

An adaptive error correction scheme for SDH based wavelength division multiplexed optical networks

ABSTRACT

This paper proposes a synchronous digital hierarchy (SDH) based adaptive forward error correction (FEC) scheme for wavelength division multiplexing (WDM) optical networks. In this scheme, a dedicated WDM channel is used to transport the FEC redundancies. The error location analysis of the FEC correctable bits, combined with B2 bytes analysis are used to decide the suitable FEC code for the payload channels. The proposed FEC scheme is evaluated not only for the typical Poisson errors but also the burst errors. Simulation results show that the proposed FEC scheme performs significantly better than the existing FEC schemes.

Keyword: Forward error correction; Adaptive FEC; Synchronous digital hierarchy; Wavelength division multiplexing