

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.