ABSTRACT

Wimax is WMAN (Wide Metropolitan Area Network) technology standardization that can reach out of 50 km areas with narrow bandwidth. For the limitation of frequency spectrum in Indonesia, this technology can be the best solution. DITJEN POSTEL has arranged Wimax bandwidth in Indonesia at 2.3 – 2.4 GHz intervals. So, interference with Wifi, at 2.4 GHz is possible occurs. This final project designs and realizes Wimax technology filter to avoid interference with Wifi technology.

Filters are communication system equipment that can pass through and muffle certain band frequency. Filter planning process utilize trisection method. This method is substitute simple planning action using *Chebyshev* and *Butterworth,* because this filter needs higher order number. Besides that, at high level frequency, lumped element cannot be used and substituted with microstrip channel. In these topology, resonator shaped "U" was used to process the design and realization of hairpin filter and it was called resonator hairpin. This kind of resonator produces slope slightly response at one side and sharp response in the other side.

Average result is produced by filter at band frequency. Middle frequency and bandwidth shift from planning specification in the amount 10 MHz. The final bandwidth result is 2.305 – 2.395 GHz. Thus, filter realization produces low insertion loss at passband that is 4.107 dB, and the other specification are in mutual accord with planning specification.

Keywords : Hairpin Filter, Hairpin Resonator, Mikrostrip.