

ABSTRACT

Generally, ITS (Intelligent Transportation System) consists of two main systems are Intelligent Infrastructure System and Intelligent Vehicle System. Especially in Intelligent Vehicle System, antenna has an important role as an information transmitter and receiver device in order to transform guided wave into free space wave and vice versa. Standard protocol in ITS that have been implemented is IEEE 802.11 DSRC in 5,8 GHz and 1,8 GHz range frequencies. But, this standard only supports a short distance range services less than 500 yard. According to that problem, now ITS with better infrastructure and longer distance services are being developed using IEEE 802.16 standard protocol or commonly called as Wimax (Worldwide Interoperability for Microwave Access).

Antenna with small size structure, thin shape and lightweight is desired for cars. According to the increase in number of miniaturization of electronic devices installed in car makes limited spaces. Specifications such as 30 MHz minimal bandwidth in 1.5 VSWR, 4 dBi minimal gain for its resonant frequency, bidirectional radiation pattern and linear polarization are mainly desired for car-mounted antenna.

In this final project, designed and realization a planar antenna with three patch element fed by microstripline which can operation in range frequency (2,3-2,4)GHz is applied. The result of characteristics measurement are 66.5 MHz bandwidth in ≤ 1.5 VSWR value, bidirectional radiation pattern, ellips polarization and gain 5.43 dBi for its resonant frequency. So it can conclude that realization of planar antenna fulfilled the characteristics of a car-mounted antenna within ITS.

Key Word : ITS, Patch Element, Planar Antenna, Microstripline, Wimax