

Requirements

- The Ecu shall record a fault if the voltage level is below a certain threshold as long as the vehicle is powered
- The voltage level should fail at least 4 times before the fault is recorded
- Upon time of the fault , the vehicle temperature should be recorded for later checks
- Voltage Fault Code is 0x777919
- The Fault shall be possible to check and clear in the maintenance center over CAN

Req_1: The ECU Shall record a fault if the voltage level is below a certain threshold as long as the vehicle is powered.

Analysis:

- Monitored unit: the voltage level
- Monitoring result to be considered in the **PowerCycle**

Configs:

Dem→ DemGeneral→DemOperationCycles→ **PowerCycle**

name	PowerCycle
Operation Cycle Type	DEM_OPCYC_POWER

Req_2: The voltage level should fail at least four times before the fault is recorded.

Analysis:

- Debouncing counter = 4 times

Configs:

- Dem→ DemConfigSet→ DemEventParameters→ VoltageMonitor_Event

DemDebounceAlgorithmClass	DemDebounceCounterBased
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Counter Decrement Step Size	1
Counter Failed Threshold	4
Counter Increment Step Size	1
Counter Passed Threshold	4
Counter Jump Down	True
Jump Down Value	0
Counter Jump Up	True
Jump Up Value	0

Req_3: Upon time of the fault, the vehicle temperature should be recorded for later checks

Analysis:

- Freeze Frame Data: the vehicle temperature

Configs:

- Dem→ DemGeneral→ DemDataClass→ VehicleTemperature_DataElement
- Dem→ DemGeneral→ DemDidClass→ DID_ VehicleTemperature

name	DID_ VehicleTemperature
ID	0x55
DemDataClass Reference	Ref. to VehicleTemperature_DataElement

- Dem→ DemGeneral→ DemFreezeFrameClass → VehicleTemperature_Frame

name	VehicleTemperature_Frame
Did Class Reference	Ref. to DID_ VehicleTemperature

Req_4: The Fault code is 0x777919

Analysis:

- DTC number: 0x777919

Configs:

- Dem→ DemConfigSet→ DemDTCClass→ DTC_0x777919_VoltageMonitor

name	DTC_0x777919_VoltageMonitor
Uds DTC	0x777919

Req 5: The Fault shall be possible to check and clear in the maintenance center over CAN.

Analysis:

- We must use following UDS services over CAN
 - Read DTC Information (0x19)
 - Clear Diagnostic Information (0x14)

Configs:

DcmDsl:

- 1- Dsl Protocol ID : DCM_UDS_ON_CAN
- 2- Dsl Protocol SID Table : Reference to Service Table in DSD

DcmDsd:

- 1- DcmDsdServiceTable
 - a. DcmDsdServices
 - i. ClearDiagInfo:
 1. Service ID: 0x14
 2. Session References: Extended Sessions
 - ii. ReadDTCInformation:
 1. Service ID: 0x19
 2. Session References: Extended Sessions