

Johnson Controls Automotive Experience  
Global Supplier Standards Manual  
Chapter 4  
Quality  
July, 2016

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## **PURPOSE**

- The purpose of the Global Supplier Standards Manual is to communicate Johnson Controls, Inc. (Johnson Controls) requirements to the suppliers in our Automotive Experience Division and Corporate Worldwide Headquarters. It is the expectation of Johnson Controls, that all suppliers of Direct Materials comply with all of the requirements and expectations documented in this manual.
  
- Johnson Controls expects this manual to provide the foundation for our working relationship with our Suppliers. We will strive for excellence through continuous improvement in the products and services we receive through close working relationships with our suppliers.

## **SCOPE**

### Geographic Applicability-

- This policy applies globally to all Johnson Controls Automotive Experience (AE) Manufacturing and Parts Distributions locations that are involved in the purchase of products and services for use internally or resale.

## **STANDARD PRACTICES**

- The **Quality Chapter** of the Global Supplier Standards Manual was developed to present a minimum set of requirements to current and potential suppliers.
- The manual is divided into 15 specific sections
  1. Quality Scope
  2. Quality General
  3. Supplier Assessment Survey
  4. Advanced Product Quality Planning
  5. Process Sign-off
  6. Supplier Part Submission
  7. Measurement System Analysis (MSA)
  8. Statistical Process Control
  9. Quality Performance Monitoring
  10. Quality Deliverables
  11. Supplier Material Rejection Report (SMRR) & Supplier Chargeback (SCB)
  12. Problem Solving Documentation
  13. Supplier Management Quality Review (MQR)
  14. Containment
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**Change Log**

<b>Date of Change</b>	<b>Section</b>	<b>Description of Change</b>
August 2015	2.1 Quality Expectations	Modified language regarding quality certifications, process sign off, significant characteristics, and removed reference to line certifications.
October 2015	2.1 Quality Expectations	Added Deviation Approval details; clarified compliance timing
	3.1 Supplier Assessment Survey	Add divisional requirement for self-assessment
	4.1 Advanced Product Quality Planning	Clarified APQP requirements; added notes concerning APQP for Supply Base and their sub-tier

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	5.2 Process Sign-Off Expectations	Added PSO timing reference
	6.2 Supplier Part Submission Applicability	Clarified PPAP requirements with reference to saleable vehicles
	6.4 Annual Validation Requirement	Annual revalidation requirements added to include, content, timing, and no cost reference
	9.1 Key Process Indicators	Clarified requirements
	10.2 Parts Per Million Expectations	Clarification of non PPM assignable
	10.3 Sorting Expectations	Modification to sorting results reporting timing; added details concerning cost responsibility
	10.5 PPSC Expectations	Added details concerning cost responsibility
	11.1 Supplier Material Rejection Report	Modification to costs associated with SMRRs
	11.3 Supplier Material Rejection Report Expectations	Clarified requirements; modified 8D timing from seven to five days
	11.4 Supplier Chargeback	Added Warranty Returns; modification to costs associated with SMRRs / RMAs
	11.5 Supplier Chargeback Communication and Expectations	Clarification to SCB Process; added details concerning automated debit for late response
	13.2 MQR/New Business Hold	Added Warranty issues
	14.2 Pre-Production / Launch Containment Expectations	Clarified requirements beyond 30 days
	14.3 Containment Level I Expectations	Clarified requirements; modification to containment activity reporting timing

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	14.4 Containment Level II Expectations	Modification to containment activity reporting timing
	16.0 Warranty	Added supplier warranty expectations
July 2016	6.4 Annual Validation Requirement	Added Level – 4 requirements, annual validation charges, Note for annual validation for VDA format

**1.0 Quality Expectations Scope**

All suppliers shipping to Johnson Controls Automotive Experience plants are expected to meet the quality expectations set forth in this section. Please contact your Johnson Controls Quality contact for questions on any topics covered in this section.

**2.0 Quality Expectations General**

**2.1 Quality Expectations**

A solid systems approach to quality management is essential to achieve the level of quality integrity required by today's demanding customers. Such an approach yields many benefits:

- A Common Platform for Quality Management
- Improved Communication due to Shared Systems
- Common Format for Training
- Systematic Change Control

Johnson Controls requires all suppliers become certified to the current version of ISO/TS 16949. Suppliers that have not achieved certification to TS16949 must have at a minimum achieved certification to ISO9001 and a formal plan to demonstrate compliance to TS16949. Suppliers are required to submit updated copies of all certifications (ISO9001, TS16949, and ISO14001) on an annual basis through the Taulia Web Service found on the Johnson Controls Supplier Portal. Any deviation to this must be approved in writing by Johnson Controls Purchasing and Supplier Development.

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All renewal certificates must be submitted before the expiration date of the certificate. Failure to submit certificates or valid transition timelines will have a negative impact on the supplier's scorecard and may jeopardize future business.

Johnson Controls may verify the suppliers manufacturing location for compliance to these standards by performing an audit by a qualified representative at any time.

### **3.0 Supplier Assessment Survey (SAS)**

#### **3.1 Supplier Assessment Survey**

For a company to be included on the Johnson Controls approved supplier list for all direct materials an SAS must be completed. This must be done before a purchase order is given or at any other time. Johnson Controls may also perform similar audits at a regular frequency or instruct the supplier to complete a self-assessment. The purpose of the SAS is to review the supplier's procedures and processes to ensure they meet Johnson Controls requirements.

Significant nonconformance(s) relative to Johnson Controls expectations shall result in a supplier not being considered for Johnson Controls Business. Suppliers of certain Johnson Controls divisions may be required to submit an annual self- assessment.

The SAS is located on the Johnson Control supplier portal.

### **4.0 Advanced Product Planning**

#### **4.1 Advanced Product Quality Planning**

APQP is the industry standards used when new products are introduced into the automotive market to monitor launch activities for all suppliers.

All parts require APQP tracking unless otherwise notified in writing by the assigned Johnson Controls Advanced Quality Engineer. Program kick-off meetings are often held to further communicate launch requirements. The Supplier Advanced Quality Engineer and/or Operations Program Buyer are the main APQP contacts throughout the launch.

Johnson Controls has developed a common global Product Launch System (PLUS) which provides a consistent APQP process. Suppliers may also be required to provide unique

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customer specific requirements and/or documents. If this is the case, the supplier shall be notified accordingly.

All pre-production parts must be marked / labeled with the Johnson Controls Automotive Experience (AE) part number and revision level as indicated on the CAD model and / or drawing. Pre-production parts that are shipped without proper identification as stated above may be returned at the supplier's expense.

It is expected that suppliers are conducting the APQP process with their sub-tier supply base. Verification can be requested at any time.

## **5.0 Process Sign-Off (PSO)**

### **5.1 Process Sign-Off Introduction**

PSO is an in-depth review of all processing facets associated with the manufacture of products purchased by Johnson Controls. The PSO process is a cross-functional evaluation of a supplier's readiness to produce product at a specified volume to the physical launch of a program at Johnson Controls.

The PSO is a method to verify that a supplier's advanced quality planning processes have been successfully executed and that the production processes are capable of producing quality parts in sufficient quantity for production.

### **5.2 Process Sign-Off Expectations**

The PSO review covers both the process documentation and the actual process. By establishing the documentation as evidence of the intended process and then reviewing the actual process running at production rate Johnson Controls acquires a first-hand understanding of the supplier's production readiness. Johnson Controls uses this PSO process as a tool to assure our customers that our suppliers meet all requirements.

Detailed timing, including the PSO requirements, for each program will be provided in the Supplier Statement of Work (SSOW) and/or by the Johnson Controls Supplier Advanced Quality Engineer.

A PSO is required to be performed on all new or modified parts, parts or equipment that has been out of production  $\geq$  12 months or parts with historically high Warranty or quality problems. Parts that have a high supplier rating as determined by Johnson Controls Advanced Quality must have a Johnson Controls led PSO. Parts with a low supplier rating

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must have (at a minimum) a supplier led PSO. Any product or process change that occurs during the lifecycle of a part or system must be reviewed by Johnson Controls to determine whether a new PSO is required.

All PSOs must be completed prior to supplying parts for saleable vehicles. Customer specific formats can also be used to assess line speed / capacity verification (eg: VDA 6.3, 2 Days Production, Run@Rate, etc).

### **5.3 Sub-Supplier PSO**

Suppliers shall ensure that sub suppliers have the ability to meet all quality requirements at production rate. All sub-suppliers' control plans shall be audited to ensure compliance.

## **6.0 Supplier Part Submission Applicability**

### **6.1 Supplier Part Submission Introduction**

Supplier part submission is a documented physical and functional inspection process to verify that defined manufacturing methods are capable of producing an acceptable product as specified by such applicable customer design records as engineering drawings, material or performance specifications, purchase orders, etc. during actual production at a given quoted rate.

Johnson Controls utilizes common industry practices and forms as outlined in the AIAG Production Part Approval Process manual (latest published version). Suppliers are required to follow these standard practices when submitting PPAP packages for approval. Johnson Controls submission requirements also include International Material Data System (IMDS) reporting, regionally accepted equivalent documents (e.g. VDA series) and/or other documentation required by the OEM customer.

### **6.2 Supplier Part Submission Applicability**

Johnson Controls suppliers are to prepare and provide part Submission packages (PPAP) for new parts, corrections to previous submissions, engineering changes and/or other planned changes to design, process or facility. Submission and subsequent customer approval is required prior to first saleable production shipment.

Submission process applies to initial production runs using planned manufacturing processes, tooling, equipment, materials, and operators to validate a significant quantity of parts for future use. Prototype parts or parts built using methods different from those intended for the normal production process are not considered to be initial production



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runs, nor are they subject to part submission requirements (unless specifically communicated by the appropriate Johnson Controls quality contact for the program).

Additional details regarding other planned changes and related submission requirements can be found in Section 15 - Supplier Request for Change.

### **6.3 Supplier Part Submission Process**

Prior to start of production submission and timing requirements are communicated by the designated Advanced Quality Engineer or plant / facility Quality Engineer. Requirements may be communicated using the Supplier AQP Workbook and/or a regional supplier part submission requirements form. Following the start of production, packages are reviewed and approved at a plant / facility level.

The supplier is responsible to prepare and submit the part submission package to the designated customer representative for approval, along with the required sample parts and IMDS certification number. Unless otherwise directed by Johnson Controls the AIAG Production Part Approval Process (PPAP) Level 3 submission is required for all parts. All parts used for the PSO build or for the production of saleable vehicles must be submitted for customer approval. The Johnson Controls representative may choose to validate the submission package content at the supplier's facility. At Johnson Controls discretion, a submittal review may also be conducted at a supplier's sub-sources.

The submission package is approved or rejected based on conformance to all requirements. The Johnson Controls representative notifies the supplier of disposition and documents status in the submission package. Upon approval, supplier receives authorization to ship parts for production builds from a Johnson Controls Materials representative.

If the submission package is rejected, the designated quality representative works with the supplier to resolve any discrepancies and to establish timing for a revised submission. Production shipments cannot begin until part submission approval is received. Johnson Controls may choose to issue a Deviation Authorization (DA) if it is necessary to utilize the parts prior to full part submission approval. In such cases, the supplier is required to develop a corrective action plan to address any nonconformance's and resubmit the package for approval prior to the DA expiration date. Suppliers are responsible for implementing additional containment measures that protect the customer during period in which the DA is effective.

#### 6.4 Annual Validation Requirement

Johnson Controls suppliers shall complete annual validation in order to demonstrate continued adherence to proper engineering levels and performance to design intent. Revalidation may or may not coincide with model year changes. **Only data less than one year old are acceptable for annual validation purposes. As a part of Annual Validation Requirement, all the suppliers are required to submit a Level – 4 PPAP with the following elements (unless otherwise requested) at no cost to Johnson Controls to prevent escalation and potential impact to the supplier scorecard.**

2 – Engineering Change Documents, if any

7 – Control Plan

9 – Dimensional Results

10 – Material, Performance Test Results

11 – Process studies  $P_{pk}$  and  $C_{pk}$

17 – Records of Compliance with Customer-specific Requirements

18 – Part submission Warrant (PSW completely filled including IMDS information where applicable)

In addition to this level 4 annual validation package the supplier has to provide all PPAP documents based on pre-submitted level 3 within 10 working days upon request from JCI. Failing to comply with annual validation submission can result in incurring charges to the supplier.

**Note:** If initial submission to Johnson Controls, Inc. followed VDA requirements then the annual validation can be submitted in the VDA format.

#### 6.5 Quality Document Retention

Johnson Controls suppliers shall maintain quality records such that they remain retrievable and legible upon request by Johnson Controls and subsidiaries. Johnson Controls requires record retention duration for “life of program” plus 10 years. Records related to nonconforming product for trend analysis and problem identification shall also be maintained. This requirement also applies to any supplier’s sub-supplier. Additional record retention requirements can be referenced per AIAG or ISO 9001 and/or ISO/TS16949 (latest editions).

#### 6.6 Configuration Control & Lot Traceability

The supplier shall be responsible for controlling / tracking the actual configuration of material or parts to the approved engineering documents in addition to any changes to ensure that the end product meets specified functional and physical requirements as contracted. Additionally, the supplier shall have a robust system in place to provide (upon

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request) lot or part traceability back to the raw material stock for all material shipped to Johnson Controls. This requirement shall also apply to any supplier's sub-supplier.

### **6.7 OEM & AIAG Supplemental Requirements**

In addition to Johnson Controls and/or AIAG requirements, suppliers must also meet all applicable OEM Customer-Specific Requirements and must be able to show records of compliance. Further details can be found on the Johnson Controls Supplier Portal or the applicable OEM website(s).

## **7.0 Measurement System Analysis**

### **7.1 Measurement System Analysis Introduction**

AIAG's Measurement System Analysis manual (and applicable Customer Specific Requirements) describes the methodology for ascertaining if the measurement techniques and equipment used are capable of collecting accurate data to drive improvements.

### **7.2 Measurement System Analysis Expectations**

It is expected that all Johnson Controls suppliers adhere to the methodology described within the AIAG MSA manual (and applicable Customer Specific Requirements). Data and gage performance evaluation are to be gathered and analyzed in accordance with the guidelines noted. Documentation as evidence of these evaluations shall be readily available for review and submitted to Johnson Controls AIAG PPAP requirements and per any requirements listed in Section 6 or Section 17.

### **7.3 Gage Certification and Calibration**

All specific gages or checking fixtures used for Johnson Controls product quality shall be dimensionally certified as part of initial PPAP, and evidence of compliance to drawing included within the PPAP package, gages / checking fixtures shall have MSA / gage R&R completed.

All gages or measuring instruments used for controlling Johnson Controls product must be calibrated annually unless frequency is higher based on manufacturer's recommendations.

## 8.0 Statistical Process Control

### 8.1 Statistical Process Control Introduction

AIAG's Statistical Process Control manual (and applicable Customer Specific Requirements) describes the methodology for ascertaining if a manufacturing system is consistently producing capable and conforming product.

### 8.2 Statistical Process Control Expectations

Johnson Controls suppliers are expected to establish the appropriate Statistical Process Controls for the Critical / Significant Characteristics noted on the design record and/or selected during the Suppliers' APQP process (refer to AIAG's Statistical Process Control manual).

#### Critical Characteristics (CC):

Critical Characteristics shall be clearly defined on the design record. Critical Characteristics require the completion of short-term capability studies and on-going production data monitoring (Cpk evaluation) and/or a method of 100% verification per agreed upon Control Plan requirements. Summarized production process performance data shall be maintained by the supplier and made available to Johnson Controls personnel upon request.

#### Significant Characteristics (SC):

Significant Characteristics shall be clearly defined on the design record. Significant Characteristics require the completion of short-term capability studies at the beginning of the project, and continual SPC during the lifetime of the project, proving cpk equal or greater than 1.33. Where no significant characteristics have been identified, Johnson Controls reserves the right to require demonstration of initial process capability on other characteristics.

SPC studies performed on SCs and CCs for the following Events:

- Before a part goes into production (process potential study – as part of the PPAP and PSO)
- When an engineering change is made that affects an SC and/or CC
- When a major tool maintenance / repair occurs that potentially affects an SC and/or CC
- When a major supplier process change occurs that potentially affects an SC and/or CC

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The supplier's Johnson Controls approved Control Plan shall be used to define the method and means of control of SCs or CCs during production. Where possible, SCs or CCs should be poke yoked. All poke yokes shall be verified prior to start of every shift.

Unless otherwise specified by the customer, short-term capability must exceed 1.67 Cpk, and long-term capability must achieve a minimum of 1.33 Cpk. When the process has demonstrated acceptable capability with these targets, the frequency and quantity of sampling should be reflected on the Control Plan (with review and approval from the appropriate Johnson Controls quality representative).

### **8.3 Safety Critical Product / Process Requirements**

As part of the Johnson Controls Best Business Practice philosophy, suppliers are expected to meet certain minimum criteria for manufacturing safety critical components. This is achieved by meeting all AIAG industry standard audit requirements and by working with Johnson Controls to achieve a target of 100% compliance to our Best Business Practice audits / templates.

The individual product / process audits and/or templates are available upon request from your Supplier Quality / Development Manager.

## **9.0 Quality Performance Quality Performance Reporting**

### **9.1 Key Process Indicators**

Key Process Indicators (KPIs) are used by Johnson Controls to measure the effectiveness of internal processes. Johnson Controls requires all suppliers to define KPIs that are relative to their operation, set targets for these parameters, measure them relative to the established targets, report on the findings, and develop improvement plans based on the results. KPIs are to be regularly reviewed by management and communicated to all team members. KPIs should include a management review of audits, customer feedback, process performance, product conformity, status of preventative and corrective actions, and others: Examples of KPIs that are relevant to a manufacturing facility may include (but are not limited to):

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### **Quality Measurable**

- Customer PPM
- Supplier PPM
- Internal PPM
- 8D Submission Timing
- Nonconforming Part Incidents

### **Manufacturing Efficiencies**

- Scrap
- Downtime
- Production relative to Plan (i.e., First Time Capability, Output vs. Plan, etc.)

### **Shipping**

- On-Time Delivery
- Premium Freight

### **Safety**

- Lost-Time Accidents
- Recordable Accidents
- Days without a Lost-Time Accident

## **9.2 Quality Roadmap**

Suppliers are expected to maintain a Quality Roadmap documenting current quality performance and action plans to improve performance to Johnson Controls

The PPM Roadmap and applicable training is available upon request from your Supplier Quality / Development Manager.

## **10.0 Quality Deliverables**

### **10.1 Parts Per Million (PPM) Introduction**

One of the measurements of supplier quality performance is defective Parts Per Million.

### **10.2 Parts Per Million Expectations**

The expectation for supplier performance is 0 PPM (zero defects). Specific PPM targets for your commodity will be provided by your Johnson Controls purchasing contact.

Product received into Johnson Controls Facilities that does not conform to the drawing, specification(s) and/or agreed upon standards shall be counted against a supplier's PPM record. Quantities shall be reported in the units of measure in which they are purchased. This applies to production parts / saleable units.

#### **The following are PPM assignable:**

- Production Parts which do not meet drawing specifications or dimensional, functional, or appearance standards as called-out in the specifications or from an approved boundary sample (boundary Sample must be approved by authorized Engineering and Quality representatives from both organizations).
- Out-of-spec parts that require rework / repair for use in production.
- Production Parts damaged from inadequate packaging or transportation for which the supplier is responsible.
- Any defects outside of the boundaries defined by a Deviation Authorization (DA) (in cases where the supplier may be shipping prior to PPAP with an approved Customer DA).
- Out-of-spec parts shipped prior to PPAP approval without an approved customer DA
- Shipments that are received with mixed parts or parts that are the wrong revision Level after the clean point has been established; PPM is assigned for the quantity of incorrect parts only

#### **The following are NOT PPM assignable:**

- Parts that meet all drawing specifications and/or boundary sample requirements but are not useable.
- Parts that meet all specifications and/or standards but have been rejected by a Johnson Controls customer.

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- Parts that are pre-S.O.P. and have not been released and approved for production (e.g. launch parts, sample / trial parts, DOE parts, pre-production parts, etc)
- Parts initially rejected as part of a batch reject which after 100% control are deemed OK – PPM number is adjusted to reflect the true quantity of NOK parts after sorting (can be done at Johnson Controls location, supplier or third party approved company);
- Parts outside of the production system which are addressed through prototype quality measures.
- Production parts which do not meet specifications and/or standards but have approved deviations (Johnson Controls or final customer) - PPM cannot be assigned for rejects associated with the deviated characteristic(s);
- Parts received with a delivery related Issue: part information errors, delivery errors, and quantity errors should be rejected as a Discrepant Material Report (DMR) rather than a Supplier Material Rejection Report (SMRR).
- The portion of line accumulations / collective scrap which is determined to be damaged outside supplier control (transport where Interiors is responsible, Interiors plant internal handling damage, etc.).

In any of the above situations where a PPM is assignable, any or all of the following may occur:

- Supplier cost recovery chargeback
- Issuing an SMRR with corrective action requested
- MQR I or II scheduled
- Level I or II Containment initiated

The Johnson Controls Quality representative at the receiving facility is responsible for the accurate application of PPM. In some cases extenuating circumstances may lead to an adjustment in the amount of PPM charged to a supplier. Adjustments to a supplier's PPM should be requested using the Request for Amendment to Supplier Data form and/or by contacting the originator of the SMRR.

### **10.3 Sorting Expectations**

Parts may be sorted at the appropriate location (supplier or Johnson Controls site). Parts received at a Johnson Controls location or other Johnson Controls ship-to-point that are rejected by the sort activity, stay on the supplier's PPM record. PPM shall be adjusted after the sort is complete, unless sampling has predicted a percent nonconforming within



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the isolated lot and the authorized Quality representative at the receiving Johnson Controls facility agrees to use this method for capturing PPM.

If suspect parts are removed from a Johnson Controls location and sorted off-site (at the supplier's or a third-party facility), the supplier must report actual reject totals daily (identified during the sort) to the affected Johnson Controls facility. If reject data is not provided daily, the entire quantity of parts transferred off-site may be subject to PPM assignment.

If the supplier identifies, communicates and takes appropriate action to contain and correct a potential problem before the problem is identified or before the parts are used at a Johnson Controls plant, then the parts shall not be counted against PPM. If the problem is identified or used at Johnson Controls prior to contact from the supplier, the PPM count shall be incurred.

Parts which are out-of-specification may be used "as-is" with an approved DA from Johnson Controls Engineering if it's required to maintain production and as long as it does not disrupt the end customer. In these cases, PPM may be assigned based on risk, nonconformance history and severity as determined by the receiving Johnson Controls facility.

If determined to be a supplier issue, all costs incurred from sorting activities are the responsibility of the supplier. These costs could include but are not limited to:

- Administrative fees
- Additional labor / Overtime
- Material handling
- Floor space utilization
- Additional packaging
- Tooling and equipment
- Scrapped / rejected material

#### **10.4 Potential Product Safety Concern (PPSC) Introduction**

Another measure of supplier quality performance is the designation of an Issue as a Potential Product Safety Concern (PPSC). Any Issue which may affect the safety of the product can be classified as a PPSC.

### **10.5 PPSC Expectations**

**One is too many.** A PPSC is considered the highest level issue within the Johnson Controls organization because of the safety and liability implications that could occur as a result of the nonconformance(s). PPSC issues shall remain open and containment shall remain in place until the countermeasures meet the requirements of the Johnson Controls Safety Office.

Supplier containment and immediate involvement in the PPSC process is expected upon notification of the nonconformance issue with target completion timing of less than 30 days. If determined to be a supplier issue, all costs associated with containment and closure of the PPSC are the responsibility of the supplier. The designated Johnson Controls PPSC Champion will be the main source for all related communication / interaction and will provide specific documentation as required.

### **11.0 Supplier Material Rejection Report (SMRR) and Supplier Charge Back (SCB)**

#### **11.1 Supplier Material Rejection Report**

Suppliers are notified of nonconforming material through a documented rejection notice, called a Supplier Material Rejection Report (SMRR). Nonconforming material is defined as suspect or rejected product that is deemed defective according to the drawing or established quality standards (i.e. customer specifications, inspection requirements, test results, etc.)

The SMRR may be automatically generated from a Johnson Controls electronic system (such as IRIS [Issue Resolution Information System or SAP Complaint Cockpit Solution]) or provided as an E-mail attachment or hard copy form wherever electronic systems are unavailable.

SMRRs are subject to a \$250 SD administrative fee or 250 € for Europe administrative fee. For Johnson Controls plants using the new SAP Complaint Cockpit Solution, the administration fee will be calculated based on the complexity of the issue (No-D, 4D, or 8D).

#### **11.2 Supplier Material Rejection Report Communication**

Nonconforming material may be identified during incoming inspection, assembly, processing, final product audit, reliability testing, or through OEM notification. Once identified, the responsible Johnson Controls Quality contact shall communicate the nature of the issue to the supplier, request corrective action(s), and monitor until all actions have fully addressed the concern and the issue can be closed.

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A Return Material Authorization (RMA) shall be requested from the supplier prior to disposition of nonconforming material. Disposition of supplier's nonconforming product may include scrap, rework, sorting or return to vendor. The RMA provides authorization for Johnson Controls to proceed with actions as agreed between the supplier and the Johnson Controls facility. An RMA shall also be requested to authorize recovery of Johnson Controls costs related to rework or sorting activity performed on supplier's behalf. (Refer to Section 11.4 Supplier Chargeback for additional details.)

The SMRR Notification also serves the following functions:

- Accounting Debit Memo for Supplier's Material
- Packing Slip for Returning Material
- Quality Record for PPM Application and Scorecard
- Supplier Response Request (4D/8D)
- Issue Communication to Johnson Controls Purchasing / Supplier Quality teams
- Materials Management Record for Adjustment of Supplier's Cumulative Shipment History

### **11.3 Supplier Material Rejection Report Expectations**

As requested by the Johnson Controls LS Quality contact, suppliers must respond with a written interim containment plan within 24 hours of the SMRR origination. Unless otherwise directed by the Johnson Controls Quality contact, the supplier is expected to respond using Template Johnson Controls standard 8D Problem Analysis Report. The required 8D is automatically provided as part of IRIS or SAP electronic notification(s).

The supplier is expected to communicate written problem solving results utilizing the 8D approach within five working days. If unable to resolve the quality issue within the five day period, the supplier is expected to provide a weekly updated 8D to Johnson Controls until problem resolution is achieved.

A supplier's failure to respond to 4D or 8D requests by the specified deadline(s) affects the Problem Resolution Rating on the Supplier Scorecard.

### **11.4 Supplier Chargeback**

Suppliers are notified of the SMRR administrative fees through a Supplier Chargeback (SCB.) This fee appears as an "SMRR Debit" in the Chargeback Category Detail and references the associated SMRR. The RMA provided by the Supplier for the associated

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SMRR also serves as authorization to process the \$250 USD SCB Debit (250 € for Europe) administration fee. For plants using the Johnson Controls SAP Complaint Cockpit Solution, the administration fee will be calculated based on the complexity of the notification (No-D, 4D, or 8D).

Supplier Chargebacks are also used to capture additional costs that are incurred as a result of nonconforming material. Applicable charges may include but are not limited to third party sorting, operator downtime, additional labor or overtime, customer support hours, premium freight, material handling labor, rework, warranty returns, and/or assembly scrap. Suppliers can expect Supplier Chargebacks to include supporting documentation such as third party invoices, downtime records, freight invoices, etc.

### **11.5 Supplier Chargeback Communication and Expectations**

Similar to the SMRR notification, SCB notices may be automatically generated from Johnson Controls Electronic System(s) or provided as an E-mail attachment or hard copy form where electronic systems are unavailable.

Suppliers are expected to respond to a SCB with an RMA number within three working days. Failure to accept (or reject a SCB) within 30 working days will result in automatic debiting of all charges.

In cases where a supplier disagrees with the Supplier Chargeback, a written response to the originator of the SCB is still required by the specified due date. Disputed Chargebacks shall be escalated to the responsible Purchasing representative for assistance with final disposition. All Chargebacks should be targeted for closure within 30 days.

## **12.0 Problem Solving Documentation**

### **12.1 Problem Solving Expectations**

The 8D Problem Analysis Report is the Johnson Controls preferred problem solving format for use by all Johnson Controls facilities and suppliers. The 8D Problem Analysis Report provides a means for the definition and resolution of issues through problem solving.

Each supplier is responsible for appropriate and timely application of the 8D and for ensuring their organization possesses the knowledge and skill level to solve problems.

The completed 8D report should be returned to the Johnson Controls Quality contact in the same format as it is received (IRIS 8D or Johnson Controls SAP Compliant Cockpit Solution) in response to the associated SMRR. The appropriate 8D format is either

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available upon request from your Johnson Controls Quality representative or provided automatically via electronic notification.

Please note that there are some Johnson Controls Facilities that must supplement the problem solving documentation with Customer Specific problem solving documents / procedures. Contact your Johnson Controls Quality representative to obtain the appropriate problem solving documentation / format.

### 13.0 Supplier Management Quality Review

#### 13.1 Supplier Management Quality Review Introduction

A Management Quality Review (MQR) is an escalation process used to ensure that the supplier is placing the proper focus on an issue and corrective actions. The process is detailed below in Section 13.4.

#### 13.2 Supplier Management Quality Review & New Business Hold Criteria:

MQR / New Business Hold Criteria	MQR1	MQR2	MQR3	Business Hold
Chronic documented problems in the area of quality, delivery or logistics, including prototype, pre-production, or production or warranty issues.	X			
Production suspended at Johnson Controls plant due to a supplier's product quality, parts shortage, or logistical issue.	X			
Supplier has an unresolved SMRR, DMR, containment issue, or unacceptable response regarding an issue.	X			
Chronic documented unresolved MQR problems or unacceptable response from the supplier indicating that no		x		

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progress has been made to resolve similar MQR1 issues at other locations.				
<b>MQR / New Business Hold Criteria</b>	C C C	C C C	C C C	Business
Discovery that a supplier has not notified Johnson Controls personnel and/or submitted a PPAP'd for a product / process change (i.e. tool move to different location / sub-supplier, material / part change, process controls changed from the last approved PPAP, etc.)		X		
Supplier is issued a PPSC that is verified to be the responsibility of the supplier. MQR2 is called only when the PPSC has been confirmed to be their responsibility, and with agreement from the PG Supplier Quality Director		X		
Johnson Controls RPPM or OEM customer disruption due to a supplier's product quality, parts shortage, or logistical issue.		X		
Chronic documented unresolved MQR2 problems or unacceptable response from the supplier indicating that no progress has been made to resolve similar MQR2 issues at other locations.			X	X
Continued customer dissatisfaction on a supplier's product quality, delivery or logistical issue including a customer mandate to change suppliers to a known capable supplier after previous MQR escalation.			X	X
Supplier inability or unwillingness to work with Johnson Controls to make fundamental quality, delivery or logistical improvements after previous MQR escalation.			X	X
Excessive / unresolved PPSCs at the supplier			X	X

### **13.3 Supplier Management Quality Review - Send MQR Notice / Conduct MQR Review**

An MQR1 or MQR2 is initiated by sending the MQR Meeting Notice form to the supplier. For plants using the Johnson Controls Compliant Cockpit Solution, the invitation letter will be sent directly out of SAP and received by the supplier electronically via email. The formal agenda must include:

- Issues to be discussed (chronic issues, quality issues, delivery issues, service and documentation Issues)
- A review of the existing containment activities, data and progress toward exit Criteria (if applicable)
- Supplier 8Ds, including evidence of all actions implemented to contain / close the issue(s)

The MQR meeting is an opportunity to review and discuss important issues / concerns to Johnson Controls. Focus must be placed on plans and actions for both Johnson Controls and the supplier. Both should determine and agree upon steps to resolve the quality, logistics, and environmental, etc. issues. All quality, logistical, and environmental concerns are to be supported with the appropriate data as outlined on the formal agenda provided to the supplier. The supplier is expected to bring a permanent corrective action for all of the items listed on the agenda.

### **13.4 Supplier Management Quality Review - Corrective Action Successful**

The supplier corrective action with evidence of documented activities is reviewed to determine if satisfactory. If the corrective action is satisfactory, the MQR is closed. If the corrective action is not satisfactory or insufficient evidence is presented, a determination is made whether to escalate the MQR to the next level. On-site verification of an improved process may be required.

### **13.5 Supplier Management Quality Review - MQR3**

An MQR3 requires supplier and customer senior management review at Johnson Controls Automotive Experience Headquarters (unless otherwise specified) for issues that meet the defined MQR3 / New Business Hold criteria. For plants using the Johnson Controls SAP Compliant Cockpit Solution, the MQR3 notification will be sent directly out of SAP electronically.

The MQR3 meeting is an executive discussion and the format and agenda is prepared as appropriate.

## **14.0 Containment**

### **14.1 Containment Introduction**

Containment is accomplished through deployment of additional controls in the supplier's manufacturing process to identify a known or potential nonconformance and to prevent it from shipping to Johnson Controls.

Additional controls can include but are not limited to: inspection audits, dimensional measurements, SPC checks, appearance checks, part functionality checks, label verification systems, check fixtures and gages and poka-yokes.

The goal of containment is to protect Johnson Controls from defective material escapes during the initial product and process startup (pre-production), throughout production, and in reaction to a quality issue identified at any location in the supply chain. The following sections detail Johnson Controls's expectations for each of these phases.

### **14.2 Pre-Production / Launch Containment Expectations**

Pre-production containment applies to any parts produced for prototype, pilot or saleable vehicle builds at Johnson Controls prior to full production. Pre-production containment activities are a requirement of the supplier's AQP process and must be documented on a prototype and/or pre-launch Control Plan.

The pre-launch Control Plan includes increased frequencies and additional tests over and above the production Control Plan to ensure heightened product and process quality until the supplier's production process is validated. During pre-production, the sample size and/or frequency of product inspection is typically 100% and does not replace the final part audit.

The Johnson Controls Advanced Quality Engineer reviews and approves the pre-launch Control Plan, which is typically done during the Process Signoff (PSO), open issues from the PSO shall drive deployment of additional controls and documentation in the pre-launch Control Plan.

The Johnson Controls Quality representative continues to monitor pre-launch containment results until the exit criteria is met. Issues that remain unresolved at SOP are subject to Level I containment. Additionally, a Level I failure will require instituting 3rd



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party inspection (Level 2 containment) to shield Johnson Controls from nonconformance(s) during this phase. Criteria for exiting pre-production containment are determined by Johnson Controls. To exit containment, the supplier must achieve a pre-determined quality level after a minimum of thirty days post Johnson Controls SOP. Any issues found during the launch may extend this requirement beyond the initial 30 day criteria.

### **14.3 Containment Level I Expectations**

Level I Containment is defined as additional controls implemented at the Supplier's Location upon Johnson Controls' request following the identification of a supplier quality issue. The goal of this containment is to cleanse the entire system of any nonconforming material and to shield Johnson Controls from receiving any additional defective product. The supplier is required to quarantine and sort all suspect product(s) within their facility, at their subcontractors, in-transit, at Johnson Controls facilities, and at any customer location which may have parts or finished goods in inventory. The supplier for any costs associated with this activity incurred by Johnson Controls.

Upon identification of an issue, the Johnson Controls Quality contact initiates containment activities by sending a Level I Containment Notification to the supplier's Quality Manager. The letter details the specific nonconformance and required supplier actions, including inspection and exit criteria.

The supplier is responsible for acknowledging the Level I Notification by returning a copy of the letter with an authorizing signature to the Johnson Controls Quality contact.

The supplier is responsible to reply with their implemented containment plan via an initial 8D within 24 hours of Level I notification. The containment plan must be reviewed and agreed upon by the Johnson Controls Quality contact. The supplier is responsible for keeping the customer location advised daily of ongoing containment results until released from Level I.

Supplier containment guidelines include the following:

- Containment area must be highly visible and properly lit, equipped, etc.
- Containment area must have well-defined material flow including clearly identified areas for Incoming and outgoing parts
- No rework must be done in the containment area

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- Product acceptance standards and measurement / testing process to be agreed upon by Johnson Controls Quality contact
- Number of nonconformance's, corrective actions and results of activity must be reported daily.
- Charts must be updated and reviewed on a daily basis
- Problem solving must be formal, data driven and documented
- Containment personnel must be properly trained and have work instructions, quality standards, boundary samples, etc.
- Data from the supplier's containment activities must be kept on file and available upon request

Criteria for exiting Level I Containment shall be determined by the Johnson Controls Quality contact. Exit Criteria shall be based on reaching a predetermined quality level and not a number of parts or days sorted. To exit containment, the supplier must achieve a predetermined quality level after a minimum of thirty days or other timeframe as specified by Johnson Controls.

#### **14.4 Containment Level II Expectations**

Level II Containment is defined as the implementation of additional controls by an impartial third party selected by Johnson Controls at the expense of the supplier. Level II Containment is implemented when a supplier's Level I Containment activity fails to shield Johnson Controls or its customer(s) from receipt of nonconforming material.

The Johnson Controls Quality contact analyzes the nonconforming issue(s) and determines if Level II Containment is required. Johnson Controls Purchasing Buyer and/or Supplier Development Manager may be involved in the decision to implement Level II Containment. A Level II Containment Notification is sent to the supplier's Plant Manager and Quality Manager to notify them of the Level II Containment. The Level II letter details the specific nonconformance and required supplier actions including inspection and exit criteria.

The supplier is responsible for confirming receipt of the Level II Notification with an authorized signature by returning a copy of the letter to the Johnson Controls Quality contact.

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The Johnson Controls Quality contact assigns a sorting company to perform the Level II Containment. The third party containment provider must be on Johnson Controls approved supplier list for sort companies.

The third party must provide daily documentation to both the supplier and Johnson Controls Quality contact on the progress of containment activity.

The supplier is responsible for issuing the purchase order to the third party source and is responsible for all costs for the sort company performing the containment activities. Initiation of Level II Containment does not relieve the supplier of any relevant Level I activities following the aforementioned containment guidelines and responsibilities.

Level II shall not be removed until the containment results meet the exit criteria previously established. Approval to remove Level II Containment comes from the Johnson Controls Quality contact.

#### **15.0 Supplier Request for Change**

##### **15.1 Supplier Request for Change**

This procedure defines the steps for supplier product or process changes to ensure that they meet Johnson Controls Automotive Experience requirements and the OEM's Customer Specific Requirements. All suppliers are expected to follow the process as outlined.

Johnson Controls requires advance notification and written approval prior to all product or process changes and/or transfers. Failure to do so may result in the supplier being placed on New Business Hold Status, a formal notification to the TS16949 or ISO/QS9001 supplier registrar, and/or potential financial consequences.

Examples of product and process changes that require Johnson Controls approval include (but are not limited to):

- Any change that could affect form, fit or function
- Any product change
- Supplier manufacturing process change (temporary or permanent)
- Change in manufacturing or shipping location
- Change in sub-supplier
- Modified equipment
- New or refurbished equipment / tooling
- Changes in test / inspection Method

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- Revisions to the line layout or work station

Steps for obtaining approval for the requested process change:

1. Submit a completed Supplier Change Request (SCR) form to the Johnson Controls Quality Manager / Quality Engineer
2. Johnson Controls Quality Manager / Quality Engineer evaluate the SCR for completeness and acceptability; considerations for approval include OEM notification / approval, OEM specific requirements, safety characteristics, validation, capability studies, timing, risk, etc.
3. Supplier receives an official Johnson Controls response to move forward
4. Supplier part submission package (refer to Section 6) submitted by the supplier to the Johnson Controls Quality Manager / Quality Engineer
5. Supplier part submission and the SCR are approved by the Johnson Controls Quality Manager / Quality Engineer
6. Supplier proceeds with the process change
7. The first shipment after approval must be tagged / identified to reference the SCR number (contact the Johnson Controls Quality contact for the exact appropriate identification method)

The new supplied components with a Supplier Change Request are subject to incoming inspection at the Johnson Controls Quality Manager's / Quality Engineer's discretion.

## **16.0 Supplier Warranty**

### **16.1 Supplier Warranty Expectations:**

Suppliers are required to support the analysis on all part returns from Johnson Controls customers as requested by the Johnson Controls quality contact. The expectation is that all issues are addressed with the appropriate containment, root cause, and corrective action in the timeframe specified. Any charges incurred from Johnson Controls customers due to supplier issues will be communicated and passed on to the supplier in the form of a supplier chargeback (section 11.4 and 11.5).