

ABSTRACT

VSAT (Very Small Aperture Terminal) using C-band frequency is quite popular in Indonesia because its characteristics that according to the conditions of islands and has high rainfall. In addition the relatively inexpensive price and ease of installation as well as extensive coverage becomes another attraction of this system. However, the using of C-band frequency is no longer sufficient communication needs in the future, so we need an alternative solution on the Ku-band. Advantages of Ku-Band frequency is, the smaller antennas can produce a large bandwidth (broadband), using the Ku-band is also protected from interference because its not used in terrestrial systems. However, Ku-Band has its disadvantages, which are vulnerable to the influence of rain attenuation.

In this final project, make design IP VSAT using Ku-band frequency on Palapa D satellite in Indonesia. The designing calculate link budget, to get value of C/N as network quality parameters. In addition, the designing analyze uses of power and bandwidth transponders, influence of rain attenuation, influence of use of ACM technique, system performance based on propagation delay and value of BER, and changing of parameters such as modulation techniques, antenna diameter, FEC.

From the calculating, value of $(C/N)_{\text{inroute}}$ and $(C/N)_{\text{outroute}}$ for Merauke-Cibinong link get 12.24 dB and 12.29 dB. This value is bigger than value of $(C/N)_{\text{req}}$ is 11,8 dB. So, designing for Merauke-Cibinong link can be used with margin system for inroute is 0.42 dB and outroute is 0,47 dB.

Keyword : IP VSAT, Ku-Band, Link Budget, Propagation