ABSTRACT

Many microwave communication system is implemented as a network selluler backhaul, because it has a surplus in its simplicity of installation and can reach remote areas that are difficult to affordable fiber optics. In this thesis the author does the design of a microwave radio network with the frequency diversity and space diversity technique of cross the lake. By using the two sites, site Mongal and Site Bintang in Aceh. These two sites are in the two cities separated by a Lake, so there isn't support for the holding of wireline communications. So it need wireless communication on site mongal and site bintang. Before using optimization it has 99.9554% of availability. After using frequency diversity with frequency difference by 460 MHz, 920 MHz, 1,380 MHz and space diversity with space 0.9 meter, 1.7 meter, 2.6 meter, it obtained the best availability 99.9977% while it used space diversity with maximum spacing 2.6 meter under the main antenna.

Keywords : Microwave, Frequency Diversity, Space Diversity, Availability, Pathloss 5.0