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Error Probability Performance and Ergodic Capacity of L-Branch Switched and Examine Combining (SEC) in Weibull Fading Channels

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Abstract: In this study, we consider a switched and examine combining (SEC) diversity scheme over independent and identically distributed (i.i.d.) L-branch Weibull fading channels and evaluate its performance in terms of ergodic capacity and the bit error rate (BER) for a class of coherent modulation schemes. The authors use the probability density function (pdf) of the effective signal-to-noise ratio (SNR) at the output of the SEC combiner in evaluating the BER and ergodic capacity for the considered model. The results are presented in closed-form expressions that are shown to generalize some special cases that are known in the literature. The general expressions are also shown to reduce to some other novel cases that are not reported in the literature. Numerical results and simulations are provided to verify the derived expressions.