

ABSTRACT

Microstrip antennas have several advantages, including their small size, ease of manufacture, ease of connection with other electronic devices, and ease of integration. A single microstrip antenna is used for data communication. In this study, a microstrip antenna was installed, and the patch used was rectangular and used the array method to reduce VSWR and return loss. For 4G applications, the operating frequency of this antenna is 2.6 GHz. The material used in this study is FR4 (epoxy), which has a dielectric constant (ϵ_r) of 4.3, a patch size of about 1.6 mm, and a dielectric ($\tan \delta$) of 0.0265. Antenna that has been modified and designed using AWR software. In the antenna simulation process, the antenna results are determined by a VSWR value of 1.198 and a return loss value of -20.92 dB without using the array method. . After using the 2x2 array method, the final result of VSWR and return loss changes with a VSWR value of 1.443, a return loss of -14.83 dB and a bandwidth of 379 MHz. From the results of the design using the array method on the initial design antenna, it has succeeded in increasing the Gain and Bandwidth values on the antenna. At the working frequency of 2.6 GHz, the Gain value increased from 6.144 dB to 11.03 dB, and the bandwidth value increased from 363 MHz to 379 MHz.

key terms: Microstrip antenna, Array, Return loss, VSWR, Bandwidth and Gain