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1 Introduction

The AUTOSAR CTA accreditation process [2] sets the procedural framework for the admission of Conformance Test Agencies (either third or first party) for the AUTOSAR standard. A core part of the accreditation process is an assessment of the prospect organization upon entry, which is repeated in regular intervals and at two varying levels of detail (full assessment versus surveillance).

To assure the quality of these assessments, independent Accreditation Bodies are required, which in turn nominate the competent assessors. This document defines the relevant requirements for these Accreditation Bodies.

1.1 Related Documentation

1.1.1 Input documents

- [1] Conformance Test Process Definition Path A-C
https://svn2.autosar.org/repos2/22_Releases
AUTOSAR_DS_CT Path A-C.pdf
- [2] AUTOSAR Conformance Test Agency Accreditation
https://svn2.autosar.org/repos2/22_Releases
AUTOSAR_DS_Accreditation.pdf
- [3] AUTOSAR CTA Accreditation - application Rule for ISO/IEC GUIDE 65
https://svn2.autosar.org/repos2/22_Releases
AUTOSAR_DS_Accreditation - application of ISO Guide 65.pdf
- [4] AUTOSAR CTA Accreditation - application Rule for ISO/IEC 17025
https://svn2.autosar.org/repos2/22_Releases
AUTOSAR_DS_Accreditation - application of ISO 17025.pdf

1.1.2 Related standards and norms

- [5] ISO/IEC 17000:2004 Conformity assessment – Vocabulary and general principles
- [6] ISO/IEC 17011:2004 Conformity assessment – General requirements for accreditation bodies accrediting conformity assessment bodies
- [7] ISO/IEC GUIDE 65:1996 General requirements for bodies operating product certification systems
- [8] ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories

2 The context of accreditation within AUTOSAR

The AUTOSAR conformance test process [1] is based on three conformance test tasks:

1. Provision of a Conformance Test Suite (CTS)
2. The conformance testing itself, i.e. to perform the relevant set of executable conformance test cases against the product under test
3. Attestation of test results

The purpose of accreditation is to ensure the ability of the assessed organization to accomplish the aforementioned tasks. Multiple paths of the conformance test process enable some combinations of these tasks to be performed by different parties. In particular there are two types of Conformance Test Agencies (CTA) which are subjected to the accreditation process [2]:

- Third party CTA
Here the focus of the accreditation is on the ability to provide a CTS and to perform the attestation of test results task, which results in a third party attestation of product conformance. In addition, a third party CTA may offer conformance test execution services.
- First party CTA
Inherently, these organizations are Product Suppliers¹ (PS), which apply self-conformance testing procedures. In addition, the focus for the accreditation is on the ability to perform the conformance test execution task (the attestation of test results is a mere self-conformance declaration).

Figure 1 provides an overview context of the accreditation process within AUTOSAR.

¹ In this context a product supplier is a company that develops and markets products, which utilize the AUTOSAR specifications

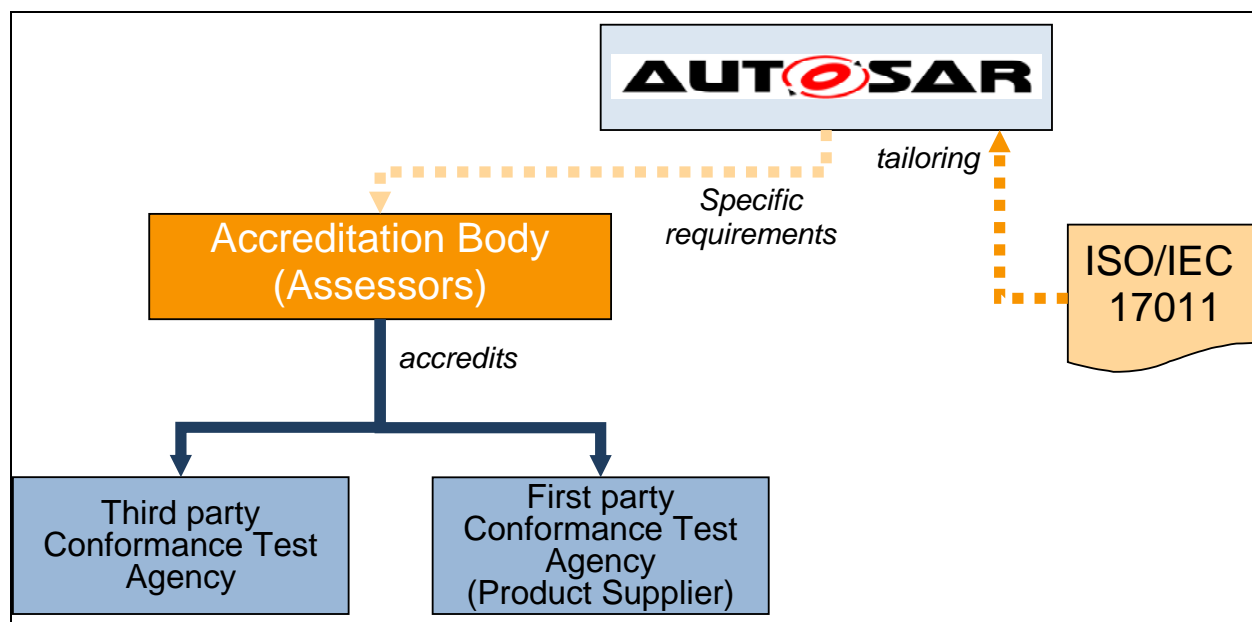


Figure 1: The context of accreditation within AUTOSAR

The accreditation process steps for both types of CTA are in principle the same. In either case the core activity is the independent assessment, which represents an impartial verification of the relevant competencies of the assessed organization. Such an assessment is based on AUTOSAR application rules of pertinent international standards. This is further detailed in [2].

To conduct the assessments, authoritative organizations are required that are impartial by their statutes (in relation to automotive product suppliers and their clients). In conclusion to the above, these organizations shall be able to assess other organizations based on the assessment criteria specified by AUTOSAR.

The AUTOSAR organization itself is not involved in the assessment by any means other than providing the AUTOSAR specific application rules of the pertinent international standards for accreditation.

3 CTA Accreditation Bodies

The AUTOSAR organization seeks to have in place several CTA Accreditation Bodies, based on the objectives listed in

Table 1 below.

Category	No.	Objective
Individual	O1	An AUTOSAR CTA Accreditation Body complies with the general requirements as specified in ISO/IEC 17011 [6] and those specific technical and procedural requirements for the AUTOSAR standard as defined in this document.
	O2	An AUTOSAR CTA Accreditation Body is able to cover all required technical areas of the AUTOSAR standard (i.e. as far as these are relevant to the conformance test process) through assessors possessing the relevant expertise
Global	O3	In order to enable a choice for prospect CTAs there should be more than one accreditation body for the AUTOSAR standard.
	O4	Global coverage, that is to ensure that no prospect CTA faces an unreasonable entrance barrier due to lack of local support.

Table 1: Objectives for CTA Accreditation Bodies

The first two objectives O1 and O2 apply to any single Accreditation Body and set mandatory requirements that a candidate must fulfill. The AUTOSAR specific technical and procedural requirements are detailed in section 4.2.

Instead, the latter two objectives O3 and O4 relate to the full list of Accreditation Bodies.

The AUTOSAR organization will actively contact competent candidates and does accept enquiries (for information exchange) from any other organization operating in the field of accreditation. In either case, a direct communication path for exchange of information will be established. The AUTOSAR Administrator is the central point of contact for any candidate or Accreditation Body.

The AUTOSAR organization will not itself take any decision on acceptance or denial of a CTA Accreditation Body. Instead any candidate that fulfils the requirements specified in this document is qualified to act as a CTA Accreditation Body in the

AUTOSAR context. In this case it shall issue a formal statement, i.e. a declaration of compliance with the set requirements. It is recommended that this declaration is posted to the AUTOSAR organization, including:

- Statement of compliance with the requirements specified in this document
- Scope of activities relevant to the AUTOSAR accreditation process, e.g. geographical coverage
- Contact information including a responsible person for exchange of information
- Statement of consent or otherwise that the AUTOSAR organization may list the Accreditation Body for internal and external communication (including e.g. the AUTOSAR web site) including the following data: name of the organization, the AUTOSAR related scope of activities, and contact information.

Likewise, it is recommended that an Accreditation Body informs the AUTOSAR organization on any relevant change, e.g. the discontinuation as Accreditation Body.

If a party intends to act as a CTA as well as an Accreditation Body, self-accreditation must be excluded.

The AUTOSAR organization reserves the right to communicate the current list of available Accreditation Bodies to the AUTOSAR community and in public communication, unless explicitly stated otherwise.

4 Requirements on CTA Accreditation Bodies

The appropriate competency of an Accreditation Body is determining the quality of the AUTOSAR accreditation process.

The relevant requirements on such an organization can be divided into:

- General requirements, applicable also for other (technical) standards
- Specific requirements, applicable to the AUTOSAR technology and process needs

The general requirements refer to the internationally established standard ISO/IEC 17011 [6], the appropriate sections of which are complemented by AUTOSAR specific requirements as detailed in section 4.2.

4.1 General requirements

An AUTOSAR CTA Accreditation Body shall declare in writing its full compliance with the requirements as set out in ISO/IEC 17011. As described in this standard (e.g. sections 5.3, 5.4 and 7.14), this shall be evidenced by means of documentation including records of assessment activities. An overview of the available documentation and relevant samples shall be made available to the AUTOSAR organization or an independent witness (subject to confidentiality agreements) upon request.

4.2 AUTOSAR specific requirements

AUTOSAR defines specific requirements to be fulfilled by the Accreditation Bodies in order to:

- Ensure a minimum level of expertise and applied experience of the available assessors in order to verify the competence of CTAs with respect to the AUTOSAR standard.
- Satisfy process needs, in particular the provision of relevant information to the AUTOSAR organization, e.g. in order to maintain an up-to-date list of accredited CTAs for communication to AUTOSAR members.

The AUTOSAR specific requirements are detailed in the below sections.

4.2.1 Personnel associated with the Accreditation Body²

A sufficient number of personnel employed or contracted by the Accreditation Body shall possess an appropriate level of knowledge and applied practical experience as detailed in

Table 2 below.

<i>Technical area</i>	<i>Minimum Knowledge</i>	<i>Minimum Experience</i>
AUTOSAR basics according to the valid AUTOSAR releases <ul style="list-style-type: none"> • Software architecture • BSW • VFB concept, e.g. Communication paradigms (Client/Server, Sender/Receiver) • AUTOSAR methodology & exchange formats/templates • AUTOSAR RTE interfaces and generation process 	2	1
Real-time operating systems (preemption, scheduling)	2	2
Micro Controller and Networking (automotive bus-systems)	2	1
Formal test notations, in particular TTCN-3	3	1
Formatting human/machine readable information with XML in a hierarchical structure	2	2
Software Modeling, in particular UML 2.0	2	1
Embedded Software programming (min. C language)	2	3
Embedded Software interface testing	3	3
Build environment for Embedded Systems (make file, cross-compiler, linker, map-file)	2	3

Table 2: Technical skills requirements

Legend:

Knowledge level		Experience level
Low	1	Low
Basic	2	Basic (1-3 years)
High	3	High (professional)

² For comparison see also clause 6.1.1 of ISO/IEC 17011 [6]

4.2.2 Personnel involved in the accreditation process³

The Accreditation Body shall ensure that the nominated assessors are familiar with the AUTOSAR accreditation process as defined in [2].

4.2.3 Accreditation criteria and information⁴

The criteria for accreditation of CTAs are based on the international standards ISO/IEC Guide 65 [7] and ISO/IEC 17025 [8]. For the AUTOSAR specific accreditation process, the relevant AUTOSAR application rules, which are detailed in [3] respectively [4], have to be applied.

4.2.4 Obligations of the Accreditation Body⁵

The Accreditation Body shall inform the CTA and the AUTOSAR organization in writing⁶ of any relevant change in the accreditation status (i.e. granting, extending, reducing, suspending or withdrawing accreditation) of the CTA within one week from the incidence. Irrespective of any further documentation this communication shall take the form as specified in Annex E of [2].

³ For comparison see also clause 6.2.4 of ISO/IEC 17011 [6]

⁴ For comparison see also clause 7.1.1 of ISO/IEC 17011 [6]

⁵ For comparison see also clause 8.2.1 of ISO/IEC 17011 [6]

⁶ via email to: admin@autosar.org

Annex A Acronyms and Abbreviations

BSW	Basic Software
CT	Conformance Test(ing)
CTA	Conformance Test Agency
CTS	Conformance Test Suite
PS	Product Supplier
RTE	Runtime Environment
TTCN	Testing and Test Control Notation
UML	Unified Modeling Language
VFB	Virtual Functional Bus
XML	Extensible Markup Language