

Hazard ID	Situational Analysis							Hazard Identification				
	Operational Mode	Operational Scenario	Environmental Details	Situation Details	Other Details (optional)	Item Usage (function)	Situation Description	Function	Deviation	Deviation Details	Hazardous Event (resulting effect)	Event Details
HA-001	OM03 - Normal driving	OS04 - Highway	EN06 - Rain (slippery road)	SD02 - High speed		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.	DV04 - Actor effect is too much	The LDW function applies too much oscillating torque (above the limit.)	EV00 - 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.
HA-002	OM03 - Normal driving	OS03 - Country Road	EN01 - Normal conditions	SD02 - High speed		IU02 - Incorrectly used	Normal driving on country roads during normal conditions with high speed.	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane.	DV03 - Function always activated	Lane Keeping function is always on.	EV00 - Collision with other vehicle	The driver is misusing the lane keeping assistance function as an autonomous function and collides with another vehicle as he loose driving attention.
HA-003	OM03 - Normal driving	OS01 - City Road	EN03 - Fog (degraded view)	SD02 - High speed		IU02 - Incorrectly used	Normal driving on country roads during fog with high speed and incorrectly used system.	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane.	DV03 - Function always activated	Lane Keeping function is always on but the camera falsely detects the lane due to the fog.	EV04 - Car comes off the road	The driver is misusing the lane keeping assistance function as an autonomous function and comes off the road suddenly.
HA-004	OM03 - Normal driving	OS10 - Road with construction site	EN01 - Normal conditions	SD02 - High speed	night driving	IU01 - Correctly used	Night driving on a road with ongoing construction and missing/damaged lane markings.	Lane Departure Warning (LDW) function shall apply an oscillating steering torque to provide the driver with haptic feedback.	DV19 - Sensor detection is wrong	The LDW function applies vibrating torque when not expected.	EV04 - Car comes off the road	High haptic feedback can affect driver's ability to steer as intended. The unintended vibration and the unexpected circumstances by the road construction together can mislead the driver.

Hazardous Event Description	Hazardous Event Classification						Determination of ASIL and Safety Goals	
	Exposure (of situation)	Rationale (for exposure)	Severity (of potential harm)	Rationale (for severity)	Controllability (of hazardous event)	Rationale (for controllability)	ASIL Determination	Safety Goal
The LDW function applies too much oscillating torque (above the limit.)	E3 - Medium probability	Occurs once/twice a month for an average driver. This depends on the on location.	S3 - Life-threatening or fatal injuries	Frontal collisions at high speed probably causes fatal injuries.	C3 - Difficult to control or uncontrollable	Most drivers would have difficulty controlling the vehicle when the steering wheel vibrates uncontrollably.	ASIL - C	Limiting the oscillating steering torque from the LDW function.
The driver do not use the LKA function properly as he relies on it completely.	E2 - Low probability	Misuse of the LKA system on a country road does not happen very often: less than 1% of the time using the vehicle.	S3 - Life-threatening or fatal injuries	Frontal collisions at high speed probably causes fatal injuries.	C3 - Difficult to control or uncontrollable	LKA is always on, driver tends to take his hands off the steering wheel thus loses control completely.	ASIL - B	The active time of the LKA function shall be limited and the steering vibration shall be suspended after a given interval, thus the driver must regain control over the vehicle.
The driver do not use the LKA function properly as he relies on it completely.	E2 - Low probability	Misuse of the LKA system on a country road does not happen very often: less than 1% of the time using the vehicle.	S2 - Severe and life-threatening injuries	Coming off the road at high speed may cause life-threatening injuries.	C3 - Difficult to control or uncontrollable	LKA is always on, driver tends to take his hands off the steering wheel thus loses control completely.	ASIL - A	When the lane detection is uncertain the system shall shut off completely and inform the driver accordingly.
Unexpected haptic feedback.	E1 - Very low probability	The lane detection tends to work properly and the lane marking are present most of the time.	S2 - Severe and life-threatening injuries	Coming off the road at high speed may cause life-threatening injuries.	C1 - Simply controllable	Most drivers can overcome this issue.	ASIL - QM	When the lane detection is uncertain the system shall shut off completely and inform the driver accordingly.