

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	EN01 - Normal conditions	SD02 - High speed		IU01 - Correctly used	Normal driving on a highway at high speeds	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	SD01 - Low speed		IU01 - Correctly used	Normal driving on a country road at low speeds	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 city road at low speeds	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 tunnel at high speeds improperlyly used	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane

Hazard Identification					Hazard		
Deviation	Deviation Details	Hazardous Event (resulting effect)	Event Details	Hazardous Event Description	Exposure (of situation)	Rationale (for exposure)	Severity (of potential harm)
DV04 - Actor effect is too much	LDW provides too strong of haptic feedback	EV-02 - Side collision with other traffic	Excessive haptic feedback may prevent driver from steering to correct, causing unintentional lane change	The haptic feedback is too strong from the LWD system	E4 - High probability	Highway driving at high speeds is the most common driving condition.	S3 - Life-threatening or fatal injuries
DV07 - Actor action too late	LKA is too late to apply steering torque	EV-06 - Front collision with oncoming traffic	Reacting too late in an S-bend could potentially cause a lane change into the lane of opposing vehicle traffic	The torque command from the LKA system is too late	E3 - Medium probability	Country road driving at low speeds is a common condition.	S3 - Life-threatening or fatal injuries
DV01 - Function not activated	LDW fails to alert driver of lane departure	EV02 - Collision with pedestrian	Degraded view prevents LDW from detecting lane and alert driver, vehicle exists lane and hits pedestrian	LDW does not alert driver of lane departure	E2 - Low probability	Degrade vision in good driving conditions uncommon	S3 - Life-threatening or fatal injuries
DV01 - Function not activated	LKA fails to alert driver of lane departure	EV-01 - Side collision with obstacle	Inattentive driver relies on LKA which fails to activate upon lane departure, vehicle collides with tunnel wall	LKA does not correct vehicle lane departure	E2 - Low probability	Tunnel driving uncommon	S2 - Severe and life-threatening injuries

Hazardous Event Classification			Determination of ASIL and Safety Goals	
Rationale (for severity)	Controllability (of hazardous event)	Rationale (for controllability)	ASIL Determination	Safety Goal
High speed collisions are often life threatening	C3 - Difficult to control or uncontrollable	Excessive haptic feedback reduces drivers ability to steer the vehicle	D	Limit the oscillation torque from the LDW system
Although vehicle is at low speed, opposing traffic still has a high relative velocity	C3 - Difficult to control or uncontrollable	Incorrectly timed torque requires driver to figure the power steering motor	C	Create a response time window to prevent the LKA system from responding too late
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
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