New dynamic technique for SAC-OCDMA system

ABSTRACT

In this paper a family of novel spreading sequences, called a Multi-Service (MS) code have been proposed for SAC-OCDMA system. The performance of the proposed code is demonstrated using mathematical analysis. Reference to the Bit Error Rate (BER) of 10 -9 MS code supports up to 90 users simultaneously, choosing code weight of 5 when the bit-rate is 622 Mbps. Thus, from the results it indicates that MS code does not only preserve the capability of suppressing Multiple Access Interference (MAI), but also improves BER performance due to low cross-correlation (æc) between code sequences. (i. e. 0 Ò æc Ò 1). Furthermore, the results showed that with lower value of basic users can support larger number of subscribers as well as better performance in terms of acceptable BER.

Keyword: Optical code division multiple access (OCDMA); Spectral amplitude coding (SAC); Multiple access interference (MAI)