

ABSTRACT

Rapid technological developments now require the availability of services in every place where we are. However, for its application is extremely difficult, considering it is very difficult to reach isolated areas. Satellite communications system is one of the appropriate solution to fullfill the communication services to rural areas. The use of Ku-band frequencies is one solution, considering sufficient number of satellite communication system that uses C-band frequencies. However that a constraint Ku-band is still vulnerable to rain attenuation and losses in the atmosphere

The use of Ku-band frequencies are vulnerable to rain attenuation and losses in the Earth's atmosphere. The use of frequencies above 10 GHz at risk for areas with high rainfall, considering the Ku-band work on the 12-18 GHz. In addition, the composition of O₂ gas, ice crystals and water vapor contained in a layer of Earth's atmosphere influence on signal transmission in the form of scintilasi and depolarization. This causes the transmitted signal will experience damping so that the receiving power at the earth station became smaller. Because of that it will do the designing and simulating the damping effect due to the influence of rain, scintilasi, and depolarization.

From the design and simulation results will be analyzed the effect of rain, scintillation, and depolarization of the Ku-band propagation so as to know whether the Ku-band frequencies are effectively used in satellite transmission in various regions.

Keywords : Ku-band, scintillation, depolarization, rain effect's