

Statistical Properties of Coarse Synchronization for MIMO-OFDM with Distributed Antenna System

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Abstract—Multiple Input Multiple Output–Orthogonal Frequency Division Multiplexing (MIMO-OFDM) is one of the key technologies in the next generation broadband wireless communication systems. It is very sensitive to coarse synchronization. With the distributed architecture, the coarse synchronization becomes more difficult and more complex. The goal of this paper is to analyze the statistical properties of coarse synchronization for MIMO-OFDM with distributed antenna system. It defines the coarse synchronization metric function (autocorrelation synchronization metric function) at the receiver and calculates its mean and variance. Finally, the statistical properties of coarse synchronization are examined by their applications to several existing algorithms.

Keyword—MIMO; OFDM; Distributed System; Coarse Synchronization; Statistical Property



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