ABSTRACT

LoRa technology has the limitation in regards to the incapability to send the data directly to the server, so that a gateway device is needed to integrate the LoRa protocol to the server. This research is made based on that issue to determine the best candidate location for placing a LoRa gateway to support the process of sending data from LoRa to the server. The celluler network is required in determining the candidate and this study focuses on Telkomsel's 4G LTE operator technology. Based on the existing data from Telkomsel operator, the simulation will be done by using Atoll software to predict 4G LTE signal coverage. In addition, the drive test is also carried out with Nemo Handy software to get the real 4G LTE coverage signal in the area and the measurements result will be analyzed using Nemo Analyze software. The parameters reviewed during the simulation are the RSRP, SINR, Downlink Throughput and Uplink Throughput parameters. The result value of all the parameters obtained from the two softwares are compared to determine the best option for installing LoRa gateway. From the comparison result, the best percentage of the parameters value is on Candidate 2. The percentage obtained are the RSRP is 100.00% (Good), SINR is 82.52% (Fair), Downlink Throughput is 75.81% (Good) and Uplink Throughput is 74.37 % (Very nice). This is because there are no obstacles such as high buildings that can obstruct the signal transmission from eNodeB to User Equipment (UE).

Keywords: lora gateway, drive test, 4g lte signal, atoll, nemo handy, nemo analyze