ABSTRACT

The problem of cable networks that are not suitable for communication systems that are relatively far away can be overcome by the development of satellite technology. With the help of Very Small Aperture Terminal technology, it will be easier to connect remote areas to be connected, however, this technology is very sensitive to interference and high rain attenuation in several areas of Indonesia, which will reduce the effectiveness of VSAT, therefore in the calculation of the link budget must be done well, especially in the slant range so that the adjustment of the receiver on the VSAT works optimally. The slant range value is influenced by several parameters such as the value of the distance from the earth station to the satellite, the latitude value from the earth station, and the difference in the longitude value of the earth station and the satellite. Differences in slant range values can affect the performance of the Satellite communication system. This study aims to analyze the relationship of slant range to the Satellite Communication System and to BER performance. The size of the BER value will affect the quality of communication services, the communication links used are Bogor-Pontianak, Bogor-Medan. In this study using 16-PSK modulation because in 16 PSK modulation the data has been set for the modem to use 16 PSK. The link budget performance parameters include Energy Bit per Noise Ratio (Eb/No) which obtained results of 13.33 dB and 11.03 dB, C/N Total obtained values of 17.14 dB and 14.84 dB, and BER obtained 1, 25x10-7 and 1.37x10-6. The conclusion in this study is that slant range affects the communication link, and for both links between Bogor-Pontianak, Bogor-Medan, the Bogor-Pontianak link has good quality. This study uses the case study method by collecting data that will be used at PT. Telkom Satellite Indonesia.

Keywords: VSAT, *Slant Range, Link Budget,* Satelit Merah Putih, *Carrier to Noise Ratio* (C/N), *Enerby bit to Noise Ratio* (Eb/No), *Bit Error Rate* (BER).