APCC 2003 - 9th Asia-Pacific Conference on Communications, in conjunction with 6th Malaysia International Conference on Communications, MICC 2003, Proceedings
Volume 1, 2003, Article number 1274387, Pages 415-419
9th IEEE Asia-Pacific Conference on Communications, APCC 2003, in conjunction with 6th Malaysia International Conference on Communications, MICC 2003; City Bayview HotelPenang; Malaysia; 21 September 2003 through 24 September 2003; Category number03EX732; Code 115525

Performance evaluation of OFDM schemes over multipath fading channels (Conference Paper)

Saeed, M.A., Ali, B.M., Habaebi, M.H.

Department of Communication and Networking System, Faculty of Engineering, Universiti Putra Malaysia, Serdang, Selangor 43400, Malaysia

Abstract

View references (12)

This paper discusses the transmission of the orthogonal frequency division multiplexing (OFDM) signal through the multipath fading indoor channel and its capability to combat the intersymbol interference (ISI) as well as its effective implementation with the discrete Fourier transform is described. The channel model used was based on Saleh-Valenzuela model with lognormal fading distribution of gain amplitudes. Simulation modules were developed and the effect of the multipath on the OFDM system performance with BPSK, QPSK, 16PSK, 64PSK, 16QAM, 64QAM, and 128QAM modulations was evaluated in terms of the bit error rate (BER) as a function of the energy per bit-to-noise ratio (EBNR). The influence of the number of carriers as well as the guard interval duration on the performance was also investigated. Simulations showed that the EBNR required to achieve a certain BER is significantly increased by 8-10 dB for dense multipath fading channels over that required in AWGN channels. These performance measures are useful for the design and assessment of high speed indoor wireless communication systems. © 2003 IEEE.

SciVal Topic Prominence

Topic: Orthogonal frequency division multiplexing | Discrete wavelet transforms | Wavelet packet

Prominence percentile: 63.664

Author keywords

AWGN channels | Binary phase shift keying | Bit error rate | Discrete Fourier transforms | Fading | Intersymbol interference | OFDM modulation | Quadrature phase shift keying | System performance | Velocity measurement

Indexed keywords

Engineering controlled terms: Binary phase shift keying | Bit error rate | Broadband networks | Discrete Fourier transforms | Fading channels | Frequency division multiplexing | Intersymbol interference | Modulation | Multipath fading | Multipath propagation | Phase shift | Phase shift keying | Phase shifters | Quadrature phase shift keying | Velocity measurement | White noise | Wireless telecommunication systems

Engineering uncontrolled terms: AWGN channel | Fading | Indoor wireless communications | OFDM modulation | Performance measure | Saleh-Valenzuela model | Simulation modules | System performance

Engineering main heading: Orthogonal frequency division multiplexing

ISBN: 0780381149;978-078038114-8
Source Type: Conference Proceeding
Original language: English
DOI: 10.1109/APCC.2003.1274387
Document Type: Conference Paper
Volume Editors: Anuar K.,Abdul Rashid H.A.B.,Ismail M.,Abdalla A.G.E.
Sponsors: Telekom Malaysia Berhad
Publisher: Institute of Electrical and Electronics Engineers Inc.

References (12)

View in search results format >

All | Export | Print | E-mail | Save to PDF | Create bibliography

1 Weinstein, S.B., Ebert, P.M.
Data Transmission by Frequency-Division Multiplexing Using the Discrete Fourier Transform
(1971) *IEEE Transactions on Communication Technology*, 19 (5), pp. 628-634. Cited 1382 times.
doi: 10.1109/TCOM.1971.1090705
View at Publisher

2 Bingham, J.A.C.
Multicarrier Modulation for Data Transmission: An Idea Whose Time Has Come
(1990) *IEEE Communications Magazine*, 28 (5), pp. 5-14. Cited 2585 times.
doi: 10.1109/35.54342
View at Publisher

3 Proakis, J.G.
(1995) *Digital Communications*. Cited 26809 times.
McGraw-Hill

4 Nee, R.V., Prasad, R.
(2000) *OFDM for Wireless Multimedia Communications*. Cited 3599 times.
Artech House

5 Kalet, I.
The Multitone Channel
(1989) *IEEE Transactions on Communications*, 37 (2), pp. 119-124. Cited 350 times.
doi: 10.1109/26.20079
View at Publisher

(2005) Proceedings - 2005 International Conference on Wireless Communications, Networking and Mobile Computing, WCNM 2005

Detection of OFDM-CPM signals over multipath channels
Tasadduq, I.A. , Rao, R.K.
(2002) IEEE International Conference on Communications

Bandwidth-efficient wireless OFDM
Sun, Y.
(2001) IEEE Journal on Selected Areas in Communications

View all related documents based on references

Find more related documents in Scopus based on:

Authors > Keywords >