

# Investigating in OFDM Systems with SC Diversity Operating over Correlated-Weibull Frequency Selective Fading Channels

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## ABSTRACT

In this paper the system performance of OFDM (orthogonal frequency division multiplexing) with the cases of MRC (maximal ratio combining) and dual branch SC (selective combining) diversities over correlated-Gamma distributed and correlated-Weibull fading, respectively, are investigated. Since the reason of an alternative expression of the Q-function is adopted for deriving the results of average BER (bit-error rate) of the OFDM system, the obtained formulas are not only calculated much simpler but the conducting of numerical analysis is also arrived at easily and accurate. It is valuable to claim that the system performance of the OFDM system is definitely dominated by the propagation environments, which is decided by the fading parameters both of the Nakagami-m and Weibull distributed, of the transmission of the radio systems. Furthermore, both of the conditions of equal and unequal signal intensities at the output of SC diversities are adopted as the scenarios for the discussion of OFDM systems.

Keywords : OFDM signaling ; MRC ; SC ; Nakagami-m fading ; Weibull fading

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