ABSTRACT

Adaptive array antenna is one of antenna system that can change the beampattern or its other parameters according to the changes from input signal. This system can be realized with setting and calculating the weight vector trough array of uniform antenna. The weight vector calculation criteria of each antenna element will be done with adaptive algorithm LMS and CMA that built in the device target FPGA adaptive control processor.

This research focuses to make smart antenna simulation in a real time condition by designing two microphones that will receive direct and interferer reflection FM signal from two speakers at transmitter. The combination of two microphone array with the changes weight vector based on adaptive algorithm intend to produce the maximum beam to the direct signal direction and minimum to the interferer direction. At receiver it will proven the signal phase likelihood between filter output and info signal at transmitter.

Simulation scenarios consist of interferer filtering and time varying beam forming of array antenna. The filtering result show that estimation signal at receiver has the similarity with info signal on its phase. Also, the beam forming and beam steering scenario could be done optimally for current conditions of user and interferer which the array antenna steer maximum lobe to direction of user and minimum to interferer.

Keyword : adaptive, LMS, CMA, FPGA, microphone