Abstract

The error performance of the 2-tier star shaped Quadrature Amplitude Modulation scheme over K and KG fading channels are analyzed and evaluated. Novel closed form expressions for Symbol Error Rate (SER) have been derived for M-ary 2-tier circular Star QAM transmitted over the K and KG fading channels. The expressions derived are in the form of sum of single definite integrals of hypergeometric functions which are calculated using numerical methods. The expressions are validated by extensive Monte Carlo simulation. A simple relationship between SER and bit error rate (BER) is proposed and experimentally verified. Using the expressions for SER, the optimum values of ring ratio are calculated for various values of M. It has also been established that the error performance of 2-tier Star QAM is considerably superior to that of the M-ary Square QAM for high and moderate fading.

References

- A Abdi, H Allen Barger, and M Kaveh. A simple alternative to the lognormal model of


Error Analysis of 2-tierM-ary Star QAM Modulation in Shadowed Fading Channels


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