ATIS-0100514.2009(S2019)

Network Performance Parameter and Objectives for Dedicated Digital Services – SONET Bit Rates

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ATIS-0100514.2009(S2019), *Network Performance Parameters and Objectives for Dedicated Digital Services - SONET Bit Rates*

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American National Standard for Telecommunications

Network Performance Parameters and Objectives for Dedicated Digital Services – SONET Bit Rates

Alliance for Telecommunications Industry Solutions

Approved March 23, 2009

American National Standards Institute, Inc.

Abstract

This standard defines the parameters and establishes objectives for assessing the performance of dedicated digital services operating at the nominal 51.84 Mbit/s, 155.52 Mbit/s, 622.08 Mbit/s, 2.488 Gbit/s, and 9.865 Gbit/s interface rates of the SONET (Synchronous Optical Network) digital hierarchy. Rates above 9.865 Gbit/s and SONET virtual tributaries are for further study.

The standard defines the framework for specifying accuracy and availability performance and the allocation of end-to-end performance objectives among service providers. The performance objectives are applicable to each direction of the service between network interfaces. Performance impairments originated outside the network interfaces, such as those due to end-user actions are not included in evaluating performance. The standard further provides acceptance and repair verification test limits for SONET services. The parameter definitions are block based, making in-service measures convenient.

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 Network Performance, Reliability, and Quality of Service Committee (PRQC) develops and recommends standards, requirements, and technical reports related to the performance, reliability, and associated security aspects of communications networks, as well as the processing of voice, audio, data, image, and video signals, and their multimedia integration. PRQC also develops and recommends positions on, and foster consistency with, standards and related subjects under consideration in other North American and international standards bodies.

This standard will be useful to providers and users of digital communications services and also to designers of network and terminal equipment and service applications. This standard provides error performance parameters, measurement methods, numerical specifications, and allocations for dedicated digital communications services operating at specific rates of the SONET (Synchronous Optical Network) digital hierarchy. This standard provides the means to verify the accuracy and availability performance of dedicated digital services operating at nominal interface rates of 51.84 Mbit/s, 155.52 Mbit/s, 622.08 Mbit/s, 2.488 Gbit/s, and 9.865 Gbit/s. Included mappings of performance measures to SONET monitoring functions allow establishing compliance with this standard on an in-service basis.

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.

There are four annexes in this standard. Annex A is normative and is considered part of this standard. Annexes B through D are informative, and are not considered part of this standard.

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

M. Neibert, PRQC Chair (Telcordia)

C. Underkoffler, ATIS Chief Editor

The **QoS** Task Force was responsible for the development of this document.

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This standard defines the framework for specifying accuracy and availability performance and the allocation of end-to-end performance objectives among service providers. The performance objectives are applicable to each direction of the service between network interfaces. Performance impairments originated outside the network interfaces, such as those due to end-user actions are not included in evaluating performance. The parameter definitions are block based, making in-service measures convenient. The mappings given in Annex A shall be sufficient for establishing in-service or out-of-service conformance to this standard.

2 NORMATIVE REFERENCES

The following standards contain provisions which, through reference in the text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below.

ATIS-0900105.2008, *Telecommunications – Digital hierarchy – Synchronous Optical Network (SONET) - Basic Description including Multiplex Structure, Rates and Formats.*[1]

ATIS-0300231.2003(R2007), *Telecommunications – Digital Hierarchy – Layer 1 In-Service Digital Transmission Performance Monitoring.*[1]

ATIS-0100503.2002(R2008), *Telecommunications – Network Performance Parameters for Dedicated Digital Services – Definitions and Measurements.* [1]

ATIS-0100510.2009(R2008), *Telecommunications – Network Performance Parameters for Dedicated Digital Services – Specifications.* [1]

ANSI/IEEE 1007-1991, *Methods and equipment for measuring the transmission characteristics of pulse-code modulation (PCM) telecommunications circuits and systems.*[2]

[1] This document is available from the Alliance for Telecommunications Industry Solutions, 1200 G Street N.W., Suite 500, Washington, DC 20005. <http://www.atis.org>.

[2] This document is available from the Institute of Electrical and Electronic Engineers. < http://www.ieee.org >.