Review of: "Optimized Low-Powered Wide Area Network within Internet of Things"

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Potential competing interests: No potential competing interests to declare.

This paper presents three different strategies in IoT-based wireless sensor networks: LoRa power consumption model design, simulation of IoT wireless sensor networks,

and implementation of SF allocation across the wireless sensor network. However, the methodology is well-developed and clearly stated and the contribution is

interesting, however, the overall presentation needs further improvement.

1. Can the authors explain the steps involved in running the simulations over a wireless sensor network without optimization using MATLAB Simulink?

2. In section 3.3.1, what is the rationale for choosing 50 nodes and a 30m × 20m area for the spreading factor assignment simulation?

3. In the same section, why is a duty cycle of 1% used across the three categories of end devices (A, B, and C), and how does it impact energy conservation?

4. In section 3.3.2, how do the different carrier frequencies (433 MHz, 868 MHz, and 915 MHz) impact LoRa-based IoT networks, and why are they chosen?

5. In the Carrier Frequency section, the authors should explain what role does the ISM band plays in LoRaWAN networks, and how it affects frequency regulation.

6. What are the implications of the duty cycle on battery life in IoT devices, and how does it relate to the number of transmissions?

7. How do Class B devices synchronize their internal clocks with the network, and what implications does this have for their power consumption?

8. What are the key characteristics of Class C devices, and in what scenarios are they most suitable despite their higher power consumption?