

ABSTRACT

Antenna is a transition form that used to match the intrinsic impedance of propagation space with characteristics impedance of radio transmission line. Antenna can be used as a transmitter and receiver in communication system. Nowadays, famous antenna is thin and wide band antenna because it is very benefitable. One of it benefits is RF line (feeder) retrenchment.

This final project design a wide band antenna which is called Dwitunggal Two Strip Binomial 400 MHz – 1000 MHz 150Ω with SMA Connector. It begins at knowing binomial line transformation technic to make a wide band frequency. This antenna is used in 400 MHz – 1000 Mhz which is belong to CDMA 450 MHz, GSM 900 MHz, CDMA 800 MHz and the others. Understanding in two wire line is used to convert two wires line into two strips line. And among the strips, the dielectric materials are put between the strips. Matching in antenna impedance and source impedance, balun transformator with toroid is used.

Measuring process executed in two condition. Indoor measuring used to VSWR and impedance measure. Outdoor measuring used to measure radiation pattern, polarization, and gain. The measuring result is close to the specification. $VSWR \leq 1.5$ got frequency between 496.64 MHz and 1223.33 MHz. Even though frequency 400 MHz get VSWR in 1.764. And impedance which is close to 50 ohm is $(58.29+j11.91)$ at 1000 MHz. Gain in 400 MHz is 3.807 dBi, in 700 MHz is 6.543 dBi, and in 1000 MHz is 7.341 dBi. With unidirectional radiation pattern, ellips polarization, and gain ≥ 2.14 dBi, the antenna is close to the definite specification.

Keywords : Antena Dwitunggal, *Transformator* $\frac{\lambda}{4}$ *Binomial*, *Balun Toroid*.