ATIS-0900105.03.2013(R2023)

Synchronous Optical Network (SONET) – Jitter and Wander at Network and Equipment Interfaces

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ATIS-0900105.03.2013(S2021) *Synchronous Optical Network (SONET) – Jitter and Wander at Network and Equipment Interfaces*

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(Revision of ATIS-0900105.03.2008)

American National Standard for Telecommunications

Synchronous Optical Network (SONET) – Jitter and Wander at Network and Equipment Interfaces

Alliance for Telecommunications Industry Solutions

Approved May 30, 2013

American National Standards Institute, Inc.

Abstract

This revised standard describes the jitter specifications that are applicable to SONET network and equipment interfaces (OC-N and STS-N). It also describes jitter and wander specifications that are applicable to certain SONET payload signals (e.g., DS1 and DS3. It also updates the jitter specifications to include the SONET OC-192 interface.

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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 Telecommunications Industry Solutions (ATIS) serves the public through improved understanding between providers, customers, and manufacturers. The Copper/Optical Access, Synchronization, and Transport (COAST) Committee – formerly the Optical Transport and Synchronization Committee (OPTXS) – engages industry expertise to develop and recommend standards and technical reports for home, access and transport network and synchronization technologies over copper and optical mediums. COAST is committed to proactive engagement with national, regional and international standards development organizations and forums that share its scope of work. The technical requirements, measurement techniques, metrics, and operational practices documented in COAST's work products encompass copper and optical network interfaces and transceiver functionality required for access to, and transport through, telecommunications networks.

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.

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

K. Biholar, COAST Chair (Alcatel-Lucent)
B. Szeto, COAST Vice-Chair (Xtera)
L. Cosart, COAST SYNC Chair
C. Underkoffler, ATIS Chief Editor

The Synchronization (SYNC) Subcommittee was responsible for the development of this document.

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Synchronous Optical Network (SONET) – Jitter and Wander at Network and Equipment Interfaces

1 Scope, Purpose, & Application

1.1 Scope

The North American telecommunications network is comprised of asynchronous and SONET networks. This standard describes the jitter specifications for SONET network and equipment interfaces and jitter and wander specifications for certain asynchronous interfaces (i.e., primarily DS1 and DS3 interfaces) to SONET networks. The general jitter and wander specifications for asynchronous interfaces are described in ATIS-0900102.1993 (R2010), ATIS-0600403.1999 (R2012), and ATIS-0600404.2002 (R2011).

1.2 Purpose

Jitter and wander specifications are necessary to achieve satisfactory performance at network interconnections. OC-N and STS-N network and equipment interface jitter and wander specifications help ensure adequate performance at SONET network interfaces.

The jitter and wander specifications for asynchronous network interfaces described in ATIS-0900102.1993 (R2010), ATIS-0600403.1999 (R2012), and ATIS-0600404.2002 (R2011) apply at all of those interfaces in the network, including those that appear at the edges of SONET (sub)networks. However, due to certain characteristics of SONET signals and the mechanisms that are defined for transporting asynchronous signals within SONET signals, SONET transport can cause significantly more jitter and wander to appear on asynchronous signals exiting SONET networks than would normally be expected for other types of transport. It is therefore necessary to bound the payload output jitter and wander due to SONET such that the network jitter and wander limits can be maintained, and SONET can be deployed into today's telecommunications network.

2 Normative References

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

ATIS-0900101.2000, *Synchronization Interface Standard*.[1]

ATIS-0900102.1993 (R2010) *Digital Hierarchy – Electrical Interfaces*.[2]

ATIS-0900105.2008 (R2013), *Synchronous Optical Network (SONET) – Basic Description Including Multiplex Structure, Rates, and Formats*.[3]

[1] This document is available from the Alliance for Telecommunications Industry Solutions (ATIS), 1200 G Street N.W., Suite 500, Washington, DC 20005 < https://www.atis.org/docstore/product.aspx?id=25280 >.

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