

Processes and Infrastructure for Testing of Active Safety Systems

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Summary:

Testing of active safety systems is a complex task and requires the interaction between the vehicle under test and different test targets. Active safety systems are driven by software integrated into vehicles. Because active safety software systems aim to prevent potentially dangerous traffic situations, testing such kind of systems includes an infrastructure of test targets and equipment to trigger the system to perform this action. Such infrastructure needs to reliably coordinate test targets to keep them synchronous as well as collect different kinds of data for test evaluation. Depending on the active safety feature, this setup can get complex and is expected to increase in complexity for future active safety systems and automated driving.

In our talk we will present an on-going study on active safety testing conducted as part of the A-TEAM (Avancerat TEstsystem Avancerade Metoder) project. In the first step of our study, we explore testing processes and will consider these as a basis when designing an infrastructure that supports testing of active safety systems. For the practical part, we conduct workshops with different OEM's, proving grounds, and research institutes to analyze stakeholders and use cases of testing active-safety systems. Furthermore, we explore current technologies, restrictions of current technologies, and future needs. For the theoretical part, we conduct a systematic literature review to gain an overview of topics already covered by researchers.

Our preliminary results show that while the manual testing of active safety systems is currently supported, automation would be helpful to further the advances and to deal with the increased complexity. In the near future the increased automation and coordination between actors, as well as connectivity between vehicles will be challenges that have to be considered for testing of active safety systems. Another important topic that might have an impact on testing is the support of user experience.

Keywords: active safety, testing, test scenarios, testing processes