		Hazard ID			
		HA-001	HA-002	HA-003	HA-004
Situational Analysis	**Operational Mode**	OM03 - Normal driving	OM03 - Normal driving	OM03 - Normal driving	OM03 - Normal driving
	Operational Scenario	OS04 -Highway	OS03 - Country Road	OS02 - Country Road	OS04 - Highway
	Environmental Details	EN06 - Rain (slippery road)	EN01 - Normal conditions	EN07 - Snow (slippery road)	EN05 - Cross Wind Lateral
	Situation Details	SD02 - High speed	SD02 - High speed	SD01 - Low speed	SD02 - High speed
	Other Details	-	-	-	Tired and sleepy driver
	Item Usage	IU01 - Correctly used	IU02 - Incorrectly used	IU01 - Correctly used	IU01 - Correctly used
	Situation Description	Normal driving on a highway during rain when there is slippery road, with high speed and correctly used system	Normal driving on country roads during normal conditions with high speed (the driver is misusing the lane keeping assistance function as an autonomous function)	Normal driving on city road during snow fall with low speed and correctly used system	Normal driving on highway during strong lateral wind with high speed, tired and sleepy driver and correctly used system
Hazard Identification	**Function**	Lane Departure Warning (LDW) function shall apply an oscillating steering torque to provide the driver with haptic feedback	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane
	Deviation	DV05 - Actor effect is too much	DV03 - Function always activated	DV19 - Sensor detection is wrong	DV05 - Actor effecty is too less
	Deviation Details	The LDW function applies an oscillating torque with very high torque (above limit).	The LKA function is always active.	Camera sensor is not able to find the correct lane position due to view obstruction by snow	Applied steering troque is not enough as there is wind in the opposite direction.
	Hazardous Event (resulting effect)	EV00 - Collision with other vehicle	EV00- Collision with other vehicle	EV03 - Car spins out of control	EV02 - Side collision with other traffic
	Event Details	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.	If the driver takes hands off the vehicle letting the LKA system to control the vehicle, driver wont be able to react quickly when there is a need to slow down or stop etc (country roads have many emerging and diverging lanes and varying speed limits) and can cause collissions.	Due to wrong detection of lane on icey road where lane marks are not clear, LKA function fires false signals to apply torque.	When the applied torque by LKA is not sufficient enough to keep vehicle in lane and the driver is tired and sleepy, vehcile can collide with other vehicles as dirver is not alert.
	Hazardous Event Description	The LDW function applies too high an oscillating torque to the steering wheel	The LKA is always on and keeps the car in the ego lane and driver misused the system to go into autonomous driving by stopping to steer.	A wrong detection by LKA function leads to applying false torques that can lead to car spinning out of control in random direction causing collissions with objects and pedestrians as well as vehicles.	The vehicle drives abruptly to the right or left side so that a collision to the side car is unavoided
Hazardous Event Classification	**Exposure (of situation)**	E3 - Medium probability	E2 - Low probability	E1 - Very low probability	E3 - Medium probability
	Rationale (for exposure)	Driving in highway is very highly probable and rains occur throghout the year.	Normal driving in normal conditions happen quite often, but driver trying to misuuse the lane keeping assistance for autonomous driving has lesser probability.	Driivng in a snow condition happens rarely once or twice in year or so.	Drivers on highways on long-distance driving can be tired and sleepy and wind is common.
	Severity (of potential harm)	S3 - Life-threatening or fatal injuries	S3 - Life-threatening or fatal injuries	S3 - Life-threatening or fatal injuries	S3 - Life-threatening or fatal injuries
	Rationale (for severity)	Driving at a very high speed can cause sever injuries.	Driving at very high speed can cause sever injuries	Driving in snow can cause sever injuries and can lead to severe accidents.	Driving at very high speed can cause sever injuries
	Controllability (of hazardous event)	C3 - Difficult to control or uncontrollable	C3 - Difficult to control or uncontrollable	C3 - Difficult to control or uncontrollable	C3 - Difficult to control or uncontrollable
	Rationale (for controllability)	Most drivers will find it difficult to control the vehicle when the wheel is steering wide swings in high speed situation.	As the driver has left both hands from the steering wheel, it will take time to react quickly.	A normal driver would find it hard to take control on a slippery or icey road.	Normally a driver can take control in such situations as they will be alerted but in this case driver is not attentive and hence it will be difficult to control.
Determination of ASIL and Safety Goals	**ASIL Determination**	C	B	A	C
	Safety Goal	The oscillating steering torque from the lane departure warning function shall be limited.	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 a autonomous driving.	The lane detection shall not be activated if camera sensor is failing due to bad weather conditions like snow.	The lane detection shall take wind force into account for torque calculation.