Abstract

Single Carrier Frequency Division Multiple Access (SC-FDMA) is proposed for uplink transmission of Long Term Evolution Advanced (LTE-A) due to its lower Peak to Average Power Ratio (PAPR) compared to Orthogonal Frequency Division Multiple Access (OFDMA). In this paper, a comparison is introduced between its two subcarrier mapping schemes, Localized-FDMA (LFDMA) and Interleaved-FDMA (IFDMA), in terms of PAPR. Moreover, the paper addresses the performance of SC-FDMA with Pulse Shaping (PS). Since conventional Raised Cosine (RC) PS introduces a trade-off between spectrum efficiency and low PAPR in IFDMA, the results show that some newly combined Nyquist pulses can reduce PAPR of IFDMA significantly while maintaining the same Bandwidth (BW) compared to conventional RC pulse.

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Index Terms

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Single Carrier Frequency Division Multiple Access (SC-FDMA), Long Term Evolution Advanced (LTE-A), Peak-to-Average Power Ratio (PAPR), Localized-FDMA (LFDMA), Interleaved-FDMA (IFDMA), Raised Cosine (RC).