

ABSTRACT

The development of telecommunications technology today, makes some islands still unreachable from telecommunications technology. The long distance between islands requires the efficiency and flexibility of the technology used. Microwave communication systems are widely practiced because they have the advantage of being easy to install and being able to reach remote areas. But on the receiving side, the received signal is not only from the LOS (Line of sight) signal, but the signal is also reflected from the earth's surface. The performance of the microwave radio communication network is assessed based on the system reliability (availability) of the radio network. To increase the availability value, it is necessary to optimize antenna diversity using space diversity techniques and frequency diversity techniques. The non-diversity value of the urban area of Batulicin Site - Tanjung Serdang Site is 99.99529%. In space diversity with an antenna spacing of 10 m, the value is 99.99988%, an increase of 0.00459% from non-diversity. In frequency diversity with a frequency spacing of 6%, it is worth 99.99952%, an increase of 0.00423% from non-diversity. Space diversity with antenna spacing of 10 m in the urban area of Batulicin Site – Tanjung Serdang Site achieves better availability. The non-diversity value of the rural area of the Tanjung Pengharapan Site – Sekampung Site is 99.98019%. In space diversity with antenna spacing of 10m, the value is 99.99846%, an increase of 0.01827% from non-diversity. In frequency diversity with a frequency spacing of 6%, the value is 99.99399%, an increase of 0.0138% from non-diversity. Space diversity with antenna spacing of 10 m in rural areas. Tanjung Pengharapan Site – Sekampung site achieves better availability.

Keywords: *Microwave, Space Diversity, Frequency Diversity, Availability.*