

SCOPE:

Below lists Mercury Systems, Inc. (Mercury) Quality Notes. They are Mercury’s Purchase Order contractual requirements to the supply base.

APPLICABILITY:

Any reference to Mercury in the following Quality Notes refers to the Mercury facility that has issued the applicable Purchase Order. Quality Notes are located under the part number line on each PO. They are determined by commodity type and may be different for each part number.

The Seller assumes responsibility for the quality of all procured material and workmanship in accordance with the agreed to Purchase Order Quality Notes and Terms and Conditions. The supplier shall maintain a quality system and provide inspection which is adequate to ensure that all materials delivered against this procurement document meet all specified requirements. Supplier shall manufacture, verify, inspect, test, dimensionally assess, service, and deliver all Items in accordance with the Purchase Order, documents (including BOM) / drawings and to all requirements identified on them.

All technical and non-technical requirements as outlined or defined by the pertinent drawing and or material specification shall be specifically and strictly adhered to by the approved supplier.

Mercury maintains a list of approved suppliers that are qualified by audit results and are subject to continuing performance measurements based on both conformance to requirements and delivery performance. Late shipments or the shipment of discrepant material will affect a supplier's approval rating and can cause disqualification.

Mercury reserves the right to reject or refuse delivery of Items that do not have appropriate documentation.

Mercury’s General Quality Note (MQ1) shall be required for all purchase orders. As stated above, Mercury Systems Quality Notes are associated with commodity codes and therefore only applied automatically to procurement of items or services that have an Item ID in our ERP System. In the event that a service, consumable item or raw material is being procured that does not have a Mercury Item ID assigned in our ERP System the following table shall be used to assign Quality Notes:

Services/Consumable /Raw Material Type	Applicable Mercury Systems Quality Note
All	MQ1 (General Quality Note)
In addition to MQ1 add the following Quality Notes based on commodities below:	
Contract Manufacturing (assembly and/or test)	MQ2 (Workmanship), MQ13 (First Article Inspection) – as required by contract verify with site QA, MQ14 (ESD), MQ18 (Calibration System), MQ28 (Pure Tin Prohibition) unless otherwise specified per contract verify with site QA
Re-balling of BGA’s and leading of non-leaded components	MQ14 (ESD)
Plating/Painting/Welding	MQ4 (Special Process Certificate)
Environmental testing	MQ14 (ESD), MQ18 (Calibration System)
Feedthru install	MQ2 (Workmanship)
Raw metal/alloy stock for machining of deliverable product (metal stock such as but not limited to aluminum, stainless steel, copper, etc.)	MQ3 (Physical or chemical test reports), MQ11 (Traceability to Raw Material Report), MQ26 (Specialty Metals)
Calibration Services	MQ18 (Calibration Services)
Consumables used in deliverable product (including but not limited to solder, epoxy, paint, ink, RTV, wire, chemicals)	MQ17 (Age/Shelf-Life Restricted Items)

If additional guidance is required, please consult site Mission Assurance to further define required Quality Notes.

Note: This only applies to Purchase Orders related to the manufacturing, inspection or testing of product or items used in deliverable product. Procurement of office supplies and building MRO (Maintenance, repair, and operation) are exempt.

Notice of effectivity: Assignment of Mercury Quality Notes in accordance with the table above shall be applicable to all orders placed on or after Sept. 1, 2024.

DEFINITIONS:

COC - Certificate of Compliance.

COTS - Commercial off the shelf items that may be “buy” items or “off-the-shelf” commodity items.

Distributor – An Organization carrying out the purchase, storage, splitting lots, the sale of product without affecting product conformity. Distributors may be Authorized or Franchised Distributors” and must be licensed by the manufacturer to distribute product.

Item or Items - Is an all-inclusive term used in place of any of the following: article, assembly, commodity, component, data, document, equipment, firmware, goods, machinery, material, merchandise, model, module, part, piece, product, report, service, software, subassembly, subsystem, supplies, support systems, system, test unit, etc.

Purchase Order or PO - Refers to the applicable purchasing documents that have been issued to the Supplier by Mercury that references these Mercury Quality Notes.

QMS - Quality Management System.

Sub-tier sources or Sub-tier suppliers or External Provider - Refers to Supplier’s subcontractors, suppliers, vendors, External Providers, or any entity in Supplier’s supply chain that is involved with any portions of the Items that the Supplier will be furnishing to Mercury.

Supplier or External Provider- refers to the entity that is receiving the Purchase Order from Mercury and is responsible to Mercury for fulfilling the Purchase Order.

QUALITY ASSURANCE REQUIREMENTS

Mercury Systems Flowdown Requirements		
Reference	Provision/Clause	Requirement Flowdown
MQ1.1	QUALITY MANAGEMENT SYSTEM (QMS)	Supplier shall maintain a QMS, which conforms to requirements of AS9100 or ISO 9001, or equivalent. If Supplier has not been certified to AS9100 or ISO9001 they are expected to have a QMS that meets the requirements of the ISO 9001 or AS 9100 standard where it relates to Items being supplied to Mercury.
MQ1.2	QUALITY MANUAL and MANUFACTURING PROCESS DOCUMENTATION AND CERTIFICATIONS	Supplier shall provide upon request an English translation of its quality manual and all supported manufacturing and process documentation such as certifications, manufacturing plans, inspection reports, process certifications, test reports and any other documents in support of Mercury’s Purchase Order requirements.
MQ1.3	CHANGES TO RECORDS	Corrections must be signed/initialed/or stamped by authorized personnel. Changes to documented records must be readable.
MQ1.4	FLOWDOWN TO SUB-TIERS	Supplier shall ensure that applicable requirements of the Purchase Order, engineering documents / drawings and these Mercury Quality Assurance Requirements are flowed down to its Sub-tier suppliers and their sub-tier

		suppliers as applicable. All references to documentation, certifications and any other requirements that are required of the Supplier are also required of all Suppliers' Sub-tier sources, even if not noted.
MQ1.5	DOCUMENT / RECORD RETENTION AND TRACEABILITY	<p><u>Records:</u> Supplier and its Sub-tier suppliers shall maintain verifiable objective evidence of all records of analysis, assembly, item conformance, inspections and tests performed, obtained results, and dispositions of non-conforming Items. These shall be made available for review by Mercury or Mercury's customers, upon request.</p> <p><u>Traceability:</u> Supplier shall maintain records of Item traceability that ensures tracking of the supply chain back to the manufacturer (OEM) of all Items being delivered. This traceability method shall clearly identify the name and location of all of the supply chain intermediaries from the manufacturer to the direct source of the Item for Supplier and identified by applicable lot number, date code, material, manufacturer s type, specification, applicable change letter or number, heat number, etc. Items fabricated by Supplier shall be identifiable to the lot of material used.</p> <p><u>Retention:</u> Unless extended, records shall be retained by Supplier in a safe, accessible location for a period of ten (10) years following final payment under the Purchase Order. Records shall remain legible and readily retrievable for review during reasonable business hours. Supplier and Sub-Tier supplier must have adequate back-up in place for all records. Supplier shall be able to deliver records within 48 hours from request.</p>
MQ1.6	PERSONNEL AWARENESS	The supplier shall ensure that their personnel are aware of their contribution to: product or service conformity, Product Safety, and the importance of ethical behavior.

Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ1.7	CORRECTIVE ACTION AND FAILURE ANALYSIS	<p>Supplier shall establish and maintain documented procedures for implementing nonconformity cause analysis, corrective action, and action follow-up for effectiveness including handling of customer complaints. Any corrective action taken to eliminate the causes of actual or potential non-conformities shall be commensurate with the risks encountered and shall be documented. Supplier shall implement and record any changes resulting from corrective action.</p> <p>Mercury reserves the right to conduct verification of corrective action at Supplier's and its Sub-tiers suppliers' facilities to assess the effectiveness of the corrective action taken.</p> <p>Shipment of non-conforming material or poor quality and delivery performance may cause the generation of a Supplier Corrective Action Request (SCAR), which must be answered promptly and satisfactorily. Failure to do so can cause removal from the Approved Supplier List.</p>
MQ1.8	CHANGE NOTIFICATION	<p>For custom (Mercury and/or Supplier design) and/or build to print Items supplied to Mercury, Supplier and its Sub-tier suppliers shall submit a written request to Mercury and receive prior written permission from Mercury before any Item can be produced and delivered with any of the following changes:</p> <ol style="list-style-type: none"> 1. to the manufacturing facility location and/or test facility, 2. to key Sub-tier suppliers, 3. to the in-sourcing or out-sourcing of any operations, 4. to Item, 5. to process, 6. to Sub-tier suppliers' process, 7. to raw material and/or material included in the Item, 8. to fabrication, 9. to product end of life notification 10. significant change to the supplier's management or ownership
MQ1.9	TRACEABILITY	<p>Supplier shall maintain records for traceability throughout all steps of their manufacturing and outside processing or distributing processes for all Items delivered under the Purchase Order. All Items must be traceable back to raw materials. Traceability requirements shall also apply to Items that are reworked. Lot traceability shall be maintained and a COC shall accompany each shipment and include chemical and physical analysis results as requested. COTS parts and agreed upon metals commodities may trace to the agreed upon material lot.</p>
MQ1.10	RIGHT OF ACCESS	<p>Mercury, Mercury's customers, Government, and the applicable regulatory authorities shall have the right to access, review of all applicable records, audit and or inspect all applicable facilities of Supplier and other applicable facilities at any Sub-tier source that are involved in the performance of the PO upon request.</p>

Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ1.11	MATERIAL OBSCOLESCENCE	<p>Supplier will notify Mercury at least one (1) year in advance if Supplier anticipates discontinuing the manufacture of any of Items that it has furnished, is furnishing, or will be furnishing to Mercury.</p> <p>Supplier shall make available discontinued Items for five (5) years after the Items are discontinued. Suppliers shall find an acceptable source to provide the discontinued item or possible substitute that is acceptable to Mercury or carry an inventory of the item. In the event the supplier desires to upgrade the items a notification of intent shall be provided detailing an engineering analysis or testing of the item to ensure form, fit, function, and equivalency to the original item. Mercury shall approve of all changes as applicable and be afforded the opportunity to make a last-time buy.</p>
MQ1.12	COUNTERFEIT MITIGATION	<p>Supplier is NOT authorized to deliver any Item procured from sources other than Original Equipment Manufacturers (OEMs) or Original Component Manufacturers (OCMs), or their authorized distributors <u>without prior written authorization</u> from Mercury.</p> <p>Supplier shall maintain a Counterfeit Item risk mitigation process internally and with its Sub-tier suppliers using SAE AS5553 as a guide. Supplier shall comply with Defense Federal Acquisition Regulation Supplement (DFARS) 252.246-7007 (Contractor Counterfeit Electronic Part Detection and Avoidance).</p> <p>Any Non-Franchised Supplier must be certified to SAE AS6081 and Test houses services and Non-Franchised Suppliers conducting tests to mitigate counterfeit parts must be certified to SAE 6171 Techniques for Suspect/Counterfeit EEE Parts Detection.</p>

Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ1.13	CERTIFICATIONS	<p>Supplier shall submit One (1) reproducible copy of the Certificate of Compliance (COC) with each item shipment which certifies that the material or parts furnished have been manufactured in accordance with Mercury's drawing and revision as specified on the procurement document. The COC shall include traceability to the Items provided and must be passed on unaltered.</p> <p>The certification must specifically contain:</p> <ul style="list-style-type: none"> - Mercury Part Number/Drawing No. and Revision (when applicable) - Mercury procurement document number - MIL-SPEC number (when applicable) <p>The COC must be approved by a duly authorized representative of the supplier's quality function and must contain, at a minimum, all of the following that are applicable:</p> <ol style="list-style-type: none"> a) Mercury Purchase Order number; b) Date; c) part number & revision; d) shipment quantity; e) serial number(s); f) lot / batch; g) date code; h) country of origin i) (For Special Processes) name, applicable specification, revision in effect at the time of order, type, class, grade, etc., the quantity, part number/name), also the agency performing the outside service for special processes. The supplier has option to utilize the sub tiers CoC. j) statement of conformance to the Purchase Order requirements k) Supplier's name and address
MQ1.14	DISTRIBUTORS	<p>COC documentation requirements from distributors must include: Original manufacturer's certifications shipped with Items plus the distributor's certification referencing original manufacturer's certifications and documentation that is maintained on file.</p>
MQ1.15	SPECIAL PROCESSES AND TESTING	<p>Supplier performing special processes and testing, such as but not limited to: Bronzing, Chemical Processing, Elastomeric Seals, Laboratory Testing, Heat Treatment, Nondestructive Testing (i.e. Ultrasonic, , and X-ray inspections, etc.), Plating, Painting, and Coatings, Welding, Brazing, Soldering, etc., shall list the number and revision level of the applicable process specification (s), lot size, lot number or heat number, sample size, applicable process specifications / controls and applicable test results on all COCs.</p>

Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ1.16	REJECTED ITEMS, RESUBMITTAL AND RETURNS	<p>Any item rejected by Mercury and subsequently resubmitted by the supplier shall be clearly identified as a resubmitted item, indicating the procurement document number and Mercury's rejection document number on the supplier's certificate of conformance.</p> <p>Mercury reserves the right to return any Item delivered under this Purchase Order that fails to meet the advertised physical and functional characteristics as well as industry accepted workmanship standards. Supplier's concurrence will be sought prior to the return of any Item.</p>
MQ1.17	REPAIR AND USE-AS-IS	<p>Unless otherwise specified in the PO, Supplier and its Sub-tier suppliers do not have the authority to process "use-as-is", "repair, "standard repair procedures (SRPs)" or "non-SRPs" via their Material Review Board (MRB). These dispositions, as well as deviations and requests for waivers, requiring MRB disposition shall be submitted to Mercury for approval (this does not include rework to return to contractual compliance or scrap).</p>
MQ1.18	FOREIGN OBJECT AND DEBRIS (FOD)	<p>The supplier shall establish and maintain an effective Foreign Object Damage (FOD) Prevention Program to reduce FOD using NAS412 and AS9146 "Foreign Object Damage (FOD) Prevention Program - as a guideline.</p> <p>The material supplied on this purchase order shall be manufactured in an environment that is free of foreign objects or debris including any loose objects such as chips, cleaning materials, clippings, burrs, dust, filings, grease, RTV screws, solder balls, staples, tools, etc.</p> <p>All delivered Items, including containers designed to protect Items, furnished by Supplier shall be free of any FOD.</p>
MQ1.19	SAFETY DATA SHEET (SDS - Suppliers Providing Chemicals, Adhesives, Resins or similar items)	<p>Material Safety Data Sheets shall be made available to Mercury for each shipment of materials or chemicals that contain an MSDS. Whenever an SDS is revised, a revised copy shall be furnished.</p>

Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ1.20	PACKAGING, HANDLING, STORAGE, AND PRESERVATION	<p>All Items shall be packed, packaged, marked and otherwise prepared for shipment in a manner which utilizes best commercial practices unless otherwise specified in a particular manner, and acceptable to common carriers for shipment at the lowest rate. The supplier shall ensure packaging is sufficient to protect items from damage during shipment pursuant with ASTM D3951 unless otherwise stated on the Mercury P.O. or technical document.</p> <p>The supplier is responsible for assuring that all items are delivered without damage or deterioration and are efficiently and economically packed for the method of transportation and type of handling involved. Unit and intermediate packaging shall be employed as necessary to prevent damage or deterioration. For moisture sensitive parts being delivered, the parts shall be marked accordingly and have the appropriate moisture sensitivity labeling, barrier bags and desiccant. Supplier shall not use “pink poly” (polyethylene) for bagging or packaging. Supplier shall not use packaging “Peanuts” or “Popcorn”.</p> <p>The label and character size should be legible, each container clearly marked with necessary lifting, cautionary handling and shipping information. Identification requirements always include the complete Mercury part number, part number revision level, quantity and Mercury Purchase Order number, name of manufacturer, Lot Number and / or Date code (date of manufacture), Serial Number, Cure Date, Expiration Dates, Static Sensitive Warning, Certificate of Origin (where applicable), and an Itemized package sheet must accompany each shipment.</p>
MQ1.21	CONTROL OF MERCURY SUPPLIED PROPERTY	<p>When Property is provided by Mercury to Supplier for incorporation into Items to be delivered by the Supplier to Mercury in the performance of the Purchase Order, the Supplier shall:</p> <ol style="list-style-type: none"> 1) Inspect the property immediately upon receipt for quality and quantity, 2) Supply written notification to Mercury of any discrepancies found during inspection or at any other time during the process, 3) Segregate such property and withhold from use all property found to be discrepant pending written authorization from Mercury, 4) Adequately identify all items and control the property at all time to prevent damage, mix-up or any otherwise detrimental condition, 5) Return all unused property at end of the Purchase Order deliveries. <p>If items have been identified as Government Furnished Property, they shall be handled in accordance with the contractors’ or subcontractors’ process for compliance to FAR Part 45 and 52.245-1</p>

END OF QUALITY NOTE MQ1

Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ2	WORKMANSHIP	<p>Supplier shall document and implement workmanship standards with acceptance criteria following the guidance of the workmanship standard defined in the Mercury drawings or other Mercury documentation. Unless otherwise noted in the PO or technical documentation, Supplier shall utilize latest revisions of IPC-A-610 Class 3, IPC J-STD-001 Class 3, IPC-7711/21, IPC CM-770, MIL-HDBK-454 and/or MIL-STD-883 as guidelines.</p> <p>For microelectronic packages and covers, JESD9 criteria (part of JEDEC standard) shall be adhered to. It is meant to be used in conjunction with, and to not contradict MIL-STD-883.</p> <p>Supplier shall ensure employees are certified to the appropriate standards, and shall make certification records available upon request.</p>
MQ3	PHYSICAL OR CHEMICAL TEST REPORTS	<p>Each shipment must be accompanied by a legible and reproducible copy of a physical or chemical test report identifiable with specification test requirements and material submitted. These reports must contain the signature of a responsible representative of the agency performing the test and must assure conformance to specification requirement.</p>
MQ4	SPECIAL PROCESS CERTIFICATION	<p>If applicable, the supplier shall be responsible for conformance of their outside manufacturer and/or processors to the applicable NADCAP certifications and specifications.</p> <p>For all Special Processes required by the Purchase Order and performed by Supplier or by Supplier's Sub-tier sources, Supplier shall furnish the certification / test report issued by the party actually performing the process.</p>
MQ5	DIMENSIONAL DATA	<p>Recorded findings on all dimensions shall be submitted with each shipment. Dimensions shall be provided per sampling plan ANSI/ASQ Z1.4, Level II, AQL 1.0, unless otherwise specified on purchase order. CoC or Certificate of Analysis is required as applicable.</p>
MQ6	OFF-THE-SHELF/CATALOG ITEM - DIE MAP (RAW DIE NOT PACKAGED)	<p>Inspection Data: One (1) copy of the item drawing or applicable catalog page shall accompany parts for receiving identification and inspection.</p>

Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ7	TEST AND INSPECTION DATA	<p>Inspection measurements and/or electrical test results of items on this procurement document shall be taken and included with each procurement document shipment. Actual data to be recorded shall be as specified in the detail specification/drawing. The supplier shall assure that products failing to meet performance requirements are not shipped to Mercury. As a minimum test data shall include:</p> <ul style="list-style-type: none"> -Mercury Part number/Drawing number and revision -Mercury procurement document number -Supplier Acceptance Test procedure number (as applicable) and revision date -Characteristic(s) measured -Date and test completion -Evidence of test acceptance by supplier's quality function
MQ8	INSPECTION AND TEST INSTRUCTIONS	<p>The supplier shall prepare and maintain written instructions for inspections and tests performed on the procurement document. The instructions shall include identification of the item to be inspected or tested, measuring and test equipment to be used, details of inspection and test operations to be performed, and the criteria for determining conformance or non-conformance to procurement document requirements.</p> <p>One legible and reproducible copy of each instruction shall be submitted to the Mercury Quality Assurance Department for approval prior to use.</p> <p>The instructions shall be available on file for review by Mercury and cognizant Government agencies. Changes to the approved Inspection and Test Instructions shall be submitted to the Mercury Quality Assurance Department for approval prior to incorporation.</p>
MQ9	SOURCE INSPECTION - MERCURY	<p>Items covered by this procurement document require inspection and/or test by Mercury at the supplier's plant. The supplier shall give a minimum of a 48-hour notice prior to required inspection. Mercury source inspection and/or test does not relieve supplier of any of the requirements of the procurement document, and Mercury reserves the right to accomplish final acceptance at Mercury's facility.</p>
MQ10	SOURCE INSPECTION - GOVERNMENT	<p>Government inspection at the supplier's facility will be required prior to shipment. Upon receipt of this order, promptly notify the government representative who services your facility so that appropriate planning can be accomplished. The supplier shall give a minimum of a 72-hour notice prior to required inspection. Evidence of Government Source Inspection approval is required with each shipment.</p>

Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ11	TRACEABILITY TO RAW MATERIAL REPORT	The Supplier shall provide a Report or Certificate of Conformance (C of C), with each delivery, for raw material supplied or used in the parts supplied. The C of C shall be from the original raw material supplier and include original supplier, lot number, material specification, test conducted, and any other relevant information needed to identify the raw material. Acceptable examples include foundry report, mill report, dimension/description, temper/hardness, alloy and condition, as well as composition and test reports for ink and paint. The supplier shall maintain the original mill certification and any secondary independent test laboratory certification(s) if any additional process was done after the original mill certification for procured metallic material that shall include physical properties, chemical analysis, and lot number(s). For plastics and other “proprietary” materials, a C of C from the OEM/OCM stating the material is proprietary or providing only the material properties and characteristics to that material specification is acceptable. In addition, material shall meet any other contractual requirements as stated in the Purchase Order, and any applicable DFARs such as Specialty Metals.
MQ12	MERCURY FIRST ARTICLE INSPECTION – INSPECTION SAMPLE	This order is subject to the approval of a First Article sample at Mercury. Supplier should deliver one sample, which represents in all aspects, the items to be delivered, and await approval before shipping the remainder of the order. Manufacture of the remainder prior to the First Article Approval is at the risk of the supplier.
MQ13	SUPPLIER FIRST ARTICLE INSPECTION (AS 9102)	Supplier is required to provide a First Article Inspection (FAI) that conforms to the requirements of AS9102, Aerospace First Article Inspection Requirement. The First Article Inspection Report shall accompany the product upon delivery and the part the first article was performed on shall be appropriately identified in the delivery. The First Article Inspection Report must show evidence of acceptance by Supplier’s quality assurance representative. Supplier shall flow this requirement down to its Sub-tier suppliers.
MQ14	ESD SENSITIVE MATERIAL	All components which are Electro-Static Discharge (ESD) and/or electromagnetic forces (EMF) sensitive must be processed, handled, packaged, identified, and shipped in accordance with MIL-STD-1686, "Electrostatic Discharge Control Program" or ANSI/ESD S20.20, “Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices).” The Supplier shall maintain a documented Electro-Static Discharge (ESD) protection program, including employee training.
MQ15		Intentionally left blank; requirement removed
MQ16		Intentionally left blank; See MQ1.1

MQ17	AGE/ENVIRONMENT SENSITIVE AND SHELF-LIFE RESTRICTED ITEMS	<p>The Supplier shall identify all Items that have definite characteristics of quality degradation with age and / or environment. Supplier shall not deliver any Items with less than 80% of remaining shelf life. Supplier shall affix a label to each and all individual containers supplied with at least:</p> <ol style="list-style-type: none">1) the date useful life was initiated2) the date at which useful life will be expended3) list of any and all required storage conditions to maintain stated useful life4) any lot numbers or manufacturers identification numbers <p>Supplier shall establish a shelf life and storage control program to ensure that no material that has exceeded its shelf life can be used by Supplier in the assembly of Items for Mercury which includes policies and procedures for: Identifying and maintaining a database (a list) of all Items that have shelf life limitations and / or special storage requirements, a receiving inspection process that can assure that all incoming Items are still within their shelf life limitation period, and a process for physically identifying, labeling, or coding each Item so that its shelf life can be readily determined and stating that the Item is under shelf life control, and a process for reviewing (auditing) the status of all Items under shelf life controls to ensure that material has not exceeded its shelf life.</p>
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Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ18	CALIBRATION SERVICES (System and Services)	The supplier of calibration services shall provide certification that such services were accomplished utilizing standards traceable to National Institute of Standards and Technology, been derived from accepted values of natural, physical constants or been derived by the ratio type of self-calibration techniques and their calibration system is compliant to ISO 17025 or ANSI Z540.3.
MQ19	EQUIPMENT DESIGNATED FOR MERCURY CALIBRATION RECALL SYSTEM	<p>For equipment that is purchased to perform an acceptance test of deliverable hardware or to measure/verify a process parameter as specified in a procedure used to manufacture deliverable hardware.</p> <p>The supplier shall deliver the following information to Mercury:</p> <ul style="list-style-type: none"> - Identification of the calibration items and parameters. - Certification of current calibration status of these items. - Methods/Procedures for calibration of these items. - Recommended calibration recall intervals for these items. <p>This information is subject to review and approval by the Mercury Calibration Organization prior to acceptance of equipment shipped under this clause.</p>
MQ20	INSPECTION AND TEST PLAN	The supplier shall prepare and maintain an inspection and test plan including a product flow chart of operation sequences, inspection and test points, and process control points for the items to be fabricated on this procurement document. Type of inspection or test at each point must be sufficiently described and identified. One legible and reproducible copy of each instruction shall be submitted to the Mercury Supply Chain for approval prior to the start of fabrication. Changes to the approved Inspection and Test Plan shall be submitted to the Mercury Supply Chain for approval prior to incorporation.
MQ21	CONFIGURATION MANAGEMENT	The supplier shall maintain a configuration management program to demonstrate that the purchased item conforms to controlled documentation, an approved configuration baseline, control changes to the baseline, and record the status of the changes to ensure compatibility with the Mercury specification and applicable drawing. The supplier shall ensure adequate configuration management practices are in place at their sub-tier suppliers to ensure that part design, material, and processes do not change from original part design and procedures.

Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ22	CONFIGURATION CONTROL – CUSTOM PARTS ONLY	<p>Prior to the start of production, Mercury may review, at the supplier's site, all documentation to be used to produce the items described in the Mercury specification and/or source control drawing. This includes process documentation and inspection/test procedures. The Supplier shall maintain a list will be established with the document titles and current revisions. The document list shall be submitted to the Mercury Supply Chain for approval. Changes to any of the documents or related hardware on this list must be submitted in writing to the Mercury Supply Chain for approval as follows:</p> <p>Proposed Class I changes shall be submitted to before action is taken to implement the changes with Mercury approval. Include a brief title of the proposed change, date, description, justification and impact.</p> <p>Changes (changes not effecting deliverable hardware form, fit or function): Proposed changes shall be submitted to Mercury for classification concurrence following establishment of the approved baseline. The proposed change shall include a brief title of the proposed change and date, description, justification and impact.</p>
MQ23	LIFE REQUIREMENTS	The Suppliers will provide empirical data demonstrating life requirement conformance. Reliability data requirements would be as defined in the Mercury Statement of Work (SOW) or similar document.
MQ24	OVERSEAS DROP SHIPMENT REQUIREMENTS	<p>Each Shipment overseas must include the following:</p> <ul style="list-style-type: none"> • Packing Slip • Invoice • Copy of actual Air Way Bill (AWB) <p>In addition to including the documents with the shipment, the supplier shall e-mail the above to the appropriate Mercury buyer and Supplier.</p>
MQ25	UNITED STATES MUNITIONS LIST (22 C.F.R 121.1)	“The Technical Data/Software is covered by the United States Munitions List (22 C.F.R. 121.1) under Category XI (d), any export/transfer/disclosure of the technical data to a foreign person, must be licensed by the Directorate of Defense Trade Controls, United States Department of State, prior to disclosure or transfer to the foreign person, whether in the United States or abroad.”
MQ26	SPECIALTY METALS	The supplier shall comply with Specialty Metals requirements as defined in applicable FARS/DFARs.
MQ27	WAFER QUALIFICATION	Semiconductor samples will be evaluated at Mercury, and upon approval of the wafer qualification, a percentage of the wafer, (as defined by the Mercury Purchasing Department and the vendor) shall be reserved and held by the Supplier, for purchase.

Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ28	PURE TIN PROHIBITION – TIN WHISKER MITIGATION	Items shall comply with GEIA-STD-0005-2 unless otherwise specified on the Purchase Order, drawing, or other Mercury documentation. Pure tin (>97% by volume) is unacceptable as a base material, coating, plating, or termination for any product procurement referencing this clause.
MQ29	GOVERNMENT – INDUSTRY DATA EXCHANGE PROGRAM PROCESS (GIDEP)	Supplier shall implement a process for reviewing and evaluating problems identified in Government-Industry Data Exchange Program (GIDEP) Alerts. Supplier shall ensure that these Alerts do not adversely affect previous, current or future purchases / deliveries, and that new designs or redesigns and Supplier's Sub-tier sources consider GIDEP information.
MQ30		Intentionally left blank; See MQ1.12
MQ31		Intentionally left blank; See MQ1.21
MQ32	RoHS COMPLIANCE	The supplier will ensure that the product is in full compliance with the Restriction of Hazardous Substances (RoHS) directive which restricts the use of certain hazardous substances in electronic equipment 2002/95/EC including the use of Lead (Pb), Mercury (Hg) Cadmium (Cd), Hexavalent chromium (Cr6+), Polybrominated biphenyls (PBB), Polybrominated diphenyl ether (PBDE). The Supplier shall include on their COC the certification that the products under this Purchase Order, does NOT exceed maximum permitted concentrations of substances measured in PPM by weight of homogeneous material.
MQ33	REQUIREMENT FOR PCB FABRICATION	<p>Supplier shall follow the requirements as outlined in Mercury Systems special process document ISO-R4A: GENERAL REQUIREMENTS and SPECIFICATIONS for PRINTED CIRCUIT BOARD FABRICATION. The part drawing takes precedence for any specific fab requirements, which conflict with ISO-R4A.</p> <p>Supplier shall provide the following documentation and deliverables with the boards upon shipment.</p> <p>A.) <u>Certification</u> that all boards have been manufactured to specification and the fabrications respective drawings and to the extent of the governing documents referenced within ISO-R4A, according to their respective precedence.</p> <p>For each Manufactured Lot as defined in ISO-R4A the Supplier shall provide as applicable:</p> <p>B.) <u>Solder floated microsection test coupon</u> cross-section and photomicrograph of the smallest plated through via for through via technology designs.</p> <p>C.) <u>Solder floated microsection test coupon</u> cross-section and photomicrograph of the smallest blind via & & smallest buried via for blind & buried via technology designs.</p> <p>D.) <u>Two solder samples</u> (minimum). Special requests will be stated/specified on the respective Purchase Order.</p>

Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ33 (Continued)	REQUIREMENT FOR PCB FABRICATION (Continued)	<p><u>Solder Samples:</u> The supplier shall furnish Mercury with an appropriately identified solder-sample board (complete with solder mask and applicable surface finish) for every manufactured lot delivered. Two solder samples are requested for the initial build of a board for process validation. If the lot contains more than one (1) date code, then a solder- sample board for each date code is required. The board sample must have been processed concurrently with the submitted lot. If the board is supplied to Mercury in a multi-up configuration (i.e., in a panelized format), then one complete panel must be supplied as a solder sample.</p> <p>E.) <u>Electrical Test COC</u></p> <p>F.) Metallographic Report stating <u>surface finish thicknesses</u>.</p> <p>G.) <u>Cross-Section Report.</u> The detailed cross-section report shall contain, and specify, the measured attributes of finished copper for each layer and the measured dielectric thickness between each layer based on the respective micro-section. This report will state the minimum, maximum, and average copper thickness in the PTH barrel (hole wall), as well as the average (measured) thickness of copper on the surface and at the knee of the respective PTH, as micro-sectioned. In addition, this report will state the minimum, maximum, and average copper thickness in the blind, buried, or buried through via barrel (hole wall), for those designs that have this via technology.</p> <p>For controlled Impedance PCBs:</p> <p>H.) For Controlled Impedance PCBs: the fabricator shall supply the TDR readings for each controlled impedance layer on a minimum of 2 boards.</p> <p><u>Inspection Level:</u> Inspection is required to MIL-STD-1916 with 1% AQL, 100% inspection, or a sampling plan that has been agreed to formally by Mercury and the supplier. A sampling plan for IPC-6012 may also be utilized based on table 4-2 Class 3. Inspection plan shall be used to insure that all boards meet the requirements of the drawing and ISO-R4A specification. Acceptable quality as defined by IPC-A-600 is adequate, by default, for any requirements, which are not specified.</p> <p><u>Process Changes:</u> The method of manufacturing Mercury product shall not be changed without prior written approval. Changes shall include the appropriate testing and convey the process change in writing to Mercury Systems, Inc. At least 30 days in advance.</p> <p><u>Cleanliness:</u> Boards shall be free from FOD and film contaminants. In addition, finished boards shall not exceed 6.5 micrograms of NaCl equivalents/square inch when measured by an Alpha 500 Ionograph (or equivalent).</p>

Mercury Systems Flowdown Requirements

Reference	Provision/Clause	Requirement Flowdown
MQ34	<p>CONTROL OF “Boeing PC700 Use only Items/FAA – PMA Marking</p>	<p>This procurement is under Boeing's Federal Aviation Administration (FAA) issued Production Certificate 700 quality system supplier control program. Unless explicit contractual direction is given to the contrary, no articles (or constituent parts thereof) ordered by Boeing shall contain any Federal Aviation Administration- Parts Manufacturer Approval (FAA-PMA) markings. The accompanying paperwork (e.g., packages, shippers, etc.) shall not contain any FAA-PMA markings. Seller shall place the following statement on the shipping documentation of all shipments: "Seller hereby acknowledges that the parts and/or materials being shipped under this order are intended for use under Boeing's Federal Aviation Administration (FAA) issued Production Certificate 700 and no articles (or constituent parts thereof) or the accompanying paperwork (e.g., packages, shippers, etc.) contain any Federal Aviation Administration-Parts Manufacturer Approval (FAA-PMA) markings." Application Note for Seller: The preferred location for the above statement is on the shipping document next to, or following the Certificate of Compliance (COC). The statement may be printed, stamped, or attached as a label or sticker to the shipping documentation. It is allowable to replace "Seller" with the Company Name or “We”.</p> <p>Boeing requires that the provisions/requirements set forth above, as detrained by the “Seller “to be applicable, be included in “Seller’s” direct supplied contracts as well as the obligation that they be flowed to the sub tier supply chain. For purposes of this clause, supply chain shall mean ‘Seller’s” complete network of material, equipment, information, and services integrated into products and services. It focuses on direct and all lower-tier suppliers.</p>

Revision History:

Revision	Date	Case #	Reason
01	12/29/2016	463	Initial Release
02	01/30/2018	890	Augment Counterfeit and AS9100 Rev D Personal Awareness, and COTS requirements
03	01/03/2019	1089	Add Qnote MQ33 Requirements for PCB Fabs
04	11/11/2019	1244	Revised: MQ33 verbiage correction on date code versus lot. Removed redundant first article. Conversion from ISO to MRCY.
05	02/13/2020	1297	Revised: MQ1-A-Modified QMS text; MQ1-B Matched verbiage with update to go on purchase order template for flow downs; Added MQ 34- Boeing FAA requirement; MQ1-F-Changed retention from 7 to 10 years to meet changing customer requirement. MQ1-I and MQ4 – Required NADCAP for special process with any exception pre-approved and in writing.
06	06/01/2020	1409	Full Rewrite
07	09/01/2021	1741	Changed MQ31 to MQ1.21 CONTROL OF MERCURY SUPPLIED PROPERTY, removed 'Coupons' from MQ33 (h), and added MQ11
08	08/21/2024	2701	Added chart to provide guidance to buyers regarding q-notes that should be applied to non-inventory items