**CZECH TECHNICAL UNIVERSITY IN PRAGUE**
**Faculty of electrical engineering**
**Department of electrical power engineering**
Technická 2, 166 27 Prague 6, Czech Republic

# Master thesis opponent's review

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|---|---|
| **Master thesis:** | **Measurement of Losses at Low Power Factors** |
| **Author:** | **Bc. Michael Schneider** |
| **Thesis supervisor:** | **Ing. Radek Procházka, Ph.D.** |
| **Thesis opponent:** | **Ing. Jan Hlaváček, Ph.D.** |

Rating (1 – 5)
(1 = best; 5 = worst):

| | Rating |
|---|:---:|
| 1. Fulfillment of assignment requirements: | 1 |
| 2. Systematic solutions of individual tasks: | 1 |
| 3. Ability to apply knowledge and to use literature: | 1 |
| 4. Thesis formal and language level: | 1 |
| 5. Thesis readability and structuring: | 2 |
| 6. Thesis professional level: | 1 |
| 7. Conclusions and their formulation: | 2 |
| **8. Final mark evaluation (A, B, C, D, E, F):** | B |
| **verbal:** | very good |

**Brief summary evaluation of the thesis** (compulsory):

This thesis is in accordance with the assignment and it deals with the measurement of power losses at low power factors.

The first part describes suitable methods of power loss measurement at low power factor. This part is primarily focused on two special methods of digital signal processing. Next part deals with two-stage transformers that are significant devices in the area of precise AC current measurement. There are also described algorithms of zero crossing detection and numerical integration.

These methods are then tested by numerical simulation and compared with results of power measurement system that was realized in the practical part of this master thesis.

Overall quality of the thesis is very good and I have no significant comments, except the formulation of conclusions that could be more specific in the main results of the thesis.

**All the points of assignment requirements of the master thesis are fulfilled.**

**Questions:**

1. Could you please calculate uncertainties of the results in the chapter 6.4 and take the intervals of uncertainty into account in the comparison of the results?
2. Can you please try to summarize the advantages/disadvantages of these active power calculation methods? (to have a brief information in case of decision making process – which one method will be better in a specific application)

Date: 26.5.2015                                        Signature: