

ABSTRACT

Mobile communication system uses Correlated Double Ring channel modeling, where the transmitter and receiver are surrounded by scattering with a geometric model and move at a certain speed. The state of the channel is always changing every time causing the Doppler effect. The Doppler effect generated during transmission will cause Inter Carrier Interference (ICI) and Inter Symbol Interference (ISI). In this study, to minimize ISI and ICI, multicarrier Orthogonal Frequency Division Multiplexing (OFDM) and zero forcing equalization techniques were used at the receiving end to mitigate the Doppler effect. System performance will be tested with BPSK modulation based on Bit Error Rate (BER) parameters. When E_b/N_0 10 dB at 5 m/s speed Non Zero Forcing BER value is $1,042 \times 10^{-1}$, Zero Forcing BER reaches $5,45 \times 10^{-2}$ so there is a decrease of 47,75%. At 25 m/s Non Zero Forcing BER value is $1,057 \times 10^{-1}$, BER Zero Forcing reached $5,48 \times 10^{-2}$ so that there was a decrease of 48,11%. At a speed of 55 m/s the BER Non Zero Forcing is $1,084 \times 10^{-1}$, BER Zero Forcing reaches $5,44 \times 10^{-2}$ so that there is a decrease of 48,79%. From the simulation results, zero forcing equalization can mitigate the Doppler effect

Keywords: *Zero Forcing, OFDM, Correlated Double Ring Channel, BER, BPSK Modulation*