

Hazard ID	Situational Analysis							
	Operational Mode	Operational Scenario	Environmental Details	Situation Details	Other Details (optional)	Item Usage (function)	Situation Description	Function
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
HA-002	OM03 - Normal driving	OS03 - Country Road	EN01 - Normal conditions	SD02 - High speed		IU02 - Incorrectly used	Normal driving on a country road during normal conditions 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
HA-003	OM03 - Normal driving	OS02 - City Road	EN02 - Sun blares (degraded view)	SD01 - Low speed		IU01 - Correctly used	Normal driving on a city road during sun blares (degraded view) with low speed and correctly used system.	Lane Departure Warning (LDW) function shall apply an oscillating steering torque to provide the driver with haptic feedback
HA-004	OM03 - Normal driving	OS09 - Road tunnel	EN01 - Normal conditions	SD02 - High speed		IU02 - Incorrectly used	Normal driving in a tunnel during normal conditions 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

Hazard Identification						
Deviation	Deviation Details	Hazardous Event (resulting effect)	Event Details	Hazardous Event Description	Exposure (of situation)	Rationale (for exposure)
DV04 - Actor effect is too much	The LDW function applies an oscillating torque with very high torque (above limit)	EV00 - Collision with other vehicle	High haptic feedback can impede the driver's ability to steer. The driver could lose control of the vehicle and collide with another vehicle.	The haptic feedback is above a maximum torque limit	E3 - Medium probability	Highway driving at high speeds in the rain is a relatively common occurrence.
DV03 - Function always activated	LKA function is always activated.	EV00 - Collision with other vehicle	Driver uses the LKA function as if it were meant for fully autonomous driving and therefore can't react in a timely manner to road hazards.	The driver is not using the LKA function properly	E2 - Low probability	Country driving at low speeds while improperly using the system is a rare combination.
DV01 - Function not activated	LDW fails to alert driver of lane depature	EV02 - Collision with pedestrian	Degraded view prevents LDW from detecting lane and alter driver, vehicle exists lane and hits pedestrian	LDW does not alert driver of lane depature	E2 - Low probability	Degrade vision in good driving conditions uncommon.
DV01 - Function not activated	LKA failes to alert driver of lane depature	EV-01 - Side collision with obstacle	Inattentive driver relies on LKA which fails to activate upon lane depature, vehicle collides with tunnel wall	LKA does not correct vehicle lane depature	E2 - Low probability	Tunnel driving uncommon.

Hazardous Event Classification				Determination of ASIL and Safety Goals	
Severity (of potential harm)	Rationale (for severity)	Controllability (of hazardous event)	Rationale (for controllability)	ASIL Determination	Safety Goal
S3 - Life-threatening or fatal injuries	High speed collisions are often life threatening	C3 - Difficult to control or uncontrollable	Excessive haptic feedback reduces drivers ability to steer the vehicle	C	Limit the oscillation torque from the LDW system
S3 - Life-threatening or fatal injuries	High speed collisions are often life threatening	C3 - Difficult to control or uncontrollable	Misuse of LKA function by driver makes them unprepared to take control of the vehicle.	B	Create a response time window to prevent the LKA system from responding too late
S3 - Life-threatening or fatal injuries	Vehicle to pedestrian impact may be fatal at low speeds	C0 - Controllable in general	System not active, vehicle controllable as usual	QM	Alert driver by other means (audible or visual) when LDW cannot detect lane lines
S2 - Severe and life-threatening injuries	High speed collision although side impact slightly lesser	C0 - Controllable in general	System not active, vehicle controllable as usual	QM	Alert driver by other means (audible or visual) when LDW cannot detect lane lines