significant differences between network providers as well as between network elements

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, TMOC, 1200 G Street NW, Suite 500, Washington, DC 20005.

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

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American National Standard for Telecommunications –

SONET-- Layer 1 In-Service
Digital Transmission Performance Monitoring

1 Scope, Purpose, & Application

1.1 Scope

This standard provides uniform functions and requirements for performance monitoring (PM) and alarm/status monitoring for digital transmission signals in the SONET hierarchy. It is intended to be used in conjunction with the core document – ATIS-0300231.

1.2 Purpose

This standard is written to provide the minimal set of requirements to provide for uniform and consistent PM and alarm/status monitoring for the SONET digital transmission rates. This standard provides definitions for performance primitives (anomalies and defects), performance parameters, and performance failures.

1.3 Application

The application of this standard is as follows:

- It provides definitions of performance and alarm/status parameters, both required and optional, applicable to network elements providing non-intrusive transmission monitoring at the SONET digital rates;
- It describes the functions related to the collection, storage, thresholding, and reporting of PM information; and
- It establishes the PM functions that may be used at network interfaces between telecommunication carriers, at network boundaries, and at customer premises to permit compatible maintenance operations.

Although this standard establishes ranges over which transmission performance can be measured, it does not establish any requirements or guidelines for levels of performance. This standard refers to other American National Standards that address digital transmission and performance criteria.