

## ***ABSTRACT***

The development of communication technologies are increasingly sophisticated and efficient. A communication generally has an antenna in which the antenna has a *transmitter* and *receiver*. The two parts were connected to a circuit. Prior to the incoming signal, there is a section in charge of organizing or divide the signal that is *power splitter*.

In this thesis design and realized a power splitter in *indoor* GSM communication. By using a transformer  $\lambda / 4$ . Materials used are PCB (Printed Circuit Board) with a *relative permittivity* of 2.2 and 1.578 mm thick *dielectric*. Then simulated with the help of software ADS Microwave Studio, after the *prototype* printed and measurement determined in order to obtain parameters like *Return Loss*, VSWR, *Insertion loss* and *Isolation*. The method used to design *power splitter* is a *stripline*.

Testing the performance of the *power splitter* is done by comparing the measurement data with the initial specification and simulation. Then, from the simulation results in a frequency 1805 - 1880 MHz, the *power splitter* crafted design has a power of -3.453 dB and -3.812 dB dB in both of output port.

**Keywords:** *Power Splitter, Transformer  $\lambda / 4$ , Stripline, Monolithic Microwave Integrated Circuit.*