

ABSTRACT

In Satellite Communication System, the C-band frequency (4-8 GHz) has to be used since many times ago and the capacity of C-band frequency will not adequate for the next communication in the future. The alternative for this problem is using the higher frequency than C-band frequency that is Ku-band frequency (12-18 GHz). The advantages of Ku-band frequency are Ku-band has a large bandwidth and avoid from in thterferences with the other microwave system on terrestrial that make more C-band frequency. Indonesia is a state that has tropical climate which that has high rain rate intency, therefore Indonesia has a problem to using frequency Ku-band that is the Ku-band frequency is very susceptible about attenuation caused by rain, cloud, atmosphere gas and scintillation.

The calculation of the attenuations are done in 11 cities with using the Measat 2 satellite which that cities are have highest rain rate intency than the other city in Indonesia.

The calculation of rain attenuation in 11 cities result the maximum rain attenuation on availability 99.99% for downlink frequency is about 26.127 dB and the minimum rain attenuation is about 19.076 dB. The calculation of cloud attenuation result is about 0.074 dB for maximum value and 0.058 dB for minimum value. Than the calculation of atmospheree gas attenuation result is about 0.150 dB for maximum value and 0.098 dB for minimum value. Last, the calculation of scintillation result is about 0.127 dB for maximum value and 0.084 dB for minimum value.

In phase of performance analysis of DBS at Ku-band frequency is done to the city that has a highest rain attenuation and result the value of C/N_0 is about 94.055 dBHz for clear sky condition and 79.093 dBHz for rainy condition with availability 99.96%.

Key words : DBS, satellite, Ku-band