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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | **ID** | **S Severity** | **Comment to S** | **E Exposure** | **Comment to E** | **C Controllability** | **Comment to C** | **ASIL** | **Safety goal** | **Recommended Revised ASIL Rating** |
| **Hazard** | **Hazardous scenario** | | | |  |
| **Operating situation** | **Operating mode** | **Environment situation** | **Traffic situation** |  |
| **Accident due to unintended Acceleration** | Highway | Medium Speed | dry road | motorcyclist, vehicles, trucks | 1,01 | S2 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcylist can cause severe and life-threatening injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort.The exposure to the failure is high | C1 | The controlability of the vehicle is simple. Most drivers will react by applyinging the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | A | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | Medium Speed | wet road | motorcyclist, vehicles, trucks | 1,02 | S2 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcylist can cause severe and life-threatening injuries. | E4 | Roads are frequently wet. The system is frequently used on the highway for comfort | C2 | The controlability of the vehicle is normal. Most drivers will react by applying the brakes. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | B | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | Medium Speed | upslope | motorcyclist, vehicles, trucks | 1,03 | S1 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcylist can cause light and moderate injuries. | E3 | The frequency of slopes is medium. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | Medium Speed | downslope | motorcyclist, vehicles, trucks | 1,04 | S1 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium. | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | Medium Speed | snow and ice | motorcyclist, vehicles, trucks | 1,05 | S2 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes. This way the vehicle can slides dangerous across the road. | A | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | High Speed | dry road | motorcyclist, vehicles, trucks | 1,06 | S3 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause life-threatening or fatal injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | B | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | High Speed | wet road | motorcyclist, vehicles, trucks | 1,07 | S3 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause life-threatening and fatal injuries. | E3 | Roads are frequently wet. The system is frequently used on the highway for comfort | C2 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes. This way the CC system is shut off an the vehicle is back in control of the driver. This causes the vehicle to slide and this makes it harder to control the vehicle. | B | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | High Speed | upslope | motorcyclist, vehicles, trucks | 1,08 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E3 | The frequency of slopes is medium. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | High Speed | downslope | motorcyclist, vehicles, trucks | 1,09 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E3 | The frequency of slopes is medium. | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | A | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | High Speed | snow and ice | motorcyclist, vehicles, trucks | 1,10 | S3 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause life-threatening or fatal injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes. This way the vehicle can slides dangerous across the road. | A | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | Cornering | dry road | motorcyclist, vehicles, trucks | 1,11 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | Cornering | wet road | motorcyclist, vehicles, trucks | 1,12 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E4 | Roads are frequently wet. The system is frequently used on the highway for comfort | C2 | The controllability of the vehicle is simple. The most drivers will react by applying the brakes. This way the vehicle can oversteer/understeer. | B | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | Cornering | upslope | motorcyclist, vehicles, trucks | 1,13 | S1 | The speed difference is small. therefore the impact is reduced. But causing a collision with a motorcyclist can cause light and moderate injuries | E2 | The frequency of cornering and slope is low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | Cornering | downslope | motorcyclist, vehicles, trucks | 1,14 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to reduce speed harder this can come as a surprise to drivers cause hind. | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | Highway | Cornering | snow and ice | motorcyclist, vehicles, trucks | 1,15 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes. This way the vehicle can understeer . | A | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | Medium Speed | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,16 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E4 | Roads are frequently dry. The frequency of using CC system in the city is lower. The exposure to the failure is high | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | Medium Speed | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,17 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E4 | Roads are frequently wet. The frequency of using CC system in the city is lower. The exposure to the failure is high | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | B | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | Medium Speed | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,18 | S1 | The speed difference is small. therefore the impact is reduced. But causing a collision with a pedestrian can cause light and moderate injuries | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | Medium Speed | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,19 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E2 | The frequency of slopes is low. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | Medium Speed | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,20 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes. This way the vehicle can slides dangerous across the road or even across the sidewalk. | A | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | High Speed | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,21 | S3 | The speed difference is big. causing a collision at high speed with a pedestrian can cause life-threatening or fatal injuries. | E3 | Roads are frequently dry. The frequency of using CC system in the city is lower. And the frequency of high speed in the city is lower. The exposure to the failure is medium | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes. This way the CC system is shut off an the vehicle is back in control of the driver | B | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | High Speed | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,22 | S3 | The speed difference is big. causing a collision at high speed with a pedestrian can cause life-threatening or fatal injuries. | E3 | Roads are frequently wet. The frequency of using CC system in the city is lower. And the frequency of high speed in the city is lower. The exposure to the failure is medium | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes. This way the vehicle can slides dangerous across the road or even across the sidewalk. | C | The system should not transfer excess power to the wheels where it causes unintended acceleration | C -> A |
|  | City road | High Speed | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,23 | S2 | The speed difference is big. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E2 | The frequency of cornering and slope is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes. This way the CC system is shut off an the vehicle is back in control of the driver | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | High Speed | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,24 | S3 | The speed difference is big. Causing a collision at high speed with a pedestrian can cause life-threatening or fatal injuries. | E2 | The frequency of slopes is low. | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes. This way the CC system is shut off an the vehicle is back in control of the driver | B | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | High Speed | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,25 | S3 | The speed difference is big. causing a collision at high speed with a pedestrian can cause life-threatening or fatal injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes. This way the vehicle can slides dangerous across the road or even across the sidewalk. | B | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | Cornering | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,26 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The frequency of using CC system in the city is lower. The exposure to the failure is high | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | Cornering | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,27 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E4 | Roads are frequently wet. The frequency of using CC system in the city is lower. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. The most drivers will react by applying the brakes. This way the vehicle can oversteer/understeer. | A | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | Cornering | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,28 | S1 | The speed difference is big. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | Cornering | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,29 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E2 | The frequency of cornering and slope is low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  | City road | Cornering | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 1,30 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes. This way the vehicle can understeer . | QM | The system should not transfer excess power to the wheels where it causes unintended acceleration | None |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Accident due to unintended Deceleration** | Highway | Medium Speed | dry road | motorcyclist, vehicles, trucks | 2,01 | S1 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | Medium Speed | wet road | motorcyclist, vehicles, trucks | 2,02 | S1 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently wet. The system is frequently used on the highway for comfort | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | Medium Speed | upslope | motorcyclist, vehicles, trucks | 2,03 | S1 | There is considerable speed difference. Hence the vehicle can decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium. | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes. This way the CC system is shut off an the vehicle is back in control of the driver. This causes the vehicle to slide and this makes it harder to control the vehicle. | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | Medium Speed | downslope | motorcyclist, vehicles, trucks | 2,04 | S1 | There is considerable speed difference. Hence the vehicle can decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium. | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | Medium Speed | snow and ice | motorcyclist, vehicles, trucks | 2,05 | S1 | There is considerable speed difference. Hence the vehicle can decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road. | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | High Speed | dry road | motorcyclist, vehicles, trucks | 2,06 | S1 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | High Speed | wet road | motorcyclist, vehicles, trucks | 2,07 | S1 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E3 | Roads are frequently wet. The system is frequently used on the highway for comfort | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | High Speed | upslope | motorcyclist, vehicles, trucks | 2,08 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium. | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | High Speed | downslope | motorcyclist, vehicles, trucks | 2,09 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E3 | The frequency of slopes is medium. | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | High Speed | snow and ice | motorcyclist, vehicles, trucks | 2,10 | S2 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road. | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | Cornering | dry road | motorcyclist, vehicles, trucks | 2,11 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | Cornering | wet road | motorcyclist, vehicles, trucks | 2,12 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E4 | Roads are frequently wet. The system is frequently used on the highway for comfort | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can oversteer/understeer. | C | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | 1. C -> A 2. C-> B |
| Highway | Cornering | upslope | motorcyclist, vehicles, trucks | 2,13 | S1 | The speed difference is small. therefore the impact is reduced. But causing a collision with a motorcyclist can cause light and moderate injuries | E2 | The frequency of cornering and slope is low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | Cornering | downslope | motorcyclist, vehicles, trucks | 2,14 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| Highway | Cornering | snow and ice | motorcyclist, vehicles, trucks | 2,15 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can understeer/oversteer . | A | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | Medium Speed | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,16 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E4 | Roads are frequently dry. The frequency of using CC system in the city is lower. The exposure to the failure is high | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | Medium Speed | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,17 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E4 | Roads are frequently wet. The frequency of using CC system in the city is lower. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | A | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | Medium Speed | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,18 | S1 | The speed difference is small. therefore the impact is reduced. But causing a collision with a pedestrian can cause light and moderate injuries | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | Medium Speed | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,19 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of slopes is low. | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | Medium Speed | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,20 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E3 | The frequency of snow and ice is low. The exposure to the failure is medium | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | High Speed | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,21 | S3 | The speed difference is big. causing a collision at high speed with a pedestrian can cause life-threatening or fatal injuries. | E3 | Roads are frequently dry. The frequency of using CC system in the city is lower. And the frequent of high speed in the city is lower. The exposure to the failure is medium | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | A | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | High Speed | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,22 | S3 | The speed difference is big. causing a collision at high speed with a pedestrian can cause life-threatening or fatal injuries. | E3 | Roads are frequently wet. The frequency of using CC system in the city is lower. And the frequency of high speed in the city is lower. The exposure to the failure is medium | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | B | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | High Speed | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,23 | S2 | The speed difference is big. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E2 | The frequency of cornering and slope is low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | High Speed | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,24 | S2 | The speed difference is big. causing a collision at high speed with a pedestrian can cause severe and life-threating injuries. | E2 | The frequency of slopes is low. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | High Speed | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,25 | S3 | The speed difference is big. causing a collision at high speed with a pedestrian can cause life-threatening or fatal injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | B | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | Cornering | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,26 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The frequency of using CC system in the city is lower. The exposure to the failure is high | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | Cornering | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,27 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E4 | Roads are frequently wet. The frequency of using CC system in the city is lower. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can oversteer/understeer. | A | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | Cornering | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,28 | S1 | The speed difference is big. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | Cornering | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,29 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
| City road | Cornering | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 2,30 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can understeer/oversteer. | A | The system should not reduce the supplied power to the wheels where it causes unintended deceleration | None |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Accident due to unintended movement** | Highway | Medium Speed | dry road | motorcyclist, vehicles, trucks | 3,01 | S0 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause no injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Medium Speed | wet road | motorcyclist, vehicles, trucks | 3,02 | S1 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause no injuries. | E4 | Roads are frequently wet. The system is frequently used on the highway for comfort | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Medium Speed | upslope | motorcyclist, vehicles, trucks | 3,03 | S0 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause no injuries to light | E3 | The frequency of slopes is medium. | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Medium Speed | downslope | motorcyclist, vehicles, trucks | 3,04 | S1 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Medium Speed | snow and ice | motorcyclist, vehicles, trucks | 3,05 | S1 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | dry road | motorcyclist, vehicles, trucks | 3,06 | S1 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | wet road | motorcyclist, vehicles, trucks | 3,07 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E3 | Roads are frequently wet. The system is frequently used on the highway for comfort | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | upslope | motorcyclist, vehicles, trucks | 3,08 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | downslope | motorcyclist, vehicles, trucks | 3,09 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | snow and ice | motorcyclist, vehicles, trucks | 3,10 | S3 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause life-threatening or fatal injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | dry road | motorcyclist, vehicles, trucks | 3,11 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | wet road | motorcyclist, vehicles, trucks | 3,12 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E4 | Roads are frequently wet. The system is frequently used on the highway for comfort | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can oversteer/understeer. | C | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | 1. C -> A 2. C-> B |
| Highway | Cornering | upslope | motorcyclist, vehicles, trucks | 3,13 | S1 | The speed difference is small. therefore the impact is reduced. But causing a collision with a motorcyclist can cause light and moderate injuries | E2 | The frequency of cornering and slope is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | downslope | motorcyclist, vehicles, trucks | 3,14 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes. This way the CC system is shut off an the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | snow and ice | motorcyclist, vehicles, trucks | 3,15 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can understeer/oversteer . | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,16 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E4 | Roads are frequently dry. The frequency of using CC system in the city is lower. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,17 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E4 | Roads are frequently wet. The frequency of using CC system in the city is lower. The exposure to the failure is high | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,18 | S1 | The speed difference is small. therefore the impact is reduced. But causing a collision with a pedestrian can cause light and moderate injuries | E2 | The frequency of cornering and slope is low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,19 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of slopes is low. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,20 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E3 | The frequency of snow and ice is low. The exposure to the failure is medium | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,21 | S2 | The speed difference is big. causing a collision at high speed with a pedestrian can cause severe and life-threatening injuries. | E3 | Roads are frequently dry. The frequency of using CC system in the city is lower. And the frequent of high speed in the city is lower. The exposure to the failure is medium | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,22 | S3 | The speed difference is small. But causing a collision with a pedestrian can cause life-threatening or fatal injuries. | E3 | Roads are frequently wet. The frequency of using CC system in the city is lower. And the frequency of high speed in the city is lower. The exposure to the failure is medium | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | C | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | C -> B |
| City road | High Speed | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,23 | S2 | The speed difference is big. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E2 | The frequency of cornering and slope is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,24 | S2 | The speed difference is big. causing a collision at high speed with a pedestrian can cause severe and moderate injuries. | E2 | The frequency of slopes is low. | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,25 | S3 | The speed difference is big. causing a collision at high speed with a pedestrian can cause life-threatening or fatal injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,26 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The frequency of using CC system in the city is lower. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,27 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently wet. The frequency of using CC system in the city is lower. The exposure to the failure is high | C2 | The controllability of the vehicle is normal. The most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can oversteer/understeer. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,28 | S1 | The speed difference is big. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,29 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 3,30 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can understeer/oversteer. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Accident due to reduced movement(sudden loss of power)** | Highway | Medium Speed | dry road | motorcyclist, vehicles, trucks | 4,01 | S1 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E1 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is very low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | Medium Speed | wet road | motorcyclist, vehicles, trucks | 4,02 | S1 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E1 | Roads are frequently wet. The exposure to the failure is very low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | Medium Speed | upslope | motorcyclist, vehicles, trucks | 4,03 | S1 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E1 | The frequency of slopes is very low. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | Medium Speed | downslope | motorcyclist, vehicles, trucks | 4,04 | S1 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E1 | The frequency of slopes is very low. | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | Medium Speed | snow and ice | motorcyclist, vehicles, trucks | 4,05 | S2 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause severe and life-threatening injuries. | E1 | The frequency of snow and ice is low. The exposure to the failure is very low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road. | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | High Speed | dry road | motorcyclist, vehicles, trucks | 4,06 | S1 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E1 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is very low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | High Speed | wet road | motorcyclist, vehicles, trucks | 4,07 | S1 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E1 | Roads are frequently wet. The exposure to the failure is very low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | High Speed | upslope | motorcyclist, vehicles, trucks | 4,08 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E1 | The frequency of slopes is very low. | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | High Speed | downslope | motorcyclist, vehicles, trucks | 4,09 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E1 | The frequency of slopes is very low. | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | High Speed | snow and ice | motorcyclist, vehicles, trucks | 4,10 | S2 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause severe and life-threatening injuries. | E1 | The frequency of snow and ice is low. The exposure to the failure is very low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road. | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | Cornering | dry road | motorcyclist, vehicles, trucks | 4,11 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E1 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is very low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | Cornering | wet road | motorcyclist, vehicles, trucks | 4,12 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E1 | Roads are frequently wet. The exposure to the failure is very low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can oversteer/understeer. | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | Cornering | upslope | motorcyclist, vehicles, trucks | 4,13 | S1 | The speed difference is small. therefore the impact is reduced. But causing a collision with a motorcyclist can cause light and moderate injuries | E1 | The frequency of cornering and slope is very low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | Cornering | downslope | motorcyclist, vehicles, trucks | 4,14 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E1 | The frequency of cornering and slope is very low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| Highway | Cornering | snow and ice | motorcyclist, vehicles, trucks | 4,15 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E1 | The frequency of snow and ice is low. The exposure to the failure is very low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can understeer/oversteer . | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | Medium Speed | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,16 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E1 | Roads are frequently dry. The frequency of using CC system in the city is lower. The exposure to the failure is very low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | Medium Speed | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,17 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E1 | Roads are frequently wet. The frequency of using CC system in the city is lower. The exposure to the failure is very low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | Medium Speed | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,18 | S1 | The speed difference is small. therefore the impact is reduced. But causing a collision with a pedestrian can cause light and moderate injuries | E1 | The frequency of slopes is very low. | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | Medium Speed | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,19 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E1 | The frequency of slopes is very low. | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | Medium Speed | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,20 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E1 | The frequency of snow and ice is low. The exposure to the failure is very low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | High Speed | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,21 | S1 | The speed difference is big. causing a collision at high speed with a pedestrian can cause light and moderate injuries. | E1 | Roads are frequently dry. The frequency of using CC system in the city is lower. And the frequent of high speed in the city is lower. The exposure to the failure is very low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | High Speed | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,22 | S2 | The speed difference is big. causing a collision at high speed with a pedestrian can cause severe and life-threatening injuries. | E1 | Roads are frequently wet. The frequency of using CC system in the city is lower. And the frequency of high speed in the city is lower. The exposure to the failure is very low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | High Speed | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,23 | S1 | The speed difference is big. But causing a collision with a pedestrian can cause light and moderate injuries. | E1 | The frequency of slopes is very low. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | High Speed | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,24 | S1 | The speed difference is big. causing a collision at high speed with a pedestrian can cause light and moderate injuries. | E1 | The frequency of slopes is very low. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | High Speed | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,25 | S2 | The speed difference is big. causing a collision at high speed with a pedestrian can cause severe and life-threatening injuries. | E1 | The frequency of snow and ice is low. The exposure to the failure is very low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | Cornering | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,26 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E1 | Roads are frequently dry. The frequency of using CC system in the city is lower. The exposure to the failure is very low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | Cornering | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,27 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E1 | Roads are frequently wet. The frequency of using CC system in the city is lower. The exposure to the failure is very low | C1 | The controllability of the vehicle is simple. The most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can oversteer/understeer. | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | Cornering | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,28 | S1 | The speed difference is big. But causing a collision with a pedestrian can cause light and moderate injuries. | E1 | The frequency of cornering and slope is very low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | Cornering | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,29 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E1 | The frequency of cornering and slope is very low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
| City road | Cornering | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 4,30 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E1 | The frequency of snow and ice is low. The exposure to the failure is very low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can understeer/oversteer. | QM | The system should deactivate the cruise control if it detects sudden loss in power to the wheels where it causes unintended reduction in movement | None |
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| **Accident due to Dangerous movement** | Highway | Medium Speed | dry road | motorcyclist, vehicles, trucks | 5,01 | S1 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Medium Speed | wet road | motorcyclist, vehicles, trucks | 5,02 | S1 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently wet. The system is frequently used on the highway for comfort | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Medium Speed | upslope | motorcyclist, vehicles, trucks | 5,03 | S1 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Medium Speed | downslope | motorcyclist, vehicles, trucks | 5,04 | S1 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Medium Speed | snow and ice | motorcyclist, vehicles, trucks | 5,05 | S2 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | dry road | motorcyclist, vehicles, trucks | 5,06 | S1 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | wet road | motorcyclist, vehicles, trucks | 5,07 | S1 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E3 | Roads are frequently wet. The system is frequently used on the highway for comfort | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | upslope | motorcyclist, vehicles, trucks | 5,08 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | downslope | motorcyclist, vehicles, trucks | 5,09 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | snow and ice | motorcyclist, vehicles, trucks | 5,10 | S2 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | dry road | motorcyclist, vehicles, trucks | 5,11 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | wet road | motorcyclist, vehicles, trucks | 5,12 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently wet. The system is frequently used on the highway for comfort | C1 | The controllability of the vehicle is simple. The most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can oversteer/understeer. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | upslope | motorcyclist, vehicles, trucks | 5,13 | S1 | The speed difference is small. therefore the impact is reduced. But causing a collision with a motorcyclist can cause light and moderate injuries | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | downslope | motorcyclist, vehicles, trucks | 5,14 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | snow and ice | motorcyclist, vehicles, trucks | 5,15 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can understeer/oversteer . | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,16 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E4 | Roads are frequently dry. The frequency of using CC system in the city is lower. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,17 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E4 | Roads are frequently wet. The frequency of using CC system in the city is lower. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,18 | S1 | The speed difference is small. therefore the impact is reduced. But causing a collision with a pedestrian can cause light and moderate injuries | E2 | The frequency of cornering and slope is low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,19 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of slopes is low. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,20 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E3 | The frequency of snow and ice is low. The exposure to the failure is medium | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,21 | S1 | The speed difference is big. causing a collision at high speed with a pedestrian can cause light and moderate injuries. | E3 | Roads are frequently dry. The frequency of using CC system in the city is lower. And the frequent of high speed in the city is lower. The exposure to the failure is medium | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,22 | S1 | The speed difference is big. causing a collision at high speed with a pedestrian can cause light and moderate injuries. | E3 | Roads are frequently wet. The frequency of using CC system in the city is lower. And the frequency of high speed in the city is lower. The exposure to the failure is medium | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,23 | S1 | The speed difference is big. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,24 | S1 | The speed difference is big. causing a collision at high speed with a pedestrian can cause light and moderate injuries. | E2 | The frequency of slopes is low. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,25 | S2 | The speed difference is big. causing a collision at high speed with a pedestrian can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C3 | The controllability of the vehicle is difficult or uncontrollable. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,26 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The frequency of using CC system in the city is lower. The exposure to the failure is high | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,27 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently wet. The frequency of using CC system in the city is lower. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. The most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can oversteer/understeer. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,28 | S1 | The speed difference is big. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,29 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 5,30 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can understeer/oversteer. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
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| **Accident due to unintended reaction** | Highway | Medium Speed | dry road | motorcyclist, vehicles, trucks | 6,01 | S1 | There is considerable speed difference. Hence the vehicle can accelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Medium Speed | wet road | motorcyclist, vehicles, trucks | 6,02 | S1 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently wet. The system is frequently used on the highway for comfort | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Medium Speed | upslope | motorcyclist, vehicles, trucks | 6,03 | S1 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of cornering and slope is medium | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Medium Speed | downslope | motorcyclist, vehicles, trucks | 6,04 | S1 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium. | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Medium Speed | snow and ice | motorcyclist, vehicles, trucks | 6,05 | S2 | There is considerable speed difference. Hence the vehicle can accelerate/decelerate within safe limits. But causing a collision at high speed with a motorcyclist can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | dry road | motorcyclist, vehicles, trucks | 6,06 | S1 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause light and moderate injuries | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | wet road | motorcyclist, vehicles, trucks | 6,07 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E3 | Roads are frequently wet. The system is frequently used on the highway for comfort | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | upslope | motorcyclist, vehicles, trucks | 6,08 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of cornering and slope is medium | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | downslope | motorcyclist, vehicles, trucks | 6,09 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E3 | The frequency of slopes is medium. | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | High Speed | snow and ice | motorcyclist, vehicles, trucks | 6,10 | S2 | The speed difference is small. But causing a collision at high speed with a motorcyclist can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | dry road | motorcyclist, vehicles, trucks | 6,11 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E4 | Roads are frequently dry. The system is frequently used on the highway for comfort. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | wet road | motorcyclist, vehicles, trucks | 6,12 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E4 | Roads are frequently wet. The system is frequently used on the highway for comfort | C1 | The controllability of the vehicle is simple. The most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can oversteer/understeer. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | upslope | motorcyclist, vehicles, trucks | 6,13 | S1 | The speed difference is small. therefore the impact is reduced. But causing a collision with a motorcyclist can cause light and moderate injuries | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | downslope | motorcyclist, vehicles, trucks | 6,14 | S1 | The speed difference is small. But causing a collision with a motorcyclist can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| Highway | Cornering | snow and ice | motorcyclist, vehicles, trucks | 6,15 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can understeer/oversteer . | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,16 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E4 | Roads are frequently dry. The frequency of using CC system in the city is lower. The exposure to the failure is high | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,17 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause severe and life-threatening injuries. | E4 | Roads are frequently wet. The frequency of using CC system in the city is lower. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off an the vehicle is back in control of the driver. This can causes the vehicle to slide and this makes it harder to control the vehicle. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,18 | S1 | The speed difference is small. therefore the impact is reduced. But causing a collision with a pedestrian can cause light and moderate injuries | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,19 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of slopes is low. | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Medium Speed | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,20 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E3 | The frequency of snow and ice is low. The exposure to the failure is medium | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,21 | S3 | The speed difference is big. causing a collision at high speed with a pedestrian can cause life-threatening or fatal injuries. | E3 | Roads are frequently dry. The frequency of using CC system in the city is lower. And the frequent of high speed in the city is lower. The exposure to the failure is medium | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,22 | S3 | The speed difference is big. causing a collision at high speed with a pedestrian can cause life-threatening or fatal injuries. | E3 | Roads are frequently wet. The frequency of using CC system in the city is lower. And the frequency of high speed in the city is lower. The exposure to the failure is medium | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,23 | S2 | The speed difference is big. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E2 | The frequency of cornering and slope is low | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,24 | S2 | The speed difference is big. causing a collision at high speed with a pedestrian can cause severe and life-threatening injuries. | E2 | The frequency of slopes is low. | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | High Speed | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,25 | S3 | The speed difference is big. causing a collision at high speed with a pedestrian can cause life-threatening or fatal injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can slides dangerous across the road or even across the sidewalk. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | dry road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,26 | S2 | The speed difference is small. But causing a collision with a motorcyclist can cause life-threatening injuries. | E4 | Roads are frequently dry. The frequency of using CC system in the city is lower. The exposure to the failure is high | C0 | The controllability of the vehicle is very simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | wet road | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,27 | S2 | The speed difference is small. But causing a collision with a pedestrian can cause severe and life-threatening injuries. | E4 | Roads are frequently wet. The frequency of using CC system in the city is lower. The exposure to the failure is high | C1 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can oversteer/understeer. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | upslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,28 | S1 | The speed difference is big. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | downslope | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,29 | S1 | The speed difference is small. But causing a collision with a pedestrian can cause light and moderate injuries. | E2 | The frequency of cornering and slope is low | C0 | The controllability of the vehicle is simple. Most drivers will react by applying the brakes/accelerator pedal. This way the CC system is shut off and the vehicle is back in control of the driver | QM | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |
| City road | Cornering | snow and ice | pedestrian, cyclist, motorcyclist, vehicles, trucks | 6,30 | S3 | The speed difference is small. But causing a collision with a pedestrian can cause life-threatening or fatal injuries. | E2 | The frequency of snow and ice is low. The exposure to the failure is low | C2 | The controllability of the vehicle is normal. Most drivers will react by applying the brakes/accelerator pedal. This way the vehicle can understeer/oversteer. | A | The system should not transfer power to the wheels where it causes unintended acceleration/deceleration | None |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Description of System sub-function** | **Relevant outgoing interface** | **Hazard ID number** | **Guide word** | **Description of the failure** | **Hazard description** | **Rationale** | **Effects** | **Recommendation** |
| <ID and short description of function> | <Short description of the relevant outgoing interface derived from FC> | <Unique ID number> | <Applicable guideword> | <Short description of the Failure> | <Short description of the Hazard> | <Extended description and reasoning> | <Effects of the hazard on the driver/vehicle> | <Recommendation of the Hazard for the Risk Assesment> |
| Powertrain Component | Deliver requested power to the wheels | PC1 | More | More power transmitted to the wheels | The failure corresponding to the function causes vehicle to move at a faster rate causing unintended acceleration | Due to control signal errors, the powertrain system delivers higher power than intended to maintain the vehicle at the set speed | The unintended acceleration leads to a crash of the vehicle that causes injury of the occupants/pedestrians and/or a crash with adjacent vehicle depending on the location of the vehicle (Highway/City roads) causing damage to the vehicle | **++** |
| PC2 | Less | Less power transmitted to the wheels | The failure corresponding to the function causes vehicle to move at a slower rate causing unintended decceleration | Due to wear, mechanical damage or control signal errors, the powertrain system delivers lesser power to the wheels than intended to maintain the vehicle at the set speed | The unintended decceleration leads a crash with adjacent vehicle causing damage to both the vehicle and the occupants. Depending on the location of the vehicle pedestrians might also be harmed | **++** |
| PC3 | Late | Late power transmitted to the wheels | NA | Due to delayed control signal , the powertrain system delivers a later response to te request than expected. | The late reaction of the powertrain system will result in uncomfortable driving conditions. This causes no injuries | **o** |
| PC4 | Reverse | Reverse power to the wheels | NA | Due to reverse control signal, the powertrain delivers no power to the wheels, decelerate untill the vehicle stands still. | Deliverance of reverse power to the wheels is not possible from the ICE. This is only possible when the 'Reverse' gear is active. This is not a Hazard | **o** |
| PC5 | No | No power transmitted to the wheels | The failure corresponding to the function causes a reduced movement of the vehicle | In case of sudden loss of power to the wheels due to engine braking, the vehicle experiences reduced movement | Reduced movement can cause the vehicle to collide with personnel/other cars which lead to injuries and crashes | **+** |
| PC6 | Fluctuating | Fluctuating power to the wheels | The failure corresponding to the function causes dangerous/unintended movement of the vehicle | Control signal errors can cause the powertrain system to deliver fluctuating power to the wheels that result in jerky forward motions of the vehicle | Unintended movement can cause the vehicle to collide with personnel/other cars which lead to injuries and crashes. The unintended movement also causes discomfort to the driver and the occupants while driving. | **++** |
| PC7 | Inadverted | Unitended power is transmitted to the wheels | The failure corresponding to the function causes unintended movement of the vehicle | Due to delays in control signals or fault in data transmission lines, the CC might activate at a time other than intended, causing sudden increase in speed/engine braking functions | Unintended movement can cause the vehicle to collide with personnel/other cars which lead to injuries and crashes. The unintended movement also causes discomfort to the driver and the occupants while driving. | **+** |
| PC8 | Intermittent | Intermittent power to the wheels | NA | Control signal errors can cause the powertrain system to deliver fluctuating power to the wheels (on/off) that result in jerky forward motions of the vehicle. | Unintended deceleration , due to the on/off state the powertrain will give full power or no power. This will be done with a low frequency what makes the vehicle to decelerate. | **o** |
| PC9 | Other than | NA | NA | NA | NA | **o** |
|  |  |  |  |  |  |  |  |  |
| Vehicle Speed Unit | The VSU acquires the current speed of the vehicle and provides the speed value to the processing unit | VSU1 | More | More speed estimated and transmitted | The failure corresponding to the function causes the vehicle to move slower rate causing unintended decceleration | When speed is overestimated, it causes the control system to reduce the output power from the engine causing engine braking therby uninteded decceleration | The unintended decceleration leads a crash with adjacent vehicle causing damage to both the vehicle and the occupants. Depending on the location of the vehicle pedestrians might also be harmed | **++** |
| VSU2 | Less | Less speed estimated and transmitted | The failure corresponding to the function causes the vehicle to move faster rate causing unintended acceleration | When speed is underestimated, it causes the control system to increase the output power of the engine resulting in uninteded acceleration | The unintended acceleration leads to a crash of the vehicle that causes injury of the occupants/pedestrians and/or a crash with adjacent vehicle depending on the location of the vehicle (Highway/City roads) causing damage to the vehicle | **++** |
| VSU3 | Late | Late transmission of vehicle speed | The failure corresponding to the function causes unintended movement of the vehicle | The delay in vehicle speed acquirement causes the vehicle to accelerate/deccelerate at the wrong time causing the vehicle to travel at a faster/slower rate than intended | Unintended movement can cause the vehicle to collide with personnel/other cars which lead to injuries and crashes. The unintended movement also causes discomfort to the driver and the occupants while driving. | **+** |
| VSU4 | Reverse | NA | NA | NA | NA | **o** |
| VSU5 | No | No vehicle speed acquired | The failure corresponding to the function causes the vehicle to move slower rate causing unintended decceleration or no foreseeable hazard | The vehicle speed accquired is null always when the sensor does not work. This causes the system to keep on increasing the output power to reach the reference speed causing unintended acceleration. / In the other case, the system does not activate the cruise control as no vehicle speed is accquired(The system assumes the vehicle is in a stationary state) | The unintended decceleration leads a crash with adjacent vehicle causing damage to both the vehicle and the occupants. Depending on the location of the vehicle pedestrians might also be harmed | **+** |
| VSU6 | Fluctuating | Fluctuating vehicle speed data | NA | If the speed value to proccesing unit is fluctuating the controller will try to manipulate the actuator match it. This makes the vehicle to fluctuate in speed. This way the desired speed will never be reach or it will under or overshoot it. | The unintended reaction of the proccesing unit makes is uncomfortable to drive at an constanced speed. Because the controller thinks that the speed is fluctuating the real speed will fluctuate. This is gives no major harm to the vehicle or the occupants | **++** |
| VSU7 | Inadverted | Inadverted vehicle speed data | The vehicle speed data is transmitted to the cc system at an unintentional time | The vehicle speed data from the sensor is transmitted to the processing unit at a random time | No foreseeable hazards | **o** |
| VSU8 | Intermittent | Intermittent vehicle speed | NA | If the speed value to proccesing unit is fluctuating the controller will try to manipulate the actuator match it. This makes the vehicle to fluctuate in speed. This way the desired speed will never be reach or it will under or overshoot it. | The unintended reaction of the proccesing unit makes it uncomfortable to drive the car, due to the high frequency of the on/off state occurrence and can make the vehicle slowdown. | **++** |
| VSU9 | Other than | Vehicle speed data has errors | The failure corresponding to the function causes unintended movement of the vehicle | Due to Memory Unit failure or CAN bus faults, the correct data might not be transmitted to the CC system, which causes unexpected acceleration/decceleration of the vehicle thereby resulting in unintended movement | Unintended movement can cause the vehicle to collide with personnel/other cars which lead to injuries and crashes. The unintended movement also causes discomfort to the driver and the occupants while driving. | **++** |
|  |  |  |  |  |  |  |  |  |
| Braking system | Provides signal to the processing unit when the brake pedal is pressed | BS1 | More | NA | NA | NA | NA | **o** |
| BS2 | Less | NA | NA | NA | NA | **o** |
| BS3 | Late | Delay in brake pedal signal transmission | The failure corresponding to the function causes unintended movement of the vehicle | The delay in brake pedal signal causes the system to maintain the output power, causing accelerations till the brake signal reaches the system. | Unintended movement can cause the vehicle to collide with personnel/other cars which lead to injuries and crashes. The unintended movement also causes discomfort to the driver and the occupants while driving. | **++** |
| BS4 | Reverse | Reversed input of the brake pedal signal | The failure corresponding to the function causes the vehicle to move slower rate causing unintended decceleration | The CC system interprets the driver signals in a revesed manner(pressing the brake pedal causes the CC to activate), causing conflict in the system(Brake slows down the vehicle while CC tries to speed up the vehicle) resulting in slower movement of the vehicle | The unintended decceleration leads a crash with adjacent vehicle causing damage to both the vehicle and the occupants. Depending on the location of the vehicle pedestrians might also be harmed | **+** |
| BS5 | No | No brake pedal signal | The failure corresponding to the function causes the vehicle to move faster rate causing unintended acceleration/movement | The lack of brake pedal signal causes the system to maintain the output power, causing accelerations at times when the driver releases the brake pedal. | The unintended acceleration leads to a crash of the vehicle that causes injury of the occupants/pedestrians and/or a crash with adjacent vehicle depending on the location of the vehicle (Highway/City roads) causing damage to the vehicle. The unintended movement also causes discomfort to the driver and the occupants while driving. | **++** |
| BS6 | Fluctuating | Fluctuating brake pedal signal | NA | The fluctuating signal of the brake pedal causes that he CCCS shut off or nothing happend. | The fluctuating signal leads to no harm of the occupants and the environment depending on the location of the vehicle. | **o** |
| BS7 | Inadverted | Unintended brake pedal signal | NA | The unintended positive brake signal causes to shut off the CCCS | The unintended positive signal will result in shutting off the CCCS. | **o** |
| BS8 | Intermittent | Intermittent brake pedal signal | NA | The fluctuating of the signal is full on or fully off. This causes the CCCS tho shut of at the first maximal signal value. | The unintended positive signal will result in shutting off the CCCS. | **o** |
| BS9 | Other than | NA | NA | NA | NA | **o** |
|  |  |  |  |  |  |  |  |  |
| Driver Interface | Provides input from the driver to the processing system | DI1 | More | More input from the driver interface than intended | The failure corresponding to the function causes the vehicle to move faster rate causing unintended acceleration | Faulty interface buttons leads to over-estimation of input speed and cause unintended acceleration | The unintended acceleration leads to a crash of the vehicle that causes injury of the occupants/pedestrians and/or a crash with adjacent vehicle depending on the location of the vehicle (Highway/City roads) causing damage to the vehicle | **++** |
| DI2 | Less | Less input from the driver interface than intended | The failure corresponding to the function causes the vehicle to move slower rate causing unintended decceleration | Faulty interface buttons leads to under-estimation of input speed and cause unintended decceleration | The unintended decceleration leads a crash with adjacent vehicle causing damage to both the vehicle and the occupants. Depending on the location of the vehicle pedestrians might also be harmed | **++** |
| DI3 | Late | Delay in input from the driver interface | The failure corresponding to the function causes unintended movement of the vehicle | Faulty interface buttons or data lines leads to delay of input and cause unintended movement of the vehicle at an abrupt time | Unintended movement can cause the vehicle to collide with personnel/other cars which lead to injuries and crashes. The unintended movement also causes discomfort to the driver and the occupants while driving. | **++** |
| DI4 | Reverse | Reversal of ON/Off input from the driver interface | The failure corresponding to the function causes unintended reaction of the vehicle | The reversal of interface input can cause unintended acceleration/ decceleration of the vehicle resulting in unintended reaction of the vehicle | The reversal of input causes the driver to repeateadly push the interface buttons. This causes distraction to the driver resulting in crashes. | **o** |
| DI5 | No | No signal from the driver interface to processor | The input signal of the driver is not transmitted to the cc processing unit | This failure can happen due to connection errors in the system | No foreseesble hazard. The cruise control will never be switched on due to the lack of input | **+** |
| DI6 | Fluctuating | NA | NA | NA | NA | **o** |
| DI7 | Inadverted | NA | NA | NA | NA | **o** |
| DI8 | Intermittent | NA | NA | NA | NA | **o** |
| DI9 | Other than | Fluctuating input from the driver interface | NA | The unintended input from the drives interface causes unintended acceleration/deceleration, resume or shuts off at the wrong moment. | The unintended input from the drives interface causes unintended acceleration/deceleration, resume or shuts off at the wrong moment. | **o** |
|  |  |  |  |  |  |  |  |  |
| Actuation Device | Receives signal from the processor and regulates output from the engine | AD1 | More | More actuation | The failure corresponding to the function causes the vehicle to move faster rate causing unintended acceleration | Due to actuation signal errors, the powertrain system delivers higher power than intended resulting in unintended acceleration | The unintended acceleration leads to a crash of the vehicle that causes injury of the occupants/pedestrians and/or a crash with adjacent vehicle depending on the location of the vehicle (Highway/City roads) causing damage to the vehicle | **++** |
| AD2 | Less | Less actuation | The failure corresponding to the function causes the vehicle to move slower rate causing unintended decceleration | Due to actuation signal errors, the powertrain system delivers lower power than intended resulting in unintended decceleration | The unintended decceleration leads a crash with adjacent vehicle causing damage to both the vehicle and the occupants. Depending on the location of the vehicle pedestrians might also be harmed | **++** |
| AD3 | Late | Delayed actuation | The failure corresponding to the function causes unintended movement/reaction of the vehicle | Due to faults in data lines leading to the actuator system, actuation might take place at a later stage, causing unintended movement(Unintended acceleration/decceleration) | Unintended movement can cause the vehicle to collide with personnel/other cars which lead to injuries and crashes. The unintended movement also causes discomfort to the driver and the occupants while driving. | **+** |
| AD4 | Reverse | Reverse actuation | NA | Due to reverse actuation the vehicle will accelerate when deceleration is needen and vice-versa. | The unintended movement will causes for example unintended acceleration instead of deceleration. This will be done by small amounts. | **o** |
| AD5 | No | No actuation | The failure corresponding to the function causes the vehicle to move slower rate causing unintended decceleration | Due to actuation signal errors, the actuator is not controlled, causing closed throttle resulting in engine braking causing unintended acceleration | The unintended decceleration leads a crash with adjacent vehicle causing damage to both the vehicle and the occupants. Depending on the location of the vehicle pedestrians might also be harmed | **++** |
| AD6 | Fluctuating | Fluctuating actuation | NA | Due to fluctuation the throttle will give jerky movement | Due to fluctuation the throttle will give jerky movement, this results in uncomfortable movement. | **o** |
| AD7 | Inadverted | Actuation at an unintended time | The failure corresponding to the function causes unintended movement of the vehicle | Due to faults/mechanical damage in the actuator system, actuation might take place at a later stage, causing unintended movement(Unintended acceleration/decceleration) | Unintended movement can cause the vehicle to collide with personnel/other cars which lead to injuries and crashes. The unintended movement also causes discomfort to the driver and the occupants while driving. | **++** |
| AD8 | Intermittent | intermittent actuation | NA | The fluctuating causes unintended decelration | The fluctuating of the actuation is full on or fully off. This causes the vehicle to move at a slower rate when the frequency of the change is low. | **o** |
| AD9 | Other than | NA | NA | NA | NA | **o** |
|  |  |  |  |  |  |  |  |  |
| Energy buffer | Provides electrical energy to connected components | EB1 | More | More power transmitted to the components | The failure corresponding to the function overheat the components causing fire or makes the vehicle to move at a slower rate causing unintended decceleration | More electric power to the components might pose a fire hazard resulting in damage to the CC system components and nearby components | The breakout of a fire will cause other adjacent components to catch fire leading to malfunctioning of the vehicle. The malfunctioning can cause the vehicle to collide with personnel/other cars which lead to injuries and crashes | **+** |
| EB2 | Less | Less power transmitted to the components | The failure corresponding to the function causes unintended movement/reaction of the vehicle | The reduced electric power to components cause in weak signals effectively resulting in weak actuation signal leading to unintended movement/reaction of the vehicle | Unintended movement can cause the vehicle to collide with personnel/other cars which lead to injuries and crashes. The unintended movement also causes discomfort to the driver and the occupants while driving. | **+** |
| EB3 | Late | Late power transmitted to the components | NA | The late transition of the electric power will delay the system. This causes late reaction of the electric system. | Due to this late transition of power to the components can cause a dealy is the systeem or the systeem will not work at all. | **o** |
| EB4 | Reverse | NA | NA | NA | NA | **o** |
| EB5 | No | No power transmitted to the components | The failure corresponding to the function causes the vehicle to move slower rate causing unintended decceleration | The lack of electric power to components cause in missed signals effectively resulting in corrupted actuation signal leading to unintended acceleration | The unintended decceleration leads a crash with adjacent vehicle causing damage to both the vehicle and the occupants. Depending on the location of the vehicle pedestrians might also be harmed | **++** |
| EB6 | Fluctuating | Fluctuating power transmitted to the components | NA | Fluctuating power to the componets can causes them to breakdown due to piek power. When this is not the case is will make the system unstable. Then the CCCS will not work or properly work | The fluctuation at a higher power level can causes damage to the components. Fluctuation at a lower power level can can causes the componenet to react poor to changes. | **o** |
| EB7 | Inadverted | NA | NA | NA | NA | **o** |
| EB8 | Intermittent | Intermittent power transmitted to the components | NA | The on/off fluctuation can cause damage to the components and the CCCS will not work | The on/off fluctuation can cause damage to the components and the CCCS will not work | **o** |
| EB9 | Other than | NA | NA | NA | NA | **o** |
|  |  |  |  |  |  |  |  |  |
| Clutch system | Provides signal to the processing unit when the clutch pedal is pressed | CS1 | More | NA | NA | NA | NA | **o** |
| CS2 | Less | NA | NA | NA | NA | **o** |
| CS3 | Late | Delay in clutch pedal signal transmission | The failure corresponding to the function causes unintended movement/reaction of the vehicle | The delay of clutch signal leads to non-deactivation of the CC system for a short moment of time leading to increased engine speed(Actuator still controlled by CC system) and resulting in sudden acceleration when the clutch is closed | Unintended movement can cause the vehicle to collide with personnel/other cars which lead to injuries and crashes. The unintended movement also causes discomfort to the driver and the occupants while driving. | **++** |
| CS4 | Reverse | Reversed input of the clutch pedal signal | The failure corresponding to the function causes the vehicle to move slower rate causing unintended decceleration | The CC system interprets the clutch pedal signals in a revesed manner(released clutch pedal causes the CC to de-activate), causing non actuation of throttle resulting in engine braking and eventually unintended decceleration | The unintended decceleration leads a crash with adjacent vehicle causing damage to both the vehicle and the occupants. Depending on the location of the vehicle pedestrians might also be harmed | **+** |
| CS5 | No | No clutch pedal signal | The failure corresponding to the function makes the engine to over rev causing unintended acceleration | The lack of clutch signal leads to non-deactivation of the CC system leading to increased engine speed(Actuator still controlled by CC system) and resulting in sudden acceleration when the clutch is closed | The unintended acceleration leads to a crash of the vehicle that causes injury of the occupants/pedestrians and/or a crash with adjacent vehicle depending on the location of the vehicle (Highway/City roads) causing damage to the vehicle | **++** |
| CS6 | Fluctuating | Fluctuating clutch pedal signal | NA | The fluctuating signal cause an on/off reaction to the CCCS. Due to this the CCCS will not work. | The fluctuating signal cause an on/off reaction to the CCCS. Due to this the CCCS will not work. | **o** |
| CS7 | Inadverted | Unintended Clutch signal | NA | Unintended clutch signal, can cause the CCCS to go in off state. | Unintended clutch signal can cause the CCCS to go in off state. When the signal is negative(not pressed) the CCCS can go to the on state. But because it will go to positive(clutch pressed) signal again the CCCS is in off state again. This leads to faulty working of CCCCS | **o** |
| CS8 | Intermittent | Fluctuating clutch pedal signal | NA | The fluctuating signal cause an on/off reaction to the CCCS. Due to this the CCCS will not work. | The fluctuating signal cause an on/off reaction to the CCCS. Due to this the CCCS will not work. | **o** |
| CS9 | Other than | NA | NA | NA | NA | **o** |
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|  |  |  | **Legend** |  |  |  |  |  |
|  |  |  |  | Low/No priority to be considered for Risk Assesment |  |  |  |  |
|  |  |  |  | Guideword not applicable for function |  |  |  |  |
|  |  |  |  | Considered for Risk analysis and safety goal formulation | |  |  |  |
|  |  |  | **++** | Risk caused due to corresponding failure mode is **highly** recommended for Risk Assesment and Quantification through SIMULINK model | | |  |  |
|  |  |  | **+** | Risk caused due to corresponding failure mode is recommended for Risk Assesment and/or Quantification through SIMULINK model | | |  |  |
|  |  |  | **o** | No forseeable risk/ Risk caused due to corresponding failure mode has very low priority for quantification. Reasoning may be sufficient | | |  |  |
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| --- | --- | --- | --- | --- | --- | --- | --- |
| **ID** | **Exposure Analysis** | **Change recommended** | **Severity Analysis** | **Change recommended** | **Controllability Analysis** | **Change recommended** | **Revised ASIL Recommendation** |
| H\_1.22 | A car with cruise control on is travelling in a city road with high speed(max 100. kmph) and the road is wet due to environmental conditions. This type of situation occurs very rarely as it might not be possible for such speeds in the city due to traffic and the presence of traffic lights. Hence the exposure may recommended to be lowered. | E3 -> E1 | The hazard if occurs, will impact the pedestrian, motorcyclist directly and cause sevre injuries to them. Hence no recommendation to reduce severity. However, no considerable damage can occur to the occupants of the respective car or other automobiles(Other than motorcyclists, cyclists) | None | The driver may have sufficient time to react and apply brakes before the vehicle hits the pedestrian or motorcyclist. But when the time to react is low, even experienced driver might not be able to avoid impact and will try to swerve | None | C -> A |
| H\_2.12 | The situation occurs frequently in the highway. However, the risk arising due to this situation will affect motorcyclists travelling parallely or right behind to the vehicle. The hazard mostly affects the motorcyclists on the highway. The occupants of the respective vehicle or other motorists(excluding motorcyclists) are not affected severely. As this might not frequently occur, it is recommendation to reduce the exposure level. | E4 -> E3 | In case of sudden unintended deceleration, the motorcyclist travelling behind the vehicle might be injured. Hence there is no recommendation to reduce severity level. | None | In case of occurrence of this hazard, the driver of the vehicle tries to accelerate the vehicle and move towards the outside of the road. The situation will be uncontrollable only when the vehicle is travelling at a very high speed (ex. More than 100 kmph). Hence it is recommended to reduce the controllability rating for the first case and No change is recommended for the second case. | 1. C3 -> C2 2. None | 1. C -> A 2. C-> B |
| H\_3.12 | The probability that the CC is used during a high speed(90-140kph)corner is high. Taking the corner with CC and an motorcyclist being nearby to hit is low/medium. Hence it is recommended to reduce the exposure level. | E4 -> E3 | The speed difference is small (Maximum of 20 kph.) As a motorcyclist falls after hitting the vehicle, it will not result in loss of life. The injuries however, might be severe and life-threatening. It is also assumed that the motorcyclist is not run over. Hence there is no recommendation to reduce severity level. | None | Due to the high speed of the vehicle the driver has very less time to react. The speed with which the vehicle is travelling and with which the motorcycle differs considerably. The motorcyclist has more time to react. Hence it is recommendedn to reduce controllability rating. However, when the distance between the vehicle and the motorcycle is low, and the vehicle driver/motorcyclist is inexperienced, the controllability rating might be higher and no change is recommended in the second case | 1. C3 -> C2 2. None | 1. C -> A 2. C-> B |
| H\_3.22 | The probability that the CC is used to maintain a high speed(max of 100 kph) in the city is low. Mostly used to maintain the legal speed limit. Due to traffic, obstacles and conering in the city, the car might not be able to reach a high speed. The probaility that a perdestrian is in the way of a high speeding car is very low. Due to this the exposure of the scenario is low. Hence it is recommended to reduce the exposure level. | E3 -> E2 | It is assumed that the perdestrian is not run over by the vehicle. However, the speed with which the vehicle hits the pedestrian could end up in the pedestrian being killed. Hence there is no recommendation to reduce severity level. | None | When driving in the city everything is in close proximity to the vehicle. Due to this, driving at ahighspeed through the city makes it very hard to react in time and control the vehicle. Hence there is no recommendation to reduce controllability. | None | C -> B |