

HISTORY OF REVISIONS

REV	DESCRIPTION	AUTHOR	RELEASED DATE
-	Initial Release (Incorporates all independent quality clauses into one document)	T. Rodriguez	2023-12-20

FINAL APPROVAL		TITLE: Purchase Order Requirements and Attached Quality Clauses
Process Owner: Brendan Falagrad	Date: 12-20-2023	
Quality Manager: Tito Rodriguez	Date: 12-15-2023	
VP of Operations: Eric Romero	Date: 12-19-2023	
VP of Engineering: Pierre Charbonneau	Date: 12-20-2023	
		Process Owner: SUPPLY CHAIN / QUALITY
		Document ID: QMS-PRO-99-40

Typed signatures constitute approval. Actual signatures on file at Palomar Products, Inc., Rancho Santa Margarita, CA

1. Purpose

To define the standard requirements that will be applicable for every purchase order (PO) issued by Palomar Products, Inc. (PPI) and to identify each quality clause that can be used for each purchased item. The quality clauses are assigned to each part number and will show up on each PO line item.

2. Scope

This procedure applies specifically to all PPI suppliers providing items or services used in deliverable product. It is to be used by PPI supply chain and quality personnel when assigning quality clauses and by PPI suppliers to review, understand, and comply with the quality clauses as noted on each PO line item.

3. References/Applicable Documents

Table 1. References/Applicable Documents

Document ID	Reference/Document Title
AS9102	Aerospace First Article Inspection Requirement
CON-POL-80-02	Palomar Terms and Conditions of Purchase

4. Inputs/Outputs

Table 2. Inputs/Outputs

Inputs	Outputs
<ul style="list-style-type: none"> • Purchase requisition • MRP • New part requirement/release 	<ul style="list-style-type: none"> • Q clause added to item master • Purchase Order • First Article Inspection Report

5. Procedure

5.1 General PO Requirements

The following requirements apply to all purchased items and services used in deliverable products. This is in addition to requirements defined in CON-POL-80-02, Palomar Terms and Conditions of Purchase.

5.1.1 General Quality Assurance Notes

- A. All formal correspondence between the supplier and PPI shall be made in writing to the PPI buyer listed on the face of the PO. Any direction from PPI to the supplier must come from the assigned buyer, in writing, to be valid. The supplier accepts, at his own risk, direction from any other PPI personnel.
- B. Items supplied against this purchase order shall be produced in a careful and workmanlike manner and shall be identical to all others of the same part number and free from defects that affect life, serviceability or appearance. Particular care and attention shall be given to the completeness and permanence of markings, the removal of burrs and sharp edges, and the uniformity of coatings, anodizing, plating and paint. In addition, the supplier shall document all work performed and shall make such documentation available to PPI upon request. The existence of such defects or the lack of such documentation shall be adequate cause for rejection of the items by Palomar Products.
- C. If items supplied have Palomar Products funded "minimum buy" items included (i.e., special fasteners or hardware), residual items from the minimum buy shall be shipped to PPI with the final shipment against the purchase order.
- D. Containers and boxes shipped to Palomar shall have the PO, PO line item, part number and quantity marked conspicuously on the outside of the container to facilitate receiving. Only one part number shall be placed in each container.
- E. Items that are source inspected by PPI in accordance with Purchase Order clause Q1 are provisionally accepted at the supplier's facility. Final acceptance shall be at PPI's facility at the conclusion of required assembly, inspection and testing. The supplier may invoice PPI at the successful conclusion of source inspection.

- F. Record Retention – All records for PPI procured parts shall be retained for a minimum of 7 years from completion of PO, and shall be made available to Buyer upon request.

5.1.2 Certificate of Conformance

Seller shall certify with each shipment that the items shipped have met all requirements of the engineering drawing, specification, and purchase order.

Seller shall also certify that all required process certifications, chemical and physical test reports and other applicable documentation and objective evidence of compliance are on file at the Seller's facility and may be inspected by the Buyer and / or Government representative upon request.

The following additional information shall appear on each certification:

- a. Buyer's purchase order number.
- b. Purchase order line item number.
- c. Buyer's part number and revision status.
- d. Quantity shipped.
- e. Serial number(s), if applicable.
- f. Description / nomenclature.
- g. Seller's part number and revision status.
- h. Seller's sales, work, or shop order.
- i. Date shipped.

Seller's Responsible Quality Assurance Representative shall sign and date all certifications.

5.1.3 Visual Inspection

All parts supplied in response to this Purchase Order shall be inspected by the vendor or manufacturer prior to shipment to Palomar Products to verify that the items are free of any residue, overspray, smudge, contamination or any other visual defect. These defects may include, but are not limited to, unspecified marking inks, fluid residues or stains, material remnants, scratches, scuffs, shavings, etc.

The supplier shall clean any item exhibiting any visual defect in accordance with the supplier's documented cleaning procedures.

5.1.4 Sellers Quality System

At a minimum, the seller is required to maintain a quality management system that is compliant to ISO 9001 or equivalent. Having a system certified to AS9100 is preferred.

This entails having the following documented processes in place (at a minimum):

- a. Verification of purchased product
- b. Control of nonconforming material
- c. Sub-tier control
- d. Manufacturing/Assembly documentation
- e. Root Cause & Corrective Action
- f. Calibration/Maintenance
- g. Training
- h. Resource Planning

PPI understands that not all of these processes are applicable to some suppliers, such as distributors, and supplier approval is contingent upon what is applicable.

5.1.5 First Article Inspection

Any item purchased against a PPI drawing will require a First Article Inspection Report (FAIR) in accordance with the latest revision of AS9102. This is required to accompany the part upon first purchase and for any change to the part thereafter.

It is the supplier's responsibility to ensure any changes flowed down are captured, implemented, and reported on a delta FAIR that is submitted with the first order incorporating the change.

The article to be inspected/tested shall be either a pre-production sample as required by PO line item or a randomly selected piece from the first production lot when a quantity is not specified in the purchase order. Whichever is performed, that article must be a representative sample of the Seller's manufacturing process.

Seller shall not commence production of units beyond the pre-production sample (when specified in the purchase order) or the first production lot without written authorization from the Buyer. Hardware produced beyond the sample quantity shall be produced at the sole risk of the Seller.

This requirement shall be flowed down to sub-tier suppliers producing parts to PPI or Sellers drawings. Sub-tier FAIRs shall be retained by the Seller per the retention period specified section 5.1.1 F.

The latest revision of AS9102 is available at: <https://www.sae.org/standards>

5.1.6 Traceability

The supplier is required to maintain a traceability system on all parts and raw materials from receipt at supplier's facility to shipment of product to PPI. This requirement shall also be flowed down to any sub-tier suppliers.

The system shall provide for two-way traceability:

1. Forward Traceability, where each integral material or part can be traced to the next assembly and subsequently, to the items delivered to PPI.
2. Backward Traceability, where each integral material or part used in items delivered can be traced back to the lot received at the supplier's facility.

Traceability requirements shall also apply to supplies that are modified, repaired or reworked.

After shipment of product to PPI, traceability records shall be retained and made available upon request to PPI by Seller and its sub-tier suppliers for a period of 7 years.

5.1.7 EEE Parts Requirements

For suppliers providing EEE devices, parts, items or assemblies.

Each shipment of EEE devices, parts, items or assemblies shall be accompanied by a certification stating that parts delivered are represented by a documented, unbroken chain of custody from the OCM to the Seller. Failure to provide certification acceptable to Buyer is grounds for rejection of the affected parts.

This certification shall be signed by a duly authorized Quality Assurance representative of the Seller.

The certification shall contain the following information as a minimum:

- Buyer's Purchase Order number and line item
- Part number (Buyer and/or OCM as applicable) and revision status
- Quantity shipped
- Serial number(s), if applicable
- Description or nomenclature
- Seller's part number and revision status, if applicable
- Seller's sales, work or shop order

- Date shipped

Seller shall also certify, if applicable, that all required process certifications, chemical and physical test reports and other applicable documentation and objective evidence of compliance are on file at the Seller's facility per record retention period specified in section 5.1.1 F.

Note: EEE parts shall only be purchased from the OCM or an authorized distributor. Purchasing from unauthorized distributors or brokers is not allowed without the documented approval from the PPI Buyer.

5.1.8 Packaging

General

- A. Packaging, packing, and preservation shall be in accordance with Best Commercial Practices.
- B. Protection shall be provided to prevent physical damage and movement during transportation. Adequate packing dunnage shall be used to prevent items from contacting one another during shipment. Material used for this protection shall be non-corrosive.

Electrostatic Sensitive Devices

- A. In addition to the items shown above, protection shall include methods to maintain position of leads or terminals during handling and transportation.
- B. At the supplier's option, conductive shunting foam, bars or clips may be applied on electrical connectors to short all connector pins and the connector shell together.
- C. All electrostatic sensitive devices shall be contained in antistatic or conductive shipping containers (tubes, carriers, etc.).
- D. Any packing dunnage shall be of the antistatic variety.
- E. Both internal and external packaging containers shall be marked with a caution label as shown below or an appropriate equivalent.



Note: Failure to comply with these packaging requirements will result in rejection of the entire lot of devices at receiving inspection.

5.1.9 Warranty/Repair POs

Items being returned to PPI after repair work due to warranty or paid rework shall include a summary of actions taken to return the item to a serviceable condition. The summary shall include as a minimum, the documented procedure followed or sequence of actions, components replaced, inspection results and testing performed to verify functionality.

The format shall be at the discretion of the supplier, but shall include, as a minimum, the following information:

- PPI Purchase Order number
- Line item number
- Item part number
- Item serial number
- Item nomenclature
- Action(s) taken

5.1.10 Seller Request for Buyer Disposition

Seller Material Review Board (MRB) authority is not allowed on any Palomar purchase orders, including Seller designed goods. Seller shall notify Buyer of any "Repair" or "Use-As-Is" disposition of nonconforming material when identified. Seller must submit all "Repair" or "Use-As-Is" dispositions for Buyer's disposition prior to shipment.

Seller shall use their rejection system to document the nonconforming material. Seller shall contact Buyer's Authorized Procurement Representative and provide at a minimum the following information to obtain Buyer disposition:

1. Part Number, nomenclature, serial/lot number(s), and quantity of nonconforming item(s).
2. Applicable Buyer's purchase order number and line item.
3. Reference to drawings and specifications, including revisions.
4. Complete description and location of nonconformance, including:
 - a. Actual condition
 - b. Design (drawing/spec) requirement and tolerance
 - c. Location of nonconformance (drawing sheet, zone, view, distance from Datum, etc.)
5. Statement of whether or not condition exists on previously shipped goods.
6. Recommended disposition (if Use-as-is; technical rationale to support the recommendation is required).

7. Corrective Action including:
 - a. Cause of nonconformance
 - b. Action taken to preclude recurrence (not a promise of future action)
 - c. Effectivity of corrective action by date or serial/lot number
 - d. Name and title/position of employee responsible for the corrective action

5.1.11 Configuration Control / Engineering Changes

Seller is required to submit proposed engineering changes to the Buyer, in accordance with the requirements listed in this section.

1. Any proposed engineering change will require a formal engineering change request (ECR) in the seller's format, detailing the proposed change, the reason for the change, and any impacts to fit, form, function, and delivery.
2. The seller shall not incorporate any change prior to receipt of written authorization from the Buyer.
3. Each ECR originated by the Seller shall be submitted to the Buyer per the purchase order or Subcontractor Data Requirements List (SDRL) specified therein. ECRs shall be accompanied and supported by marked-up copies of affected drawings, specifications and any other data required to justify and describe the change.
4. PPI will convene an internal Change Review Board (CRB) and may require participation from the Seller to determine if the change will be approved or not. PPI will notify the Seller of the scheduled review, if they are required.

Note: A formal design review may be required and the Seller will be required to attend this event.

5. ECR changes that are disapproved shall not be incorporated. Seller will be notified in writing of any disapproved changes. In the event that partial approval of an ECR is received, Seller shall only incorporate those changes identified as approved.
6. Seller will be notified in writing of any approved changes. For all approved changes, the Seller shall submit to Buyer updated copies of all documents revised to implement the changes within seven (7) working days of incorporation of approved ECR changes.

5.2 Part Specific Quality Clauses

The following section identifies quality clauses that may show up on PO line items. These are additional PO requirements that the supplier must fulfill per identified line item.

Q1 Quality Surveillance / Inspection / Test by Buyer at Seller's Facility

Supplies and services ordered by this Purchase Order are subject to surveillance / inspection / test by PPI's Quality Assurance Representative (QAR) at Seller's facility. Specific surveillance / inspection / test activities performed by the PPI QAR may include review of the production and inspection systems, witnessing of special processing and testing, and in-process inspection / test as required to verify conformance to the requirements of this PO. The PPI QAR may perform, witness or verify any of the inspections or tests.

Review of the associated Quality Inspection System documentation may be performed covering any element affecting conformance, e.g. calibration of test and measurement equipment, inspection reports, inspection instructions, procedures and configuration control, skills certification and packaging methods.

Seller shall not ship items without evidence of surveillance / inspection / test by PPI QAR unless authorized in writing by the PPI Buyer. All such items shipped without PPI source inspection shall be identified with the applicable PPI Buyer authorization.

Seller shall notify PPI's QAR and Buyer at least five (5) working days prior to the anticipated availability of the subject items requiring source activity. After such notification, the Seller is responsible for additional notification of events that may affect the requested schedule. In addition, scheduling of Source Inspection shall be at the sole discretion of the Source Inspector.

The following documentation shall be made available to the PPI QAR during the source surveillance activities:

- Purchase order
- Engineering drawings
- Supplier planning documents (travelers, shop orders, etc.)
- Engineering change orders to drawings or specifications
- Any test reports / procedures (as applicable)

At the conclusion of the source surveillance activities, the PPI QAR will provide a report of the activities via a Quality Assurance Supplier Record (QASR). A copy of this document is required to ship with the product.

Note: The surveillance / inspection / test provided for herein shall not constitute final acceptance of the items, and shall not modify or limit any representations, warranties, or commitments made elsewhere or in any way affect the obligations of the Seller to perform in strict compliance with the provisions of the purchase order.

Q2 Government Source Surveillance

Government inspection is required prior to shipment of items from the Seller's facility. Upon receipt of this purchase order, Seller shall promptly notify the Government Representative who normally services that facility so that appropriate planning for Government inspection can be accomplished. The Government Representative shall be notified at least 48 hours in advance of the anticipated availability of the items for inspection or test.

Upon receipt of this purchase order, Seller shall promptly furnish a copy to the Government Representative who normally services Seller's facility, or, if none, to the nearest Army, Navy, Air Force, or Defense Supply Agency inspection office. In the event the office or representative cannot be located, Seller shall immediately notify Buyer.

The Seller is responsible for providing the Government Inspector verifiable evidence that supplies or services presented for acceptance meet the requirements of this purchase order.

Each shipment against this purchase order shall include two copies of the Seller's packing sheet bearing evidence that Government Source Inspection was accomplished prior to shipment. Acceptable evidence shall be either an impression of the Government Inspector's stamp or handwritten signature or both. If authority to ship is granted in the absence of the Government Inspector, the packing sheet shall include the Government Inspector's name, title or discipline, and reference to the authorizing document allowing shipment.

Government Source Inspection shall not constitute final acceptance by either Buyer or Government and does not relieve Seller from any requirement of this purchase order.

Q3 Chemical and Physical Analysis of Raw Materials

Each shipment or items or materials shall be accompanied by physical and chemical reports of analysis or tests conducted to ensure that raw materials delivered, or raw materials used in the items delivered, conform to the specifications required by the purchase order.

If the material procured by the Seller is not accompanied by the required reports, chemical and physical testing shall be performed by the Seller or an independent accredited commercial laboratory.

The reports shall indicate each chemical element or compound present and the actual quantity of each expressed as a percent of total volume of the items delivered. Physical properties shall be expressed in the same terms as the applicable specification, with actual values recorded. In addition, each report shall contain, as a minimum, the following information:

- a. Sellers name and/or logo
- b. Sellers shipping document number
- c. PPI part number and revision
- d. PPI PO number and revision
- e. PO line item number
- f. Test or analysis date
- g. Name of tester or test house
- h. Signature of sellers responsible QAR

Note: Seller may submit Mill Analysis in lieu of Seller's analysis or independent laboratory analysis on raw materials furnished or used on this purchase order, provided that the Mill Analyses are traceable to the materials furnished or used.

Q4 Certificate of Shelf Life and Storage Control

The Seller shall label the limited shelf-life materials / items specified in this purchase order. The labels shall contain, as a minimum, the following information:

- a. Manufacturer's name and/or logo
- b. Specification number and revision to which the item is purchased, including type and class (as applicable)
- c. The date of manufacture or cure date
- d. Batch or lot number
- e. Required or recommended storage temperature

Seller shall determine label format subject to Buyer concurrence and shall affix label directly to items where possible.

Shelf-life shall be calculated from the manufacture date.

The materials or items shipped under this attachment shall arrive at the Buyer's facility with less than 25% of the specified shelf-life expended.

Q5 Component Solderability Requirements

Items supplied against this purchase order shall have leads, terminations, lugs, terminals and/or wires which meet or are capable of meeting the solderability requirements of ANSI / IPC J-STD-002 when tested in accordance with Method 208H of MIL-STD-202F, Notice 13.

Responsibility for performance of the required testing is solely that of the supplier. The supplier shall certify with each shipment of devices that the items shipped meet the specified requirement.

Q6 Inspection and Test Data Documentation Requirements

1. **REQUIREMENTS:** Every line item delivered against this Purchase Order shall be inspected or tested to the extent required to provide objective, documented evidence of its conformance to all Purchase Order requirements.
2. **DATA SUBMITTAL:** All inspection or tests required to verify full conformance of a line item to Purchase Order requirements shall be recorded and provided with each shipment of the line item to the Buyer, or presented to the Buyer's Quality Assurance Representative when the items are source inspected. The data shall be representative of the submitted lots only.
 - 2.1 **DATA REQUIREMENTS:** Recorded data shall include the results of all routine inspections and tests and any special selection test, conditioning (burn-in) tests, lot acceptance tests, sampling tests or any other test or proving action employed to determine item conformance.
 - 2.2 **DISTRIBUTOR REQUIREMENTS (WHERE APPLICABLE):** If the Seller is a jobber or distributor of the item(s) provided by the Purchase Order, the Seller shall require the same performance obligations of the original manufacturer of the item(s) hereby being purchased. Additionally, the Seller shall secure from that manufacturer a right for Buyer to acquire or inspect at Buyer's option, all pertinent data in that manufacturer's possession showing item compliance to it(s) or Buyer's performance specifications.
 - 2.3 **FORMAT:** Recorded data shall include the results of all routine inspections and tests and any special selection test, conditioning (burn-in) tests, lot acceptance tests, sampling tests or any other test or proving action employed to determine item conformance.
 - a. Seller's Name
 - b. Seller's part number and revision

- c. Buyer's part number and revision
- d. Buyer's purchase order number and revision
- e. Number of items in lot
- f. Number of items inspected
- g. Sampling plan level (AQL)
- h. Lot number and date code
- i. A summary listing of all drawing dimensions, process requirements, specified performance levels (attributes) and their corresponding tolerance limits (and drawing notes where applicable).

Inspection / Test results may be recorded in either of the following formats or a combination thereof, as applicable and at Seller's discretion.

- Attribute Results: Indicate for each attribute of each item inspected whether or not it falls within tolerance requirements.
 - Variable Results: Record the exact measurement obtained for each attribute of each item inspected.
3. QUALITY APPROVAL: Data sheets / test reports shall bear evidence of Seller's Quality Assurance review and acceptance by impression stamp or signature, title, and date accepted.
 4. DISCLAIMER: The submission of inspection / test data as required by this Purchase Order Attachment shall not modify or limit any representations, warranties or commitments made elsewhere, or in any way affect the obligation of the Seller to perform in strict accordance with the provisions of this Purchase Order.

Q7 Software Quality Requirements

The supplier is required to implement a Software Quality Program for items delivered under the PO. It is to be applied during the acquisition, development, and support of software purchase items. At a minimum, the software quality program shall ensure that the following requirements are met by each item delivered under the affected PO:

1. All system requirements (e.g. memory requirements, CPU speed requirements, operating system requirements, etc.) for the operating platform and environment of the software shall be identified, documented, and included with each item or group of items shipped.
2. All software features, operations, and modes of use shall be documented and included with each item or group of items shipped.

3. All software installation procedures shall be documented and included with each item or group of items shipped.
4. All software to be delivered shall be tested against all features and operations as described in its accompanying documentation. Palomar Products, Inc. shall approve the test procedure prior to the start of any production testing. The software shall be tested on several different systems that satisfy the stated system requirements. Known deficiencies and deviations shall be documented and forwarded to the Palomar Products Buyer for acceptance prior to shipment of the affected software.
5. The supplier shall maintain a configuration control system which ensures that delivered software is identical to the tested software.
6. The software delivery media shall be clearly labeled, identifying the software nomenclature, version and disk sequence number or file name (if appropriate). Delivery media shall be tested to ensure that they are usable for software installation.
7. The supplier shall notify Palomar Products, Inc., in writing within 5 working days of the discovery of any media or software problems that might affect delivered product.
8. The supplier shall provide technical support including workarounds, patches, revisions, and/or upgrades within 30 days of discovery of a problem whether found by the supplier or by Palomar Products, Inc. This includes problems or errors in the software that impede, limit, or reduce its capability as characterized by its accompanying documentation. The vendor shall provide both a technical support telephone number and electronic address for problem resolution.

Q8 Circuit Card Assembly (CCA) Requirements

This section applies to Contract Manufacturers (CM) and the CCAs they supply to PPI.

CM's shall conform to the following requirements and the latest revision of the indicated standards:

1. Assembly and soldering shall be in accordance with ANSI / IPC J-STD-001, Class 3, Post Soldering Cleanliness Designator C22.
2. Solder wire shall conform to SN63 alloy per Table A-2 of J-STD-006 (i.e., Kester 331).

3. Flux shall conform to low or medium activity level Organic per Table 1-1 of J-STD-004 (i.e., Kester 2331ZX).
4. Solder paste shall conform to J-STD-005 and J-STD-006 for alloy Sn63 (i.e., Kester HM531)

Any deviations from these requirements shall require PPI approval prior to implementation.

Workmanship shall be in accordance with ANSI / IPC A-610, Class 3. Target condition is preferred.

Exceptions/Clarifications to IPC A-610

- a. Bonding shall be in accordance with DP70402-613 and the unique requirements of each drawing.
- b. Resistors dissipating 1 watt or greater shall be installed raised off the PCB .059" (no heat sink) or flush (heat sink).

Note: In addition to the requirements listed here, all CMs are required to follow the Statement of Work for Contract Manufacturers (QA-PRO-99-01). This document will be made available with the PO.

Q9 Specialty Metals IAW DFARS 225.7003

DFARS 225.7003 in its entirety is hereby incorporated into this purchase order.

[DFARS Link](#)

6. Terms (or Definitions)

- ANSI – American National Standards Institute
- AQL – Acceptable Quality Level
- CCA – Circuit Card Assembly (CCA)
- CM – Contract Manufacturer
- CPU – Central Processing Unit
- CRB – Change Review Board
- DFARS – Defense Federal Acquisition Regulation Supplement
- ECR – Engineering Change Request
- EEE – Electrical, Electronic, Electromechanical
- FAIR – First Article Inspection Report
- IAW – In Accordance With
- MRB – Material Review Board
- MRP – Material Resource Planning
- OCM – Original Component Manufacturer
- PO – Purchase Order
- PPI – Palomar Products, Inc.
- QAR – Quality Assurance Representative
- QASR – Quality Assurance Supplier Record
- SDRL – Subcontractor Data Requirements List