

ABSTARCT

This research aimed to design and implement Least Mean Squared and Constant Modulus Algorithm for Adaptive Antenna system on FPGA. For measuring implemented algorithm performance, we used microphones array and other devices such as filter, modem FM, and audio amplifier for modelling the adaptive antenna system.

Adaptive antenna system hardware model to combat multipath fading. Two microphones to receive FM signal transmitted by 2 speakers. First signal represent direct signal and other is reflected signal.

This system based on GSC(Generalized Sidelobe Canceler) system. Generally, antenna array will gives major lobe to direct signal and also making null to reflected signal direction. So the multipath fading effect could be eliminated.

Using LMS (*Least Mean Square*) to weight updating and CMA (*Constant Modulus Algorithm*) to error calculation. Those algorithms will be implemented in Spartan II Xilinx FPGA (XC2S1005TQ144).

Implementation result on Spartan II Xilinx FPGA work on maximum frequency 44.905 MHz and used 1011 slices (506 CLB) or 84 % available in Spartan II Xilinx FPGA

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