

Document details

[Back to results](#) | 1 of 1[Export](#) [Download](#) [Print](#) [E-mail](#) [Save to PDF](#) [Add to List](#) [More...](#)Journal of Telecommunication, Electronic and Computer Engineering
Volume 9, Issue 3, July-September 2017, Pages 33-36**A modified PEC-backed spiral antenna with improved pattern symmetry** (Review)

Sulong, N.I., Mohamad, S., Islam, M.R., Hasbullah, N.F.

Kulliyah of Engineering, International Islamic University Malaysia (IIUM), Kuala Lumpur, Malaysia

Abstract

[View references \(7\)](#)

This paper discussed the pattern symmetry of a two-arm Archimedean spiral antenna which is designed to operate over the Ultra-Wide band (UWB) frequency range of 3.1 GHz to 10.6 GHz. The geometrical design of the spiral antenna is simulated and executed using CST Microwave Studio (CST MWS) software. The simulated radiation performances such as radiation pattern, maximum and minimum 3 dB beamwidth, current distribution and gain have been analyzed. The results are compared in three conditions; in free space (with no ground plane), above a solid PEC ground plane, and above a modified PEC ground plane (with circular patterns). Both the PEC reflectors are placed below the spiral antenna with a separation distance of $\lambda/4$ at lower frequency $f_{low} = 3.1$ GHz, center frequency $f_{center} = 6.85$ GHz, and higher frequency $f_{high} = 10.6$ GHz of UWB. It is shown that the spiral antenna above the modified PEC backing provides an overall better performance, giving a unidirectional radiation pattern with high gain and improved pattern symmetry compared to the other two configurations.

Author keywords

Archimedean spiral antennas Frequency independent antennas Pattern symmetry PEC reflector Spiral antennas
Ultra-Wide band (UWB)

Funding details

Funding number	Funding sponsor	Acronym
RIGS15-134-0134	International Islamic University Malaysia	IIUM

Funding text

This research was supported by International Islamic University Malaysia (IIUM) through IIUM Research Initiative Grant (RIGS15-134-0134).

ISSN: 21801843
Source Type: Journal
Original language: English

Document Type: Review
Publisher: Universiti Teknikal Malaysia Melaka

Metrics

0 Citations in Scopus

0 Field-Weighted
Citation Impact

PlumX Metrics

Usage, Captures, Mentions,
Social Media and Citations
beyond Scopus.

Cited by 0 documents

Inform me when this document is
cited in Scopus:

[Set citation alert >](#)[Set citation feed >](#)

Related documents

Performance comparison between
Archimedean and Equiangular spiral
antenna

Ibrahim Ooi, N., Mohamad, S.Y.,
Islam, M.R.
(2017) *Journal of
Telecommunication, Electronic and
Computer Engineering*

Selective high impedance surface
active region loading of archimedean
spiral antenna

Mohamad, S., Cahill, R., Fusco, V.
(2014) *IEEE Antennas and Wireless
Propagation Letters*

Tri-band HIS backed spiral antenna
for wireless LAN applications

Mohamad, S., Cahill, R., Fusco, V.
(2015) *Microwave and Optical*