

**BER AND PAPR ANALYSIS OF MIMO OFDMA AND SCFDMA
SYSTEM USING DIFFERENT DIVERSITY TECHNIQUES**

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ABSTRACT

The combination of multiple-input-multiple-output (MIMO) and orthogonal frequency division multiple access (OFDMA) innovation has been perceived as one of the most auspicious system to attain high transmission data rate and mitigate inter-symbol interference (ISI). However, high peak-to-average power ratio (PAPR) in OFDMA causes non-linearity at the receiving end of the system. Thus, single carrier frequency division multiple access (SCFDMA) technology is used to compensate this issue. This study evaluate the performance of both OFDMA and SCFDMA system based on the bit error rate (BER) and PAPR values. A comparison of space-time (ST), space-frequency (SF), and space-time-frequency (STF) block coding has been conducted for both systems to achieve better system performance. The best diversity scheme to implement in OFDMA and SCFDMA system in order to minimize PAPR and BER were investigated. From the analysis, the space-time-frequency block coding (STFBC) shows better performance in both MIMO OFDMA and SCFDMA system. Nevertheless, the SCFDMA system achieved lower PAPR and better performance than the OFDMA system either with or without diversity technique.

Keywords— Multiple-Input-Multiple-Output (MIMO), Orthogonal Frequency Division Multiple Access (OFDMA), Single Carrier Frequency Division Multiple Access (SCFDMA), Peak-to-Average Power Ratio (PAPR), Diversity Technique

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