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Spectral Efficiency for Orthogonal Frequency Division Multiplexing

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Abstract: *Orthogonal Frequency Division Multiplexing (OFDM) is a special form of multicarrier modulation (MCM) with heavily spaced subcarriers as well as overlapping spectra was patented in the United States of America in 70s. Orthogonal Frequency Division Multiplexing has been popularly utilized in modern days due to its ability for spectral efficiency and robustness to noise and fading. It provides flexibility and agile spectrum allocation in case of cognitive radios. This paper will focus on OFDM research and simulation for enhancement of spectral efficiency. OFDM is especially compatible for high-speed wireless communication due to its resistance to Inter symbol Interference. As in modern days communication systems has increased their data transfer speed, the required time for each transmission has become very short. As delay time due to multipath remains constant, Inter symbol interference became limitation in high-data-rate communication. OFDM avoids this difficulty by transmitting numerous low speed transmissions simultaneously*

Keywords: Orthogonal Frequency Division Multiplexing (OFDM), Spectral Efficiency, Inter symbol Interference(ISI), Inter channel Interference (ICI)

REFERENCES

[1] Haijian Zhang, "Spectral Efficiency Analysis in OFDM and OFDM/OQAM based Cognitive Radio Networks" , IEEE 2009
[2] Alina Elena ,"Considerations regarding the spectral efficiency of orthogonal frequency division multiplexing" , International conference on development and application systems, suceava, romania, may 17-19, 2012.
[3] Rashi Sharma ,"Spectral Efficiency and BER of OFDM Systems with Carrier Frequency Offset (CFO)" , International Journal of Current Engineering and Technology,2015
[4] H. Zhang ,"Spectral Efficiency Comparison of OFDM/FBMC for Uplink Cognitive Radio Networks" , EURASIP Journal on Advances in Signal Processing, Volume 2010
[5] Junaid Ahmed ,"Spectral Efficiency Comparison of OFDM and MC-CDMA with Carrier Frequency Offset" , radio engineering, vol. 26, no. 1, April 2017 .
[6] F. L. Luo et al., "Signal Processing for 5G: Algorithms and Implementations,"John Wiley & Sons, 2016.