

Special talk - Railway Track - Seville, Spain - October 21-23, 2015

Integrated approach using formal models and simulation environment

Simon COLLART-DUTILLEUL, Antoine FERLIN and Philippe BON

The approach of this study which is the third step of the Perfect project is based on the ERTMS simulation framework compliant with the official European specifications. The aim of this study is triple.

We firstly want to validate the assumption used by the safety proofs produced by the formal models coming from the previous steps of the project.

We secondly propose to play the critical scenarii in the 3D environment of the ERTMS simulation framework. Different sources are used to build the scenarii. Some elements are defined using the analysis of the accident database. These critical elements are paired with the scenarii generated from a formal analysis.

Thirdly, the scenarii are filtered with regard to the local specificity including national operating rules. So, only the scenarii consistent with the real functioning of the line are considered for the 3D simulation step. Then a multi-site distributed simulation allows the validation of the different aspects coming from the different points of view such as the train driver one, the traffic-operator one, and the interaction between the both. The multi-site aspects allow the reproduction of the real conditions where the operators are separated.