

ABSTRACT

Antenna is a transition part to matching impedance space propagation intrinsic and characteristic impedance of radio transmissions. Antenna can be used both in the receiver as well as the transmitter in the communication system. Now, the necessary of device that economical and dynamic has been increased. And, for Antenna, an antenna that economical and dynamic fullfilled by microstrip antennas. Although microstrip antennas have many advantages, such as practical shape, lightweight, and easy to manufacture, microstrip antenna also has several shortcomings, such as a small gain, narrow bandwidth, and low efficiency. One way to overcome the shortage of microstrip antenna is by preparing a patch on a microstrip antenna array. With the preparation like that, it is expected that the desired specifications of the antenna can be achieved

In this final project will be designed and manufactured a unidirectional square patch microstrip antenna in frequency 1805 - 1880 MHz, Gain (13 ± 2) dBi, VSWR $\leq 1,5$, and Terminal Impedance 50 Ω . This antenna is made of PCB (printed circuit board) and has three basic elements, namely the patch, substrate and groundplane. This antenna patch on square pattern designed so as to meet the required specifications. While the substrate used is FR4 epoxy dielectric substrate. Range frequency is based on GSM-1800 downlink frequency.

From the results of measurements we know that, in general, all the results have close to design specification, on the working frequency of 1842,5 MHz antenna VSWR obtained by 1,26, while in the initial frequency of the antenna VSWR is obtained at a frequency of 1,58 and end 1,31 antenna VSWR obtained. While bandwidth is measured at a frequency of 77,5 MHz 1812,5 - 1890 MHz. Antenna impedance at the operating frequency is (52.55 - 11:56 j) Ω . unidirektional radiation pattern, polarization result close to linear (elliptical AR = 6,434 dB), and the gain obtained 7,03dBi.

Keyword : prototype, microstrip antenna, direktional, linear