

## **PERFORMANCE OF THE OPTICAL SPECTRUM CDMA SYSTEMS IN FTTH ACCESS NETWORK**

### **Abstract:**

Double Weight (DW) code is presented here to support fiber-to-the-home (FTTH) access network in point-to-multipoint (P2MP) applications. This code with basic fixed weight of 2 possess ideal cross correlation properties, that are important characteristics in spectral encoding OCDMA system since these can eliminate multiple user interference and can reduce noise. The performance of DW code against Hadamard code is compared through simulation by using OptiSystem version 2.2. The performances were characterized through bit error rate (BER) against number of user for two network designs. One is without erbium doped fiber amplifier (EDFA) and another one is with the EDFA for P2MP network. It is found that DW code is better than Hadamard code for all simulation results at bit rates of 622 Mbps, 1.25 Gbps and 2.5 Gbps.