THESIS REVIEWER'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Advanced methods of fault localization on HV lines**
Author's name:	**Nikola Miljkovic**
Type of thesis:	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Power Engineering
Thesis reviewer:	Ing. Ondřej Lipčák
Reviewer's department:	Department of Electric Drives and Traction

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	ordinarily challenging

How demanding was the assigned project?

The assignment can be assessed as ordinary challenging. The difficulty lies mainly within the implementation of the presented numerical method in Wolfram Mathematica.

Fulfilment of assignment	fulfilled

How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.

The assignment has been fulfilled.

Methodology	correct

Comment on the correctness of the approach and/or the solution methods.

The methodology of the thesis is appropriately chosen. The research part is followed by a theoretical description of the method and numerical results obtained from Wolfram Mathematica. However, the division of the diploma thesis into chapters could be more logical with respect to the individual thesis parts.

Technical level	C - good.

Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?

The technical level of the thesis varies throughout the text. The research part is well written and technically sound. However, some considerations and conclusion made in chapter 8 and 9 are, in the opinion of the reviewer, not clearly presented. Overall, it can be stated that the author of the thesis showed that he is able to work with the literature and use the knowledge acquired through the study. However, the author could emphasize more and explain better his part of the work. Moreover, except for a few mentioned Mathematica functions, no information about the implementation in Wolfram Mathematica is present and no Mathematica code is uploaded as an attachment into the information system.

Formal and language level, scope of thesis	D - satisfactory.

Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?

The language level of the work is good. The thesis is organized in a logical way, and its extent is sufficient. However, concerning equations and symbols, the thesis offers significant room for improvement. The symbols and equations are at a typographically poor level. Moreover, meaning of some of the symbols and abbreviations is unclear or they are not defined. Also, some graphs and tables are missing units and are not easily understandable.

Selection of sources, citation correctness	C - good.

Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?

The references seem to be adequately chosen and relevant to the topic. However, in some parts of the thesis, it is not easy to distinguish between the student's original work and the adopted references. Mainly because some of the figures, equations and paragraphs are missing citations. Also, references [1] and [9] are not cited in the thesis at all and the references are neither sorted nor cited chronologically.

Additional commentary and evaluation (optional)
Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

The thesis presents a viable method for a fault localization on high-voltage lines. The research part is well written and comprehensible. More information about the computational complexity with respect to the used transmission lines configuration and chosen number of sections could be given. The reviewer is missing a direct comparison with the currently used methods, mainly in terms of their respective advantages and disadvantages. The original author's work should be emphasized more and should be more clearly separated from the rest of the text. Also, from the reader's perspective, some parts of the thesis concerning the presented method could be stated more clearly.

The thesis suffers from formal, citational and typographic errors which were described above. Also, almost none information about the implementation of the numerical method in Wolfram Mathematica is present. Furthermore, no Mathematica code is uploaded as an attachment in the KOS information system, which is in conflict with the faculty's policy. Unfortunately, these negative aspects reduce the resulting level of the thesis.

The reviewer has the following questions:

1. In some cases, e.g. function "FindMinimum[]", Mathematica allows the user to explicitly select the used method. Did you (where possible) try different numerical methods and compared their results or did you let Mathematica to choose the method automatically?
2. In the part of the thesis dedicated to the numerical results from Wolfram Mathematica you are mentioning the "difference between the calculated H-matrix and the actual H-matrix". The result is then a single number. However, the difference of two matrices is again a matrix. How did you obtain a scalar value?
3. Please could you give at least a rough estimate of the algorithm asymptotic complexity (for the used transmission configuration) with respect to the number of the transmission line sections "n"?

The grade that I award for the thesis is **D - satisfactory.**

Date: **9.6.2020**   Signature: