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[

{

"Requirement": "Req\_SZ\_01",

"RequirementClassification": "SafetyGoal",

"LESS Requirement": "The system should prevent dangerous unintended acceleration"

},

{

"Reference": "test-Req\_SZ\_01",

"Requirement": "Req\_SZ\_01",

"Testobjects": ["system", "acceleration"],

"PRE": {},

"POST": {}

}

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{

"Requirement": "Req\_SZ\_03",

"RequirementClassification": "SafetyGoal",

"LESS Requirement": "Any dangerous unintended deceleration shall be prevented by the system"

},

{

"Reference": "test-Req\_SZ\_03",

"Requirement": "Req\_SZ\_03",

"Testobjects": ["system", "deceleration"],

"PRE": {},

"POST": {}

}

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[

{

"Requirement": "Req\_SZ\_04",

"RequirementClassification": "SafetyGoal",

"LESS Requirement": "The system should prevent loss of deceleration that is unintended"

},

{

"Reference": "test-Req\_SZ\_04",

"Requirement": "Req\_SZ\_04",

"Testobjects": ["system", "deceleration"],

"PRE": {},

"POST": {}

}

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[

{

"Requirement": "SReq\_01",

"RequirementClassification": "SafetyFunctional",

"LESS Requirement": "The drive pedal should check the sensor signals of the drive pedal for plausibility"

},

{

"Reference": "test-SReq\_01",

"Requirement": "SReq\_01",

"Testobjects": ["drive\_pedal", "sensor\_signals", "plausibility"],

"PRE": {},

"POST": {}

}

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{

"Requirement": "SReq\_01",

"RequirementClassification": "SafetyFunctional",

"LESS Requirement": "The drive pedal must check its internal sensor signals for plausibility"

},

{

"Reference": "test-SReq\_01\_2",

"Requirement": "SReq\_01",

"Testobjects": ["drive\_pedal", "sensor\_signals", "plausibility"],

"PRE": {},

"POST": {}

}

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{

"Requirement": "SReq\_02",

"RequirementClassification": "SafetyFunctional",

"LESS Requirement": "The throttle valve shall check the sensor signals of the throttle valve for plausibility"

},

{

"Reference": "test-SReq\_02",

"Requirement": "SReq\_02",

"Testobjects": ["throttle\_valve", "sensor\_signals", "plausibility"],

"PRE": {},

"POST": {}

}

],

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{

"Requirement": "SReq\_04",

"RequirementClassification": "SafetyFunctional",

"LESS Requirement": "The engine control unit should protect torque-related signals affecting other ECUs using a signal compound"

},

{

"Reference": "test-SReq\_04",

"Requirement": "SReq\_04",

"Testobjects": ["engine\_control\_unit", "torque\_related\_signals", "signal\_compound"],

"PRE": {},

"POST": {}

}

],

[

{

"Requirement": "SReq\_05",

"RequirementClassification": "SafetyFunctional",

"LESS Requirement": "using appropriate plausibility checks the engine control unit must detect errors in the actuator"

},

{

"Reference": "test-SReq\_05",

"Requirement": "SReq\_05",

"Testobjects": ["engine\_control\_unit", "plausibility\_checks", "actuator", "errors"],

"PRE": {},

"POST": {}

}

],

[

{

"Requirement": "SReq\_05a",

"RequirementClassification": "SafetyFunctional",

"LESS Requirement": "The engine control unit must check internal actuator signals for plausibility"

},

{

"Reference": "test-SReq\_05a",

"Requirement": "SReq\_05a",

"Testobjects": ["engine\_control\_unit", "actuator\_signals", "plausibility"],

"PRE": {},

"POST": {}

}

],

[

{

"Requirement": "SReq\_06a",

"RequirementClassification": "SafetyFunctional",

"LESS Requirement": "The engine control unit shall detect and confirm any undesired high driving torque state"

},

{

"Reference": "test-SReq\_06a",

"Requirement": "SReq\_06a",

"Testobjects": ["engine\_control\_unit", "high\_driving\_torque\_state"],

"PRE": {},

"POST": {}

}

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{

"Requirement": "SReq\_06a2",

"RequirementClassification": "SafetyFunctional",

"LESS Requirement": "unintended acceleration shall be detected and confirmed by the engine control unit"

},

{

"Reference": "test-SReq\_06a2",

"Requirement": "SReq\_06a2",

"Testobjects": ["engine\_control\_unit", "acceleration"],

"PRE": {},

"POST": {}

}

],

[

{

"Requirement": "SReq\_06b",

"RequirementClassification": "SafetyFunctional",

"LESS Requirement": "If undesired high driving torque is detected, the engine control unit must switch to a safe state"

},

{

"Reference": "test-SReq\_06b",

"Requirement": "SReq\_06b",

"Testobjects": ["engine\_control\_unit", "high\_driving\_torque"],

"PRE": {"high\_driving\_torque": {"detected": true}},

"POST": {"engine\_control\_unit": {"safe\_state": true}}

}

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{

"Requirement": "SReq\_06b2",

"RequirementClassification": "SafetyFunctional",

"LESS Requirement": "The engine control unit should monitor the function controller"

},

{

"Reference": "test-SReq\_06b2",

"Requirement": "SReq\_06b2",

"Testobjects": ["engine\_control\_unit", "function\_controller"],

"PRE": {},

"POST": {}

}

],

[

{

"Requirement": "SReq\_07",

"RequirementClassification": "SafetyFunctional",

"LESS Requirement": "Integrity of the lamp switch on request should be protected against spoofing by the system"

},

{

"Reference": "test-SReq\_07",

"Requirement": "SReq\_07",

"Testobjects": ["system", "lamp\_switch", "spoofing"],

"PRE": {},

"POST": {}

}

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{

"Requirement": "Req\_SEC\_ISO10",

"RequirementClassification": "SecurityGoal",

"LESS Requirement": "The navigation ECU must detect control signals that are malicious"

},

{

"Reference": "test-Req\_SEC\_ISO10",

"Requirement": "Req\_SEC\_ISO10",

"Testobjects": ["navigation\_ECU", "control\_signals"],

"PRE": {},

"POST": {}

}

],

[

{

"Requirement": "Req\_SEC\_ISO40",

"RequirementClassification": "SecurityFunctional",

"LESS Requirement": "The navigation ECU should avoid malicious control signals from being transmitted"

},

{

"Reference": "test-Req\_SEC\_ISO40",

"Requirement": "Req\_SEC\_ISO40",

"Testobjects": ["navigation\_ECU", "control\_signals"],

"PRE": {},

"POST": {}

}

],

[

{

"Requirement": "Req\_SEC\_ISO41",

"RequirementClassification": "SecurityFunctional",

"LESS Requirement": "Control signals that are malicious must be detected by the gateway"

},

{

"Reference": "test-Req\_SEC\_ISO41",

"Requirement": "Req\_SEC\_ISO41",

"Testobjects": ["gateway", "control\_signals"],

"PRE": {},

"POST": {}

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{

"Requirement": "Req\_SEC\_ISO50",

"RequirementClassification": "SecurityFunctional",

"LESS Requirement": "The gateway shall drop any detected malicious control signals"

},

{

"Reference": "test-Req\_SEC\_ISO50",

"Requirement": "Req\_SEC\_ISO50",

"Testobjects": ["gateway", "control\_signals"],

"PRE": {"control\_signals": {"malicious": true, "detected": true}},

"POST": {"control\_signals": {"dropped": true}}

}

],

[

{

"Requirement": "Req\_SEC\_ISO51",

"RequirementClassification": "SecurityFunctional",

"LESS Requirement": "If a request is made, the body control ECU must generate a MAC for the lamp switch-on request"

},

{

"Reference": "test-Req\_SEC\_ISO51",

"Requirement": "Req\_SEC\_ISO51",

"Testobjects": ["body\_control\_ECU", "MAC", "lamp\_switch\_on\_request"],

"PRE": {"lamp\_switch\_on\_request": {"requested": true}},

"POST": {"MAC": {"generated": true}}

}

],

[

{

"Requirement": "Req\_SEC\_ISO60",

"RequirementClassification": "SecurityFunctional",

"LESS Requirement": "The body control ECU shall transmit the generated MAC for a lamp switch-on request along with its own MAC"

},

{

"Reference": "test-Req\_SEC\_ISO60",

"Requirement": "Req\_SEC\_ISO60",

"Testobjects": ["body\_control\_ECU", "MAC"],

"PRE": {"MAC": {"generated": true}},

"POST": {"MAC": {"transmitted": true}}

}

],

[

{

"Requirement": "Req\_SEC\_ISO61",

"RequirementClassification": "SecurityFunctional",

"LESS Requirement": "The gateway must not transfer the signals from the navigation ECU to the headlamp system except for those included in the whitelist"

},

{

"Reference": "test-Req\_SEC\_ISO61",

"Requirement": "Req\_SEC\_ISO61",

"Testobjects": ["gateway", "navigation\_ECU", "headlamp\_system", "whitelist"],

"PRE": {},

"POST": {}

}

]

]