

ABSTRACT

Multi-Carrier Code Division Multiple Access (MC-CDMA) offers flexibility, reliability, and especially very high spectral efficiency in wireless communication. Along with the development era, new technology is needed to meet human access to communication. MC-CDMA system has become multiple access scheme is very promising, especially for downlink. Therefore, this system suitable for future communication. This system can give broadband bandwidth efficient and more resistant distortion channel.

In this final simulation was made to find how influence the number and mobility user towards optimal number of subcarrier. Simulation program on the condition AWGN and Rayleigh fading. Integrated system for direction downlink with multi user. The output can know optimal number of subcarrier which used. Analysis measure system performance based quality of performance, if namely lower BER in signal received then better quality performance.

The simulation results concluding that higher velocity will approach state time selectivity (fast fading), thus causing amount in excess of optimal subcarrier will experience poor performance. This is because symbol duration becomes wider which caused reduce resilience against random FM noise symbol. The results found at speed 3 km/h, 40 km/h, 100 km/h, and 120 km/h, respectively optimal at 256, 64, 64, 16 subcarriers. In addition user doesn't affect optimal number of subcarrier in MC CDMA. The condition of single user for speed 3 km/h use 16, 32, 64, 128, 256 subcarrier, optimal subcarrier obtained 256. This also applied in multi user, increasing number user ranging 2 and 4 user still show performance for optimal subcarrier. This is because on each subcarrier is used by all user. Each user uses same subcarrier, which distinguishes it spreading code only

Keyword: MC-CDMA, SUBCARRIER