Abstract

During Multicarrier transmission in OFDM (Orthogonal Frequency Division Multiplexing), the signal suffers due to fading environment and results in timing and frequency errors at the receiver end. An efficient timing and frequency offset estimation algorithm has been designed in VHDL using ISE XILINX 10.1. The maximum value at which the timing offset is achieved and input signal with a delay are compared to get the frequency offset. This operation ensures that the frequency offset calculation is done at the best time, i.e., when the correlation over the actual received symbol cyclic prefix is complete. The values for frequency offset have been obtained after simulations as 0.00034232 and timing offset has been observed as 1.864 ns. The design is achieved at 75.5 Mhz and uses 2% of the total memory of the Virtex-6 Device. The design when implemented was found to reduce 95% of carrier frequency offset (CFO) error, than the performance of a simple frequency estimator.

References

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Index Terms

Computer Science Wireless Communications

Keywords

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