

## **ABSTRACT**

*The process of technology development of telecommunication is very fast. One of the technologies that will be trend later in Indonesia is WiMAX (Worldwide Interoperability for Microwave Access). This is a new standard-based technology that allows broadband access distribution through wireless as an alternative of cable, DSL, and 3G. WiMAX has a wide range of up to 50 km radius. The development of WiMAX technology will provide a positive impact for consumers who need fast access and mobile. So that, to support this technology is required an antenna that works on the frequency of WiMAX.*

*Therefore in this final project, an Antenna Coplanar Waveguide Inverted-F which is able to work in frequency ranges 2.3 GHz - 2.4 GHz and supports WiMAX (Worldwide Interoperability for Microwave Access) technology is designed and simulated by using Ansoft HFSS 9.2 software. The antenna is designed by combining Slot antenna, IFA (inverted-f antenna), and coplanar waveguide concepts and its realization is on FR-4 dielectric substrate. The combination between slot antenna and IFA makes the antenna have bandwidth that is wide enough and the antenna have compact dimension. The use of coplanar waveguide-fed makes easier way to feed the antenna, because there is no required of drilling process and extra components for matching.*

*The concepts of the design are able to produce an antenna that is easy to make, inexpensive, compact size, efficiency that has a limit with  $VSWR = 1.5$ , able to work on frequency that accordance with WiMAX technology (2.3 GHz - 2.4 GHz), and have bidirectional radiation pattern.*