

## **ABSTRACT**

*Radio Over Fiber (ROF) is the process of sending radio signals through fiber optic cables. Pico cell is the smallest area coverage of cellular systems and its generally used to increase network capacity. Combining these two techniques can make the quality of cellular networks better. Besides having high speed, it also has a large capacity. Of course this technology is needed in public places with high density.*

*Antenna is one of the important components in Radio Over Fiber as a transmitter. Antennas with a small size are needed, so it is more practical if placed in an indoor room and has a wide working frequency range to be efficient. In this study, designing a microstrip antenna for Base Transceiver Station (BTS) that works in the frequency range of Long Term Evolution (LTE) with a central frequency of 1.8 GHz.*

*Antenna design is made using the Stepped Cut at Four Corners (SCFC) method to obtain the desired bandwidth and simulation using software and realized with Epoxy FR-4 substrate which has a dielectric constant of 4.6 and a thickness of 1.6 mm. The antenna simulation results work at 1.8 GHz center frequency with a bandwidth of 3.28879 GHz so that this antenna can work in the LTE frequency range, gain of 3.11 dB, and bidirectional radiation patterns. In the antenna that is realized and carried out measurements, both the return and VSWR values are each below -10 dB and 2. The resulting bandwidth is 1.7823 GHz and a gain of 2.490 dB. With this result, the antenna created can be used for ROF technology in the application of pico cells.*

*Keywords: Microstrip Antenna, Pico Cell, Radio Over Fiber, Stepped Cut at Four Corners, LTE*