Abstract
Internet of Things (IoT) is very popular nowadays. IoT is a machine to machine (M2M) technology that is connected to the internet to transmit data. Communication between devices is urgently needed, so Long Range (LoRa) based on radio signals is used to support IoT technology. IoT can be applied to any area, one of which is a residential area, the application of IoT in that area makes it easy for homeowners to automate or as a security service. Characteristic differences in each region will affect the LoRa range, so the authors perform a performance analysis to test the reliability of communication on the use of existing parameters on Packet Error Rate (PER) and Packet Delivery Rate (PDR) and the distance that can be reached by LoRa. Like other devices, Long Range also has several parameters that can be used to support efficiency in communication, such as Spreading Factor, Bandwidth, Coding Rate and Transmission Power if calculated to have more than 6720 configurations, so the parameter performance analysis becomes very informative. Testing using a star topology. This test produces the highest value on the Packet Delivery Rate of 99% at Coding Rate 4/5, Spreading Factor 10, and a distance of 250m and produces a Packet Error Rate of 100% on all SF12s. This test uses a star topology, this topology allows for easier and centralized management because in its use if there is damage to one node it will not affect the other nodes.
Keywords: ***LoRa, Analysis, Star topology, PDR PER***