



Analyzing Bandwidth spectrum in SONET & SDH

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ABSTRACT

Synchronous Optical Networking & Synchronous Digital Hierarchy are standardized protocols that transfer multiple digital bit streams synchronously over optical fiber using lasers or highly coherent light from light-emitting diodes. At low transmission rates data could also be transferred via an electrical interface. method was developed to replace plesiochronous digital hierarchy (PDH) system for transporting large amounts of telephone calls & data traffic over same fiber without synchronization problems. SONET generic criteria are detailed in Telcordia Technologies Generic Requirements document GR-253-CORE. Generic criteria applicable to SONET & other transmission systems (e.g., asynchronous fiber optic systems or digital radio systems) are found in Telcordia GR-499-CORE.



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[1] INTRODUCTION

To satisfy requirements of ever increasing data rate for diverse applications; ANSI developed standard known as Synchronous Optical Network (SO-NET) by utilizing enormous bandwidth of optical fiber. Another similar standard developed by ITU-T would be known as Synchronous Digital Hierarchy (SDH). SO-NET would be American National Standards Institute standard for synchronous data transmission on optical media. international equivalent of SO-NET would be synchronous digital hierarchy (SDH). Together; they ensure standards so that digital networks could interconnect internationally and that existing conventional transmission systems could take advantage of optical media through tributary attachments. Short for **Synchronous Optical Network**; standard for connecting fiber-optic transmission systems. SO-NET had been proposed by Bellcore in middle 1980s and would be now ANSI standard. SO-NET defines interface standards at physical layer of OSI seven-layer model. standard defines hierarchy of interface rates that allow data streams at different rates to be multiplexed. SO-NET establishes Optical Carrier (OC) levels from 51.8 Mb ps(OC-1) to 9.95

Gbps (OC-192). Prior rate standards used by different countries specified rates that had been not compatible for multiplexing. With implementation of SO-NET; communication carriers throughout world could interconnect their existing digital carrier and fiber optic systems.

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