

ABSTRACT

Pattern Division Multiple Access (PDMA) is a new concept used to facilitate the mass transmission of signals with low interference. The performance of PDMA is determined by the pattern used, such as matrix pattern modeling. The PDMA scheme aims to reduce interference and increase efficiency in the spectrum..

The matrix modeling used in this research is a Non-Latin mapping matrix with a total of 6 users and 4 resource elements. The weighting process is repeated on the same columns and rows. The simulation process will be performed three times with weight values of $w_1=0.5$, $w_2=0.3$, and $w_3=0.2$. After that, the pattern that has been weighted will be tested against two channel conditions, namely AWGN channel and Rician channel. The main parameter used is the SIC detector as its envelope detector.

The simulation results in this Final Project show the influence of patterns on comparing two channels, three iterations of weighting processes, and the phase effect. In the AWGN channel, optimal performance is achieved when $\Delta = \frac{\pi}{4}$. When $w_1=0.5$, an SNR value of 16 dB is obtained; for $w_2=0.3$, the SNR value is 16.1 dB, and when $w_3=0.2$, the SNR value is 19.5 dB. In the Rician channel, when $w_1=0.5$, the SNR value is 18.1 dB; for $w_2=0.3$, the SNR value is 21.6 dB, and when $w_3=0.2$, the SNR value is 25.2 dB.

Key Word : Pattern Division Multiple Access Pattern, Design Pattern Matrix PDMA, SIC.