In microwave communications systems a lot of interference that can worsen the performance of the system, such as multipath fading. Multipath fading generally occurs due to the reflection by the objects around the transmission line. This reflection will cause different lengths of the signal path so that the received signal is the sum of the signals and delayed. Optimization is needed to improve the quality of microwaves to overcome this fading. One method used to overcome fading is by using technique diversity. To support the cellular technology required by the design of microwave networks using Pathloss 5.0 and to maintain communication between base stations remains in the best performance then in the planning and analysis of link budget. To be able to use the appropriate system, use availability as a provision benchmark to see the reliability of the microwave design system. In the analysis also made a comparison between the design before using diversity method obtained 99.99751% availability. On the simulation using space diversity obtained 99.999992% availability and on design using frequency diversity obtained 99.99982% availability. From these discussions can be concluded on the implementation of space diversity and frequency diversity is very important for optimal results in microwave network design.

**Keywords:** Multipath fading, diversity, link budget, availability