

## ABSTRAK

Laju perubahan industri telekomunikasi semakin cepat. Kemajuan berikut didasarkan pada meluasnya penggunaan telekomunikasi nirkabel, yang telah membuat berbagai telekomunikasi lebih nyaman. Namun, banyak sumber energi tanpa sadar telah diproduksi oleh ribuan pemancar, membuka kemungkinan panen energi.. Energi yang dapat digunakan untuk mencatu suatu perangkat elektronik adalah *energy harvesting*. Pemanenan energi adalah proses di mana energi dikumpulkan dan diubah menjadi energi listrik dari berbagai sumber eksternal, termasuk tenaga surya, energi panas, energi angin, gradien salinitas, energi potensial, dan energi kinetik. Pada proyek akhir ini difokuskan pada perancangan antenna mikrostrip *rectangular* menggunakan metode U-Slot pada energy harvest yang bekerja pada frekuensi 2400 Mhz. Simulasinya menggunakan software AWR microwave office 2009. Spesifikasi standar yang harus dipenuhi yaitu: VSWR 1-2 ,return loss  $\leq 10$  dB dan gain  $\geq 3$ dB. Selain itu menggunakan jenis substrat FR-4 Epoxy nilai konstanta dielektrik ( $\epsilon_r$ ) = 4,3, ketebalan substrat (h) = 1,6 dan loss tangen = 0,0265. VSWR sebesar 1.24 , Return Loss -24.13 dB dan gain sebesar 5.684 dB.

***Kata Kunci : energy harvest,mikrostrip,rectangular,U-slot***

## ABSTRACT

Developments in the telecommunications world are getting higher and higher. The following advances are based on the widespread use of wireless telecommunications, which has made various telecommunications more convenient. However, many energy sources have been unknowingly produced by thousands of transmitters, opening up the possibility of energy harvesting. The energy that can be used to power an electronic device is *energy harvesting*. *Energy harvesting* is the process by which energy is collected and converted into electrical energy from various external sources, including solar power, thermal energy, wind energy, salinity gradients, potential energy, and kinetic energy. In this final project, it is focused on designing a rectangular microstrip antenna using the U-Slot method on energy harvesting that works at a frequency of 2400 Mhz. The simulation uses AWR microwave office software 2009. The standard specifications that must be met are: VSWR 1-2, return loss  $\leq 10$  dB and gain  $\geq 3$ dB. Additionally using substrate type FR-4 Epoxy the value of the dielectric constant ( $\epsilon_r$ ) = 4.3, substrate thickness (h) = 1.6 and tangent loss = 0.0265. VSWR is 1.24 , Return Loss is -24.13 dB and gain is 5,684 dB.

**Keyword :** *energy harvest, microstrip, U-Slot*