Hazard ID	Situational Ana			
	Operational Mode	Operational Scenario	Environmental Details	Situation Details
HA-001	Normal Driving	Highway	Rain (slippery road)	High speed
HA-002	Normal Driving	Country Road	Normal conditions	High speed
HA-003	Normal Driving	City Roads	Normal conditions	Low speed
HA-004	Normal Driving	Road with bump	Normal conditions	Low speed

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Other Details (optional)	Item Usage (function)	Situation Description	Function
	Correctly used	Normal Driving on highway during a rainy (wet and slippery road) day 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
	Incorrectly used	Normal Driving on country roads during normal conditions with high speed and misusing the system (relying completely on system for lane keeping)	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane
	Correctly used	Normal driving on city roads during normal conditions with low speed and correctly used system	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane
	Correctly used	Normal driving on bumpy roads during normal conditions with low speed and correctly 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)**
Actor effect is too much	The LDW system applies an oscillating torque with a very high value(above limit)	Collision with other vehicle
Actor effect is too less	User uses system continuously, when system was not developed for such usage	Collision with other vehicle
Function unexpectedly activated	The LKA system applies an oscillating torque when sudden change was needed to avoid obstacle	Front collision with obstacle
Actor effect is too less	The LKA system applies torque but change is reduced due to bumpy nature	Collision with other vehicle

Event Details	Hazardous Event Description	Exposure (of situation)
The high haptic feedback, causes the driver to lose control of the vehicle, leading to collision with other vehicles or road infrastructure	Sudden change in vehicle behaviour causes collision with other vehicles or infrastructure	E3 - Quite often
Since there is no input from user and only correctional torque, the steering effect is impacted, leading to unexpected behaviour	Improper usage leads to the incorrect correction and may cause vehicle to collide with other vehicles or infrastructure	E2 - Low probability
In city driving situation, obstacles such as pedestrians may suddenly come in our lane without prior sign, and evasive driving may be impacted by LKA	Opposing torques from driver and LKA may lead to improper driving and possible collision due to mismanagement	E3 - Quite often
On bumpy roads, steering torque may be inadequate owing to the bumpy nature	Insufficient steering may cause vehicle to lose control on the road	E2 - Low probability

Hazardous Event Classification			
Rationale (for exposure)	**Severity (of potential harm)**	**Rationale (for severity)**	**Controllability (of hazardous event)**
As a human driver, it is not always possible to keep lane on highways, whenever the correction torque is generated, the situation may occur	S3 - Life threatening or fatal injuries	Driving at high speeds, on highways, the severity shall be high upon loss of control	C3 - Difficult to control or uncontrollable
The user willfully treats the system as completely autonomous, which is a less probable event	S3 - Life threatening or fatal injuries	Driving at high speeds, on highways, the severity shall be high upon loss of control	C3 - Difficult to control or uncontrollable
In City driving situation, unexpected obstacles are a fairly frequent possibility	S3 - Life threatening or fatal injuries	Due to unexpected nature of obstacle and risk lying both inside and outside the vehicle, the severity is high	C2 - Normally controllable
Driving on bumpy roads is an event with low probability	S2 - Severe and Life threatening	Due to relatively low speed of driving on bumpy roads, the possibility of injury may be low but the bumpy road can add to injuries	C3 - Difficult to control or uncontrollable

	Determination of ASIL and Safety Goals	
Rationale (for controllability)	**ASIL Determination**	**Safety Goal**
The oscillating frequency so generated, causes the driver to lose control of the vehicle, which at high speeds maybe difficult to regain	ASIL C	The oscillating steering torque from the lane departure warning function should be limited
As the user depends entirely on the system, in high speed situation, it may be difficult to regain control of vehicle	ASIL B	The lane assist feature should function only for a limited duration, after which it stops giving correctional input
As the user shall be driving at lower speeds owing to city traffic, the vehicle can be controlled in time	ASIL B	The camera for lane assist system should also account for obstacles in front of the vehicle
Owing to the bumpy nature of the road, it may not always be possible to regain control of the vehicle	ASIL A	The Lane Assist Feature should compensate for nature of road to optimize the torque introduced