ABSTRACT

Citarum river monitoring device requires a transmission system that can transmit data in real time. Therefore the MIMO antenna system can be a solution because it offers increased capacity and power, increases data rates, and is able to reduce losses due to multipath fading. The focus of this research is to produce antennas that have high gain and wide bandwidth to meet the required BTS standard specifications. Array method aims to increase gain and produce radiation patterns that have certain characteristics. Therefore, this study tries to combine array and MIMO methods which have circular shaped microstrip antenna models, using ISM Bands that work in the 2.4 GHz to 2.5 GHz frequency range. In this study 2x2 MIMO Antennas with vertically arranged ports that best fit the desired specifications by producing VSWR 1.25 that work in the frequency range 2.338-2.484 GHz, bandwidth 101.5 MHz, and gain 6.362 dB. The resulting radiation pattern is unidirectional and the resulting polarization is linear.

Key Word: *MIMO, Array, Gain, Bandwidth, Polarization, Radiation Pattern*