

Document details

< Back to results | 1 of 4 Next >

[Export](#) [Download](#) [Print](#) [E-mail](#) [Save to PDF](#) [Add to List](#) [More... >](#)

[Full Text](#) [View at Publisher](#)

International Journal of Ultra Wideband Communications and Systems
Volume 3, Issue 4, 2018, Pages 192-200

An indoor path loss model for wireless sensor networks (Article)

Abdel-Rahim, M.^a [✉](#), Hadi Habaebi, M.^a [✉](#), Chebil, J.^b [✉](#), Hashim, A.H.A.^a [✉](#), Ahmed, M.M.^c [✉](#), Rafiqul Islam, Md.^a [✉](#), Zyoued, A.^a [✉](#) [👤](#)

^aDepartment of Electrical and Computer Engineering, International Islamic University Malaysia, Gombak, Kuala Lumpur, Malaysia

^bHigher Institute of Transport and Logistics of Sousse, University of Sousse, 12, Rue Abdallah Ibn Zoubair, Sousse, Tunisia

^cElectrical and Electronics Engineering Department, Faculty of Engineering, Unimas Kota Samarahan, Sarawak, Malaysia

Abstract

[View references \(37\)](#)

In this paper, path loss measurements were conducted and a path loss model was proposed for wireless sensor networks (WSNs) operating in indoor environment. This is done with a view to study transmit power requirements in indoor application of WSNs. The proposed model is a hybrid of the two-ray ground reflection model and the log-normal model and considers frequency and three-dimensional link trajectory as key parameters in evaluating path loss. The study highlights the effect of height on path loss exponent by means of various measurements taken in indoor environment. Comparison with the empirical data and other models in the literature was conducted and had very favourable results for the proposed model. Copyright © 2018 Inderscience Enterprises Ltd.

Author keywords

[Channel models](#) [Empirical models](#) [Indoor environments](#) [Path loss exponent](#) [ZigBee](#)

Funding details

Funding number	Funding sponsor	Acronym	Funding opportunities
RIGS16-362-0526	International Islamic University Malaysia	IIUM	

Funding text

This research was partially supported by International Islamic University Malaysia research grant RIGS16-362-0526.

ISSN: 1758728X

Source Type: Journal

Original language: English

DOI: 10.1504/IJUWBCS.2018.092427

Document Type: Article

Publisher: Inderscience Enterprises Ltd.

References (37)

[View in search results format >](#)

All [Export](#) [Print](#) [E-mail](#) [Save to PDF](#) [Create bibliography](#)

Metrics [?](#)

0 Citations in Scopus

0 Field-Weighted

Citation Impact



PlumX Metrics [v](#)

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

Efficient method for associating radio propagation models with spatial partitioning for smart city applications

Alwajeeh, T. , Combeau, P. , Bounceur, A.
(2016) *ACM International Conference Proceeding Series*

Propagation model alternatives for outdoor wireless sensor networks

Kurt, S. , Tavli, B.
(2013) *IFIP Wireless Days*

Measurement and analysis of radio channel model for near ground wireless sensor network

Shen, J. , Yao, D.-Y. , Huang, H.-Q.
(2008) *Guangxue Jingmi Gongcheng/Optics and Precision Engineering*

[View all related documents based on references](#)

[Find more related documents in Scopus based on:](#)

-
- 1 Akl, R., Tummala, D., Xinrong, L.
Indoor propagation modeling at 2.4 GHZ for IEEE 802.11 networks
(2006) Proceedings of the IASTED International Conference on WIRELESS SENSOR NETWORKS, Part of the Sixth IASTED International Multi-Conference on WIRELESS AND OPTICAL COMMUNICATIONS, 2006. Cited 55 times.
-
- 2 Alemdar, H., Ersoy, C.
Wireless sensor networks for healthcare: A survey
*(2010) Computer Networks, 54 (15), pp. 2688-2710. Cited 643 times.
doi: 10.1016/j.comnet.2010.05.003*

[View at Publisher](#)
-
- 3 *(1999) Digital Mobile Radio Towards Future Generation Systems: Final Report. Cited 332 times.
COST Action 231 Directorate General Telecommunications, Information Society, Information Market, and Exploitation Research*
-
- 4 Crippen, G.M., Havel, T.F.
*(1988) Distance Geometry and Molecular Conformation, 74. Cited 621 times.
Research Studies Press, Taunton, UK*
-
- 5 Durišić, M.P., Tafa, Z., Dimić, G., Milutinović, V.
A survey of military applications of wireless sensor networks
*(2012) 2012 Mediterranean Conference on Embedded Computing, MECO 2012, art. no. 6268958, pp. 196-199. Cited 106 times.
ISBN: 978-145771190-9*
-
- 6 Erceg, V.
*(2004) IEEE 802.11 TGn Channel Models, p. 802. Cited 25 times.
Document IEEE*
-
- 7 Fort, A., Desset, C., Ryckaert, J., De Doncker, P., Van Biesen, L., Wambacq, P.
Characterization of the ultra wideband body area propagation channel
*(2005) ICU 2005: 2005 IEEE International Conference on Ultra-Wideband, Conference Proceedings, 2005, art. no. 1569950, pp. 22-27. Cited 103 times.
ISBN: 078039397X; 978-078039397-4*
-
- 8 Gauger, M., Minder, D., Marrón, P.J., Wacker, A., Lachenmann, A.
Prototyping sensor-actuator networks for home automation
*(2008) REALWSN 2008 - Proceedings of the 2008 Workshop on Real-World Wireless Sensor Networks, pp. 56-60. Cited 16 times.
ISBN: 978-160558123-1
doi: 10.1145/1435473.1435489*

[View at Publisher](#)
-