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Supplier Quality Manual

SCM-QUALITY Rev 10

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Revision History

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08	8/5/19	T. Fogle/G. Johnson	Updated Sect. 3, 4, and 14 per DCR 3779	S. Claggett, G. Johnson
09	8/29/19	T. Fogle	Updated Sect. 3 and 5 per DCR 3807	S. Claggett
10	11/7/19	T. Fogle/G. Johnson	Updated Sect. 3, 3.2, 5, and 10; added Appendix A per DCR 3842	G. Johnson, S. Claggett

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Supplier Quality Manual

1. Introduction

It is Purcell Systems' intent to develop partnerships with suppliers who provide parts, materials, processes, and services consistently to specifications at a competitive price per a defined delivery schedule.

The purpose of this manual is to document Purcell Systems' supplier quality requirements and expectations and to define specific quality management, communication, and reporting processes.

2. Scope

This manual applies to a supplier that supplies or processes production parts for Purcell Systems.

3. Related Documents

- OPSS-STANDARD-001 Manufacturing Workmanship Standard Vol 1: General Quality Requirements
- OPSS-STANDARD-002 Manufacturing Workmanship Standard Vol 2: Workmanship Requirements and Cosmetic Inspection Standards
- OPSS-STANDARD-003 Manufacturing Workmanship Standard Vol 3: Rework
- SCM-FAI First Article Inspection (FAI) Procedure
- SCM-PART Production Part Approval Process (PPAP) Procedure
- SCM-PURCH Purchasing Procedure
- SCM-SCAR Supplier Corrective Action Request Procedure
- SCM- SPECDEV Specification Deviation Procedure
- SCM-SUPPLIER Supplier Qualification Procedure
- SCMF-CAR-001 Supplier Corrective Action Request Form
- SCMF-CARRIERS-001 Purcell Systems – U.S. Domestic & International Inbound Freight Routing Guide Requirements
- SCMF-COATING-001 Coating Line Assessment Questionnaire
- SCMF-ESD-001 ESD - Assessment Questionnaire
- SCMF-SPECDEV-001 Specification Deviation Form
- SCMF-SUPSCORE-001 Supplier Quality and Delivery Scorecard Form
- SCMF-SURVAUD-001 Supplier Survey and Audit Report Form
- SCMWI-SCAR-001 Supplier corrective Action Request Log Work Instruction
- SCMWI-SCAR-002 Supplier corrective Action Request Form Work Instruction

- SEP-02 Sheet Metal Color, Finish and Hardware Specification Standard Engineering Procedure
- SEP-CABLE-32 Electrical Cable Assembly Requirements Standard Engineering Procedure
- SEP-FTP-17 FTP Process Standard Engineering Procedure
- SEP-GASKET-35 Gasket Material and Adhesive Standard Engineering Procedure
- SEP-INSULATE-37 Insulation and Adhesive Standard Engineering Procedure
- SEP-TRACE-39 Material Traceability and Marking Requirements Standard Engineering Procedure

3.1 Related Tools

- ISO-9001 International Organization for Standardization
- TL9000 Telecom Quality Management System

3.2 Environmental Management System/Quality Management System Policies

- <https://www.purcellsystems.com/environmental-policy/>

4. Glossary

BR: Business Review.

DFMEA: Design Failure Mode and Effects Analysis.

DPPM: Defective Parts Per Million.

MSA: Measurement Systems Analysis.

NCR: Nonconformance report.

OTD: On-time delivery.

PFMEA: Process Failure Mode and Effects Analysis.

PPAP: Production Part Approval Process.

SCAR: Supplier Corrective Action Request.

5. Supplier Responsibilities

It is the supplier's responsibility to understand and ensure conformance with this manual and the applicable quality policies, procedures, and work instructions of Purcell Systems and its contract manufacturers.

Work performed by a supplier's sub-tier/sub-contract must also meet the requirements of Purcell Systems' quality, procedures, and work instructions. It is the supplier's responsibility to flow-down these requirements to sub-tier/sub-contract suppliers.

Suppliers are expected to meet the procedures and standards as listed in Appendix A, per the applicable supplier commodity.

Note: Other requirements are noted within this manual, or on purchase orders, and/or product drawings/models.

It is the suppliers' responsibility to request and review Purcell Systems' procedures and standards referenced in Appendix A per the applicable supplier commodity. Documents are posted on the FTP site:

ftp://ftp.purcellsystems.com

Log on: Purcell QA

Password: quality

Note: The use of Google Chrome is recommended to access this site.

The Purcell Systems' LMS Administrator updates these files when they are revised. Purcell Systems' Supply Chain Management sends out a notification to Suppliers when a revision is available for review.

6. Quality System Requirements

Purcell Systems encourages suppliers to develop quality systems that provide for continuous improvement and emphasize defect prevention while reducing variation and waste. Suppliers are strongly encouraged to pursue certification of compliance with ISO 9001, TL9000, or an equivalent quality management system. Some suppliers may be required to have ISO 9001 certification or show evidence that their quality system is compliant with ISO 9001.

7. Supplier Confidentiality

Documents furnished by Purcell Systems to a supplier are solely for the purpose of doing business with Purcell Systems. These documents must be controlled by the supplier and must not be transmitted to others without the consent and approval of Purcell Systems per non-disclosure agreements.

8. Supplier Assessment

Purcell Systems' Supply Chain Management team maintains a supplier selection and sourcing process that evaluates and identifies potential sourcing partners per the "Supplier Qualification Procedure" (SCM-SUPPLIER).

Suppliers must be capable of meeting the following applicable requirements:

- Quality
- Delivery
- Cost
- Environmental and health
- Continuous improvement

After the initial screening process is completed, the supplier may also be requested to complete:

- The "Supplier Survey and Audit Report Form" (SCM-SURVAUD-001)
- The "Coating Line Assessment Questionnaire" (SCMF-COATING-001), if applicable.
- The "ESD Assessment Questionnaire" (SCMF-ESD-001) if applicable.

An onsite audit may be conducted by Purcell Systems to confirm acceptable processes are in place and being followed.

9. Product Quality Planning

Purcell Systems may help facilitate formal quality planning activities with a supplier to communicate product quality expectations. These activities can also help verify that the supplier has adequate process controls in place to maintain an acceptable level of capability to ensure overall product quality and continuous improvement.

Quality planning elements may include the following:

- Production Part Approval Process (PPAP)
- Process flow charting
- Root cause analysis
- Design Failure Mode & Effects Analysis (DFMEA)
- Process Failure Modes & Effects Analysis (PFMEA)
- Process capability studies
- Measurement Systems Analysis (MSA)
- Design reviews
- Prototype builds
- Packaging evaluations
- Process Control Plan

10. First Article Inspection (FAI)

The purpose of the first article inspection (FAI) is to validate that the supplier's production processes have the capability to meet Purcell Systems' specifications and quality requirements.

Unless otherwise waived, suppliers must conduct and provide documentation of their FAI on parts utilizing intended production equipment, tooling, and processes per the "First Article Inspection (FAI) Procedure" (SCM-FAI).

If the Supplier is manufacturing a Purcell System's designed part for the first time at this revision level or for any other reason listed in the "First Article Inspection (FAI) Procedure" (SCM-FAI), the Supplier must provide FAI paperwork per that document.

An approved FAI complies with Purcell Systems' specifications. By marking "Approved" on the FAI Report, the QA Coordinator or designee approves the FAI. The FAI approval signals Supply Chain Management to update the ERP system, which authorizes Receiving to accept all future materials of the same supplier and revision into the warehouse for production use. Supply Chain Management is responsible for notifying the supplier of FAI approval.

Purcell Systems disclaims responsibility for any parts shipped prior to FAI approval. Approval of FAI part(s) does not guarantee acceptance of subsequent parts or relieve the Supplier of its obligation to monitor, test, and certify the material quality of subsequent parts.

11. Production Part Approval Process (PPAP)

The purpose of the production part approval process (PPAP) is to:

- Ensure that a supplier can meet the manufacturability and quality requirements of the parts supplied to Purcell Systems.
- Provide evidence that Purcell Systems' engineering design and specification requirements are clearly understood and fulfilled by the supplier.

- Demonstrate that the established manufacturing process has the potential to produce a part that consistently meets all requirements during the actual production run at the quoted production rate.

Purcell Systems determines which suppliers and parts require a PPAP and a supplier is expected to meet the requirements as specified per the “Production Part Approval Process (PPAP) Procedure” (SCM-PART).

12. Product and Process Changes

Purcell Systems must control products and services provided by our suppliers based on approved and validated products and processes.

Purcell Systems requires notification and written approval of any proposed changes *before* implementing such changes. Notification must be provided to Purcell Systems in writing with acknowledgment of notification.

Note: A Product Change Notice (PCN) is required for discontinuing products, manufacturing location changes, change in manufacturing process, or other significant changes. Product Change Notice (PCN) notifications must be sent to Supplier-PCN@purcellsystems.com

Conditions requiring that Purcell Systems receives a PCN notification include, but are not limited to, the following:

- Change of material, not approved on current drawing or specification
- Production parts produced at a new facility
- Significant product or process changes (internal or externally by sub-suppliers)
- Change of raw material suppliers or sub-supplier for outside services (heat treat, plating, etc.)
- Change in test/inspection methods (techniques)
- Change in engineering drawings or specifications
- Discontinuing of products

The Purcell Systems’ Buyers ensure supplier PCNs are implemented per the “Purchasing Procedure” (SCM-PURCH).

13. Deviation Requests

If a supplier manufactures product that does not conform to requirements and wishes to supply it to Purcell Systems, a deviation request must be submitted and approved per the “Specification Deviation Procedure” (SCM-SPECDEV).

Deviation requests must include descriptive details of the nonconformance and either the number of parts affected, or the timeframe to which the temporary deviation applies.

Nonconforming product may not be shipped by the supplier prior to documented approval of the deviation request by Purcell Systems.

Note: Notification is required for product drawing, specification, or PPAP deviations. The supplier must complete a Specification Deviation Form (SCMF-SPECDEV-001) or supplier equivalent and submit to the appropriate Purcell Systems’ Buyer or Procurement Engineer.

14. Supplier Corrective Action Request

Upon receipt of nonconforming material, Purcell Systems may issue a Supplier Corrective Action Request (SCAR) per the “Supplier Corrective Action Request Procedure” (SCM-SCAR).

Nonconforming material may be identified during incoming inspection, audit, assembly, customer returns, first article inspections, and other opportunities as applicable.

Purcell Systems reserves the right to sort suspect material within a lot of material rather than reject the entire lot to avoid shutdown of its production processes. The supplier may be asked to sort defective lots at their location (with return) if time permits. Alternatively, the supplier may be required to do the sort at Purcell systems or the end customer facility.

Upon receipt of a SCAR, the supplier must:

- Implement containment of suspect/defective material or services to prevent unintended use by Purcell Systems.
- Inform Purcell Systems of the suppliers plan to replace suspect/defective material or service.
- Provide to Purcell Systems the short-term corrective actions with regard to producing additional material or undertaking additional services without defects.
- Send Purcell Systems the initial containment response within three business days.

Within 14 calendar days of receiving the notification of suspect/defective material or services, the supplier must:

- Define and verify the root cause(s) of all defects, as well as, how the product was able to escape detection and be shipped to Purcell Systems.
- Submit a plan to implement permanent corrective action(s) to mitigate or eliminate the root cause(s) found in the manufacturing and inspection processes.
- Submit a plan to verify and validate the permanent corrective action(s).

In the event that the complexity of the process prevents a timely root cause discovery, the supplier must provide a plan to identify the root cause(s). Purcell Systems will review the SCAR response and accept or reject the corrective action plan and communicate this to the supplier.

If Purcell Systems rejects the proposed corrective action plan, details regarding rejection will be provided. The supplier's resubmission of rejected SCAR response is required within five business days of the supplier's receipt of Purcell Systems' notification of rejection.

Purcell Systems reserves the right to perform verification of the effectiveness of the corrective action at the supplier's facility which may include review of process maps, PFMEA, control plans, and process capability data before and after corrective actions are implemented.

The supplier must complete and submit a "Supplier Corrective Action Request Form" (SCMF-CAR-001) or equivalent to the responsible Purcell Systems Procurement Engineer for review of adequacy and effectiveness.

15. Containment

Suppliers are responsible for developing processes to protect Purcell Systems from receiving material that does not meet its quality requirements and specifications.

16. Supplier Development

Supplier development activities at Purcell Systems involve working closely with key suppliers to achieve the following supplier results:

- Process control improvements
- Quality system improvements
- Product quality improvements
- Delivery performance improvements

- Cost reductions
- Supply chain effectiveness improvements
- Lead time improvements
- Productivity improvements
- Capacity increases
- Supply chain optimization

17. Supplier Performance

Purcell Systems recognizes supplier achievement on a regular basis using measured results and takes the appropriate action regarding expanded business or de-sourcing based on these results.

To review performance, meetings may be held with suppliers including: Quarterly Business Reviews (QBRs), supplier performance improvement meetings, executive meetings, etc.

Our supplier performance metric processes include, but are not limited to, the following key measures.

- Quality – Defective Parts Per Million (DPPM)
- Quantity of Defects
- Delivery – On-time delivery (OTD)
- Quantity of nonconformance reports (NCRs)

18. Supplier Award

Annually, Purcell Systems recognizes its best Key Suppliers with the Gold Supplier Award.

Key Suppliers are scored per the “Supplier Quality and Delivery Scorecard” (SCMF-SUPSCORE-001).

Each of the supplier award winners creates value for Purcell Systems in various ways, not only from stellar delivery and quality performance, but through innovative approaches which include:

- Cost and inventory management
- New product development and technical support
- Increased capacity for rapid growth and shorter lead-times
- Increased factory productivity
- Energy reduction
- Contingency planning/enterprise risk management
- Customer service
- Waste reduction
- Supporting localization efforts in-country

Suppliers that achieve the highest levels of performance and exceed rigorous standards are considered for the Gold Supplier Award. This award is only given to a handful of Premier Suppliers who Purcell Systems considers the “best of the best”. Each year Purcell Systems continues to raise the bar on performance and consequently, the process becomes more selective.

19. Additional Terms and Conditions

Additional terms and conditions for the purchase of goods and services are located on the Purcell Systems' website. www.purcellsystems.com/supplier-diversity

20. Records

Records are maintained per the Records Retention Matrix.

Appendix A: Procedures and Standards List

	Purcell Procedure	SCM-QUALITY	OPSS-STANDARD-001	OPSS-STANDARD-002	OPSS-STANDARD-003	SCM-FAI	SCM-SPECDEV	SCMF-CARRIERS-001	SEP-02	SEP-Cable-32	SEP-Gasket-35	SEP-Pallet-30	SEP-Trace-39	QMSF-POLICY-001
Description	Supplier Quality Manual	Manufacturing Workmanship Standard Volume 1	Manufacturing Workmanship Standard Volume 2	Manufacturing Workmanship Standard Volume 3	First Article Inspection Procedure	Specification Deviation Procedure	Purcell Systems' U.S. Domestic & International Inbound Freight Routing Guide	Sheet Metal Color, Finish nad hardware Specification	Electrical Cable Assembly Requirements	Gasket Material and Adhesive	Pallet Specifications	Material Traceability and Marking Requirements	Quality Policy	
Air Conditioner	X	X				X	X							X
Alarm Block	X				X	X	X		X					X
Cables	X		X		X	X	X		X			X		X
Circuit Breakers	X						X							X
Clocks	X	X				X	X							X
Components	X						X							X
Contract Manufacturer	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Customer Supplied Material	X	X			X	X	X							X
Door Hardware	X				X		X							X
Electronic	X						X							X
Fans	X	X	X	X	X		X							X
Fiber Panels	X	X					X							X
Filters	X				X		X							X
Gaskets	X				X		X			X				X
Ground Bars	X	X	X	X	X	X	X	X						X

Appendix A: Procedures and Standards List (Continued)

	Purcell Procedure	Description											
	SCM-QUALITY	OPSS-STANDARD-001	OPSS-STANDARD-002	OPSS-STANDARD-003	SCM-FAI	SCM-SPECDEV	SCMF-CARRIERS-001	SEP-02	SEP-Cable-32	SEP-Gasket-35	SEP-Pallet-30	SEP-Trace-39	QMSF-POLICY-001
	Supplier Quality Manual	Manufacturing Workmanship Standard Volume 1	Manufacturing Workmanship Standard Volume 2	Manufacturing Workmanship Standard Volume 3	First Article Inspection Procedure	Specification Deviation Procedure	Purcell Systems' U.S. Domestic & International Inbound Freight Routing Guide	Sheet Metal Color, Finish and Hardware Specification	Electrical Cable Assembly Requirements	Gasket Material and Adhesive	Pallet Specifications	Material Traceability and Marking Requirements	Quality Policy
Heaters	X				X		X						X
Hex Cores	X	X	X	X	X		X						X
Hold Down Straps	X						X						X
Insulation	X	X	X	X	X		X			X			X
Labels	X						X						X
Metal	X	X	X	X	X	X	X	X					X
Packaging	X		X		X		X			X			X
Pallets	X				X		X				X		X
PCBA	X	X			X	X	X						X
PDU	X	X					X						X
Plastic	X						X						X
Power Shelf	X	X			X	X	X						X
Protector Panels	X	X			X		X						X
Surge Protection	X	X					X						X
TEC	X	X	X	X	X	X	X						X