

## ABSTRACT

LTE (Long Term Evolution) is a technology development of 3.5G or 3G and HSPA+. LTE technology is designed to provide a better spectrum efficiency, increased radio capacity, latency and low operating costs for operators and mobile wireless broadband services good. For quality was the right solution is to create a hybrid ring coupler, because the hybrid ring coupler can combine two transmitters to share a single antenna, thus freeing up another antenna for overlay.

In this final project has been realized hybrid ring coupler using microstrip technology with their input impedance and output impedance  $50\Omega$ . Coupler is a passive multiport devices that each port can be a point of entry or exit point wave. Materials used in hybrid ring coupler is Roger 5880 and Duroid 4003. Hybrid ring coupler is working on a frequency of 2600 MHz which can be applied to the system LTE (Long Term Evolution). Desired insertion loss at the beginning of the design that is  $<1$  dB. Isolation between input ports is  $\geq 20$  dB. The desired value of VSWR  $\leq 1.5$  and the desired coupling factor of  $-3$  dB.

Hybrid ring coupler was measured by using Network Analyzer. Hybrid ring coupler measurement results for the material from the Roger 5880 maximum VSWR value for 1.683, insertion loss amounting to 0.490 dB, coupling factor  $-3.588$  dB and isolation  $-31.109$  dB. As for the measurement results of the hybrid ring coupler duroid 4003 material is the maximum value VSWR for 1.708, insertion loss of 0.724 dB, coupling factor of  $-3.525$  dB and isolation of  $-40.361$  dB.

**Keywords** : Coupler, Hybrid ring coupler, microstrip