ABSTRACT

The development of technology in today's very fast. Therefore, we need a service that is able to send information quickly and can accommodate a large capacity. To meet these needs, can use LTE (Long Term Evolution) as a model telecommunications network. Meanwhile, if viewed from the other side, LTE networks require a backhaul to accommodate access network system from LTE. Backhaul has an important role because it can affect the performance of the LTE network.

In this research, planning Microwave Backhaul Links for radio communications in the area Banyumas Regency. This planning is done by reviewing the needs traffic capacity of LTE network, after which It will be determined based on the distance and the frequency bandwidth based on the capacity of the link. Referring to those needs, selection of the right devices will also be done in this planning. Microwave selected as the media trasnport as suitable for the area are numerous mountains. While the desired performance on this research is the received power >-70.50 dBm, SES <1 sec and availability > 99.99%.

Based on the results of the calculations and simulations, microwave backhaul planning at Banyumas Regency have been determined 9 link that require link capacity of 160 Mbps and uses the frequency of 7 GHz ,11 GHz, 13 GHz dan 15 GHz based on distance from site planning. Based on the needs of link capacity and working frequency is specified, the specification is used for antenna gain is 31.20 dBi for frequency 7 GHz, 44 dBi for frequency 11 GHz, 35.60 dBi for frequency 13 GHz and 36.80 dBi for frequency 15 GHz and antenna gain is 46.40 dBi for frequency 23 Ghz with capacity of 265 Mbps, and minimum received power is -70.50 dBm for frequencies 7 GHz and -70.50 dBm for frequency 11GHz ,13 GHz ,and 15 GHz. In the simulation results, the entire microwave backhaul link achieve availability of > 99.99%, this is caused by each site received power level is greater than the minimum power level of the device.

Keywords   : *backhaul, link microwave*