



# Review report of a final thesis

**Reviewer:** Ing. Alexandru Moucha, Ph.D.  
**Student:** Jakub Šatoplet  
**Thesis title:** ZigBee Touchlink Protocol Security Analysis  
**Branch / specialization:** Computer Security and Information technology  
**Created on:** 5 June 2022

## Evaluation criteria

### 1. Fulfillment of the assignment

- ▶ [1] assignment fulfilled
- [2] assignment fulfilled with minor objections
- [3] assignment fulfilled with major objections
- [4] assignment not fulfilled

I found the assignment extremely interesting as it shows the security issues ZigBee (which controls tons of IoT devices) might have.

### 2. Main written part 100/100 (A)

I consider the presentation as being very logical, easy to read and understand and very well motivated.

### 3. Non-written part, attachments 100/100 (A)

I value the fact that the project covers multiple aspects ranging from the fact that the student had to work with multiple programming languages, continuing with the fact that he had to use a software defined radio (thus hardware) and ending with the excellent written thesis which I enjoyed reading.

### 4. Evaluation of results, publication outputs and awards 100/100 (A)

I cannot evaluate how much of the end-result is publishable (thus the novelty element), however the project has potential in being used as a working hacking tool in ZigBee networks. Moreover, what I appreciated was the live demo session the student prepared and which helped me understand deeper levels of the project and its integration with the existing technologies.

## **The overall evaluation**

100 /100 (A)

Excellent work, well thought, well implemented, excellent demo lab.

## **Questions for the defense**

I have only one tiny comment: for assessing the vulnerability or for exploiting it on the ZigBee devices in a given home it is more suited to use a directional antenna rather than a dipole. This allows the radio signal to be focused more precisely towards the intended targets.

Otherwise I do not have any questions thank to the demo the student offered me and which allowed me to address any questions and even go beyond strictly the written part of the project.

## **Instructions**

### **Fulfillment of the assignment**

Assess whether the submitted FT defines the objectives sufficiently and in line with the assignment; whether the objectives are formulated correctly and fulfilled sufficiently. In the comment, specify the points of the assignment that have not been met, assess the severity, impact, and, if appropriate, also the cause of the deficiencies. If the assignment differs substantially from the standards for the FT or if the student has developed the FT beyond the assignment, describe the way it got reflected on the quality of the assignment's fulfilment and the way it affected your final evaluation.

### **Main written part**

Evaluate whether the extent of the FT is adequate to its content and scope: are all the parts of the FT contentful and necessary? Next, consider whether the submitted FT is actually correct – are there factual errors or inaccuracies?

Evaluate the logical structure of the FT, the thematic flow between chapters and whether the text is comprehensible to the reader. Assess whether the formal notations in the FT are used correctly. Assess the typographic and language aspects of the FT, follow the Dean's Directive No. 52/2021, Art. 3.

Evaluate whether the relevant sources are properly used, quoted and cited. Verify that all quotes are properly distinguished from the results achieved in the FT, thus, that the citation ethics has not been violated and that the citations are complete and in accordance with citation practices and standards. Finally, evaluate whether the software and other copyrighted works have been used in accordance with their license terms.

### **Non-written part, attachments**

Depending on the nature of the FT, comment on the non-written part of the thesis. For example: SW work – the overall quality of the program. Is the technology used (from the development to deployment) suitable and adequate? HW – functional sample. Evaluate the technology and tools used. Research and experimental work – repeatability of the experiment.

### **Evaluation of results, publication outputs and awards**

Depending on the nature of the thesis, estimate whether the thesis results could be deployed in practice; alternatively, evaluate whether the results of the FT extend the already published/known results or whether they bring in completely new findings.

### **The overall evaluation**

Summarize which of the aspects of the FT affected your grading process the most. The overall grade does not need to be an arithmetic mean (or other value) calculated from the evaluation in the previous criteria. Generally, a well-fulfilled assignment is assessed by grade A.