

ABSTRACT

Design and Realization of Exponential Omni-Three-Element with toroida Antenna

at lowest of frequency 300 MHz, 50 Ohm, VSWR < 1,5, Min. 7 dBi

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 works 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 Antenna that works on the lowest frequency 300Mhz 50 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 300MHz. Kinds of services that can work upper 300MHz 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 2 which is used many microwave instruments nowadays. Omndirectional radiation pattern, elliptical polarization. Gain for about 9.21 dBi on 1.4 GHz. There are frequencies from 1342,16 MHz until 2051,09 MHz in range $VSWR \leq 2$. Antenna impedance that close to terminal impedance 50 Ohm is $50.47-j0.49$ Ohm at frequency 1950,10 MHz.

Wideband antenna can be obtained by using short line or short dielectric ($l \leq \lambda \epsilon / 20$) and also accurate construction.

Key Word : Omni-Tiga-Element, Eksponensial, Toroid