Opponent's review of the Master's thesis

Title:	Design and Implementation of Automatic Tests for Siemens PROFINET IO Development Kit
Author:	Bc. Alexandr Osadcii
Supervisor:	doc. Ing. Ivo Bukovsky, Ph. D.
Opponent:	Ing. Miroslav Dusek

The master's thesis presented by Alexandr Osadcii deals with the problematic of integration tests for industry PROFINET IO devices. The target of this thesis is the creation of Automatic test environment for the PROFINET IO Development kit which is developed by Siemens Company.

The thesis is consisted of 79 pages and 2 attachments. It is very well structured with clear set of the objectives he wants to elaborate. After a short introduction, author proved very deep theoretical knowledge of the PROFINET technology and in detail apprises a reader.

The third chapter describes the tested device. It is shown that the PROFINET IO development kit is complex device which offers to the customer very wide variability of the configurations. The fourth chapter discusses open source program Python test automat (PyTeMat) which is selected as base core for the design and the implementation of Automatic Tests. Author describes its main modules and the special test box language (TBL) by which test cases are written.

The fifth chapter describes the test design. It was very well decided to create the design for the most important area of integration tests for such highly configurable devices, called regression tests. The created content of regression tests covers all crucial parts of device functionalities. Author extended the PyTeMat core about necessary modules. The major one is the module for capturing Ethernet frames which allows him to control device response.

The test implementation is discussed in seventh chapter. Author firstly describes complex system which was created for regression test. The realized system perfectly suits to the design and allows to use all benefits of attached components. Author cleverly divides the control and monitoring between CPU and PyTeMat and clearly describes programs in TIA portal for used CPU and python source code for the PyTeMat system.

Last two chapters belongs to the test result and conclusions. It is demonstrated that designed automatic regression tests works and brings usable results to the development.

The Alexandr's work had great impact for increasing the quality of the development output and significantly contributed for smooth release of the product to the market. The created concept formed the basis of automated testing of the PROFINET IO development kits.
The master thesis presented here is fully acceptable and I recommend it for defence. My grading is excellent - A.

Question for defence:
One of the main monitored parameters of the regression tests is without doubt a robustness. Could you please describe how you ensure/ fulfil this non-functional requirement in all test cases provided on the designed test system?

In Prague 29th January 2017 Ing. Miroslav Dusek