Quality Management Agreement (QMA)

Table of Contents

I. Abbreviations, Terms, and Definitions

Abbr.	Term	Definition
AIAG	Automotive Industry Action Group	US automotive industry association and the counterpart to the German VDA.
APQP	Advanced Product Quality Planning	A structured, cross-functional process used in the automotive industry to ensure that products and processes are planned, developed, and validated to meet customer requirements before start of production. Equivalent to VDA's MLA.
CC	Critical characteristic	Refer to section >>Special Characteristics (SC/CC)<<.
DD	DeepDrive	DeepDrive GmbH and the entities defined in section >>Application<<.
e.g.	exempli gratia	Short for >>for example<<
ESP	External service providers	Independent companies contracted by DD to provide specialised services, expertise, or operational support. ESPs are subject to the same QMA-related requirements and obligations as DD, including confidentiality, compliance, and quality-related provisions.
IATF	International Automotive Task Force	
i.e.	id est	Short for >>that is<< and >>in other words<<
ISO	International Organisation for Standardization	
	Legal requirements	Statutory (laws passed by legislative bodies) and regulatory (rules issued by government agencies) obligations.
MLA	Maturity Level Assurance	A structured, cross-functional process used in the automotive industry to ensure that products and processes are planned, developed, and validated to meet customer requirements before start of production. Equivalent to AIAG's APQP.
	Part	Term used in relation to >>Part number<<, >>Part name<<, >>Part history<<, etc., even if it might be an assembly, a Product, component, material, or software.
	Process	A sequence of activities within the Supplier's organisation related to the production, handling, or support of a Product. This includes all manufacturing processes and other operational activities that influence the conformity, quality, or delivery of a Product.

	Product(s)	Collective term for all materials, parts, components, assemblies, and software - including hardware containing embedded or integrated software - that are intended for direct integration into DD's final products (electric motors and generators) supplied to customers. This term includes raw materials, semi-finished goods, and complete assemblies at any stage of the manufacturing process.
PPA	Production Part and Process Approval	VDA-defined method for approving production processes and products. Equivalent to AIAG's PPAP.
PPAP	Production Part Approval Process	VDA-defined method for approving production processes and products. Equivalent to AIAG's PPAP.
RRS	Rework, Repair and/or Sorting	
	Service(s)	Activities performed that contribute to the design, handling, modification, completion, verification, or restoration of a Product. Services include engineering and design activities, Product finishing or modification (e.g. coating), assembly operations, and RRS operations (Rework, Repair, Sorting).
SC	Significant characteristic	Refer to section >>Special Characteristics (SC/CC)<<.
UNECE	United Nations Economic Commission for Europe	
VDA	Verband der Automobilindustrie e.V.	German automotive industry association and the counterpart to the US-based AIAG.

Table 1: Abbreviations, Terms, and Definitions

II. References

II.A General

All References (e.g. regulations, standards, norms, etc.) specified in this QMA

- are listed in the >>Table of References<< below,
- applicable/required by the Supplier shall be procured by the Supplier, and
- apply (as soon as applicable to the Supplier and/or a PSP) in their most recent published version.

Appropriate precautions shall be taken to avoid the deliberate or inadvertent application of expired References.

II.B Table of References

Title	Issued by
AIAG & VDA FMEA Handbook	AIAG / VDA
Advanced Product Quality Planning (APQP)	AIAG
Control Plan	AIAG
Directive 2000/53/EC on End-of-Life Vehicles (ELV)	EU
IATF 16949	IATF
ISO 14001 - Environmental management systems	ISO
ISO/IEC 27001 - Information security, cybersecurity and privacy protection	ISO
ISO 21434 - Road vehicles - Cybersecurity engineering	ISO
ISO 45001 - Occupational health and safety management systems	ISO
ISO 50001 - Energy management systems	ISO
ISO 9001 - Quality Management Systems	ISO
Measurement Systems Analysis (MSA)	AIAG
Production Part Approval Process (PPAP)	AIAG
Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)	EU
Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS)	EU
Statistical Process Control (SPC)	AIAG
UN Regulation No. 155 – Uniform provisions concerning the approval of vehicles with regards to cyber security and cyber security management system	UNECE
VDA Volume 1 – Documented Information and Retention	VDA
VDA Volume 2 – Securing the Quality of Supplies	VDA
VDA Volume 5 – Measurement and Inspection Processes	VDA
VDA Volume 6.3 - Process Audit	VDA
VDA Volume 6.5 - Product audit	VDA
VDA Volume 8D - Problem Solving in 8 Disciplines	VDA
Automotive SPICE®	VDA
A process description covering Special Characteristics (SC)	VDA
Field Failure Analysis & Audit Standard	VDA
Maturity level assurance for new parts	VDA

Table 2: Table of References

III. DD Specific Documents

All DD Documents

- listed in this document can be either
  - downloaded on DD's website, or
  - requested at the respective DD Procurement Representative.
- apply (as soon as applicable to the Supplier and/or the PSP) in their most recent published version.

It shall be ensured that

- all listed and applicable documents are complied with,
- the latest version of the respective document is used in any case, and
- the deliberate or inadvertent application or use of expired/revised documents is avoided.

IV. List of Tables

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VI. Application

This QMA and the

- regulations,
- provisions, and
- (legal) requirements

outlined therein

- apply to the business relationship of the Supplier and DD (hereinafter referred to as Parties),
- define the basic requirements and methods required to achieve DD's quality goals

and shall be complied with regarding the provision of all

- documentation, and
- PSPs, i.e.
  - **P**roducts supplied to DD,
  - **S**ervices provided to DD, and
  - **P**rocesses (related to Products and Services),

by the Supplier to DD, which can be

- DeepDrive GmbH,
- DD's affiliated enterprises,
- DD's manufacturing partners, and
- DD's external service providers (ESPs).

Irrespective of the above the following shall be complied with

- any legal requirements (in particular applicable product safety laws),
- state-of-the-art technology, and
- in case of development work, the state of the art of science and technology.

In short, DD requires the Supplier to

- follow all standards established and common within the automotive industry, and
- deliver PSPs as specified.

VII. Quality Management

1. General

1.1. Business Language

The official and legally binding language with DD is English for all

- business communication,
- documentation, and
- contractual matters.

This applies in particular to all records exchanged between the Parties, i.e.

- quality management documents,
- specifications,
- agreements, and
- reports.

Operational day-to-day communication may be conducted in any mutually understood language.

Nevertheless, it shall be ensured that qualified personnel with sufficient English proficiency are available at all times for business communication with DD.

1.2. Compliance Across the Entire Supply Chain

The Supplier is obliged to pass on the principles and requirements of this QMA to its

- sub-suppliers,
- sub-contractors and
- other agents in tort or vicarious agents

(hereinafter referred to as sub-suppliers) and regularly monitor compliance with this QMA.

In this context, sub-suppliers are all companies and entities that provide PSPs to the Supplier, i.e. those positioned lower in the supply chain than DD's Supplier.

It shall be especially ensured that

- sub-suppliers comply with the obligations the Supplier has assumed under this QMA,
- Products and Services purchased from sub-suppliers meet the quality requirements - especially regarding special characteristics (SCs/CCs)- agreed between the Parties,
- information regarding SCs/CCs is passed on to the sub-suppliers, and
- upon request, the following evidence from/regarding sub-suppliers is provided:
  - that the Supplier has verified the existence of their Quality Management System (QMS),
  - proof of the capabilities regarding
    - testing,
    - quality, and
    - production process.

If the Supplier obtains knowledge of the fact that requirements cannot be passed on to the sub-supplier, the Supplier shall

- inform DD
  - within the feasibility study, or
  - if this occurs later, without undue delay

and

- assume responsibility for the respective
  - PSPs, and
  - documents.

1.3. Directed Sourcing

If DD specifies the source of supply of PSPs, i.e.

- Directed Products, meaning Products that
  - the Supplier shall purchase from a specific sub-supplier designated by DD, or
  - are provided to the Supplier directly by DD, and/or
- Directed Services, meaning Services that the Supplier shall obtain from a specific sub-supplier designated by DD

the Supplier shall

- not be relieved of its own responsibility to ensure the quality of the PSPs, and
- bear full responsibility for the quality of the PSPs.

In case of any complaints regarding Directed Products and/or Directed Services the Supplier

- shall coordinate with DDs Quality Representative,
- is exclusively responsible for the implementation of corrective actions, and
- shall bear all consequences incurred by DD due to deviations.

1.4. Digital Collaboration Systems

Seamless and reliable digital collaboration shall be ensured via the maintenance of

- up-to-date
  - software,
  - systems, and
  - communication tools
- IT infrastructure, to remain technically capable of handling
  - common communication methods, and
  - digital workflows

to guarantee

- compatibility,
- data integrity,
- error-free information exchange, and
- efficient and uninterrupted cooperation.

2. Management Systems and Certification

2.1. General

Regardless of the Supplier's certification status, the regulations and (legal) requirements outlined in this QMA shall be complied with.

2.2. Quality Management System (QMS)

A QMS shall be operated that complies with the latest version of the following international standards and guidelines.

2.2.1. Expectation for the QMS

DD expects the Supplier to be >>**IATF 16949**<< certified.

2.2.2. Minimum Requirement on a QMS

The QMS shall at least be based on

- >>**ISO 9001 – Quality Management Systems**<<, or
- a standard/system that meets at least all the requirements of >>**ISO 9001**<<.

2.3. Occupational Health and Safety (OHS)

An OHS management system shall be operated that complies with the regulations applicable in the jurisdictions in which the Supplier operates.

DD favours an OHS management system in accordance with

- >>**ISO 45001 - Occupational health and safety management systems**<<, or
- a standard/system that meets at least all the requirements of >>**ISO 45001**<<.

2.4. Environmental Management System (EMS)

To minimise the consumption of resources, an EMS shall be operated that complies with

- the regulations applicable in the jurisdictions in which the Supplier operates, as well as for
- recycling, and disposal.

DD favours an EMS in accordance with >>**ISO 14001 - Environmental management systems**<<.

2.5. Data Safety Management (DSM)

A DSM system shall be operated that complies with industry-standard regulations.

DD favours a DSM system in accordance with

- >>**Trusted Information Security Assessment Exchange (TISAX)**<<, or
- >>**ISO/IEC 27001 - Information security, cybersecurity and privacy protection**<<.

2.6. Energy Management System (EnMS)

An EnMS shall be operated that complies with industry-standard regulations.

DD favours an EnMS in accordance with >>**ISO 50001 - Energy management systems**<<.

2.7. Not yet Available Certification

If the Supplier is not yet certified in accordance with the above-mentioned standards, they shall submit substantiated plans, with a concrete timetable, for obtaining the outstanding certification.

2.8. Integration of DD-Provided Materials and Equipment

Products and Equipment provided by DD shall be included in the Supplier's QMS in the same manner as its own.

3. Supplier Management

3.1. General Access Regulation for Suppliers

Access to the Supplier’s

- production facilities and other premises,
- staff, and
- documentation

is granted to

- DD, and
- responsible supervisory authorities responsible for the Supplier

during/as a result of an event that requires one or more of the above listed entities to be present at the Supplier’s premises as the event is related to PSPs provided to DD.

Such events may include, among others, e.g. the following:

- audits,
- MLA/APQP and PPA/PPAP activities,
- monitoring of the serial production,
- process and product changes,
- delivery or capacity issues,
- complaints, field issues, and recalls, as well as
- compliance, sustainability, and legal requirements.

3.2. Audits

3.2.1. Conducting Audits

DD reserves the right to audit the Supplier at its sole discretion.

All internal costs of the Supplier arising from such audits shall be borne by the Supplier.

Non-conformities/deviations that are

- identified in areas that are not part of the audit agenda or scope, or
- not related to DD Products

may

- be documented, and
- required to have corrective actions implemented.

3.2.2. Audit Types

DD conducts audits of the types

- process audit in accordance with VDA's >>**Volume 6.3 - Process Audit**<<, and
- system audit in accordance with
  - VDA's >>**Volume 6.1 - QM system audit Serial production**<<, and
  - >>**IATF 16949**<<.

3.2.3. Exceptions Regarding Advance Announcement of Audits

DD reserves the right to conduct audits, which will be announced to the Supplier at short notice

- in the event, or
- solely based on suspicion

of, e.g.

- violation of (legal) requirements,
- personal injury (occurred or possible),
- breaches of contract, and
- to avoid production downtime at
  - the Supplier,
  - DD, and/or
  - a customer of DD.

3.2.4. Negative Audit Result

A negative audit result entitles DD to carry out up to two (2) follow-up audits for which the

- Supplier shall bear the costs, and
- type and scope are to be determined by DD.

3.3. Supplier Self-Audit Standards

The Supplier shall

- conduct self-audits for the PSPs provided to DD according to VDA's
  - >>**Volume 6.3 – Process Audit**<<, as well as
  - >>**Volume 6.5 – Product Audit**<<

and

- provide the audit results to DD in written form.

4. Document Management

4.1. Provision and Exchange of Records and Documents

The provision and exchange of records and documents shall be exclusively digital.

Accompanying documents for physical deliveries (e.g. the delivery note, deviation approval, etc.)

- may be provided in physical form, but
- shall be submitted digitally.

4.2. Retention of and Access to Records

All records related to PSPs shall be retained in accordance with VDA's
>>**Volume 1 – Documented Information and Retention**<<.

This includes

- all ever created records, retained with the date of their creation,
- physical evidence, such as retained samples which shall be kept for the same periods, and
- any further documented information required under the applicable retention rules.

Upon request DD shall be

- granted access to such records and evidence, and
- provided with copies and samples.

4.3. Confidentiality Management

Confidentiality is managed

- in general, via the Non-Disclosure Agreement (NDA), and
- via the confidentiality level specified on the respective document.

Confidentiality Level	Implication
Strictly Confidential	• Access restricted to specific/named individuals. • Not to be shared with others/a third party without DD's permission.
Confidential	• Access restricted to a specific group (e.g. a project). • Not to be shared with others/a third party without DD's permission.
Public	• Publicly available.

5. Failure Mode and Effects Analysis (FMEA)

5.1. General Requirement

The implementation of FMEA shall follow the >>**AIAG & VDA FMEA Handbook**<< for

- product design, and
- production processes.

5.2. Design-FMEA (D)

Suppliers with design responsibility shall perform a D-FMEA for their design scope.

5.3. Interface-FMEA (I)

An I-FMEA (or sometimes called a Supplier-Interface D-FMEA) focuses on

- functions,
- severity ratings, and
- failure modes,

that are defined by the customer or design owner and outside the Supplier's influence.

Suppliers without design responsibility shall request the relevant I-FMEA from the design owner.

If the Supplier is unable to obtain the I-FMEA, the further procedure shall be coordinated with DD.

5.4. Process-FMEA (P)

A P-FMEA shall be

- based on the applicable D- or I-FMEA, and
- performed for the entire process chain,
  - from incoming goods,
  - through all manufacturing and handling steps,
  - up to outgoing goods.

5.5. Provision of and Access to FMEAs

FMEAs shall be provided to DD

- during, but not limited to,
  - audits,
  - MLA/APQP activities,
  - PPA/PPAP, and
  - the processing of non-conformities
- upon request, and
- to the following extent:
  - full inspection when DD representatives are on site at the Supplier's premises, and
  - minimum handover (if transmission is required) consisting of
    - the cover sheet, and
    - evidence that all special characteristics (SCs/CCs) have been adequately considered (e.g. via an excerpt showing their treatment in the FMEA).

DD's participation in the FMEA process shall be enabled, at least for DD specific PSPs.

6. Product Quality Planning and Assurance

6.1. General

The provisions of >>**Clause 8.5 et seq. - Production and Service Provision**<< of

- >>**ISO 9001 – Quality Management Systems**<<, and
- >>**IATF 16949**<<

apply in addition to the requirements specified in the following sections.

6.2. Project Management

6.2.1. Application of a Project Management Tool

One of the following project management methodologies shall be applied:

- >>**Maturity level assurance for new parts**<<, or
- >>**Advanced Product Quality Planning (APQP)**<<.

6.2.2. Extension of the General MLA/APQP Scope with CQI Requirements

AIAG's Continuous Quality Improvement (CQI) assessments applicable for the respective PSPs extending the general MLA/APQP scope shall be submitted every 12 months.

6.3. Electronics and Software Development

The MLA/APQP shall be aligned with VDA's >>**Automotive SPICE®**<< for the development of

- software, and
- electronic components with embedded software.

The technical standard

- >>**ISO 21434 - Road vehicles - Cybersecurity engineering**<<

shall be applied to demonstrate compliance with

- >>**UNECE R-155 - UN Regulation No. 155 - Uniform provisions concerning the approval of vehicles with regards to cyber security and cyber security management system**<<.

6.4. Environmental, Chemical Compliance, and Substance Reporting Requirements

If applicable for Products, the following European Union (EU) legal requirements shall be applied:

- >>**Directive 2000/53/EC on End-of-Life Vehicles (ELV)**<<
- >>**Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)**<<, and
- >>**Restriction of Hazardous Substances in Electrical and Electronic Equipment (RoHS)**<<.

As the above EU legal requirements may not apply outside the EU, equivalent nationally recognised regulations or substance-control requirements shall apply in the respective regions, where applied or as specified by DD.

6.5. Feasibility Study

A comprehensive feasibility study shall be conducted using DD's >>Feasibility Study<< template.

6.6. Control Plan (CP)

A CP shall be created and maintained in accordance with AIAG's >>**Control Plan**<<.

PSP Re-Qualification (Re-Qual) shall be specified in the CP with a frequency of one (1) year.

6.7. Part History

The part history information shall be provided using DD's >>Part History<< template

- upon the first delivery of Products for
  - prototypes,
  - test runs,
  - pre-/non-series, and
  - series production,
- in case of a
  - change (refer to the >>Trigger Matrix<< in VDA's >> **Volume 2 – Securing the Quality of Supplies** <<), or
  - deviation
- to DD's Quality Representative
  - after the shipment has left the Supplier's premises, but
  - before the shipment arrives at the designated delivery address.

6.8. Product Monitoring

If the Supplier is also the manufacturer, they shall

- carry out systematic product monitoring, including (but not limited to) field observation, and
- share any noticeable problems/findings with DD without undue delay.

Problems/findings shall be shared with DD if they concern

- suspected defects, or
- potential product hazards.

The assessment of defects shall be carried out

- in coordination between the Parties, and
- based on VDA's >>**Volume - Field Failure Analysis & Audit Standard**<<.

7. Special Characteristics (SC/CC)

7.1. General

A systematic process based on

- VDA's >>**A process description covering Special Characteristics (SC)**<<, or
- AIAG's and VDA's harmonised >>**AIAG & VDA FMEA Handbook**<<

shall be used to manage special characteristics derived from any source (e.g. FMEA) available to the Supplier or sub-supplier responsible for the PSP.

7.2. SC/CC Definition and Application

7.2.1. SC/CC Categories and Definition

Category code	Severity	Definition
CC	9 and 10	• Product characteristics, and • process characteristics or parameters that do or have the potential to affect • safety, or • compliance with applicable legal or regulatory requirements.
SC	8 and 7	• Product characteristics, and • process characteristics or parameters that do or have the potential to affect • fit, form, function, • performance, • further processing, or • primary functional performance (incl. loss or degradation), and that may impact • customer satisfaction.

Table 5: SC/CC Categories and Definition

7.2.2. Severity and Definition of SCs/CCs

DD's severity and definition of SCs/CCs are based on the >>**AIAG & VDA FMEA Handbook**<<.

The severity criteria apply in a general manner to all types of PSPs.

7.3. DD Specific Indication of Special Characteristics

7.3.1. General

DD always specifies SCs/CCs using the respective category code.

7.3.2. Indication System for SCs/CCs on DD Drawings

On DD drawings, SCs/CCs are indicated with the following elements:

- a >>balloon<< (see the example image below) placed around the respective
  - dimension, and/or
  - textual description,

and

- the category code displayed next to the >>balloon<<, e.g.

Figure 1: Category code as displayed on drawings (next to the characteristic)

7.4. Indication of Special Characteristics at the Supplier

7.4.1. General

All special characteristics shall be indicated

- using the symbology applied at the Supplier, and
- consistently in all quality- and production-relevant documents.

7.4.2. Different Indication Systems Used by Suppliers

If a system other than DD's for indicating special characteristics is used at a Supplier, a translation table shall be

- provided or exchanged,
- managed (i.e. adjusted in case of changes), and
- communicated to all relevant departments at both Parties.

7.5. Compliance and Capability of SCs/CCs

7.5.1. General Requirement

For SCs/CCs, the implementation of the following is required:

- process controls, and
- continuous monitoring, i.e. frequent checks/tests according to
  - VDA's >>**Volume 5 – Measurement and Inspection Processes**<<, or
  - AIAG's >>**Statistical Process Control (SPC)**<<.

7.5.2. Capability Requirement for Quantitative Characteristics

The requirements regarding the capability are based on VDA specifications as follows:

SPC indicator		Standard requirement	Description and sampling size
Pm, Pmk	Machine performance index	≥1.67	• Short-term performance test with the machine as the only influencing factor • 50 parts as minimum requirement manufactured and measured in uninterrupted sequence (if not otherwise agreed, i.e. a higher sample size)
Cp, Cpk	Process capability index	≥1.33	• Long-term study of stable processes (under series conditions) based on random samples • Evaluation of the process capability • 125 parts manufactured and measured as a minimum requirement (if not otherwise agreed, i.e. a higher sample size) being 25 sub-groups with 5 parts within each sub-group (if not otherwise agreed)
Pp, Ppk	Process performance index	≥1.33	• Long-term study of unstable processes based on random samples over a longer period of time (usually 20 production days). All process influences should have had an effect during this period. • Evaluation of the process stability

Table 6: Capability Requirements for Quantitative Characteristics

7.5.3. Capability of Attributive Characteristics

For attributive characteristics, at least one adequate or capable measure shall be implemented to ensure their compliance via appropriate measures applicable for the characteristic.

8. Identification and Traceability

8.1. Requirements for Identification and Traceability

To ensure identification and traceability, the requirements provided by DD at the respective time shall be followed.

8.2. Strategy and Items to be Traced

A strategy shall be established and implemented to ensure identification and traceability of

- Products, and
- their packaging

in both phases

- pre-/non-series, and
- series.

The strategy shall be established and implemented for the traceability option,

- serial numbers, and/or
- batch numbers,

and applied as specified by DD for the respective

- Product, and/or
- Process.

9. Sampling Process

9.1. Accepted Sampling Processes

The sampling processes for PSPs accepted by DD are

- VDA's >>**Volume 2 – Securing the Quality of Supplies**<<, and
- AIAG's >>**Production Part Approval Process (PPAP)**<<.

9.2. General Requirements on the Sampling - PPA/PPAP Scope

Unless otherwise specified by DD's Quality Representative, the default scope for

- PPA is defined in the following table, and
- PPAP is Level 3.

All items required for the PPA shall be

- completed, and
- assigned to the PPAP item according to the following table:
  - see X and the subsequent number (= PPAP item number) in column PPAP,
  - e.g. X18, corresponding to VDA item 0.2, for which the associated documents shall be provided in PPAP point 18.

VDA No.	Deliverables (insofar as they are applicable to the product)	Org.	PPA	Re-Qual	PPAP
0.1	Cover sheet for PPA report/PPA evaluation	D	S	S	18
0.2	Self-assessment for product, production process, and if applicable software	D	S	N/A	X18
1.	Deliverables of product development				
1.1	Technical specifications	D	S	N/A	1
1.2	Approved design changes	D	S	N/A	2
1.3	Design, engineering approvals	D	S	N/A	3
1.4	Material data via IMDS (including cover IMDS sheet)	D	S	N/A	1.1
1.5	Design-FMEA	D	S	N/A	4
2.	Deliverables of the production process development				
2.1	Process flowchart	D	S	N/A	5
2.2	Process FMEA	D	S	N/A	6
2.3	Control Plan (CP) (including Safe Launch Plan)	D	S	S	7
3.	Deliverables of the product verification - Exclusively for the requirements from the technical specifications agreed upon with the customer				
3.1	Geometry, dimensions	D	S	S	9
3.2	Material (strength, physical properties, etc.)	D	S	S	10
3.3	Function	D	S	S	10
3.4	Haptics	D	S	S	X9
3.5	Acoustics	D	S	S	X9
3.6	Odor	D	S	S	X9
3.7	Appearance	D	S	S	13
3.8	Surface requirement	D	S	S	X9
3.9	Technical cleanliness	D	S	S	X9
3.10	Reliability	D	S	S	X9
3.11	Resistance to electrostatic discharge (ESD)	D	S	S	X9
3.12	Electrical safety/high-voltage safety	D	S	S	X9
3.13	Electromagnetic compatibility (EMC)	D	S	S	X9
4.	Deliverables of the production process validation				
4.1	Assurance of Special Characteristics; according to technical specifications and agreed characteristics (e.g. poka-yoke, 100% inspection, process capabilities, etc.)	D	S	S	11
4.2	Laboratory qualification	D	S	N/A	12
4.3	Samples incl. labelling (e.g. identification of series, production lot etc. that allow conclusions to be made about the documentation accompanying production)	D	S	N/A	14
4.4	Master sample	D	S	N/A	15
4.5	Production capacity	D	S	N/A	X11
4.6	Tools	D	S	N/A	X16
5.	General deliverables				
5.1	Evidence of compliance with legal requirements	D	S	S	X11
5.2	PPA status of supply chain	D	S	N/A	X18
5.3	Test equipment list for product and production process	D	S	N/A	16

VDA No.	Deliverables (insofar as they are applicable to the product)	Org.	PPA	Re-Qual	PPAP
5.4	Measurement equipment analysis studies for product and production process	D	S	N/A	8
5.5	Part history	D	S	N/A	X18
5.6	Evidence of suitability of the employed load carriers including storage	D	S	N/A	X17
5.7	Documentation of the agreements regarding the diagnosis and analysis process: • complaints handling (e.g. 8D) Field failure analysis	D	S	N/A	X8
5.8	Documentation of the agreements regarding layout inspection and functional testing	D	S	N/A	X8
5.9	Other	D	S	N/A	X7
5.9.1	CQI assessments applicable for the product	D	S	S	S
5.9.2	Production capacity planning and confirmation	D	S	N/A	S
6.	Deliverables for software				
6.1	SW release (e.g. Appendix 5 “Cover Sheet PPA software”)	D	S	N/A	X17
6.2	Definition of the scope of the SW product	D	S	N/A	X17
6.3	Reference to contractually stipulated quality requirements	D	S	N/A	X17
6.4	Documentation of technical SW specifications (functional and non-functional)	D	S	N/A	X17
6.5	Implementation of requirements from 6.3 and 6.4, especially the Special Characteristics	D	S	N/A	X17
6.6	Documentation of FOSS (free and open-source software)	D	S	N/A	X17
6.7	List of known errors	D	S	N/A	X17
6.8	Documentation of development tools	D	S	N/A	X17
6.9	Documentation of testing tools	D	S	N/A	X17
6.10	Documentation of version management	D	S	N/A	X17
6.11	Documentation of process evaluation (e.g. Automotive SPICE®)	D	S	N/A	X17

Table 7: PPA/PPAP Deliverables Table

Abbr.	Definition
Org.	Organisation, i.e. the Supplier.
PPA	PPA scope, i.e. what DD requires to be submitted for the standard PPA.
Re-Qual	Re-Qualification scope, i.e. what DD requires to be submitted for the Re-Qualification.
PPAP	PPAP scope, i.e. the equivalent to the PPA requirement, i.e. what is • the direct PPAP counterpart to PPA, and • not available item in PPAP but to be provided as required by DD (X-numbers).
S	Submission to customer
D	If applicable: Execution, documentation, and archiving by the organisation (if applicable for inspection by the customer)
N/A	Not applicable

Table 8: Legend of the PPA/PPAP deliverables table

9.3. First Samples

9.3.1. Definition of First Samples

First samples, i.e. the Products provided within the PPA/PPAP,

- are used as the basis for sample-specific documentation (e.g. dimensional reports),
- shall be produced and tested under full series conditions, and
- represent the output of the validated production process.

9.3.2. Number and Provision of First Samples

Unless otherwise specified (e.g. in the purchase order for the PPA/PPAP), five (5) first samples shall be sent to the

- agreed address,
- attention of DD's Quality Representative.

9.3.3. Destructive Testing

If destructive testing is required, five (5) Products shall be

- tested,
- documented (including photos, test reports, etc.), and
- stored at the Supplier's premises
  - for at least three (3) months) if not otherwise agreed, and
  - protected against environmental influences that could alter the samples.

9.3.4. Identification of First Samples and Comparability

For identification and comparability purposes, consistent numbering and cross-referencing shall be ensured for

- first samples via their numbering:
  - e.g. 1-5, either
    - directly on the Product (e.g. by marker, label or physical marking), or
    - indirectly via a label on or in the individual packaging,
  - corresponding to the columns/rows assigned to the respective Product in the dimensional or test report.
- dimensional/test reports, via the
  - numbering of columns/rows in accordance with the numbering of the first samples (e.g. 1-5, as described above), and
  - indication of the characteristic number, which uniquely identifies each characteristic and corresponds to the Product's
    - ballooned 2D (two dimensional) drawing,

    and if applicable

    - 3D (three dimensional) data, as well as
    - cross-references in specifications.

10. Re-Qualification (Re-Qual)

10.1. Performing the Re-Qual

The Re-Qual of PSPs shall be performed

- annually (i.e. at least every 12 months),
- in accordance with >>**Clause 8.6.2 - Layout inspection and functional testing**<< in >>**IATF 16949**<<.

10.2. Re-Qual Scope

Re-Qual shall include at least all Product characteristics not assessed in series production. Characteristics already monitored or controlled by Statistical Process Control (SPC) are optional.

Unless otherwise specified, the minimum scope of the Re-Qual is defined in the PPA/PPAP scope table.

10.3. Provision of the Re-Qual Results

The results of the latest Re-Qual shall be provided

- to DD's Quality Representative upon request, and
- free of charge.

11. Change Management

11.1. General

The provisions of >>**Clause 8.5.6 et seq. - Control of Changes**<< in

- >>**ISO 9001 - Quality Management Systems**<<, and
- >>**IATF 16949**<<

apply in addition to the requirements in the following sections.

11.2. Trigger for a Change

Triggers for changes are listed in the >>Trigger Matrix<< provided in VDA's >>**Volume 2 - Securing the Quality of Supplies**<<.

11.3. Change Request

Before any change is initiated, let alone implemented, information on changes

- shall be communicated to DD as soon as it becomes known, and
- the change shall be requested at least in written form.

11.4. Identification of Changed Products

To ensure proper identification and traceability of the first delivery of Products following the series release of a change, the requirements specified by DD at the respective time shall be followed.

12. Measuring and Testing EQP

12.1. Measurement System Analysis (MSA)

The capability and suitability of measuring and testing EQP shall be verified via an MSA, which shall be carried out in accordance with AIAG's >>**Measurement Systems Analysis (MSA)**<<.

12.2. Resolution of Measuring EQP

EQP used to measure quantitative characteristics shall have a resolution of at least 10% (Rule of Tens) in relation to the smallest tolerance of the characteristic, i.e. in case

- the smallest tolerance is: 0.2 mm,
- the EQP's resolution shall be at least: 0.02 mm

13. Complaint Management

13.1. General Application

The provisions of >>**Clause 8.7 et seq. - Control of nonconforming outputs**<< in

- >>**ISO 9001 – Quality Management Systems**<<, and
- >>**IATF 16949**<<

apply in addition to the requirements in the following sections.

13.2. Self-Disclosure

Non-conformities of already

- delivered Products, and/or
- provided Services,

reported by the Supplier

- before they are planned for or processed in DD's production, and
- that have no major impact on
  - production,
  - processes,
  - customers, and/or
  - timeline,

are

- NOT subject to a complaint, but
- regarded as a late notice of a deviation.

In such cases, the non-conformity

- may be handled via the deviation process, and
- the incident shall not be reflected in the Supplier's evaluation/rating.

13.3. Incoming Goods Inspection at DD / Waiver of Late Notification

DD does not carry out incoming-goods inspections, except for

- assessing packaging for damage, and
- verifying the delivery note against the purchase order.

The Supplier therefore waives the right to object to late notification.

13.4. Availability of a Supplier Representative

In case of non-conformities, DD may require a Supplier Representative on site who

- is competent,
- is duly authorised, and
- shall arrive on site no later than 48 hours after being requested to do so by DD.

13.5. Problem-Solving Methodologies

13.5.1. Eight Disciplines Methodology (8D)

The 8D methodology shall be

- applied as the standard problem-solving tool for every complaint issued by DD, and
- followed as specified in VDA's >>**Volume 8D – Problem Solving in 8 Disciplines**<<.

13.5.2. 8D Timeline

Upon receipt of a complaint, the

- measures corresponding to D1-D8 shall be taken, and
- the 8D report status (including evidence and supporting documents) shall be provided
  - in coordination with DD's Quality Representative, and
  - within a reasonable time.

13.5.3. Field Failure Analysis (FFA)

The 8D process may support the FFA.

If the FFA is used, the procedures and standards specified in VDA's
>>**Field Failure Analysis & Audit Standard** << shall be followed.

13.6. Provision of Non-Compliant Products for Analysis

If the Supplier requires non-compliant Products to carry out the root cause analysis, they shall request these from DD's Quality Representative.

13.7. Corrective Actions

At least two (2) corrective actions shall be

- specified,
- implemented, and
- confirmed for their effectiveness.

ATTENTION: Worker training may serve as an expedient supporting measure but shall not be accepted as one of the two required corrective actions.

13.8. Lack of Response

If the Supplier does not respond

- appropriately, or
- at all,

DD reserves the right to initiate any necessary measures, at the Supplier's expense, in order to

- maintain production at DD and DD's customers, and
- protect
  - DD, as well as
  - DD's customers.

13.9. Whereabouts of Ultimately Non-Conforming/Discarded Products

The Parties shall agree on the whereabouts of ultimately non-conforming or discarded Products.

If

- no agreement between the Parties can be reached, or
- the Supplier does not respond to DD's request regarding the whereabouts of such Products,

DD will, at the Supplier's expense, either

- scrap the Products after 30 calendar days (starting from the receipt of the complaint), or
- return the Products to their place of origin.

For the requirements on the disposal of such Products, refer to section >>Scrapping Clause<<.

13.10. Recurring Complaints

Recurring complaints that trigger a Supplier escalation are those that

- concern the same characteristic (of the same or a similar Product),
- are attributable to the same root cause, and
- may be addressed through >>Controlled Shipping<< (refer to the following sections in this chapter).

13.11. Controlled Shipping (CS)

13.11.1. Implementation of CS

CS levels (beginning at Level 1, further 2 and 3) are triggered and implemented if the problem-resolution process used during the complaint procedure has proven unsuccessful.

13.11.2. General Triggers of CS

CS may be triggered by, but is not limited to, the following factors:

- Repeated quality issues with the same failure after the completion of the 8D process.
- Duration and severity of the problem.
- Incapable processes.
- Problems at DD (assembly teardowns, production interruptions, yard hold, etc.).
- Recurring problems at DD's customers and/or in the field.

13.11.3. Announcement of CS

Any of the CS levels (1-3)

- will be announced
  - in written form,
  - to the Supplier's Management Representative authorised to acknowledge the CS,

and

- shall be acknowledged by the Supplier's Management Representative in written form.

13.11.4. CSL1 – Controlled Shipping Level 1

CSL1 is triggered by a recurring complaint of the same characteristic.

Measures:

- The Supplier shall bear all costs arising from and during the CS process.
- Ensuring that the quality issue is understood by all parties and personnel involved.
- Performing a 100% check of the affected characteristic(s),
  - if required, in an area separated from production and/or the standard checking area,
  - over a period of at least three (3) series deliveries, to be agreed with DD's Quality Representative based on the root cause and effectiveness of the corrective actions, and with a different frequency and/or testing method to be agreed if a 100% check is not feasible, e.g. if destructive testing would be required.
- Provision of space, inspection instructions, adequate lighting, and equipment necessary to carry out CSL1.
- Execution shall be performed by the Supplier.
- Coordination of corrective measures and their approval by DD.
- Submission of documentation regarding the
  - measures implemented,
  - quality status of Products, Services, and Processes (PSPs),
  - development, implementation, and validation of permanent corrective actions, and
  - the final report.
- Provision of documentation demonstrating containment and inspection results to DD.
- Updating of documentation related to the complaint and CS (e.g. work instructions, P-FMEA, Control Plan, flow charts).
- Communication of the break point to DD's Quality Representative.
- Containment of all suspected Products before the break point, i.e. those
  - in transit,
  - in all warehouses (Supplier, DD, and DD's customers), and
  - on the customer's assembly line.
- Identification of all Products and packaging as agreed with DD's Quality Representative, to ensure Products acceptable for production are clearly identifiable by DD.
- Ensuring that only fault-free Products are delivered to DD.
- Processing corrective actions according to agreed schedule.
- >>**VDA 6.3 – Process Audit**<< (optional).

13.11.5. CSL2 – Controlled Shipping Level 2

CSL2 is triggered if the Supplier has

- failed to rectify the quality issues in CSL1, i.e. a Product exhibiting a non-conformity of the same characteristic for which CSL1 was initiated – and which had already been subject to a 100% check - has reached DD, and/or
- significant quality problems.

Measures:

- Continuation of all CSL1 activities.
- A second 100% check of the affected characteristic in addition to the 100% check performed under CSL1, with a different frequency and/or testing method to be agreed if a 100% check is not feasible, e.g. if destructive testing would be required.
- Execution by a third party appointed by DD.
- Provision of space, inspection instructions, adequate lightning, and equipment for the third party to carry out the required inspection activities.
- Execution of the second 100% check at a location physically separated from the first 100% check (inside or outside the Supplier's premises).
- Initiation of New Business Hold (NBH) (optional)

13.11.6. CSL3 – Controlled Shipping Level 3

CSL3 is

- triggered if CSL2 does not produce the expected results, and
- a long-term measure involving a third party that supports the Supplier in
  - identifying the root cause of recurring problems, and
  - proposing an improvement plan.

Measures:

DD may require measures such as

- continuation of CSL1 and CSL2 activities,
- regular reporting meetings with the Supplier's Management Representative,
- support of the Supplier provided by DD or a third party, and/or
- initiation of Business Hold (BH), and possibly
- switch to another supplier for the Product (optional).

13.12. Business Hold (BH) and New Business Hold (NBH)

13.12.1. General

Both, BH and NBH can be triggered by

- the initiation of CSL2, or
- another non-conformity of the same characteristic detected during
  - CSL2 or
  - CSL3 for which CSL2 was initiated for.

13.12.2. Business Hold (BH)

Measures:

- Ongoing business activities with the Supplier are temporarily paused, i.e. delivery is suspended/blocked.

13.12.3. New Business Hold (NBH)

Measures:

- All measures specified for BH.
- Blocking of the Supplier from new inquiries.
- Informing the Supplier's certifying body, requiring
  - an on-site audit, and
  - submission of the audit report.

13.13. De-Escalation

De-escalation of the Supplier, i.e. downgrading of the CS status only takes place after the agreed period for

- CSL1, CSL2 and/or CSL3, during which the
  - effectiveness of the implemented corrective measures has been demonstrated, and
  - quality of PPSs has reached the agreed level, and/or
- BH and NBH, during which the agreed performance targets have been reached.

14. Deviation (DEV) Management

14.1. General Application

The provisions of >>**Clause 8.7 et seq. - Control of nonconforming outputs**<< in

- >>**ISO 9001 – Quality Management Systems**<<, and
- >>**IATF 16949**<<

apply in addition to the requirements in the following sections.

14.2. Definition of DEVs

DEVs are considered temporary deviations from any specification, both in

- series phase, i.e. from the approved PPA/PPAP, and
- pre-/non-series, either
  - documented in the purchase order and related or included documentation, or
  - detected by the Supplier or by DD.

ATTENTION: DEVs are not changes, and a DEV approval does not oblige DD to accept the same DEV in future cases.

14.3. Duty to Inform DD

DD shall be informed immediately about DEVs concerning

- Products
  - already delivered to DD,
  - in transit (i.e. deliveries suspected to contain deviating Products), and/or
  - located at the Supplier's premises, and
- Services provided to DD,

supported by the provision of all information required to enable DD to identify the affected PSPs.

14.4. DEV Request

In order to

- ship Products that deviate from the specification, and/or
- apply Processes that deviate from the agreed or approved Processes,

a DEV shall be requested

- as soon as it becomes known,
- at least in written form, and
- to DD's Quality Representative.

14.5. Deviation Approval

Products affected by a DEV may only be shipped after written approval by DD, i.e. the approved DEV request.

14.6. After the Approval of a DEV Request

If the DEV request is approved, the shipment of Products affected by the DEV shall be coordinated with DD's Quality Representative.

In addition, the shipment shall be

- be announced prior to dispatch, and
- enclose the approved DEV request within the accompanying delivery documents.

14.7. Duration of DEVs

The duration of a DEV shall

- not exceed three (3) months, and
- be agreed on a case-by-case basis.

14.8. DEV Extension

DEVs may be requested to be extended, BUT

- only for justified reasons, and
- only once (1).

14.9. Identification and Traceability

To ensure (visual) identification and traceability of all deliveries of deviating Products, the requirements specified by DD at the respective time shall be followed.

The expected date of the final shipment of Products affected by the respective DEV shall be provided to DD's Quality Representative.

15. Rework, Repair and/or Sorting Operations (RRS)

15.1. General

Performing RRS requires ensuring compliance with all applicable requirements in accordance with >>**IATF 16949 – Clause 8.7.1.2 Control of nonconforming product – customer-specified process**<<.

15.2. Definition of Rework

In this context, rework is defined as a measure applied on a non-conforming Product to make it conform to the applicable requirement or specification.

15.3. Definition of Repair

In this context, repair is defined as a measure applied on a non-conforming Product to make it acceptable for the intended use.

15.4. Definition of Sorting

In this context, sorting is defined as separation of Products that either

- meet the specification, or
- are acceptable for the intended use (to be agreed)

from those that

- deviate from the specification, and/or
- are not acceptable for the intended use.

15.5. Prerequisites for RRS

RRS shall be approved by DD's Quality Representative following the DEV process.

Notwithstanding any concessions or deviation approvals granted by DD,

- Products shall be rejected if, despite RRS, they cannot be used for any reason , and
- the Supplier retains sole and exclusive responsibility for PSPs affected by or related to RRS.

15.6. Ordering of Third-Party Service Providers (TPSPs) and Cost Absorption

If a TPSP is to carry out the RRS – which may also include testing – the Supplier shall, in all cases,

- agree the TPSP with DD's Quality Representative, and
- place the order, whereby the invoice shall always be issued to the Supplier.

15.7. Execution of RRS

Coordination of the following points is required in case RRS are carried out at

- the Supplier's premises:
  - return shipment from DD to the Supplier (if applicable), and
  - re-delivery to DD.
- DD, or a TPSP:
  - executing party (Supplier or a TPSP),
  - number of people,
  - access authorisation,
  - resources (power supply, lighting, equipment, etc.),
  - date, and
  - duration.

15.8. Identification of Products Affected by RRS

The identification, i.e. labelling or direct marking, of the Products affected by RRS on

- the Products themselves (if possible, depending on their type), and
- their packaging

shall be

- agreed with DD's Quality Representative before the RRS is started, and
- documented in the applicable work instruction.

15.9. Final Report

A final and comprehensive report on the RRS shall be provided to DD, which shall include all relevant data and information regarding the RRS, i.e.

- affected batches and/or serial numbers,
- quantities that have undergone the RRS
  - successful, and
  - unsuccessful.

16. Cost Recovery

16.1. General

All unplanned costs incurred by DD as a result of the Supplier's actions or omissions may be charged to the Supplier, including, in particular, costs arising from

- non-conforming PSPs, as well as
- non-compliance with regulations, provisions, and (legal) requirements
  - agreed between the Supplier and DD, and/or
  - applicable by default, i.e. by operation of law.

16.2. Cost Breakdown

A cost breakdown with all charges will be provided by DD, listing all costs incurred by DD, including those passed on to DD by its customers.

17. Scrapping Clause

17.1. Products Covered by the Scrapping Clause

The scrapping clause covers Products that are

- developed or designed by DD, and/or
- contain a high degree of DD's innovation or know-how,

regardless of whether these are designated for

- series, or
- pre-/non-series,

and which are

- useable or functional, as well as
- non-useable or non-functional.

17.2. Handling of Products to be Scrapped

Such Products shall

- be handled in accordance with
  >>**IATF 16949 – Clause 8.7.1.7 Nonconforming product disposition**<<,
- not be
  - placed on the market, or
  - sold or passed on to any third parties,
- be stored in a secure area at the Supplier with restricted access,
- be scrapped in a secured container that is inaccessible to anyone other than a
  - dedicated person or group of people at the Supplier, or
  - certified secure disposal company.

If disposed or recycled, proof of this shall be provided as soon as this has taken place by either

- the Supplier, or, if required,
- a certified secure disposal company.

18. Change of Contacts/Contact Information

Both Parties shall inform each other in

- advance, and
- at least in writing

of any changes to

- their Organisation, or
- personnel acting as their interface.

Until written notification of changes is received by DD, the previously named contact persons shall continue to be deemed responsible and duly authorised.

19. Final Provision

There are no additional verbal agreements to this QMA.

Changes and additions to this QMA shall be made in writing in order to be legally valid.

The same applies to any waiver of the written-form requirement.

20. Severability Clause

If any provision of this QMA is held to be invalid, illegal, or unenforceable in any respect under any applicable law or regulation, such invalidity, illegality, or unenforceability shall not affect any other provision of this QMA.

The remaining provisions shall remain in full force and effect, and the Parties shall endeavour to replace the invalid or unenforceable provision with a valid and enforceable one that most closely reflects the original intent.

21. Change History

Revision	Creation date	Change description
1	April 8, 2026	Initial release

Table 9: Change history