

ABSTRACT

Antenna is used in radio communication as a structure that can alter guided wave through a transmission line into free-space wave. In mobile or stationery radio communication system, which the frequency goes higher, the using of wideband antenna is needed for exchanging information and energy-saving.

The antenna which is designed and realisated in this final project is helic antenna according to the Technical Drawing Design. For matching impedance, we use $\lambda/4$ trafo binomial stage 2, with 2 wire line construction. This operation frequency is suitable to nowadays using, 1500-2500 MHz which covers frequency range DCS-1800, CDMA 1900, UMTS 2100, W-LAN, and other applications.

From the measurement, the result almost reaches the design specification, which the bandwidth reaches 10.998% or 219.96 MHz for $SWR \leq 1.5$ with antenna impedance around $(50.87-j5.414)$ Ohm for frequency 2000 MHz, unidirectional radiation pattern, polarization is almost linear(elips), and gain reaches 9.434 dBi for frequency 2067.48 MHz and also 12.503 dBi for frequency 2132.03 MHz.