

**INSTRUCTIONS:**

Fill out the hazard analysis and risk assessment below.

HA-001 should be for the lane departure warning function as discussed in t

HA-002 should be for the lane keeping assistance function as discussed in

Then come up with your own situations and hazards for the lane assistance

When finished, export your spreadsheet as a pdf file so that a reviewer can

Hazard ID			
	Operational Mode	Operational Scenario	Environmental Details
HA-001	OM03 - Normal Driving	OS03 - Highway	EN01 - Normal conditions
HA-002	OM03 - Normal Driving	OS03 - Highway	EN01 - Normal conditions
HA-003	OM03 - Normal Driving	OS03 - Highway	EN01 - Normal conditions
HA-004	OM03 - Normal Driving	OS03 - Highway	EN01 - Normal conditions

discussed in the lecture.  
discussed in the lecture.  
the assistance system. Fill in the HA-003 and HA-004 rows.  
viewer can easily see your work.

Situational Analysis		
Situation Details	Other Details (optional)	Item Usage (function)
SD03 - High speed	n/a	IU01 - Correctly used
SD03 - High speed	n/a	IU01 - Correctly used
SD03 - High speed	n/a	IU01 - Correctly used
SD03 - High speed	n/a	IU01 - Correctly used

Situation Description	Function	Deviation
Normal Driving on highway during Normal conditions with high speed	Lane Departure Warning (LDW) function shall apply an oscillating steering torque to provide the driver with haptic feedback	DV04 - Actor effect is too much
Normal Driving on highway during Normal conditions with high speed	Lane Keeping Assistance (LKA) function shall apply the steering torque when active in order to stay in ego lane	DV03 - Function always activated
Normal Driving on highway during Normal conditions with high speed	ABS	DV01 - Function not activated
Normal Driving on highway during Normal conditions with high speed	braking light	DV01 - Function not activated

Hazard Identification		
Deviation Details	Hazardous Event (resulting effect)	Event Details
haptic is too strong	EV04 - steering wheel is out of control	vehicle drive off the lane and collide with other cars
too good to be abused	EV04 - driver loss focus on the road	driver fail to respond when emergency happens
ABS failed to work in sudden brake	EV04 - car drifting and gets out of control	driver failed to keep control of the car
braking light failed to work when driver hits brake	EV03 - collision from car behind	car behind does not notice the braking/ speeding down of the car

Hazardous Event Description	Exposure (of situation)	Rationale (for exposure)
injury to driver and passengers	E4 - High probability	keep in lane is a common practise
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### Hazardous Event Classification

<b>Severity (of potential harm)</b>	<b>Rationale (for severity)</b>	<b>Controllability (of hazardous event)</b>
S3 - Life-threatening or fatal injuries	On highway speed of vehicle is expected to be high	C3 - Difficult to control or uncontrollable
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	Determin
Rationale (for controllability)	ASIL Determination
steering wheel out of control means serious out of control	ASIL D
driver loss focus means serious things can happen	ASIL D
out of control at slippery, sudden brake events	ASIL D
no notice to other vehicles	ASIL D

Definition of ASIL and Safety Goals
Safety Goal
reduce the upper limit spec of haptic salience, so that to prevent this case from happening.
reduce the time duration for the function so that driver had to pay attention to it.
make sure it works
make sure it works