

## **ABSTRACT**

*MEO satellites are high-speed satellites, a substitute technology for geostationary satellites that will become telecommunications satellites. But there are several problem such as the effect of efficiency on satellite performance, the effect of the efficiency of satellite channels and the effect of overlapping and overlay algorithms. So that in this study aims to look for new call traffic modeling, analyze the efficiency of satellite channels and analyze the probability of blocking parameters for MEO satellite performance. To fulfill this, the theory of teletraffic is needed for the performance of the MEO satellite communication system using the overlap algorithm that applied to the satellite beam and combined the overlay algorithm on the canal. Overlap gives more waiting time without the termination of the call connection, while the overlay divides the channel with the Dynamic Channel Allocation method. The results obtained in this study are the effect of the intensity of traffic on the performance of satellite communication systems obtained by the best channel or channel found in microcell 5 and macrocell 11 or can accommodate as many as 100 to 150 calls simultaneously. The effect of network efficiency on satellite communication system traffic is obtained the best value from the combined overlap cell structure and overlay cell will produce an efficiency of 43%. The effect of combining overlap and overlay cell structures using parameter blocking probabilities obtained the best number of microcell and macrocell to be applied in the meo satellite performance of 5 microscopes in each macrocell and 8 microcells in each spot beam of meo satellite.*

**Keywords:** *Meostationer Satellites, Traffic, Channel, Overlap, Overlay*