

Document Title	Acceptance Tests Main Requirements
Document Owner	AUTOSAR
Document Responsibility	AUTOSAR
Document Identification No	626
Document Classification	Auxiliary
Document Status	Final
Part of AUTOSAR Product	Acceptance Tests for Classic Platform
Part of Product Release	1.1.0

Document Change History		
Release	Changed by	Change Description
1.1.0	AUTOSAR Release Management	• ATR_Main_00010 updated • Formal changes
1.0.0	AUTOSAR Release Management	Initial release

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1 Scope of Document

Each partner has committed to the overall project objectives (PO) of AUTOSAR. The objectives are listed in the AUTOSAR Standard Info Pack V3.3 or in subsequent documents. AUTOSAR Standard Info Pack is an official communication paper of development partnership.

The objective of proposing AUTOSAR Acceptance Test is not directly usable and has to be refined in order to generate the specific acceptance test technical requirements. For this purpose, the AUTOSAR Acceptance Test Main Requirements are established as a fundamental base to derive these specific acceptance test requirements.

The goal of this document is to define the main requirements for acceptance test of AUTOSAR.

2 Conventions to be used

- The representation of requirements in AUTOSAR documents follows the table specified in [TPS_STDT_00078].
- In requirements, the following specific semantics shall be used (based on the Internet Engineering Task Force IETF).

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as:

- **SHALL**: This word means that the definition is an absolute requirement of the specification.
- **SHALL NOT**: This phrase means that the definition is an absolute prohibition of the specification.
- **MUST**: This word means that the definition is an absolute requirement of the specification due to legal issues.
- **MUST NOT**: This phrase means that the definition is an absolute prohibition of the specification due to legal constraints.
- **SHOULD**: This word, or the adjective "RECOMMENDED", mean that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.
- **SHOULD NOT**: This phrase, or the phrase "NOT RECOMMENDED" mean that there may exist valid reasons in particular circumstances when the particular behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
- **MAY**: This word, or the adjective „OPTIONAL“, means that an item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because the vendor feels that it enhances the product while another vendor may omit the same item. An implementation, which does not include a particular option, **MUST** be prepared to interoperate with another implementation, which does include the option, though perhaps with reduced functionality. In the same vein an implementation, which does include a particular option, **MUST** be prepared to interoperate with another implementation, which does not include the option (except, of course, for the feature the option provides.)

3 Acronyms and Abbreviations

All acronyms and abbreviations used throughout this document are included in the official AUTOSAR glossary [**Glossary**]. For respective explanation please see there.

4 Acceptance tests main requirements

4.1 [ATR_Main_00001] Acceptance tests shall minimize test effort and test costs

Type:	Valid
Description:	In order to avoid redundant test cycles and ease the reuse of test results for users of AUTOSAR standard, acceptance tests shall focus on reduction of test effort and test costs. Test concept shall address explicitly efficiency.
Rationale:	Users of acceptance tests will typically use these tests for checking that a BSW implementation is mature enough to enter the user's ECU software development process. Within this development process, there are usually more in-depth release tests in place. The acceptance tests are thus not required to test the BSW in full depth and with full coverage and can therefore not replace release tests at OEMs or Tier1s. Standard test ease the reuse of test results because they are commonly understood by different market partners (who use the test results / who implement the tests and who execute the tests).
Use Case:	BSW handover into Development process Selection of the standard tests needed for an application (where test results are required) / documentation of the standard test supported by a BSW implementation (where test results will be provided)
Dependencies:	--
Supporting Material:	--
Tested Items:	--

](RS_PO_00007, RS_PO_00002)

4.2 [ATR_Main_00002] Acceptance tests shall test interoperability of BSW implementations of one AUTOSAR release in one vehicle network

Type:	valid
Description:	Acceptance tests shall ensure interoperability of BSW implementations of one AUTOSAR release in one vehicle network
Rationale:	Sourcing and differences in lifecycles of ECUs require flexibility in the choice of BSW implementations
Use Case:	Heterogenic vehicle networks of ECUs with different BSW implementations of the same AUTOSAR release
Dependencies:	--
Supporting Material:	--
Tested Items:	RS_Main_00230, RS_Main_00430, RS_Main_00260, RS_Main_00160, RS_Main_00360

](RS_PO_00001, RS_PO_00002, RS_PO_00007, RS_PO_00008)

4.3 [ATR_Main_00003] Acceptance tests shall test interoperability of BSW implementations in vehicle networks

Type:	valid
Description:	Acceptance tests shall test interoperability of BSW implementations in vehicle networks.
Rationale:	BSW is supplied from various sources and suppliers
Use Case:	heterogenic vehicle networks of ECUs from different suppliers and gateways
Dependencies:	--
Supporting Material:	--
Tested Items:	RS_Main_00210, RS_Main_00230, RS_Main_00430, RS_Main_00260, RS_Main_00160, RS_Main_00360, RS_Main_00270

[(RS_PO_00001, RS_PO_00002, RS_PO_00007, RS_PO_00008)]

4.4 [ATR_Main_00004] Acceptance tests shall test interoperability of BSW implementations to applications

Type:	valid
Description:	Acceptance tests shall test interoperability of BSW implementations to applications.
Rationale:	Application development must be independent from the different BSW implementations. The application interfaces are the RTE with its interfaces and the BSW services.
Use Case:	Strategic, abstract and generic application development Support for different development cycles for applications and BSW implementations
Dependencies:	--
Supporting Material:	--
Tested Items:	RS_Main_00400, RS_Main_00150, RS_Main_00060, RS_Main_00410, RS_Main_00440, RS_Main_00460, RS_Main_00260, RS_Main_00160, RS_Main_00080, RS_Main_00320

[(RS_PO_00001, RS_PO_00002, RS_PO_00007, RS_PO_00008)]

4.5 [ATR_Main_00005] Acceptance tests shall provide means to measure quality of BSW implementation

Type:	valid
Description:	Acceptance tests shall provide a reference to measure quality.
Rationale:	Generic test goal, it is the purpose of testing
Use Case:	Usage of standard tests during the qualification process of BSW implementation
Dependencies:	--
Supporting Material:	--
Tested Items:	--

[(RS_PO_00007, RS_PO_00008)]

4.6 [ATR_Main_00006] Acceptance tests shall support mainstream releases

Type:	valid
Description:	Acceptance tests shall support mainstream releases starting from release 3.2.
Rationale:	Provide tests for the most used releases
Use Case:	Support users of multiple releases and reduce development and maintenance effort by supporting multiple release in the same test specification.
Dependencies:	--
Tested Items:	--
Supporting Material:	--

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4.7 [ATR_Main_00007] Execution of acceptance tests shall be feasible by any market partner

Type:	valid
Description:	Execution of acceptance tests shall be feasible by any market partner.
Rationale:	AUTOSAR does not enforce a specific business model (OEM, Tier 1, Tier 2, independent laboratory, ...)
Use Case:	AUTOSAR is an open architecture
Dependencies:	--
Supporting Material:	--
Tested Items:	--

J(RS_PO_00007)

4.8 [ATR_Main_00008] Acceptance tests shall cover a commonly agreed subset of AUTOSAR requirements

Type:	valid
Description:	Acceptance tests shall cover a commonly agreed subset of AUTOSAR requirements.
Rationale:	By definition acceptance tests are designed from user perspective, the user decides to accept the BSW for further usage in projects. The configurability of AUTOSAR requires focusing on the most used features.
Use Case:	Specification and implementation effort focussed on the features or test cases with the highest market needs
Dependencies:	--
Supporting Material:	--
Tested Items:	--

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4.9 [ATR_Main_00009] Acceptance tests shall provide a commonly agreed test methodology

Type:	valid
Description:	Acceptance test shall provide a commonly agreed test methodology.
Rationale:	Consistencies within test suites and between users of test suites
Use Case:	Extension of the standard test suite with OEM specific tests is possible by using the same methodology Cooperation between companies using the acceptance tests methodology
Dependencies:	--
Tested Items:	--
Supporting Material:	--

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4.10 [ATR_Main_00010] Acceptance tests shall only test ICC1 interfaces

Type:	valid
Description:	Acceptance tests shall only test ICC1 interfaces. When the test of an ICC1 interface requires internal points of control or observation in the BSW implementation, only standard features shall be used
Rationale:	Test cases should not require the presence of internal APIs (ICC2 or ICC3 APIs). Acceptance Test shall be applicable to implementations independently of their internal structure (ICC level)
Use Case:	Support test of any ICC implementations (from ICC1 to ICC3). Reuse of the same test specification even when the ICC3 specification details change
Dependencies:	--
Supporting Material:	--
Tested Items:	--

] (RS_PO_00007)

5 References

[Glossary] Glossary,
AUTOSAR_TR_Glossary.pdf

[TPS_STDT] Standardization Template,
AUTOSAR_TPS_StandardizationTemplate.pdf