

Scopus



Document details

[< Back to results](#) | 1 of 1
[Export](#)
[Download](#)
[Print](#)
[E-mail](#)
[Save to PDF](#)
[Add to List](#)
[More... >](#)

 ARPN Journal of Engineering and Applied Sciences
 Volume 12, Issue 13, 1 July 2017, Pages 4007-4012

Open Access

Analysis of mutual inductance and coupling factor of inductively coupled coils for Wireless electricity (Article)

 Nataraj, C.^{ab}  Khan, S.^a Habaebi, M.H.^a Muthalif, A.G.A.^a 
^aFaculty of Electrical and Computer Engineering, International Islamic University Malaysia (IIUM), Selangor, Malaysia^bFaculty of Computing and Engineering, Asia Pacific University of Technology and Innovation (APU), Kuala Lumpur, Malaysia

Abstract

[View references \(15\)](#)

A basic analysis of inductive coils and its parameter calculations are presented. The simulations of mutual inductance, coupling factor calculations are demonstrated with graphical analysis. Three different lab-scale coil models such as square, circular and rectangular coils are wound to evaluate the magnetic field by experiment, to validate the performance of Wireless Power System (WPT). In the open literature, circular coils are employed in most of the works, but few works have been reported in the parameter analysis. Further investigations on parameter exploration seems as a prerequisite for magnetic field measurement by estimating the parameters such as mutual inductance(M), coupling factor(k), magnetic flux(Φ) and magnetic field(B). It helps us to select the coils according to the applications. In this work, it is observed that circular performs well than other shaped coils in terms of parametrical analysis which are mentioned above. The simulation, and experimental results are tabulated as well as supported graphical plots are shown as proving circular coils performs well in the WPT scenario. © 2006-2017 Asian Research Publishing Network (ARPN).

Author keywords

[coupling factor](#)
[Inductive coils](#)
[Magnetic field](#)
[Mutual inductance](#)
[Wireless power transfer](#)

ISSN: 18196608

Source Type: Journal

Original language: English

Document Type: Article

Publisher: Asian Research Publishing Network

References (15)

[View in search results format >](#)
 All
 [Export](#)
[Print](#)
[E-mail](#)
[Save to PDF](#)
[Create bibliography](#)

- 1 Olivio, J., Carrara, S., De Micheli, G. Energy harvesting and remote powering for implantable biosensors (2011) *IEEE Sensors Journal*, 11 (7), pp. 1573-1586. Cited 82 times.

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

Mutual inductance calculation method of arbitrary space positioned coils

Xie, Y. , Pan, W.-L. (2016) *Dianji yu Kongzhi Xuebao/Electric Machines and Control*

Mutual inductance calculation for noncoaxial circular air coils with parallel axes

Akyel, C. , Babic, S.I. , Mahmoudi, M.-M. (2009) *Progress in Electromagnetics Research*

Mutual inductance and force calculations between coaxial bitter coils and superconducting coils with rectangular cross section

Ren, Y. , Wang, F. , Kuang, G. (2011) *Journal of Superconductivity and Novel Magnetism*