

Family of Nyquist-I Pulses to Enhance Orthogonal Frequency Division Multiplexing System Performance

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Resumen

A family of Nyquist-I pulses called sinc parametric linear combination pulse (SPLCP) is proposed. It is characterized by two novel design parameters that provide additional degrees of freedom to minimize the intercarrier interference (ICI) power due to frequency offset. Moreover, it reduces the high peak-to-average power ratio (PAPR) value in orthogonal frequency division multiplexing (OFDM) systems. Several Nyquist-I pulses were recently proposed to address the subject of high sensitivity to frequency offset and high PAPR in OFDM-based transmissions. In this paper, we investigate the performance of SPLCP in terms of ICI power, signal-to-interference ratio (SIR) power, bit error rate (BER), and PAPR. We additionally examine the behaviour of SPLCP with new design parameters for a certain roll-off factor, . We compare the performance of SPLCP with other well-known pulses. Theoretical and simulation results show that the proposed SPLCP outperforms other existing pulses in terms of ICI power, SIR power, BER, and PAPR.

Palabras clave

Palabras clave de autor: [frequency offset](#); [intercarrier interference](#); [Nyquist-I pulses](#); [orthogonal frequency division multiplexing](#); [pulseshaping functions](#); [signal-to-interference power ratio](#)

KeyWords Plus: [LINEAR COMBINATION PULSES](#); [OFDM SYSTEMS](#); [PAPR REDUCTION](#); [ICI REDUCTION](#); [OFFSET](#); [5G](#); [SIGNALS](#)

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