Significant Reduction of Validation Efforts for Dynamic Light Functions with FMI for Multi-Domain Integration and Test Platforms

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Modern advanced driver assistance systems (ADAS) provide a significant increase in comfort and safety. In many cases, a single vehicle, today, contains more than one assistance system, while the trend to use ADAS continues to grow. At the same time, the number of systems that perform control interventions with safety-relevant functions increases as well. From an overall perspective, it must be assured that the driver assistance systems – individually as well as in the way they interact – function flawlessly in any driving situation and with any driver at the wheel anywhere in the world. This results in an increased development and testing effort for modern ADAS in general. In-development testing based on virtual test driving offers an approach to a solution that allows the validation effort to be significantly reduced while meeting the requirements for safety-relevant functions in the vehicle associated with ISO 26262. This is particularly evident when developing and testing new light functions, which in real-world road tests can often be performed only in conditions of darkness. Dynamic Light Functions are defined as the situation-dependent headlight adjustment consisting of cornering light, headlight leveling and (glare-free) headlight assistance. This paper presents this new methodology.

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