

## ABSTRACT

*High-speed data services is now a necessity for almost all internet users. Along with the increase in tourism in Indonesia, the Islands sights such as the thousand Islands currently still have not proved sufficient high speed data service needs. Therefore the transport media planning needs to be done to the radio communication so that this area can serve the needs of high-speed services such as Long Term Evolution services.*

*This research was conducted on the planning of Microwave Backhaul Links to support LTE service to be affordable on a Subdistrict of the thousand Islands tourist area. This is done by reviewing the planning capacity needs traffic, after which it will be determined by distance and frequency bandwidth based on the capacity of the link. Referring to those needs, selection of the right device will also be done in the planning. Microwave selected as media transport because its reliability on territorial waters. The desired performance on this research is the power received amounted to  $>-74$  dBm, SES 1 second and  $> 99.99\%$  availability.*

*Based on the results of the calculations and simulations, microwave backhaul planning on regional planning retrieved four sites, there are site Mauk as S1-U interface is directly connected to the core network and three other sites as the X 2 interface connected between eNodeB, with capacity needs link of 120 Mbps and uses the frequency of 7GHz based on distance from site planning, so from that device was Huawei RTN 950 , with specification of antenna gain in dBi 40.80, capacity of 133 Mbps, and receive a minimum of 74-dBm. On the simulated results with the pathloss software 5.0, the entire microwave backhaul links achieve availability of 100%, this is caused by the power level received for each site is greater than the minimum power level of the device.*

**Keywords:** *Backhaul, Link Microwave*