

COLMEK Purchase Order Quality Notes and Contract Flow Down Requirements

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General Quality Notes

A 10 DoD Property Accountability System (DPAS) Order

DPAS: --

Contract: --

If a DPAS rating is noted on this PO, then supplier is required to follow all provisions of 15 CFR 700 ET SEQ.

- a. All DPAS rated orders must be accepted or rejected
- b. "DO" and "DX" rated POs must be accepted or rejected in writing via hardcopy or electronic format. Acceptance or rejection must happen within 15 workdays for "DO" rated orders and 10 workdays for "DX" rated orders after order receipt. If rejected, the supplier must relate the reason for the rejection.
- c. After order acceptance, if the supplier finds that shipment or performance will be delayed, they must notify the COLMEK purchasing agent in hardcopy or electronic format of the reason for the delay and supply a new shipment or performance date.

A 20 Subcontracted Work

The supplier may subcontract work that is not usually performed at their location, but must be approved by COLMEK to ensure the chosen subcontractor has been approved by COLMEK customers. The supplier shall contact COLMEK before work is subcontracted for approval.

A 30 Purchasing Information Flowdown

Suppliers will flow down all applicable requirements of the purchase order to their sub-tier suppliers to insure conformance with all specifications, drawings, quality systems requirements (i.e. ISO9001, AS9100, or other), regulations, public laws and other requirements as may be specified in the purchase order.

A 40 Certificate of Conformance

The supplier shall include a legible and reproducible copy of a Certificate of Conformance (C of C) in the inspection data package. The C of C shall be traceable to all manufacturing and inspection processes in accordance with the PO, specification and/or drawing requirements. Regardless of the format, C of C shall contain the minimum following information:

- a. Name and manufacturing address of the supplier, (Manufacturer's name also, if different than supplier)
- b. COLMEK purchase order number
- c. COLMEK material designation (i.e. part number, drawing number and/or other identifier)
- d. Serial numbers (if applicable)
- e. Material specification number and revision (if applicable); & batch, lot and/or heat numbers (if applicable)
- f. A general statement that the product meets COLMEK specifications (list) for that particular part.
- g. Signature, title and date signed by an authorized Quality Assurance official.

A 50 Certificate of Analysis

The supplier shall include a legible and reproducible copy of a Certificate of Analysis (C of A) in the inspection data package. Regardless of format, the C of A shall contain the minimum following information:

- a. Name and manufacturing address of the supplier, (Manufacturer's name also, if different than supplier)
- b. COLMEK purchase order number
- c. COLMEK material designation (i.e. part number, drawing number and/or other identifier)
- d. Serial numbers (if applicable)
- e. Material specification number and revision (if applicable); & Batch, lot and/or heat numbers (if applicable)
- f. Discrete test data (e.g. - physical properties, chemical analysis, and other test results) which validate conformance for the lot or batch of material supplied for every requirement in the specification
- g. Test methods and conditions for each actual measured value of each required test, with acceptance range for each lot.
- h. If applicable, supplier shall report cure parameters used for a test sample when a test is performed on a cured, non-elastomeric material (such as adhesives, coatings, resins, etc.).
- i. A general statement that the product meets COLMEK specifications (list) for that particular part.
- j. Signature, title and date signed by an authorized Quality Assurance official.

A 60 Supplier Change Request/Notification for COLMEK Approval

«DOES NOT APPLY TO COMMERCIAL OFF THE SHELF (COTS) ITEMS»

- a. It is the Supplier's responsibility to fully comply with all instructions listed on the COLMEK Purchase Order. All communication, technical guidance and instructions having contractual impact shall be finalized directly between the COLMEK and the Supplier's authorized representative.
- b. No changes in materials, processes, procedures, design interfaces, software or the facilities used for manufacturing, inspection and test of purchased items shall be made without prior approval from COLMEK. This includes, but is not limited to, changes to COLMEK directed sub-tier sources, facility relocations, new equipment, etc. COLMEK shall assess impact to form, fit and function and respond in writing to the supplier.

A 70 COLMEK or Customer/Government Supplied Material

Supplier shall be responsible for taking necessary measures to ensure proper recording, labeling, storage, handling and preservation of all materials supplied by COLMEK or COLMEK's customers.

General Quality Notes

A 80 Audits by COLMEK

COLMEK requires "Right of Access" to the supplier's facility and reserves the right to perform inspections, audits, evaluations and reviews. COLMEK may schedule an on-site assessment of the supplier's (or supplier's subcontractor) operations to assure conformance to their quality system and to purchase order requirements. COLMEK customers or government agencies may accompany COLMEK for this type of assessment. Inspections by COLMEK and/or its customers shall be performed in such manner as not to excessively delay the supplier's work. COLMEK's access to processes considered proprietary by the supplier will be by mutual agreement. Findings, if any, may be issued in the form of a Supplier Corrective Action Request (SCAR).

A 90 Audits by Government Agencies Regarding COLMEK Product

If the supplier is notified by a government agency of an upcoming audit or on-site visit regarding COLMEK product, the supplier shall notify COLMEK of the event. If a supplier is host to an unannounced visit by a government agency regarding COLMEK product, they will notify COLMEK of the event and share the government agency report as soon as reasonably possible.

A 100 Source Inspection

COLMEK requires source inspection at the supplier's location for test items or first article inspections (FAI) as specified on the purchase order agreement. Logistics will be coordinated through COLMEK purchasing agents.

- a. Items on this purchase order are subject to source inspection by COLMEK quality representative(s) to verify conformance to the purchase order requirements prior to shipment. Source inspection may consist of inspection, test, surveillance, and review of documentation.
- b. Supplier will notify COLMEK of readiness one week in advance of source inspection and notify of schedule changes thereafter.
- c. Supplier shall not ship items suspended by COLMEK unless an "Authorization to Ship" form is completed and approved by COLMEK.
- d. Upon acceptance of the purchase order, the Supplier shall establish and maintain a procurement package that will be available for review at source inspection. The package shall contain, at a minimum, the following listed items:
 - i. Purchase order and change notices
 - ii. Current configuration of drawings and/or Current configuration of specifications
 - iii. Supplier planning documents (or supplemental documentation)
 - iv. Certificates of Conformance for procured items and outsource processes
 - v. Documentation that demonstrates product conformance to the purchase order requirements including the Technical Data Package (i.e. Test reports, inspection reports, lab reports etc.)

A 110 Revision Controlled Drawings

This PO may contain revision controlled drawings. Drawing(s) and Solid Model(s) will be provided upon request by email at orders@colmek.com. Supplier will be responsible for verification of part features to the COLMEK supplied drawings or specifications.

A 120 Environmental Control

The supplier shall maintain a documented system for control of material sensitive to environmental degradation. Records of environmental controls shall be recorded and made available to COLMEK upon request. Material sensitive to environmental conditions shall be shipped under the same controls and records of controls retained.

A 130 Out-Time Control

Temperature sensitive materials shall be controlled to minimize exposure and shall be handled in a way to reduce the out time. Records of out-time during the process shall be recorded and reported to COLMEK upon request.

A 140 Packaging and Shipping

The Supplier shall maintain a system to ensure adequate control of packaging and shipping to safeguard product being sent to COLMEK. The use of commercial packaging practices does not relieve the supplier of the responsibility to ensure packaging and shipping in a manner that will prevent damage in transit. When applicable, additional instructions for packaging and shipping may be specified on the purchase order agreement. The purchase order number must appear on all invoices, packing lists, slips on the outside of the container and in correspondence with COLMEK.

A 150 Quality System Requirements

Supplier shall establish and maintain a quality system that ensures all material and services provided conform to all notes, specifications and requirements detailed by the purchase order agreement. COLMEK prefers that the Supplier's quality management system be in compliance with the current version of ISO 9001. If certified to ISO 9001, compliance to the current revision shall be evidenced by current, accredited, third party certification. If supplier's quality system is not certified by a third party, COLMEK will determine supplier's capabilities through audit and/or surveillance of the supplier's quality system.

General Quality Notes

A 151 Supplier's In-House Inspection Processes

Supplier shall determine the required amount of receiving, in-process and final inspections necessary to ensure that the product shipped to COLMEK meets requirements. The Supplier shall ensure these inspections are performed in accordance with specifications, drawing requirements and purchase order agreements. Records of inspection shall be retained and provided to COLMEK upon request.

A 152 Calibration

The supplier shall maintain a calibration system for equipment used to accept product or establish conformance to COLMEK requirements. Calibration standards used for inspection, measuring, and test equipment shall be traceable to national or international standards. Calibration records shall show the equipment identification, calibration dates, person or business performing calibration, and when the equipment is next due for calibration.

A 153 Nonconforming Material

Supplier shall have a nonconforming material system that includes provisions to identify, segregate and control nonconforming material to ensure the supplier does not ship nonconforming material to COLMEK. Supplier is authorized to make only REWORK (brings product back into full conformance to the requirements), Return To Vendor or SCRAP dispositions in regard to COLMEK product. Supplier is NOT authorized to make REPAIR or USE AS IS dispositions (product does not fully conform to requirements) without the express written authorization from COLMEK.

COLMEK Quality Notes for Machine Shop and Sheet Metal Shop

B 10 Domestic Metal and Finishing Requirements

Use of domestic metal is required unless otherwise noted on this PO. In addition, supplier must meet all requirements for finishing such as plating, heat treating, painting and silkscreening as applicable to the supplied parts. Suppliers must provide following documents from the metal supplier and/or coatings provider at the time of part delivery to COLMEK: (1) Material Certification that includes the country of origin and, (2) C of C's for any finishing requirements imposed on this PO including but not limited to drawing, spec, special processing, etc.

B 20 DFAR 252.225-7009 Restriction on Acquisition of Certain Articles Containing Specialty Metals

Except as provided in paragraph (c) of this DFAR clause, any specialty metals incorporated in items delivered under this contract shall be melted or produced in the United States, its outlying areas, or a qualifying country.

B 30 Supplier First Article Inspection (FAI)

Supplier shall provide First Article Inspection data with shipment. Inspection data package shall include all information required by the purchase order including any drawing or specification requirements. FAI requirement is 100% inspection of parts to all drawing/specification requirements.

B 40 Welding and Brazing Requirements

Contract Flowdown from Raytheon - see Raytheon Q-Note HK (<http://qnotes.raytheon.com/>)

COLMEK Quality Notes for Components & Contract Manufacturer

(PCB, PCBA, Cabling, Wiring and other items)

C 10 Counterfeit Parts Avoidance/Control Program

The supplier must maintain a counterfeit parts avoidance/control program (using SAE AS5553 as guidance) to ensure parts meet the exact OEM/OCM requirements. Parts must be purchased directly from OEM/OCM manufacturers or their authorized distributors.

- a. If a purchase must be made from a non-OEM/OCM source, supplier shall contact COLMEK for written approval. If approved, supplier shall provide evidence of traceability and chain of custody information to the source or authenticity testing records associated with the non-OEM/OCM parts as objective evidence that parts/materials meet OEM/OCM specifications.
- b. Supplier shall segregate and provide traceability identifiers (i.e. date codes, lot codes, serial numbers, if applicable) for all items delivered to COLMEK which contain an item procured from sources other than OEM's, OCM's or their authorized distributors.
- c. Supplier shall flow down this requirement to any sub-tier supplier or subcontractor.
- d. Supplier shall participate in the Government Industry Data Exchange Program (GIDEP).
- e. Supplier shall provide evidence of this Risk Mitigation process upon request.

C 20 Electronic Part Counterfeit Risk Mitigation

Contract Flow down from Raytheon - see Raytheon Q-Note GP (<http://qnotes.raytheon.com/>)

General Quality Notes**C 30 Electrostatic Sensitive Devices**

The supplier shall establish and implement an ESD (Electrostatic Discharge) Control Program that is compliant with the latest revision of MIL-STD-1686 and/or JESD625 for electrical and electronic parts, assemblies, and equipment, susceptible to damage from ESD.

- a. The supplier shall take the necessary precautions to ensure that static susceptible devices are adequately protected from ESD damage during manufacturing, test, inspection, packaging and shipping.
- b. The supplier shall mark packaging for electrical and electronic parts, assemblies, and equipment, susceptible to damage from Electrostatic Discharge with an ESD cautionary note or symbol.
- c. The supplier shall cease all work on ESD items when the relative humidity drops below the permitted lower limit of 30% until the relative humidity increases to above the limit or ionization equipment is utilized properly at the workstation.
- d. The supplier shall ensure that Anti-Static and Static Dissipative packing material (pink-poly formulations) comply with the Contact Corrosively Testing in accordance with MIL-STD-3010 Method 3005.
- e. Anti-static and static dissipative packing material (pink-poly formulations) shall not be used in direct contact with Optics and Polycarbonates.

C 40 Foreign Object Debris/Damage (FOD) Prevention

Supplier shall maintain an effective FOD control/prevention program assuring work is accomplished in a manner which prevents foreign objects or materials from entering and/or affecting deliverable items. The program shall be proportional to the sensitivity of the product(s) to FOD, and to the FOD generating potential of the manufacturing methods. The written procedures or policies developed by the supplier shall be subject to review and approval/disapproval by COLMEK, COLMEK's customers and/or government representatives. Supplier shall be responsible for any nonconformance caused by its process or lack thereof.

C 50 Soldering Requirements

Soldered devices shall comply with the requirements of the current revision of IPC-610 or IPC J-STD-001 Class 3, as modified below, unless otherwise specified on the Purchase Order.

- a. Solder alloys Sn60Pb40, Sn62Pb36Ag2, and Sn63Pb37, shall be in accordance with IPC-610 or IPC J-STD-006.
- b. Solder alloys other than Sn60Pb40, Sn62Pb36Ag2, and Sn63Pb37 shall not be used for electrical and electronic assembly soldering unless otherwise specified on the drawing or purchase order. (Reference IPC J-STD-001, Paragraph 3.2).
- c. 100% X-Ray inspection shall be performed on Ball Grid Arrays (BGAs) and Bottom Terminated Components (BTCs) and components with Bottom Thermal Plane Terminations (D-Paks) unless they are part of a documented process control program approved by COLMEK and noted on the purchase order. (Reference IPC J-STD-001 Para. 7.5.14, 7.5.15, and 7.5.16).
- d. When NiPdAu (nickel / palladium / gold) is used as a surface finish where the gold is applied either through electroless or electrolytic processes resulting in over 8 micro inches of gold, there shall be objective evidence, made available for review, that there are no gold related solder embrittlement issues. (Reference IPC J-STD-001 Paragraph 4.5).

C 60 Inspection and/or Test Data Documentation Requirements for Supplier Submitted Data

Supplier shall provide inspection data with the part shipment that coincides directly with COLMEK purchase order, drawings and specification requirements. Supplier shall not solely use computer models to make/build parts. Inspection data package shall include all information required by the purchase order, including but not limited to:

- a. Results of all routine inspections and tests
- b. All drawing notes that require inspection or test data (variable or attribute data)
- c. All dimensions (variable data)
- d. Material, process, and hardware requirements in COLMEK material or process specifications (variable data)
- e. Any other inspection, test, or verification activities required to determine line item conformance to purchase order requirements (variable or attribute data)
- f. The submitted data shall contain these minimum requirements:
 - i. Seller's name
 - ii. Buyer's part number and purchase order number revision
 - iii. Drawing/specification/supplier planning revision level
 - iv. Sampling Plan and Level (i.e. AQL % or other method), if applicable
 - v. Lot number designation (lot number or date code)
 - vi. Quantity of items in lot and Quantity of inspected items.
 - vii. Attribute results shall indicate whether data falls within the tolerance (Pass/Fail)
 - viii. Variable results shall record the exact measurement obtained for every design characteristic
- g. Data sheets/test reports shall have evidence of acceptance by the supplier including signature/stamp and date.
- h. The supplier shall provide a copy of the recorded data with each shipment of the line item to COLMEK.

General Quality Notes

C 70 Traceability and Records Retention

Records of inspection and test data must be retained by the supplier for a period of seven (7) years after final shipment of material against this purchase order. All inspection and test data (electronic or paper copy) required by the drawing, purchase order and/or statement of work shall be retained on file by the supplier, and upon request, shall be made available for COLMEK review. This test and inspection data shall include at a minimum:

- a. Original manufacturer's name
- b. Purchase order number
- c. Part number and revision
- d. Quantity of parts tested
- e. Serial numbers (where applicable)
- f. Test/inspection methods, test/inspection results, conditions and parameters
- g. Date of test/inspection
- h. QA signature and date

At the end of the retention period, please contact COLMEK before destroying/disposing of anything required to be retained by this Quality Note.

COLMEK Quality Notes as specified on the Purchase order - Direct Contract Flowdown

D 10 Plating, Surface Finishes and Conditioning Requirements

The supplier shall ensure the requirements of this document are flowed to sub-tier suppliers for subcontracted activities including plating, surface finishes and conditioning, etc.

- a. The supplier shall ensure compliance to the requirements of this document from their sub-tier suppliers.
- b. The supplier and sub-tier suppliers shall comply with one of the following two conditions.
 - i. Condition I – Supplier is approved by NADCAP for process being performed. The list of NADCAP approved suppliers can be found at www.eauditnet.com. To create an account select "Online QML" from the resources list. Enter the appropriate supplier name and commodity(s) and select "Search".
 - ii. Condition II – Supplier is approved by COLMEK for the process being performed. COLMEK's approved suppliers are in turn approved by their customers.
- c. If neither of the above 2 conditions can be met, the supplier shall contact COLMEK for further instruction.

D 20 Statistical Process Control

As agreed between the supplier and COLMEK, the supplier shall use Statistical Process Control (SPC) to reduce variation, improve productivity and reduce cost. COLMEK will define key characteristics that should be monitored. If the supplier is unfamiliar with SPC techniques, COLMEK will assist with implementation.

D 30 Supplier First Article Inspection (FAI) AS9102

An independent First Article Inspection conforming to the requirements of AS9102 is required for items manufactured, assembled and tested to COLMEK controlled drawings and specifications on this Purchase Order. Common commercial parts (e.g. from distributors or catalogs) and MIL-STD/ Defense Electronic Supply Center (DESC) parts are exempt from this requirement. A supplier that is unable to comply with the FAI requirements identified herein shall submit an alternative FAI plan to the COLMEK and obtain approval prior to beginning manufacture.

- a. If AS9102 forms are not used, the fields of information from the AS9102 forms must be in alignment with the alternate form to the AS9102 forms (numbering/mapping).
- b. As specified in AS9102, items out of manufacture for a period of 2 years or as specified by COLMEK shall receive a new FAI.
- c. The FAI shall call out the contract and/or purchase order number.
- d. If COLMEK participates in the FAI process it will be as witness. Upon completion, the COLMEK Quality representative verifies the completeness of the FAI package measurements, test data, process documentation and material certifications at the supplier's site and will buyoff the FAI packages in the Customer Approval field. Supplier shall ship a copy of the accepted FAI package with the first shipment.
- e. Supplier shall not commence production units beyond the first production lot unless authorized by COLMEK's Purchasing agent.
- f. The FAI is not considered complete until the supplier closes all nonconformance's affecting the part/report and receives COLMEK approval.