

ABSTRACT

The antenna is a wireless telecommunications medium that is used as a transponder or convert electrical signals into a signal electromagnetics. The types of antennas consist of some sort, depending on the shape and some of the desired characteristics. To meet the desired characteristics, it is necessary that the measurement is divided into two, namely the outdoor measurements and measurement. On the outside measurements include chart direction, radiation pattern, gain, directivity and polarization. While the measurement of the distribution include current, impedance, bandwidth and VSWR (voltage standing wave ratio).

Measurements were carried out laboratory IT Telkom menggunakan antenna free space method ranges. In these measurements the author assume that the acquisitions made less than the maximum because it is still done manually. Sampling is done is still too large every 10^0 it caused radiation pattern images and the polarization becomes less accurate.

At the final time, the author makes an automatic measurement using AVR microcontroller Atmega8535 that is used to make the measurement chart direction and polarization of the radiation pattern of an antenna receiver. The designed microcontroller, used to set the rotation stepper motor to rotate the antenna. Measurements were taken every 1/40 round of stepper motor for the radiation pattern, polarization, directivity and gain. To determine the amount of gain, directivity direction of the radiation pattern, and polarization, the author use IC LT5504 which is integrated with ADC (analog to digital converter) microcontroller. Visual Basic 6.0 is used to process the data measured on the microcontroller. The measurement results are represented in rectangular and polar graphs. From the analysis, the generation of random measurement data ATmega8535 conducted showed that measurements made unfit for use outside of the laboratory measurement lab Antenna IT Telkom.

Keywords: antenna, the radiation pattern, polarization, automatic