

ABSTRACT

LoRa is a wireless modulation technique derived from chip spread spectrum (CSS) technology. LoRa signal transmission is strong against interference and can be carried out at very long distances. The application of LoRa modulation in the problem of communication devices in buildings is worth considering, because of the advantages of LoRa modulation in terms of distance and low power consumption and wireless. But in practice, the line of sight between the LoRaWAN device and the LoRaWAN Gateway greatly affects the good or bad signal received by the LoRaWAN device node or LoRaWAN Gateway.

This becomes the focus of this final project, examining the use of LoRa modulation in the building, whether it is suitable or not. The main contribution of this research is to make LoRaWAN Gateway as a communication infrastructure for devices in the building through LoRa modulation, LoRaWAN Gateway design is based on mathematical calculations of LoRa parameters.

The results show that distance is an important factor in LoRa modulation in a building, the absence of line of sight between the LoRaWAN Gateway and LoRaWAN nodes greatly reduces the LoRaWAN Gateway's coverage capability, the LoRa value parameter shows poor results in coverage, obtained from experimental results in 4 locations. LoRaWAN Gateway is located. Only 2 out of 4 locations are covered by LoRaWAN Gateway coverage.

KEYWORDS: LoRa, LoRaWAN Gateway, LoRaWAN, LoRa Modulation.