

ABSTRACT

Power divider is a microwave passive component that used to distribute microwave signal. In recent years, various dual band power divider have been developed, one of them is Wilkinson power divider. Conventional dual band power divider that using two section transformer had a main drawback of poor output return loss dan port isolation. Another circuit was add two lumped component (inductor and capacitor) for attaining an ideal response. There is another circuit that need shunt stub $\lambda/2$ with major shortfalls is required extremely low impedance at small frequency band separation ($f_2 < f_1$).

In this final assignment has been designed and realized a dual band Wilkinson power divider using open circuit shunt stub $\lambda/4$. This power divider consists of four quarter-wavelength branch lines (Z_A and Z_B), an open circuit quarter-wavelength shunt stub (Z_C), and an isolation resistor (R). This power divider has been realized in microstrip line and operating at frequency 1 and 2 GHz. It was constructed by Roger 4003 materials with the dielectric constant $\epsilon_r = 3.38$, thickness of substrate 1.524 mm, and thickness copper plat 0.035

The result of power divider characteristic are: first center frequency at 0,9945 GHz with bandwidth 73,625 MHz (0,951875-1,0255 GHz), insertion loss is 3,55 dB at output1 and 3,63 dB at output2, port isolation is -25,46 dB. While, second center frequency at 2,03688 GHz with bandwidth 100,75 MHz (1,99425-2,095 GHz), insertion loss is 3,60 dB at output1 and 3,75 dB at output2, port isolation is -24.04 dB.

Keywords : dual band, power divider, microstrip.