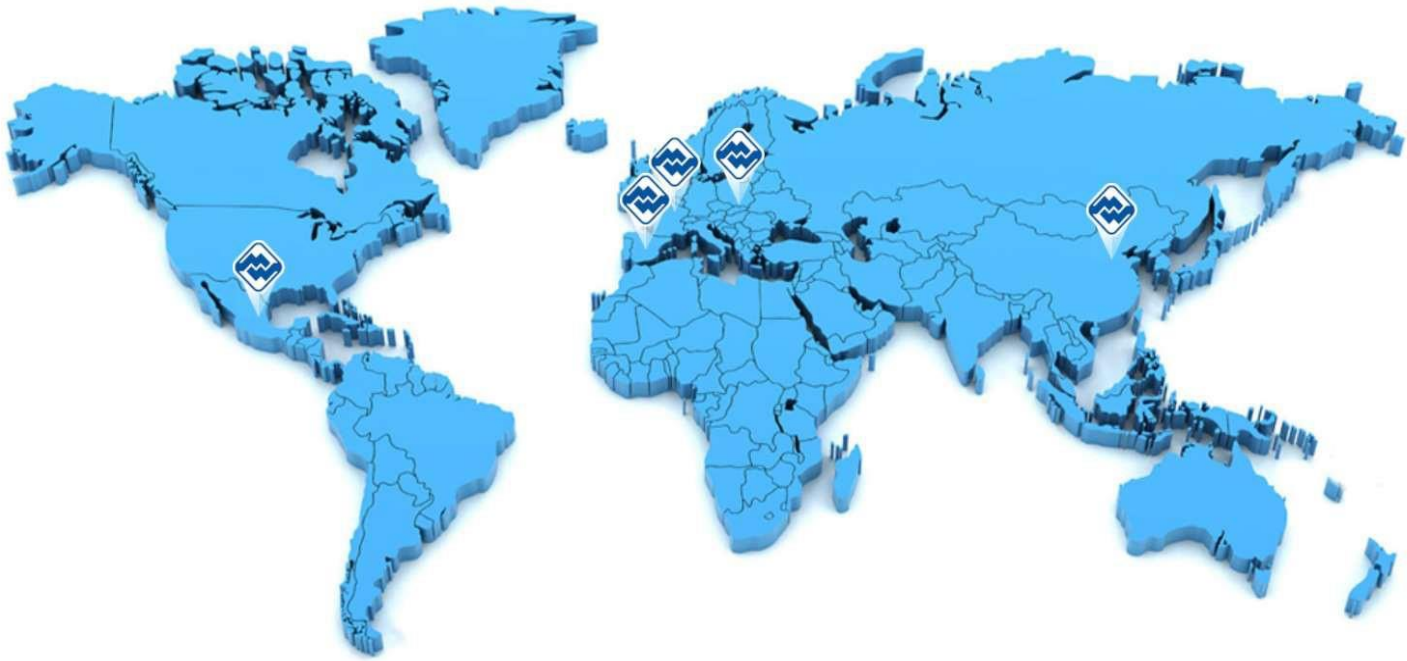
MERIT

Merit Automotive Electronic Systems

MERIT Customer Specific Requirements



For Use with ISO 9001:2015 and IATF16949:2016

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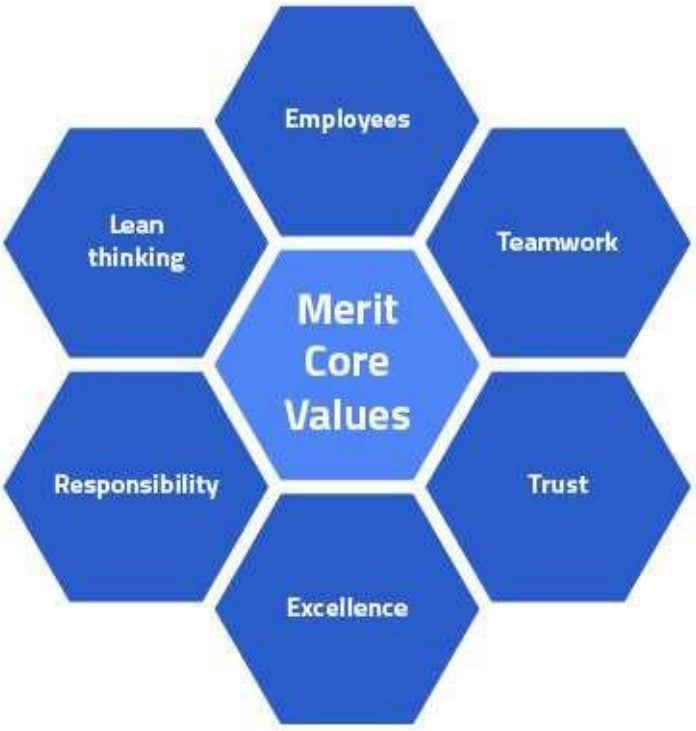
Introduction /Business Philosophy

Merit is a customer-focused organization dedicated to deliver outstanding products by fulfilling all applicable requirements. Merit committed itself to excellence and productivity. We care about Customer's satisfaction and high-Quality products. We consider Quality to be the key element that underpins our relations with Customers.

Value for society is supplying customers high quality goods and services, likewise equitably rewarding employees and suppliers. This will be attained by our commitment to:

- Maintain and improve Merit Business System
- Continuous improvement of our processes and products
- Standardize processes to reduce variation and immediate deviations elimination
- Care for employees, increasing their knowledge and skills
- Build trust inside and outside the organization
- Develop partnership with suppliers



1. SCOPE

This document applies to external suppliers of automotive products, processes and services.

This includes products and services affected by OEM customer requirements such as but not limited to production parts, sorting, rework, software development, service packaging, logistics providers, and calibration services (typically referred to as “Indirect Suppliers”). Note that distributors adding no manufacturing value must adhere to sections 4.3a, 4.3i, and 8.2.1 of this document.

Section 5.1.1.1, Corporate Responsibility applies to all suppliers to Merit Automotive including Indirect suppliers.

The current version of IATF 16949, the current version of ISO 9001, Merit General Terms and Conditions and this document define the fundamental quality system and commercial requirements for Merit. The requirements apply throughout the Supplier’s entire productive value-stream, including sub- supplier processes. Suppliers are responsible to cascade all Merit requirements throughout their supply chain. This document contains the Merit specific requirements including which are supplemental to the current version of IATF 16949 and the current version of ISO 9001.

The English language version of this document shall be the official version for purposes of third-party registration. Any translations of this document shall be for reference only.

2. NORMATIVE REFERENCES

2.1 Normative and Informative References

The following reference documents are vital to the development of a quality system that meets the Merit standards. Therefore, it is expected that the supplier will have the current version of the following documents.

Production Part Approval Process, PPAP
Statistical Process Control, SPC
Potential Failure Mode and Effects Analysis, FMEA
Advanced Product Quality Planning and Control Plan, APQP
Measurement Systems Analysis, MSA
CQI-8 Layered Process Audit Guidelines
CQI-9 Special Process: Heat Treat System Assessment
CQI-11 Special Process: Plating System Assessment
CQI-12 Special Process: Coating System Assessment
CQI-14 Automotive Warranty Management Guideline
CQI-15 Special Process: Welding System Assessment
CQI-17 Special Process: Soldering System Assessment
CQI-19 Sub-Tier Supplier Management Process Guideline
CQI-20: Effective Problem-Solving Practitioner
CQI-21: Effective Problem-Solving Leader

CQI-22: The Cost of Poor-Quality Guide
CQI-23 Special Process: Molding System Assessment
CQI-27 Special Process: Casting System Assessment
Minimum Automotive Quality Management System Requirements for Sub-Tier Suppliers (MAQMSR)
IATF 16949 sanctioned interpretation
The latest edition of the reference documents listed above applies unless otherwise specified by Merit. Copies of all reference documents except those specific to Merit are available from the AIAG at the following link: http://www.aiag.org/ or International Automotive Task Force at http://www.iatfglobaloversight.org/iatf- publications.

3. TERMS AND DEFINITIONS

3.1 Terms and Definitions for the Automotive Industry

APV – Annual Purchase Value

AQE – Advanced Quality Engineering – Merit engineers responsible for assessing potential suppliers and taking contracted suppliers through the APQP process until the product is into production. In some regions, the SQE may perform this role.

Buyer / PLPL – The Merit Automotive representative responsible for supplier selection, negotiation, and contract issuance.

Capacity Verification – A verification methodology to demonstrate that a supplier can meet the capacity planning volume requirements as defined in the GP Request for Quote (RFQ).

Carry-Over Part – A part that is currently sourced and PPAP approved, that is going to be used on a new customer program for additional volume.

CPM – Complaints Per Million parts received

Direct Supplier – Producers of production materials, production or service parts, assemblies, heat-treating, welding, painting, plating, or other finishing services that are used in the creation of the final product that is shipped to Merit customers. These material, parts, or services are used to fulfill the requirements of a Merit product drawing, material specification, or purchase specification.

DUNS® Number – A nine-digit number assigned and maintained by Dun and Bradstreet to identify unique business establishments. DUNS numbers are assigned worldwide and include US, Canadian, and international organizations.

Family Parts – These are groups of parts processed on the same production line, using the same control plan, PFMEA and process equipment. The parts differ only in end item value. PPAP for the “family” is approved by using the extreme values of the “family” specification to define the “family” boundary.

FTQ- First Time Quality – FTQ is defined as a measure of the number of pieces rejected in a manufacturing process versus the total number of pieces attempted. FTQ can be measured at any step in the manufacturing process where parts are rejected (but does not include normal set-up and inspection pieces). FTQ is reported in parts per million (PPM) defective.

GP – Global Purchasing – The Merit Department that has the responsibility to procure materials, products and services worldwide. GP is also responsible for ensuring quality of supplied parts, materials and services from suppliers, including customer-directed suppliers.

Indirect Supplier – Producers of items or services that are not part of the final product that is shipped to Merit customers or which Merit has defined as Indirect based on business structure or strategy.

MCA – Manufacturing Capability Assessment – An assessment that helps determine if a manufacturing location can successfully produce component parts that meet Merit Requirements. The MCA aids the team in identifying gaps in the manufacturing process and the actions required that would eliminate or minimize those gaps.

Merit Supplier Website – The Merit Supplier Website is a website, accessible through the Internet that allows suppliers to access useful information and interact with Merit. It is the single point of e-contact between Merit and the supply base and acts as an integration point for common systems and processes.

Problem Case – A document to track supplier performance issues that impacts a supplier's Scorecard.

R&R – Reproducibility and Repeatability, a statistical tool that measures the amount of variation in the measurement system arising from the measurement device and the people taking the measurement.

Sub-supplier – Providers of production materials, production or service parts, assemblies, heat-treating, welding, painting, plating, or other finishing services in the direct supplier's value stream.

SQE - Supplier Quality Engineer – A Merit engineer responsible for managing the current production quality issues and continuous improvement with the supplier. In some regions, the AQE may perform this role.

4. CONTEXT OF THE ORGANIZATION

4.1 Understanding the Organization and its Context

No Merit specific requirements for this section

4.2 Understanding the Needs and Expectations of Interested Parties

No Merit specific requirements for this section

4.3 Determining the scope of the quality management system

Quality System Certification

The entire facility shall be certified to the applicable standard. Merit satisfies the goal of supplier conformity to the current version of IATF 16949:2016 as follows:

Certification to the current versions of ISO9001:2015 (minimum) or IATF 16949:2016 (preferred) applies to suppliers that manufacture direct product or materials. Manufacturing locations that are certified only to ISO900:2015 is required to develop and implement a plan to obtain IATF16949:2016 certification considering latest edition of IATF 16949:2016 sanctioned interpretation. Distributors of direct product or materials as well as sorting and rework services providers must be certified to the current version of ISO9001:2015.

IATF 16949:2016 certification is mandatory for suppliers delivering safety related products.

Direct Supplier locations that manufacture products or materials, that are not certified to any quality standard (e.g. greenfield locations) or are certified only to ISO9001:2015 must comply with IATF publication, Minimum Automotive Quality Management System Requirements for Sub-tier Suppliers (MAQMSR).
Such suppliers may be subject to a second party audit by Merit.

Suppliers are responsible to comply with the Merit Supplier Requirements.
Every manufacturing site of a supplier to Merit shall be individually certified either by single site or by corporate scheme.
A clear summary definition of what product value added process shall be included in the certification scope (Example: manufacturing, assembly, etc.) along with the address for each manufacturing site.
It is the responsibility of distributors or non-manufacturing suppliers to Merit to ensure their suppliers are certified to the current versions of either ISO9001 or IATF 16949.
Supplier quality certificates shall be in English or include an accurate English translation on them.
Suppliers of inspection, test, or calibration services must be certified to ISO/IEC 17025 or national equivalent and have a defined laboratory scope that includes the capability to perform the required service. The certificate of calibration or test report shall be traceable to a national standard.
Certification Body/Registrar Notification - Suppliers registered to ISO9001:2015, IATF 16949:2015, or ISO/IEC 17025:2017 are responsible to notify Merit of certificates being revoked, withdrawn, being placed on suspension, or re-instated. In those cases, the supplier may be subject to a second party audit process until the supplier is recertified.

Environmental and Health and Safety Management System Certification

Merit encourages suppliers to seek environmental and ‘Health and Safety’ training and

strongly recommends registration to the current versions of ISO14001 and ISO45001. Merit is committed to environmental responsibility and in the Health and Safety of employee. We strive for healthy and safety processes, eliminating risks and frustration in our employees and for economical use of raw materials, energy, water and other goods; we fully consider the life cycle of our products and strive for continuous improvement. All processes, product manufactured, and the applied materials and substances used in all the production are expected to meet environmental standards for design, development, distribution, use, disposal, or recycling and meet or exceed the legal requirements for H&S.
Such items include but are not limited to: assure employee H&S, reducing energy consumption, reducing emissions, increasing use of renewable energy, appropriate waste management, environmental testing and especially, training of employees and sub-contractors on procedure and regulatory requirements. Suppliers are to communicate to their employees an Environmental and H&S Policy Statement reflecting their commitment. Suppliers shall, upon request, provide evidence of adherence to these requirements.

4.3.1 Determining the Scope of the Quality Management System – Supplemental

No Merit specific requirements for this section

4.3.2 Customer Specific Requirements

Customer-specific requirements shall be evaluated and included in the scope of the organization's quality Management system. The supplier is obliged to follow all OEM specific requirements stated on web of International Automotive Task Force: http://www.iatfglobaloversight.org/oem-requirements/customer-specific-requirements/
If not known, the supplier is responsible to request the information about OEM from the responsible Buyer / PLPL / AQE / SQE.

4.4 Quality Management System and its Processes

4.4.1

No Merit specific requirements for this section

4.4.1.1 Conformance of Product and Process

No Merit specific requirements for this section

4.4.1.2 Product Safety

Merit CSR to be cascaded throughout the entire supplier chain
If specified in final OEM SCR, Merit suppliers involved in the particular OEM project are required to appoint, employ and communicate to Merit a product safety and compliance representative (PSCR). These apply to both Supplier directly, and the whole supply chain.

4.4.2

No Merit specific requirements for this section

5. LEADERSHIP

5.1 Leadership and commitment

5.1.1 General

No Merit specific requirements for this section

5.1.1.1 Corporate responsibility

Merit encourages and requires suppliers to implement a policy regarding conflict minerals and be in line with Merit Conflict Minerals Policy.
Suppliers are required to respond in a timely manner to Merit's requests for evidence of compliance with these requirements and provide to Merit latest CMRT declaration.

All supply base is required to become compliant with Merit Code of Conduct requirements available at Merit web site.

Additionally, it is preferred for supplier to be assessed by third part organization and gain Business Sustainability Ratings e.g. Eco Vadis platform

Direct link to the documents mentioned above
https://www.merit-automotive.com/download

5.1.1.2 Process Effectiveness and Efficiency

No Merit specific requirements for this section

5.1.1.3 Process Owners

No Merit specific requirements for this section

5.1.2 Customer focus

No Merit specific requirements for this section

5.2 Policy

5.2.1 Establishing the Quality Policy

No Merit specific requirements for this section

5.2.2 Communicating the Quality Policy

No Merit specific requirements for this section

5.3 Organizational roles, responsibilities and authorities

No Merit specific requirements for this section

5.2.1 Organizational roles, responsibilities and authorities – supplemental

No Merit specific requirements for this section

5.2.2 Responsibility and Authority for Product Requirements and Corrective Actions

No Merit specific requirements for this section

6. PLANNING

6.1 Actions to Address Risks and Opportunities

6.1.1

No Merit specific requirements for this section

6.1.2

No Merit specific requirements for this section

6.1.2.1 Risk Analysis

No Merit specific requirements for this section

6.1.2.2 Preventive Action

No Merit specific requirements for this section

6.1.2.3 Contingency Plans

The supplier shall prepare contingency plans to satisfy Merit requirements in the event of any production interruption. When the supplier becomes aware of an impending production interruption, the supplier shall make every attempt to notify Merit receiving plants (PC&L, Buyer, PLPL and/or AQE/SQE within 24 hours. The nature of the problem shall be communicated with the immediate actions taken to assure supply of product. Production interruptions may include (but are not limited to) natural disasters, political unrest, war, capacity issues, quality issues, labor strikes, planned down-time or other events that prevent the supplier from meeting the specified capacity volumes or from performing/submitting any APQP event or task that would impact program launch or timing (e.g. R@R or PPAP). The supplier is required to advise Merit of the plan for recovery and work toward minimizing its effect on the Merit plants. Supplier shall provide their contingency plans to Merit if requested.

6.2 Quality Objectives and Planning to Achieve Them

6.2.1

No Merit specific requirements for this section

6.2.2

No Merit specific requirements for this section

6.2.2.1 Quality Objectives and Planning to Achieve Them – Supplemental

Merit expectations towards suppliers is to establish processes and designs with the goal of achieving zero defects and 100% on time deliveries to Merit. Suppliers' quality and delivery performance are monthly assessed by Merit and results are available for suppliers upon request.
Monthly score card results are calculated based on the quality and shipping performance with the weight of 80% and 20% respectively.

Supplier Performance Score Card Result	RED for scores less than 80	YELLOW for scores Equal or greater than 80 Less than 90	GREEN for scores Equal or greater Than 90

Following metrics are used to calculate the quality and shipping performance scores:

1. Number of nonconforming parts / PPM
2. Number of quality clams
3. Number of Repeat issues
4. Number of Customer impacted issues
5. Number of Warranty issues
6. Number of late responses

1. On time delivery
2. Number of Logistic Complaints

Escalation process shall be initiated in case of unacceptable supplier performance per the responsibility chart below:

Escalation Level	Deviation	Action	Responsible	Support	Information
1	Reject of purchased material	1. Complaint to supplier	Incoming inspection/SQE/AQE	Merit: SQE/AQE Supplier: CSE	Merit: Buyer Quality Manager
		2. Problem solving activities	Incoming inspection/SQE/AQE		
2	5 different and/or more than 2 repeated complaints within 12months Yellow score card results for last 12 months rolling Not meeting the Problem resolution timing per Merit CSR	1. Update of supplier performance - lev 2	SQE / AQE	Merit: Purch. Mgr. PLPL/Buyer Q-Mgr. CPE/ME Supplier: CSE	Merit: Purchasing Director, Production Manager, PC&L Manager Supplier: Sales Manager Quality Manager
		2. Quality improvement meeting with supplier			
		3. Define Action plan and Exit Criteria from Level 2 with supplier			
3	Exit Criteria from Level 2 not met by Supplier Red score card results for last 12 months rolling	1. Update of supplier performance - lev 3	SQE / AQE	Merit: Purchasing Manager, PLPL/Buyer, CPE/ME Purchasing Director Supplier: Quality Manager, CSE,	Merit: Plant Manager, Quality Manager, Production Manager, PC&L Manager Supplier: Plant Manager, Sales Manager,
		2. Process Audit at supplier			
		3. Action list updated / Exit criteria re-defined			
4	Exit Criteria from Level 3 not met by Supplier	1. Update of supplier performance - lev 4	Purchasing Director, Purchasing Manager SQE/AQE	Merit: PLPL, Buyer, CPE/ME Supplier: CSE, Quality Manager	Merit: Quality Manager, Production Manager, PC&L Manager, CPE/ME Supplier: Plant Manager, Sales Manager
		2. NBH / Resourcing if required			
		3. Action Plan definition including exit criteria	SQE/AQE		

6.3 Planning of Changes

No Merit specific requirements for this section

7. SUPPORT

7.1 Resources

7.1.1 General

No Merit specific requirements for this section

7.1.2 People

No Merit specific requirements for this section

7.1.3 Infrastructure

No Merit specific requirements for this section

7.1.3.1 Plant, facility, and equipment planning

No Merit specific requirements for this section

7.1.4 Environment for the Operation of Processes

No Merit specific requirements for this section

7.1.4.1 Environment for the Operation of Processes – Supplemental

No Merit specific requirements for this section

7.1.5 Monitoring and Measuring Resources

7.1.5.1 General

7.1.5.1.1 Measurement systems analysis

Gage R&R's:

- Shall be completed on all measurement systems identified on the control plan. This includes hand tools such as micrometers or calipers, as well as those features checked by a CMM, Optical Comparator, Smart Scope, attribute gages, online test or inspection equipment, visual inspection, etc.
- Shall be included in PPAP submission for special characteristics and those features that will have capability studies submitted at the time of PPAP.
- Gage R&R's are to be updated periodically to track gages conformity over time.

Variable Gage Studies requirements – Shall be completed with all operators who will be using the gage as part of normal production process. The study shall consist of a minimum of 3 trials, using a minimum of 10 parts. All variable gage R&R studies should have a minimum of 5 distinct categories.

For process control situations (where measurement determines stability, direction, and compliance with natural process variation) percentage R&R should be calculated based on study variation with a maximum target of 10%.

For product control situations (conformance or non-conformance) the percentage R&R should be calculated based on tolerance.

In special cases where the manufacturing process is very capable, stable and in control, the percentage R&R should be calculated based on tolerance, with concurrence of the Merit AQE/SQE. The minimum number of 5 distinct categories may not be applicable in this situation.

7.1.5.2 Measurement Traceability

7.1.5.2.1 Calibration and Verification Records

No Merit specific requirements for this section

7.1.5.3 Laboratory Requirements

7.1.5.3.1 Internal Laboratory

No Merit specific requirements for this section

7.1.5.3.2 External Laboratory

No Merit specific requirements for this section

7.1.6 Organizational Knowledge

No Merit specific requirements for this section

7.2 Competence

7.2.1 Competence – Supplemental

No Merit specific requirements for this section

7.2.2 Competence – on-the-job-training

No Merit specific requirements for this section

7.2.3 Internal Auditor Competency

No Merit specific requirements for this section

7.2.4 Second Party Auditor Competency

No Merit specific requirements for this section

7.3 Awareness

7.2.5 Awareness – Supplemental

7.2.6No Merit specific requirements for this section

7.2.7 Employee Motivation and Empowerment

No Merit specific requirements for this section

7.4 Communication

See section 8.2.1

7.5 Documented information

7.5.1 General

No Merit specific requirements for this section

7.5.1.1 Quality Management System Documentation

Reference section 4.3

7.5.2 Creating and updating

No Merit specific requirements for this section

7.5.3 Control of documented information

7.5.3.1

No Merit specific requirements for this section

7.5.3.2

No Merit specific requirements for this section

7.5.3.2.1 Record retention

Document type	Examples	Maintenance interval
PPAP documentation	Drawings, PFD, PCP, FMEA, etc.	Duration of production and service activity plus 1 year (*
Quality records	Inspection records, functional test results, material certificates, etc.	3 years from the date of production
Quality system documents	Internal quality system audits, product audits, process audits, etc.	3 years from the date of production
Product safety related records	Inspection records, test results material cert. traceability records for safety related products	15 years after the end of production (*
Conformity of production parts	Inspection records, test results, material certifications, etc.	10 years from the date of production (*

*) These requirements do not supersede any regulatory requirements and / or any OEM specific requirements.

7.5.3.2.2 Engineering specifications

No Merit specific requirements for this section

8. OPERATION

8.1 Operational Planning and Control

8.1.1 Operational Planning and Control – Supplemental

Planning of Product Realization

APQP – The AIAG Advanced Product Quality Planning (APQP) and Control Plan reference manuals shall be used to develop and report progress on new programs. For reporting of APQP status, suppliers shall utilize the APQP application within QMS unless otherwise identified or approved by the responsible AQE/SQE.

To facilitate multi-regional sharing of information, all Sourcing, APQP documentation (including MCA, VDA 6.3 Process Audit reports, PPAP documentation, shipping paperwork, packaging, labeling, part marking, etc.…), and QMS responses shall be in English or include an accurate English translation. Documentation in any other language is for reference only.

For APQP, suppliers are expected to meet program timing, keep commitment dates, and support early builds and pre-launch requirements.

8.1.2 Confidentiality

Suppliers shall maintain confidentiality of Merit and Affiliates' products and information as documented in the Merit contract documentation.

8.2 Requirements for Products and Services

8.2.1 Customer Communication

Supplier Website

The Merit Supplier Website http://www.merit-automotive.com/supplier provides easy access with links to supplier systems and important documents required to do business with Merit. All communication with Merit and in Merit systems should be in English to facilitate multi regional sharing of information.

Final communication platform QMS is in the final implementation stage. All suppliers will be instructed on further steps as required.

Direct Material Suppliers (including distributors of direct material) are responsible to access the QMS system on a regular basis to maintain supplier

data integrity and monitor Merit initiated communication.

8.2.1.1. Customer Communication – Supplemental

No Merit specific requirements for this section

8.2.2 Determining the Requirements for Products and Services

8.2.2.1 Determining the Requirements for Products and Services - Supplemental

Reference section 8.4.2.2

8.2.3 Review of the Requirements for Products and Services

8.2.3.1

8.2.3.1.1 Review of the requirements for products and services – supplemental

No Merit specific requirements for this section

8.2.3.1.2 Customer-Designed Special Characteristics

Supplier shall use any specific symbols Merit has defined for use on control plans, drawings, or FMEAs. The AQE/SQE shall notify the Supplier of such requirements, if any.

8.2.3.1.3 Organization Manufacturing Feasibility

Suppliers shall perform Manufacturing feasibility reviews and shall include supplier and the Merit team members as appropriate. (Reference section 8.1.1, APQP).

Product volume changes of 20% or more over a previously verified volume capability shall require run-at-rate. The capacity study shall include identification of the capacity constraints and evaluation of risk to Merit by the supplier.

The full capacity for the part should be in place at the Supplier's floor and its sub-suppliers' floor no later than the Merit Run-at-Rate date. Any deviation from this requirement must be agreed in writing by Merit.

Run-at-Rate will be given a status of Pass, Open, or Fail. The supplier is expected to put into place
the necessary corrective actions to ensure a successful (Pass) Run-at-Rate. An APQP Problem Case may be issued for failure to meet agreed upon target date or for requirements not met.

NOTE: Commodity or batch-based products may demonstrate Run-at-Rate by a process analysis to determine constraints and show sufficient capacity

is in place to support the product release rates.

8.2.3.2

No Merit specific requirements for this section

8.2.4 Changes to Requirements for Products and Services

No Merit specific requirements for this section

8.3 Design and Development of Products and Services

8.3.1 General

8.3.1.1 Design and Development of Products and Services – Supplemental

No Merit specific requirements for this section

8.3.2 Design and Development Planning

8.3.2.1 Design and Development Planning – Supplemental

The supplier shall prepare process FMEA's for all part numbers supplied to Merit. Where the supplier is responsible for design, the supplier shall prepare design FMEA's.

FMEA's may be written for families of parts where batch processes and common tooling is used. Families shall be clearly defined and have a full part number listing of the family. The Merit AQE/SQE shall approve the family designations.

The supplier must have a system to feedback root cause and corrective actions from problem cases to the PFMEA and create linkage between lessons learned and the PFMEA to drive improvement.
Evidence must be available to substantiate the PFMEA action results.

Upon request by Merit, supplier shall provide a copy of the FMEA documents for review. The Merit AQE/SQE may request supplier's FMEA to be written in the supplier's local language and English. If the document is considered proprietary, the supplier may provide the applicable section, or provide qualified technical support and bring the FMEA to the requestor for review without retention of copies. If required by AQE/SQE a letter stating the proprietary nature shall be included in the Production Part Approval submission package.
FMEA's shall be prepared using the AIAG Potential Failure Mode and Effects Analysis reference manual including the AIAG rating tables.

8.3.2.2 Product Design Skills

No Merit specific requirements for this section

8.3.2.3 Development of Products with Embedded Software

If applicable Supplier is required to implement software development process and monitor its capability in this regard by conducting periodical self-assessment acc. to Automotive SPICE (preferred) or other recognized models.

8.3.3Design and Development Inputs

8.3.3.1 Product Design Input

No Merit specific requirements for this section

8.3.3.2 Manufacturing Process Design Input

No Merit specific requirements for this section

8.3.3.3 Special Characteristics

No Merit specific requirements for this section

8.3.4 Design and Development Controls

8.3.4.1 Monitoring

No Merit specific requirements for this section

8.3.4.2 Design and Development Validation

No Merit specific requirements for this section

8.3.4.3 Prototype Program

Prototype Program – Prototype requirements shall be provided to supplier through the Buyer/PLPL or for that specific program.

Supplier shall provide prototype control plans, FMEAs (Refer to 8.3.2.1) and other quality documents unless waived by Merit Engineering or Supplier Quality.

Prototype Parts Provision – Suppliers who provide prototype/pre-production part are expected to provide them at production pricing unless otherwise agreed by GP.
Delivery date(s) for samples of prototype components shall be established by Merit and noted on the purchase order. The delivery date(s) reflect the date(s) parts are to be received at the Merit docks.

The supplier shall submit inspection reports with sample delivery as required and agreed with Merit.

If review of the inspection report indicates that the parts do not agree with the

prints or examination of the parts discloses an unsatisfactory condition not covered by the report, it shall be the supplier's responsibility to resolve all discrepancies with the Merit responsible department.
If resolution of the discrepancy results in a tooling, material or processing change, the supplier will correct the situation (at the supplier's expense), resubmit an inspection report on the revised parts, and communicate the resolution in writing to the Merit Buyer/PLPL as soon as possible.

8.3.4.4 Product approval process

The supplier shall comply with the current editions of the AIAG Production Part Approval Process (PPAP) manual unless otherwise specified. The AIAG PPAP forms shall be utilized to prepare submissions.
The required method of submission is electronically. Each section of the PPAP submission should be a separate PDF file. Any exception must be approved by the Merit AQE/SQE.

General guidelines for required PPAP scope (unless otherwise agreed with Merit AQE/SQE and Engineering):

- Default PPAP submission level – PPAP lev 3

Submission PPAP level could be changed based on the agreement wth Merit AQE/SQE – minimum requirements indicated below:

- Catalogue Mechanical Parts – PPAP level 4: PSW, IMDS, Material Data sheet, Material Certificate, Dimensional Inspection Report
- Electronic Parts – PPAP level 4: PSW, IMDS, Data sheet
- Raw material (resins, grease, solder wire, labels…– PPAP level 4: PSW, IMDS, Material Data Sheet, Material Certificate

For components containing safety characteristics (regardless of the commodity – PPAP level 3 is required.

Above mentioned guidelines are valid for new parts/material PPAP as well as for the design/process changes implementation/approval. However, PPAP scope for the design/process changes could be limited acc. to the scope of the change based on the agreement with Merit AQE/SQE/Engineering.

The Supplier shall obtain documented PPAP approval prior to any further shipments. Records of such approval shall be retained by Supplier – see 7.5.3.2.1

8.3.5 Design and Development Outputs

8.3.5.1 Design and Development Outputs – Supplemental

No Merit specific requirements for this section

8.3.5.2 Manufacturing Process Design Output

No Merit specific requirements for this section

8.3.6 Design and Development Changes

8.3.6.1 Design and Development Changes – Supplemental

No Merit specific requirements for this section

8.4 Control of Externally Provided Processes, Products and Services

8.4.1 General

8.4.1.1 General – Supplemental

No Merit specific requirements for this section

8.4.1.2 Supplier Selection Process

The supplier shall be responsible for the quality of the parts it produces, their sub-supplier's quality and delivery performance, and subcontracted services, including sub-suppliers directed by Merit.

Suppliers are responsible to select sub-suppliers based on the expectation of Zero Defects, and on the sub-supplier's capability to continually maintain robust processes throughout the life of the product that meet all Merit's product requirements.

The Manufacturing Capability Assessment is available as a tool to assist in the selection and evaluation of sub-suppliers. The Merit Supplier Quality Engineer may elect to participate in sub-supplier on site visits and/or audits.

The AIAG CQI-19, Sub-tier Supplier Management Process Guideline, should be used as a tool for quality system development of a sub-supplier. The CQI-8, Layered Process Audit Guideline may also be used for sub tier supplier QMS development.

CQI-9, CQI-11, CQI-12, CQI-14, CQI-15, CQI-17, CQI-23, and CQI-27 shall apply to any sub-tier suppliers in the value stream. Suppliers are required to review and update their suppliers' assessments on an annual basis.

8.4.1.3 Customer-Directed Sources (also known as "Directed-Buy")

No Merit specific requirements for this section

8.4.2 Type and Extent of Control

8.4.2.1 Type and Extent of Control – Supplemental

No Merit specific requirements for this section

8.4.2.2 Statutory and Regulatory Requirements

Chemical Material Content, Reporting, and Approval Requirements General Regulatory Requirements Suppliers shall ensure that products provided to Merit meet all governmental regulatory requirements in the region of use. This includes, but is not limited to, requirements that address chemical registration (REACH), transportation (Dangerous Goods), explosive devices, and environmental restrictions as set forth by the applicable governmental agencies for the Merit point(s) of receipt.

The Supplier shall upload to the International Material Data System (IMDS), http://www.mdsystem.com the data related to the chemical composition of its products. The Supplier is even responsible for the data uploaded in IMDS related to the products of its own Sub-suppliers

8.4.2.3 Supplier Quality Management System Development

No Merit specific requirements for this section

8.4.2.3.1 Automotive Product-Related Software or Automotive Products with Embedded Software

See section 8.3.2.3 for details

8.4.2.4 Supplier monitoring

Direct Supplier shall conduct periodical verification process considering incoming goods quality, deliveries performance, warranty returns and other mentioned by IATF 16949.
Scoring of all above shall be utilized to set up the audit priority.

8.4.2.4.1 Second-party audits

Merit follows IATF 16949 2nd party audit requirements. Where a Merit OEM customer has additional requirements (e.g. annual audits, scope and duration per IATF Rules), those requirements will apply and will be communicated to the affected supplier.

8.4.2.5 Supplier development

No Merit specific requirements for this section

8.4.3 Information for External Providers

8.4.3.1 Information for External Providers – Supplemental

No Merit specific requirements for this section

8.5 Production and Service Provision

8.5.1 Control of Production and Service Provision

8.5.1.1 Control plan

The Advanced Product Quality Planning and Control Plan manual, available from AIAG, should be used as a guide in developing and maintaining control plans (i.e., Prototype, Pre-Launch & Production).
Early Production Containment shall be implemented and identified on the Pre-Launch Control Plan for a duration agreed with Merit AQE/SQE. Exit from Early Production Containment must be approved by AQE/SQE. A change history shall be maintained as part of the control plan to document implementation of changes.

Merit reserves the right to require approval of control plans for any part from any supplier.

All parts shall have Control Plans. Family control plans may be used for parts with common processes. The family shall be clearly defined on the control plan so that applicability is defined.

Design and process controls shall focus on prevention rather than detection and correction. Special attention shall be placed on the identification of input control characteristics rather than the post processing inspection and containment.

Proposed repair or rework of product shall be defined on the control plan and submitted to Merit for approval as part of the initial PPAP, or through a subsequent Supplier Change Request and PPAP submission. Repaired, reworked, or out-of-process product shall be re-inspected to all control plan requirements and documented procedures.

The supplier control plan must include layout inspection and functional testing to be performed annually and provided to Merit on request unless otherwise agreed between Merit and supplier.

Each applicable CQI Assessment must be submitted to Merit when requested.

Traceability as documented in the control plan, shall include a definition of the lot including number of parts and number of production hours.

8.5.1.2 Standardized Work – Operator Instructions and Visual Standards

Visual standards and/or boundary samples that differentiate “good” from “bad” part shall satisfy Merit and / or OEM requirements and be controlled.

8.5.1.3 Verification of Job Set-Ups

No Merit specific requirements for this section

8.5.1.4 Verification After Shutdown

No Merit specific requirements for this section

8.5.1.5 Total Productive Maintenance

No Merit specific requirements for this section

8.5.1.6 Management of Production Tooling and Manufacturing, Test, Inspection Tooling and Equipment

No Merit specific requirements for this section

8.5.1.7 Production Scheduling

No Merit specific requirements for this section

8.5.2 Identification and Traceability

The Merit product traceability requirements apply to critical components.

Typical traceable items may include lot, date, shift, raw material, machine, die/cavity number, department number, etc.…

Safety Critical components are defined as those components that have features designated with safety/compliance characteristics.

The goal of a good traceability system is to minimize exposure if defects are found. The two types of traceability are:
Singular/Serialization – used to reduce the risk to a single part or component. In the event of parts being moved from the normal process flow, the parts shall be marked for singular traceability.

Lot Control – used to reduce the risk to a specific number as determined by the size of the lot. A lot is the maximum quantity of parts that share consistent dimensional, material and process characteristics.

NOTE: One batch of raw material can create multiple lots. Only one batch of raw material can be identified in each lot – (i.e. cannot mix two batches of raw material in a single lot). Batch information must be traceable via lot number)

Safety Critical assemblies, sub-assemblies and components shall have traceability to the safety critical component feature or features. Singular traceability, marking / serialization, is Merit's preferred method. If singular traceability (marking/serialization) is not possible, lot control shall be implemented. Details of the lot size to be agreed with Merit. Critical components shall be marked at the earliest possible operation and traced throughout the remaining operations. Key process and quality data, as identified in the control plan, shall be included in the stored data. Selection of traceability method and determination of data to be collected is determined by the Merit Manufacturing Engineer, AQE/SQE and Supplier. Evidence of the record system, including retrieval, must be fully established and available prior to PPAP submission.

8.5.2.1 Identification and traceability – supplemental

All process parameters and inspection results for safety characteristics to be recorded and retained at supplier location for a period per 7.5.3.2.1, unless otherwise agreed with Merit. The data need to be traceable to the production batch and made available

for Merit review on request.

The safety critical characteristics to be identified in the quality documents (PFD, FMEA, PCP, Work Instructions, Visual aids, Quality alerts etc.) as well as at the production stations realizing the safety characteristics.

8.5.3 Property Belonging to Customers or Externals Providers

No Merit specific requirements for this section

8.5.4 Preservation

Packaging

The supplier is responsible for providing a packaging proposal that ensures product quality from the supplier's plant to the Merit dock.
For electronic assemblies and components, acceptable packaging material shall be made of ESD Dissipative or Antistatic material. This includes, but is not limited to: glues, tapes, stickers, and bags.

Labeling

Shipping containers shall be identified with the material's appropriate shipping labels that as a minimum provides Part Number associated with Revision Index (if available), Material Batch/Lot identification. In case of safety critical products, the identification shall be put on the shipping label unless otherwise agreed with Merit AQE/SQE

8.5.4.1 Preservation – Supplemental

No Merit specific requirements for this section

8.5.5 Post-delivery activities

8.5.5.1 Feedback of information from service

No Merit specific requirements for this section

8.5.5.2 Service agreement with customer

No Merit specific requirements for this section

8.5.6 Control of Changes

8.5.6.1 Control of Changes – Supplemental

Change Control & Control of Design and Development Changes

This requirement includes changes to part design, material, and sub-tier supplier, manufacturing location (internal or external) or process. (Follow AIAG PPAP, current edition). Merit requires that all suppliers and their sub-tier suppliers understand the importance of the timeframe required to get change request approvals through each customer level up to and in some cases, including the Original Equipment Manufacturer (OEM). Contact your Merit Supplier Quality representative to discuss the scope and timing of the change approvals.

All proposed changes including, but not limited to design, process, component, packaging, component suppliers, or facilities, and site changes including supplier proprietary designs shall be submitted to Merit for approval prior to implementation. Additionally, a completed and approved Production Trial Run (PTR) may be required. The supplier shall not make any changes without prior written notification and approval from Merit. Any unauthorized changes can result in the supplier being placed on New Business Hold and costs incurred with the unauthorized change will be at the expense of the supplier. The supplier is responsible to communicate Merit's requirements to its sub-tier suppliers. An unauthorized sub-tier change can also lead to Merit's supplier being placed on New Business Hold.

The supplier must consider the entire scope and consider key information for the change before a Supplier Change Request (SCR) is submitted. It's critical that the supplier notify Merit via an SCR as early as possible to allow time for Merit to review and approve the SCR and supplier PPAP. In some cases, the OEM will need to approve the change and Merit will need to obtain a PPAP approval from the OEM.
Examples of key information to be considered include but are not limited to:

Does the change require an appearance approval from the OEM?
Will Merit be required to submit a PPAP to the OEM for this change?
What quantity of banked inventory will Merit require?
How is the supply chain going to be affected by this change?

Involving Merit early on, will ensure all parties will be able to develop an acceptable timing plan for the change.
The supplier shall retain approved change requests, for the life of the material.

8.5.6.1.1 Temporary change of process controls

Supplier to include key equipment failures and EP devices in the FMEA analysis (for known issues) and by-pass processes to be communicated to Merit by PPAP submission.

List of key production equipment, gages and EP devices to be created and provided to Merit when requested. Back up plan in case of malfunction need to be indicated for each item from the list.

8.6 Release of products and services

8.6.1 Release of Products and Services – Supplemental

No Merit specific requirements for this section

8.6.2 Layout inspection and functional testing

It is the supplier's responsibility to annually perform a layout inspection (including all notes and specifications called out on the product drawing), functional verification, raw material certification including the updated laboratory scope of accreditation (to all engineering material and performance requirements), and MSA study. These results, along with an updated Part Submission Warrant, shall be submitted upon request to the Merit Supplier Quality Engineer. If discrepancies are found in the layout inspection or functional tests, the supplier shall include an Interim Recovery Worksheet. Annual layout inspection and functional testing shall be included in the supplier's control plan.

Lay out inspection report for safety critical components / products must be provided to Merit on yearly basis without request. The same applies to all components dedicated to the project where final OEM requires a yearly requalification report to be provided.

8.6.3 Appearance items

No Merit specific requirements for this section

8.6.4 Verification and acceptance of conformity of externally provided products and services

No Merit specific requirements for this section

8.6.5 Statutory and regulatory conformity

No Merit specific requirements for this section

8.6.6 Acceptance criteria

No Merit specific requirements for this section

8.7 Control of nonconforming outputs

8.7.1

No Merit specific requirements for this section

8.7.1.1 Customer authorization for concession

No Merit specific requirements for this section

8.7.1.2 Control of nonconforming product – customer-specified process

The supplier shall have an internal containment procedure complying with Merit requirements.

<u>Controlled Shipping</u>
The intent of Controlled Shipping is to implement a rigorous process that protects Merit from the receipt of nonconforming parts and/or material. Controlled Shipping is a formal demand by Merit for a supplier to put in place an additional inspection process to sort for nonconforming material, while implementing root-cause analysis

and corrective actions.
Controlled Shipping Level 1 (CS1) is an additional inspection process separate from the PPAP approved process controls, implemented at the supplier's manufacturing facility.

Controlled Shipping Level 2 (CS2) is an additional inspection process above and beyond CS1, with the additional inspection process being completed by a third party. The third-party inspection company is selected by the supplier and approved by Merit Supplier Quality. The supplier is responsible for the cost of the third-party inspection company and additional incidental cost of CS2.

The Controlled Shipping process includes a detailed notification to the affected supplier for each level. The Controlled Shipping notification clearly identifies the dimensions or features that must be inspected, the supplier's responsibilities, the minimum duration of the inspection, and the specific exit criteria that must be met before the supplier may request exit from controlled shipping.

8.7.1.3 Control of suspect product

No Merit specific requirements for this section

8.7.1.4 Control of reworked product

No Merit specific requirements for this section

8.7.1.5 Control of repaired product

No Merit specific requirements for this section

8.7.1.6 Customer notification

Refer to 8.7.1.2

8.7.1.7 Nonconforming product disposition

Refer to 8.7.1.2

8.7.2

No Merit specific requirements for this section

9. PERFORMANCE EVALUATION

9.1 Monitoring, measurement, analysis and evaluation

9.1.1 General

No Merit specific requirements for this section

9.1.1.1 Monitoring and Measurement of Manufacturing Processes

125-piece capability studies are required at time of PPAP for all safety and special characteristics unless otherwise agreed with Merit AQE/SQE. Process capability

studies of other characteristics may also be requested by Merit during APQP reviews. The 125-piece data points should come from the 300-piece PPAP production run, in time-ordered rational subgroups of a minimum of 3 pieces.

On the initial process studies for special characteristics the supplier needs to demonstrate that the process is stable and in control using a control chart as per the AIAG PPAP manual. Normality and capability must also be demonstrated. The above can be shown using the “Capability Six Pack”, within Minitab.

Expected capability levels:
Short term (initial capability for PPAP submission):

- Safety critical/regulatory characteristics – Cpk 1,67
- Special characteristics - Cpk > 1,67
- SPC characteristics – Cpk 1,67

Running production process control requirement

- Safety critical/regulatory characteristics
  - SPC with long term capability Cpk >= 1,67
  - For process not statistically capable:
    - electronic or automated poka yoke with effectiveness verified once a shift
    - or 100% inspection
- Special characteristics –
  - SPC with long term capability Cpk >= 1,33 (for electronic components Cpk >=1,67)
    - For process not statistically capable: 100% inspection required

NOTE: Any expected non-normal distributions should be communicated by the Supplier so that the capability analysis method and acceptance criteria can be discussed and agreed upon prior to PPAP submission.
if agreed with Merit Engineering SPC in the regular production process could be conducted at another correlated characteristic identified as SPC characteristic at the drawing.

9.1.1.2 Identification of statistical tools

Identification of Statistical Tools – The supplier should use the latest edition of AIAG SPC for manufacturing process controls and AIAG MSA for measurement system equipment management.

9.1.1.3 Application of Statistical Concepts

No Merit specific requirements for this section

9.1.2 Customer satisfaction

No Merit specific requirements for this section

9.1.2.1 Customer satisfaction – supplemental

Merit suppliers score cards are updated on monthly basis by Purchasing (quality performance) and PC&L (logistic performance) departments. They are available for all

suppliers and will be provided by Merit AQE/SQE upon request.

9.1.3 Analysis and Evaluation

No Merit specific requirements for this section

9.1.3.1 Prioritization

No Merit specific requirements for this section

9.2 Internal audit

9.2.1

No Merit specific requirements for this section

9.2.2

9.2.2.1 Internal Audit Program

No Merit specific requirements for this section

9.2.2.2 Quality Management System Audit

No Merit specific requirements for this section

9.2.2.3 Manufacturing process audit

Special processes for suppliers of heat treated, plated, coated, welded or soldered products, suppliers shall comply with the requirements documented in CQI-9 Special Process: Heat Treat System Assessment, CQI-11 Special Process: Plating System Assessment, CQI-12 Special Process: Coating System Assessment, CQI-15 Special Process: Welding System Assessment, CQI-17 Special Process: Soldering System Assessment, CQI-23 Special Process: Molding System Assessment, and CQI-27 Special Process: Casting System Assessment published by AIAG. Suppliers are responsible to apply these requirements to applicable sub-suppliers. There may be additional unique OEM specific assessments required.

Suppliers of new parts that require special processes will be notified during the APQP process that they must submit all CQI assessments for their value stream as part of their PPAP submission package. The initial CQI assessment must be less than 12 months old from the date the assessment was performed. An annual reassessment is required. Contact your Merit AQE/SQE for submission requirements.

9.2.2.4 Product Audit

No Merit specific requirements for this section

9.3 Management Review

9.3.1 General

No Merit specific requirements for this section

9.3.1.1 Management Review – Supplemental

No Merit specific requirements for this section

9.3.2 Management Review Inputs

No Merit specific requirements for this section

9.3.2.1 Management Review Input – Supplemental

No Merit specific requirements for this section

9.3.3 Management Review Outputs

No Merit specific requirements for this section

9.3.3.1 Management Review Output – Supplemental

No Merit specific requirements for this section

10. IMPROVEMENT

10.1 General

No Merit specific requirements for this section

10.2 Nonconformity and Corrective Action

10.2.1

No Merit specific requirements for this section

10.2.2

No Merit specific requirements for this section

10.2.3 Problem Solving

It is Merit's expectation that Suppliers shall have resources certified in structured problem solving.

Problem Case Response: Suppliers shall monitor and respond to all Problem Cases issued by Merit. The initial response to a problem is due within 24 hours. Final response, (with verified root cause analysis), is due within 15 calendar days.

8D Closing is required within 30 days of the issuance of the problem case including 5-Why analysis with actions and validation data for non-conformance, non-detection and systemic root cause.

The 8D and 5-Why Analysis shall be submitted via the final response in

Problem Case Management within QMS.
Temporarily email notification to be utilized until QMS system is implemented.

10.2.4 Error Proofing

Merit Supplier Quality may complete an additional review of quality documents to determine if controls are adequate. Additional error proofing may be required as a result of this review.

10.2.5 Warranty Management Systems

Supplier shall have a warranty analysis process consistent with AIAG CQI-14, Automotive Warranty Management. Warranty issues are documented via an QMS problem case with response timing expectation to supplier as described in 10.2.3

Merit may require that a supplier retain returned warranty parts after analysis has been completed. If required by Merit customer, an extended retention period will be communicated by Merit.

10.2.6 Customer Complaints and Field Failure Test Analysis

No Merit specific requirements for this section

10.3 Continual Improvement

10.3.1 Continual Improvement

Suppliers are responsible to develop and implement a First Time Quality (FTQ) improvement process with appropriate alarm limits and reaction plans defined. FTQ issues should be prioritized with action plans showing continual improvement over time. A FTQ improvement process should be implemented during APQP and PPM calculations verified at PPAP and Run-at-Rate.

Suppliers are responsible to develop and implement a Layered Audit Process. The AIAG CQI-8, Layered Process Audit Guideline may be used as a reference. The purpose of performing layered audits is to verify compliance to the documented manufacturing/assembly process to assure the production system and process controls are working optimally.

Suppliers shall use the QMS Supplier Change Request for any process changes associated with continual improvement activities.

11. Merit Supplier Requirements – Change Review Log

Approval Date	Issue/Revision Changes	Title/Function
2018-03-20	Document created – reference to IATF 16949	Marek Szafraniec/AQE Manager
2018-08-31	Document updated: 4.3.a – QMS development per IATF sanctioned interpretation, 8.3.2.3 & 8.4.2.3.1– software development process requirements updated, 8.5.4 – packaging & labeling requirements	Marek Szafraniec / AQE Manager
2019-09-30	Document updated:4.3 add *Environmental and Health and Safety Management System Certification* requirements; 5.1.1.1 Corporate responsibility	Marek Szafraniec / AQE Manager
2020-04-10	4.4.1.2 – Meri CSR to be transferred throughout entire supply chain 4.3 – Supplier IATF 16949 certification requirements 7.5.3.2.1 – records retention table added 8.3.4.4 – scope of PPAP defined 8.5.1.1 – lay out inspection reporting requirements updated 8.5.2 – traceability requirements for safety critical parts added 8.5.2.1 – safety critical characteristics identification 8.5.4 – Safety critical identification on the shipping labels 9.1.1.1 – capability and process control requirements for safety characteristics added	Marek Szafraniec / AQE Manager
2020-06-25	8.5.6.1.1 – key equipment list including EP devices and further requirements Correction in the revision table 4.1.1.2 corrected to 4.4.1.2 (for the revision dated 2020-04-10)	Marek Szafraniec / AQE Manager
2020-07-30	9.1.2.1 – Suppliers Score cards availability 5.1.1.1 – Requirements regarding Compliance to Merit Code of Conduct	Marek Szafraniec / AQE Manager
2020-10-28	4.4.1.2 - Product Safety Representative to be nominated by Merit suppliers when required by OEM CSR 8.6.2 – Annual Lay out inspection reporting requirements. Comment partially moved from item 8.5.1.1	Marek Szafraniec / AQE Manager
2021-05-24	Info “Internal use” added	Paulina Golińska/QS Coordinator
2021-06-16	6.2.2.1 – updated with Suppliers Quality objectives and escalation process details.	Marek Szafraniec / AQE Manager
2023-06-07	8.5.2; 9.1.1.1 – MAPP removed 4.4.1.2 – Product safety representative (PSR) changed to Product safety and compliance representative (PSCR) 8.1.1 – VDA 6.3 Process Audit reports added	Marek Szafraniec / AQE Manager