

ABSTRACT

Indonesia is the largest archipelagic country in the world, consisting of a total of 17,508 islands. Among these islands, there is an island village called Mattiro Baji located in the Pangkajene dan Kepulauan Regency of South Sulawesi Province, which is categorized as a remote, underdeveloped, and disadvantaged region (3T). In the village of Mattiro Baji, various activities such as reading information, doing tasks, sending emails, conducting business, and other tasks that require internet access need to be carried out on the main island of Sulawesi due to the lack of available internet access in the village.

To address this issue, a solution has been implemented, which involves the design of a Long-Term Evolution (LTE) network and the deployment of fiber optic cables as its backhaul. The communication system utilizes undersea cable connections to ensure coverage throughout the entire village's islands.

The obtained drivetest results in Mattiro Baji village are as follows: -107.65 dBm for Reference Signal Received Power (RSRP), -0.39 dB for Signal-to-Interference-plus-Noise Ratio (SINR), and 7.84 Mbps for Downlink Throughput. The design of the fiber optic backhaul yields values of -5.25 dBm for Power Link Budget, 5.701 for Q-Factor, and 1.318E-06 for Bit Error Rate (BER). Furthermore, the LTE network design results in values of -91.68 dBm for RSRP, 12.52 dB for SINR, and 46.62 Mbps for Downlink Throughput.

Keyword : 3T Area, LTE, Optical Fiber, Mattiro Baji Village