

PIN and APD analysis for optical CDMA based on the proposed Radio Over Fiber (RoF) approach

ABSTRACT

In this paper, we will focus on the photodetectors that is used in OCDMA-RoF system. Photodetector Intrinsic Negative (PIN) and Avalanche Photodetector (APD) are commonly known photodetectors use to convert optical signal to electrical signal received from fiber optic cable. Bit error rate (BER) execution is evaluated for this OCDMA-RoF framework. OCDMA-RoF framework is seen as a promising technique for enhancing spectral efficiency, reducing the number of hardware use and meanwhile immune to electromagnetic inference (EMI) and radio frequency interference (RFI). The photodetectors have taken a gander at through software simulation. It has been found that the APD in this framework is prevalent than the PIN for all reproduction results. The exhibitions are portrayed through the effect of fiber length (km) with Bit Error Rate (BER) performance, eye-diagram analysis of both photodetectors and furthermore investigated the relationship of total power (W) losses in this system with the BER performance and finally the analysis of noise detection signal.

Keyword: APD and PIN; OCDMA-RoF; Bit Error Rate (BER); Electrical power; Eye-diagram; Noise detection signal