PAPR Reduction by Using Partial Subcarrier Groups Incorporated With Companding Technique in The WiMAX-OFDM System

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ABSTRACT

The peak-to-average power ratio PAPR reduction technique using partial subcarrier groups transmission is proposed for WiMAX wireless system, and simulations are performed to examine their reduction performances. In-addition, the partial subcarrier groups transmission technique incorporated with companding technique is also considered to improved the reduction capacity. The complementary cumulative distribution function CCDF is used for performance evaluation for a CCDF of 10-3, The proposed technique can provide a reduction of 2.4dB for the PAPR value of a WiMAX-OFDM system and a reduction of 0.5dB is obtained when companding technique is added.

Keywords: PAPR Companding CCDF

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REFERENCES

[1] J.Armstrong. Peak-to-average power reduction for OFDM by repeated clipping and frequency domain filtering.Electronics Letters,38(8):246-247,February2002.

[2] R. Baxley and G. Zhou. Power savingsan alysis of peak-to-average power ratio in OFDM.IEEE Transactions on Consumer Electronics,50(3):792-798,2004.

[3] R. Van Nee and R. Prasad, OFDM for Wireless Multimedia Communications,Artech House, Ch2, Ch3, 2000.

[4] ,"   OFDM   ",   , 2010.

[5] ," Reduction the Peak-to-Average Power Ratio in CDMA-OFDM Systems" ,   , 2006.

[6] ," Reduce the Crest Factor of OFDM Signal by Using Preselective Subcarrier Groups with Smaller Crest Factor" ,   , 2011.

[7] ," A Crest Factor Reducing Method for the OFDM System Generating by Reducing Bit Transition Rate" ,   , 2011.

[8] Jeffrey G. Andrews, Arunabha Ghosh, and Rias Muhamed, Fundamentals of WiMAX ,Prentice Hall, 2007, Chapter 4.

[9] R. O.'Neill and L. B. Lopes,"Envelope Variat and Spectral Splatter in Clipped Multicarrier Signals," Proc. IEEE PIMRC'95.Toronto, Canada, pp. 71-75, Sept. 1995.

[10] Tao Jiang and Guangxi Zhu," Complement Block Coding for Reduction in Peak-to-Average Power Ratio of OFDM Signals," IEEE Radio Communications, pp.17-22, Spet. 2005.

[11] J.van deBeek, M.Sandell,and P.Borjesson.ML estimation of time and frequency offset in OFDM system.IEEE Transactions on singnal Processing,45:1800-1805, July 1997.

[12] Seog-Geun kang, Jeong-Goo Kim and Eon-Kyeong Joo, " A Novel Subblock Partition Scheme for Partial Transformit Sequence OFDM," IEEE Transactions on Bradcasting, vol. 45, no. 3, pp. 333-338, Sept.1999.

[13] S. C. Cripps. RF Power Amplifiers for Wireless Communications.ArtechHouse,1999.

[14] R. W. Bami,R. F. H.Fischer and J. B.Hber, " Reducing the peak-to-average power ratio of multicarrier modulation by selective mapping," IEEE Electronics Letters, vol. 32,pp. 2056-2057, Oct. 1996.

[15] S. H. Han and J. H. Lee, " Modified selected mapping technique for papr reduction of coded ofdm signal," IEEE Transactions Broadcast, vol. 50, pp. 335-341,Sep. 2004.

[16] Tao Jiang-Yang and Yong-Hua Song, " Exponential Companding Technique for PAPR Reduction in OFDM Systems," IEEE Transactions on Bradcasting, vol. 51,no. 2, pp. 244-248, June 2005.

[17]Jeffrey G.Andrews,Arunsbha,Fundamentals of WiMAX,2007.