Effects of the power differences in the AND-subtraction detection technique in SAC-OCDMA system performance

ABSTRACT

This project concentrates on the effects detection technique to the system performance of spectral amplitude coding optical code division multiple access (SAC-OCDMA). The system employed the encoder and decoder modules based on the fiber Bragg gratings (FBGs) to generate the unique code sequences for the users. These modules are basically designed for the modified double weight (MDW) code which allows higher code weight w in the even number which is greater than two. The study is mainly focusing on the effects of the power differences between the upper and lower branches of the AND-subtraction technique used as the detection technique to the system performance. The results show that the system will achieve the best system performance when the power difference between the upper and lower branches is approximately 5dB.

Keyword: Power differences; AND-subtraction technique; System performance; Detection technique; SAC-OCDMA