Eaton Cummins Automated Transmission Technologies

Supplier Excellence Manual

Revised: May 29, 2019

EATON Cummins
AUTOMATED TRANSMISSION™
TECHNOLOGIES

Contents

1 Scope

This manual defines certain minimum requirements, processes, and systems for doing business with Eaton Cummins Automated Transmission Technologies (“ECJV”), as well as align to ECJV’s Customer Specific Requirements. The manual outlines processes used to ensure that ECJV’s supply base is providing top level service while continually improving to prevent quality and delivery disruptions. It is the responsibility of the Supplier’s leadership to ensure compliance to this manual.

1.1 Business Communication

Suppliers shall:

- Communicate all documentation in English unless otherwise specified by ECJV;
- Communicate any significant changes in business climate including but not limited to acquisitions, divestitures, pending litigation, or any activity that may change financial viability in the Supplier’s organization;
- Register for the Eaton Supplier Portal at My.Eaton.com;
- Maintain a current Supplier Profile at My.Eaton.com;
- Log in to the Eaton Supplier Portal on a regular basis to stay current on business communications.

The My.Eaton.com portal contains the framework of digital infrastructure in doing business with ECJV. The following documents, tools, and more can be found on the Eaton Supplier Portal:

- Sustainability
- WISPER
- Supplier Visualization
- Supplier invoicing

Supplier is expected to fully comply with the ECJV Supplier Code of Conduct and ECJV Purchase Order Terms and Conditions, located here:
http://www.eaton.com/Eaton/ProductsServices/Vehicle/eaton-cummins/doing-business/index.htm

The Eaton Supplier Portal also contains certain documents specific to doing business with Eaton, including the Eaton Supplier Code of Conduct and Eaton Purchase Order Terms and Conditions. When conducting business with ECJV and wherever such documents conflict, suppliers are expected to comply with the ECJV documents.

2 Terms & Definitions

Term	Definition
AIAG	Automotive Industry Action Group is a not-for-profit association where professionals from a diverse group of stakeholders work collaboratively to streamline industry processes via global standards development and harmonized business practices.
APQP	Advanced Product Quality Planning is a structured method of defining and establishing the steps necessary to assure that a product meets expectations, and that the supplier's manufacturing processes have the capability to consistently meet these requirements.
Control Plan*	Written description of the system used to monitor and control the output of processes that produce products. The Control Plan should include controls for prevention of failures identified in the PFMEA.
DMR	A Defective Material Report is a method by which all non-conforming conditions are reported to the supplier and corrective action is requested. This is synonymous with Supplier Corrective Action Requests (SCAR), Quality Notification (QN), Q2.
DPPM	Defective Parts Per Million is ECJV's inbound quality metric.
EHS	Environmental Health and Safety
FMEA*	Failure Modes & Effects Analysis is a structured analytical tool which identifies the potential failure modes in a design (DFMEA) or process (PFMEA), the likelihood of the failure to occur, and the potential impact of a failure on the component or system (i.e., Severity).
IDEAS	Innovation Drives Excellence Achievement and Savings is a program ECJV utilizes, administered and supported by Eaton, for suppliers to submit ideas to improve and provide cost savings.
MSA*	Measurement Systems Analysis is an experimental and mathematical method of determining variation within a measurement process.
OTD	On Time Delivery is an inbound performance metric based on a percentage of product received within the delivery window.
Pass Through Characteristics (PTC)	Component characteristics with potential fit or function issues that do not undergo inspection and where defects may not be detected within ECJV but could cause non-conformance to the end user or customer.
PPAP*	Production Part Approval Process defines requirements for production part approval including production and bulk materials.
Special Characteristics	Characteristics designated in the Design Record (drawings and specifications) that, with reasonable anticipated variation, could significantly affect a product's safety or compliance with applicable standards or regulations and/or are likely to significantly affect customer satisfaction with a product. Terms, 'key,' 'critical,' 'safety,' 'significant,' or 'pass through,' designated by symbols in the Design Record are generally referred herein as, 'Special."
Special Processes	A process that creates a characteristic that cannot be measured, monitored, or verified without destructive testing.
Supplier Site Assessment (SSA)	SSA is a tool to evaluate the business management systems of a supplier's manufacturing site and assess the supplier's compliance to ECJV system requirements.
Supplier Visualization	A tool used by ECJV, and administered and supported by Eaton, to communicate inventory levels and demand forecasts, also known as Supplier Vis.
WISPER	Worldwide Interactive Supplier Performance Evaluation Resource is an online system, administered and supported by Eaton, that is ECJV's primary method for evaluating and managing direct material suppliers. WISPER only applies to suppliers that have been given access through ECJV and/or Eaton Supply Chain or Supplier Quality.

* These documents are governed by the AIAG APQP manual which should be referenced by suppliers when preparing and maintaining such documents for their processes.

3 ECJV Supplier Code of Conduct

ECJV seeks to build business relationships with global supply partners who share our commitment to quality, integrity, and ethical behavior.

In support of these values, ECJV has a Supplier Code of Conduct for its supply base. This code details the Company's expectations that all suppliers operate in compliance with certain ethical and business standards and all applicable laws and regulations. The code applies to all businesses, and their respective supply partners, that provide goods or services to ECJV.

Review and acknowledgement of, and compliance with, the Supplier Code of Conduct are required to do business with ECJV. The code can be accessed by visiting http://www.eaton.com/Eaton/ProductsServices/Vehicle/eaton-cummins/doing-business/index.htm.

4 Expectations of the Supplier

Supplier's leadership shall:

- Review, understand, and ensure compliance to this manual as a part of doing business with ECJV;
- Adhere to all requirements, including all Purchase Order Terms and Conditions;
- Confirm agreement to conduct business ethically as outlined in ECJV's Supplier Code of Conduct;
- Ensure that ECJV requirements are adequately communicated to its sub-tier suppliers, and ensure that all of Supplier's supply chain partners adhere to these requirements.

4.1 Quality Management System Requirements

Suppliers shall be at a minimum certified by a third-party registrar to IATF16949 and must furnish a copy of the registration certificate to ECJV. Based on business-specific or customer requirements, ECJV may require:

- Additional quality management system certifications;
- Special Process certifications;
- Sub-tier suppliers' certifications.

Suppliers whose third-party certification status changes shall notify the Purchasing and Quality manager at each affected ECJV business within 24 hours following communication from the accrediting agency.

Suppliers shall maintain evidence of certification status in WISPER unless otherwise stated by ECJV.

Suppliers with internal or outsourced "special processes," as identified by the Automotive Industry Action Group (AIAG), are required to be conformant with relevant AIAG Special Process documents or other standards and/or guidelines specified on product drawings/specifications or other contractual provisions.

When requested, suppliers, and their tiered suppliers, are required to show evidence of compliance with these special process requirements, and take effective corrective action to address each "not satisfactory" and "needs immediate action" item.

4.2 ECJV Assessment & Approval

Suppliers shall be capable of meeting ECJV's quality, delivery, cost, EHS, and continuous improvement requirements. ECJV and/or its designated representatives will assess these requirements as a part of its supplier selection process through the supplier assessment and qualification activities. Suppliers shall be active and compliant in the supplier assessment and qualification process. The process will include but is not limited to the following:

- Registration to industry standards and certifications;
- Quality and delivery performance;
- Cost competitiveness;
- Current financial health;
- Assessment results and corrective actions.

4.3 Right of Access

Suppliers shall provide right of access to ECJV, its designated representatives, its customers, and relevant government agencies to allow for the evaluating of quality system documentation and records, conducting audits, and verifying product conformance.

5 Planning

5.1 Business Continuity & Risk Management

Suppliers shall create functional contingency plans to address the following types of issues and risks:

- Event-based risks
    - Fires, chemical spills, natural disasters, terrorist threats, medical emergencies, human resource issues (e.g., strikes)
- Sub-tier suppliers' potential disruptions and disasters
- Pandemic preparedness plan
- IT disaster recovery and IT security
- Disruptions due to financial and regulatory non-compliance
- Human resources guidelines for security, drug screening, and background checks

The required plans should include the following:

- Team organization
- Roles and responsibilities
- Communication plan
- Escalation procedures
- Recovery plan
- Steps to facilitate quick response
- Reaction and resumption of parts and services

ECJV suppliers are expected to develop, deploy, and maintain these contingency plans.

5.2 Performance Expectations

ECJV will use Supplier Scorecards and Supplier Business Reviews (SBR) to assess and manage Supplier performance. Suppliers shall set goals for the measures as outlined in 8.1 Performance Measures. ECJV expects suppliers to maintain a zero defect culture and zero delivery disruptions.

6 Support

6.1 Infrastructure

Suppliers shall:

- Obtain a D&B D-U-N-S number from www.dnb.com
- Pay an annual software fee for ongoing support and maintenance of Business Systems
    - Fees are assessed once per supplier per year to cover all supplier locations and are based on the amount of annual business with ECJV and Eaton worldwide

6.1.1 WISPER

WISPER provides the Supplier and ECJV with the following:

- DPPM/OTD performance data
- Defective Material Reports (DMR)
- PPAP / first article submission tracking
- Ship to stock status
- Part information
- Audit / assessment information

6.1.2 Supplier Visualization

Supplier Visualization (Supplier Vis) gives ECJV and suppliers shared visibility of forecasts, purchase orders, inventory, schedules, material receipts, and the ability to create advanced shipping notices (ASN). An ECJV representative will contact the supplier when it is time to register for access to and become trained on using Supplier Vis. Please do not register until notified to do so.

6.2 Organization Knowledge & Competency

Suppliers shall designate key resources responsible for interacting with ECJV in order to conduct business effectively. At a minimum, the following knowledge and demonstrated competencies shall exist within each supplier's organization:

- Formal problem-solving (8D, A3, Six Sigma)
- Quality Management
- Manufacturing Engineering
- APQP
- Supply Chain Management
- Materials Resource Planning

Suppliers shall be able to demonstrate their employees who are involved in processing of ECJV parts have the necessary competence, training, education, and experience.

There should be resource planning based around the aforementioned knowledge to address employee turnover, outages, and other risks to organizational business continuity.

6.3 Document Control & Retention

Suppliers shall retain adequate quality system records, including records associated with:

- Management reviews
- Internal audits
- Calibration
- Change management
- Maintenance
- Root cause corrective action

Suppliers shall retain quality performance and planning documents, including but not limited to:

- Control charts
- First article inspection
- PPAP
- Material and Special Process certifications
- Inspection/test results
- Gauge/test equipment verification
- Calibration and performance test methods
- Product and process validation test results

The Supplier's quality system shall ensure that:

- Latest engineering drawings and specifications are available at the manufacturing, test, and inspection locations;
- Review process is established in that system to confirm that applicable drawings and specifications are at the latest revision level with the issuing source;
- The applicable documentation is available for manufacturing, test, and inspection in accordance with the part revision stated on the ECJV contract/PO;
- Quality records are maintained in sufficient detail with evidence of actual results of required tests and verifications;
- Where variable or quantitative data exists, it is maintained and available upon request;
- Quality records are stored in a location or media that prevents exposure to elements that would compromise the integrity of the information and will allow retrieval upon request by ECJV;
- All non-electronic quality records are documented in ink or other permanent marking;
- Even after discontinuing supply to ECJV, Supplier shall continue to maintain all foregoing records for the retention periods specified by ECJV and to provide such records to ECJV on request. This obligation to maintain records survives termination, expiration, or completion of any supply agreement or purchase order.

Retention time shall be agreed and communicated between ECJV and Supplier.

7 Operation

Suppliers shall implement service and production controls as necessary to meet quality, delivery, and other performance measures that impact ECJV or ECJV's customers.

Suppliers shall be responsible for documenting and executing processes for supplied products in order to ensure the product meets ECJV's expectations. Some of the key processes include:

- Contract review
- Design & development
- Product realization
- Production and service provisions
- Control of non-conformance
- Sub-tier management
- Change management

ECJV expects suppliers to utilize the AIAG's "Advanced Product Quality Planning and Control Plan" (APQP) document and can find further information on the Supplier Portal.

7.1 Contract Review

Suppliers shall have a defined review process to ensure that all technical, quality, and purchase order requirements can be achieved before committing to supply products or services to ECJV. The review shall be coordinated with the applicable functions of the organization, including but not limited to Quality, Engineering, Manufacturing, and Supply Chain.

The review shall include evaluation of the following at a minimum:

- Engineering drawings and all applicable specifications
- Additional technical requirements in the PO
- Quality system requirements
- Commercial requirements
- Forecast and delivery expectations

If some ECJV requirements cannot be met or only partially be met, Supplier shall notify ECJV prior to agreement. The results of Supplier's reviews shall be documented and retained. In the event where changes to contract requirements are made, the Supplier shall ensure the relevant functions are made aware of the changes and the impact of the change is re-assessed to ensure the requirements can still be achieved.

7.2 Design & Development

Suppliers who are responsible for the design of products sold to ECJV shall establish and implement a process for design and development. The design and development process shall include:

- Planned stages with required tasks, resources, responsibilities, and design reviews defined for each stage;
- Approval from authorized persons in order to progress to the next stage, including ECJV approvals where applicable;
- Identification of characteristics that are essential to satisfy requirements through appropriate evaluation techniques such as DFMEA;
- Identification of any critical items, including special characteristics, and the specific actions to be taken for these items;

- Evidence of design and development reviews and its outputs, such as technical reports, calculations, test results, etc., are documented such that they can demonstrate that the design for the product or service meets the specification requirements.

7.2.1 Testing & Validation

When testing is required to confirm the design requirements can be met, the tests shall be planned, controlled, and documented to ensure the following:

- Test plans or specifications identify the test item being tested and the resources being used, and define test objectives and conditions, parameters to be recorded, and relevant acceptance criteria;
- Test procedures describe the test methods to be used, how to perform the test, and how to record the results;
- The correct configuration of the test item is submitted for the test;
- The requirements of the test plan and the test procedures are observed;
- Monitoring and measuring devices used for testing shall be controlled.

7.2.2 Configuration & Data Management

Suppliers shall have a process to control changes made to the design of products supplied to ECJV. Suppliers shall implement a process to notify ECJV regarding any changes to the design prior to their implementation.

Changes that impact the form, fit, function, interchangeability, or interoperability of the current system configuration shall be submitted for approval to ECJV through an Engineering Change Proposal (ECP).

7.3 Product Realization

Before a product is supplied to ECJV, Supplier shall implement the following:

- PFMEA
- Control plan
- MSA
- Process capability
- Inspection
- Capacity analysis
- PPAP

7.3.1 Process Failure Modes and Effects Analysis (PFMEA)

A PFMEA is a living document which describes the risks to the production process and/or parts produced, and identifies actions taken to mitigate the risks, such as process controls. In preparation and maintenance of, refer to the AIAG FMEA manual for guidance. Inputs must include warranty issues, customer concerns, lessons learned and address past DMR concerns.

PFMEA shall:

- Be completed for the production processes of each product;
- Show the risks associated with each process step of the product manufacturing;
- Show implemented controls for mitigating the highest risks;
- Identify special characteristics.

7.3.2 Control Plan

Control plans identify important part and process characteristics defined during APQP activity, and the control plan must reflect ongoing changes to PFMEA, such as those resulting from corrective action and process improvement. The control plan and PFMEA are living documents, always reflecting current controls and measurement systems in use. They must be updated as control methods and measurement systems are changed and improved, and be audited periodically as part of the supplier's internal audit process to assure continued effectiveness. Unless otherwise exempted by ECJV, suppliers are expected to use the control plan format referenced in the AIAG APQP manual.

Control plans shall be:

- Documented;
- Followed for each supplied product;
- Used to control high risk processes identified in the PFMEA;
- Able to identify and control Special Characteristics to ensure conformance;
- Specific in context to process, machine, control methods, and reaction plans;
- Basis for operator and inspection work instructions.

7.3.3 Measurement System Analysis (MSA)

MSA shall be completed in accordance with the AIAG MSA document as follows:

- For all special characteristics;
- Product or process characteristics that the supplier has identified as critical to control the process;
- For all measurement equipment listed in the control plan;
- Gage R&R <10% is expected;
- Gage R&R 10%-30% is acceptable with corrective action plan to reduce;
- Gage R&R >30% is unacceptable.

These requirements extend to outsourced processes or external labs.

7.3.4 Process Capability

Process capability study shall be completed for all ECJV designated special characteristics, and any product or process characteristics that the supplier has identified as critical to control the process. A process capability study shall be completed for new product launch, and for any change to the product or process that affects a special characteristic.

The process capability studies shall be summarized with the following indices:

- Cp – Process Capability
- CpK – Process Capability Index
- Pp – Process Performance
- PpK – Process Performance Index

Unless otherwise defined by ECJV, the minimum requirements for capability and stability indices are:

- CpK > 1.67
- PpK > 1.67

If any acceptance criterion is not satisfied, Supplier shall contact ECJV with a corrective action plan and a modified control plan providing for 100% inspection and/or error-proofing mechanism. Variation reduction

efforts shall continue until the acceptance criteria are met, or until approval is obtained from ECJV. 100% inspection methodologies are subject to review and concurrence by ECJV.

Suppliers are expected to continue monitoring significant characteristics throughout the life of the product and ensure the process remains in control and capable.

ECJV reserves the right to add capability, SPC charts, run charts, and process control requirements based on performance history, low capability, or other factors up to and including 100% containment.

These requirements apply to and shall flow down to the entire supply chain, including sub-tier manufacturers. All significant characteristics must have capability studies performed at least once per year with results recorded and made available to ECJV Quality upon request, unless explicitly stated otherwise.

7.3.5 Inspection

Inspection plans shall be established to ensure conformity of 100% of the characteristics defined in the engineering drawing. Suppliers shall have the ability to:

- Inspect all finished products produced for ECJV;
- Utilize appropriate measuring and monitoring infrastructure and resources;
- Provide ECJV with evidence of inspection data.

Suppliers shall only use reduced-frequency inspection plans when:

- Acceptable process capability can be demonstrated;
- Existing process controls are in place to maintain process capability;
- Historical records provide justification that 100% quality levels can be maintained;
- Sampling plans are in accordance with an industry accepted standard.

Sampling inspection will be suspended and replaced by 100% inspection under the following circumstances until historical records can indicate the feasibility of sampling inspection again:

- Defect or discrepancy is identified at ECJV, ECJV's customer, or the Supplier;
- Manufacturing process change is implemented;
- Design change is implemented.

7.3.6 Capacity Analysis

Suppliers shall complete a capacity analysis that demonstrates that Supplier production can perform to ECJV's expectation of full volume ordering, and identifies and understands the capacity at all bottleneck operations. Capacity analysis shall incorporate quality performance/yield, planned maintenance, and unscheduled downtimes. Capacity analysis shall also incorporate lead times and capacities of all sub-suppliers, availability of raw materials, and any other constraints from internal and external process inputs.

7.3.7 PPAP

PPAP submissions shall be:

- Based on the latest edition of the AIAG PPAP Manual;
- Submitted at Level 3 unless otherwise specified by ECJV;
- Produced using production tooling and processes;

- Produced at production line rate;
- Compliant to all ECJV Design Record and PO requirements;
- Submitted as instructed in ECJV PPAP request;
- Submitted with sample parts as instructed.

Suppliers may be required to perform re-validation PPAP under certain circumstances, including but not limited to twelve months of inactivity, revision change, or special business requirements.

PPAP status definitions (as determined by ECJV):

- Approved
    - Meets all ECJV requirements
    - Suppliers is authorized to ship production quantities
- Interim Approval – 90 days maximum
    - One or more elements of PPAP is non-compliant, requiring corrective action
    - Containment measures taken
    - Authorizes supplier to ship for limited time and/or piece quantity
    - Approval expiration is determined by each business
    - Corrective actions implemented to be reflected in PPAP re-submission
- Rejection
    - Product or documentation does not meet ECJV requirements
    - Supplier is not authorized to ship any product
    - Corrective actions implemented to be reflected in PPAP re-submission

7.3.8 Safe Launch

ECJV may require suppliers to participate in the ECJV Safe Launch process. This may apply to new components, changes from one supplier to another, or for certain component design or process changes. Suppliers expected to complete this activity will be notified by ECJV. Safe Launch may include but is not limited to:

- Run at rate certification
    - Test of capacity and quality run by the supplier with ECJV personnel present
- Safe Launch control plan
    - Detailed plan for increased inspection frequencies during the Safe Launch timeline
- Statistical Process Control reporting

7.4 Submission of CpK, PpK, run charts, tool changes, scrap % and reaction plans to out of control conditions for a specified period of time after SOP Production & Service Provision

Suppliers shall implement production and service provision in accordance to the requirements outlined in the below sections in addition to their quality management system.

7.4.1 Product Identification

Suppliers shall have a documented process for part identification including revision level throughout the facility. The identification process shall include the ability to differentiate product status in all areas including the following:

- Production
- Rework

- Repair
- Scrap
- Testing
- Laboratories
- Storage areas
- Office area

7.4.2 Product Traceability

Suppliers shall establish a lot traceability system that:

- Tracks components throughout the value stream, from raw material through shipment to ECJV;
- Includes all process steps including inspection and test procedures, rework and sub-tier supplier operations.

7.4.3 Product Preservation

Where the following restrictions apply, suppliers shall ensure compliance to the following:

- Materials shall be tracked and controlled to prevent expired material from being used in production
- Processes shall be deployed to ensure appropriate handling throughout the manufacturing process and storage to prevent damage, corrosion, or other contamination
    - For electronic components, this shall include appropriate steps to prevent Electrostatic Discharge (ESD)
- Processes shall be deployed to ensure packing and preservation is sufficient to prevent damage or corrosion to the product during storage and shipping to ECJV

7.4.4 Preventative Maintenance Plan

Suppliers shall have a preventative maintenance program that is:

- Documented with history of repairs;
- Utilized to increase uptime and predict failures of machines;
- Utilized to reduce quality defects and loss of time;
- Utilized to maintain acceptable levels of consumable indirect material and machine parts.

7.5 Control of Non-Conformance

Suppliers shall utilize a process to:

- Clearly identify and segregate non-conforming or suspect material to prevent unintended use or delivery;
- Ensure containment of suspect material that has previously shipped to ECJV;
- Control material dispositioned as scrap until physically rendered unusable;
- Retain documented information regarding a non-conformance.

Suppliers shall notify ECJV immediately upon suspicion of non-conforming product. Notification shall be provided via email to the purchasing and quality contacts at the affect ECJV business, and include a detailed description of the non-conformance, the products affected, and the initial containment actions taken.

Initial containment actions shall be completed within 24 hours of identification of non-conformance. Further containment and disposition of the non-conformance shall be agreed on with ECJV. Containment must address all suspect parts throughout the supply chain, including:

- Parts at the supplier locations, warehouses, or in transit between locations;
- Parts in transit to ECJV or their using locations;
- Parts on the production floor at ECJV using locations;
- Parts supplied as service parts.

Suppliers are responsible for implementing containment actions mandated by ECJV as a result of non-conformance, including but not limited to Controlled Shipping, Source Inspection, or Third Party Inspection.

When ECJV identifies a supplier non-conformance, a Defective Material Report (DMR) shall be issued to the supplier via WISPER or other system.

7.6 Sub-tier Management

Suppliers shall maintain appropriate documentation of their sub-tier suppliers/contractors including qualification records, quality data, and performance data on products purchased through these sub-tier suppliers.

Suppliers shall have documented processes for the following with regard to sub-tier suppliers:

- Assessment and qualification process including steps for on-going approval;

- Communication of ECJV requirements including but not limited to engineering drawings, specifications, quality expectations, and contractual requirements;
- Non-conformance corrective action;
- Change management control;
- Capacity planning;
- Performance monitoring.

ECJV reserves the right to specify or approve sub-tier suppliers used by its suppliers for work performed on ECJV material. This applies to all suppliers including special processes (non-destructive testing, heat treating, welding, chemical processing, plating and coatings, etc.), material testing services, and distributors.

7.7 Change Management

All changes to product or process shall be:

- Submitted to ECJV receiving location in writing;
- Submitted through ECJV's supplier change request form on the Supplier Portal;
- Aligned with PO terms on Interchangeability;
- Approved by ECJV before implementation.

Changes requiring approval at a minimum can be found in Table 1. If there is any question that a change approval is needed, the supplier shall contact an ECJV representative for clarification.

Table 1

Type of change	Examples
Product Design	• A change to the engineering drawing of the product or sub-assemblies, including dimensional, material, or specification changes

Manufacturing Process/Inspection Sequence	• A change in the manufacturing process or method that may have an impact to the form, fit, or function of the product, including:
	  • New or modified tooling, dies, and mold patterns, or reintroduction of inactive tools, dies, and mold patterns
	  • Upgrade or rearrangement of existing tooling or equipment
	  • Process change related to components of production products internally or externally
	  • Change in testing or validation method

Material/Material Source	• New source of raw material
Sub-supplier Source	• Change of Tier-1 supplier manufacturing location • Change of sub-tier supplier or change of existing sub-tier supplier's manufacturing location
Special Process	• Changes to heat treat, plating, welding, painting, or other process changes that cannot be verified without destructive testing

ECJV may elect to require formal PPAP submission and approval or other Product Realization process. In these cases, Supplier shall not ship products to ECJV sites prior to approval.

Failure to contact ECJV and obtain written approval prior to implementing changes and shipment of product shall result in issuance of a DMR, Supplier compensating ECJV for all associated collateral costs and expenses, and possible new business hold.

8 Performance Evaluation

ECJV measures suppliers on key performance indicators utilized to monitor the overall health of its supply chain and drive future business decisions.

8.1 Performance Measures

ECJV evaluates suppliers against the following performance measures:

- Quality
  - DPPM = (*defective units shipped*) / (*total units shipped*) * 1,000,000
- Delivery
  - OTD = (*line-items delivered on time*) / (*total line-items shipped*)
- Payment terms
- Purchase price variance
- Third-party certifications
- DMR and corrective action response time
- PPAP on time

ECJV monitors supplier performance on a continuous basis utilizing a supplier scorecard to communicate performance measures that indicate overall health of the supplier relationship.

Suppliers shall monitor performance on a continuous basis, and take action when results do not meet ECJV's expectations.

8.2 Business Reviews

Supplier Business Reviews facilitate the effective management of the supplier relationship. It follows a standard approach of annual planning, goal setting, and follow up. ECJV will notify the supplier if it has been selected for Supplier Business Review. Suppliers shall include relevant stakeholders from its organization in this business review such as:

- Supply chain
- Quality
- Manufacturing
- Business Leadership

Suppliers shall execute any action plans identified through the Supplier Business Review.

8.3 Audits & Assessments

ECJV may conduct audits or other assessments on a periodic basis to evaluate suppliers in areas such as quality, cost, delivery processes, and expectations. Audits and assessments may be scheduled due to risk, performance, or customer requirements.

8.4 Supplier Internal Audits

Supplier shall conduct internal audits at planned intervals to evaluate the effectiveness of the quality management system.

The internal audit program shall be planned and include the frequency, method, and individuals responsible for conducting audits. The audit program shall include the following scope at a minimum:

- Compliance to documented business processes defined in the quality management system;
- Process audits that demonstrate compliance to the documented manufacturing process;
- Product audits that demonstrate conformity of the products or services provided to ECJV.

8.5 Supplier Management Review

Supplier's leadership shall conduct a management review at planned intervals. ECJV and EHS performance metrics pertaining to ECJV products and services shall be included in addition to the existing requirements for management review outlined by Supplier's quality management system.

9 Improvement

ECJV requires all suppliers to pursue continuous improvement. Suppliers shall be able to demonstrate documented plans for improvement in their goals and objectives. The plans shall include responsible people, resources needed, and timing for planned improvements.

9.1 IDEAS

ECJV requires supplier initiated cost reduction and improvement suggestions. ECJV wants open, forthright dialogue with suppliers so that we can collaboratively reduce waste and improve quality. ECJV seeks creativity, innovation, and ingenuity in improving the way in which we do business together.

ECJV's formal program for collaborative continuous improvement is the IDEAS program (Innovation Drives Excellence, Achievement, and Savings). Suppliers can review the IDEAS program, and complete an IDEAS form by visiting the Supplier Portal. Before an IDEAS submission can be implemented, it is important to continue to follow all change management processes.

9.2 Preventative & Corrective Action

Suppliers shall implement actions to prevent non-conformance in their processes and products. Suppliers shall utilize disciplined problem solving methods to correct and prevent non-conformances in quality and delivery.

Should a supplier not conform to requirements as outlined in this manual or product quality standards, ECJV will work with the supplier to obtain corrective actions. As described above in 7.5 Control of Non-Conformance, a DMR will be written for each product non-conformance found within ECJV or its customers. The DMR in WISPER or other business system will serve as a Corrective Action Request (CAR).

Corrective action shall be executed in accordance with the following timeline from Supplier's receipt of DMR:

- Containment – 24 hours
- Root cause analysis – 3 days
- Corrective action plan defined – 10 days

Corrective action shall:

- Focus on system level improvements to prevent reoccurrence within the organization;
- Utilize a disciplined, closed-loop problem solving method that works to encompass all possible outcomes (e.g., 8D, A3, 3 legged 5 whys, Ishikawa diagrams);
- Be submitted to ECJV for review and approval;
- Avoid generalized root causes, such as "operator error" or "training";
- Acknowledge that retraining is insufficient and further actions shall be taken to error-proof;
- Ensure all quality system documents affected are updated to accurately reflect the changes.

A $500 administration fee shall be charged to Supplier for each DMR issued due to a non-conformance, regardless of the value of the rejected lot received or the quantity of parts being rejected.

Collateral costs incurred by ECJV as a result of Supplier failure to meet ECJV's quality requirements will be assessed separately from the DMR fee. Examples of such costs include:

- Sorting
- Line disruption / speed reduction
- Premium freight
- Premium product cost paid to support production
- Overtime
- Outside processing and testing
- Rework (e.g., labor, tooling, and fixturing)
- Scrap
- Reimbursement of customer charges
- Added inspection certification of product, etc.
- Warranty costs
- Onsite verification and audits

DMRs may also be written for systemic repeating non-conformances, documented as "System Noncompliance" DMR. These will not have an administration fee to them, but will be used to reflect supplier performance.

Examples of systemic repeating issues include, but are not limited to:

- Failure to notify ECJV of changes
- Failure to communicate ECJV requirements to sub-tier suppliers
- Non-compliance with regulatory/industry requirements
- Failure to respond to DMR in a timely manner
- Failure to respond with corrective action for quality system findings
- Failure to provide PPAPs as requested prior to first production shipments

9.3 Supplier Development

ECJV may select suppliers for development who present the greatest opportunity for improvement and the greatest potential impact to the organization. Supplier development engineers may work with the selected suppliers to ensure the improvement goals are met.

If ECJV sees continued performance measure misses, it can mandate one or more of the following actions:

- Corrective action
- Focus supplier process
- Business reviews
- On-site process audits
- Supplier site assessment

Suppliers selected for development projects shall demonstrate a willingness to change and improve, and show evidence of internal continuous improvement efforts.

Under certain circumstances, a supplier may be selected for development as a result of a positive relationship. In these cases, it will be explicitly noted to the supplier that it is not being selected due to any failure to meet expectations.