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Overloaded Spread Spectrum OFDMA in Outdoor Environment in the Low Interleaving Scenario

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Abstract: The development of mobile communication technology starts with creating or modifying a Radio Access Technique (RAT) to meet user needs and increase capacity. This paper focuses on enhancing spectral efficiency and average throughput using an OFDM-based multiple access method, specifically overloaded spread spectrum OFDMA. The study found that with 24% overloading for BPSK modulation, there is approximately a 30% increase in spectral efficiency in outdoor scenarios. There is a significant improvement using higher modulation as well. This improvement highlights the potential of Overloaded Spread Spectrum OFDMA to optimize mobile communication systems, ensuring better resource utilization and system performance to handle the growing demand for data and connectivity effectively

Keywords: overloaded; spread spectrum; outdoor; interleaving; Spreading gain (SG)

