|  |  |
| --- | --- |
| ATM  Detailed Design | |
| **Summary** | This is the Software Detailed Design Document for the *DAIMLER MMA* Project. |

|  |  |  |
| --- | --- | --- |
| **Author** | **Review** | **Approval** |
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# General Information

## Revision history \*

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| --- | --- | --- | --- |
| **Revision** | **Date** | **Author(s)** | **Description/comment** |
| 1.1.1.1.2.1 | 09.09.2022 | Stefan Dominte | Initial revision |
| 1.1.1.1.2.2 | 15.11.2022 | Mirela Obada | Update for 4.0 |
| 1.1.1.1.2.3 | 15.11.2022 | Mirela Obada | Update names for functions and variables |
| 1.1.1.1.2.4 | 22.11.22 | Mirela Obada | Update after review |
| 1.1.1.1.2.5 | 08.02.2023 | Madalina Serban | Update functions and traceability |
| 1.1.1.1.2.6 | 14.02.2023 | Madalina Serban | Fixes after review |
| 1.1.1.1.2.7 | 15.02.2023 | Madalina Serban | Fixes after review |
| 1.1.1.1.2.8 | 15.02.2023 | Madalina Serban | Fixes after review |
| 1.1.1.1.2.9 | 08.05.2023 | Mirela Obada | Update for 6.0 |
| 1.1.1.1.2.10 | 08.05.2023 | Mirela Obada | Update traceability |
| 1.1.1.1.2.11 | 10.05.2023 | Mirela Obada | Update after review |
| 1.1.1.1.2.12 | 10.05.2023 | Mirela Obada | Update after review |
| 1.1.1.1.2.13 | 24.08.2023 | Mirela Obada | Update for R07.0 |
| 1.1.1.1.2.14 | 01.09.2023 | Mirela Obada | Fix after review |
| 1.1.1.1.2.15 | 06.10.2023 | Mirela Obada | Update inhibition masks |
| 1.1.1.1.2.16 | 18.01.2024 | Mirela Obada | Update inhibit modes for 8.1 |
| 1.1.1.1.2.17 | 03.04.2024 | Mirela Obada | Update whit SPI autotest R09.0 P91 |

*\* Template history is found in the CM tool used for templates*

## Purpose and Scope

The purpose of this document is to provide an overview of the ATM operation principle, and to present the implementation choices in terms of module and function splitting.

## Referenced documents

### External documents

|  |  |  |
| --- | --- | --- |
| **Id** | **Title** | **Reference** |
|  |  |  |
|  |  |  |
|  |  |  |

### Internal Documents

|  |  |  |
| --- | --- | --- |
| **Id** | **Title** | **Reference** |
|  | DAIMLER\_MMA\_SWarchitectureDesignInterfaceDescription.docx |  |
|  | ATM - Design Interface Description.docx |  |
|  | SBE\_4G\_NVP\_layout.xls |  |
|  |  |  |

### Terminology and definitions

|  |  |
| --- | --- |
| **Terminology** | **Meaning** |
| AAU | Atomic architectural unit |
| AEC | Autoliv Error Code |
| ATM | Auto-Tests Manager |
| SCH | Scheduler |
| ERH | Error Handler |
| MMG | Mode ManaGement |
| SW | Software |

# SW atomic architectural unit design

## Overview

The aim of the “ATM” (Auto-Tests Manager) component is to schedule auto-tests and manage the reported failures. ATM handles periodic or one shot test.

The ATM provides 5 test lists and a unique one for the startup auto-test. ATM main function is called by the SCH every 2ms.

The configurability of the ATM includes:

* Test types : cyclic or one shot
* List, period and slot/decade
* MMG inhibiting modes
* Autoliv Error Code (provided by ERH)
* Callback function
* Enable/Disable switch

## Traceability

|  |  |  |  |
| --- | --- | --- | --- |
| Requirements | Criteria | Linked Runnable | Source |
| DSG\_ATM\_0001 | The local variable castStartupSequentialList will hold the list of the auto-tests which will be executed at start-up:   * RCM\_Autotest\_RunResetCause * EOL\_Autotest\_CheckProductEndOfLifeLowForce * EOL\_Autotest\_CheckProductEndOfLifeHighForce * EOL\_Autotest\_CheckProductEndOfLifeComfort * PAL\_Autotest\_CheckHighSideSwRegulation * PAL\_Autotest\_CheckCommandConsistency * PAL\_Autotest\_CheckMosfetHighSC * PAL\_Autotest\_CheckMosfetLowSC * PAL\_Autotest\_CheckMotorConnection * PAL\_Autotest\_CheckHWSelfProtection * PAL\_Autotest\_CheckMosfetOCAT * EOL\_Autotest\_CheckProductEndOfLifeMaxForce * ADC\_cbk\_CheckAdc | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0106; ARCH\_SW\_ATM\_0107; ARCH\_SW\_ATM\_0108; ARCH\_SW\_ATM\_0109; ARCH\_SW\_ATM\_0114; ARCH\_SW\_ATM\_0115; ARCH\_SW\_ATM\_0116; ARCH\_SW\_ATM\_0117; ARCH\_SW\_ATM\_0118; ARCH\_SW\_ATM\_0119; ARCH\_SW\_ATM\_0120; ARCH\_SW\_ATM\_0110; |
| DSG\_ATM\_0002 | The local variable castRunningCyclicList will hold the list of the auto-tests which will be executed cyclic:   * PMP\_Autotest\_CheckPowerSupplyUVDuringActivation * PMP\_Autotest\_CheckPowerSupplyOVDuringActivation * PAL\_Autotest\_CheckCommandConsistency * PAL\_CheckMosfetHighSC * PAL\_CheckMosfetLowSC * PAL\_CheckMotorConnection * PAL\_CheckHWSelfProtection * PAL\_CheckMotorDisengagement * BMM\_CheckHallEffectSensor * PAL\_CheckMotorCurrent * EOL\_CheckProductEndOfLifeLowForce * PMP\_CheckPowerSupplyUV * PMP\_CheckPowerSupplyOV * PAL\_CheckMotorPowerOrder * PMP\_CheckTemperatureSensor * EOL\_Autotest\_CheckProductEndOfLifeHighForce * EOL\_Autotest\_CheckProductEndOfLifeComfort * PAL\_CheckMotorSC * PAL\_CheckMotorThermalProctection * CIL\_Autotest\_Presafe\_CheckTimeoutError * CIL\_Autotest\_Presafe\_CheckTimeoutError * CIL\_Autotest\_CheckImplausibleData\_Presafe * CIL\_Autotest\_CheckImplausibleData\_Ignition * CIL\_Autotest\_CheckImplausibleData\_Buckle * CIL\_Autotest\_CheckTimeoutError\_Powertrain * CIL\_Autotest\_CheckTimeoutError\_Ignition * CIL\_Autotest\_CheckImplausibleData\_Powertrain * CIL\_Autotest\_CheckImplausibleData\_ORC * CIL\_Autotest\_CheckTimeoutError\_ Belthandover\_L * CIL\_Autotest\_CheckTimeoutError\_ Belthandover\_R * CIL\_Autotest\_CheckTimeoutError\_API * EOL\_cbk\_CheckProductEndOfLifeMaxForce * CIL\_cbk\_SteeringConfiguration * ADC\_cbk\_CheckAdc * PMP\_Autotest\_CheckSystemUV * PMP\_Autotest\_CheckSystemOV * CIL\_Autotest\_CheckTimeoutError\_API * CIL\_Autotest\_CheckImplausibleData\_Powertrain\_Drv * CIL\_Autotest\_CheckTimeout\_Odospeedometer * CIL\_Autotest\_CheckImplausibledataAPI * CIL\_Autotest\_CheckVariantCoding * CIL\_Autotest\_CheckTimeoutError\_BeltAdj * SBC\_ServiceAutotest\_GetTestResult | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0202; ARCH\_SW\_ATM\_0203; ARCH\_SW\_ATM\_0205; ARCH\_SW\_ATM\_0206; ARCH\_SW\_ATM\_0207; ARCH\_SW\_ATM\_0208; ARCH\_SW\_ATM\_0209; ARCH\_SW\_ATM\_0210; ARCH\_SW\_ATM\_0211; ARCH\_SW\_ATM\_0212; ARCH\_SW\_ATM\_0213; ARCH\_SW\_ATM\_0214; ARCH\_SW\_ATM\_0215; ARCH\_SW\_ATM\_0216; ARCH\_SW\_ATM\_0217; ARCH\_SW\_ATM\_0218; ARCH\_SW\_ATM\_0219; ARCH\_SW\_ATM\_0220; ARCH\_SW\_ATM\_0221; ARCH\_SW\_ATM\_0222; ARCH\_SW\_ATM\_0223; ARCH\_SW\_ATM\_0224; ARCH\_SW\_ATM\_0225; ARCH\_SW\_ATM\_0226;ARCH\_SW\_ATM\_0227;ARCH\_SW\_ATM\_0228; ARCH\_SW\_ATM\_0229; ARCH\_SW\_ATM\_0230; ARCH\_SW\_ATM\_0231; ARCH\_SW\_ATM\_0232; ARCH\_SW\_ATM\_0233; ARCH\_SW\_ATM\_0234; ARCH\_SW\_ATM\_0235; ARCH\_SW\_ATM\_0236; ARCH\_SW\_ATM\_0237; ARCH\_SW\_ATM\_0238; ARCH\_SW\_ATM\_0239; ARCH\_SW\_ATM\_0150; ARCH\_SW\_ATM\_0151; ARCH\_SW\_ATM\_0152; ARCH\_SW\_ATM\_0153; |
| DSG\_ATM\_0047 | The local variable castStartupCyclicList will hold the list of the auto-tests which will be executed cyclic with one shot autotests:   * PMP\_Autotest\_CheckSystemUV * PMP\_Autotest\_CheckSystemOV PMP\_cbk\_CheckPowerSupplyOV * PMP\_cbk\_CheckPowerSupplyUV |  | ARCH\_SW\_ATM\_0235; ARCH\_SW\_ATM\_0236; ARCH\_SW\_ATM\_0214; ARCH\_SW\_ATM\_0215; |
| DSG\_ATM\_0003 | The local variable **au8AtStatuses** will be initialized with the value KU8\_ATM\_TEST\_NOT\_DECIDED. | ATM\_Init() | ARCH\_SW\_ATM\_0001; |
| DSG\_ATM\_0004 | The local variable **au8AtStatuses** will hold the autotests status and will be the return value in the ATM\_runGetTestResult runnable. | ATM\_runGetTestResult() | ARCH\_SW\_ATM\_0002; |
| DSG\_ATM\_0005 | The local variable **u8StartupTestIndex** will hold the index of the Start Up Autotest executed. When the variable will be higher than ATM\_KU8\_NB\_OF\_STARTUP\_AUTO\_TESTS cyclic autotests will be executed. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0004; |
| DSG\_ATM\_0006 | ATM\_runMainFunction will be called cyclic at every 2ms. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0003; |
| DSG\_ATM\_0007 | The local function executeAutoTest will set the status of an autotest to KU8\_ATM\_TEST\_NOT\_DECIDED if an autotest cannot be executed. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0260; |
| DSG\_ATM\_0008 | The local function executeAutoTest will call the MMG\_runCheckModeStatus in order to read the current system context for a specific autotests. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0021; |
| DSG\_ATM\_0009 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_HIGH\_SIDE\_SWITCH** autotest if KU8\_MODES\_\_\_\_\_\_\_\_VOLTAG\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0030; |
| DSG\_ATM\_0010 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_DRIVER\_COMMAND** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0031; |
| DSG\_ATM\_0011 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_MOSFET\_HIGH\_SHORT\_CIRCUIT** autotest if KU8\_MODES\_BELTFN\_VOLTAG\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0032; |
| DSG\_ATM\_0012 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_MOSFET\_LOW\_SHORT\_CIRCUIT** autotest if KU8\_MODES\_BELTFN\_VOLTAG\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0033; |
| DSG\_ATM\_0013 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_MOTOR\_DISCONNECTION** autotest if KU8\_MODES\_BELTFN\_VOLTAG\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0034; |
| DSG\_ATM\_0014 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_DRIVER\_SELF\_PROTECTION** autotest if **KU8\_MODES**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**INHIB** is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0035; |
| DSG\_ATM\_0015 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_MOSFET\_OPEN\_CIRCUIT** autotest if **KU8\_MODES\_BELTFN\_VOLTAG\_INHIB** is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0036; |
| DSG\_ATM\_0016 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_HALL\_EFFECT\_SENSORS** autotest if **KU8\_MODES\_\_\_\_\_\_\_\_VOLTAG\_INHIB** is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0037; |
| DSG\_ATM\_0017 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_MOTOR\_CURRENT** autotest if **KU8\_MODES\_\_\_\_\_\_\_\_VOLTAG\_INHIB** is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0038; |
| DSG\_ATM\_0018 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_MOTOR\_BLOCKED** autotest if **KU8\_MODES\_\_\_\_\_\_\_\_VOLTAG\_INHIB** is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0039; |
| DSG\_ATM\_0019 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_MOTOR\_TEMPERATURE** autotest if **KU8\_MODES\_\_\_\_\_\_\_\_VOLTAG\_INHIB** is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0040; |
| DSG\_ATM\_0020 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_MOTOR\_SHORT\_CIRCUIT** autotest if **KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB** is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0041; |
| DSG\_ATM\_0021 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_SENSOR\_TEMPERATURE** autotest if **KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB** is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0042; |
| DSG\_ATM\_0022 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_PWM\_ORDER** autotest if **KU8\_MODES\_\_\_\_\_\_\_\_VOLTAG\_INHIB** is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0043; |
| DSG\_ATM\_0023 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_UNDER\_VOLTAGE\_POWER** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0044; |
| DSG\_ATM\_0024 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_OVER\_VOLTAGE\_POWER** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0045; |
| DSG\_ATM\_0025 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_UNDER\_VOLTAGE\_TENSIONING\_POWER** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0046; |
| DSG\_ATM\_0026 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TEST\_OVER\_VOLTAGE\_TENSIONING\_POWER** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0047; |
| DSG\_ATM\_0027 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_EXT\_WDG\_OUT\_OF\_ORDER** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0048; |
| DSG\_ATM\_0028 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_RESET\_CAUSE** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0049; |
| DSG\_ATM\_0029 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_END\_OF\_LIFE\_LOW\_FORCE** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0050; |
| DSG\_ATM\_0030 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_END\_OF\_LIFE\_HIGH\_FORCE** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0051; |
| DSG\_ATM\_0031 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_END\_OF\_LIFE\_COMFORT** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0052; |
| DSG\_ATM\_0032 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TIMEOUT\_PRESAFE** autotest is inhibited by KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0053; |
| DSG\_ATM\_0033 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TIMEOUT\_BUCKLE autotest is inhibited by KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB and KU8\_MODES\_ENABLE\_\_\_\_\_IGNITION are** read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0054; |
| DSG\_ATM\_0034 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_IMPLAUSIBLE\_DATA\_PRESAFE** autotest is inhibited by KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB and KU8\_MODES\_ENABLE\_\_\_\_\_IGNITION are read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0055; |
| DSG\_ATM\_0035 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_IMPLAUSIBLE\_DATA\_IGNITION** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB and KU8\_MODES\_ENABLE\_\_\_\_\_IGNITION are read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0056; |
| DSG\_ATM\_0036 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_IMPLAUSIBLE\_DATA\_BUCKLE** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB **and KU8\_MODES\_ENABLE\_\_\_\_\_IGNITION are** read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0057; |
| DSG\_ATM\_0037 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_END\_OF\_LIFE\_MAX\_FORCE** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0058; |
| DSG\_ATM\_0038 | The local function executeAutoTest will inhibit the  **ATM\_KU8\_ID\_ TIMEOUT\_IGNITION** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0059; |
| DSG\_ATM\_0039 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_ TIMEOUT\_POWERTRAIN** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_ runMainFunction() | ARCH\_SW\_ATM\_0060; |
| DSG\_ATM\_0040 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_ IMPLAUSIBLE\_DATA \_POWERTRAIN\_RDY** autotest if by KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0061; |
| DSG\_ATM\_0041 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_ IMPLAUSIBLE\_DATA \_ORC** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB and KU8\_MODES\_ENABLE\_\_\_\_\_IGNITION are read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0062; |
| DSG\_ATM\_0042 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_ TIMEOUT \_BELT\_HAND\_OVER\_LEFT** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB and KU8\_MODES\_ENABLE\_CodingRBTMFL are read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0063; |
| DSG\_ATM\_0043 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_ TIMEOUT \_BELT\_HAND\_OVER\_RIGHT** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB and KU8\_MODES\_ENABLE\_CodingRBTMFR are read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0064; |
| DSG\_ATM\_0044 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TIMEOUT \_API\_INTERFACE** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0065; |
| DSG\_ATM\_0045 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_OVERVOLTAGE\_SYSTEM** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0066; |
| DSG\_ATM\_0046 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_ UNDERVOLTAGE\_SYSTEM** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0067; |
| DSG\_ATM\_0047 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TIMEOUT\_API** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB and KU8\_MODES\_ENABLE\_\_\_\_\_IGNITION are read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0068; |
| DSG\_ATM\_0048 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_IMPLAUSIBLE\_DATA\_POWERTRAIN\_DRV** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB and KU8\_MODES\_ENABLE\_\_\_\_\_IGNITION and  KU8\_MODES\_ENABLE\_\_\_\_\_\_\_\_\_\_API are read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0069; |
| DSG\_ATM\_0049 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TIMEOUT\_ODOSPEEDOMETER** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0070; |
| DSG\_ATM\_0050 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_IMPLAUSIBLE\_DATA\_API** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB and KU8\_MODES\_ENABLE\_\_\_\_\_IGNITION and KU8\_MODES\_ENABLE\_\_\_\_\_\_\_\_\_\_API are read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0071; |
| DSG\_ATM\_0051 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_VARIANT\_CODING** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0072; |
| DSG\_ATM\_0052 | The local function shall check if an autotest is enabled according to NVP configuration | ATM\_runMainFunction () |  |
| DSG\_ATM\_0053 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_TIMEOUT\_BELT\_ADJ** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0073; |
| DSG\_ATM\_0054 | The local function executeAutoTest will inhibit the **ATM\_KU8\_ID\_SPI\_ERROR** autotest if KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB is read from MMG\_runCheckModeStatus function. | ATM\_runMainFunction () | ARCH\_SW\_ATM\_0074; |

# FEATURES

The purpose of this chapter is to only describe the internal implementation of the component.

For the description of the external implementation, please refer to [Doc1] (to get the list of services, types, variables and constants exported by this unit).

Actually, the description of the internal implementation is not necessary for this SW unit since its complexity is extremely low. Therefore, the current chapter shall not be treated. Then, refer to C-code implementation directly.

## List Management

ATM module implements two different behavior: “one shot” and “cyclic” executions.

During the startup phase, “critical” auto-tests are executed once sequentially (“one shot” execution). If one of them fails, the whole startup sequence is frozen and the RUN phase is not reachable. However, when all startup auto-test are passed, the RUN state is entered.

The “cyclic” execution is performed during both startup and run phases. Each phase uses its own set of test scheduling data. This cyclic execution design allow to better share the CPU load between 5 execution points by 10ms windows.

### The one shot execution list

This list contains all auto-tests that need to be executed before entering the run phase. Only one test is executed by function call. The function is called every 2ms.

The startup list is divided in two kinds of auto tests:

* First, all critical auto tests are executed.
* Then, the startup auto tests which are not critical are executed.

#### Critical auto tests

The sequence defined by the “one shot” list contains CRITICAL auto tests: they are the auto tests configured as ONE SHORT ABORT or ONE SHOT RETRY.

The test order is important because the next test is called only if the previous one was passed. They are executed sequentially. When a test fails during this sequence, two strategies can be applied:

* The test is configured as a ONE SHORT ABORT auto-test: if its status is NOK, the test is never played again and the whole sequence is stopped.
* The test is configured as a ONE SHORT RETRY auto-test: since its status is still NOK, the test is replayed again on the next task occurrence. Some of these tests are designed to be stopped until a maximum number of tries, but this mechanism is designed inside the algorithm of the tests.

Sometimes, a test needs more than one call to be fully passed. In this case, all steps are scheduled on their correct period derived from the 2ms cyclic call. When the last step is executed, the state machine moves to the next test.

A brief example of a startup list containing 3 tests is presented below:

* Test 0 and 2 are one shot test
* Test 1 is composed of 2 steps separated by 10ms.

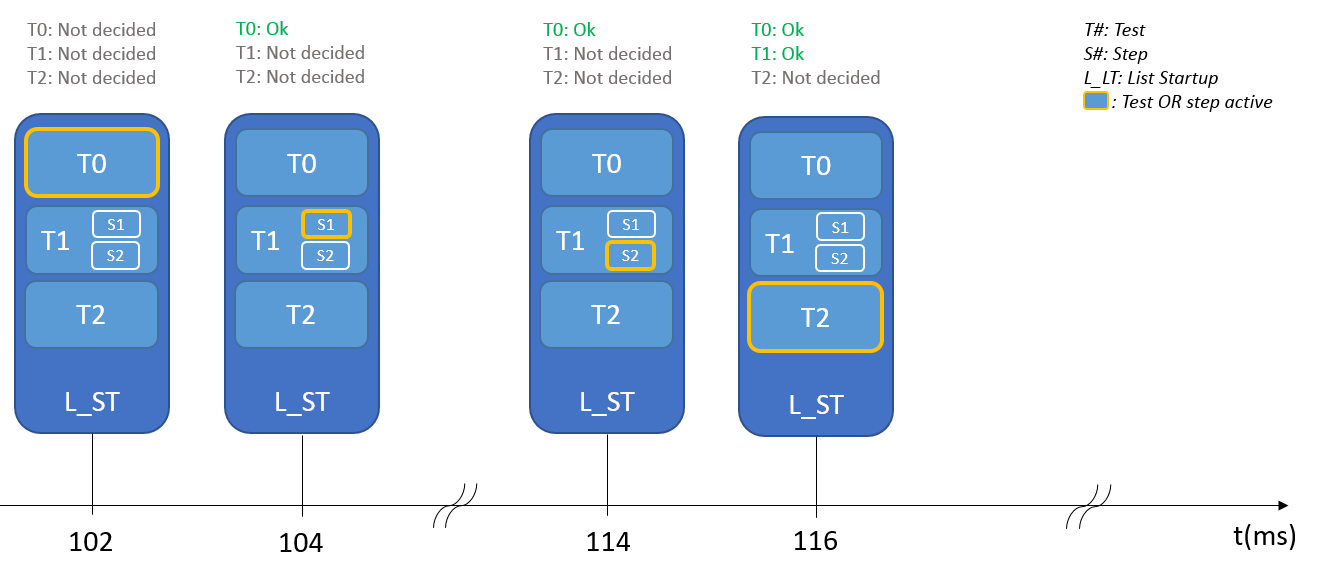


Figure : Critical Autotest time stamp

#### Not critical auto tests

The sequence defined by the “one shot” list contains also not critical auto tests.

These startup auto tests are configured as ONE SHOT.

Whatever their result is, the startup sequence goes to the next test without stopping. They are not blocking.

### Cyclic lists

Two cyclic lists coexist, to be played respectively during the “one shot” sequence, and after the “one shot” sequence completion in the case where all critical auto tests result could be “passed”.

First list is necessary to identify a fault explaining why a critical “one shot” test has failed (eg. Low voltage being monitored as cyclic test in parallel with critical autotests). The second list includes also tests that require the critical auto tests to be passed first.

Each periodic list is divided into five sub-lists to cover 10ms and more test period. Execution order is fixed and cannot be changed.

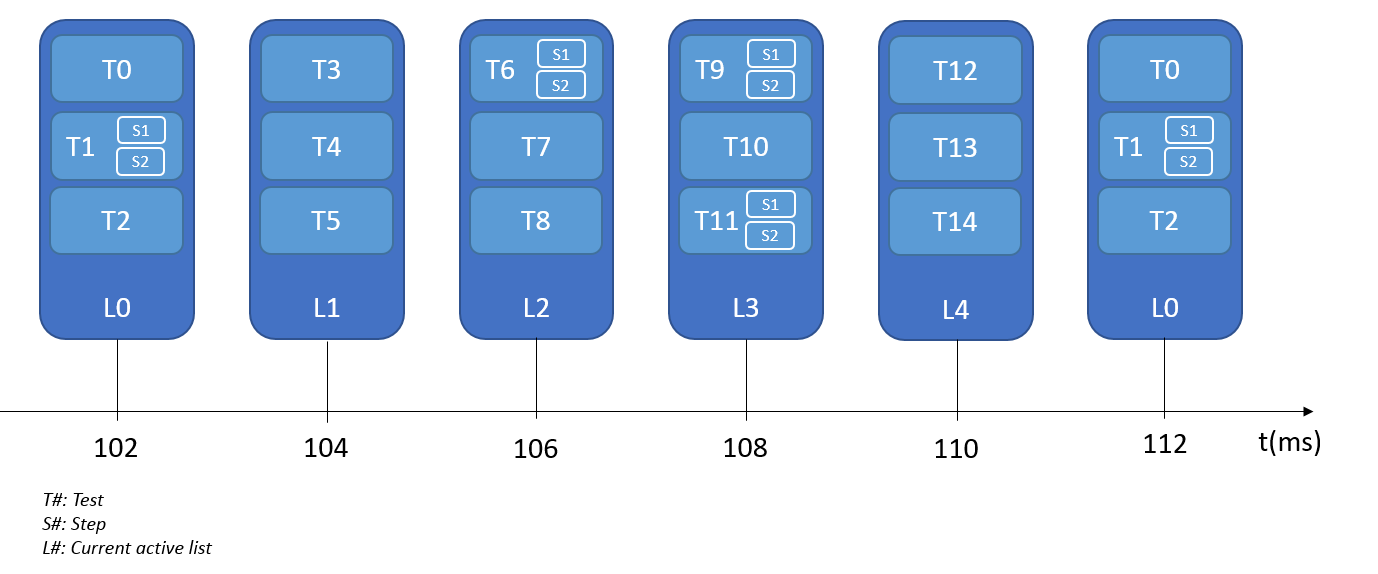


Figure : Cyclic Tests Time Stamp

These list configurations are stored respectively in *castStartupCyclicList* and *castRunningCyclicList* located in ATM\_cfg.c. These arrays are splitted into five sub-lists separated by a delimiter. They are passed as argument to the atm\_PlayCyclicTests function. Thanks to the sub-list separator, atm\_PlayCyclicTests only loops through one table and do not have to switch between five.

Two types of delimiter are used:

* KU8\_END\_OF\_SUB\_LIST is used between lists. It has an offset of 1 indication the ATM mainFunction to continue with its current indexes.
* KU8\_END\_OF\_THE\_WHOLE\_LIST terminate the list. It has an offset of 0 indicating the ATM mainFunction to loop back to the first list and reset all its indexes.

Tests shall be added between these delimiters like in the diagram presented below:

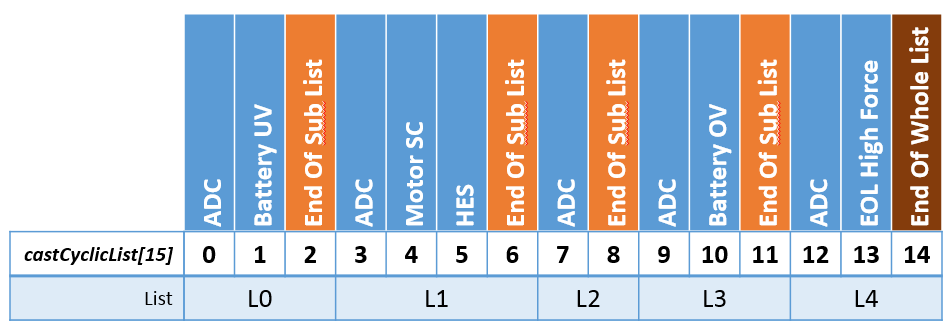


Figure : Types of delimiter for Autotests list

As the delimiters cannot be removed, total array size shall be increased by 5:

### Decade configuration

Using five lists gave us the opportunity to control the CPU load during the run phase. To achieve a better accuracy a decade parameter is added in the test configuration. It does not affect the test execution or period provided by TF-H. In fact it delays the first test execution and keep it as the base time to count the period. We can identify this parameter as an offset. We call it “Decade” because a list is activated every 10ms. If a test has this parameter set to 1, its execution will be delayed 10ms after the first activation of its list. Here is an example:

We will only use the first list with 3 tests:

* T0 – Period 100ms no decade
* T1 – Period 100ms decade 1
* T2 – Period 100ms decade 2

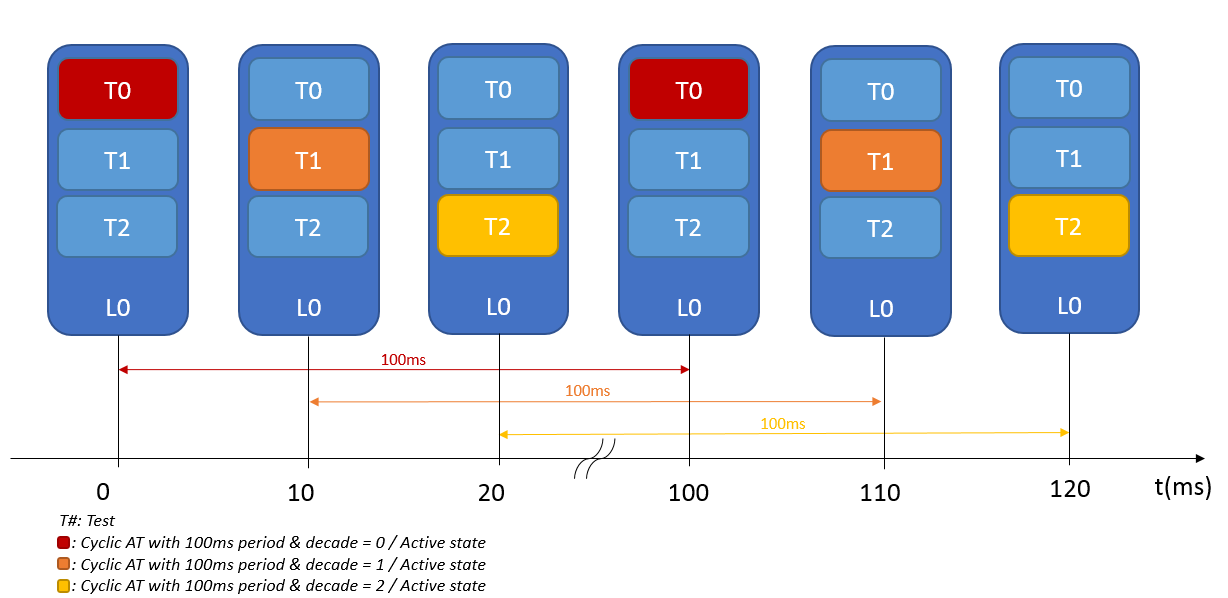


Figure : Decade configuration

The decade counter U16CurrentDecade is increased by 1 at the end of the whole list. To detect when a test shall be played its offset needs to be equal to the u16CurrentDecade counter modulo the test period:

**If** (TestOffset = (u16CurrentDecade % TestPeriod))

{

Execute test

}

**Else** {Go to next one}

## Enable/Disable a test

### From configuration

Sometimes during certain integration test campaign it is necessary to disable a test which will qualify a fault before the one you want to check. To do this, a NVP block is used: *NVP\_au8AutoTestsActivation.*

A test is enabled if its state = 0xAA

A test is disabled if its state = 0x55

The correspondence between the table index and the test ID can be found in the file ATM\_cfg\_public.h.

### During run time

During run time, it happens that all conditions are not fulfilled to execute a test. A wrong condition could be one of these:

* Battery not stable
* Car cranking situation
* Motor activation
* Etc.

These conditions are provided as MMG mode. We link them to a test and if one of them is active the test is not executed. One auto-test can be assigned to one or more modes. You only need to contact them with a logical OR like the example below:

**#define** KU32\_INHIBITING\_MODES\_FOR\_MOSFET\_HIGH\_SHORT\_CIRCUIT \

(MMG\_KU32\_MASK\_CRANKING | MMG\_KU32\_MASK\_POWER\_VOLTAGE\_UNSTABLE | MMG\_KU32\_MASK\_BELTFUNCTIONS)

Here the test will be inhibited if the cranking situation is on OR if the battery is unstable OR if a tensioning cycle is played. The whole configuration can be found in ATM\_cfg\_private.h

## Services

### ATM\_Init

|  |  |  |
| --- | --- | --- |
| Object | | |
| Service used to initialize the ATM component | | |
| **Prototype** | | |
| **void** **ATM\_Init(void)** | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| NA | void | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| MCU | Called during ECU initialization sequence | |
| **Static aspect** | | |
| Initialize all internal variables. Auto-tests status set to NOT\_DECIDED | | |
| **Constrains** | | |
| NA | | |

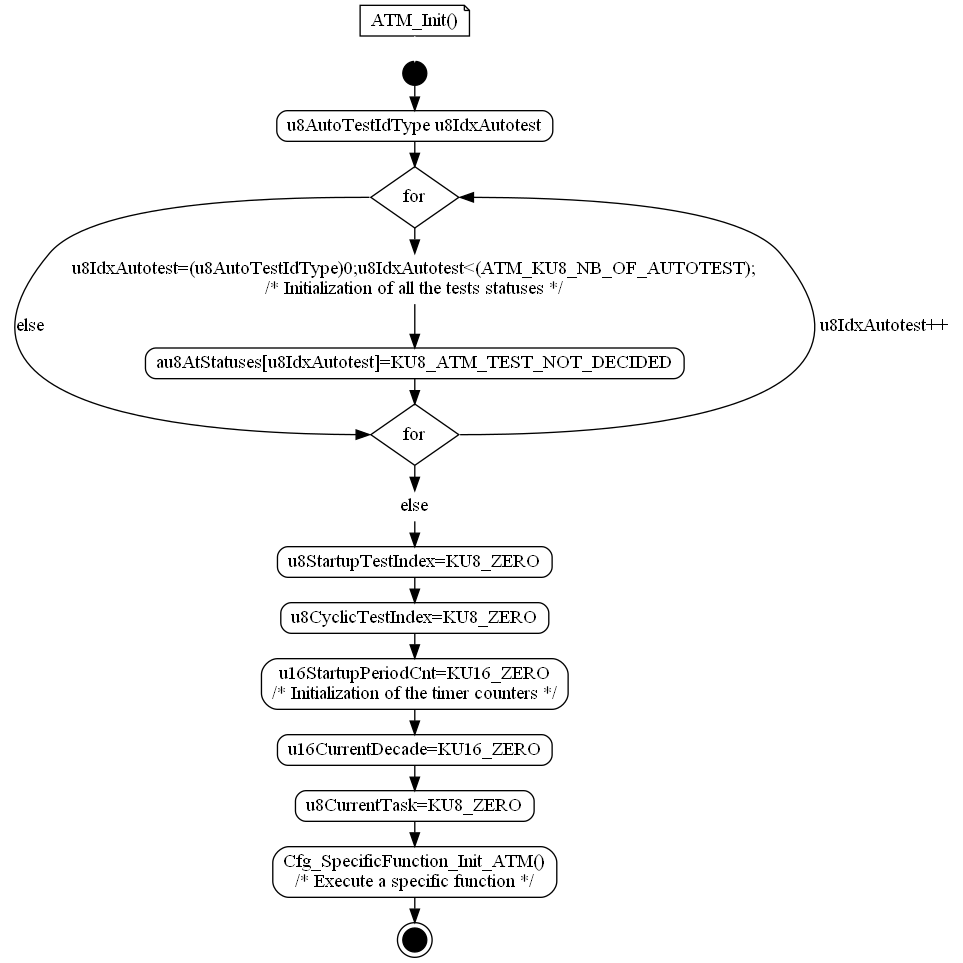


Figure :ATM\_Init

### ATM\_Shutdown

|  |  |  |
| --- | --- | --- |
| Object | | |
| This service is not used in the current PP4G context | | |
| **Prototype** | | |
| **void** **ATM\_Shutdown (void)** | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| NA | void | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| NA | NA | |
| **Static aspect** | | |
| NA | | |
| **Constrains** | | |
| NA | | |

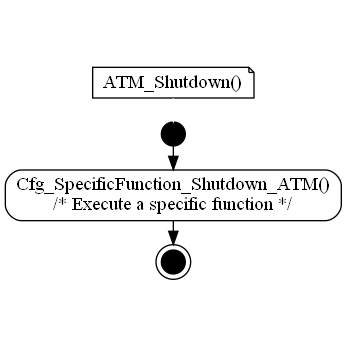


Figure : ATM\_Shutdown

### ATM\_runMainFunction

|  |  |  |
| --- | --- | --- |
| Object | | |
| This service is in charge of:  Scheduling all auto-tests during the startup phase and in running mode. | | |
| **Prototype** | | |
| **void** **ATM\_runMainFunction (void)** | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| NA | void | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| OS | This function is called every 2ms in both cases (startup and run) | |
| **Static aspect** | | |
| This function is splitted in two parts. One for the startup auto-tests and one for the ECU run phase. The sequence execution of each auto-tests is handled by this function. | | |
| **Constrains** | | |
| If a startup auto-test is critical (configured as ONE SHOT ABORT or ONE SHOT RETRY), if it returns NOK, the whole sequence is frozen and the function will never enter in the run phase.  If a startup auto-test is critical with ONE SHOT ABORT configuration, since its status is decided OK or NOK, it will never be executed any more.  If a startup auto-test is critical with ONE SHOT RETRY configuration, since its status is NOK, it will be tried again until reaching an OK status.  If a startup auto-test is not critical (configured as ONE SHOT), its status has no impact on the ATM sequence and the ATM scheduler enters normally in the run phase. | | |

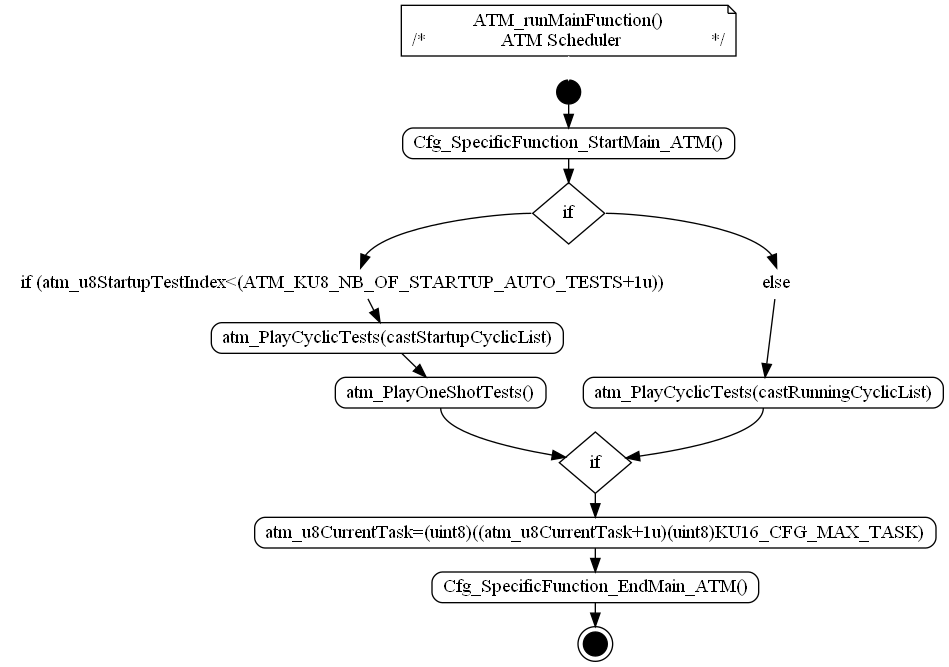


Figure : ATM\_runMainFunction

### ATM\_runGetTestResult

|  |  |  |
| --- | --- | --- |
| Object | | |
| Return the last test result for a specific auto-test | | |
| **Prototype** | | |
| **void** **ATM\_runGetTestResult (u8AutoTestIdType** u8AutoTestId**, u8TestResultType \***u8TestResult **)** | | |
| **Input parameters** | | |
| Name | Type | Description |
| U8AutoTestId | U8AutoTestIdType | ATM auto-test ID provided in ATM\_Cfg\_public.h |
| **Output parameters** | | |
| Name | Type | Description |
| U8TestResult | U8TestResultType\* | Possible values:   * KU8\_ATM\_TEST\_OK * KU8\_ATM\_TEST\_NOK   KU8\_ATM\_NOT\_DECIDED |
| **Return value** | | |
| Type | Description | |
| NA | void | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| Any SW module | A RTE call is needed to access this service, the link shall be done at architecture level. | |
| **Static aspect** | | |
| Read the test status from the local array. If the test ID provided in parameter is not valid, the status KU8\_CFG\_NB\_OF\_AUTOTESTS is returned | | |
| **Constrains** | | |
| NA | | |

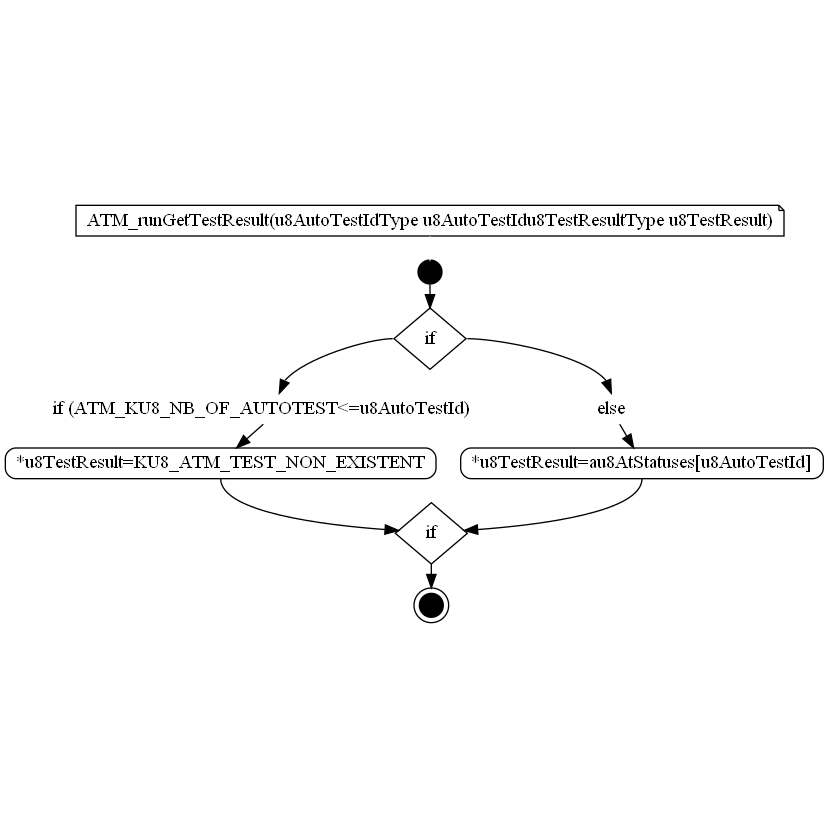


Figure : ATM\_runGetTestResult

### ATM\_runGetLastCriticalAutotestId

|  |  |  |
| --- | --- | --- |
| Object | | |
| The function aims at returning the last critical Autotest Id. | | |
| **Prototype** | | |
| EXPORTED void ATM\_runGetLastCriticalAutotestId (UInt8 u8AutoTestId) | | |
| **Remarks** | | |
| none | | |
| **Input parameters** | | |
| Name | Type | Description |
| u8AutoTestId | UInt8 | Id of identified autotest. |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| NA | void | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

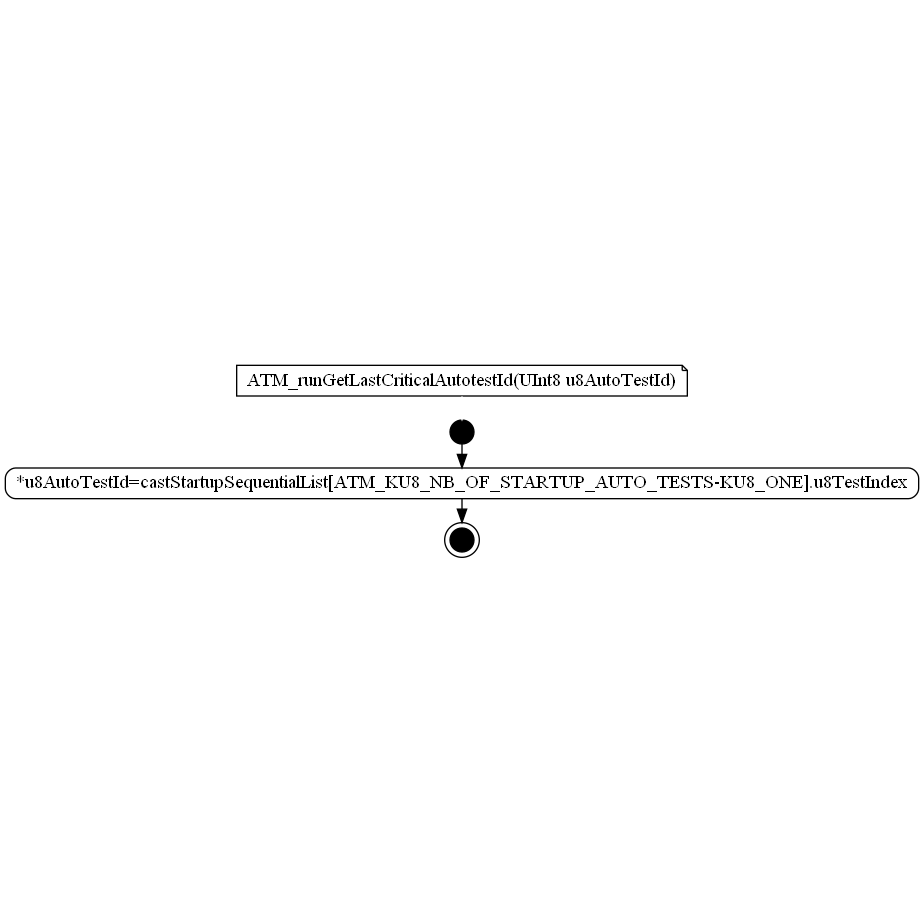


Figure : ATM\_runGetLastCriticalAutotestId

### atm\_executeAutoTest

|  |  |  |
| --- | --- | --- |
| Object | | |
| Execute a test by calling its callback. Send the test status to ERH | | |
| **Prototype** | | |
| **void** atm\_**executeAutoTest (uint8** u8AutotestId**)** | | |
| **Input parameters** | | |
| Name | Type | Description |
| U8AutotestId | Uint8 | Index of the test in the internal configuration array |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| NA | void | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| ATM | Called every time a test needs to be executed | |
| **Static aspect** | | |
| Check the MMG mode before executing the test. Then notify the ERH according to the test result. | | |
| **Constrains** | | |
| NA | | |



Figure : executeAutoTest

### atm\_isAutoTestEnabled

|  |  |  |
| --- | --- | --- |
| Object | | |
| This service check if an auto-test can be executed | | |
| **Prototype** | | |
| **boolean** atm\_**isAutoTestEnabled (uint8** u8AutotestId**)** | | |
| **Input parameters** | | |
| Name | Type | Description |
| U8AutotestId | Uint8 | Index of the test in the internal configuration array |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| Boolean | -B\_TRUE when the test is enabled and can be executed  -B\_FALSE otherwise | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| ATM | Called every time a test needs to be executed | |
| **Static aspect** | | |
| Check if a callback is configured and if the test is enabled by configuration. When a test is disabled, the ERH is notified with a PASSED state to avoid freezing the complete sequence. | | |
| **Constrains** | | |
| Test ID must be in the correct range. | | |



Figure : atm\_isAutoTestEnabled

### atm\_PlayCyclicTests

|  |  |  |
| --- | --- | --- |
| Object | | |
| Sub function of ATM\_runMainFunction  Treats the cyclic auto test scheduling according to the table passed as argument which concerns either the start-up cyclic tests, or the running cyclic tests. | | |
| **Prototype** | | |
| **void** **atm\_PlayCyclicTests (stCyclicListEltType \***cpstCyclicList**)** | | |
| **Input parameters** | | |
| Name | Type | Description |
| cpstCyclicList | stCyclicListEltType | Head (first element) of the array containing the 5 sub-list to be played. |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| NA | void | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| ATM\_runMainFunction | ATM Periodic main function | |
| **Static aspect** | | |
| NA | | |
| **Constrains** | | |
| The table passed as argument is expected to be constant. | | |

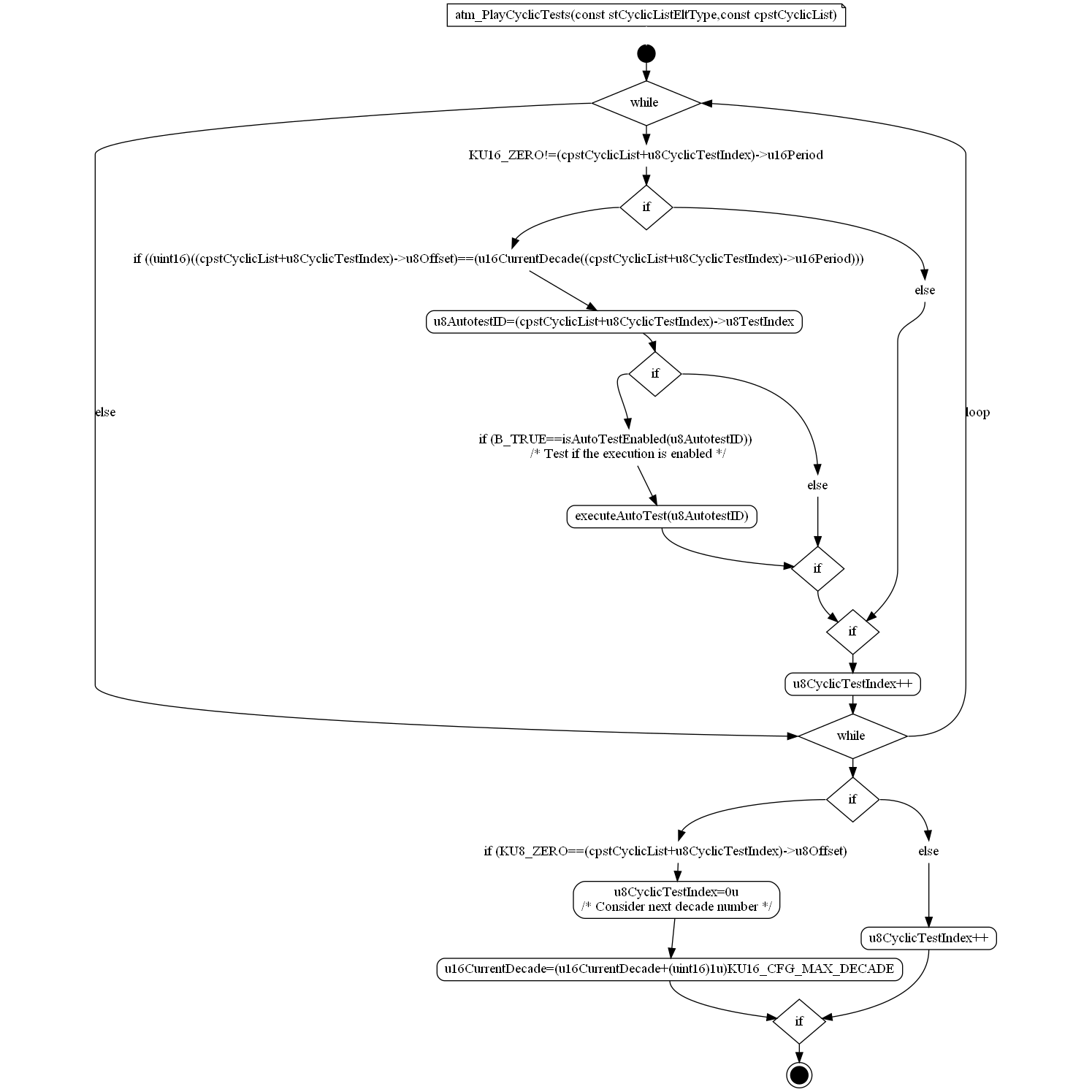


Figure : atm\_PlayCyclicTests

### atm\_PlayOneShotTests

|  |  |  |
| --- | --- | --- |
| Object | | |
| Sub function of ATM\_runMainFunction  Treats the “one shot” sequence according to the table passed as argument which concerns either the start-up cyclic tests, or the running cyclic tests. | | |
| **Prototype** | | |
| **void** **atm\_PlayOneShotTests (void)** | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| NA | void | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| ATM\_runMainFunction | ATM Periodic main function | |
| **Static aspect** | | |
| NA | | |
| **Constrains** | | |
| NA | | |



Figure : atm\_PlayOneShotTests

### ADC\_cbk\_CheckAdc

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckAdc autotest to check ADC. | | |
| **Prototype** | | |
| LOCAL u8TestResultType ADC\_cbk\_CheckAdc (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

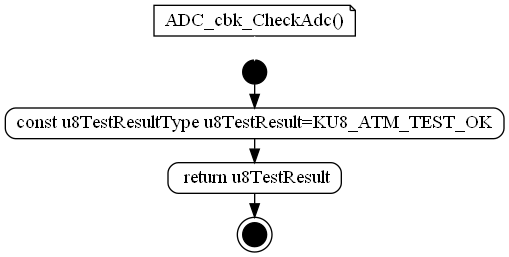


Figure : ADC\_cbk\_CheckAdc

### BMM\_cbk\_CheckHallEffectSensor

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckHallEffectSensor AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType BMM\_cbk\_CheckHallEffectSensor (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

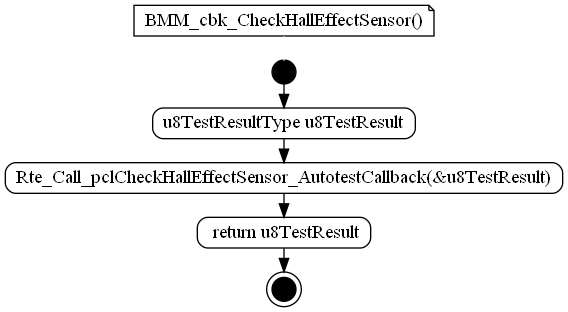


Figure : BMM\_cbk\_CheckHallEffectSensor

### Cfg\_SpecificFunction\_EndMain\_ATM

|  |  |  |
| --- | --- | --- |
| Object | | |
| Configurabled function called in ATM MainFcuntion at the and of all functionalities. | | |
| **Prototype** | | |
| void Cfg\_SpecificFunction\_EndMain\_ATM (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| NA | void | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

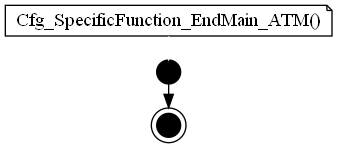


Figure : Cfg\_SpecificFunction\_EndMain\_ATM

### Cfg\_SpecificFunction\_Init\_ATM

|  |  |  |
| --- | --- | --- |
| Object | | |
| Configurabled function for Init, called in ATM\_Init function. | | |
| **Prototype** | | |
| void Cfg\_SpecificFunction\_Init\_ATM (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| NA | void | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

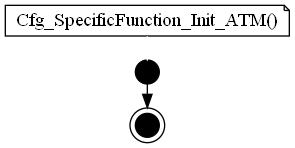


Figure : Cfg\_SpecificFunction\_Init\_ATM

### Cfg\_SpecificFunction\_Shutdown\_ATM

|  |  |  |
| --- | --- | --- |
| Object | | |
| Configurabled function for Shutdown called in ATM\_Shutdown function.. | | |
| **Prototype** | | |
| void Cfg\_SpecificFunction\_Shutdown\_ATM (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| NA | void | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

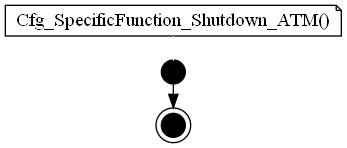


Figure : Cfg\_SpecificFunction\_Shutdown\_ATM

### Cfg\_SpecificFunction\_StartMain\_ATM

|  |  |  |
| --- | --- | --- |
| Object | | |
| Configurabled function called in ATM MainFcuntion , before any other functionalities. | | |
| **Prototype** | | |
| void Cfg\_SpecificFunction\_StartMain\_ATM (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| NA | void | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

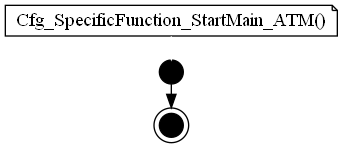


Figure : Cfg\_SpecificFunction\_StartMain\_ATM

### CIL\_cbk\_CheckImplausibleData\_Ignition

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of CIL\_Autotest\_CheckImplausibleData\_Ignition AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckImplausibleData\_Ignition (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

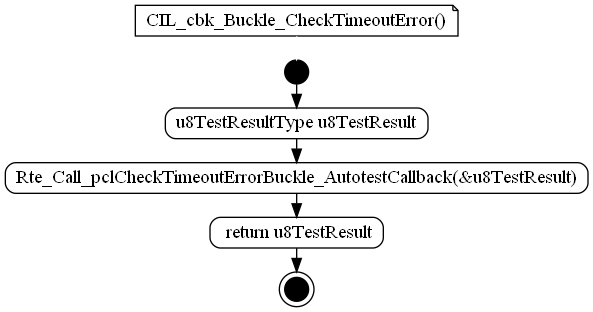


Figure : CIL\_cbk\_CheckImplausibleData\_Ignition

### CIL\_cbk\_Buckle\_CheckTimeoutError

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckTimeoutErrorBuckle\_AutotestCallback AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType CIL\_cbk\_Buckle\_CheckTimeoutError (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

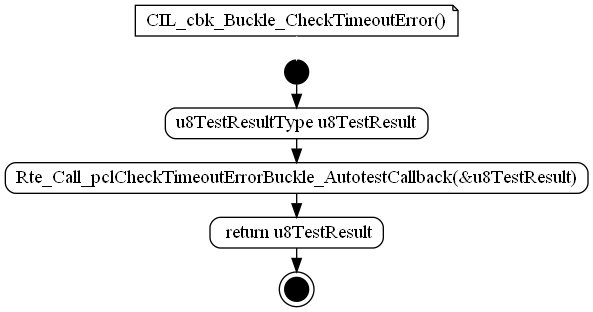


Figure : CIL\_cbk\_Buckle\_CheckTimeoutError

### CIL\_cbk\_CheckImplausibleData\_Buckle

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of CIL\_cbk\_CheckImplausibleData\_Buckle AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckImplausibleData\_Buckle (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

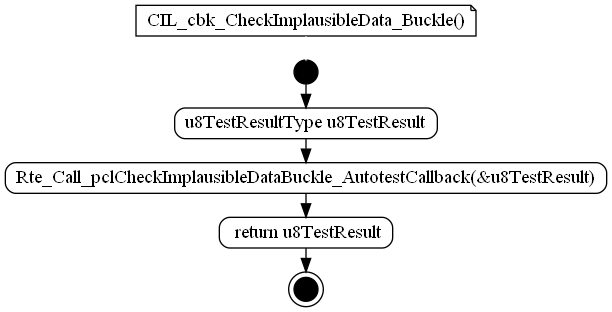


Figure : CIL\_cbk\_CheckImplausibleData\_Buckle

### CIL\_cbk\_CheckImplausibleData\_Presafe

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of CIL\_Autotest\_CheckImplausibleData\_Presafe AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckImplausibleData\_Presafe (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

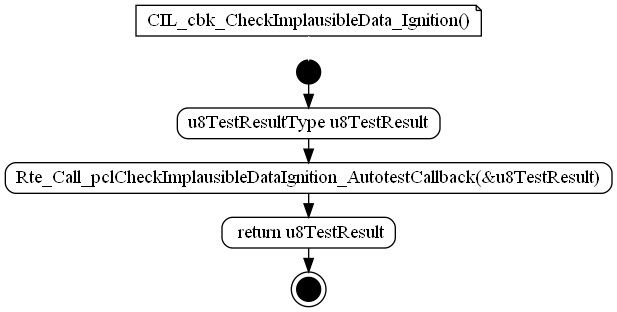


Figure : CIL\_cbk\_CheckImplausibleData\_Presafe

### CIL\_cbk\_Presafe\_CheckTimeoutError

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckTimeoutError\_AutotestCallbacks AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType CIL\_cbk\_Presafe\_CheckTimeoutError (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

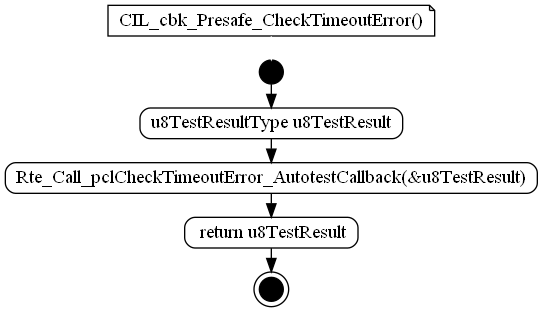


Figure : CIL\_cbk\_Presafe\_CheckTimeoutError

### EOL\_cbk\_CheckProductEndOfLifeComfort

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckProductEndOfLifeComfort\_AutotestCallback AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType EOL\_cbk\_CheckProductEndOfLifeComfort (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

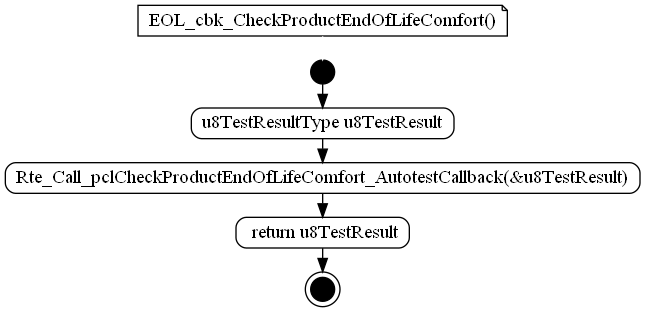


Figure : EOL\_cbk\_CheckProductEndOfLifeComfort

### EOL\_cbk\_CheckProductEndOfLifeHighForce

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckProductEndOfLifeHighForce AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType EOL\_cbk\_CheckProductEndOfLifeHighForce (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

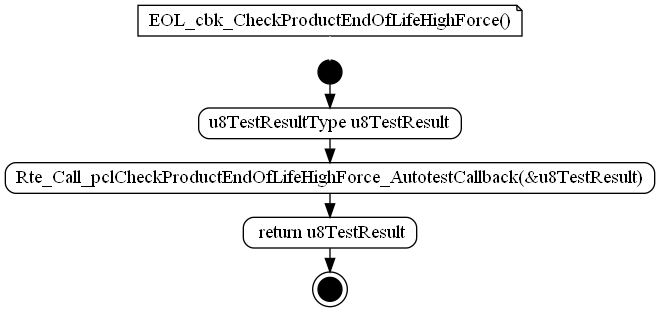


Figure : EOL\_cbk\_CheckProductEndOfLifeHighForce

### EOL\_cbk\_CheckProductEndOfLifeLowForce

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckProductEndOfLifeLowForce AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType EOL\_cbk\_CheckProductEndOfLifeLowForce (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

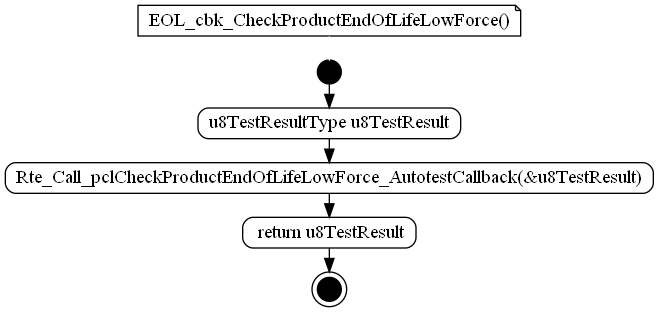


Figure :EOL\_cbk\_CheckProductEndOfLifeLowForce

### PAL\_cbk\_CheckCommandConsistency

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckCommandConsistency autotest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PAL\_cbk\_CheckCommandConsistency (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

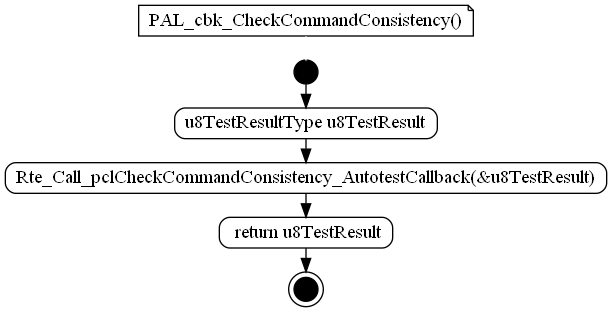


Figure : PAL\_cbk\_CheckCommandConsistency

### PAL\_cbk\_CheckHighSideSwRegulation

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckHighSideSwRegulation autotest to test the High Side Switch regulation. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PAL\_cbk\_CheckHighSideSwRegulation (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

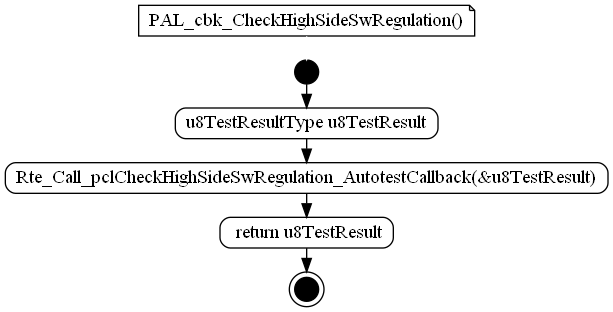


Figure : PAL\_cbk\_CheckHighSideSwRegulation

### PAL\_cbk\_CheckHWSelfProtection

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckHWSelfProtection autotest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PAL\_cbk\_CheckHWSelfProtection (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

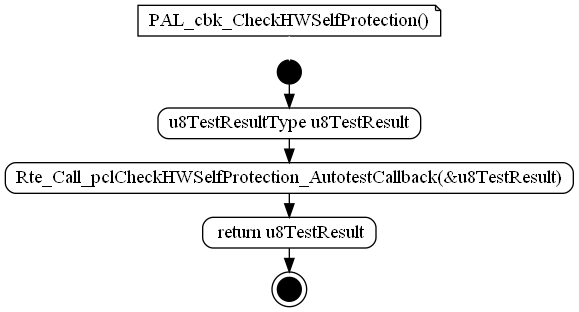


Figure : PAL\_cbk\_CheckHWSelfProtection

### PAL\_cbk\_CheckMosfetHighSC

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckMosfetHighSC autotest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PAL\_cbk\_CheckMosfetHighSC (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

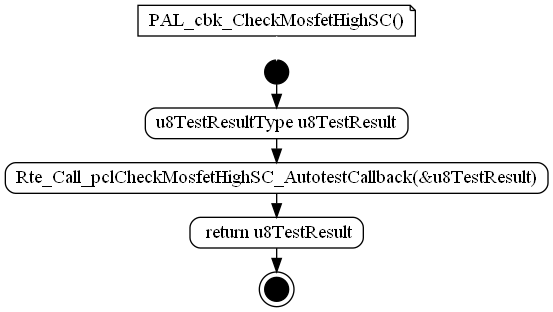


Figure : PAL\_cbk\_CheckMosfetHighSC

### PAL\_cbk\_CheckMosfetLowSC

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckMosfetLowSC autotest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PAL\_cbk\_CheckMosfetLowSC (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

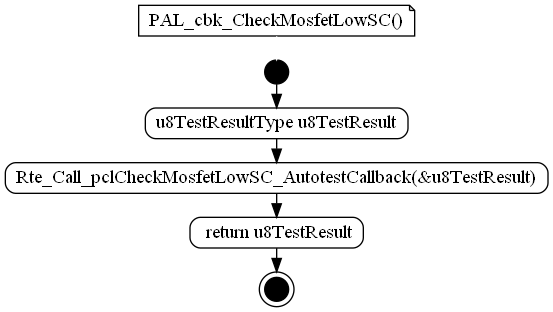


Figure : PAL\_cbk\_CheckMosfetLowSC

### PAL\_cbk\_CheckMosfetOCAT

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckMosfetOCA autotest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PAL\_cbk\_CheckMosfetOCAT (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

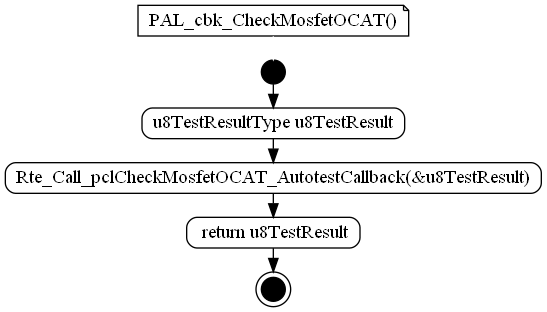


Figure : PAL\_cbk\_CheckMosfetOCAT

### PAL\_cbk\_CheckMotorConnection

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckMotorConnection autotest. | | |
| **Prototype** | | |
| s LOCAL u8TestResultType PAL\_cbk\_CheckMotorConnection (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

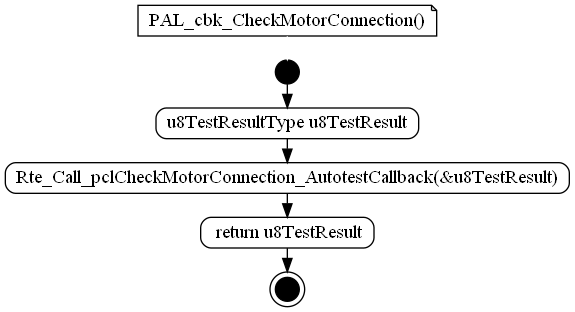


Figure : PAL\_cbk\_CheckMotorConnection

### PAL\_cbk\_CheckMotorCurrent

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckMotorCurrent autotest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PAL\_cbk\_CheckMotorCurrent (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

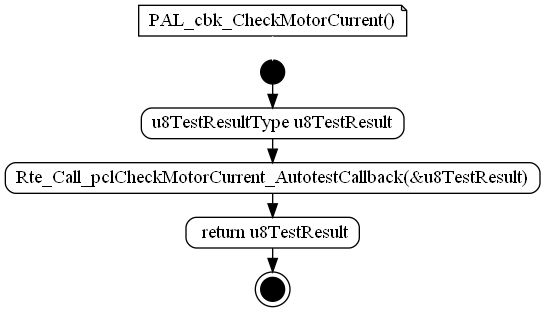


Figure : PAL\_cbk\_CheckMotorCurrent

### PAL\_cbk\_CheckMotorDisengagement

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckMotorDisengagement autotest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PAL\_cbk\_CheckMotorDisengagement (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

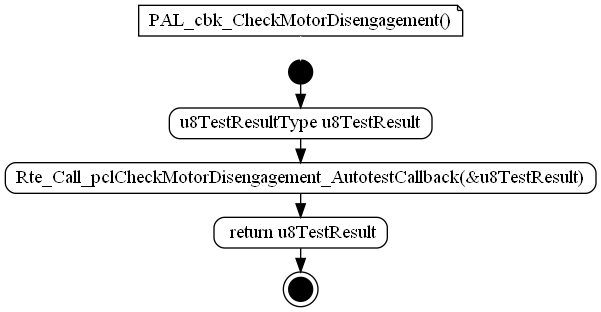


Figure : PAL\_cbk\_CheckMotorDisengagement

### PAL\_cbk\_CheckMotorPowerOrder

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckMotorPowerOrder AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PAL\_cbk\_CheckMotorPowerOrder (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

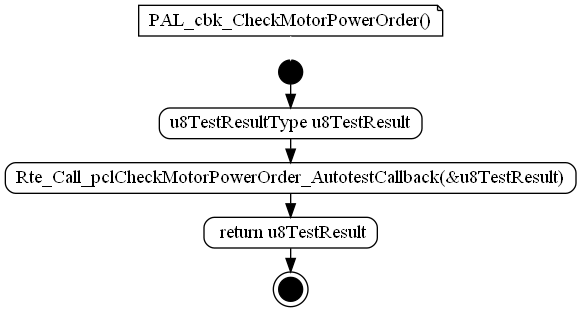


Figure : PAL\_cbk\_CheckMotorPowerOrder

### PAL\_cbk\_CheckMotorSC

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckMotorSC AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PAL\_cbk\_CheckMotorSC (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

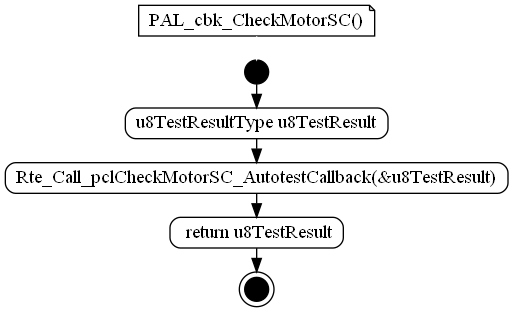


Figure : PAL\_cbk\_CheckMotorSC

### PAL\_cbk\_CheckMotorThermalProctection

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckMotorThermalProctection - SWSelfProtection AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PAL\_cbk\_CheckMotorThermalProctection (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

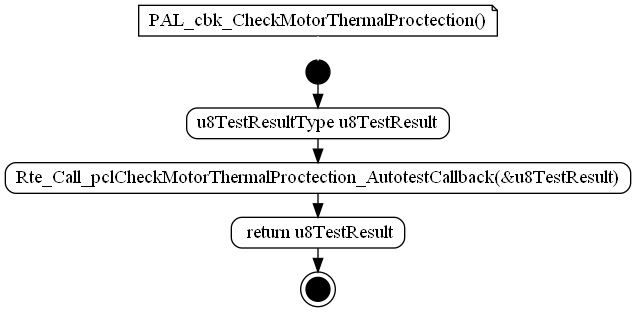


Figure : PAL\_cbk\_CheckMotorThermalProctection

### PMP\_cbk\_CheckPowerSupplyOV

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckPowerSupplyOV AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PMP\_cbk\_CheckPowerSupplyOV (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

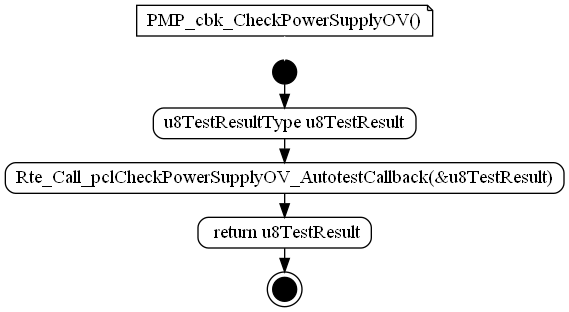


Figure : PMP\_cbk\_CheckPowerSupplyOV

### PMP\_cbk\_CheckPowerSupplyOVDuringActivation

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckPowerSupplyOVDuringActivation AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PMP\_cbk\_CheckPowerSupplyOVDuringActivation (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

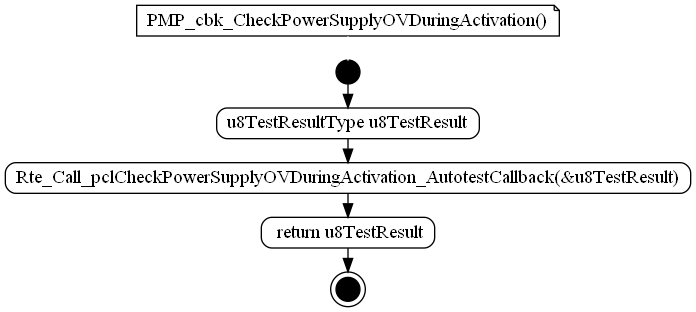


Figure : PMP\_cbk\_CheckPowerSupplyOVDuringActivation

### PMP\_cbk\_CheckPowerSupplyUV

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckPowerSupplyUV AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PMP\_cbk\_CheckPowerSupplyUV (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

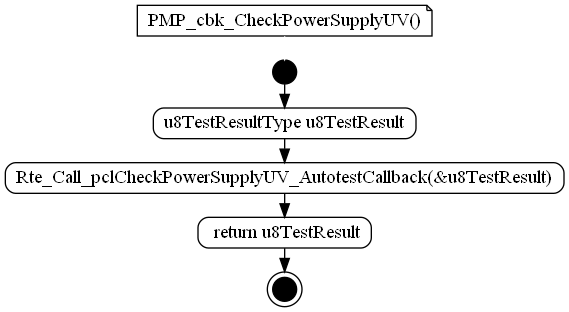


Figure : PMP\_cbk\_CheckPowerSupplyUV

### PMP\_cbk\_CheckPowerSupplyUVDuringActivation

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckPowerSupplyUVDuringActivation AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PMP\_cbk\_CheckPowerSupplyUVDuringActivation (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

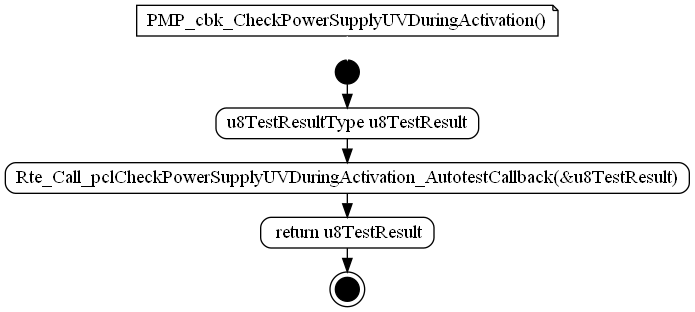


Figure : PMP\_cbk\_CheckPowerSupplyUVDuringActivation

### PMP\_cbk\_CheckTemperatureSensor

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclCheckTemperatureSensor AutoTest. | | |
| **Prototype** | | |
| LOCAL u8TestResultType PMP\_cbk\_CheckTemperatureSensor (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

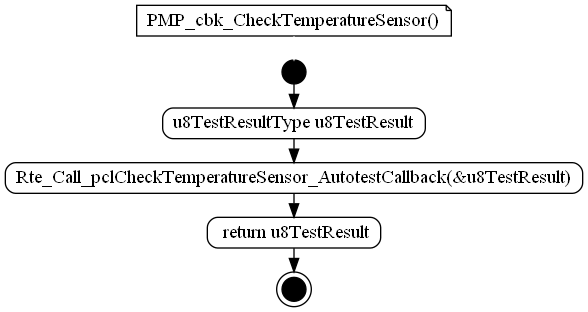


Figure : PMP\_cbk\_CheckTemperatureSensor

### RCM\_cbk\_ExtWatchdogTest\_Autotest

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclRunExtWatchogTest autotest to check an unexpected reset. | | |
| **Prototype** | | |
| LOCAL u8TestResultType RCM\_cbk\_ExtWatchdogTest\_Autotest (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

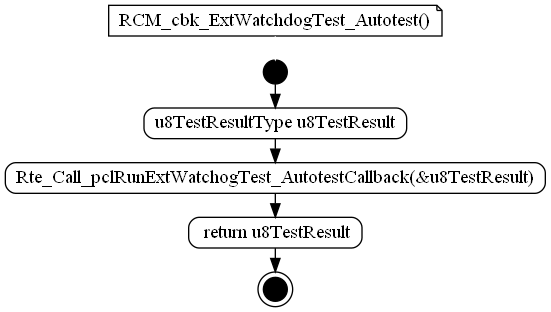


Figure : RCM\_cbk\_ExtWatchdogTest\_Autotest

### RCM\_cbk\_RunResetCause\_Autotest

|  |  |  |
| --- | --- | --- |
| Object | | |
| Callback of Rte\_Call\_pclRunResetCause autotest to check if an unexpected reset cause has been detected. | | |
| **Prototype** | | |
| LOCAL u8TestResultType RCM\_cbk\_RunResetCause\_Autotest (void) | | |
| **Remarks** | | |
| None | | |
| **Input parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Output parameters** | | |
| Name | Type | Description |
| NA | NA | NA |
| **Return value** | | |
| Type | Description | |
| u8TestResultType | u8TestResult | |
| **Dynamic aspect** | | |
| Who(callers) | Description | |
| \* | \* | |
| **Static aspect** | | |
| \* | | |
| **Constrains** | | |
|  | | |

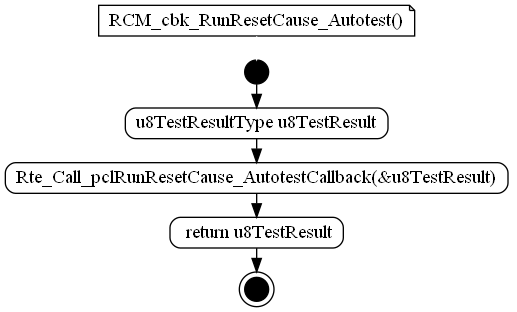


Figure : RCM\_cbk\_RunResetCause\_Autotest

### CIL\_cbk\_SteeringConfiguration

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckSteeringConfiguration AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_SteeringConfiguration (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

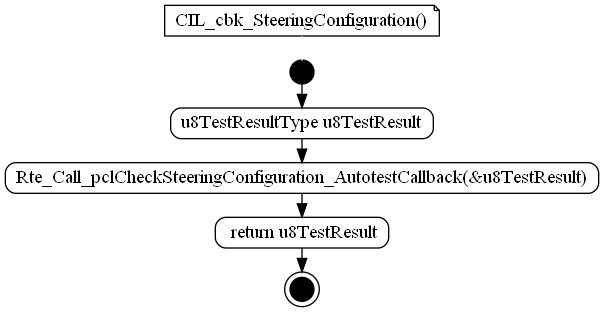


Figure :CIL\_cbk\_SteeringConfiguration

### CIL\_cbk\_CheckImplausibleData\_ORC

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckImplausibleData\_ORC AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckImplausibleData\_ORC (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

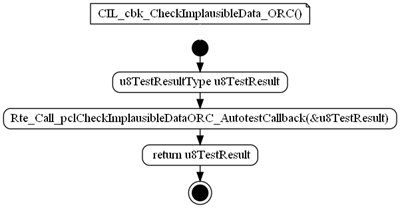


Figure :CIL\_cbk\_CheckImplausibleData\_ORC

### CIL\_cbk\_CheckImplausibleData\_Powertrain\_Drv

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckImplausibleData\_Powertrain\_Drv AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckImplausibleData\_Powertrain\_Drv (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

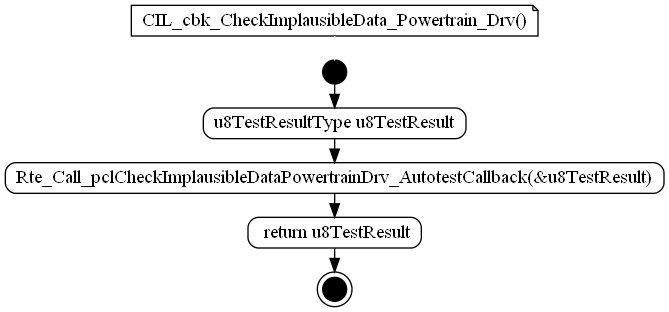


Figure :CIL\_cbk\_CheckImplausibleData\_Powertrain\_Drv

### CIL\_cbk\_CheckTimeoutError\_API

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckTimeoutError\_API AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckTimeoutError\_API (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

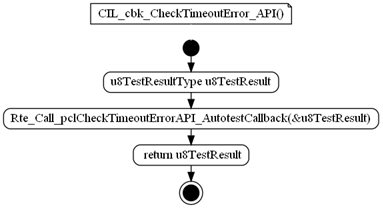


Figure :CIL\_cbk\_CheckTimeoutError\_API

### CIL\_cbk\_CheckTimeoutError\_BelthandoverL

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckTimeoutError\_BelthandoverL AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckTimeoutError\_BelthandoverL (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

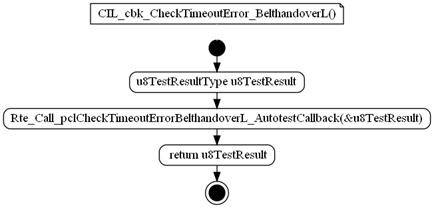


Figure :CIL\_cbk\_CheckTimeoutError\_BelthandoverL

### CIL\_cbk\_CheckTimeoutError\_BelthandoverR

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckTimeoutError\_BelthandoverR AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckTimeoutError\_BelthandoverR (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

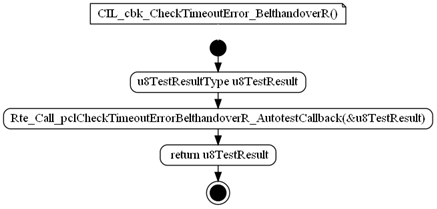


Figure :CIL\_cbk\_CheckTimeoutError\_BelthandoverR

### CIL\_cbk\_CheckTimeoutError\_Ignition

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckTimeoutError\_Ignition AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckTimeoutError\_Ignition (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

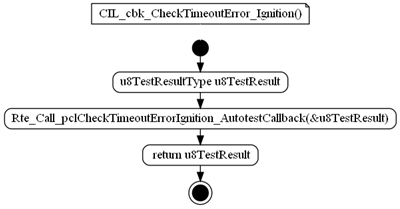


Figure :CIL\_cbk\_CheckTimeoutError\_Ignition

### CIL\_cbk\_CheckTimeoutError\_Powertrain

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckTimeoutError\_Powertrain AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckTimeoutError\_Powertrain (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

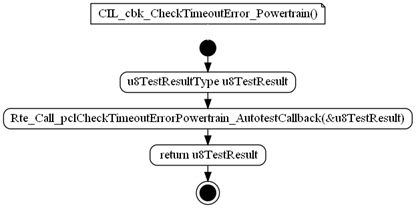


Figure :CIL\_cbk\_CheckTimeoutError\_Powertrain

### EOL\_cbk\_CheckProductEndOfLifeMaxForce

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of EOL\_Autotest\_CheckProductEndOfLifeMaxForce AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType EOL\_cbk\_CheckProductEndOfLifeMaxForce (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

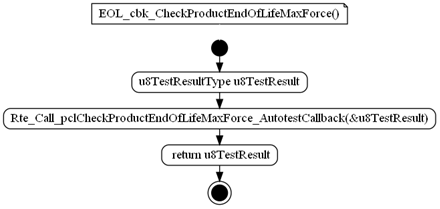


Figure : EOL\_cbk\_CheckProductEndOfLifeMaxForce

### PMP\_cbk\_CheckSystemUV

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of PMP\_Autotest\_CheckSystemUV AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType PMP\_cbk\_CheckSystemUV (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

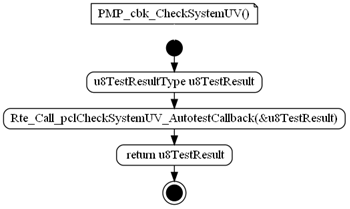


Figure :PMP\_cbk\_CheckSystemUV

### CIL\_cbk\_CheckSteeringConfiguration

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckSteeringConfiguration AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckSteeringConfiguration (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

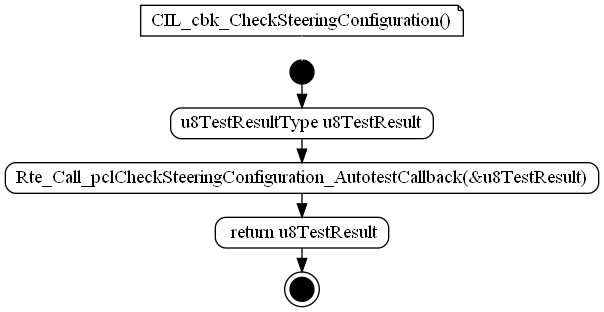


Figure : CIL\_cbk\_CheckSteeringConfiguration

### PMP\_cbk\_CheckSystemOV

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of PMP\_Autotest\_CheckSystemOV AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType PMP\_cbk\_CheckSystemOV (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

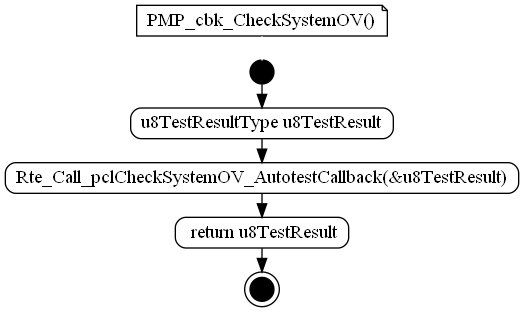


Figure :PMP\_cbk\_CheckSystemOV

### CIL\_cbk\_CheckImplausibleData\_API

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckImplausibleData\_PowertrainRdy AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckImplausibleData\_API (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

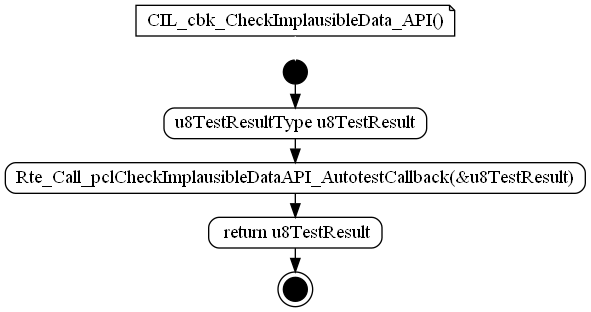


Figure CIL\_cbk\_CheckImplausibleData\_API

### CIL\_cbk\_CheckImplausibleData\_Powertrain\_Rdy

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckImplausibleData\_PowertrainRdy AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckImplausibleData\_Powertrain\_Rdy (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

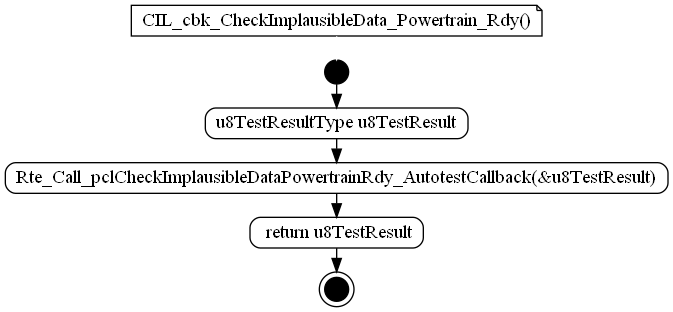


Figure CIL\_cbk\_CheckImplausibleData\_Powertrain\_Rdy

### CIL\_cbk\_CheckTimeoutError\_Odospeedometer

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckTimeoutError\_OdoSpeedometer AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckTimeoutError\_Odospeedometer (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

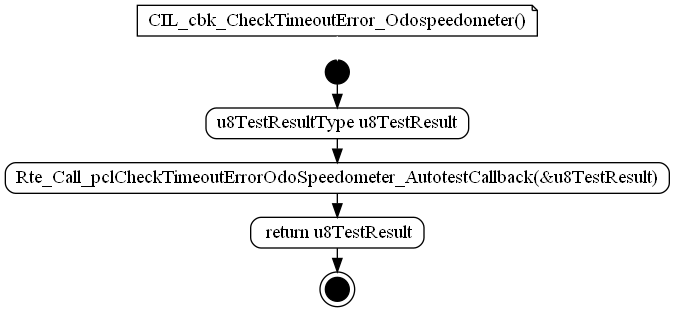


Figure CIL\_cbk\_CheckTimeoutError\_Odospeedometer

### CIL\_cbk\_CheckVariantCoding

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckVariantCoding AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckVariantCoding (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

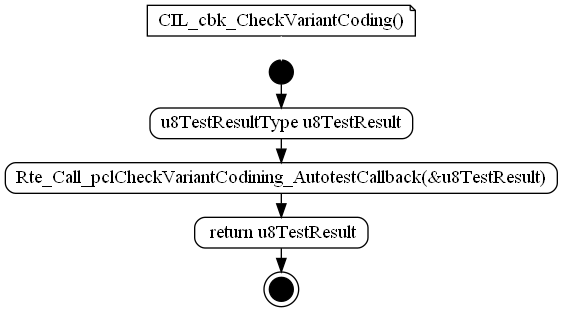


Figure CIL\_cbk\_CheckVariantCoding

### CIL\_cbk\_CheckTimeoutError\_BeltAdj

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of CIL\_Autotest\_CheckTimeoutError\_BeltAdjAutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType CIL\_cbk\_CheckTimeoutError\_BeltAdj (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

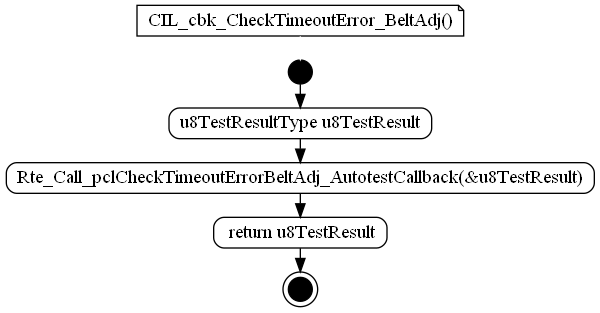


Figure CIL\_cbk\_CheckTimeoutError\_BeltAdj

### SBC\_cbk\_SPIError

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback of SBC\_ServiceAutotest\_GetTestResult AutoTest. | | | |
| **Prototype** | | | |
| LOCAL u8TestResultType SBC\_cbk\_SPIError (void) | | | |
| **Parameters** | | | |
| void | | | |
| **Remarks** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| u8TestResultType | u8TestResult | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

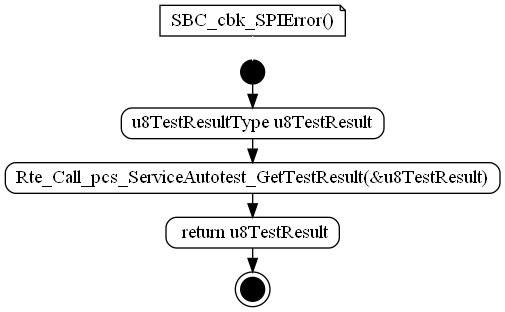


Figure SBC\_cbk\_SPIError

## Types

### stAutoTestConfigurationType

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Field Type** | **Field description** |
| u8TestResultType (\*pfAutotestCallback)(void) | u8TestResultType (\*pfAutotestCallback)(void) | Function pointer used to store the auto-test callback |
| u8AecIdentifier | u8AecIdentifierType | ERH AEC identifier |
| u8InhibIndex | u32ModeMaskType | Index in cau32InhibitingModes array, to select a combination of inhibition modes to be checked before executing a test. |

### stCyclicListEltType

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Field Type** | **Field description** |
| u16Period | uint16 | Test period in number of ATM execution occurrences |
| u8Offset | uint8 | Offset (in number of ATM execution occurrences) |
| u8TestIndex | uint8 | Auto-test index in the configuration |

### stStartupEltType

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Field Type** | **Field description** |
| u16StepPeriod | uint16 | Test period in number of ATM execution occurrences |
| u8Type | uint8 | Auto-test type (one shot / one shot abort / one shot retry) |
| u8TestIndex | uint8 | Auto-test index in the configuration |

## Variables

### atm\_au8AtStatuses[ATM\_KU8\_NB\_OF\_AUTOTEST]

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | NA | |
| **Description** | | |
| This variable contains the status of each test (RAM). | | |
| **Definition** | | |
| LOCAL uint8 au8AtStatuses[ATM\_KU8\_NB\_OF\_AUTOTEST] | | |

### atm\_u16CurrentDecade

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint16 | NA | |
| **Description** | | |
| This variable represents the cycle decade counter. Initialized by ATM\_Init. | | |
| **Definition** | | |
| LOCAL uint16 u16CurrentDecade | | |
| **Range** | | |
| 0..59000 | | |

### atm\_u16StartupPeriodCnt

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint16 | NA | |
| **Description** | | |
| This variable is used only during the start-up sequence to count the period between execution step of tests (if executed during several steps). Initialized by ATM\_Init. | | |
| **Definition** | | |
| LOCAL uint16 u16StartupPeriodCnt | | |

### atm\_u8CurrentTask

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | NA | |
| **Description** | | |
| This variable represents the cyclic task counter. Initialized by ATM\_Init. | | |
| **Definition** | | |
| LOCAL uint8 u8CurrentTask | | |
| **Range** | | |
| 0..4 | | |

### atm\_u8CyclicTestIndex

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | NA | |
| **Description** | | |
| Loop indexes the 'castCyclicList' array over several execution of the main function, only after the completion of the start-up test sequence. Range : [0..255] Initialized by ATM\_Init. | | |
| **Definition** | | |
| LOCAL uint8 u8CyclicTestIndex | | |
| **Range** | | |
| 0..255 | | |

### atm\_u8StartupTestIndex

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | NA | |
| **Description** | | |
| Indexes the 'castStartupList' array during the start-up test sequence over several execution of the main function. This array is browsed once, after what main function will follow the cyclic list of test. Initialized by ATM\_Init. | | |
| **Definition** | | |
| LOCAL uint8 u8StartupTestIndex | | |
| **Range** | | |
| 0..255 | | |

### castATMConfig[ATM\_KU8\_NB\_OF\_AUTOTEST]

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| const stAutoTestConfigurationType | 52 | |
| **Description** | | |
| Common test properties. | | |
| **Definition** | | |
| EXPORTED const stAutoTestConfigurationType castATMConfig[ATM\_KU8\_NB\_OF\_AUTOTEST] | | |

### castRunningCyclicList[((uint8) 50)]

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| const stCyclicListEltType | 49 | |
| **Description** | | |
| This table of cyclic tests is run after the last "one shot" test. | | |
| **Definition** | | |
| EXPORTED const stCyclicListEltType castRunningCyclicList[((uint8) 52)] | | |

### castStartupCyclicList[((uint8) 6)]

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| const stCyclicListEltType | 4 | |
| **Description** | | |
| This table of cyclic tests is run in parallel with the "one shot" tests list. | | |
| **Definition** | | |
| EXPORTED const stCyclicListEltType castStartupCyclicList[((uint8) 11)] | | |

### castStartupSequentialList[((uint8) 17)]

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| const stStartupEltType | 17 | |
| **Description** | | |
| This table of "one shot" tests is run once at startup. Each test is run only after the previous one completion. | | |
| **Definition** | | |
| EXPORTED const stStartupEltType castStartupSequentialList[((uint8) 17)] | | |

### cau32InhibitingModes[((uint8) 4)]

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| const u32ModeMaskType | 4 | |
| **Description** | | |
| This array is a list of possible inhibition modes combinations that can be checked before test executions.Goal: As several tests execution share the same combination, theses combinations (32 bits bitfield) are stored in this array, and tests attributes can be only a 8 bits index to save flash memory. | | |
| **Definition** | | |
| EXPORTED const u32ModeMaskType cau32InhibitingModes[((uint8) 4)] | | |

## Constants

### ATM\_AC\_AutoTestManager\_START\_SEC\_CODE

|  |  |
| --- | --- |
| Name | Value |
| ATM\_AC\_AutoTestManager\_START\_SEC\_CODE | NA |
| **Definition** | |
| #define ATM\_AC\_AutoTestManager\_START\_SEC\_CODE | |
| **Description** | |
| NA | |

### ATM\_AC\_AutoTestManager\_START\_SEC\_VAR\_16

|  |  |
| --- | --- |
| Name | Value |
| ATM\_AC\_AutoTestManager\_START\_SEC\_VAR\_16 | NA |
| **Definition** | |
| #define ATM\_AC\_AutoTestManager\_START\_SEC\_VAR\_16 | |
| **Description** | |
| NA | |

### ATM\_AC\_AutoTestManager\_START\_SEC\_VAR\_8

|  |  |
| --- | --- |
| Name | Value |
| ATM\_AC\_AutoTestManager\_START\_SEC\_VAR\_8 | NA |
| **Definition** | |
| #define ATM\_AC\_AutoTestManager\_START\_SEC\_VAR\_8 | |
| **Description** | |
| NA | |

### ATM\_AC\_AutoTestManager\_STOP\_SEC\_CODE

|  |  |
| --- | --- |
| Name | Value |
| ATM\_AC\_AutoTestManager\_STOP\_SEC\_CODE | NA |
| **Definition** | |
| #define ATM\_AC\_AutoTestManager\_STOP\_SEC\_CODE | |
| **Description** | |
| NA | |

### ATM\_AC\_AutoTestManager\_STOP\_SEC\_VAR\_16

|  |  |
| --- | --- |
| Name | Value |
| ATM\_AC\_AutoTestManager\_STOP\_SEC\_VAR\_16 | NA |
| **Definition** | |
| #define ATM\_AC\_AutoTestManager\_STOP\_SEC\_VAR\_16 | |
| **Description** | |
| NA | |

### ATM\_AC\_AutoTestManager\_STOP\_SEC\_VAR\_8

|  |  |
| --- | --- |
| Name | Value |
| ATM\_AC\_AutoTestManager\_STOP\_SEC\_VAR\_8 | NA |
| **Definition** | |
| #define ATM\_AC\_AutoTestManager\_STOP\_SEC\_VAR\_8 | |
| **Description** | |
| NA | |

### U16\_GET\_STEP\_PERIOD(index)

|  |  |
| --- | --- |
| Name | Value |
| U16\_GET\_STEP\_PERIOD(index) | (index) (castStartupSequentialList[(index)].u16StepPeriod) |
| **Definition** | |
| #define U16\_GET\_STEP\_PERIOD(index) (castStartupSequentialList[(index)].u16StepPeriod) | |
| **Description** | |
| Define for reinitialize the step period index. | |

### U8\_GET\_AEC\_ID(index)

|  |  |
| --- | --- |
| Name | Value |
| U8\_GET\_AEC\_ID(index) | (index) (castATMConfig[index]. u8AecIdentifier) |
| **Definition** | |
| U8\_GET\_AEC\_ID(index) (castATMConfig[index].u8AecIdentifier) | |
| **Description** | |
| Define for autotest ID | |

### ATM\_AC\_AutoTestManager\_START\_SEC\_CONST\_UNSPECIFIED

|  |  |
| --- | --- |
| Name | Value |
| ATM\_AC\_AutoTestManager\_START\_SEC\_CONST\_UNSPECIFIED | NA |
| **Definition** | |
| #define ATM\_AC\_AutoTestManager\_START\_SEC\_CONST\_UNSPECIFIED | |
| **Description** | |
| NA | |

### ATM\_AC\_AutoTestManager\_STOP\_SEC\_CONST\_UNSPECIFIED

|  |  |
| --- | --- |
| Name | Value |
| ATM\_AC\_AutoTestManager\_STOP\_SEC\_CONST\_UNSPECIFIED | NA |
| **Definition** | |
| #define ATM\_AC\_AutoTestManager\_STOP\_SEC\_CONST\_UNSPECIFIED | |
| **Description** | |
| NA | |

### IN\_DECADE\_0

|  |  |
| --- | --- |
| Name | Value |
| IN\_DECADE\_0 | ((uint8)0) |
| **Definition** | |
| #define IN\_DECADE\_0 ((uint8)0) | |
| **Description** | |
| Decade used for macros - example: KU8\_ATM\_PERIODIC\_100\_MS(decade) | |

### IN\_DECADE\_1

|  |  |
| --- | --- |
| Name | Value |
| IN\_DECADE\_1 | ((uint8)1) |
| **Definition** | |
| #define IN\_DECADE\_1 ((uint8)1) | |
| **Description** | |
| Decade used for macros - example: KU8\_ATM\_PERIODIC\_100\_MS(decade) | |

### IN\_DECADE\_2

|  |  |
| --- | --- |
| Name | Value |
| IN\_DECADE\_2 | ((uint8)2) |
| **Definition** | |
| #define IN\_DECADE\_2 ((uint8)2) | |
| **Description** | |
| Decade used for macros - example: KU8\_ATM\_PERIODIC\_100\_MS(decade) | |

### IN\_DECADE\_3

|  |  |
| --- | --- |
| Name | Value |
| IN\_DECADE\_3 | ((uint8)3) |
| **Definition** | |
| #define IN\_DECADE\_3 ((uint8)3) | |
| **Description** | |
| Decade used for macros - example: KU8\_ATM\_PERIODIC\_100\_MS(decade) | |

### IN\_DECADE\_4

|  |  |
| --- | --- |
| Name | Value |
| IN\_DECADE\_4 | ((uint8)4) |
| **Definition** | |
| #define IN\_DECADE\_4 ((uint8)4) | |
| **Description** | |
| Decade used for macros - example: KU8\_ATM\_PERIODIC\_100\_MS(decade) | |

### IN\_DECADE\_5

|  |  |
| --- | --- |
| Name | Value |
| IN\_DECADE\_5 | ((uint8)5) |
| **Definition** | |
| #define IN\_DECADE\_5 ((uint8)5) | |
| **Description** | |
| Decade used for macros - example: KU8\_ATM\_PERIODIC\_100\_MS(decade) | |

### IN\_DECADE\_6

|  |  |
| --- | --- |
| Name | Value |
| IN\_DECADE\_6 | ((uint8)6) |
| **Definition** | |
| #define IN\_DECADE\_6 ((uint8)6) | |
| **Description** | |
| Decade used for macros - example: KU8\_ATM\_PERIODIC\_100\_MS(decade) | |

### IN\_DECADE\_7

|  |  |
| --- | --- |
| Name | Value |
| IN\_DECADE\_7 | ((uint8)7) |
| **Definition** | |
| #define IN\_DECADE\_7 ((uint8)7) | |
| **Description** | |
| Decade used for macros - example: KU8\_ATM\_PERIODIC\_100\_MS(decade) | |

### IN\_DECADE\_8

|  |  |
| --- | --- |
| Name | Value |
| IN\_DECADE\_8 | ((uint8)8) |
| **Definition** | |
| #define IN\_DECADE\_8 ((uint8)8) | |
| **Description** | |
| Decade used for macros - example: KU8\_ATM\_PERIODIC\_100\_MS(decade) | |

### IN\_DECADE\_9

|  |  |
| --- | --- |
| Name | Value |
| IN\_DECADE\_9 | ((uint8)9) |
| **Definition** | |
| #define IN\_DECADE\_9 ((uint8)9) | |
| **Description** | |
| Decade used for macros - example: KU8\_ATM\_PERIODIC\_100\_MS(decade) | |

### KU16\_STEP\_EVERY\_10MS

|  |  |
| --- | --- |
| Name | Value |
| KU16\_STEP\_EVERY\_10MS | ((uint16)1) |
| **Definition** | |
| #define KU16\_STEP\_EVERY\_10MS ((uint16)1) | |
| **Description** | |
| Decade argument value for macro. | |

### KU16\_STEP\_EVERY\_1S

|  |  |
| --- | --- |
| Name | Value |
| KU16\_STEP\_EVERY\_1S | ((uint16)100) |
| **Definition** | |
| #define KU16\_STEP\_EVERY\_10S ((uint16)100) | |
| **Description** | |
| Decade argument value for macro. | |

### KU16\_STEP\_EVERY\_200MS

|  |  |
| --- | --- |
| Name | Value |
| KU16\_STEP\_EVERY\_200MS | ((uint16)20) |
| **Definition** | |
| #define KU16\_STEP\_EVERY\_200MS ((uint16)20) | |
| **Description** | |
| Decade argument value for macro. | |

### KU16\_STEP\_EVERY\_500MS

|  |  |
| --- | --- |
| Name | Value |
| KU16\_STEP\_EVERY\_500MS | ((uint16)50) |
| **Definition** | |
| #define KU16\_STEP\_EVERY\_500MS ((uint16)50) | |
| **Description** | |
| Decade argument value for macro. | |

### KU16\_STEP\_EVERY\_100MS

|  |  |
| --- | --- |
| Name | Value |
| KU16\_STEP\_EVERY\_100MS | ((uint16)10) |
| **Definition** | |
| #define KU16\_STEP\_EVERY\_100MS ((uint16)10) | |
| **Description** | |
| Decade argument value for macro. | |

### KU8\_ATM\_ONE\_SHOT(step\_period)

|  |  |
| --- | --- |
| Name | Value |
| KU8\_ATM\_ONE\_SHOT(step\_period) | (step\_period) (step\_period), KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT |
| **Definition** | |
| #define KU8\_ATM\_ONE\_SHOT(step\_period) (step\_period), KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT | |
| **Description** | |
| The autotest is called only once and it is considered as finished whatever its result is : OK, NOK, NotDecided. | |

### KU8\_ATM\_ONE\_SHOT\_ABORT(step\_period)

|  |  |
| --- | --- |
| Name | Value |
| KU8\_ATM\_ONE\_SHOT\_ABORT(step\_period) | (step\_period) (step\_period), KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_ABORT |
| **Definition** | |
| #define KU8\_ATM\_ONE\_SHOT\_ABORT(step\_period) (step\_period), KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_ABORT | |
| **Description** | |
| The autotest is periodically called until its result is OK or NOK. It is considered as finished only when its result is OK or NOK. | |

### KU8\_ATM\_ONE\_SHOT\_DECIDED(step\_period)

|  |  |
| --- | --- |
| Name | Value |
| KU8\_ATM\_ONE\_SHOT\_DECIDED(step\_period) | (step\_period) (step\_period), KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_DECIDED |
| **Definition** | |
| #define KU8\_ATM\_ONE\_SHOT\_DECIDED(step\_period) (step\_period), KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_DECIDED | |
| **Description** | |
| The autotest is periodically called until its result is OK, NOK or NOT DECIDED. It is considered as finished only when its result is OK, NOK or NOT DECIDED. | |

### KU8\_ATM\_ONE\_SHOT\_RETRY(step\_period)

|  |  |
| --- | --- |
| Name | Value |
| KU8\_ATM\_ONE\_SHOT\_RETRY(step\_period) | (step\_period) (step\_period), KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_RETRY |
| **Definition** | |
| #define KU8\_ATM\_ONE\_SHOT\_RETRY(step\_period) (step\_period), KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_RETRY | |
| **Description** | |
| The autotest is periodically called until its result is OK. It is considered as finished only when its result is OK. | |

### KU8\_ATM\_PERIODIC\_100\_MS(decade)

|  |  |
| --- | --- |
| Name | Value |
| KU8\_ATM\_PERIODIC\_100\_MS(decade) | (decade) (uint16)10u, (decade) |
| **Definition** | |
| #define KU8\_ATM\_PERIODIC\_100\_MS(decade) (uint16)10u, (decade) | |
| **Description** | |
| Main timing (100 ms) Auto tests manager parameters macros, to be used in 'castATMConfig' definition. | |

### KU8\_ATM\_PERIODIC\_10\_MS

|  |  |
| --- | --- |
| Name | Value |
| KU8\_ATM\_PERIODIC\_10\_MS | (uint16)1u, (uint8)0u |
| **Definition** | |
| #define KU8\_ATM\_PERIODIC\_10\_MS (uint16)1u, (uint8)0u | |
| **Description** | |
| Main timing (10 ms) Auto tests manager parameters macros, to be used in 'castATMConfig' definition. | |

### KU8\_ATM\_PERIODIC\_20\_MS

|  |  |
| --- | --- |
| Name | Value |
| KU8\_ATM\_PERIODIC\_20\_MS | (uint16)1u, (uint8)0u |
| **Definition** | |
| #define KU8\_ATM\_PERIODIC\_20\_MS (uint16)1u, (uint8)0u | |
| **Description** | |
| Main timing (20 ms) Auto tests manager parameters macros, to be used in 'castATMConfig' definition. | |

### KU8\_ATM\_PERIODIC\_1\_S(decade)

|  |  |
| --- | --- |
| Name | Value |
| KU8\_ATM\_PERIODIC\_1\_S(decade) | (decade) (uint16)100u, (decade) |
| **Definition** | |
| #define KU8\_ATM\_PERIODIC\_1\_S(decade) (uint16)100u, (decade) | |
| **Description** | |
| Main timing (1 s) Auto tests manager parameters macros, to be used in 'castATMConfig' definition. | |

### KU8\_END\_OF\_SUB\_LIST

|  |  |
| --- | --- |
| Name | Value |
| KU8\_END\_OF\_SUB\_LIST | (uint16)0, (uint8)1, (uint8)0 |
| **Definition** | |
| #define KU8\_END\_OF\_SUB\_LIST (uint16)0, (uint8)1, (uint8)0 | |
| **Description** | |
| Delimiter used between lists. Indicates to the ATM main function to continue with its current indexes. | |

### KU8\_END\_OF\_THE\_WHOLE\_LIST

|  |  |
| --- | --- |
| Name | Value |
| KU8\_END\_OF\_THE\_WHOLE\_LIST | (uint16)0, (uint8)0, (uint8)0 |
| **Definition** | |
| #define KU8\_END\_OF\_THE\_WHOLE\_LIST (uint16)0, (uint8)0, (uint8)0 | |
| **Description** | |
| Delimiter used to terminate the list. Indicates to the ATM main function to loop back to the first list and reset all its indexes. | |

### KU16\_CFG\_MAX\_DECADE

|  |  |
| --- | --- |
| Name | Value |
| KU16\_CFG\_MAX\_DECADE | ((uint16)60000) |
| **Definition** | |
| #define KU16\_CFG\_MAX\_DECADE ((uint16)60000) | |
| **Description** | |
| NA | |

### KU16\_CFG\_MAX\_TASK

|  |  |
| --- | --- |
| Name | Value |
| KU16\_CFG\_MAX\_TASK | ((uint16)5) |
| **Definition** | |
| #define KU16\_CFG\_MAX\_TASK ((uint16)5) | |
| **Description** | |
| NA | |

### KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB | ((uint8)0) |
| **Definition** | |
| #define KU8\_MODES\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_INHIB ((uint8)0) | |
| **Description** | |
| NA | |

### KU8\_MODES\_\_\_\_\_\_\_\_VOLTAG\_INHIB

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MODES\_\_\_\_\_\_\_\_VOLTAG\_INHIB | ((uint8)1) |
| **Definition** | |
| #define KU8\_MODES\_\_\_\_\_\_\_\_VOLTAG\_INHIB ((uint8)1) | |
| **Description** | |
| NA | |

### KU8\_MODES\_BELTFN\_\_\_\_\_\_\_\_INHIB

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MODES\_BELTFN\_\_\_\_\_\_\_\_INHIB | ((uint8)3) |
| **Definition** | |
| #define KU8\_MODES\_BELTFN\_\_\_\_\_\_\_\_INHIB ((uint8)3) | |
| **Description** | |
| NA | |

### KU8\_MODES\_BELTFN\_VOLTAG\_INHIB

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MODES\_BELTFN\_VOLTAG\_INHIB | ((uint8)2) |
| **Definition** | |
| #define KU8\_MODES\_BELTFN\_VOLTAG\_INHIB ((uint8)2) | |
| **Description** | |
| NA | |

### KU8\_NUMBER\_OF\_INHIBITING\_MODES

|  |  |
| --- | --- |
| Name | Value |
| KU8\_NUMBER\_OF\_INHIBITING\_MODES | ((uint8)5) |
| **Definition** | |
| #define KU8\_NUMBER\_OF\_INHIBITING\_MODES ((uint8)5) | |
| **Description** | |
| NA | |

### ATM\_KU8\_NB\_OF\_STARTUP\_AUTO\_TESTS

|  |  |
| --- | --- |
| Name | Value |
| ATM\_KU8\_NB\_OF\_STARTUP\_AUTO\_TESTS | ((uint8) 17) |
| **Definition** | |
| #define ATM\_KU8\_NB\_OF\_STARTUP\_AUTO\_TESTS ((uint8) 17) | |
| **Description** | |
| NA | |

### KU8\_NB\_OF\_RUNNING\_CYCLIC\_ELTS

|  |  |
| --- | --- |
| Name | Value |
| KU8\_NB\_OF\_RUNNING\_CYCLIC\_ELTS | ((uint8)45) |
| **Definition** | |
| #define KU8\_NB\_OF\_RUNNING\_CYCLIC\_ELTS ((uint8)45) | |
| **Description** | |
| NA | |

### KU8\_NB\_OF\_STARTUP\_CYCLIC\_ELTS

|  |  |
| --- | --- |
| Name | Value |
| KU8\_NB\_OF\_STARTUP\_CYCLIC\_ELTS | ((uint8)6) |
| **Definition** | |
| #define KU8\_NB\_OF\_STARTUP\_CYCLIC\_ELTS ((uint8)6) | |
| **Description** | |
| NA | |

### KU8\_AUTO\_TEST\_CONFIG\_NO\_TYPE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_AUTO\_TEST\_CONFIG\_NO\_TYPE | ((uint8)(0x00)) |
| **Definition** | |
| #define KU8\_AUTO\_TEST\_CONFIG\_NO\_TYPE ((uint8)(0x00)) | |
| **Description** | |
| NA | |

### KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT

|  |  |
| --- | --- |
| Name | Value |
| KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT | ((uint8)(0x08)) /\* execution until OK or NOK \*/ |
| **Definition** | |
| #define KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT ((uint8)(0x08)) /\* execution until OK or NOK \*/ | |
| **Description** | |
| NA | |

### KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_ABORT

|  |  |
| --- | --- |
| Name | Value |
| KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_ABORT | ((uint8)(0x02)) /\* execution frozen if NOK \*/ |
| **Definition** | |
| #define KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_ABORT ((uint8)(0x02)) /\* execution frozen if NOK \*/ | |
| **Description** | |
| NA | |

### KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_DECIDED

|  |  |
| --- | --- |
| Name | Value |
| KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_DECIDED | ((uint8)(0x10)) /\* Retry until different from NOT DECIDED \*/ |
| **Definition** | |
| #define KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_DECIDED ((uint8)(0x10)) /\* Retry until different from NOT DECIDED \*/ | |
| **Description** | |
| NA | |

### KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_RETRY

|  |  |
| --- | --- |
| Name | Value |
| KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_RETRY | ((uint8)(0x04)) /\* execution until OK \*/ |
| **Definition** | |
| #define KU8\_AUTO\_TEST\_CONFIG\_TYPE\_ONE\_SHOT\_RETRY ((uint8)(0x04)) /\* execution until OK \*/ | |
| **Description** | |
| NA | |

### KU8\_AUTO\_TEST\_CONFIG\_TYPE\_PERIODIC

|  |  |
| --- | --- |
| Name | Value |
| KU8\_AUTO\_TEST\_CONFIG\_TYPE\_PERIODIC | ((uint8)(0x01)) |
| **Definition** | |
| #define KU8\_AUTO\_TEST\_CONFIG\_TYPE\_PERIODIC ((uint8)(0x01)) | |
| **Description** | |
| NA | |

# EEPROM

The EEPROM parameters are all specified in [Doc3 = SBE\_4G\_NVP\_layout.xls].

Refer to this document for more details.

# Configuration

No special configuration for ATM software component.

# Compilation Options

No compilation options for ATM software component.