A crest factor reducing method for the OFDM system generating by reducing bit transition rate

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ABSTRACT

A crest factor (CF) reduction technique is proposed for OFDM systems by reducing the number of higher frequency subcarrier, where the number of bits transmitted by an OFDM symbol is reduced according. The performance of the proposed technique is simulated and compared using a criterion of CCDF (Complementary Cumulative Distribution Function) = 10-3, from our simulation where four subcarriers are transmitted with the CF of 7.78 dB. While the crest factor reductions for a reduction of transmission bits of one and two bits are 1.39 and 3.04 dB respectively.

Keywords : (Orthogonal Frequency Division Multiplexing   OFDM)

Table of Contents

REFERENCES

[1]R. van Nee and R. Prasad OFDM for Wireless Multimedia Comunication,Artech House Publishers,Boston,2000.

[2]R.V.NEE and R.Prasad ,"OFDM for Wireless Multimedia communications",Artech House,1999 [3]Zoy W. Y. and Yiyan Wu, "COFDM:An overview," IEEE Trans. On Broadcasting", 1995.

[4] J. Armstrong,"Peak-to-average power reduction for OFDM by repeatedclipping and frequency domain filtering," Electronics Letters, vol. 38, issue 5,pp.246-247, Feb. 2002.

[5] R.W. Bauml, R.F.H. Fischer, and J.B. Huber,"Reducing the peak-to-averagepower ratio of multicarrier modulation by selected mapping," ElectronicsLetters, vol. 32, issue 22, pp. 2056-2057, Oct. 1996.

[6] S.H. Muller and J.B. Huber,"OFDM with reduced peak-to-average power ratioby optimum combination of partial transmit sequences," Electronics Letters,vol.33, issue 5, pp. 368-369, Feb. 1997.

[7] R. V. Nee and R. Prasad, OFDM for Wireless Multimedia Communications.Artech House, Jan. 2000.

[8] S.B. Slimane,"Peak-to-average power ratio reduction of OFDM signals usingpulse shaping." IEEE Global Telecommunications Conference,GLOBECOM '00, vol. 3, pp.1412-1416, 2000.

[9] J. A. Davis and J. Jedwab,"Peak-to-mean power control in OFDM, Golaycomplementary sequenced and Reed-Muller codes." IEEE Transactions onInformation Theory, vol.45, issue 7, pp.2397-2417, Nov. 1999.

[10] M. J. E. Golay, "Complementary series," IEEE Transactions on InformationTheory, vol. IT-7, pp.82-87, 1961.

[11] S. H. Muller and J. B. Huber,"A novel peak power reduction scheme for OFDM," Personal, Indoor and Mobile Radio Communications, PIMRC 97 ,vol. 3, pp. 1090-1094, Sept. 1997.

[12] S. H. Muller and J. B. Huber,"OFDM with reduced peak-to-average powerratio by optimum combination of partial transmit sequences," ElectronicsLetters, vol.33, pp. 368-369, Feb. 1997.

[13] H.G. Ryu and H.J. Youn,"A new PAPR reduction scheme: SPW(sub-blockphase weighting)," IEEE Transactions on Consumer Electronics, vol.48,pp.81-89, Feb. 2002.

[14]   , "On Using Convolutional Codes to Reduce the Crest Factor of OFDM Signal",   ,2009