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

Master thesis: **Voltage and Current Measurement in Modern High Voltage Substations**
Author: **Dias Serikbayev**
Thesis supervisor: **doc. Ing. Radek Procházka, Ph.D.**
Thesis opponent: **Ing. František Vybíralík, CSc.**

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

Brief summary evaluation of the thesis (compulsory):

The author of diploma thesis describes a high voltage system and concentrates on high voltage gas-insulated substation.
In the first part of the work individual types of substation are given. In the next part of the work are mentioned systems of current and voltage transformers and their arrangement in substation schemes. The work deals with protections in high voltage substations and compare classic and digital protection. It is explained a principle of the classic current and voltage transformers. Unconventional types of current and voltage transformers transformer are described. In the final part of the work an experimental comparison the classic voltage transformer with electro-optical voltage sensors is carried.
The diploma thesis is predominantly descriptive. The list of literature is comprehensive and testifies to the thorough study of the subject of the work. Experimental comparison is described briefly and clearly.

Questions:

1. Describe the advantages and disadvantages of GAS-insulated substations in comparison with classic substations.

Recommendation to the defense: **I recommend**

Date: June 4th, 2017 Signature:

Notes:

1) The total thesis evaluation needn't be determined by the partial evaluations average.
2) The total evaluation (item 8) should be from the following scale:

excellent	very good	good	satisfactory	sufficient	insufficient
A	B	C	D	E	F