



DESIGN OF A PATCH ANTENNA ARRAY FOR THE 2.4GHz ISM BAND

Mohd Abid Khan
(M.Tech Scholar) Dept ECE
Al- Falah University
Dhauj Faridabad Haryana

Ravinder Kumar
Assistant Professor, Dept ECE
Al- Falah University
Dhauj Faridabad Haryana

ABSTRACT

A coaxial fed patch antenna array for application in the 2.4GHz ISM band was implemented using the Ansoft HFSS software. Standard formulae were used to calculate the different parameters of the antenna. These were just used as a basis of design as some parameters varied considerably during simulation. A good extent of the antenna design was hence done through trial and error. The proposed antenna was designed to work at 2.44 GHz frequency band. A fractional bandwidth of 2.62%, which was not close to the desired 10% and a reflection coefficient of -18.2131dB were attained. This may have been brought about by poor impedance matching and a high level of spurious feed radiation and surface waves. A way of improving the bandwidth would have been to use proximity coupling feeding method which offers the highest bandwidth (as high as 13%) and is somewhat easy to model and has low spurious radiation. However, its fabrication would have been more difficult. A directivity of 8.53dB was achieved. This was a fairly high though directivity increase could have been studied through use of different substrate material and thickness.

Key words: patch, radiation, antenna parameter.