

## **BER Comparison of OFDM with M-QAM Modulation Scheme of AWGN and Rayleigh Fading Channels**

### **ABSTRACT**

The wireless channel environment is critical to develop wireless communication. In Quadrature Amplitude Modulation (QAM), the constellation points are in square grid with equal vertical and horizontal spacing. Because of higher order modulation formats, more bit per symbol can be transmitted. M-QAM is the efficient digital modulation method because of its higher constellation points. In this paper, the Bit Error Rate (BER) performance of Orthogonal Frequency Division Multiplexing (OFDM) systems and different arrays of QAM (4, 8, 16, and 64-QAM) modulation techniques has been compared under the Rayleigh fading and Additive White Gaussian Noise (AWGN) channels. All the simulations are carried out in MATLAB. The investigation results shows that the Quadrature Phase Shift Keying (QPSK) modulation scheme gives the best performance in term of BER in OFDM system compared to the M-QAM modulation scheme.