



Review report of a final thesis

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Thesis title: LPWAN Protocol Security Analysis Leveraging SDR Technology
Branch / specialization: Computer Security
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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

2. Main written part 94 /100 (A)

The structure of the FT is well organized and has logical transfer from the introduction to conclusion to build comprehensible story. There are no errors, also, citations are used in their places and citation ethics has not been violated.

3. Non-written part, attachments 92 /100 (A)

The SW is clear and easy to use. Simple and user-friendly session-based GUI is utilized to conduct security testing features such as sniffing, replaying and analyzing. The HW used (Ettus B205mini/Ettus B210 SDRs) is suitable for the objectives of the FT. Additionally, due to its reasonable sizes and prices, the used SRDs are tailored to security testing of LoRaWAN where mobility and using more than one in the same time are needed.

4. Evaluation of results, publication outputs and awards 96 /100 (A)

The work provides simple and valuable tool to do the security testing features. The results are deployable and could be used by individuals or companies to pen-test the security vulnerabilities of their LoRaWAN network.

The overall evaluation

95 /100 (A)

The strong point in this work is the wide use of features for testing LoRaWAN protocol from analyzing, sniffing, decrypting, crafting packets and playing. Furthermore, one tool is used for testing LoRaWAN protocol with variable range of parameters and tailoring to test wide range of vulnerabilities rather than one or few vulnerabilities.

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.