

Service differentiated drop code unit for metro ring optical networks

Abstract

The authors demonstrate using both simulation and experiment, a drop code unit for metro ring optical networks with service differentiation capability. This is achieved by means of a spectral amplitude coding technique whereby the code weight in a particular channel is varied to provide different signal quality levels. Transmission of three channels with different weights operating at 10 Gbps per channel was simulated over a 68 km unamplified and 185 km amplified links of dispersion compensated fibre. Services are perfectly dropped at bit error rates from 10^{-9} to 10^{-3} , leaving the through service free from accumulated noise. The authors also present a 2.5 Gbps per channel proof-of-concept experiment over 40 km of single-mode fibre (SMF).