

# The SC Diversity with Un-equal Gain Branches in Correlated-Weibull Fading

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## ABSTRACT

The system performance of average LCR (level crossing rate) and AFD (average fade duration) versus normalized envelope level for a dual-branch SC (selection combining) receiver are discussed in this paper. Both of the equal and un-equal gain branches of the diversity paths are assumed in the evaluation of system performance, and the scenario of the suffered fading channel is considered characterized as correlated-Weibull fading environments. We derived the new formulas and the numerical results are conduct for the purpose of accuracy validation. The different fading parameter of the Weibull distributed are compared each other in the numerical evaluation section. Besides, from the illustrated results it is worthwhile noting that the un-equal path gain, which is definitely affect the system performance of the SC diversity, should be taken into account for the analyzing or designing of the SC diversity system in wireless communication systems.

Keywords : average LCR (level crossing rate) ; AFD (average fade duration) ; SC (selection combining) diversity ; equal gain branch ; un-equal gain branch

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