8.2 VDA CRS Module II

VDA Component Requirement Specification Structure

Module II
Component Requirement Specification – Mechanical and E/E components

<Title>
<Number>

Version 1.0

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1 Foreword

Editor comments (delete in the final version)

This chapter is an informative introductory element that gives certain information or commentaries about the purpose of the requirement specification (e.g. that the requirement specification describes services, requirements, inspection and testing conditions that the product to be developed has to fulfil). The foreword must not contain any technical or functional requirements, images or tables.

Rules for handling the VDA component requirement specification structure

1. Structure: level 1 and level 2 of the VDA component requirement specification structure have to be kept and must not be changed.

2. Expansion of the structure: if supplements are necessary in the implementation of the VDA structure on level 1, in each case these are to be added to the last chapter with content of Module I or Module II (see Module I, chapter 12 and Module II chapter 7).

Expansions on level 2 of the VDA structure are to be placed at the end of a respective sub-chapter structure (see e.g. Module I, chapter 2.6).

3. Headlines that are not used may not be deleted on levels 1 and 2 of the Modules I and II, in order to guarantee the transparency and clarity of the component requirement specification contents. Instead, these chapters are to be marked with the reference “not relevant for this component”.

When referencing an external document it has to be entered here.

4. Contents on level 3 are to be preferentially used and have the nature of a recommendation. If chapters from level 3 are not used, these may be deleted or renamed.

This document is based on the VDA CRS structure. It consists of universal requirements for the component requirement specification (Module I) and the component requirement specification for mechanical and E/E components (Module II). For more information please go to www.vda-qmc.de.
2 General Project Requirements

2.1 Development Scope Abstract

Editor comments (delete in the final version)

In this chapter, roughly describe the component and/or the service scope to be developed.

2.2 Objective

Editor comments (delete in the final version)

This chapter provides information about the rough objective of the product to be developed and/or delivered (e.g. clear improvements in regard to image, market leadership, expected costs, consumption, efficiency, pollutant emissions, etc).

The superordinated objectives (development, production, etc.) that go beyond this are defined in Module I.

2.3 Classification of the Component

Editor comments (delete in the final version)

In this chapter the component-specific details are to be given about product line, target markets, fields and purpose of application to which the component is to be assigned and for which it is to be developed. Furthermore, stipulations about variant management (at the contractor's) and about a targeted blocking of components, parts or product lines are to be made.

In addition, specific features and regulations (internal and external) for various target markets should be addressed if possible.
2.4 Execution Regulations

*Editor comments (delete in the final version)*

In this chapter, component-specific regulations (reuse, evaluation, etc.) of how the contractor is to deal with the requirement specification, all drawings, etc. are to be made, if necessary by means of a lock flag.

Additionally, further requirements on the data security are to be formulated here if they have not already been defined in the chapter “Product Data Management” (Module I).

2.5 Development and Supply Scope

*Editor comments (delete in the final version)*

In this chapter the development and delivery scope is to be described, i.e. all services that are connected to the delivery of the component (including prototypes).

2.6 Quotation Scope

*Editor comments (delete in the final version)*

Which content the contractor’s quotation has to contain (project schedule, testing plan, etc.) is to be established in this chapter. This also includes the proof of certification, auditing, etc., that are necessary at the time of the quotation at the latest.

Furthermore, a reference to the performance requirement is to be stated here, if this is necessary.

2.7 Properties, Condition and Durability

*Editor comments (delete in the final version)*

The requirements on the properties, condition and durability of the components are to be formulated in this chapter.
2.8 Development Process

2.8.1 Schedule and Milestones

2.8.1.1 Schedule

*Editor comments (delete in the final version)*

A component-specific development and testing schedule that deviates from the project master schedule (e.g. for long-running parts) is to be individually stipulated here.

If available, reference is to be made to a schedule with project-wide validity, in order to avoid redundancies between the individual CRS modules (cross-component deadlines are determined in CRS Module 1).

2.8.1.2 Milestones

*Editor comments (delete in the final version)*

The participants, the contents and the possible escalation paths for certain milestones over the course of the project are to be determined here (reference is to be made to existing standards in the CRS Module 1 where possible).

Furthermore, component-specific “main milestones”, assurance levels (e.g. by means of component-specific deadlines or component descriptions) have to be defined in this chapter. Customer requirements on the contractor’s internal reviews (e.g. participation possibility, result documentation) have to be determined for different types of reviews (design, design engineering, validation, crash, etc).

2.8.1.3 Reviews

*Editor comments (delete in the final version)*

The type, number, date and participants (function) of reviews (e.g. requirement review, design review, quality gates, project management reviews, and additional development-accompanying reviews) are to be determined here.
2.8.2 Prototype Statuses

Editor comments (delete in the final version)

Definition of prototype categories and pieces regarding the properties and condition at milestones, the deadlines and the number of individual pieces. Reference is to be made to existing standards, if applicable, when defining prototype statuses (the generally valid definitions should be listed in CRS Module I if they are relevant to the contractor).

2.8.3 Prototype Quantities

Editor comments (delete in the final version)

In this chapter the quantities of the individual prototype statuses are to be agreed on with the contractor.

2.8.4 Acceptance Procedure

Editor comments (delete in the final version)

The inspections that are to be carried out and the acceptance and release criteria for the various prototype statuses and first samples are to be defined here.

For the proof of compliance to legal requirements, tests in consultation with the customer’s responsible department and, if necessary, in the presence of the technical monitoring service are to be carried out and documented.

2.8.5 Type Approval and Certification

Editor comments (delete in the final version)

Here the type approvals and certifications to be carried out for the vehicle are to be defined that also have an effect on the development and release of the individual components (content, terms, VDA standards, DIN standards, etc).

If available, information about the milestones within the certification of the component and the vehicle has to be given here.
2.9 Quality and Reliability

2.9.1 Quality Concepts

Editor comments (delete in the final version)

In this chapter, requirements for quality and reliability are to be described that go beyond the legally binding as well as the general requirements in CRS Module I (e.g. early fault detection system).

Preventive quality concepts in the project process for the safeguarding of the automotive suitability and long-term quality have to be defined in this chapter.

2.9.2 Risk Management

Editor comments (delete in the final version)

In this chapter, requirements are to be formulated as to how the contractor or its sub-supplier is to conduct risk management. A differentiated determination of the responsibilities between customer, contractor or sub-supplier is important.

Furthermore, component-specific details about FMEA or FTA (e.g. type [process, product] or design) as well as the tests to be conducted and deadlines are to be given.

In this chapter the evaluations for relevant parts (risk components) that are to be conducted in the framework of a preventive quality concept are to be determined.

In the course of a CPM process, all parts of the E/E components are to be identified in this chapter whose risks regarding insufficient automotive suitability according to the above evaluation is classified as “to be critically observed”.

Annex Page 8-12
2.9.3 Validation of the SW Development

Editor comments (delete in the final version)

*In this chapter, agreements for the validation of the software quality are made. The requirements on the SW quality management are to be defined.*

2.10 Content Amendments

Editor comments (delete in the final version)

*If the given content structure does not suffice to assign all requirements on level 2 to the superordinated subject on level 1, the requirements can be assigned to this chapter.*

*If this chapter is not needed, you should delete it!*
3 Project Management and Organisation

3.1 Responsibilities in the Project and Project Management Plan

*Editor comments (delete in the final version)*

The responsibilities and escalation paths in the project are to be determined in this chapter. The component-specific requirements have to define the cooperation on various aggregation levels (design engineering, system integration, diagnostics, construction of test vehicles, test drives – further detailing would be conceivable, but should not result in any redundancies to the other requirements and information [e.g. in testing]). A list of contact persons at the customer (and at the contractor, if known) has to be added in order to complete the information.

Supplementary requirements regarding the distribution and fulfilment of tasks are also to be defined in this chapter (e.g. resident engineers, capacity requirements, qualification profiles of the project members, communication concept, and customer cooperation obligations in testing).

3.2 Documentation

3.2.1 Hardware Documentation

*Editor comments (delete in the final version)*

Define the component hardware documentation.

3.2.2 Software Documentation

*Editor comments (delete in the final version)*

Define the component software documentation.
3.2.3 Conformity Requirements

Editor comments (delete in the final version)

The requirements on the conformity of the component and the precautions taken by the contractor for the safeguarding of the conformity are to be requested here.

(Definition of conformity: match of produced vehicle and approved vehicle type within the homologation)

3.3 Content Amendments

Editor comments (delete in the final version)

If the given content structure does not suffice to assign all requirements on level 2 to the superordinated subject on level 1, the requirements can be assigned to this chapter.

If this chapter is not needed, you should delete it!
4 System Environment

4.1 Functional System Environment

Editor comments (delete in the final version)

In this chapter the component and its environment (component environment) is to be described briefly and in an overview manner. This facilitates a quick overview of the function of the component and how it communicates with other components.

4.2 Physical System Environment

Editor comments (delete in the final version)

In this chapter the component is to be described in connection to the relevant physical interfaces as well as to the affected components during development and/or production.

Relevant requirements in regard to mounting, distances and collision, as well as permitted or preferred fastening systems, are also to be described.

4.3 System Circuit Diagram

Editor comments (delete in the final version)

A system circuit diagram that shows the component of this requirement specification in the intended environment is to be added here.

E/E-specific: for electrical system circuit diagrams, the pin assignment – without more exact specification of the individual pins (this takes place in chapter 5: Technical Requirements) – has to be given here.

4.4 Content Amendments

Editor comments (delete in the final version)

If the given content structure does not suffice to assign all requirements on level 2 to the superordinated subject on level 1, the requirements can be assigned to this chapter.

If this chapter is not needed, you should delete it!
5  Technical Requirements

5.1  Naming and Part ID No.

Editor comments (delete in the final version)
Clear names and abbreviations, as well as the part number of the component are to be given here.

5.2  Block and Principle Diagram

Editor comments (delete in the final version)
The described basic and partial functions of the component are to be illustrated here graphically (e.g. as function block diagram or principle depiction).

5.3  Functions

5.3.1  Function Description

Editor comments (delete in the final version)
All functions of the component are to be described in detail in this chapter.

5.3.2  Faulty Operation

Editor comments (delete in the final version)
The requirements on the component regarding possible faulty operation are to be defined here. The requirements for protective timeout as well as regarding targeted misuse of the component are to be described.

5.3.3  Emergency Operation

Editor comments (delete in the final version)
The functional specifications for ensuring emergency operation are to be described here.
5.3.4 Operating Concept and MMI

Editor comments (delete in the final version)

All requirements concerning operation of the component (e.g. switching, pushing, pulling, turning, or multifunction assignment of switches and push buttons) are to be established in this chapter. Although the operating concept for the component to be developed is the main focus in this chapter, the relevant requirements or boundary conditions of possible superordinated or affected systems also have to be addressed (where applicable with a reference to the system description).

Possible requirements on the displays, voice entries and responses, operation philosophy, etc. also have to be documented. Furthermore, the MMI concept for output, reset or confirmation of fault states is to be specified, if applicable. Please note that there could be cross-sections to the MMI requirement specification.

5.3.5 Service and Application Functions

Editor comments (delete in the final version)

Describe the service and/or application functions of the component (e.g. emergency call, DynAPS) here.

5.3.6 Diagnostics

Editor comments (delete in the final version)

The diagnostics requirements on the component and the individual functions are to be defined here.

5.4 Architecture

Editor comments (delete in the final version)

Describe the architecture of the component here. Besides the division into hardware and software (software process, framework software, interfaces, etc.) this also includes the requirements on the component inputs and outputs (e.g. intelligent output stages, etc.) and the delivery state.
5.5 Control Unit Concept

Editor comments (delete in the final version)

A control unit concept determines the individual systems and blocks of the component that are – in terms of software and hardware – necessary for the implementation of the complete function.

Describe the design of the component, taking into consideration the requirements for computer and storage selection, number of plug positions, plugs, operating system, and design principles. Pay attention to the legal regulations and the customer’s system requirements.

5.6 Electrical Interfaces

5.6.1 Signal Characteristics

Editor comments (delete in the final version)

The signal characteristics of all electrical connections (input and output signals, as well as bus signals) are to be described here with all signal information, load behaviour, and conditions under which the signals are positively identified or made available.

The signal characteristics, signal types (analogue or digital), modulation, signal amplitude, frequency range, protocol, bus, signal coding etc. are to be included in the interface documentation.

5.6.2 Diagnostics

Editor comments (delete in the final version)

If a diagnostic interface in the component is intended, the requirements for this (if available) are to be taken from the diagnostics specifications implementation regulations.

5.6.3 Flashing

Editor comments (delete in the final version)

If this component is to be programmed in series production compliant to the customer, this requirement is to be recorded here (e.g. flashing or EEprom).
5.6.4 Pin Assignment

*Editor comments (delete in the final version)*

The physical specifications of the individual pins are to be specified here for each individual plug of the component (current load, cross-section, etc).

5.6.5 Component Connected to Terminal 30

*Editor comments (delete in the final version)*

If there are customer-specified increased requirements on components whose power supplies are connected to the battery (terminal 30) even when the car is parked, they should be specified here.

5.7 Specific Characteristics

*Editor comments (delete in the final version)*

Establish the general characteristics of the component here. Specify in a table the physical, component-specific variables such as the path of a travel sensor. If necessary, also describe the variables.

5.8 Safety Requirements

5.8.1 Person and Passenger Protection

*Editor comments (delete in the final version)*

The mechanical safety requirements on protection systems, operating and environmental safety, as well as the requirements of the active and passive safety on the component are to be described in this chapter.

If possible, additional requirements that directly or indirectly affect the protection of persons (e.g. flammability, mechanical safeguarding of emergency operation, redundancy systems) are also to be defined here.
5.8.2 Vehicle Safety

Editor comments (delete in the final version)

The safety requirements determined by the customer on the complete vehicle or on the component in connection to the complete vehicle are to be determined here (e.g. edge protection, anti-theft protection, and fire prevention).

5.9 Alternative and Future Variants

Editor comments (delete in the final version)

Describe relevant future scenarios that could have an effect on the development or production of the component. These developments should be identified in terms of functional extensions, (construction) variants, design options, alternative production processes, environmental aspects and other plans.

5.10 Weight Targets

Editor comments (delete in the final version)

The details of the weight targets for the component have to be differentiated according to implementation variants (countries, engine, design, etc.) if necessary.

5.11 Installation

5.11.1 Installation Location

Editor comments (delete in the final version)

The component’s installation location (e.g. “boot – trunk”, “in the driver’s door (dry side)”, etc.) is to be indicated here. If necessary, the installation location is to be described more precisely (possibly with an illustration or sketch). If many installation locations are scheduled, all installation locations are to be described.

If the component is exposed to direct sunlight, this should be indicated.

If additional environmental strains occur at the intended installation location, for example through strong heat sources, vibration sources (motors) or similar, these strains are to be described.
5.11.2 Assembly Concept and Requirements from Production

Editor comments (delete in the final version)

Component-specific requirements on the installability, handling in the production process, permitted adjustment work, tensioning and securing concepts, etc. are to be defined here. If possible, details or requirements on the contractor concerning the component-specific start-up screening are to be passed on already.

5.11.3 Geometry

Editor comments (delete in the final version)

The customer is to define the stipulations concerning geometry, dimension, space requirements and packaging in this chapter.

5.11.4 Tolerances

Editor comments (delete in the final version)

The permitted tolerances in the construction and joining process of the component, as well as the types of measurement, definition of source locations, tolerance chains, etc. are to be established here.

5.12 Styling and Design

Editor comments (delete in the final version)

Define the requirements concerning component styling (e.g. flush fit, gap widths, and radiuses).
5.13   Ergonomics

5.13.1   Optical Characteristic and Surface Feel

*Editor comments (delete in the final version)*

In addition to the targeted quality impression of the component, the customer is to also define concrete requirements concerning surface feel of a component (e.g. pressure point or lift on the switches).

Furthermore, the requirements regarding the surface characteristics as well as regarding protection (e.g. anodised, or phosphatised) as well as concerning the characteristics of the component (e.g. roughness and aerodynamics) are also to be determined here.

5.13.2   Acoustics

*Editor comments (delete in the final version)*

In principle, the acoustic requirements that the component has to fulfil are to be established here. In this connection a differentiation of the requirements according to the different operating conditions of the component and the driving conditions of the vehicle has to be made (e.g. permitted threshold values in different driving situations).

Specifically, the development or absorption of noise (e.g. door slamming noise, movement noises) as well as the avoidance of defined frequency ranges and types of noises (e.g. rattling) are to be determined by the requirements. A precise as possible assignment of limit values or tolerance ranges is to be strived for.

5.13.3   Handling

*Editor comments (delete in the final version)*

Information about required handling of the component is to be given in this chapter (e.g. operability of lids).
5.14 Technical Material Requirements

Editor comments (delete in the final version)

The technically permitted or stipulated materials are to be described in this chapter (e.g. permitted processing conditions of the material, fogging, permitted alternative materials, auxiliary materials, permitted or prohibited material pairings).

5.15 Resistance to Media and Chemical Requirements

5.15.1 Contamination

Editor comments (delete in the final version)

Determine the requirements concerning the resistance to contamination here (e.g. types of possible contamination, emissions, reagents, measures to avoid contamination, permitted effects of contamination).

5.15.2 Cleaning

Editor comments (delete in the final version)

Determine the permitted and required cleaning methods (reagents, mechanical demands, etc.) as well as their effects (surface changes) here. As far as possible, measures for the avoidance of unwanted effects are also to be established (e.g. screening).

5.15.3 Corrosion Protection

Editor comments (delete in the final version)

The corrosion protection requirements are to define differentiated requirements concerning the resistance of the component under specified environmental conditions. In this connection, the material-specific differentiation of the requirements is to be made.
5.15.4 Protection Classes

*Editor comments (delete in the final version)*

If possible or available, the specific stipulations of protection classes that the component has to fulfil in terms of certain characteristics (e.g. contact and dust protection, splash water, surface, and IP classes) are to take place.

5.16 Environmental Compatibility

5.16.1 Material Selection

*Editor comments (delete in the final version)*

Determination of material prohibitions for environmental and health reasons (e.g. VDA 232-101 “List of Notifiable Substances in Automotive Production”), compatibility of the materials, requirements on the reduction of the material diversity (e.g. VDA 232-101 “List of Notifiable Substances”).

5.16.2 Recycling Scheme

*Editor comments (delete in the final version)*

Component-specific specifications for the recycling and dismantling scheme are to be given in this chapter.

5.16.3 Recycling Rate

*Editor comments (delete in the final version)*

A component-specific recycling rate is to be defined in this chapter. Furthermore, the calculation regulation used to determine this recycling rate is to be stated (e.g. according to ISO 22628).
5.16.4 Lifecycle Analysis

*Editor comments (delete in the final version)*

The way in which the lifecycle analysis for the component is to be determined is to be established in this chapter. Information concerning the boundary conditions for the creation of a lifecycle analysis is to be given through the type of analysis (e.g. lifecycle inventory analysis or lifecycle impact analysis) and description of the analysis scope (e.g. gate to gate). Consideration of all production and auxiliary materials that are used during product manufacture, consideration of the material manufacture (e.g. aluminium).

5.17 Mechanical Requirements

5.17.1 Load

*Editor comments (delete in the final version)*

Define the direct load requirements on the component (maximum forces, alternating load, forces, weight-dependent loads, predetermined breaking points, acceleration) and also the indirect external mechanical requirements (effects on fastening elements, etc).

5.17.2 Vibration Behaviour

*Editor comments (delete in the final version)*

Define the requirements on the vibration behaviour of the component (e.g. resonance ranges while driving or in different driving conditions, natural frequencies of the component).

5.17.3 Stiffness and Cushioning Characteristics

*Editor comments (delete in the final version)*

The requirements on the stiffness or torsion stiffness, as well as the cushioning characteristics of the component are to be described differentiating according to static and dynamic stiffness.
5.17.4 Deformation

*Editor comments (delete in the final version)*

*The customer is to describe the deformation requirements (e.g. permitted bending of a component in various load situations).*

*The crash requirements on the component have to be detailed here separately.*

5.17.5 Pressure

*Editor comments (delete in the final version)*

*Establish the pressure requirements on the component here (e.g. pressures in various operating conditions, maximum pressures, low pressure).*

5.18 Service Life

*Editor comments (delete in the final version)*

*The customer-specific service life requirements (vehicle service life, operating time, operational performance, etc.) for the component are to be defined here.*

5.19 Electrical Requirements

5.19.1 Description of the Requirements

*Editor comments (delete in the final version)*

*All general and vehicle-specific electrical requirements are to be described here.*

*Electrical requirements on the supply voltage fluctuations, electrical surge, system compatibility and electrical operational stability are to be recorded as the minimum specifications.*
5.19.2 Electromagnetic Compatibility

*Editor comments (delete in the final version)*

The necessary requirements on the electromagnetic compatibility (limit values, etc.) are to be defined here (this is valid for “mechanical” components only insofar as the coils, condensers etc. which they contain are to be protected against short circuit).

5.19.3 Electrostatic Discharge

*Editor comments (delete in the final version)*

The requirements on the component concerning the electrostatic discharge are to be defined here.

5.20 Climatic Requirements

*Editor comments (delete in the final version)*

The thermal requirements on the component are to be defined here (e.g. heat resistance, operating temperature, storage temperature). Furthermore, the other climatic requirements (humidity etc.) should be described.

If country and/or engine-specific variants of the component are planned, these should be differentiated accordingly.

5.21 Service Requirements

*Editor comments (delete in the final version)*

The component-specific service requirements (e.g. service, part handling in the service garage, installability, availability of replacement parts) are to be established in this chapter. Furthermore, the details concerning the repair and replacement parts schemes that are to be taken into account in the development of the component (e.g. demanded to be maintenance-free or compliance to defined service intervals, service and repair times) are to be defined here.
Furthermore, agreements for the processing of the component are to be made in this chapter. Requirements for a technical and cost-effective processing of the component for the reuse as a replacement part are to be described here.

5.22 Transport Protection

Editor comments (delete in the final version)

The customer-specific specifications about the necessary transport protection of the component are to be made here.

5.23 Logistics Requirements

Editor comments (delete in the final version)

In this chapter, the customer is to make component-specific stipulations for the logistic concept (series production and replacement parts). In addition to a description of the required delivery concept (just in time, etc.), these are to contain all data that the contractor has to take into consideration in the development of the component (delivery and storage times, transportability, lot sizes, variances, packaging, load carrier, etc).

Additionally, the locating requirements on the contractor or possible sub-suppliers are to be defined (e.g. selection and release of raw materials, locating single parts at the contractor’s or customer’s premises at any time, technical release(s) in the production and assembly process).

5.24 Quality Assurance Requirements

Editor comments (delete in the final version)

The component-specific requirements on the product and process monitoring in the development and production of the delivery scope are to be defined in this chapter.

This especially includes 100% tests for certain quality characteristics.
5.25 Content Amendments

Editor comments (delete in the final version)

If the given content structure does not suffice to assign all requirements on level 2 to the superordinated subject on level 1, the requirements can be assigned to this chapter.

If this chapter is not needed, you should delete it!
6 Testing and Validation

6.1 Test Equipment and Test Mules

Editor comments (delete in the final version)

Here the customer is to define the test equipment and facilities to be used and establish the possible provision for the contractor (e.g. test mules [engines, vehicles], cable harnesses, plugs, add-on parts, wear and tear parts).

6.2 Proof of Compliance

Editor comments (delete in the final version)

In this chapter, binding regulations are to be made as to which proof of compliance through tests carried out is to be provided by the contractor. The information given here should only define the universal requirements (minimum data scope of the test documentation, proof of compliance, deadlines, customer’s departments that are to be involved, etc). Specific proof of compliance (e.g. separate parameters) should be dealt with in the respective chapters.

6.3 Testing Plan

Editor comments (delete in the final version)

A testing plan is to be established in which the individual tests are referenced.

6.4 Tests

Editor comments (delete in the final version)

A method for how the test results are to be determined should be defined for all relevant characteristics. Furthermore, the number of parts to be tested, the frequency of the tests and who is responsible for testing is to be established. By means of which criteria and what the limits are for a part to be evaluated as meeting the specification are also to be established.
6.5 Test Parameters and Cycles

Editor comments (delete in the final version)

Establish all relevant environmental factors (temperature, pressure, operating condition of the component to be tested, type and angle of the force effect, etc.), the results to be determined (deformation, absorbed forces, etc.), and other relevant data (cycle progression, number of cycles, etc).

6.6 Properties and Condition of the Prototype Status to be Tested

Editor comments (delete in the final version)

Define the properties and condition of the components or parts to be tested (if necessary with reference to standardised prototypes statuses in the CRS Module I).

6.7 Operating Conditions

Editor comments (delete in the final version)

If the component has different operating conditions (e.g. normal operation and emergency operation), the requirements that exist for the intentional bringing about of an operating condition in order to be able to carry out certain tests at all (e.g. in a service garage) are to be listed here. Which requirements are to be tested in which operating condition are also to be listed here.

6.8 Virtual Testing and Simulation

Editor comments (delete in the final version)

The requirements concerning type and scope of virtual tests and simulations are to be defined in this chapter.

If the customer provides the data and models which allow the contractor to, for example, represent the system environment during simulations, this is also to be stated here.
6.9 Vehicle Testing

*Editor comments (delete in the final version)*

*In this chapter the specific requirements on the testing of the component in the vehicle are to be defined.*

6.10 Content Amendments

*Editor comments (delete in the final version)*

*If the given content structure does not suffice to assign all requirements on level 2 to the superordinated subject on level 1, the requirements can be assigned to this chapter.*

*If this chapter is not needed, you should delete it!*
Editor comments (delete in the final version)

If the given content structure does not suffice to assign all requirements on level 1, the requirements can be assigned to this chapter.

If this chapter is not needed, you should delete it!
## Definitions, Terms, Acronyms

*Editor comments (delete in the final version)*

The table of acronyms is to be supplemented by a standardised glossary in which the most important terms that are used within the requirement specification are uniformly defined. For this the same terms from other VDA volumes are to be used for the same facts.

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>CAx</td>
<td>Computer Aided (x = placeholder)</td>
</tr>
<tr>
<td>CPM</td>
<td>Critical Parts Management</td>
</tr>
<tr>
<td>CRS Module I</td>
<td>Component Requirement Specification Module I</td>
</tr>
<tr>
<td>CRS Module II</td>
<td>Component Requirement Specification Module II</td>
</tr>
<tr>
<td>DMU</td>
<td>Digital Mock-Up</td>
</tr>
<tr>
<td>EDM</td>
<td>Engineering Data Management</td>
</tr>
<tr>
<td>E/E</td>
<td>Electrical/Electronic</td>
</tr>
<tr>
<td>EEPROM</td>
<td>Electrically Erasable programmable read only memory</td>
</tr>
<tr>
<td>EMAS</td>
<td>Environmental Management and Auditing Scheme</td>
</tr>
<tr>
<td>FMEA</td>
<td>Failure Mode and Effects Analysis</td>
</tr>
<tr>
<td>FTA</td>
<td>Fault Tree Analysis</td>
</tr>
<tr>
<td>IP</td>
<td>Ingress Protection</td>
</tr>
<tr>
<td>ISO</td>
<td>International Standards Organisation</td>
</tr>
<tr>
<td>MMI</td>
<td>Multimedia Interface</td>
</tr>
<tr>
<td>OEM</td>
<td>Original Equipment Manufacturer</td>
</tr>
<tr>
<td>QM</td>
<td>Quality Management</td>
</tr>
<tr>
<td>RDT</td>
<td>Remote Data Transmission</td>
</tr>
<tr>
<td>RQT</td>
<td>Requalification Test</td>
</tr>
<tr>
<td>SW</td>
<td>Software</td>
</tr>
<tr>
<td>TS</td>
<td>Technical Specification</td>
</tr>
</tbody>
</table>
Editor comments (delete in the final version)

In this connection, only the documents quoted from in the requirement specification are to be considered further applicable documents.

The further applicable documents (laws, standards, customer-specific rules, etc.) that are referred to in the requirement specification text should be differentiately listed according to type of document.

Furthermore, a source (alternative: contact person) of the information for the contractor is to be named.

The further applicable documents that are valid at the CRS issue date are applicable here.

If reference is made to regulations (laws, ordinances, etc.), the reference has to be in such a manner that the procurement is possible. The access address and modalities for the supplier are also to be named here.
8.3 List of Weak Words

The following list contains a selection of words and word combinations which should not be used in connection with requirement specifications and component requirement specifications. They are too “weak” in the truest sense of the word and therefore unsuitable for adequately describing a requirement on a product.

A about, about as … as, absolute, absolutely, according to, actually, additionally, a few, after all, a little, all in all, almost, all too, a lot, already, amazing, among other things, a number of, and, and if, any, anyone, anything, anywhere, apparently, approximately, around (as an estimation, as circa), as far as possible, as if, astonishing, at all, at best, at most, at the same time, at the time, at times, a while, a while ago

B beautiful, best, best-possible, better, but, by far

C careful, certain, certainly, circa, classic, clear, clearly, closely, colossal, common, completely, comprehensible, conceivable, conditional, consequently, constant, corresponding, countless, current, customary, cyclic

D definite, dense, detailed, different, differently, dreadful

E elementary, enormous, enough, essential, even, exactly, exceptional, exceptionally, extraordinary, extremely

F fabulous, fantastic, far, few, for, formerly, for the most part, for the time being, frequent, from, from somewhere, from time to time, further

G good

H hardly, heavy, highly, hopefully, huge

I if applicable, if at all, immediate, immediately, imperceptible, in case, incidentally, incredibly, indeed, in former times, initially, innumerable, in part, in principle, insignificant, in the main, in the meantime, intuitively, isolated

---

<table>
<thead>
<tr>
<th>Letter</th>
<th>Adjectives</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>just, just under</td>
<td></td>
</tr>
<tr>
<td>L</td>
<td>large, largely, less, light, like, likely, long, loud, low</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>mainly, many a, meanwhile, miscellaneous, moderately, modern, more, more or less, mostly, much, multiple</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>nearly, never, next to, not long ago, novel, now and then, nowhere near as ... as, numerous</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>obvious, obviously, occasionally, often, once, once in a while, one, one day, only, only just, operable, optimal, other, otherwise, overall</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>particularly, partly, part of, perfect, perhaps, plausible, poor, possible, possibly, probably, progressive</td>
<td></td>
</tr>
<tr>
<td>Q</td>
<td>quasi, quick, quiet, quite</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>rather, really, reasonably, recently, regular, regularly, remaining, repeatedly, roughly</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>seemingly, seldom, self-explanatory, several, short, shortly, should, similar, simple, slow, small, so, some, some day, somehow, someone, sometimes, somewhat, somewhere, soon, so to speak, special, strong, substantial, such, surely</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td>terrible, terrific, then, thorough, thoroughly, though, tiny, to a certain degree, too, totally, towards, tremendous</td>
<td></td>
</tr>
<tr>
<td>U</td>
<td>under certain circumstances, under no circumstances, unusual, up to date, usual</td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>very, very much, very probably, virtually</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>where possible, widely held</td>
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## 8.4 Attribute List

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<td></td>
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