

ABSTRACT

The device of microwave telecommunications will always growth with existence of transfer information of broad band, where to support the the growth needed by prototype of Y- circulator variable broad band as rectifier of electromagnetic wave. Circulator is passive component of microwave measuring up to the non reciprocal and many terminal, in general three terminal. Where terminal 1 as input, terminal 2 as terminal and output 3 as isolator.

Microwave represent electromagnetic wave having frequency range between 300 MHZ until 300 GHZ, where microwave can save many information, and wide frequency band. In this final project will be made by a prototype of circulator broad band by being based on sand and microstrip of feromagnetik. The circulator have 3 terminal, terminal 1 as input, terminal 2 as terminal and output 3 as isolator. With technical specification of circulator to be made in this final project is frequency work $2000 \text{ MHZ} \pm 500\text{MHz}$, variable, $Z_T = 50\text{ohm}$, $\text{VSWR} \leq 1.5$, isolation $\geq 30\text{dB}$, insertion loss $\leq 0.5 \text{ dB}$. So that can give job which good to supporting radio communications technique especially microwave

From result of measurement, to be obtained by the specification of parameter of circulator result of scheme as according to specification of early. In realization of circulator $\text{VSWR} \{I(\text{mA}), f(\text{MHz})\}$ terminal A equal 1.162(10,1815.87); 1.484(50,17888.14); 1.074(100,2463.05) terminal B equal 1.126 (10,2031.58); 1.132 (50,2253.07); 1.4523(100, 1935.58) terminal C equal 1.338 (10,2385.06);1.195 (50,2268.07);1.189 (100,1945.10). Impedansi terminal A equal $51.86+j3.094 \text{ ohm}$, terminal B equal $50.03+j6.006 \text{ ohm}$, terminal C equal $49.81+j6.006 \text{ ohm}$. *Insertion loss* $\{I(\text{mA}), f(\text{MHz})\}$ AB equal 0.29 dB $\{(10,1900;2300); (100,1400; 1800; 2300; 2700)\}$, BC equal 0.29dB $\{(10,1400; 2400); (50,1600;2000); (100,2500)\}$, CA equal 0.29dB $\{(10,2600); (100,1400; 2100)\}$ and isolation in every variable of current at AC equal 34.337 dB, CB equal 37.488 dB, BA equal 39.529 dB.