Project: IoT

Organisation	TU Delft
Deliverable	report

We propose to analyse the performance of LoRaWAN in dense networks. Dense networks are defined as many devices connected to either single or
multiple gateways in a relatively small area. Potentially, several network operators could exist in that area. In particular, we would like to characterise the link and collision behaviour, so that this could potentially serve as a basis for modelling and simulating (the scalability of) a LoRaWAN network.

Some research questions that could be derived within this scope are:

1. What are the key factors that degrade the performance of a LoRaWAN?
2. What is the effect of multiple gateways on the performance of a LoRaWAN?
3. What is the effect of the overlapping areas of two gateways that belong to the same network?
4. What is the effect of the overlapping areas of two gateways, each belonging to a different network operator?
5. How many devices that can be connected to a gateway?
6. How many devices that can be connected when multiple gateways are deployed?

Some possible directions/questions that may pursued in an attempt to reduce packet loss:

1. To what extent can the capture effects reduce packet loss?
2. How effective is the ADR?
3. What is the effect of using LBTA-AFA?

The above questions are examples and possibly can not all be considered this year, but our focus will be on understanding collisions in a LoRaWAN.