

INVESTIGATION OF A PLANAR ANTENNA WITH BANDWIDTH ENHANCEMENT FOR X-BAND APPLICATIONS

M. R. I. FARUQUE, M. M. ISLAM AND M. T. ISLAM, FROM THE UNIVERSITI KEBANGSAAN MALAYSIA, PRESENT A PLANAR ANTENNA DESIGN FOR X-BAND APPLICATIONS

Planar antennas play an important role in wireless communications systems and they continue to face shifting demands for a new generation of antenna technologies.

One of the widely used antennas is the microstrip patch, as it offers a low profile, conformal design, ease of manufacture and integration, and it is low cost and lightweight. Its main disadvantages, however, are narrow bandwidth and low efficiency, so increasing its bandwidth is the main focus of many research projects.

Communications in the X-Band

X-band (8GHz-12GHz) technology has been broadly used in various applications because of the high data-transmission rate, large bandwidth and short-range features. An electronically reconfigurable unit cell has been discussed with two phase states in X-band applications for linear polarization of the transmitting arrays in Reference 1. A wide-slot microstrip antenna has been designed [2] using a fork-like tuning stub to increase the bandwidth, achieving 1.1GHz with a gain of below 1.5dBi over the complete operational frequency band.

A wide-band rectangular patch antenna with a single layer

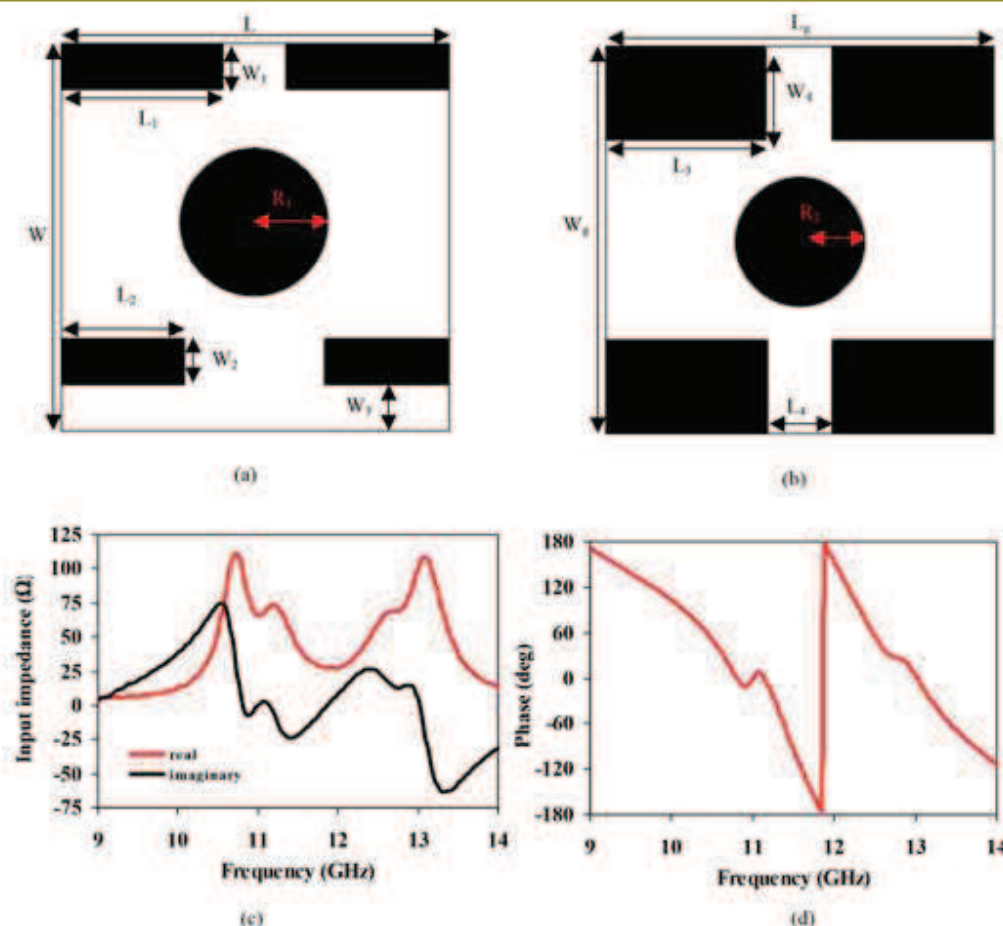


Figure 1: The proposed X-band planar antenna: (a) Front view; (b) Back view; (c) Input impedance; (d) Phase value