APTIV

Aptiv
Customer Specific Requirements

For Use with ISO 9001
and IATF 16949

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Commitment to Quality Statement

Quality drives everything at Aptiv. It fuels our growth, our innovation and our reputation. Every day we ship over 90 million components with 2 million unique part numbers and we do it at highly competitive quality levels – that is less than one rejected part per million shipped. And we do it for 7,300 customer locations in 45 different countries, all with a 99% on-time delivery and zero tolerance for error.

Statistically, 1.35[1] million people die in traffic accidents annually, Aptiv is engineering the technologies and solutions that aim to shrink that number to zero. it's a substantial goal and requires a relentless focus on quality and execution:

- **To deliver the software and innovation with our priority on safety.**
- **To forge lasting customer and partner relationships that move us forward.**
- **To continue leading the way toward a safer, greener, more connected and accessible world of mobility for all.**

At Aptiv, the quest for quality is embedded in everything we do – to be more efficient, more flawless and more innovative. It's not just about eliminating defects. It's about delivering the consistent quality that keeps our customers happy and drivers, passengers, and pedestrians safe.

[1] https://apps.who.int/iris/bitstream/handle/10665/277370/WHO-NMH-NVI-18.20-eng.pdf?ua=1

Suppliers are Integral
Aptiv believes that to achieve its objectives, its Suppliers are integral to its success. It therefore seeks the most capable suppliers on a global basis. Aptiv recognizes that its Suppliers must be successful for Aptiv to be successful. Aptiv wants to be recognized by its Suppliers as their customer of choice.

Supplier Relationship
Key elements to develop a strong supplier relationship include:

Initiatives to continually improve communications, including information related to all applicable statutory and regulatory requirements and special product and process characteristics. Clarity of mutual performance expectations. Acquiring and acting, as appropriate, upon Supplier input to Aptiv improvement opportunities.

Respecting Supplier Intellectual Property.
Creating a positive environment such that Suppliers will bring their technology and innovative ideas to Aptiv first, so we can win together.
Regular performance feedback to Suppliers.

Treatment of Suppliers
Aptiv establishes high performance expectations of itself and of its Suppliers to measure performance and to reward superior performance. In the pursuit of excellence, Aptiv treats Suppliers with respect and dignity, with a goal of earning the trust of all Suppliers by its actions and integrity.

Former Aptiv Employees Working for a Supplier

Former employees, who occupied positions prior to separation in which they could influence purchasing decisions should not be received as representatives of Suppliers by their former employing segment or staff for a period of two years following their separation. Any exceptions or deviations must be approved and documented by the Segment SCM Vice President. With respect to other staffs, the Segment SCM Vice President should be contacted to determine whether the former employee's dealings could be considered sufficient to influence, or be perceived as influencing the purchasing decision; and therefore, necessitate the imposition of the two-year restriction.

Localization

Aptiv's policy is to do business with Suppliers located nearby Aptiv's facilities (where product is consumed) considering total acquisition cost. This direction supports many initiatives, including Lean Supply Chain principles.

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1. General Requirements

1.1. Scope (IATF 16949: section 1.1)

The Aptiv Customer Specific Requirements (ACSR) is valid for the supply of production materials, software and Aftermarket products. It is also valid for services that affect customer requirements such as sub-assembling, sequencing, sorting, rework, e-beaming and calibration services. It applies to all Suppliers along the supply chain providing products to Aptiv. It is also applicable for customer directed Suppliers (directed buy). Aptiv Suppliers are expected to extend the requirements of Aptiv CSR to their own Suppliers and sub-Suppliers. Aptiv provides this document in English. The English version is binding. Translations in other languages are not permitted.

1.2. References

All reference documents mentioned in this ACSR and listed in section 6. (References) are the most current editions. Only the latest edition of each referenced document shall be used, unless otherwise specified by Aptiv. To the extent there is a conflict between the supplier's requirements or obligations contained in this ACSR and the Standards and the various standards and requirements referenced in section 6, the more stringent of the respective requirements will apply .

1.3. Business Language (IATF 16949: section 8.2.1.1)

All communications shall be conducted in English including PPAP and APQP documents, and shall be written in English.

1.4. Quality Management System (IATF 16949: section 4)

An effective quality management system, set up according to the standards and regulations of IATF 16949, is the preference for Supplier relations with Aptiv. The effectiveness of the Quality Management (QM) system should be reflected by:

• Continuous and verifiable improvement of processes, procedures, and products

• Delivered quality

• Delivery reliability

• Prompt and effective implementation of corrective actions

• Communication at all levels

• Appropriate and timely processing of new and revised projects

The goal of this quality management system is to achieve the "Zero-Defect" target. The minimum requirement is certification according to ISO 9001 by an accredited certification body. If not yet accredited to IATF 16949, those Suppliers shall have a plan to achieve certification. The Supplier shall inform Aptiv immediately if the certificate:

• has been revoked

• has expired without a successful recertification

• has been temporarily placed on suspension

If no recertification is planned, the Supplier shall inform Aptiv, at least 3 months prior to the expiration date. After a successful recertification, new certificates shall be uploaded to the Aptiv

Supplier Portal which all Suppliers must be registered in – see section 1.13). It is the responsibility of the Supplier to ensure that each Aptiv receiving plant has been informed about the new certificate. Certification shall be provided by accredited certification bodies.

Audits (IATF 16949: section 8.4.2.4.1)

Aptiv reserves the right to carry out audits and assessments on quality management systems, processes and products, with the Aptiv customer or a third party appointed by Aptiv if necessary, after prior notification.

Supplier Development of Specially Designated Small Sub-Suppliers of Direct Automotive Product and Materials (Normative Reference: MAQMSR)

When a Supplier has a Sub-Supplier that (i) is so small as to not have adequate resources to develop a system according to ISO 9001 / IATF 16949 or (ii) supplies non-engineered products, certain specified elements may be waived by Supplier. In the above, 'Small' refers to the volume supplied to the automotive industry or to the Sub-Supplier's annual sales volume. Supplier shall consistently apply the assessment criteria below to determine the specially designated Sub-Suppliers to which this provision may apply. At a minimum, Supplier shall (i) assess the Sub-Supplier's size, (ii) dollar value of the business, (iii) type of products supplied, (iv) quality system, (v) manufacturing and delivery systems capability, and (vi) any risk to Aptiv that could be caused by the Sub-Supplier's failure to develop a quality system that satisfies ISO 9001 / IATF 16949. In addition, Supplier shall ensure that Sub-Supplier(s) develop a quality management system that facilitates defect prevention, monitoring, and improvement.

1.5. Regulatory and Statutory Compliance (IATF 16949: section 8.4.3.1/8.4.2.2/8.6.5)

Aptiv Suppliers shall adhere to and pass down all applicable statutory and regulatory requirements to their Suppliers in the entire supply chain. The Supplier shall apply the legal requirements of the production location and of the country of use (if named by Aptiv) during the APQP phase to all products, processes or services (internal and external). This process shall be completed at the latest by PPAP submission.

1.6. Government Regulatory Compliance, Corporate Social Responsibility & Sustainability (IATF 16949: section 8.6.5/8.4.2.2/5.1.1.1)

Aptiv expects its Suppliers and sub-Suppliers to adopt and adhere to our minimum expectations towards business ethics, working conditions, human rights and environmental leadership and sustainability. These expectations are described on Aptiv's Supplier Portal Registration Process. Upon request or audit by Aptiv, Suppliers shall provide evidence of adherence to these requirement.

1.7. Quality Objectives (IATF 16949: section 6.2)

The Supplier shall ensure that quality objectives to meet customer requirements are defined, established, maintained and reviewed for relevant functions, processes, and levels throughout the organization. In the context of quality planning, the Supplier is expected to develop a "Zero-Defect Strategy" and take all necessary actions in order to achieve the "Zero Defect" target. If the quality performance has a potential to impact the safety, quality or delivery of products or any logistics impact or issues, then the Supplier shall immediately inform all possibly impacted Aptiv receiving plants and other involved parties in the supply chain to Aptiv.

1.8. Environment (IATF 16949: section 8.2.2.1)

Effective environmental management, which ensures compliance with the respective applicable environmental regulations and improves continuously and efficiently the environmental conditions of the Supplier, is an essential contribution towards supply security. Aptiv is committed to the protection of the environment. All Aptiv plants are ISO 14001 certified. We therefore expect our Suppliers to show voluntary commitment to environmental protection by implementing an environmental management system. Suppliers operating foundries, galvanizing and paint shops, manufacturers of Printed Circuit Boards (PCB), primary and secondary cells, electronic components or performing any surface treatment using chemicals or dyes, resins, leather etc., grease and oil shall provide a certificate according to ISO 14001 or an equivalent system. If this certificate is not available, then a time schedule for certification needs to be presented.

Product-related environmental and Safety Data Sheet requirements;

All supplies shall meet applicable legal, environmental and import regulations (e.g. EU REACH (EC) No. 1907/2006, EU ELV ACSR 2000/53/EC. Additional data (e.g. energy consumption and emissions) may be requested for life cycle assessment of Aptiv products. Suppliers shall submit Safety Data Sheets (SDS) for materials and mixtures, in accordance with the United Nation's Globally Harmonized System (GHS) of Classification and Labelling of Chemicals and the European Classification, Labelling & Packaging (CLP) regulation.

1.9. Special Characteristics (IATF 16949: section 8.2.3.1 & 8.3.3.3)

Aptiv describes product and service requirements on the technical drawings, specifications and relevant purchasing documents. All characteristics shall be complied with. There are characteristics with higher risks which require special consideration. These are the "Special Characteristics". Deviations in these characteristics can seriously affect product safety, product lifetime, assembly capability, product functionality, quality and can violate official or legal regulations. Special Characteristics are specified by Aptiv and documented on the drawings and/or specifications. They are to be identified as well, from the risk analysis of the Supplier, e.g. from the product and/or process FMEA, based on the Supplier's experience and knowledge. Designated Special Characteristics as defined by Aptiv are categorized as follows;

- **Quality/Customer Interface Characteristic (QCI) :** A product characteristic primarily associated with system interfaces or mounting in the customer application. It may also be associated with other product or process-related design features. QCI characteristics are classified as Special Characteristics. QCIs are designated on engineering drawings/specifications, and require control at or above standard care in manufacturing. Process control points for QCIs are documented on control plans. The QCI does not require a variation reduction plan as long as engineering requirements are being met.

- **Quality Control Characteristic (QCC)**: A process control that assures a QCI is manufactured to engineering specification. The QCC is identified on the control plan.

- **Key Product Characteristic (KPC)**: A product characteristic with particular significance to quality or customer satisfaction. KPC characteristics are classified as Special Characteristics. A KPC may be associated with product safety, customer or Aptiv regulatory compliance (regulations), fit or function. KPCs are designated on engineering drawings/specifications, and require control above standard care in manufacturing. Process control points for KPCs are documented on control plans. A variation reduction plan should be used when applicable. Ongoing monitoring should be performed to protect the customer.

- **Key Control Characteristic (KCC):** A process control that assures a KPC is manufactured to engineering specification. The KCC is identified on the control plan.

1.10. Sub-Supplier Management (IATF 16949: section 8.4)

Sub-Suppliers have a significant impact on the quality of the final product. Aptiv Suppliers shall have a documented Supplier management system in place. Aptiv Suppliers are responsible for the development of their sub-Suppliers. They shall have the necessary process, competence and resources to manage their sub-Suppliers (including directed-buy Suppliers and outsourced processes) and monitor their performance. They shall also ensure that the sub-Suppliers comply with all the requirements contained in this ACSR. An intent to change a sub-Supplier shall be communicated well in advance to Aptiv. The change of a sub-Supplier can only be implemented upon prior approval by Aptiv. See section 1.11 – Changes to Product or Process. Subsequently, Production Part Approval Process (PPAP) shall be performed. Aptiv reserves the right to participate in audits and assessments of sub-Suppliers regarding quality management systems, processes, products etc. jointly with the Aptiv Supplier, Aptiv's customers or a third party assigned by Aptiv. Advance notice shall be given. Aptiv participation in a sub-Supplier audit does not absolve the Aptiv Supplier from their responsibility to properly monitor and develop the sub-Supplier.

1.11. Changes to Product or Process (IATF 16949: section 8.2.4/8.5.6)

The Supplier shall have a documented process to control and implement changes that impact product, product realization and manufacturing process. A "Change" refers to all situations referenced in AIAG PPAP Manual and/or VDA Volume 2, Trigger matrix of Part history. The effects of any change, including those changes caused by sub-Suppliers, shall be assessed, verified and validated to ensure compliance with Aptiv requirements prior to implementation. The evidence of risks associated with the change shall be documented and assessed. Any intended change, deviating from the latest PPAP approval, shall be communicated as soon as possible to Aptiv to allow for a timely review and approval by Aptiv. Suppliers shall submit a written request and it is mandatory that this is done in the Supplier Suggestion Change Request (SSCR) module of the Aptiv Supplier Portal. The request shall be accompanied by a detailed timeline demonstrating proper change control that identifies necessary safety stock/bank requirements and timing to allow for a timely Aptiv/Customer approval and validation. Changes shall not be implemented prior to the receipt of written approval from Aptiv. Authorization to ship production material after a change implementation requires a new PPAP approval. If the change is related to electronic components (particularly semiconductor devices, passive components and LED components), Section 5.0 shall be applied.

1.12. Product Safety (IATF 16949: section 4.4.1.2)

Product safety and product liability are particularly significant for companies in the automotive industry. The Supplier has producer responsibility (product liability) for their parts and processes, including parts or processes from sub-suppliers, which Aptiv purchases to build their final products. Therefore, in order to prevent product liability risks, it is the responsibility of the Supplier to do everything in their power, in terms of organization and technical matters, to guarantee the product safety. The Supplier shall have a documented process for the management of "product safety" related products and manufacturing processes. Aptiv requires their Suppliers to designate a Product Safety Officer and/or Product Safety and Conformity Representative (PSCR) to be in charge of all related tasks described in IATF 16949 section 4.4.1.2. Furthermore, the Supplier shall apply these requirements to their supply chain. The Supplier must name an individual in the Aptiv Supplier Portal

who ensures that they have a documented process for the management of product safety related products and manufacturing processes. This must be done on a continuous basis in compliance with the Job Aids on Product Safety and Questionnaire in relation to this on the Aptiv Supplier Portal.

1.13. Business Processes based on Electronic Data Exchange (IATF 16949: section 8.2.1.1)

Business processes based on electronic data exchange between Aptiv and its Suppliers are a main focus of Aptiv's strategy. According to this strategy, more and more of the processes which are described in this ACSR are managed by using the electronic Aptiv Supplier Portals. Aptiv expects Suppliers to take the necessary measures to support electronic data exchange with Aptiv via the above mentioned Aptiv Supplier Portal and carry out transactions via Ap'iv's web based applications and communications. Supplier's registration to Aptiv Problem Solver for all its manufacturing locations is a requirement for conducting business with Aptiv. Supplier shall access Aptiv Problem Solver, monitor its Problem Cases as generated, and respond as required. Supplier shall have at least one (1) primary and one (1) secondary person familiar with ASP supporting all its locations. Supplier shall utilize the Aptiv Help Desk resource to resolve ASP problems as needed. Suppliers are responsible for maintaining up to date contact information in the Aptiv Supplier Portal. All suppliers shall access the Aptiv Supplier Portal frequently to stay up to date. It is the location for the up to date and binding release of the ACSR.

1.14. Communication with Aptiv Customers (IATF 16949: section 8.2.1)

Aptiv expects Suppliers to be available for technical support within the context of discussions at customers, on their own premises, or at Aptiv. Communication concerning Aptiv products between the Supplier and customers of Aptiv shall exclusively take place in agreement with Aptiv.

1.15. Contingency Plans (IATF 16949: section 6.1.2.3)

Suppliers shall identify and evaluate internal and external risks to all manufacturing processes and infrastructure equipment which are essential to maintain production output and ensure that APTIV requirements are met. Suppliers shall develop a contingency plan for each Supplier manufacturing/shipping location which may disrupt product flow to Aptiv. Aptiv shall be informed immediately in the event of an actual disaster (e.g. interruption from externally provided products, services, recurring natural disasters, fires …). In this case, Suppliers shall provide Aptiv access to Aptiv's tools and/or their replacements. Suppliers are required to regularly review and update each contingency plan, at a minimum annually. The contingency plan should include comprehensive testing of the recovery actions and should address potential gaps in component/raw materials.

The implementation of any change concerning these contingency plans shall be documented and is subject to the change management process (see section 1.11 – Changes to Product or Process).

1.16. Control of Reworked and Repaired Products (IATF sections 8.7.1.4/8.7.1.5)

For rework and repair of products, the Supplier shall have a documented process and conduct a risk analysis (e.g. FMEA). Any repair or rework not included in the agreed Control Plan during the PPAP phase is considered as a process change according to section 1.11 – Changes to Product or Process. Aptiv shall be notified in writing in advance. See section 4.5. Written Aptiv approval is required prior to implementation.

1.17. Disposition of Nonconforming Products (IATF 16949: section 8.7)

The Supplier shall have a documented process for disposition of nonconforming products not subject to rework or repair. For product not meeting requirements, the Supplier shall verify that the product

to be scrapped is rendered unusable prior to disposal, unless otherwise agreed with Aptiv. Any component produced for supply to Aptiv, not sent directly to Aptiv or an authorized third party shall be destroyed in-house prior to recycling in order to make sure that the component may never be used in the intended application – unless otherwise agreed with Aptiv. This includes scrap, parts produced during production trials, engineering sampling, and all setup and inspection pieces. The Supplier shall not divert nonconforming product to service or other use without prior Aptiv approval.

Suppliers shall guarantee conformance to this practice and shall guarantee that any and all sub-Suppliers will conform to this practice. Evidence of communication of this policy to sub-Suppliers shall be retained and presented to Aptiv when requested.

1.18. Escalation Model "Supplier/Purchased Parts"

Suppliers providing Aptiv with products and services that do not meet quality, delivery, or planning commitments and expectations are subject to enrolment in the escalation process to expedite improvement actions and visibility.

1.19. Lessons Learned (IATF 16949: section 6.1.2.1/7.1.6/10.3)

Supplier shall have a process to document and share knowledge, generally gained by experience within the organization. For realizing an efficient product and process development process, the Supplier shall consider at a minimum, knowledge gained out of former projects, customer claims, recall actions, Supplier complaints, change and deviation requests, audits, rework, repair and scrap. The Supplier shall review and apply the Lessons Learned as a first step in the project. This process shall keep the focus on avoiding defects instead of detecting defects in the entire supply chain. The effectiveness is proven by continuous improvement of the production process reliability, supply quality and delivery performance.

1.20. Retention Periods (IATF 16949: section 7.5.3.2.1)

The Supplier shall define and maintain retention periods for documents, records and reference samples. The applicable retention periods depending on the nature of the relevant documents and type of industry are described in the following standards:

Automotive Industry

• IATF (section 7.5.3.2.1) – Record Retention

• VDA 1 – Information Management, Documentation Control and Archiving

• AIAG (6) – Record Retention

These regulations and this summary do not replace legal requirements.

1.21. Marking of Customer's Property (IATF 16949: section 8.5.3)

All tools for manufacturing, testing or inspection equipment belonging to Aptiv or customers of Aptiv shall be permanently marked to clearly show that they are property of Aptiv or of the customer of Aptiv. These tools shall only be used for Aptiv products unless an authorization in writing exists. Failure to comply with tool identification requirements will result in delay or non-payment.

1.22. Customer Specific Requirements (IATF 16949: section 4.3.2)

Suppliers are expected to comply with specific requirements of Aptiv customers. General customer specific requirements are already included in this ACSR and shall be implemented. Additional

customer specific requirements issued by Aptiv customers shall be communicated on a project basis. Their application shall be subject to an agreement between Aptiv and the Supplier.

2. APQP Advanced Product Quality Planning/VDA Maturity Level Assurance

(IATF 16949: section 8.1) (IATF 16949:Section 8.1)

Aptiv's objective is to involve Suppliers in quality planning for a new project at the earliest possible stage. Aptiv always requires systematic planning from our Suppliers in the context of project management according to VDA Volume Material Level Assurance (Product Creation – Maturity Level Assurance for New Parts), or AIAG APQP, provided Aptiv does not stipulate another procedure. This planning applies both to the parts made by the Supplier as well as to the Supplier's purchased parts. Aptiv shall be notified of the project manager and the project team. For the respective part and/or project, the Supplier shall, at a minimum, implement the planning steps specified below (see sections 2.1 to 2.35). Each section describes a necessary planning item (APQP element). For parts produced and purchased by the Supplier (raw materials, external processing, sub-Suppliers), a status shall be drawn up which represents the individual evaluations in summary and puts emphasis on individual critical items. Project-specific requirements which go beyond the contents of this ACSR shall be agreed between Aptiv and the Supplier.

2.1. Supplier Readiness

The early recognition and avoidance of quality risks is a key success factor for a flawless launch and stable serial supply. Aptiv reserves the right to determine components of increased risk or special priority and initiate a Supplier readiness program for these components. The program shall be carried out by the Supplier in cooperation with Aptiv.

2.2. Early Supplier Involvement

Depending on the project, Aptiv will seek to involve their Suppliers at an early stage to carry out a simultaneous engineering. Aptiv expects their Suppliers to actively participate in these simultaneous engineering activities if invited by Aptiv. In such a case, a simultaneous engineering process shall be carried out, involving both Aptiv and the Supplier. A list of necessary activities shall be created, with a clear responsibility for the Supplier or for Aptiv. Commitment to implementation of these activities shall be documented and confirmed. The final result shall be assessed by Aptiv for approval.

2.3. Lessons Learned/Knowledge Transfer (IATF 16949: section 7.1.6)

Prior to filling out the feasibility study, the Supplier shall take all the relevant lessons learned and knowledge from previous or similar projects into consideration according to section 1.19 – Lessons Learned.

2.4. Feasibility Study (IATF 16949: section 8.2.3)

The Supplier shall analyse all technical documents (e.g. drawing, specifications, environment, statement of work, commodity specific and customer specific requirements …) as well as the Aptiv General Terms and Conditions and this ACSR as part of a contract review. The requirements are to determine and confirm:

• the feasibility of the design (for Suppliers with design responsibility),

• the ability to manufacture,

• the ability to measure, achieve and sustain process capability for special characteristics.

We expect our Suppliers to determine improvements in design, process and costs.

The Aptiv AQE may request the Supplier to consider issues such as packaging and shipping.

2.5. Planning Contents (IATF 16949: section 8.1.1)

Aptiv shall be notified of detailed activity planning in writing in advance.

2.6. Project Plan (IATF 16949: section 8.1)

The Supplier creates a project plan based on the Aptiv specified project milestones and submits it to Aptiv. The Supplier shall report on a regular frequency specified by Aptiv.

2.7.(a) Statutory and Regulatory Conformity (Material Expectations)

Supplier shall provide, free of charge, samples, testing, environmental, and Safety Data Sheet (SDS) information within the timeframe stated by Aptiv. SDS is required for bulk materials, raw materials, rust preventive, grease, lubricating oil, or any other chemical materials that are on, in, or part of an assembly provided to Aptiv. Seller is liable for all damages and will pay all costs in case not following Aptiv CSR.

2.7.(b) Substances of Concern and Recycled Content

Supplier shall disclose the composition of all parts supplied, or proposed to be supplied, as detailed in the Aptiv 10949001 Substances of Concern and Recycled Content specification on Aptiv Supplier Portal.

2.7.(c) Incoming Product Quality

Supplier shall ensure the quality of the parts it produces, its Sub-Supplier's quality and delivery performance (including those Sub-Suppliers directed by Aptiv), and subcontracted services meet Aptiv specifications and requirements.

When Supplier determines incoming inspection of Sub-Supplier material is necessary, this activity shall be consistent with the risk and quality impact of the Supplier on Aptiv product quality. Such incoming inspections shall include variables data, where appropriate, and be used as a key indicator for Sub-Supplier quality management. Where high risk has been identified in the subcontracted process, Supplier shall ensure containment is in place to protect Aptiv. For attribute data sampling, the acceptance level shall be zero defects.

2.7.(d) Information for external providers – supplemental

The Supplier shall pass down all applicable statutory and regulatory requirements and special product and process characteristics to their Suppliers and require the Suppliers to cascade all applicable requirements down the supply chain to the point of manufacture. Suppliers shall evaluate the effectiveness of each of the applicable AIAG CQI special processes identified in the "Normative Reference Document" section of this document on an annual basis. Evidence of the scheduled self-assessments, identified auditors, self-assessment results with monitoring of progress on corrective actions shall be retained per the Suppliers-controlled record retention (7.5.3.2.1) process.

2.7.(e) Product Description (IATF 16949: section 8.2.2)

Product description starts at a very early stage of the sourcing process (before the APQP phase) to ensure that all requirements from Aptiv and Aptiv's customer are captured and included in all relevant documents (e.g. technical specifications, drawings, internal standards …). All issues identified during the product description process shall be tracked by means of an agreed action plan. Dimensions not described in the data models (if applicable) but necessary from a production engineering point of view (e.g. runner locations, parting lines) shall always be determined, specified and agreed (with Aptiv in order to avoid interferences and problems with manufacturing and assembly.

2.7.(f) Production Scheduling

EDI**.** Suppliers must be capable of receiving forecasts, schedules, as well as transmitting Advanced Shipment Notifications (ASN's) electronically. Supplier shall send ASN's to Aptiv no later than thirty (30) minutes after Supplier ships products to Aptiv. Supplier shall notify Aptiv within the same working day if they encounter any EDI transmission failures and call Aptiv to resolve.

Forecast**.** Aptiv shall issue to Supplier rolling delivery forecasts specifying the quantities and shipping dates for each part number to be considered. Aptiv shall provide delivery forecasts to Supplier to satisfy the Aptiv needs, but no less frequently than once a week (except during periods of full closure of Aptiv plant). Forecasts will reflect long term needs for approximately 6 to 12 months.

Forecast Fulfilment**.** Feedback from the Supplier within 2 working days upon receipt of the forecast is necessary when the Supplier foresees any problems with delivery of material according to the forecast period of 4 weeks, for the remaining forecast period feedback must be provided within 1 week. Supplier shall communicate to Aptiv in advance any potential delivery problems together with proposed recovery plan. Supplier shall make all necessary arrangements to support Aptiv and supply material on time.

Lead Time. "Lead Time" is the amount of time in calendar days permitted between the Supplier's receipt of Aptiv's firm schedule and when the Supplier shall have products available for shipment. Standard lead time allotted to Supplier during regular production is 1 week.

Forecast Flexibility. The Supplier needs to absorb week to week fluctuations of 20% without extra cost.

Standard Fabrication and Material Authorization. Standard Fabrication is 2 weeks and Material Fabrication is 2 weeks for a total of 4 weeks. All information provided by Aptiv beyond 4 weeks is for planning purposes only.

2.7.(g) Aptiv-Designated Special Characteristics

Aptiv's AQE/SQE shall notify Supplier of any Aptiv-Designated or Customer-Designated Special Characteristics to be used on control plans, drawings, FMEAs, etc. Supplier shall ensure use of these specific symbols.

2.7.(h) Manufacturing Feasibility

Supplier responsibility is to check and confirm capacity with 20% flexibility (without any additional investment, from Aptiv side) based on estimated lifetime non-binding project volumes provided by Aptiv within 2 weeks of receipt. Supplier is also responsible to present a recovery plan to achieve capacity at SOP of the project in case of capacity not confirmed.

Supplier's capacity study shall include identification of the capacity constraints and evaluation of risk to Aptiv. Supplier shall provide the results of studies to the Aptiv AQE/SQE. The capacity information provided with the Supplier's quote shall reflect its available daily capacity and operating plan (hours per day, days per week). Supplier's operating plan shall meet Aptiv's weekly volume requirements and current model service requirements and shall be 100 hours/week or less. Supplier shall notify the Aptiv buyer for approval of any operating plan using more than 100 hours/week.

Once project reaches Start of Production, the Supplier need to ensure that capacity will be in place, based on confirmed/quoted volumes as per above rules.

If at any time, the Supplier detects future capacity issues or constraints based on Aptiv's forecast, it should immediately inform the Aptiv buyer and Aptiv Production Control and Logistics (PC&L).

2.8. Development Interface Agreement (only for Suppliers with Design Responsibility)

If required, Aptiv will ensure a project-specific clarification of the development related tasks and responsibilities.

2.9. Field Failure Analysis/No Trouble Found (IATF 16949: section 10.2.5/10.2.6)

For complaints from the field, the Supplier has to plan a methodical analysis according to VDA Volume "Joint Quality Management in the Supply Chain – Marketing and Service – Field Failure Analysis". The No Trouble Found process is part of this volume. If AQE/Supplier is not VDA trained, they will not be able to comply to this, but should reach agreement with their customer to demonstrate acceptable level of analysis.

2.10. Quality Objectives (IATF 16949: section 6.2)

For measurement and evaluation of the achieved quality, internal project/product related quality objectives shall be defined by the Supplier. The Supplier shall monitor the KPIs at all times to meet the quality objectives set by Aptiv.

2.11. Special Characteristics (IATF 16949: section 8.3.3.3)

Special Characteristics as well as their relevance and importance are defined in section 1.9 – Special Characteristics. The Supplier shall identify and mark them in all relevant product and process documents, such as drawings, FMEA, risk analyses, work instructions, control plans and Aptiv specific documents such as the Product Characteristic Matrix, Series Control Special Characteristics, etc. These characteristics require particular consideration including capable processes, error proofing, special controls and monitoring. Concerning the verification management documents for Special Characteristics, the extent of the retention period to be applied needs to be defined in accordance with the requirements described in section 1.20 – Retention Periods.

2.12. Safe Launch Plan

The Supplier shall agree upon a Safe Launch Plan prior to the PPAP run. For details, refer to section 4.4 – Safe Launch

2.13. Process Flow Chart (IATF 16949: section 8.3.5.2)

The Supplier shall provide a Process Flow Chart for the entire process chain from receiving inspection to packaging and shipping. This process flow chart shall be presented to Aptiv for common review. FMEA and Control Plan shall align with Process Flow Chart.

2.14. Operation Plan (IATF 16949: section 8.3.5.2)

An Operation Plan shall be completed for all single components and assemblies. It shall include all information on process steps, internal/external transport, means of transportation, as well as the machines and operating materials to be used. Necessary drawings (e.g. for production stage, raw part as well as process descriptions) shall be issued.

2.15.(a) Product and Process FMEA (IATF 16949: section 8.3.5.2)

The Failure Mode & Effects Analysis (FMEA) shall be carried out to examine possible risks and their evaluation regarding severity, probability of occurrence, and the possibility of detection. These risks shall be minimized by introducing appropriate measures. The FMEA is thus an important instrument for preventing defects. The FMEA shall be carried out in a timely manner, so that the results and measures to be taken can still be incorporated into planning. A FMEA shall be used for all phases of the product life cycle, such as design, production, assembly, packaging, transport, customer usage, as well as recycling and waste disposal. The FMEA shall be used as a continuous improvement tool. FMEAs shall be developed and/or revised in the following cases, e. g.:

- development/production of new parts
- introduction of new manufacturing methods
- relocation of plants
- drawing changes
- process changes
- if defects occur
- lessons learned

Design FMEA shall be completed for all parts which are being designed within the responsibility of the Supplier.

Upon request by Aptiv, a Product FMEA shall be presented to Aptiv by the Supplier.

Process FMEA shall be completed for all process steps of a component. In particular, the results of the process FMEA and the special characteristics shall be taken into consideration as basis for the Control Plan.

Upon request by Aptiv, a Process FMEA shall be presented to Aptiv by the Supplier.

The following topics shall be considered:

Failure simulation along the FMEA (Product and Process);

The identified failure modes within the FMEA shall be simulated on the shop floor after industrialization of the production process in order to verify if the failures are detected. Additional failure modes and other potential causes shall be identified and integrated into the FMEA.

Material mix-up;

The complete process chain during production, including the processes of the sub-Suppliers, shall be analysed for risk potential concerning the mix-up of material. All necessary actions shall be taken in order to eliminate the risk of material mix up (e.g. implementation of efficient interlocking systems).

Management of part variants;

A system shall be implemented which eliminates the risk of a mix-up of similar looking parts. Control of scrap parts, rework parts, setup parts and reference parts must be detailed. This includes, in particular, the prevention of the mixing of suspect parts with good parts in special situations such as machine crashes, machine stoppage and restart.

Technical cleanliness;

Technical cleanliness shall be implemented in the FMEA based on the specific requirements. The sub-Suppliers, machine manufacturers and service providers have to be considered as well.

The product and all processes shall be designed so that all the requirements are fulfilled.

By pass/Skip Process;

A system shall be designed and implemented to ensure that each process step can only be started if the previous one has been successfully completed.

Lessons Learned;

All lessons learned from similar processes and products shall be taken into account for the new project. Among other things, lessons learned documentation, records of all internal and external complaints, 8D reports, as well as preceding FMEA's shall be considered. Lessons Learned of sub-Supplier's issues have to be taken into account as well.

FMEDA (Failure Mode Effect and Diagnostic Analysis);

Aptiv shall be notified in written form about risks in the safety related system.

Assessment;

An assessment of the FMEA process shall be performed according to the international harmonized standards of VDA and AIAG.

Implementing measures;

Risks which are identified with the help of a FMEA shall be minimized by taking appropriate measures. To implement the measures, target dates and responsibilities shall be assigned in such a way that the measures can be taken before the start of production. The measures introduced shall be re-evaluated regarding their effectiveness. Aptiv shall be informed promptly about any necessary design modifications.

2.16. Design and Development Review

When reviewing product design and development stages, Supplier shall participate in and execute APQP requirements. Suppliers of material containing embedded software shall retain documented information of its software development capability self-assessment (ref: IATF 16949, 8.4.2.3.1).

2.17. Design and Development Verification

Supplier shall perform design verification to show conformance to Aptiv design validation and qualification requirements. At a component level, Supplier shall develop a qualification plan with the design engineering activity at Aptiv. Go/No-Go results should be avoided and, where available, the actual value for variables data shall be recorded.

2.18. Test Planning/Development Release (IATF 16949: section 8.3.4.2)

Suppliers with responsibility for product design shall create and execute a plan, according to which the design (development results) shall be tested to ensure that it meets the design specifications. This plan shall contain, among other things, information on the date, type, extent of the validation type, quantity of samples, etc. The difference between planning and realization (gap analysis) shall be evaluated.

2.19. Control Plan (IATF 16949: section 8.5.1.1)

The Control Plan presents a planning tool for preventive process security. It is implemented by a team through systematic analysis of production, assembly and test processes. This team should be made up of employees from Planning, Manufacturing and Quality Assurance as well as other related departments. The results of product and process FMEAs, experiences with similar processes and products, as well as the application of improvement methods shall be taken into consideration in the Control Plans. In the product development process, the Control Plan shall be created for the phases of pre-series production, safe launch and series production. A Control Plan for prototypes shall be created if required by Aptiv. For Special Characteristics, the sample plan frequency shall be based on quantity, e.g. 5 pieces out of 50. The “Layout Inspection and Functional Testing/Annual Requalification“ shall be included in the Control Plan. For more information, refer to section 4.3. A detailed description of the process for preparing a control plan is included in VDA Volume 4 and in AIAG APQP.

2.20. Release of Product and Process Development (IATF 16949: section 8.3.5)

The Supplier shall evaluate and document its releases for individual stages of product and process development. The results of these evaluations at each stage shall be described in the requested planning documents.

2.21. Co-ordination of Production Control (IATF 16949: section 8.5.1)

As a basic principle, all product and process characteristics are important and shall be complied with. Special Characteristics require the proof of process capability. For this purpose the Supplier shall monitor these characteristics with suitable methods, e.g. with statistical process control (SPC). If process capability cannot be achieved, 100% inspection shall be carried out. Special Characteristics which are not measurable or only measurable by destroying the product shall be monitored and documented with suitable methods. Test intervals and the size of random samples shall be determined and planned. Planned monitoring of the characteristics in series production shall be agreed with Aptiv. This information shall be documented in the Control Plan.

2.22. Planning and Procurement of Plant, Tools, Fixtures and Equipment (IATF 16949: section 7.1.3.1)

All plant, facilities, tools, fixtures and equipment necessary for manufacturing are to be planned and procured to meet the contracted volume. They shall be in place, at the latest, by the initial sampling date. All other equipment, as well as internal and external means of transport, shall also be taken into consideration.

2.23. Cleanliness (IATF 16949: section 8.2)

Based on the specific requirements, all types of contamination and their sources across the entire process chain must be considered in the FMEA. Alternatively, a specific cleanliness FMEA may be conducted by the Supplier. The sub-Suppliers, machine manufacturers and service providers must be considered as well. The product, packaging and all processes (storage, handling, transportation …) shall be designed in such a way that dirt emergence, dirt accumulation, dirt trailing and contamination are avoided. The use of harmful material with potential to impact the planned application shall be reported and requires an approval by Aptiv.

The Supplier is responsible for the cleanliness of both the parts and the packaging and shall take cleanliness specifications of Aptiv into consideration. Packaging shall protect the parts against contamination. All packaging materials shall be recyclable, reusable or returnable – whenever possible. If required by Aptiv, the Supplier shall ensure that the packaging for electronic parts conforms to the ESD specific requirements (Electro Static Discharge).

2.24. Inspection planning (IATF 16949: section 8.5.1)

Based on the Control Plan, the Supplier shall create an inspection plan, which includes all characteristics to be inspected with the appropriate inspection equipment for each operation. In addition, the inspection frequency and type of documentation of the results shall be defined in the inspection plan.

2.25. Planning and Procurement of Inspection Equipment (IATF 16949: section 7.1.5.1)

The Supplier determines the inspection method with the appropriate inspection equipment for all characteristics, shown on e.g. drawing, standards, specifications, etc. The procurement process shall be planned so that the necessary inspection equipment is available by the time of PPAP submission and suitability of the inspection process has been verified. External inspection and testing by service providers need to be planned as well. External service providers shall be accredited according to ISO/IEC 17025 or comparable national standards. The verification shall be carried out according to the requirements of VDA Volume 5 or AIAG MSA. In addition to the MSA results, Aptiv may request or conduct an alignment of measurements in selected cases.

2.26. Capability studies (IATF 16949: section 8.3.5.2/9.1.1.1)

The Supplier shall agree to conduct the machine capability study and process capability study according to one of the automotive standards VDA Volume 2, VDA Volume 4 or AIAG book SPC. The following explanation is according to VDA. Please note the alternative definition in AIAG.

Minimum requirements for capability indices:

• Machine capability/short-term process capability Cm/Cmk 1.67

• Preliminary process capability Pp/Ppk 1.67

• Process capability/long-term process capability Cp/Cpk 1.33

Deviating requirements shall be agreed by Aptiv with the Supplier. Machine capability study/short-term capability The machine capability studies shall be planned in such a way that all verifications are available no later than at the time of the PPAP submission.

Preliminary process capability study:

The evaluation of preliminary process capability studies shall be presented from at least 25 sub-groups, each consisting of 5 samples, unless otherwise agreed with Aptiv. For attributive inspection, sample size is minimum 300 consecutive pieces, unless otherwise agreed between Aptiv and the Supplier. Containment, generally either 100% sorting or some form of mistake proofing, shall continue until such time that the process Ppk demonstrates preliminary capability unless otherwise agreed with Aptiv.

Process capability study/Long-term process capability:

The long-term process capability study shall be submitted to Aptiv as soon as it can be determined according to above mentioned requirements. Furthermore, the results of the process capability study shall be submitted upon request.

2.27. Identification of Statistical Tools

Supplier shall use the latest AIAG and/or VDA SPC manual for manufacturing process controls and the latest AIAG MSA for measurement system equipment management.

Centred production:

Centred production shall be the target for characteristics which can be adjusted. In case of noncapable processes, 100% inspection/sorting or some form of mistake proofing shall continue until such time that the process Cpk demonstrates long term capability.

The measurement uncertainty shall be deducted from the specification limits in the following cases:

• For features/characteristics which do not have process capability and therefore require 100% inspection.

• For processes which demonstrate sufficient process potential (Cp/Pp), but where the process is not centred and cannot be adjusted (e.g. stamping).

2.28. Planning of Preventive and Predictive Maintenance (IATF 16949: section 8.5.1.5)

To ensure the delivery capability, a system for preventive and predictive maintenance on production equipment and tooling shall be developed. A maintenance plan shall be set out which includes the

maintenance intervals and the extent of the maintenance. Consistent execution shall be documented in writing. In addition to defining preventive maintenance intervals, a contingency plan shall be established for all processes that can influence the ability to deliver, such as machines with capacity constraints and special tools.

2.29. Tool Inventory / Disposal

Supplier shall furnish a tool inventory of all Aptiv-owned tools (active and inactive) in its possession (or in the possession of its Sub-Supplier(s)). The tool inventory shall be submitted to the Aptiv buyer annually by January 31st.

The inventory shall contain the following information for each Aptiv-owned tool:

- Tool part number(s) – typed in numerical order
- Current tool revision
- Description
- Date of parts last ordered
- Total cost of tool
- Quantity of parts produced from tool
- Remaining tool life
- Previous part number – if tool has been changed to produce a different part number
- Aptiv Design Engineer's name

Aptiv shall determine the disposition of all Aptiv-owned tooling and such disposition shall be communicated to Supplier in writing by Aptiv and include a Return Material Authorization.

2.30. Status of Sub-Suppliers and Purchased Parts (IATF 16949: section 8.4)

Sub-Suppliers have a significant impact on the quality of the final product. Aptiv Suppliers shall have a documented Supplier management system in place. Aptiv Suppliers are responsible for the development of their sub-Suppliers. They shall have the necessary process, competence and resources to manage their sub-Suppliers (including directed-buy Supplier and outsourced processes) and monitor their performance. An intent to change a sub-Supplier shall be communicated well in advance to Aptiv. The change of a sub-Supplier can only be implemented upon prior approval by Aptiv. "SSCR" – Change to Product or Process (PPF/PPAP) is mandatory and shall be performed. Aptiv reserves the right to participate in audits and assessments of sub-Suppliers regarding quality management systems, processes, products etc. jointly with the Aptiv Supplier, an Aptiv customer or a third party assigned by Aptiv. Aptiv participation in a sub-Supplier audit does not relieve the Aptiv Supplier from their responsibility to properly monitor and develop the sub-Supplier.

If the Supplier assigns orders to a sub-Supplier, the sub-Supplier shall also fulfil the requirements of this ACSR. This includes the implementation of a quality planning and feedback system with the sub-Suppliers according to the requirements of section 2 – APQP Advanced Product Quality Planning. The use of qualified sub-Suppliers for the project shall be ensured. If requirements are not met, improvement plans shall be defined. The implementation shall be guaranteed before PPAP approval of the entire product. Special processes shall be considered as well. Refer to section 2.34 – CQI/Qualification of Special Processes. A list of all sub-Suppliers used shall be submitted to Aptiv. A copy of each approved sub- Supplier's signed PPAP cover sheet shall be included with the Supplier´s PPAP submission. The status of the quality planning process shall be presented regularly. The activities shall be organized so that the Production Part Approval Process (PPAP) of the purchased parts is completed before the production process and product approval of the entire product.

2.31. Logistics (IATF 16949: section 8.1.1/8.3.5.1/8.5.4) & Identification and Traceability Labels (IATF 16949: section 8.5.4.1

Preservation - supplemental

Supplier shall package and label products in accordance with Aptiv written requirements (including, without limitation, Aptiv Global Packaging and Shipping Manual, Aptiv Global Container Label Requirements Standard and Aptiv European Odette Label Requirements Standard) located on Aptiv Supplier Portal, in the documentation section.

Planning of packaging including labelling:

Packaging shall contain and protect the product from damage and shall allow full transportation utilization. Packaging must be in line with Aptiv Global Packaging and Shipping Manual. The packaging quantities must be in line with consumption presented by plants in region. Supplier will support to deliver smaller packing units for prototype and pre-series parts. Aptiv will not accept any Minimum Order Quantity (MOQ) requested by Supplier beyond an agreed standard pack. The planned type of packaging must be agreed with Aptiv on the Supplier's initiative in sufficient time before PPAP or series production delivery. Any change of the packaging type or packing quantity should be communicated to Aptiv and approved before it is changed in the system.

Material flow . To avoid mix up of batches and to be able to trace batches, raw parts, parts purchased from sub-Suppliers and parts from Supplier's own production, "First In – First Out" principle shall be followed across all processes and delivery. Supplier shall ensure the traceability of their products from Aptiv all the way back to their sub-Suppliers. For this purpose, the parts or containers shall be labelled in a suitable way with batch identification number and revision status. The revision status shall be stated on the delivery note.

2.32. Traceability (IATF 16949: section 8.5.2.1)

The Supplier shall set up a defined process which allows the traceability of a single part, batch production, or at a maximum 8 hours of production all the way back to each production step and inspection lot across the entire supply chain, down to the raw material/purchased parts. The traceability plan must be agreed with Aptiv on the Supplier's initiative and installed in sufficient time before PPAP submission. Aptiv specific requirements for traceability must be taken into consideration.

2.33. Personnel (IATF 16949: section 7.1.2/7.2)

Capacity requirements:

Personnel need to be planned in a timely manner for both the project and production. Planning shall be performed in such a way that sufficient capacity is available at the start of both project management and production.

Qualification:

When a new station is set up or in the case of a station change, the personnel shall be trained according to the new conditions. Corresponding verification shall be documented. When temporary/contracted personnel are deployed, a risk analysis shall be done up front in consideration of the workplace. This personnel shall be trained accordingly.

2.34. Station Release (IATF 16949: section 8.3.5.2)

The Supplier shall release all manufacturing and assembly stations before PPAP. While doing so, the availability and suitability of the items listed in the following points shall be ensured:

• capability studies

• error simulation completed and documented (e.g. verification of automatic test equipment)

• complete and valid work documents (e.g. operation sheets, control plans, inspection plans, …)

• operating materials and maintenance plans

• inspection equipment

• means of transport

• provision of material with accompanying documents indicating the revision level of the parts.

The inspection shall be performed using a suitable checklist. All production and assembly operations shall be included. The deviations, if any, shall be documented. Responsibilities shall be defined for implementing corrective and improvement measures and target deadlines shall be set. After completing the defined measures, another inspection shall be performed, taking the deviations that had been previously identified into account. The results shall also be documented. A release for the PPAP can only take place once the results of the inspection are successful. This release shall be documented.

2.35. Manufacturing Prototypes (IATF 16949: section 8.3.4.3)

General requirements for prototypes

For prototype parts, a prototype inspection report (dimension, performance, process data, etc.) shall be submitted with the first delivery and in the event of modifications (index/item number). For this purpose, the initial sampling form VDA Volume 2 or AIAG PPAP shall be used in accordance with Aptiv requirements. In this report, all drawing characteristics or the extent of the modification respectively, shall be verified on at least one part.

Apart from that, Aptiv will specify the necessary extent of documentation in the individual case. If the prototype and production Suppliers are different, the prototype Supplier shall share with the production Supplier the process knowledge gathered in prototype fabrication, if contractually agreed. The process established to produce parts for validation shall not be changed without prior written agreement and acceptance by Aptiv. Change requests shall comply with the requirements of change management according to section 1.11 – Changes to Product or Process. Prototype deliveries shall also be marked and documented.

Location and component specific requirements for prototypes:

On request from Aptiv, Special Characteristics and additional characteristics defined by Aptiv are to be documented 100% during the prototype phase and in the ordered quantity. These characteristics are identified in the drawing. If requested by the Aptiv receiving plant, the following additional requirements shall be fulfilled:

Proto 1: For each batch, all the Special Characteristics (for more information, see section 1.9 and 2.11); shall be measured and documented for 15% of the delivered parts (round up quantity). In

addition to the measured values, the respective average and range shall be indicated. A deviation from this requirement is only possible under the following circumstances:

a) Characteristics are tool related; Production is taking place on series production machines and tools for which machine capability values are already available for similar parts (material, dimensions, and tolerances).

b) Parts coming from the series production: If this applies, all characteristics on two parts from each delivery have to be measured and documented. In this case, the respective average value and the range of series production shall be reported. Measured values and other requested data (average value, range, capability values, and tool dependent characteristics) shall be documented.

Proto 2: For each prototype delivery, the documentation for Special Characteristics (for more information, see section 1.9 and 2.11) and further agreed upon characteristics shall be delivered for 5 parts. Quantities deviating from this are to be determined by the Aptiv receiving plant. Measured values shall be documented.

2.36.(a) Audit Planning (IATF 16949: section 9.2/7.2.3/7.2.4)

The Supplier shall issue an audit program which defines the regular execution and the extent of internal product and process audits. VDA Volume 6 part 5 or VDA Volume 6 part 3 or equivalent procedures are to be applied. Audits at sub-Suppliers shall also be taken into consideration. Suppliers shall have qualified auditors to fulfil the automotive standards. Specific audit requirements related to special processes and products (CQI, Customer Specific Requirements, SPICE assessment, etc.) shall also be considered. Note; if this expertise is not available within the Suppliers company, they should obtain such expertise through outsourcing from a suitably qualified contractor.

2.36.(b) Internal Auditor Competency (IATF 16949: section 7.2.3)

Supplier's internal auditors shall be qualified as recommended in ISO 19011 Guidelines for Auditing Management Systems. In addition, its internal auditors shall be competent in understanding applicable ISO 9001, IATF 16949, VDA 6.3, and AIAG requirements. At all times the current standard must be proven. The audit tool must be newly acquired, as Aptiv only recognizes audits that have been performed with the current audit tool and by auditors that have completed the current training (including learning objectives check).

2.37. Capacity Verification (Run at Rate) (IATF 16949: section 8.3.5.2)

A Run at Rate (R@R) is a performance driven trial run under serial production conditions. The purpose of R@R is to demonstrate that Apti requirements for Supplier capacity are met, to provide evidence that the Supplier can produce the required volumes to specification with existing capacity and to identify potential process weaknesses. Potential reasons for performing R@R:

- Aptiv requirement
- new product/ new Supplier
- changes in product, process or equipment
- capacity increase
- relocation of tool and/or equipment
- Supplier performance problems

Unless otherwise agreed, the R@R shall be applied to all production material supplied to Aptiv. Catalogue parts are excluded from this R@R requirement. In case of any exception from performing a R@R, Supplier capacity for the respective parts shall then be assured and documented with a separate capacity commitment signed by the Supplier. The R@R shall be conducted either on all process steps or on individual bottleneck/critical process steps. When limited to individual process steps, the reason(s) shall be documented.

2.38. CQI/Qualification of Special Processes (IATF 16949: section 9.2.2.3)

The AIAG (Automotive Industry Action Group) is publisher of the CQI guidelines (Continuous Quality Improvement). CQI formats are available at http://www.aiag.org/. For Suppliers and sub-Suppliers dealing with special processes according to AIAG, relevant CQI-guidelines shall be considered.

If the result shows findings of the type “Need for Immediate Action” or “Fail Findings”, the Supplier shall inform Aptiv immediately and provide an action plan.

Heat Treatment Process: Due to the critical performance of Heat Treat, Aptiv has taken steps to control the use of Heat Treatment Suppliers. Aptiv encourages its Suppliers to use Heat Treatment sub-Suppliers previously approved by Aptiv. In the event that it becomes necessary to use a Heat Treat Supplier that has not been approved by Aptiv, the Supplier shall provide a valid CQI-9 self-assessment at the time of RFQ (Request for Quotation), along with the Basic Technical Workbook/Feasibility Study or during the APQP phase. Aptiv reserves the right to audit and then approve or reject the selected Heat Treat Supplier. The CQI assessments are self-assessments and shall be performed according to the CQI requirements at least annually. These self-assessments and action plans to address gaps shall be submitted electronically to Aptiv via the requested Aptiv Supplier Portal.

2.39. Maturity Level Assurance for New Parts (IATF 16949: section 8.3.2.1)

For new parts, Aptiv reserves the right to process the project in accordance with the requirements of VDA Volume Maturity Level Assurance (Product Creation – Maturity Level Assurance for New Parts). If this case applies, Aptiv will contact the Supplier.

3. PPAP/PPF Production Part Approval Process

(IATF 16949: section 8.3.4.4) (IATF 16949:Section 8.3.4.4)

Production Part Approval Process (PPAP) is based on either VDA Volume 2 (PPF) or on the production part release process of the AIAG PPAP. Aptiv retains the right to specify one of these two procedures or a similar procedure. Prior to start of Production Part Approval Process (PPAP), it shall be ensured that all activities of process and quality planning have been completed.

3.1. Initial Samples (IATF 16949: section 8.3.4.4)

Initial samples are products made and tested under series production conditions (plants, machinery, operating materials and test equipment, machining conditions). The test results on all characteristics must be documented within the initial sample report. The quantity of parts to be documented must be agreed upon with Aptiv. The initial samples shall be submitted to the Aptiv receiving plant by the agreed date and shall include the initial sample inspection report and documents according to the submission levels specified in section 3.3 – Submission Levels. Initial samples shall be clearly identified. To identify the characteristics, matching numbers shall be used in the initial sample inspection report and in the accompanying current drawing released by Aptiv. For assemblies

manufactured according to a Aptiv design, including the single components, an initial sample inspection is obligatory and shall be presented to Aptiv. For products based on the Supplier's own design, the Supplier shall sample and present the assembly to Aptiv. Initial sampling shall also be performed for single components and, if necessary, for subassemblies. Aptiv shall be allowed to review this documentation as required. Aptiv reserves the right to issue a complaint at a later date about deviations from the Aptiv specifications which have not been detected during the PPAP Approval Process.

3.2. Reasons for Initial Samples (IATF 16949: section 8.3.4.4/8.5.6.1)

In alignment with above mentioned standards and regulations, the PPAP Approval Process is required if any of the following changes apply at the Supplier or sub-Supplier:

• if a product is ordered for the first time (marked on order)

• after the Supplier has changed a subcontractor

• for all affected characteristics after any product modification

• for all affected characteristics following a drawing index modification

• following an interruption in delivery after a stop shipment (business on hold)

• following an interruption in delivery of more than one year

• following an interruption in production of more than one year

• if production procedures/processes have been changed

• following the introduction of new/modified molding equipment (e.g. stamping, rolling, pressing, forging, molding equipment, in the case of several dies/molds and/or multiple dies/molds, for each cavity/cluster)

• following any type of relocation of PPAP approved production or the use of new or relocated machinery and/or operating materials

• after use of alternative materials and design changes in product appearance attributes applied to material such as paint, leather, wood, …where there is no appearance specification. (e.g. colour, smell …)

• change in test/inspection method or new technique (no effect on acceptance criteria). For change in test method, Supplier should have evidence that the new method provides results equivalent to or better than the old (previous) method

- Production following upgrade, refurbishment, rearrangement of existing tooling or equipment, if requested by Aptiv

Exceptions to approach and scope are only permissible in agreement with Aptiv, for example in the following cases:

• interruption in delivery or production of more than one year

• small production batches, after-sales service parts

• standard and catalogue parts

Samples for PPAP are to be supplied to Aptiv free of charge.

These need to be identified with “Aptiv Engineering Samples Free of Charge” purple labels on the outside of each shipping box. The labels must also be attached on each order/worksheet to demonstrate the shipment are samples as distinct from production parts. If a purple label is not available it is permissible to use a purple paper sheet. Note, if the shipping box does not have the purple label with all required information the package could be placed on hold and/or scrapped and risk not getting to the intended Aptiv recipient leading to request for additional samples at the Suppliers cost. If you need more details on this, please engage with your Aptiv Supplier Quality or Engineering contact who will support.

3.3. Submission Levels (IATF 16949: section 8.3.4.4)

In general, unless otherwise specified by Aptiv, Submission Level 3 applies. In the case of bulk material (i.e. grease, oil, granulate …) the submission shall take place via the relevant AIAG Bulk Material Checklist, unless otherwise specified by Aptiv.

3.4. Initial Sampling according to Data Modelling (IATF 16949: section 8.3.5.1)

Measurements must be performed based on the valid data models, if applicable. The number of measuring points must be selected in a way that allows positive determination of all dimensions. Details of the measurement are to be agreed with Aptiv. The characteristics identified and determined in section 2.7 – Product Description must be documented with the initial sample.

3.5. Assessment of Product and Process for Serial Production Release

The Supplier shall conduct a written self-assessment of product and process maturity for serial production using the VDA “Matrix for assessing the serial production maturity for product and process”, if required.

3.6. Initial Sample Documentation (IATF 16949: section 8.3.4.4)

The initial sample documentation according to the requested submission level (see section 3.3) shall be supplied at the same time as the initial samples. Aptiv may require Suppliers to submit a validation package that contains additional documents and forms beyond those required by AIAG/VDA. Missing, incorrect, incomplete or delayed submission of initial sample documentation shall be recorded as a Supplier performance failure and will affect the Supplier's performance rating. Initial samples without complete documentation will not be processed and will lead to subsequent costs, which shall be charged to the Supplier.

3.7. Deviation in initial sample (IATF 16949: section 8.3.4.4/8.7.1.1)

Documents, records, and initial sample parts may only be submitted if all specifications are fulfilled. In case of deviations, the Supplier shall first obtain written permission from Aptiv. Initial samples with deviations that have no deviation approval will not be processed by Aptiv. The following shall be submitted along with the deviation request:

• 8D report • An action plan to return to planned serial conditions

• The planned point of time when normal production can be resumed

3.8. Material Data Reporting (IATF 16949: section 8.3.4.4)

For all supplies to Aptiv, material data needs to be provided where legal reporting obligations apply. Where PPAP requirements apply, Suppliers shall report material and substance information for all types of purchased materials, components or items supplied using the International Material Data

System (IMDS) (www.mdsystem.com). Suppliers shall submit IMDS and, if required by Aptiv, to Aptiv as soon as possible upon award of new business, but in any case prior to the PSW (Part Submission Warrant) or as part of the PPAP process. The Supplier IMDS/CAMDS information shall be subject to Aptiv review and approval. Missing material data will lead to rejection.

3.9. PPAP Submission Process (IATF 16949: section 8.3.4.4)

The PPAP documents shall be submitted via the process requested by the Aptiv ordering plant, ideally in the plant's required portal tool(s). They shall be submitted along with the List of PPAP Elements in the order of the element numbers stipulated in the "Submission Levels" form. Incomplete or incorrect PPAP documentation shall be rejected.

3.10. Preventive action

FMEA must be prepared using the latest revision of the harmonized AIAG/VDA FMEA manual unless otherwise authorized by Aptiv SQ.

FMEA can be created for families of parts if batch processes and/or common tools are used. Families must be clearly defined and have a complete listing of part numbers. Family designations must be approved by Aptiv Engineering and Aptiv SQ.

The Supplier must provide a copy of the family FMEA documents for review upon request by Aptiv. If the document is deemed proprietary, the Supplier may provide the appropriate section or provide qualified technical assistance and submit the FMEA to Aptiv requestor for review without retaining copies. A letter explaining the proprietary nature of the FMEA must be included in the PPAP submission package. Suppliers shall drive continuous improvement to reduce the severity and occurrence of all potential failure modes in accordance with the requirements of the AIAG/VDA FMEA Manual, latest edition.

3.11. Product and Process FMEA (IATF 16949: Section 8.3.5.1 & 8.3.5.2)

FMEA shall be carried out to examine possible risk and their evaluation regarding severity, probability of occurrence, and the possibility of detection. These risks shall be minimized by introduction of appropriate measures satisfactory to Aptiv. The FMEA shall be carried out in a timely manner, so that the result and measures to be taken can still be incorporated into planning. A FMEA shall be used for all phase of the product life cycle, such as design, production, assembly, packaging, transport, customer usage, as well as recycling and waste disposal. The FMEA shall be used as a continuous improvement tool.

4. Serial Production Requirements

4.1. Introduction

Once the manufacturing process is successfully validated (PPAP is approved), the serial production phase begins. During this stage, there are a number of requirements each Supplier and sub-Supplier shall be fully aware of and follow. Key areas for this phase are detailed in the following sections.

4.2.(a) Processing Complaints (IATF 16949: section 10.2.6)

Suppliers are expected to immediately notify all possibly impacted Aptiv plants and other involved parties in the supply chain to Aptiv, when made aware of a potential safety, quality or delivery issue. After a complaint is issued by Aptiv, containment actions shall be implemented immediately. Containment status (D3 of 8D report) shall be reported to Aptiv at the latest within one working day

and updated periodically. An analysis of the root cause always needs to be carried out using suitable problem-solving methods and submitted to Aptiv. Detailed analyses (such as Ishikawa, 3x5 why, error simulations …) are also to be carried out. When requested, these documents shall be submitted to Aptiv.

The completed 8D report shall be submitted within 15 calendar days at the latest. If necessary, other target dates may be established in agreement between Supplier and Aptiv. The 8D process can only be closed by the acceptance of Aptiv.

Identification of certified parts or packaging after a complaint:

The clean point information shall be determined and communicated at once to the person in charge at Aptiv. In addition, it shall be documented in the 8D-report. Subsequent deliveries from warehouse and work in progress which have been subjected to 100% inspection or testing due to complaint shall be marked or labelled. Every packaging unit shall be clearly labelled with the requested label or form until permanent corrective actions have been implemented successfully. The type of marking on the individual part needs to be agreed with the Aptiv receiving plant, described on the requested "Certified Parts" label or form, and included on the 8D Report.

Aptiv retains ownership rights of all material returned for analysis. If destructive testing is required to determine root causes, Aptiv shall be notified prior to the testing process. The destruction of any part returned for analysis without written permission from Aptiv is strictly forbidden. Material associated with a complaint, wherein responsibility of failure is indeterminate or disputed, shall be returned to Aptiv for retention unless otherwise agreed in writing. All responses must be submitted in the Problem Case Module of the Aptiv Supplier Portal. Aptiv communicates cost recoveries to Supplier with a Problem Case and through a Cost Recovery notice in Aptiv Problem Solver. Supplier shall respond to Cost Recoveries within seven (7) calendar days.

Measurement and Improvement of Supplier Quality Performance:

It is the expectation of Aptiv that Suppliers will achieve and maintain zero defects and 100% on time delivery. Aptiv continuously monitors the performance of their supply base using key performance indicators (KPI's) designed to evaluate launch performance, delivery performance, complaint and warranty performance, and serial production quality performance. Aptiv monitors and evaluates these KPI's in order to:

- Permit and enable Supplier performance comparisons
- Derive necessary strategies and initiatives for Supplier development activities
- Continuously improve Supplier quality performance.

Suppliers shall access their performance data through the Aptiv Supplier Portal. The Supplier's performance status is taken into consideration for future sourcing decisions as well as for identifying areas to focus continuous improvement efforts.

4.2.(b) Deviation Approval (IATF 16949: section 8.5.6.1.1/8.7.1.1)

Customer Satisfaction

Supplier shall establish processes and designs to achieve zero defects, 100% on-time delivery, and green quality and shipping scorecards. This applies to both quality, delivery and all logistics issues.

Scorecards (9.1.2.1)

Aptiv monitors Supplier quality and shipping performance and drives corrective actions for improvements through Supplier Scorecards. Supplier shall review and verify monthly updates and ensure action plans are developed to achieve green quality and shipping scorecards.

Scorecard Usage to Drive Improvement

If Supplier's scorecard has a red indicator(s), quality score(s), or shipping score(s), Supplier shall establish aggressive action plans to drive improvement to green. If Supplier's scorecard has a yellow quality score(s) or shipping score(s), Supplier shall develop and implement action plans to drive improvement to green. If Supplier is on Controlled Shipping Level 2, on New Business Hold, or has a twelve (12) month red average on its quality or shipping scorecard, Supplier shall expedite appropriate corrective action steps. NOTE: Supplier shall notify its Registrar in writing within five (5) calendar days of being placed on Controlled Shipping Level 2 and/or New Business Hold.

4.2.(c) Warranty management systems / Customer complaints and Field Failure test analysis: (IATF 16949: section 10.2.5 and 10.2.6)

For complaints from the field, the Supplier must plan a methodical analysis according to the VDA volume "Joint Quality Management in the Supply Chain - Marketing and Services - Field Failure Analysis" or other customer specifications. The Aptiv VDA Field Failure Analysis Process Audit Questions Software version 1.8.9 contain the minimum requirements to be covered. If the SQE and the Supplier are not familiar with VDA Field Failure Analysis Process Audit Questions Software version 1.8.9, then, they need to work together to agree an acceptable level of analysis to IATF 16949 standard. The No Trouble Found process is part of the procedure.

4.3.(a) Layout Inspection and Functional Testing/Annual Requalification (IATF 16949: section 8.6.2)

Supplier shall annually perform a layout inspection and functional verification to all engineering material and performance requirements. These must be available to Aptiv on request. If discrepancies are found, Supplier shall contact Aptiv SQ for resolution. Supplier shall submit corrective action and communication of the updated inspection and verification to Aptiv SQ for approval. All products shall be subjected to an annual layout inspection and functional testing (Requalification), unless agreed otherwise with Aptiv. After previous agreement with Aptiv, for parts that are similar for Aptiv, the requalification can be carried out per product group ("Family") or results for the current series production tests can be included, for example:

- Cyclical series production releases
- Product audits (aggregates, modules, components, parts, etc.)
- Records for initial item and final item tests
- SPC evaluations
- Initial sampling
- Incoming goods inspection

The valid Aptiv specifications are the basis for requalification/Requalification. A layout inspection and functional testing usually covers:

- Dimension

• Material

• Function

Other test items are to be agreed with the Aptiv receiving plant. The layout inspection and functional testing/annual Requalification shall be planned and presented with the Aptiv initial sample inspection and shall be included in the Control Plan. The results shall be documented and made available for evaluation by Aptiv. For this purpose, the Initial Sample Inspection Report forms from VDA Vol. 2 (PPF) or PPAP (PSW) from AIAG shall be used. If the test results are negative, the Supplier shall immediately contact Aptiv. The risk for Aptiv, the cause of the fault, and actions shall be specified. The results of the layout inspection shall be submitted to Aptiv upon request.

4.3.(b) Control of Non-Conforming Product

Supplier shall have an internal containment procedure that integrates the requirements of the Aptiv Supplier Containment Procedure located on Aptiv Supplier Portal.

4.3.(c) Control of reworked and repaired product

The Supplier shall utilize risk analysis (such as FMEA) methodology to assess risks in the rework and repair process prior to a decision to rework and repair the product. The Supplier shall obtain approval from Aptiv prior to commencing rework or repair of the product. It is prohibited to launch rework or repair process without Aptiv authorization. Process of the rework or repair product should follow IATF 8.7 requirements.

4.4. Safe Launch

Introduction: Safe Launch planning is designed to protect both Aptiv and the Supplier during the initial phases of product supply. A Safe Launch process shall be implemented to detect symptoms of potential issues in new processes and to ensure that new launches are defect free. To accomplish this, a Safe Launch Plan shall be agreed during the planning phase. During Safe Launch, an increased frequency of inspection and monitoring shall be performed on designated and other agreed characteristics.

Team: The Supplier nominates an empowered interdisciplinary team with defined responsibilities to ensure the conformity of the parts and to analyse and eliminate internal rejects in a timely manner.

Duration: In general, the Safe Launch phase starts with the PPAP submission and extends until start of production (SOP of the Aptiv customer) + 90 days, unless otherwise specified by Aptiv. The program duration may also be specified by a quantity of product.

Exit and Restart Criteria: Zero defect supplies during the entire Safe Launch phase and fulfilment of all agreed criteria qualify the Supplier for an exit out of the Safe Launch phase. Any defect discovered during the Safe Launch Phase resets the event to “0” and the Safe Launch Phase is restarted.

Documentation: Record measurements, inspection raw data and capability charts shall be submitted on agreed frequency to Aptiv.

In case of deviations from the specification, the following forms shall be used and submitted to Aptiv in order to obtain release prior to delivery:

• 8D Report Form

The submitted information shall indicate when the Supplier plans to return to normal production. All deliveries based on a deviation approval shall have additional identification labels on all load carriers.

Contingency Plan

Supplier must review annually, and have available on request of Aptiv**,** potential risks that may disrupt its production and/or shipments. Supplier must have a Contingency Plan with respect to those risk events. Risks include, but are not limited to:

- Natural disasters – flood, windstorm, earthquake, etc.
- Localized events – fires, explosion, terror threats, utility disruption, etc.
- Raw material issues
- Sub-Supplier issues
- Labour issues – strike, illness, training, security, human resource policies, etc.
- Information Technology (IT) issues – data security/recovery, systems, cyber-security, etc.
- Regulatory or compliance issues
- Pandemics

Supplier's Business Contingency Plan process must define preventative measures, immediate responses, recovery steps, and timing to resume production of a quality product. Robust plans shall include:

- Defined roles and responsibilities
- Response organization and contact information
- Initial actions
- Escalation procedures
- Communication Plans
- Recovery Plans

Measurement System Analysis

Supplier shall perform a gauge study on each gauge used for checking a Special Characteristic (significant, critical, or Supplier identified) in accordance with the methods and timing described in the latest AIAG Measurement Systems Analysis (MSA) manual and/or VDA 5 Capability of Measurement Processes, Capability of Measuring Systems manual as applicable to determine measurement system capability. Supplier shall have a containment plan for gauges that do not meet the MSA specification (such as 100% inspection, gauge improvement, etc.). Supplier shall maintain gauge study records. The above requirements apply to all measurement systems referenced in the control plans

OEM Customer Specific Requirements (IATF 16949: section 4.3.2)

In addition to the aforementioned Aptiv Customer Specific Requirements documented and referenced in this document, it is the Supplier's responsibility to ensure that they are at all times compliant with relevant Original Equipment Manufacturers (OEM) Customer Specific Requirements and standards irrespective of how they are relayed in the Supply Chain. OEM CSR's are to be found on our Customer's websites and can also be found on the IATF website at this link;

https://www.iatfglobaloversight.org/oem-requirements/customer-specific-requirements/

Raw material Suppliers and software Suppliers are required to comply with the CSR. Aptiv will request certificates as part of our registration process and on an ongoing basis to ensure certificates remain valid.

5.0 Specific Requirements for Electronic Components

For Suppliers who develop and/or produce, assemble or test electronic components (particularly semiconductor devices, passive components and LED components) the additional, specific requirements described in section 5 shall be applied.

5.1. AECQ (IATF 16949: section 8.3.4.2/8.5.6.1)

Suppliers who develop and/or produce, assemble or test electronic components shall at a minimum fulfil the respective qualification standard from the Automotive Electronics Council (AEC; e.g. AECQ 100; AECQ 101; AECQ 200). http://www.aecouncil.com/AECDocuments.html Exceptions or deviations to above, shall be communicated to and agreed with Aptiv.

5.2. Robustness Validation (IATF 16949: section 8.3.4.2/8.5.6.1)

The Supplier shall provide their approach to robustness validation in the development phase. In addition, the procedure of robustness validation shall be made available to Aptiv for review and approval. For further information, refer to ZVEI – Handbook of Robustness Validation.

5.3. Mission Profile for Electronic Components (IATF 16949: section 8.2.3.1/8.3.4.2/8.5.6.1)

Upon award of business, Aptiv may issue a series of work documents to be taken into account by the Supplier:

• Mission Profile

• Statement of Work (SOW) and/or

• Semiconductor Group Standard

The Semiconductor Group Standard shall be provided by Aptiv along with the RFQ. It shall be followed during the development phase, where the Supplier and Aptiv shall mutually share all relevant details required as per the APQP process concerning:

• the Semiconductor Fabrication Process

• the Wafer Probe Process

• the Assembly Manufacturing Process

• the Assembly Test Process

5.4. Product Change Notification (PCN) and Supplier Suggestion Change Request (SSCR) for Electronic Components (IATF 16949: section 8.5.6)

Suppliers who develop and/or produce, assemble or test electronic components shall inform Aptiv about changes affecting product and/or process. Details of change shall be submitted to Aptiv via the requested form and comply with the requirements of PCN/SSCR described in the current version of the European Standard (ZVEI) and/or in further valid standards. The Supplier remains responsible for all changes, irrespective of ZVEI notification requirements. For change classification, Aptiv requires a formal delta (change) FMEA/risk assessment associated with the change. The Supplier shall include a completed ZVEI Delta Qualification Matrix (DeQuMa) PCN Delta-Qualification-Matrix currently, Rev. 3.1, with all requests for change. The Supplier shall always follow the latest revision.

This document is available on the ZVEI website. Additionally, Aptiv may deem further testing necessary prior to accepting the change. Aptiv may request a data review of the critical parameters for the process or processes affected by the change. This should be in the form of a comparison of new process against existing process. For initial release and changes related to software during the full product lifecycle (development, launch, production, aftermarket) the Supplier shall adhere to the specific software release process of Aptiv. This shall include management and verification of software revisions and requires approval by Aptiv.

5.5. Functional Safety of Software and Components with Integrated Software (IATF 16949: section 8.3.2.3)

Suppliers who develop or supply software or electronic components with integrated software shall meet the requirements from Automotive SPICE or an equivalent standard. Unless otherwise agreed, the technological maturity level 2 or higher needs to be fulfilled according to the VDA Volume "Automotive SPICE Process Assessment Model" for processes, which are part of the "VDA process scope". Aptiv retains the right to carry out an assessment at the Supplier's location.

If maturity level 2 currently cannot be achieved, the Supplier shall provide an action plan including an adequate time schedule to achieve maturity level 2. When safety-relevant electronics and software are included in the scope of supply, then the development process shall be "state-of-the-art" and comply with IEC DIN EN 61508, ISO 26262. Safety-relevant parts, their documentation and the drawings shall be marked as such so that they can be clearly identified throughout the development phase and series production process. The requirements of the necessary safety level (e.g. SIL, ASIL …) are specified in the respective specification. The safety concept with design and implementation specifications shall be agreed with Aptiv.

5.6. Cybersecurity

5.6.1. Enterprise Cybersecurity Requirements

Supplier must protect Aptiv data from unauthorised use, access, modification, processing, or disclosure. Supplier shall implement a comprehensive Information Security Program to establish effective administrative, technical and physical safeguards to minimise risk to Aptiv users, assets and data and to identify, protect, detect, respond, and recover from cyber threats, security incidents, and breaches. The Information Security Program shall be documented in written policies, procedures, and standards, and shall, at a minimum comply with Aptiv requirements and shall be reviewed annually.

Supplier will maintain a formalised process to align the Information Security Program with industry standards and frameworks (e.g., TISAX, ISO27001, ISO27017, ISO27034, NIST 800-53 r5 or greater, OWASP Top10 for Web/Mobile) for maintaining appropriate cybersecurity within their organisation, thus minimising cybersecurity risk that could affect Aptiv and its business operation.

Supplier shall notify Aptiv within 24 hours of a: (i) security incident, (ii) unauthorised use or disclosure of Aptiv data, (iii) or a breach; that directly or indirectly poses a risk to Aptiv by sending an email to aptivsoc@Aptiv.com.

5.7. Data Privacy and Protection Requirements

The Supplier must process any personal information which we provide with the highest standards of security and confidentiality, strictly in accordance with the all applicable Data Protection Law and Regulation, including General Data Protection Regulation (GDPR) (EU) 2016/679.

Aptiv will require that the parties implement the relevant Data Protection contract exhibit, including all required Privacy, Security, and Cross Border Transfer Impact Assessments.

The Supplier must process personal data in accordance with the Data Protection principles.

If you process data, you have to do so according to the following Data Protection and accountability principles:

- Lawfulness, fairness and transparency — Processing must be lawful, fair, and transparent to the data subject.
- Purpose limitation — You must process data for the legitimate purposes specified explicitly to the data subject when you collected it.
- Data minimization — You should collect and process only as much data as absolutely necessary for the purposes specified.
- Accuracy — You must keep personal data accurate and up to date.
- Storage limitation — You may only store personally identifying data for as long as necessary for the specified purpose.
- Integrity and confidentiality — Processing must be done in such a way as to ensure appropriate security, integrity, and confidentiality (e.g. by using encryption).
- Accountability — The data controller is responsible for being able to demonstrate compliance with all of these principles.

Privacy Minimum Requirements

The Supplier must demonstrate that they implement best practices including at minimum:

1) Data Privacy Policies and Processes
2) Minimum Data Collection
3) Maintain Transparency
4) Data Inventory – Record of Processing Activity
5) Privacy by Design
6) Training and Awareness
7) Privacy Risk Management (including DPIAs where required)
8) Incident Management Processes
9) Data Subject Rights Management
10) Cross Border Data Transfer Impact Assessment and Management.

5.8. Responsible & Ethical Procurement

5.8.1. Code of Conduct for Business Partners (CCBP**)** (Note: Not including drive line as listed in CCBP)

As a global technology company enabling the safer, greener and more connected future of mobility, it's part of Aptiv's values to act responsibly, to always do the right thing, the right way. These values

also apply to all of our partners. Over the years, Aptiv has developed strong relationships with its partners, and as we continue to strive to deliver better products for our customers, we expect our partners to follow Aptiv's principles. The principles contained in the Aptiv Code of Conduct for Business Partners are essential to ensure that all of Aptiv's partnerships are ethical, compliant and trustworthy. As we face global challenges, it's critical that every Aptiv Business Partner understand and agree with the principles set out in this Code. We expect that our Business Partners will flow these principles and expectations to their Suppliers and business partners so we can ensure responsible and ethical sourcing throughout our full Supply Chain. Aptiv reserves the right to require our Business Partners to ensure sub-tier Suppliers are compliant to local, national and international laws and adhere to Aptiv's Code of Conduct for Business Partners. Evidence of effectiveness shall be based on having and implementing a defined process including measurement and monitoring. The Aptiv Code of Conduct can be found HERE.

5.8.2. Responsible Sourcing – Minerals

(Dodd-Frank - 2010 United States legislation, Dodd-Frank Wall Street Reform and Consumer Protection Act, Section 1502; OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas)

All Suppliers whose products are likely to contain conflict minerals and other minerals (potentially relevant Suppliers) shall comply with responsible sourcing of raw materials and applicable regulations as stated in Aptiv Conflict Minerals policy and Supplier Code of Conduct. Aptiv requires its potentially relevant direct material Suppliers to provide reports to Aptiv (when requested but at least annually) stating all the smelter or refiners identified in the supply chain of products to Aptiv. The report templates shall comply with the latest CMRT and EMRT versions posted on the RMI website. In addition Suppliers shall support the Aptiv commitment to identify, reduce and, where possible, eliminate any non-conformant sources of the minerals from Aptiv products.

6.0 References

Normative References

Standards

IATF 16949 Automotive Quality Management System Standard

ISO 9001 Quality Management Systems

ISO 14001 Environmental Management Systems

ISO 15000 – 3: 2023 Electronic business eXtensible Markup Language (ebXML) – Part 3: Registry and Repository

ISO 19011 Guidelines for Auditing Management Systems

ISO 27001 Information Security Management System/ Information Security Assessment (ISO/IEC 27001/ TISAX)

ISO 45001 Occupational Health and Safety Management Systems

ISO 16232 Road Vehicles Cleanliness of Components and Systems:2018

Automotive SPICE® – Process Assessment Model ISO 26262 (Road vehicles – Functional safety)

IEC 61508 (Functional safety of electrical/electronic/ programmable electronic safety-related systems)

SAE-J1879 (Handbook for Robustness Validation of Automotive Electrical/Electronic Modules)

ZVEI documents (Handbook for Robustness Validation of Semiconductor Devices in Automotive Applications

Handbook for Robustness Validation of Automotive Electricals/Electronic Modules)

Rules and Standards

VDA Volumes VDA – German Association of the Automotive Industry www.vda-qmc.de

AIAG requirements

AIAG Standards and Rules (incl. CQI)

www.aiag.org/

AIAG & FMEA Core Tools

AIAG CQI-8: Layered Process Audit Guideline

AIAG CQI-9: Special Process / Heat Treat System Assessment

AIAG CQI-11: Special Process / Plating System Assessment

AIAG CQI-12: Special Process / Coating System Assessment

AIAG CQI-14: Consumer-Centric Warranty Management

AIAG CQI-15: Special Process / Welding System Assessment

AIAG CQI-17: Special Process / Soldering System Assessment

AIAG CQI-18: Effective Error Proofing

AIAG CQI-19: Sub-Tier Supplier Management Guideline

AIAG CQI-20: Effective Problem Solving Practitioner Guide

AIAG CQI-21: Effective Problem Solving Leader Guide

AIAG CQI-22: The Cost of Poor Quality Guide

AIAG CQI-23: Special Process / Moulding System Assessment

AIAG CQI-27: Special Process / Casting System Assessment

VDA requirements

VDA 1: Documented Information and Retention

VDA 2: Production Process and Product Approval (PPA)

VDA 4: Quality Assurance in the Process Landscape

VDA 5: Capability of Measurement Processes, Capability of Measuring Systems

VDA ISA Control (Information Security Requirements 6.1.1)

VDA 6.3: Process Audit

VDA 6.5: Product Audit

VDA 19.1: Inspection of Technical Cleanliness (if required)

VDA 19.2: Technical Cleanliness (if required)

Minimum Automotive Quality Management System Requirements for Sub-Tier Suppliers (MAQMSR)

EOS - Electrical Overstress in the Automotive Industry 2nd, updated edition, April 2020

Special Features (BM) 04/2020

APTIV Requirements

Aptiv Global Packaging and Shipping Manual

Aptiv General Terms and Conditions

Aptiv Global Container Label Requirements Standard

Aptiv European Odette Label Requirements Standard

7.0 Forms

All necessary communication / work forms and relevant documents can be found on the Aptiv Supplier Portal. This Aptiv CSR current revision is available on the Aptiv Supplier Portal. The forms and documents made available on this platform represent the Aptiv standard and cover the minimum requirements. Other forms may be used on the condition that they fulfil the minimum Aptiv requirements and the Aptiv receiving plant has approved the use of these forms. The Supplier shall ensure that they always work with the latest version of the forms.

8.0 Glossary

AEC	Automotive Electronics Council
AIAG	Automotive Industry Action Group
APQP	Advanced Product Quality Planning
ASIL	Automotive Safety Integrity Level
CLP	Classification, Labelling, Packaging
Cm, Cmk	Machine Capability Indices
Cp, Cpk	Process Capability Indices
CQI	Continuous Quality Improvement
ELV	End of Life Vehicles
ESD	Electro Static Discharge

EU	European Union
FMEA	Failure Mode and Effect Analysis
FMEDA	Failure Mode Effect and Diagnostic
GHS	Globally Harmonized System
IATF	International Automotive Task Force
IEC	International Electrotechnical Commission
IMDS	International Material Data System IMDS
ISO	International Standard Organization
KPI	Key Performance Indicators
LED	Light Emitting Diode
MSA	Measurement System Analysis
OEM	Original Equipment Manufacturer
PCB	Printed Circuit Board
PCN	Product Change Notification
Pp, Ppk	Process Performance Indices
PPAP	Production Part Approval Process
PPF	Production Process and Product Approval
PSO/PSR	Product Safety Officer/Product Safety Representative
PTC	Pass Through Characteristics
R@R	Run at Rate
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
RFQ	Request For Quote
SDS	Safety Data Sheets
SFF	Safe Failure Fraction
SIL	Safety Integrity Level
SPC	Statistical Process Control
SPICE	Simulation Program with Integrated Circuit Emphasis
SSCR	Supplier Suggestion Change Request
VDA	Verband der Automobilindustrie

9. 0 Links

Aptiv Supplier Portal

Home External (aptiv.com)

IATF Web page
International Automotive Task Force – The IATF is an "ad hoc" group of automotive manufacturers and their respective trade associations, formed to provide improved quality products to automotive customers worldwide. (iatfglobaloversight.org)

VDA-QMC Web page

Startseite - Verband der Automobilindustrie e. V. (VDA) (vda-qmc.de)

AIAG Web page

AIAG.org - Automotive Industry Action Group

TISAX

Welcome to TISAX · ENX Portal