

Hazard ID	Situational Analysis						Hazardous Event Classification						Determination of ASL and Safety Goals								
	Operational Mode	Operational Scenario	Environmental Perturb.	Situation Details	Other Details (road/veh)	Sens. Usage (Radar/LiDAR)	Situation Description	Function	Deviation	Deviation Details	Hazardous Event Identification	Event Details	Hazardous Event Identification	Exposure (rd situation)	Rationale (Rr assessment)	Severity (rd potential harm)	Rationale (Rr severity)	Controllability (rd hazardous event)	Rationale (Rr controllability)	ASL Determination	Safety Goal
HA-001	OM03 - Normal Driving	OS04 - Highway	EN05-Rain (slippery road)	SD02 - High speed		I/U01 - correctly used	Normal driving on Highway at Rain/slippy road conditions at high speed	Lane Departure Warning (LDW) function shall apply an oscillating steering torque to provide the driver with haptic feedback.	DV04-Actu. effect is too much	The LDW function applies an oscillating torque with very high torque (above limit)	EY02- 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.	Loss of control of steering wheel due to too many vibrations from LDW	C3 - Medium probability	Driving on highway is a part of regular driving and driving in rain is a quite common scenario	S3 - Life-threatening or fatal injuries	On highway roads speed of vehicle is expected to be high	C3 - Difficult to control or uncontrollable	Most drivers would have difficulty controlling the vehicle when the steering wheel oscillates due to the warning vibrations.	C	The Oscillating steering torque from the lane departure warning function shall be limited.
HA-002	OM03 - Normal Driving	OS02 - Country Road	EN01 - Normal conditions	SD02 - High speed		I/U02 - incorrectly used	Normal driving on Country Road at normal conditions with high speed	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to keep the vehicle in its lane.	DV03-Function always activated	Lane keeping assistance system is always active	EY00- Collision with other vehicle	Vehicle is not controllable since the driver relies on the lane assistance system at all times and hence leads to collision with other vehicle.	Loss of control of steering wheel due to the driver not handling the steering wheel and overly relying on the LKA	E2 - Low probability	country driving is part of regular driving but the driver leaving full control to lane assistance is a rare occurrence.	S3 - Life-threatening or fatal injuries	On country roads speed of vehicle is expected to be high	C3 - Difficult to control or uncontrollable	Since the driver does not have his hands on the steering wheel, he cannot take control of the car in case of sudden events.	B	Over reliance of Lane keeping system shall be prevented by applying torque only when required and then stopping after the required torque is achieved.
HA-003	OM03 - Normal Driving	OS04 - Highway	EN01 - Normal conditions	SD02 - High speed		I/U01 - correctly used	Normal driving on Highway at normal conditions at high speed	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to keep the vehicle in its lane.	DV13-Sensor sensitivity is too low	The Steering torque sensor does not sense the torque applied by the driver	EY02- Side collision with other traffic	Vehicle turns too much due to additional torque applied due to low sensitivity.	Loss of control of steering wheel due to excessive torque	E4-High probability	Driving on highways at high speed under normal conditions is a highly probable scenario	S3 - Life-threatening or fatal injuries	On highway roads speed of vehicle is expected to be high	C3 - Difficult to control or uncontrollable	Since the torque applied by driver is not sensed properly excessive torque is applied which leads to vehicle swerving to the side	D	The sensor shall detect the torque applied by the driver at appropriate sensitivity levels
HA-004	OM03 - Normal Driving	OS02 - Country Road	EN04-Snowfall (degraded view)	SD02 - High speed		I/U01 - correctly used	Normal driving on country road with snowfall at low speed	Lane Departure Warning (LDW) function shall apply an oscillating steering torque to provide the driver with haptic feedback.	DV18-Sensor detection is wrong	The camera sensor is not able to detect lane lines and hence is not able to detect Lane departures	EY00- Collision with other vehicle	The LDW does not get proper input from the camera due to poor visibility and is not able to provide adequate warning to the driver which leads to collision	Collision with vehicles in other lane due to inability of the camera in the LDW to detect lane lines and further detect lane departures, and provide appropriate warnings	E2 - Low probability	country driving is part of regular driving, however, heavy snow occurs a few times a year	S3 - Life-threatening or fatal injuries	On country roads speed of vehicle is expected to be high	C3 - Difficult to control or uncontrollable	It is difficult to control the vehicle at high speeds and in slippery roads due to snow when there is no Lane departure warning and a probability of collision	A	The Lane Departure Warning system shall be turned off and the driver shall be notified about it.