

Proposal for amendments to informal document GRRF-78-05
(Lane Keeping Assistance System (LKAS))

- 2.3.4. "Advanced Driver Assistance Steering System" means a system, additional to the main steering system, that provides assistance to the driver in steering the vehicle but in which the driver remains at all times in primary control of the vehicle. It comprises one or both of the following functions:
- 2.3.4.2. "Corrective steering function" means the discontinuous control function within a complex electronic control system whereby, for a limited duration, changes to the steering angle of one or more wheels may result from the automatic evaluation of signals initiated on-board the vehicle, in order to maintain the basic desired path of the vehicle or to influence the vehicle's dynamic behaviour.
- Systems that do not themselves positively actuate the steering system but that, possibly in conjunction with passive infrastructure features, simply warn the driver of a deviation from the ideal path of the vehicle, or of an unseen hazard, by means of a tactile warning transmitted through the steering control, are also considered to be corrective steering.
- 2.3.4.2.1. "Lane Keeping Assistance System" means a system which assists the driver in keeping the vehicle within the chosen lane, by influencing the lateral movement of the vehicle.
- 5.1.6. Advanced driver assistance steering systems shall only be approved in accordance with this Regulation where the function does not cause any deterioration in the performance of the basic steering system. In addition they shall be designed such that the driver may, at any time and by deliberate action, override the function.
- 5.1.6.2. Lane Keeping Assistance System shall be designed so that excessive intervention of steering control (e.g. an excessive steering torque) is suppressed to assure the steering operability by the driver and to avoid unexpected vehicle behaviour, during its operation. In addition, it shall be designed such that in its non-fault condition any intervention shall ~~fade-out~~ **finish** smoothly **to avoid the abrupt change of vehicle behavior [so as not to confuse the driver]**. The steering control effort necessary to counteract an intervention shall not exceed the specified value in paragraph 6.2.4.2. for a normally operating intact system.

- 5.1.6.3. When the Lane Keeping Assistance System is temporarily not available, for example due to inclement weather conditions, the system shall clearly inform the driver about the system status, except if the system is in the OFF mode, e.g. switched off. This exception does not affect the required warning in the case of a system malfunction.
- 5.1.6.4. The vehicle may be equipped with a means for the driver to activate or deactivate the Lane Keeping Assistance System.
- 5.1.6.5. [The ~~system~~ **Lane Keeping Assistance System** shall have at least 1 type of means to detect driver attention e.g. by sensing the driver's hands on the steering wheel. When the system **is available and** detects inattention of the driver, it shall give an effective warning [, which shall be at least two means out of optical, acoustic and appropriate haptic,] to call the driver's attention.]

Justification for amendments

Paragraph 5.1.6.2:

- It is necessary to clarify the requirement on the termination of LKAS intervention.

Paragraph 5.1.6.4:

- This amendment is intended to clarify the warning condition for LKAS by adding the phrase “the system is available”- see the following diagram.

