

ARTIFICIAL NEURAL NETWORK MODEL FOR ANALYSIS OF ELLIPTICAL MICROSTRIP PATCH ANTENNA

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ABSTRACT

In this paper a new technique is proposed to calculate design parameters of Elliptical micro-strip patch antenna using Artificial Neural Networks (ANN) for circular polarization. Training data is collected from HFSS Ansoft Simulator. ANN models are developed to calculate the antenna parameters, for the given resonant frequency, aspect ratio, dielectric constant and height of substrate. The Levenberg-Marquardt (trainlm) algorithm, with multilayer perceptron (MLP) feed forward back propagation (FFBP) network is trained to achieve an accurate model. The model is then validated by comparing with the simulated and measurement. The design model is very useful for computer aided design (CAD), antenna engineers and other similar applications.

KEYWORDS: ANN, Microstrip Antenna, Resonant Frequency, FFBNN, HFSS Simulation