ABSTRACT

To increases the capacity in satellite transmission system, it can be done by dual-polarization technic in transmitter antenna and receiver antenna. So, with this technic the capacity can be increased into double capacity than single polarization only.

The problem which happen with dual-polarization tecknic is, cross-polarization effect or there are informations which cross each other which caused by molecules on the atmosphere when the information signals are transmitted to receiver. Molecules on the atmosphere which causes cross-polarization are raindrops and ice crystal.

Independent Component Analysis (ICA) method used for separates information which mixed each other become the information which independent so the detection error can be solved. In this Final Project will be made simulation which can measure ICA performance to improve satellite link performance.

In this software implementation, Independent Component Analysis (ICA) method will be expected can solve the cross-polarization in satellite link. In this Final Project, it is also use FastICA algorithm to quicken of computation for separates the mixed signal. The evaluation result of this simulation will measure Cross-Polarization Discrimination (XPD) value, Cross-Polarization Isolation (XPI) value of that dual-polarization, Auto-correlation inter sources and the convergence time of FastICA algorithm.

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