

Hazard ID	Situational Analysis			
	Operational Mode	Operational Scenario	Environmental Details	Situation Details
HA-001	OM03 - Normal driving	OS04 - Highway	EN06 - Rain (slippery road)	SD02 - High speed
HA-002	OM03 - Normal driving	OS03 - Country Road	EN01 - Normal conditions	SD02 - High speed
HA-003	OM03 - Normal driving	OS04 - Highway	EN01 - Normal conditions	SD02 - High speed
HA-004	OM03 - Normal driving	OS04 - Highway	EN01 - Normal conditions	SD02 - High speed

Other Details (optional)	Item Usage (function)	Situation Description	Function	Deviation
	IU01 - Correctly used	Normal driving on a highway during rain (slippery road) with high speed and correctly used system.	Lane Departure Warning (LDW) function shall apply an oscillating steering torque to provide the driver with haptic feedback	Actor effect is too much.
	IU02 - Incorrectly used	Normal driving on county roads during normal conditions with high speed and (the driver is misusing the lane keeping assistance function as a fully autonomous function).	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane.	Function always activated.
	IU01 - Correctly used	Normal driving on a highway during normal conditions with high speed and correctly used system.	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane.	Actor effect is too much.
	IU01 - Correctly used	Normal driving on a highway during normal conditions with high speed and correctly used system.	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane.	Actor effect is reverse.

Hazard Identification				
Deviation Details	Hazardous Event (resulting effect)	Event Details	Hazardous Event Description	Exposure (of situation)
The LDW function applies an oscillating torque with very high torque (above limit).	Collision with other vehicle.	High haptic feedback can affect driver's ability to steer as intended. The driver could lose control of the vehicle and collide with another vehicle or with road infrastructure.	The LDW function applies an oscillating torque with very high torque (above limit).	E3
The LKA should add extra steering torque for a limited amount of time. It is not designed for fully autonomous driving.	Collision with other vehicle.	The LKA function is not designed for fully autonomous driving. Misusing it this way could lead to loss of control of the vehicle.	The driver is misusing the LKA function for fully autonomous driving.	E2
The LKA function applies very high torque (above limit).	Collision with other vehicle	High torque by the LKA can affect the driver's ability to steer the vehicle as intended. The driver could lose control of the vehicle and collide with another vehicle or with road infrastructure.	The LKA function applies too high torque to the steering wheel (above limit).	E4
The LKA function applies torque in the wrong direction to the steering wheel.	Collision with other vehicle	An direction error in the actor can affect the driver's ability to steer the vehicle as intended. The driver could lose control of the vehicle and collide with another vehicle or with road infrastructure.	The LKA function applies torque in the wrong direction to the steering wheel.	E4

**Hazardous Event Classification**

<b>Rationale (for exposure)</b>	<b>Severity (of potential harm)</b>	<b>Rationale (for severity)</b>	<b>Controllability (of hazardous event)</b>
Medium probability	S3	Life-threatening or fatal injuries	C3
Low probability	S3	Life-threatening or fatal injuries	C3
High probability	S3	Life-threatening or fatal injuries	C3
High probability	S3	Life-threatening or fatal injuries	C3

	Determination of ASIL and Safety Goals	
Rationale (for controllability)	ASIL Determination	Safety Goal
Difficult to control or uncontrollable	ASIL C	The oscillating steering torque from the lane departure warning function shall be limited.
Difficult to control or uncontrollable	ASIL B	The lane keeping assistance function shall be time limited and the additional steering torque shall end after a given time interval so that the driver cannot misuse the system for autonomous driving.
Difficult to control or uncontrollable	ASIL D	The steering torque from the lane keep assistance function shall steer the car back to the center of the lane.
Difficult to control or uncontrollable	ASIL D	The steering torque from the lane keep assistance function shall be limited.