

Accepted Manuscript



Regular paper

Fractal based Ultra-Wideband antenna development for Wireless Personal Area Communication Applications

Susila Mohandoss, Rama Rao Thipparaju, Bobbili Naga Balarami Reddy,
Sandeep Kumar Palaniswamy, Pushpalatha Marudappa

PII: S1434-8411(18)30879-3
DOI: <https://doi.org/10.1016/j.aeue.2018.06.009>
Reference: AEUE 52367

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

Received Date: 6 April 2018
Revised Date: 31 May 2018
Accepted Date: 4 June 2018

Please cite this article as: S. Mohandoss, R. Rao Thipparaju, B. Naga Balarami Reddy, S. Kumar Palaniswamy, P. Marudappa, Fractal based Ultra-Wideband antenna development for Wireless Personal Area Communication Applications, *International Journal of Electronics and Communications* (2018), doi: <https://doi.org/10.1016/j.aeue.2018.06.009>

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.

Fractal based Ultra-Wideband antenna development for Wireless Personal Area Communication Applications

Susila Mohandoss *, Rama Rao Thipparaju, Bobbili Naga Balarami Reddy, Sandeep Kumar

Palaniswamy, Pushpalatha Marudappa

SRM Institute of Science and Technology, Kattankulathur 603203, Chennai, India

*susilasrm@gmail.com, ramaraotr@gmail.com, bobbilibalaram@gmail.com,
vrpchs@gmail.com, lathamarudappa@yahoo.co.in*

Abstract – This paper presents a bandwidth enhanced, compact planar ultra-wideband antenna design for wireless personal area communication (WPAN) applications. The proposed antenna has fractal based geometry and is constructed using several iterations of a pentagon slot inside a circular metallic structure. The partial ground plane of the basic radiator is tapered, defected and a U slit is etched out from the microstrip feed to improve the $-10\text{dB } |S_{11}|$ bandwidth. The proposed fractal based antenna has an impedance bandwidth from 2.9 GHz to 15 GHz with low profile configuration and is fabricated on FR4 substrate with dimensions of $32\text{ mm} \times 32\text{ mm} \times 1.6\text{ mm}$. To authenticate the designed prototype, the antenna is fabricated and tested for impedance and radiation characteristics. The designed antenna has stable radiation characteristics in the operating band. Furthermore, the antenna is validated for its applicability in WPAN, by calculating fidelity factor through time domain analysis along with the transmission coefficient and group delay measurements.

Keywords: Fidelity factor; Fractal antenna; group delay; monopole antenna; time domain analysis; Ultra Wideband.

1. Introduction:

Today entire globe is witnessing the tremendous growth in ultra-high speed, high data rates for

* Corresponding Author

Download English Version:

<https://daneshyari.com/en/article/6878973>

Download Persian Version:

<https://daneshyari.com/article/6878973>

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