

ABSTRACT

The increasing need for telecommunication, wireless communication and optical network telecommunication also developed by the functionality of radio waves with light waves in Radio over Fiber network. Radio over fiber known as technology which use optical fiber with wireless communication. This networks requires a receiver antenna to support the process of capturing radio waves, then modulated by light waves.

Antenna in Radio over Fiber can work at 10 GHz frequency of WPAN communication. Wireless frequency which captured by the antenna can modulated directly and distributed through an optical fiber as needed. Antenna spesification that must be fullfilled are small size, have a good level of matching, only consuming a little electrical current, and has a unidirectional radiation pattern.

In this final project, using electromagnetic simulator, designed and simulate inset-fed microstrip rectangular array antenna with U-slot for Radio over Fiber applications in WPAN communication that can be used optimally at a 10 GHz frequency. The result of simulate with optimum performance then implemented and observed at a 10 GHz frequency. The results of the design and realization is inset fed rectangular microstrip array antenna with U-slot that worked at 10 GHz frequency with unidirectional radiation pattern; gain $\geq 3\text{dBi}$; input impedance = 50Ω ; and VSWR ≤ 1.5 .

Keywords: WPAN, Radio over Fiber, Mikrostrip Array Antenna Fed Inset Rectangular, U-Slot.