ABSTRACT

Radio over Fiber (ROF) Technology is a field of transmission technology that combines radio and fiber optic transmission. Where, in this technology combined advantages of radio transmissions and advantages of optical transmission. ROF technology was developed to address the growing wireless communication is limited by the availability of frequencies. To introduce the ROF technology at IT Telkom student in particular, it is a simple ROF devices are expected to be used as a means of opening students insight about ROF technology.

In this final project is a simple ROF device consisting of Central Unit block and Remote Antenna Unit (RAU) block. In the process of transmitting, Central block sends radio signals which superimposed on the light to the RAU. The next one RAU devices convert light into electrical and transmits radio waves through the antenna. In the Central Unit, there is a LNA (Low Noise Amplifier) and a Laser Diode which will emit modulated light to the RAU. While in the RAU there a Photo Diode reconstructing radio signals being sent by the Central Unit. At RAU also contained an amplifier as a signal multiplier. Measurements performed in different scenarios to observe some important parameters namely laser ration voltage, RAU's output signal linearity, LNA gain and attenuation of optical fibers.

From the test results obtained by the working frequency of the ROF is the 1MHz-43,65 MHz with a linear output between the input signal at the Central Unit and the output of RAU. Gain obtained for one LNA is 12.26 dB and LNA mounted one each in the Central Unit and the RAU.

Keywords: ***Radio over Fiber, Central Unit, Remote Antenna Units, Laser Diode, Photo Diode, Ampifier.***