Hazard ID	Situational Analysis				
	Operational Mode	**Operational Scenario**	**Environmental Details**	**Situation Details**	**Other Details (optional)**
HA-001	OM03 – Normal driving	OS04 – Highway	EN06 – Rain (slippery road)	SD02 – High speed	
HA-002	OM03 – Normal driving	OS03 – Country Road	EN01 – Normal conditions	SD02 – High speed	

HA-003	OM03 – Normal driving	OS03 – Country Road	EN01 – Normal conditions	SD02 – High speed	
HA-004	OM03 – Normal driving	OS04 – Highway	EN01 – Normal conditions	SD02 – High speed	

		Hazard Identification
Item Usage (function)	**Situation Description**	**Function**
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
IU02 – Incorrectly used	Normal driving on country roads during normal conditions with high speed (the driver is misusing the lane keeping assistance function as a fully autonomous function)	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane

IU01 – Correctly used	Normal driving on a country road during normal conditions with high speed and correctly used system.	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane
IU01 – Correctly used	Normal driving on a highway during normal conditions with high speed and correctly used system	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane

Deviation	Deviation Details	Hazardous Event (resulting effect)	Event Details	Hazardous Event Description
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 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.	The LDW function applies an oscillating torque with very high torque (above limit).
DV03 – Function always activated	Lane keeping assistant is always activated	EV00 – Collision with other vehicle	The driver treats the system as being autonomous, thereby not fulfilling his duty to be a fully active driver who is only assisted with a lane assistant	The lane assistant is activated in an environment where it is not capable of fulfilling its task.

DV02 – Function unexpectedly activated	The camera sensor stops working and the Lane Keeping Assistance function continues to be activated.	EV00 – Collision with other vehicle	The Lane Keeping Assistance continues to be activated and is starting to apply random torque to the vehicle making the driver to loose control.	The Lane Keeping Assistance start acting randomly when the camera sensor is not working.
DV14 – Sensor sensitivity is too low	The torque exerted by the driver is not detected properly and the system therefore overcompensates.	EV00 – Collision with other vehicle	Misinterpretation of the drivers applied torque on the wheel leads to overcompensating of th vehicle's heading direction (by actuating the wheel) which can lead to driver confusion/panic and a chaotic ego vehicle motion up to collisions with traffic or boundaries.	The lane keeping assistant applies to much (abrupt) torque onto the wheel.

Hazardous Event Classification

Exposure (of situation)	Rationale (for exposure)	Severity (of potential harm)	Rationale (for severity)	Controllability (of hazardous event)
E3 – Medium probability	Driving on the highway in the rain happens relatively regularly	S3 – Life-threatening or fatal injuries	The velocity of the ego vehicle is high.	C3 – Difficult to control or uncontrollable
E2 – Low probability	The combination of a driver misusing a system and driving on a country road will not occur very often for the average driver.	S3 – Life-threatening or fatal injuries	The velocity of the ego vehicle is high.	C3 – Difficult to control or uncontrollable

E3 – Medium probability	Driving on country road happens relatively regularly	S3 – Life-threatening or fatal injuries	The velocity of the ego vehicle is high.	C3 – Difficult to control or uncontrollable
E4 – High probability	Normal high speed driving on the highway occurs relatively often	S3 – Life-threatening or fatal injuries	The velocity of the ego vehicle is high.	C3 – Difficult to control or uncontrollable

	Determination of ASIL and Safety Goals	
Rationale (for controllability)	**ASIL Determination**	**Safety Goal**
High steering wheel oscillations are unexpected and in nature not in only one direction, making them difficult to counteract	C	The oscillating steering torque from the lane departure warning function shall be limited
When the driver is not paying attention to the traffic himself, it will be difficult to react accordingly in case of imminent danger	B	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 autonomous driving.

High steering wheel oscillations are unexpected and in nature not in only one direction, making them difficult to counteract	C	The Lane Keeping Assistance function shall be deactivated when the camera sensor information is insufficient.
The System will overcompensate the (not measured) drivers torque at all times, which will cause panic in the driver and the vehicle will be uncontrollable.	D	The torque exerted by the driver shall always be measured correctly within a defined accuracy and redundancy.