

## Bachelor's / Master's Thesis

# ZigLow: ZigBee to HaLow Cross Technology Communication

## Abstract

Cross technology communication (CTC) can close the gap between the different technologies in the 2.4 GHz band.

As for example, WiFi can not communicate to ZigBee.

But, with signal emulation WiFi can transmit a message that looks like a valid ZigBee message in the air and can be received by a ZigBee device.

However, the reverse direction is even more complicated as ZigBee has a smaller bandwidth than WiFi.

In the 868 MHz-band ZigBee and HaLow (WiFi) have the same symbol duration which makes ZigBee to HaLow emulation an interesting CTC candidate.

## Content

The goal of the thesis is to study the possibility of ZigBee to HaLow CTC.

Therefore, differences in its physical layers have to be identified and solutions for a ZigBee to HaLow CTC presented.

Thus, a ZigBee to HaLow CTC module has to be built and its limits are studied in simulations and hardware experiments.

## Requirements

- \* Interests simulations and experimental work
- \* Interests in MATLAB and Python
- \* Interests in learning signal processing
- \* Interests in statistics
- \* Interests in ZigBee and HaLow / WiFi
- \* Scientific work