

Study of the OCDMA transmission characteristics in FSO-FTTH at various distances, outdoor

Abstract

It is important to apply the field Programmable Gate Array (FPGA), and Optical Switch technology as an encoder and decoder for Spectral Amplitude Coding Optical Code Division Multiple Access (SAC-OCDMA) Free Space Optic Fiber to the Home (FSO-FTTH) transmitter and receiver system design. The encoder and decoder module will be using FPGA as a code generator, optical switch using as encode and decode of optical source. This module was tested by using the Modified Double Weight (MDW) code, which is selected as an excellent candidate because it had shown superior performance were by the total noise is reduced. It is also easy to construct and can reduce the number of filters required at a receiver by a newly proposed detection scheme known as AND Subtraction technique. MDW code is presented here to support Fiber-To- The-Home (FTTH) access network in Point-To-Multi-Point (P2MP) application. The conversion used a Mach-Zehnder interferometer (MZI) wavelength converter. The performances are characterized through BER and bit rate (BR), also, the received power at a variety of bit rates.

Keywords

Detection scheme; FSO.MDWcode.FPGA.; SAC-OCDMA; Subtraction technique