UNIVERSITI TEKNOLOGI MARA

A GENERATION OF TRANSMITTER SIGNAL FOR 16 PSK STBC MIMO ON FPGA BASED POLARIZONE TESTBED

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ABSTRACT

Wireless telecommunications have developed extremely over the previous decade, wireless LAN and telephones mobile have been the key reasons for the development. Faster wireless communications had been demanded as this will allow a new applications expanded such as widespread wireless broadband Internet access. Multiple antennas at the transmitter and receiver such as multi antenna transmission schemes, have been proposed as an approach to accomplish the demand for better capacity. This design are mostly outstanding because it do not need any extra transmission bandwidth, compare to traditional systems which use multipath interference for it benefit. The aim of this project is to implement a particular two antenna scheme, of Alamouti code, on a Field Programmable Gate Array (FPGA) testbed board developed by the Polarizone. At the time of writing, designs have been created for the encoding part of a MIMO system. The designs have been verified by comparison result using ISIM tools for hdl simulation and actual waveform acquired from Chipscope Pro Analyzer. This research focusing on implementation of actual experiments of FPGA board for analysis of multiple input multiple outputs (MIMO) on Space Time Block Code (STBC) scheme. Current research show that STBC is efficient to decrease the distortion effect in transmission system by provide diversity. STBC is known as a technique to transmit redundancy signal through multiple antenna and received various signal data with consistency of data transfer. Modulation scheme of 16 PSK for two number of transmitting antenna is implemented.

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