**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.