

ABSTRACT

Today, wireless communication technology become growth so fast and has a lot of kind which the characteristic of high speed and multimedia service. For support that wireless technology, it can not be rid of a device which named by antenna. Antena is defined as guided waveform transformer which through by transmission line, become a free waveform even the other way

In recent years, antenna as device in wireless technology keep always developed. One of it is adaptive antenna, which the capabilities to answer some user request to get a high speed bit rate and high quality to do mobile internet activity or some other multimedia service, that use adaptive beamforming algorithm (LMS)

MIMO system is one of technology where each transmitter and receive is fully equipped by array antenna. This technology can fix in provide a high speed bit rate in transmission and increase the performances in multipath fading channel and interference. One of development in MIMO system is MIMO MCCDMA, which a kind of modulation or multiple access, where is a combination between Orthogonal Frequency Divison Multiplex (OFDM) and Code Division Multiple Access (CDMA)

This final project discuss performance analysis of MIMO MCCDMA with smart antenna using LMS algorithm. With the used of adaptive beamforming algorithm in system based on MIMO MCCDMA, we see tenacity of the system, in efficiently to against multipath effect and flexibility of multi user, and then the insertion of pilot symbols in continuesly to the signal which transmitted to support the channel estimation

From the simulation results that MIMO MCCDMA system which given by weightned LMS algorithm, give repaired SNR ± 7.6 dB than system which not given by weightned algorithm for 2 user. The amount of user become bigger, give the effect of descent performance in LMS MIMO MCCDMA, for 4 user until 16 user, BER 10^{-3} can not be reached. The descent of performance is also happening when the velocity of user become more fast, for the velocity 90 km/hour, BER 10^{-2} can't be reached

Keywords : Adaptive Beamforming, LMS Algorithm , MCCDMA, MIMO System, Smart Antenna