

## ABSTRACT

Antenna is a transition form that used to match the intrinsic impedance of propagation space with characteristics impedance of radio transmission channel. Antenna can be used not only as a transmitter but also as a receiver in communication system. Nowadays, the microwave communication needs the width band antenna in order to economize the RF channel and decrease the tower burden.

This final project designed and made Chebyshev two strip Dwitunggal antenna 400 MHz–1000 MHz  $150 \Omega$  with ferrite and SMA connector. The antenna was two in one antenna that composed with two parallel wires which were interpolated with the dielectrics substance. The Chebyshev Transformation was the kind of transformation high rise channel  $\frac{\lambda}{4}$  that used for width band. This work of frequency antenna between 400 MHz-1000 MHz which used to service GSM 900 MHz, frequency CDMA 800 MHz and frequency CDMA 450 MHz, and the others.

From the result, which done of the measurement, commonly the result obtained which close from scheme specifications in frequency 400 MHz-1000 MHz got VSWR 1.479;1.3;1.143;1.105;1.14;1.24;1.402 all under VSWR 1.5. Antenna impedance, which close with terminal coaxial impedance 50 Ohm, was  $(51.65+j4.816)\Omega$  in 700 MHz frequency, radiation pattern unidirectional, polarization close with linear (ellipse), obtained gain 9.2175dBi in frequency 400 MHz, 10.185dBi in frequency 700 MHz , and 10.115dBi in frequency 1000 MHz.

*Keyword : Dwitunggal Antenna, Transformation  $\frac{\lambda}{4}$  Chebyshev, Balun Toroid*