

Accepted Manuscript



Regular paper

Soft computing-based synthesis model for equilateral triangular ring printed antenna

Ahmet Kayabasi

PII: S1434-8411(18)30528-4
DOI: <https://doi.org/10.1016/j.aeue.2018.07.030>
Reference: AEUE 52435

To appear in: *International Journal of Electronics and Communications*

Received Date: 28 February 2018
Revised Date: 23 July 2018
Accepted Date: 25 July 2018

Please cite this article as: A. Kayabasi, Soft computing-based synthesis model for equilateral triangular ring printed antenna, *International Journal of Electronics and Communications* (2018), doi: <https://doi.org/10.1016/j.aeue.2018.07.030>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Soft computing-based synthesis model for equilateral triangular ring printed antenna**Ahmet Kayabasi***

Department of Electrical and Electronics Engineering, Engineering Faculty, Karamanoglu

Mehmetbey University, 70100, Karaman, Turkey

*Corresponding author.

E-mail addresses: ahmetkayabasi@kmu.edu.tr (A. Kayabasi)

Abstract: A soft computing-based synthesis model is proposed for the design of equilateral triangular ring printed antennas (ETRPAs) that operate at ultrahigh band applications. The synthesis of printed antennas having irregular shapes needs great efforts and time. Soft computing models eliminates complex, lengthy and time consuming mathematical procedures for synthesis and analysis of the printed antennas. In this paper, a soft computing model based on artificial neural network (ANN) is constructed for synthesis of ETRPAs. To generate training and testing data set, number of 100 ETRPAs with various geometrical and electrical parameters are simulated in terms of resonant frequency with the aid of a 3D full wave simulator. Soft computing model based ANN is designed to obtain the patch physical dimensions of ETRPAs simultaneously. The soft computing model is trained with simulated data set of 75 ETRPAs and tested with remainders 25 ETRPAs. A prototype of ETRPA is then fabricated to verify the proposed model. The testing results of the soft computing model are found in close agreement with simulated and experimental data. The presented model is simply/fast predicting the patch dimensions of ETRPAs and it is extremely useful to antenna engineers for the design of the ETRPAs.

Key words: Printed antenna, triangular ring printed antenna, synthesis, soft computing, artificial neural network

Download English Version:

<https://daneshyari.com/en/article/6878925>

Download Persian Version:

<https://daneshyari.com/article/6878925>

[Daneshyari.com](https://daneshyari.com)