

ABSTRACT

The purpose of this final project is design and realization of BPF – duplexer based microstrip at 2,4-2,484 GHz . These are consist of BPF₁: 2,401-2,407GHz , BPF₂: 2,409-2,423 and power divider. All of this component were realized with microstrip from garbage and material are available in market (example: epoxy).

For garbage material, strip and groundplane uses cake can “twister” with thick 0,4mm and substrat are chosen from fiberglass with thick 1,4 mm and have $\epsilon_r=5,378$ this result from measurement Xc with *Network Analyzer* at 2,4 GHz .

For epoxy material, substrat thickness is 1,795 mm with $\epsilon_r = 4,8$. With both of this materials, writer realized duplexer. Its consist of BPF₁ , BPF₂ with chebyshev characteristic and Wilkinson Power divider type.

From the measuring results with Network Analyzer, for fiberglass, BPF₁ bandwidth is 14,177 MHz and BPF₂ is 12,567 MHz. And for epoxy, BPF₁ bandwidth is 58,727 MHz and BPF₂ is 55,621 MHz. Insertion loss for both of material is good enough, between 0 – 3 dB. Return loss for each filter is more than 14dB. And isolation of each duplexer is more than 40dB.