

# Thesis Proposal

## Investigation of Integrated Antennas in Metal Casted Inset Lights

### Description

Today we use power line communication to control and monitor the airfield lights. With the need for better and faster communication and control of airfield lights we need to have new ways to communicate to and from airfield lights. The use of radio communication is a common way to solve this, but the problem is that it is hard to make an antenna that can perform well and at the same time be protected. The hardest light to make an antenna for is an inset light on the taxiway or runway.

The idea is to investigate the possibility to use parts of the case of an inset light as an antenna. The type to be used is to be investigated, but it could be cavity, slot antenna or other type. It could be integrated on the outside of the top of an inset light.

The thesis is most suitable for two students working together. It will be based in Malmö and may also include visits to other offices.

#### Tasks within the project:

- ▶ Explore what antennas types that exists to be evaluated
- ▶ Simulation different proposals
- ▶ Make a prototype in existing top cover
- ▶ Test with different antennas tuned for different frequency bands (e.g. 433 MHz / 868 MHz / 2.4 GHz)
- ▶ Do mechanical tests to evaluate the robustness of the solution

#### Suitable skills and interests:

- ▶ Microcontroller firmware development
- ▶ Math / algorithms / self-learning
- ▶ Electronics prototyping
- ▶ Radio wave propagation and antenna theory

#### Application

Please send your application by December 1<sup>st</sup>, 2017 to [thesis@adbsafegate.com](mailto:thesis@adbsafegate.com).

Title your email "Master Thesis - Investigation of Integrated Antennas in Metal Casted Inset Lights"

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