

EXAMPLE DISCUSSED IN THE PROJECT INSTRUCTIONS - I

Hazard ID	
	Operational Mode
HA-001	Normal Driving

MORE EXAMPLES - Headlamp System

Hazard ID	
	Operational Mode
HA-001	OM03 - Normal Driving
HA-002	OM03 - Normal Driving
HA-003	OM03 - Normal Driving
HA-004	OM03 - Normal Driving
HA-005	OM03 - Normal Driving

Headlamp System

Si	
Operational Scenario	Environmental Details
City Road	Normal Conditions

S	
Operational Scenario	Environmental Details
OS01 - City Road	EN01 - Normal conditions
OS01 - City Road	EN04 - Snowfall (degraded view)
OS03 - Highway	EN04 - Snowfall (degraded view)
OS02 - Country Road	EN01 - Normal conditions
OS02 - Country Road	EN04 - Snowfall (degraded view)

Situational Analysis

Situation Details (optional)	Other Details (optional)	Item Usage (function)
Low Speed	Night time + Obstacle on	Correctly Used

Situational Analysis

Situation Details (optional)	Other Details (optional)	Item Usage (function)
SD03 - Low speed	Night time + Obstacle on the road	IU01 - Correctly used
SD03 - Low speed	Night time + Obstacle on the road and no other illumination on road	IU01 - Correctly used
SD03 - High speed	Night time + Obstacle on the road or upcoming curve	IU01 - Correctly used
SD02 - High speed	Night time + Oncoming vehicle	IU01 - Correctly used
SD04 - High speed	Night time + Obstacle on the road and no other illumination on road	IU01 - Correctly used

Situation Description	Function	Deviation
Normal Driving on a City Road in Normal	Low beam illuminates the	Function not activated

Situation Description	Function	Deviation
Normal Driving on City Road during Normal conditions with Low speed (Night time + Obstacle on the road)	Low beam illuminates the roadway in the dark	DV01 - Function not activated
Normal Driving on City Road during Snowfall (degraded view) with Low speed (Night time + Obstacle on the road and no other illumination on road)	Low beam illuminates the roadway in the dark	DV01 - Function not activated
Normal Driving on Highway during Snowfall (degraded view) with High speed (Night time + Obstacle on the road or upcoming curve)	Low beam illuminates the roadway in the dark	DV01 - Function not activated
Normal Driving on Country Road during Normal conditions with High speed (Night time + Oncoming vehicle)	Low beam illuminates the roadway in the dark	DV01 - Function not activated
Normal Driving on Country Road during Snowfall (degraded view) with High speed (Night time + Obstacle on the road and no other illumination on road)	Low beam illuminates the roadway in the dark	DV01 - Function not activated

Hazard Identification	
Deviation Details	Hazardous Event (resulting effect)
Both headlights stop working	Front collision with obstacle

Hazard Identification	
Deviation Details	Hazardous Event (resulting effect)
Both headlights stop working	EV04 - Front collision with obstacle
Both headlights stop working	EV04 - Front collision with obstacle
Both headlights stop working	EV04 - Front collision with obstacle
Both headlights stop working	EV08 - Collision with other vehicle
Both headlights stop working	EV04 - Front collision with obstacle

Event Details	Hazardous Event Description	Exposure (of situation)
Vehicle crashes into	Total loss of low	E4 - High probability

Event Details	Hazardous Event Description	Exposure (of situation)
Vehicle crashes into the obstacle with injury to driver	Total loss of low beam	E4 - High probability
Vehicle crashes into the obstacle with injury to driver	Total loss of low beam	E1 - Very low probability
Vehicle crashes into the obstacle or road infrastructure with injury to driver and any others present	Total loss of low beam	E2 - Low probability
Vehicle crashes into the oncoming vehicle or road infrastructure	Total loss of low beam	E4 - High probability
Vehicle crashes into the obstacle or road infrastructure with injury to driver and any others present	Total loss of low beam	E2 - Low probability

Hazardous	
Rationale (for exposure)	Severity (of potential harm)
night driving in the city is a	S1 - Light and moderate injuries

Hazardous	
Rationale (for exposure)	Severity (of potential harm)
night driving in the city is a regular activity	S1 - Light and moderate injuries
night driving in the city on completely unilluminated roads while it is snowing is rare	S1 - Light and moderate injuries
High driving is part of regular driving, however, heavy snow occurs a few times a year	S3 - Life-threatening or fatal injuries
country driving is part of regular driving	S3 - Life-threatening or fatal injuries
country driving is part of regular driving, however, heavy snow occurs a few times a year	S3 - Life-threatening or fatal injuries

Event Classification	
Rationale (for severity)	Controllability (of hazardous event)
In city traffiic, speed of vehicle is expected to be low	C0 - Controllable in general

Event Classification	
Rationale (for severity)	Controllability (of hazardous event)
In city traffiic, speed of vehicle is expected to be low	C0 - Controllable in general
In city traffiic, speed of vehicle is expected to be low	C1 - Simply controllable
On highway speed of vehicle is expected to be high	C2 - Normally controllable
On country roads speed of vehicle is expected to be high	C1 - Simply controllable
On country roads speed of vehicle is expected to be high	C3 - Difficult to control or uncontrollable

	Determination of ASIL and Safety Goals	
Rationale (for controllability)	ASIL Determination	Safety Goal
At city speed, most drivers will be able to	QM	Total Loss of Beam

	Determination of ASIL and Safety Goals	
Rationale (for controllability)	ASIL Determination	Safety Goal
At city speed, most drivers will be able to control the situation by applying brakes and there is additional illumination on city roads	QM	Total loss of low beam shall be prevented
On completely unilluminated city roads, drivers usually drive at lower end of city speeds and hence are expected to be able to control vehicle	QM	Total loss of low beam shall be prevented
When driving on highway with low beam, it can be expected that there are other vehicles and there is some form of illumination on road and hence >90% drivers are able to brake and control the vehicle. And also use other forms of warning (e.g. hazard lights) to signal malfunction	A	Total loss of low beam shall be prevented
Since there is usually no other form of illumination to be expected on country road, it will be difficult for the average driver to control the vehicle in such a situation	B	Total loss of low beam shall be prevented
Since there is usually no other form of illumination to be expected on country road, it will be difficult for the average driver to control the vehicle in such a situation	B	Total loss of low beam shall be prevented