

ABSTRACT

Antenna is a device which is used to match between propagation space impedance to the transmission line impedance. Now there are many telecommunication services that work on high frequency and use wideband in order to be able to bring informational signal for any services and save the energy.

Antenna which is designed and realised on this final project is an Exponential Two Strip Dwigunggal Antenna that works on the lowest frequency 900MHz 150 Ohm using SMA Terminal. This antenna is using parallel line wire construction such as used on the prototype. Exponential Matching Method is used to match a very wideband so it can pass a lot of frequency above the lowest frequency 900MHz. Kinds of services that can work upper 900 MHz are GSM, GPS, PCS, W-LAN and others.

From the result of the measurement that has been done, generally the result is close to the specifications where on VSWR less than 1.4, there are two ranges frequency at 773.01 MHz until 988.14 MHz and 2394.06 MHz until 2932.08MHz. Antenna impedance that close to terminal impedance 50 Ohm are $47.39-j10.14 \Omega$ or $(48.46<-12.07) \Omega$ at frequency 883.21 MHz; $50.48-j17.03 \Omega$ or $(53.27<-18.64) \Omega$ at frequency 988.14 MHz; $52.45+j7.01 \Omega$ or $(52.91<7.6) \Omega$ at frequency 2580.04 MHz. Unidirectional radiation pattern, elliptical polarization (close to linear), Gain for about 5.686 dBi on 883.23 MHz, 9.215 dBi on 988.14 MHz, 5.707dBi on 2394.06 MHz, 8.662dBi on 2580 MHz.

Wideband antenna can be obtained by using short line or short dielectric

$(\frac{\lambda v}{10\sqrt{\epsilon r}} \leq \ell \leq \frac{\lambda \epsilon v}{10})$ and also use various dielectrics.