

This list of Quality Clauses is provided for **REFERENCE ONLY**. Individual Quality Clauses, as applicable, will be defined within Herley's Purchase Order. In the event of a conflict between this document and Herley's Purchase Order, Herley's Purchase Order shall take precedents. Quality Clause Revision designations are provided for convenience.

**Q1 Special Process – HERLEY APPROVED PROCESSOR(S)** – (Clause version date January 27, 2016). The Supplier SHALL ONLY use HERLEY APPROVED PROCESSOR(S) (i.e. Subcontractor and/or Sub-tier) listed in THIS PURCHASE ORDER for the item(s) listed therein.

Special Process definition: A method controlled by a contractually-required specification where a product undergoes a physical, chemical or metallurgical transformation. Conformance to the specification cannot be readily verified by normal inspection methods. In addition, the quality of the product depends on use of specific equipment operated in a specific manner, under controlled conditions, by trained personnel with instructions, procedures or standards.

**Q1A HERLEY APPROVED PROCESSOR** (Clause version date January 27, 2016). This Processor has been APPROVED BY HERLEY to support the PLATING requirements defined within the applicable Drawing specified within THIS PURCHASE ORDER. THIS IS A SITE SPECIFIC APPROVAL. The Supplier and/or Processor is NOT PERMITTED to outsource the PLATING process to another location without WRITTEN APPROVAL by Herley in form of a Purchase Order Amendment.

Approved Processor / location: Nova Kote, 7615 Energy Parkway, Baltimore, MD 21226

**Q1B HERLEY APPROVED PROCESSOR** (Clause version date January 27, 2016). This Processor has been APPROVED BY HERLEY to support the PLATING requirements defined within the applicable Drawing specified within THIS PURCHASE ORDER. THIS IS A SITE-SPECIFIC APPROVAL. The Supplier and/or Processor is NOT PERMITTED to outsource the PLATING process to another location without WRITTEN APPROVAL by Herley in form of a Purchase Order Amendment.

Approved Processor / location: Hi-Tech Plating, 69 Norman Street, Everett, MA 02149

- Q2 A) SAE/AS9100** (Clause version date March 12, 2012) – The Supplier shall have a quality system that complies with SAE/AS9100 – Aerospace Quality System Standard. A copy of the Suppliers SAE/AS9100 certificate, which has been issued by a third party registrar, must be submitted to Herley-Lancaster. In the event that the Supplier changes registrars, loses SAE/AS9100 registration, or is put on notice of losing its registration status; the Supplier shall notify Herley-Lancaster within 3 business days of the event.
- B) ISO 9001:2008** (Clause version date March 12, 2012) – The Supplier shall have a quality system that complies with ISO 9001:2008 – Quality Management Systems-Requirements. A copy of the Suppliers ISO 9001:2008 certificate, which has been issued by a third party registrar, must be submitted to Herley-Lancaster. In the event that the Supplier changes registrars, loses ISO 9001:2008 registration, or is put on notice of losing its registration status; the Supplier shall notify Herley-Lancaster within 3 business days of the event.
- Q3 Right of Access** (Clause version date March 12, 2012) – Work performed under this Purchase Order is subject to government, customer or regulatory authorities’ surveillance/inspection at any level of the supply chain (to the applicable areas of all facilities) involved in this Purchase Order including access to all applicable records. The Supplier will be notified in advance of any surveillance/ inspection to be conducted.
- Q4 Herley-Lancaster QA Source Inspection required** (Clause version date June 13, 2018) Upon receipt of this Purchase Order (or at the time this Quality Clause is imposed) and ten (10) working days prior to commencing work, the Seller shall promptly notify the Herley-Lancaster Buyer to obtain a point of contact within Herley’s QA Department. Herley’s QA Representative will provide written direction, through the Herley-Lancaster Buyer, of those In-process Inspection / Test / Pre-cap / Final Inspection activities applicable to this Purchase Order. Herley-Lancaster QA retains the option to subsequently waive (in writing through the Herley-Lancaster Buyer) established Source Inspection requirements on a case-by-case basis.

The Seller shall make available to the Herley QA Representative (on-site at the Seller’s facility) all applicable drawings, specifications, procedures, statements of work, Purchase Order, test software, and changes thereto, related inspection and/or test equipment, and such other information as may be required to satisfactorily perform the Source Inspection activities required under this Purchase Order.

**Q5 Workmanship** (Clause version date August 01, 2017) – The Seller must maintain written standards of workmanship directly applicable to the nature and level of services and/or work to be performed under this Purchase Order. The Seller shall develop, implement and maintain training programs, as deemed necessary by the Seller’s management, to assure acceptable levels of performance in product quality and services provided.

Sellers of soldered electrical and electronic assemblies: Unless otherwise stated within this Purchase Order or reference applicable documents, the Seller’s soldering process shall be documented and meet the requirements of J-STD-001, Class 3. Acceptability of electrical and electronic assemblies shall be in accordance with IPC-A-610, Class 3. Cable and wire harness assemblies shall meet the requirements of IPC/WHMA-A-620, Class 3.

**Q6 Acceptance Test Procedures** (Clause version date March 12, 2012) – The Supplier shall prepare detailed test procedures which encompass all the tests required for acceptance. Each item of hardware or component thereof, which requires acceptance testing, shall be covered by an Acceptance Test Procedure. Acceptance Test Procedures require Herley-Lancaster approval prior to the delivery of the first unit of hardware. Subsequent changes are subject to Herley-Lancaster approval prior to incorporation.

**Q7 Calibration System** (Clause version date September 1, 2015) – The Supplier shall have a documented calibration system that is compliant to ANSI/NCCL Z540-1, “General Requirements for Calibration Laboratories and Measuring and Test Equipment”, **ANSI/ISO/IEC 17025-2005 (General requirements for the competence of testing and calibration laboratories)**, or similar industry acknowledged system.

**Q8 Electrostatic Sensitive Devices** (Clause version date June 13, 2018) – Devices delivered under this contract are considered electrostatic sensitive. The Supplier shall develop and maintain an Electrostatic Discharge Control program in accordance with ANSI/ESD S20.20, or equivalent. The Supplier shall ensure that devices are handled to prevent damage and packaged to provide electrostatic protection including identification as ESD in accordance with Class 3 devices per EIA-625 (pertains to containers / packaging in direct contact with electrostatic sensitive devices) or equivalent.

**Q9 Packaging** (Clause version date March 12, 2012) – Parts, when packaged, must be segregated to protect them from body/lead damage, and to protect leads against bending or twisting beyond the drawing dimensional requirements.

**Q10 Certificate of Compliance (C of C)** (Clause version date July 30, 2013) – Supplier shall provide a certification with each shipment to attest that the parts, assemblies, subassemblies, or detailed parts conform to all of the Purchase Order requirements. Lot, heat, batch, date code, serial number, or other Lot tracking number must appear on the certification. **Traceability requirements for Electrical, Electronic, and Electromechanical (EEE) components and devices - refer to Herley Quality Clause Q30.** Certification documentation must contain the following:

- Herley-Lancaster Purchase Order number
- Part number and Revision
- Name of Manufacturer and Country of Origin
- Name and address of Supplier (entity supplying the product to Herley)
- Manufacturer's lot, heat, batch, date code, serial number or other Lot tracking number
- Quantity
- Signed and dated by an official of the Supplier (electronic signature formats permitted)
- Statement attesting that parts conform to the Purchase Order requirements.

The Supplier shall establish and maintain a documented system for controlling product quality records (process and inspection records as a minimum) that support this Purchase Order. The Supplier shall perform inspection, as necessary, to determine the acceptability of all articles under this Purchase Order. All articles submitted by the Supplier under this Purchase Order are subject to final inspection at the Herley-Lancaster facility.

**Q11 Government Source Inspection (GSI)** (Clause version date March 12, 2012) – Government Inspection is required for the material on this Purchase Order prior to shipment from the Supplier's facility. Upon receipt of this order, furnish a copy to the Government Representative who normally services your facility. If the representative cannot be located, the Herley-Lancaster Buyer should be notified.

**Q12 Non-conforming Material** (Clause version date March 12, 2012) – The Supplier does not have MRB authority (approving variances from Herley-Lancaster drawings and specifications). All "Use As Is" and "Repair" dispositions must be made through the Herley-Lancaster Buyer (with Herley QA Concurrence), unless otherwise specified by the Purchase Order. Shipment of non-conforming items must be accompanied by a Herley-Lancaster approval document with both Purchasing and QA approval. The Supplier shall provide for control, segregation and identification of non-conforming material detected at their facility to prevent its unintended use or delivery. In the event nonconforming material is detected after delivery to Herley, the Supplier shall notify Herley QA within one business day of confirmation of the defective condition. This notification will be in writing and shall clearly describe the nonconformity and include (as appropriate) part numbers, quantities affected, delivery dates, lot / batch numbers, etc.

**Q13 Change Management** (Clause version date September 5, 2012) –

- A) The supplier shall notify Herley-Lancaster of any proposed changes to Herley-Lancaster approved design, parts, devices, materials, fabrication methods or processes. In addition the supplier shall obtain Herley Lancaster approval prior to change incorporation.
- B) The supplier shall notify Herley-Lancaster of proposed changes affecting the performance or interfaces of the item(s) being supplied.
- C) The supplier shall notify Herley-Lancaster of any changes to the design, parts, materials, fabrication methods or processes for the item(s) being supplied.
- D) The supplier shall notify Herley-Lancaster immediately of a change to manufacturing facility location or changes in ownership.

Any changes made after a part has been qualified or the first item has been delivered, may require requalification testing.

**Q14 Limited Shelf Life Material** (Clause version date August 10, 2017) – The Supplier shall identify each item package or shipping container with the manufacturing date and shelf life expiration date. When the “ship date” or “date of receipt” is utilized as the start date for the shelf life period, the manufacturing date is not needed. In no case shall material be supplied with less than 50% of its useful shelf life remaining. When environment is a factor in determining useful life, the identification shall include storage conditions required to achieve the stated useful life. A copy of the manufacturer’s latest technical data sheet shall accompany each shipment in addition to a Certificate of Compliance (CofC) from the original Manufacturer. Documentation supplied with each shipment shall include the name and address of the manufacturer and the manufacturer’s lot/batch number. In addition to the CofC requirements specified by Quality Clause Q10, the Supplier must also include expiry information on the CofC.

**Q15 Chemical and Physical Analysis** (Clause version date March 12, 2012) – The Supplier shall have available, upon request, chemical/physical analysis which is identifiable to the product delivered. The chemical/physical analysis shall validate compliance to applicable material specifications.

**Q16 Commercial Packaging** (Clause version date March 12, 2012) – The Supplier shall provide external packaging for all materials in accordance with the best commercial practices. Packaging shall provide adequate protection from damage and contamination to the product during transit.

**Q17 Inspection at Supplier Facility** (Clause version date March 12, 2012) – The Supplier is required to perform final inspection and/or test of all items per the requirements of the Purchase Order and all applicable specifications, prior to shipment to Herley-Lancaster.

- Q18 Material Requirement** (Clause version date March 12, 2012) – FAR Clause 52.211-5. 45 day notification prior to shipment of product containing re-conditioned or remanufactured material is required.
- Q19 Return Product – Herley Source Verification** (Clause version date March 12, 2012) – Herley Quality Engineer must be present for review of all returned material prior and during de-lidding unless waived by the Director, Quality Assurance or Program Manager.
- Q20 FAR (Failure Analysis Report) Required for Returned Product** (Clause version date March 12, 2012) – A detailed Root Cause and Corrective Action report for all defective or inoperative products is required.
- Q21 Failed Part Retention** (Clause version date March 12, 2012) – Any component, part or parts that are replaced during a repair process must be maintained and held with the Failure/Repair Report in an ESD safe bag and made available for review by Herley Source Inspector.
- Q22 Quality Assurance Management** (Clause version date September 26, 2014) – The Supplier shall maintain a Quality Management System in compliance with one of the following: MIL-Q-9858, MIL-I-45208, ANSI/ISO/ ASQ Q9000 Series, SAE AS9000 Series or a Herley Industries, Inc. approved alternate. The Supplier shall also establish and maintain a formal system for calibration and maintenance of test and measuring equipment commensurate with those systems defined within the industry recognized Quality Management Systems. Herley-Lancaster reserves the right to perform surveys and audits as necessary to assure compliance to the Quality Assurance requirements of the latest Purchase Order revision in effect unless otherwise noted.
- Q23 Solderability requirements** (Clause version date March 12, 2012) - Electronic/mechanical components (including PCBs) and wires to be soldered shall meet the solderability requirements of J-STD-002 or equivalent and printed boards shall meet the requirements of J-STD-003 (Category 3) or equivalent. Herley reserves the right to test product upon receipt to ensure compliance with the aforementioned Standards and return any product (at no cost to Herley) that fails to meet said requirements.
- Q24 Non-RoHs requirement** (Clause version date September 5, 2012) - Electronic, electrical, electromechanical, and mechanical piece parts and assemblies, including the internal fabrication of hardware, delivered to Herley under the provisions of this Purchase Order shall not have pure tin finishes. Additionally, any tin-lead (SnPb) plating or solder process/processing shall result in a finish of no less than 3% lead composition. The Supplier shall notify Herley Industries, Inc. in advance of any shipment conflicting with this requirement.

**Q25 Q-Clause for all non-franchised or non-authorized Distributors** (Clause version date June 13, 2018) - Independent Distributor/Broker (ID/B) will ensure that all Electrical, Electronic or Electro- mechanical parts are new, authentic, and traceable to the OEM/OCM. The Independent Distributor/Broker will maintain certifications to ISO 9001 (Quality management systems — Requirements), SAE AS9120 (Quality Management Systems – Requirements for Aviation, Space and Defense Distributors), AS6081 Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition – Distributors; ANSI/ESD-S20.20 (For the Development of an Electrostatic Discharge Control Program for – Protection of Electrical and Electronic Parts, Assemblies and Equipment), and Membership with GIDEP (Government - Industry Data Exchange Program) and ERAI (Electronic Resellers Association International). If these certifications and/or memberships are discontinued for any reason, the Independent Distributor/Broker is to notify Herley QA Department within 10 business days of the change.

The ID/B will make every effort to provide a Certificate of Conformance (C of C) to this end, clearly identifying the name and location of all the supply chain intermediaries from manufacturer to direct source of the product. The C of C must also reference manufacturer's batch identification, such as date code, lot code, serializations or other batch identifications.

In cases where all intermediaries cannot be determined, inspection / testing of components must be performed to determine authenticity of components. A copy of the inspection /testing results (including photos) must be provided with each shipment. Inspection Reports shall include, as deemed necessary by the ID/B (but not all inclusive) data supporting a visual inspection, Real-Time X-Ray Analysis, component package configuration and dimensions, XRF Elemental Analysis and solderability testing, Scanning Electron Microscopy (SEM) Analysis, Scanning Acoustic Microscopy (SAM), Resistance to Solvents (RTS) & Scrap Test, Heated Solvent Test, and Decapsulation & Die Microscopy. Electrical testing will be performed when agreed upon by both the Independent Distributor and Herley-Lancaster. The Inspection Reports shall clearly indicate pass / fail results for the inspections / testing performed and shall include a statement attesting to the authenticity of the parts.

The ID/B shall establish and implement test and inspection activities, with clear accept/reject criteria provided, that is performed by trained personnel, as to insure the authenticity of the product.

The ID/B shall warrantee all products to the same warrantee offered by the original component manufacturer.

In cases where components are proven to be counterfeit by an independent accredited test lab, Herley Industries, Inc. will impound said parts, with no financial remuneration due ID/B. The ID/B will be responsible for physical replacement and financial restitution to the satisfaction of Herley Industries, Inc.

**Q25 Q-Clause for all non-franchised or non-authorized Distributors** (Clause version date June 13, 2018) cont.

Each shipment from an Independent Distributor shall be identified with a bright contrasting color label affixed to the packaging with the words "Brokered Product". In addition, "Brokered Product" shall be indicated on the packing slip in **BOLD** or **HIGHLIGHTED** print.

Items received under this Purchase Order may be subjected to a 3rd party (selected by Herley Industries, Inc.) evaluation in accordance with IDEA-STD-1010-A (Acceptability of Electronic Components Distributed in the Open Market) and/or Aerospace Standard AS5553 (Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition) to determine authenticity and traceability of parts to the applicable OCM/OEM. Payment for said parts may be held pending review and acceptance of an Analysis Report that supports authenticity. If determined that parts delivered under this Purchase Order are, or include, suspect Counterfeit Parts, SELLER shall be liable for all direct costs relating to the investigation, analysis and disposition of parts suspected of being Counterfeit. Herley Industries, Inc. will provide to the SELLER a copy of the Analysis Report. Herley Industries, Inc. reserves the right to not process payment for any parts determined suspect Counterfeit and reserves the right to retain said parts for proper disposal in support of avoiding any further inadvertent distribution of suspect Counterfeit parts throughout the industry.

**Q26 Q-Clause for authorized Suppliers** (Clause version date June 13, 2018)

**A. Definition:**

- 1 Counterfeit Part – A part that is a copy or substitute without legal right or authority to do so or one whose material performance, or characteristics, are knowingly misrepresented by a Supplier at any level in the supply chain. Examples of counterfeit parts may include, but are not limited to:
  - a. Parts which do not contain the proper internal construction (die, manufacturer, wire bonding, etc.) consistent with the ordered part.
  - b. Parts which have been used, refurbished or reclaimed, but represented as new product.
  - c. Parts which have a different package style or surface plating/finish than the ordered parts.
  - d. Parts which have not successfully completed the Original Equipment Manufacturers (OEMs) / Original Component Manufacturers (OCMs) full production and test flow, but are represented as completed product.
  - e. Parts sold as up-screened parts, which have not successfully completed up-screening testing.
  - f. Parts sold with modified labeling or markings intended to misrepresent the part's form, fit, function, grade or manufacturing date.
- 2 Part – The lowest level of separately identifiable items (e.g. piece parts).



**Q26 Q-Clause for authorized Suppliers** (Clause version date June 13, 2018) **Continued**

- B. Prohibition:** SELLER agrees and shall ensure that Counterfeit Parts are not contained in products delivered to Herley Industries, Inc.
- C. Prevention:** SELLER shall implement a counterfeit electronic parts detection and avoidance system using SAE Standard AS5553 as a guideline. Within sixty (60) days of receipt of an initial order with this clause, SELLER shall submit to Herley Industries, Inc. a written report which details the process the SELLER uses to prevent the introduction of potentially Counterfeit Parts into its supply chain and in support of all Herley orders with this clause. SELLER shall only purchase parts procured directly from the Original Component Manufacturer (OCM) / Original Equipment Manufacturer (OEM), or through the OCM / OEM authorized distribution chain. The SELLER shall verify the procurement source and associated certifying paperwork. Appropriate incoming inspection test methods shall be used to detect potential Counterfeit Parts and materials. Products shall not be acquired from Independent Distribution / Brokers (any company, person, or entity who is not an OEM/OCM or not an OEM/OCM authorized franchised dealer or distributor) unless approved in advance in writing by Herley Industries, Inc. When requested by Herley Industries, Inc., SELLER (at SELLER's expense) shall provide documentation supporting authenticity and traceability of parts to the applicable OCM/OEM.
- D. Notification:** In the event SELLER becomes aware or suspects that Counterfeit Parts have been furnished to Herley Industries, Inc., SELLER shall immediately (within one business day) notify Herley Industries, Inc.
- E. Remedies:** In the event that products delivered under this Contract are, or include, Counterfeit Parts, SELLER shall (at SELLER's expense) promptly replace such Counterfeit Parts with genuine parts conforming to the requirements of this Contract. Notwithstanding any other provisions in the Contract, SELLER shall be liable for all direct costs relating to the investigation, analysis and disposition of parts determined to be Counterfeit.
- F. Flow-down:** SELLER shall include this Clause or equivalent provisions in all lower tier subcontracts for the delivery of parts that will be furnished to or included in products furnished to Herley Industries, Inc.

- Q27 Accelerated Aging Requirements** (Clause version date March 12, 2012) – Electronic components and printed circuit boards may be stored for up to 1 year and must remain solderable; therefore, product shall be capable of meeting artificial age conditioning in accordance with IPC J-STD-002 for tin and tin/lead coatings and J-STD-003 for printed circuit boards. Herley reserves the right to conduct artificial age conditioning upon receipt and return any product (at no cost to Herley) that fails to meet said requirements.
- Q28 Solderability Requirements – Metallic-Coated Products** (Clause version date March 12, 2012) – Metallic coated products to be soldered shall be evaluated to assure satisfactory performance in manufacturing processes requiring soldering. The evaluation of solderability shall be completed in accordance with the requirements of ASTM B 678. Alternate methods of solderability testing may be used upon prior review and approval by Herley Industries, Inc. Solderability test sample configuration is at the discretion of the Supplier and must be from the same material Lot used for finished items. Finished items supplied to Herley shall not be used for solderability testing.
- Q29 Accelerated Aging Requirements – Metallic-Coated Products** (Clause version date March 12, 2012) – Metallic coated products that are to be stored for up to 1 year and remain solderable shall be artificially aged prior to solderability testing. Artificial age conditioning is intended for tin and tin-lead coatings only and shall be completed in accordance with the requirements of ASTM B 678.
- Q30 Supply Chain Traceability of EEE Items Required** (Clause version date September 26, 2014) – Seller shall provide, with each shipment, Manufacturers Lot Date Code traceable to the Original Component Manufacturer (OCM) for all Electrical, Electronic, and Electromechanical (EEE) components included in this Purchase Order.
- The following DOES NOT APPLY to OEMs / OCMs supplying directly to Herley. In addition to the above noted, traceability documentation shall be supplied with **EACH** shipment that identifies the name and location of all of the supply chain intermediaries from the Original Component Manufacturer (OCM) or aftermarket Manufacturer to the direct source supplying to Herley.
- Q31 Foreign Object Damage (FOD) Prevention Control** (Clause version date June 13, 2018) – The Supplier shall maintain a Foreign Object Damage (FOD) Prevention Program using Aerospace Standard AS9146 as a guide. The Supplier shall ensure that work is accomplished in a manner preventing foreign objects or materials from entering and remaining in deliverable items. Maintenance of the work area and control of tools, parts and material shall preclude the risk of FOD incidents.
- Q32 Flow down of requirements** (Clause version date August 10, 2017): – The Supplier shall flow down to all required sub-tier Suppliers the applicable requirements of this Purchase Order, including key characteristics where required, and ensure that appropriate controls are in place at direct and sub-tier Supplies to meet the requirements of this Purchase Order.

**Q33 First Article Inspection** (Clause version date June 13, 2018) – The SELLER shall perform First Article Inspection (FAI) in accordance with Aerospace Standard AS9102 (Aerospace First Article Inspection Requirement). This Clause applies to any first production run of products produced and any subsequent changes to the product and/or process that invalidate the previously documented first article inspection.

Unless contractually required, this Clause does not apply to:

- Development and prototype parts that are not considered as part of the first production run.
- Unique single run production orders, not intended for ongoing production (e.g., out-of-production spares).
- Procured standard catalogue items, COTS (COMMERCIAL-OFF-THE-SHELF: Commercially available items intended by design to be procured and utilized without modification (e.g., common electronic components)), or deliverable software.

A copy of the final First Article Inspection Report (FAIR) comprised of all supporting documentation including product certifications, build records, test records, inspection records, and subsequent approval documentation shall be forwarded to Herley's Quality Assurance for review and approval.

The FAI requirement, once invoked, shall continue to apply even after initial compliance. Any or all of the following events may require and additional FAI or a delta FAI:

- Change in the design affecting form, fit, or function of the part.
- Change in manufacturing source(s), processes, assembly line, inspection method(s), location, tooling, or materials.
- When required as part of corrective action for a part number with repetitive rejection history.
- Natural or man-made occurrence which may adversely affect the manufacturing process.
- All repeat builds on production parts when more than two years has elapsed (or as otherwise directed in the purchase order) since the last production item was produced.
- When there is a change to a part, an FAI shall be performed on the next higher assembly to the extent that the change impacts that assembly.

All first article documentation shall be considered quality/acceptance records and shall be retained in accordance with purchase order requirements.

**Q34 Counterfeit Electrical, Electronic, and Electromechanical (EEE) Assemblies: Avoidance, Detection and Mitigation (Clause version date June 13, 2018) – This Clause DOES NOT APPLY to Suppliers / Distributors of discrete components.**

**A. Definition:**

1. Counterfeit Part – A part that is a copy or substitute without legal right or authority to do so or one whose material performance, or characteristics, are knowingly misrepresented by a Supplier at any level in the supply chain. Examples of counterfeit parts may include, but are not limited to:
  - a. Parts which do not contain the proper internal construction (die, manufacturer, wire bonding, etc.) consistent with the ordered part.
  - b. Parts which have been used, refurbished or reclaimed, but represented as new product.
  - c. Parts which have a different package style or surface plating/finish than the ordered parts.
  - d. Parts which have not successfully completed the Original Equipment Manufacturers (OEMs) / Original Component Manufacturers (OCMs) full production and test flow, but are represented as completed product.
  - e. Parts sold as up-screened parts, which have not successfully completed up-screening testing.
  - f. Parts sold with modified labeling or markings intended to misrepresent the part's form, fit, function, grade or manufacturing date.
2. Part – The lowest level of separately identifiable items (e.g. piece parts).

**B. Avoidance:** Products shall not be acquired from Independent Distribution / Brokers (any company, person, or entity who is not an Original Component Manufacturer (OCM) / Original Equipment Manufacturer (OEM), or OCM / OEM authorized distribution chain) unless approved in advance in writing by Herley Industries, Inc. If the required items cannot be procured from the Original Component Manufacturer (OCM) / Original Equipment Manufacturer (OEM), or through the OCM / OEM authorized distribution chain, the SELLER must present to Herley Industries, Inc. (in writing) complete and compelling supporting information ensuring the proposed parts are not Counterfeit Items. HERLEY INDUSTRIES, INC. APPROVAL IS REQUIRED for items that cannot be procured from the Original Component Manufacturer (OCM) / Original Equipment Manufacturer (OEM), or through the OCM / OEM authorized distribution chain. SELLER agrees and shall ensure that Counterfeit Parts are not contained in products delivered to Herley Industries, Inc.

**C. Detection:** SELLER shall maintain a formal Counterfeit Item Risk Mitigation process internally and with its suppliers in compliance with the requirements set forth herein and shall provide evidence of this process to Herley Industries, Inc. upon request. Reference IDEA-STD-1010-A (Acceptability of Electronic Components Distributed in the Open Market) and Aerospace Standard AS5553 (Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition) as guides for development of a mitigation process. The SELLER shall verify the procurement source and associated certifying paperwork. Appropriate incoming inspection test methods shall be used to detect potential Counterfeit Parts and materials. The SELLER'S process shall include active participation in the Government/Industry Data Exchange Program (GIDEP). As a minimum, the SELLER GIDEP process shall ensure the timely review of Alerts, Problem Advisories, Agency Action Notices, Lessons Learned, Urgent Data Requests and Safety Alerts.

**Q34 Counterfeit Electrical, Electronic, and Electromechanical (EEE) Assemblies: Avoidance, Detection and Mitigation (Clause version date June 13, 2018) – This Clause DOES NOT APPLY to Suppliers / Distributors of discrete components. Continued**

- D. Mitigation:** Within sixty (60) days of receipt of an initial order with this clause, SELLER shall submit to Herley Industries, Inc. a written report which details the process the SELLER uses to prevent the introduction of potentially Counterfeit Parts into its supply chain. Products shall not be acquired from Independent Distribution (Brokers) unless APPROVED IN ADVANCE in writing by Herley Industries, Inc. When requested by Herley Industries, Inc., SELLER (at SELLER's expense) shall provide documentation supporting authenticity and traceability of parts to the applicable OCM/OEM.
- E. Notification:** In the event SELLER becomes aware of suspect / confirmed Counterfeit Parts that have been furnished to Herley Industries, Inc., SELLER shall notify Herley Industries, Inc. (in writing to Herley's Director of QA) as expeditiously as possible.
- F. Remedies:** In the event that products delivered under this Contract are, or include, Counterfeit Parts, SELLER shall (at SELLER's expense) promptly replace such suspect/ confirmed Counterfeit Parts with genuine parts conforming to the requirements of this Contract. Notwithstanding any other provisions in the Contract, SELLER shall be liable, for all direct costs relating to the investigation, analysis and disposition of parts determined to be Counterfeit.
- G. Flow-down:** SELLER shall include this Clause or equivalent provisions in all lower tier subcontracts for the delivery of parts that will be furnished to or included in products furnished to Herley Industries, Inc.

**Q35 Performance Requirements for Printed Wiring Boards (Clause version date July 30, 2013)**

The Printed Wiring Board shall meet the requirements of the applicable IPC-6010 series specification (Class specified by the governing Drawing/Specification).

IPC-6012 for Rigid Printed Boards  
IPC-6013 for Flexible Printed Boards  
IPC-6018 for Microwave End Product Printed Boards

The Supplier is responsible for the performance of all test and inspection requirements as set forth by the aforementioned Standards. Documentation (results of measurements, inspections and tests) shall be provided for each Lot shipped. Sample Test Coupons traceable to the corresponding manufacturing Lot shall be provided with the initial lot shipment.

NOTE 1: Additional Requirements pertaining to IPC-6018 product: Supplier shall provide, with each shipment, data for all "R" holes confirming compliance to print specified dimensions. The data shall be taken on a minimum two parts of each production process cycle (i.e. Production Lot). Sampling will be taken from the beginning and end of the production cycle. Failure to meet print specifications for any "R" hole(s) (within the 2 piece sample) will require a 100% inspection of failed dimension(s) on all parts from the subject Production Lot. This requirement APPLIES ONLY to substrates made from Rogers Duroid 6002 when the print specifies that the data will be taken by the Supplier in the "constrained condition".

NOTE 2: If the "manufacturing Lot" is split for shipment and subsequent "ship Lots" are from a manufacturing Lot where test and inspection data (including coupons) have already been provided to Herley, the Supplier is not responsible for providing additional data provided the supplied documentation is traceable to the original manufacturing Lot.

Circuit repairs are not permitted unless approved, in writing, by Herley QA Department.

**Q36 Chemical and Physical Analysis Documentation REQUIRED with EACH SHIPMENT**  
(Clause version date March 12, 2012) – This Quality Clause applies when the material requirements are defined in a Specification and/or Drawing that is imposed by Herley's Purchase Order.

The Supplier shall provide chemical/physical analysis reports for each Lot of raw material used traceable to the product delivered to Herley. The chemical/physical analysis reports shall validate compliance to applicable material specifications imposed by the governing Drawing.

NOTE: If the "raw material Lot" is split for shipment of completed product Herley and subsequent "ship Lots" are from a raw material Lot where test and inspection data have already been provided to Herley, the Supplier is not responsible for providing additional documentation provided the supplied documentation is traceable to the original raw material Lot.

**Q37 Plating Inspection and Testing Documentation REQUIRED with EACH SHIPMENT**

(Clause version date March 12, 2012) – This Quality Clause applies when the plating requirements are defined in a Specification and/or Drawing that is imposed by Herley's Purchase Order.

The Supplier shall provide copies of Plating Inspection and Test reports for each plating Lot relative to each shipment provided to Herley. Inspection and Tests performed shall be, as a minimum, those specified by the governing Specification / Drawing. The Plating Inspection and Test reports provided shall represent compliance to applicable plating requirements imposed by the governing Specifications / Drawing.

NOTE: If the "plating Lot" of completed product is split for shipment to Herley and various "ship Lots" are from the same plating Lot where Inspection and Test documentation has already been provided to Herley, the Supplier is not responsible for providing additional documentation provided the previously supplied documentation is traceable to the original plating Lot.

**Q38 Key Characteristic Process Control Documentation** (Clause version date March 12, 2012) – When Key Characteristics (KCs) have been identified by the governing Drawing / Specification, the Supplier shall maintain a Process Control Document that supports the following (as example):

- Potential sources of variation
- Manufacturing Process Elements that influence KCs
- Data Control Plan
- Control Techniques
- Types of reporting methods
- Process capability, including calculation methods
- Investigation results of out-of-control points
- Investigation results of sources of variation

The Supplier shall perform variation management activities supporting KCs (Reference AS9103) to establish process capability and maintain subsequent control. If statistical process control is chosen, the process shall be capable with a  $C_{pk} \geq 1.33$ . If other control methods are chosen, measurable evidence must demonstrate process capability and stability. The Supplier shall make available, upon request, documentation that supports compliance to a Process Control Document. Evidence of process control for KCs does not relieve the Supplier of compliance to all Drawing / Specification characteristics.

**Q39 Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS)** (Clause version date September 5, 2012) – MSDS or SDS must be supplied with each shipment to Herley.

**Q40 Certificate of Compliance - Single Manufacturer's Lot Date Code** (Clause version date November 2, 2012) – Each delivery of an individual part number shall be from a single Manufacturer's Lot Date Code.

The Supplier shall provide a certification with each shipment to attest that the parts, assemblies, subassemblies, or detailed parts conform to all of the Purchase Order requirements. The Manufacturer's Lot Date Code shall appear on the Certificate of Compliance in addition to the following, as a minimum:

- Herley-Lancaster Purchase Order number
- Part number and Revision
- Name of Manufacturer and Country of Origin
- Name and address of Supplier (entity supplying the product to Herley)
- Quantity
- Signed and dated by an official of the Supplier (electronic signature formats permitted)
- Statement attesting that parts conform to the Purchase Order requirements.

The Supplier shall establish and maintain a documented system for controlling product quality records (process and inspection records as a minimum) that support this Purchase Order. The Supplier shall perform inspection, as necessary, to determine the acceptability of all articles under this Purchase Order. All articles submitted by the Supplier under this Purchase Order are subject to final inspection at the Herley-Lancaster facility.

**Q41 Part Substitution Prohibited** (Clause Revision AA dated September 5, 2012) – No Part substitutions (as defined by Herley's Purchase Order), are permitted without written authorization by Herley's Purchasing Department.

**Q42 Supply Chain Traceability of EEE Items Required – Single Manufacturer's Lot Date Code** (Clause version date May 12, 2014) – Seller shall provide, with each shipment, traceability information reflecting the Original Component Manufacturer (OCM) and/or Original Equipment Manufacturer (OEM) for all Electrical, Electronic, and Electromechanical (EEE) components and devices included in this Purchase Order. The traceability information shall include the OCM / OEM Lot Date Codes. In addition, the Seller shall maintain a method of traceability for Electrical, Electronic and Electromechanical (EEE) components that clearly identifies the name and location of all supply chain intermediaries from the Original Component Manufacturer to the Seller. Documentation shall be made available upon request.



**Q43 IPC J-STD-001 Materials Requirements** (Clause version date September 5, 2012) – Solder alloys shall be in accordance with J-STD-006 or equivalent. Solder paste shall be in accordance with J-STD-005 or equivalent. Flux (including flux that is part of flux-cored solder wire and flux used in manufacturing solder paste) shall be in accordance with J-STD-004 or equivalent. Conformal coating material shall conform to the material specification (IPC-CC-830 or equivalent). In the event of a conflict between the content of this Quality Clause and the requirements specified by the Herley provided Drawing and/or Specification, Herley's Drawing and/or Specification takes precedence.

**Q44 Specification Revision Level** (Clause version date October 16, 2013) - When a Herley supplied Drawing references a military, industrial, and commercial specification, the Sellers shall use the latest revision (including the latest revision of Industry directed superseding specification) at time of the Purchase Order unless otherwise indicated on the Drawing or Purchase Order.

When a military, industrial, and commercial specification referenced on a Herley supplied Drawing has been cancelled WITHOUT REPLACEMENT, the Seller shall contact the Herley Buyer to acquire the applicable specification and its revision.

**Q45 Calibration Service Providers** (Clause version date April 20, 2021): Supplier shall maintain a documented calibration system for the calibration and maintenance of tooling, inspection, and test equipment. Supplier shall have a calibration system that is compliant to prevailing industry requirements for "Calibration" to ISO/IEC 17025 and/or ANSI/NCSL Z540-1 (ANSI Z540.3)

Compliance to the applicable standard above shall be recorded on the Suppliers calibration record provided to Ultra Electronics Herley with the delivery of the item(s) calibrated/purchased.

Testing and Calibration Laboratories shall also operate in accordance with ISO 9001.

Evidence of compliance shall be made available to Ultra Electronics Herley upon request. All subcontractors of calibration services regarding this purchase order must also meet this requirement.

Additionally, completion of the Supplier Qualification Questionnaire as supplied by Ultra Electronics Herley is required.

**Q46 Calibration Service Providers – Certificate of Calibration (C of C) Requirements**  
(Clause version date August 23, 2017) – Supplier shall provide a Certificate of Calibration with each item calibrated to attest that the calibration performed conforms to Purchase Order requirements. Certificate of Calibration received at Herley-Lancaster with the delivery of the item(s) calibrated must contain the following:

- Name and Address of calibration supplier
- Reference to unique identifier (i.e. Model Number, Part Number, Serial Number, Asset Number as applicable) of item(s) calibrated and covered by the Certificate of Calibration.
- A statement attesting to the compliance to required calibration system requirements of ISO/IEC 17025 and/or ANS/NSCL Z540-1 (ANSI Z540.3).
- Stamp and/or Signature (electronic signature format permitted) by an official of the Supplier.

All Certificates of Calibration submitted by the Calibration Service Provider are subject to final review and approval at the Herley-Lancaster facility.

**Q47 Counterfeit Part, Material, and Work Avoidance and Certification**  
(Clause version date August 1, 2017) - The supplier's Certification of Conformance represents that the shipment does not contain any 'suspect' or 'known' Counterfeit Part, Material, or Work\* and ensures that parts, material or work are procured only through Original Equipment Manufacturers (OEMs)/Original Component Manufacturers (OCMs) or their Franchised Distributors or Authorized Supplier. Any use of other than an Authorized Supplier\* requires Ultra Electronics Herley written approval prior to procurement and use, which shall be contained within the deliverable data package.

The supplier shall verify the procurement source and associated certifying documentation.

Supplier's receiving inspection process shall utilize incoming inspection or test methods, or both, to detect potential counterfeit parts, material or work.

The supplier shall flow this clause in its entirety or equivalent (i.e. replacing "Ultra Electronics Herley" with "supplier's name") down to all lower tier subcontracts to prevent the inadvertent use of Counterfeit Parts, Material or Work. When an Authorized Supplier is not utilized by the supplier's lower tier, the supplier shall provide a copy of the risk assessment and their written approval within the deliverable data package.

**Q48 Supplier Awareness** (Clause version date August 1, 2017) - The following is being communicated to Herley's external providers (i.e. Supplier) in support of Herley's Quality Management System and continued improvement:

- a. Ultra Electronics Herley "Quality Policy states, in part, :...To provide products and services which always meet and/or exceed our customers' expectations .....Committed to creating continuous improvement in all phases of our business...". This cannot be accomplished without our Supplier supporting continual improvement.
- b. Ultra Electronics Herley Suppliers maintaining a Supplier Performance Rating of  $\geq 95\%$  and an overall Delivery Rating of  $\geq 80\%$  support Herley's goals of: "Increased Customer Satisfaction"; "Reduced Customer Complaints"; and "On Time Delivery to Customers".
- c. Accuracy and compliance to Purchase Order requirements by external providers contribute to the overall effectiveness of Ultra Electronics Herley's Quality Management System by improved performance and meeting mutually beneficial Quality Objectives.

External providers contribute to product safety by supplying products and or services in compliance with requirements.

**Q49 Supplier Code of Ethics** (Clause version date August 1, 2017) - Ultra Electronics Herley will conduct business in compliance with all applicable federal, state, local, and foreign country laws. We also expect all of our employees and others with whom we do business (i.e. you the Supplier) to conduct their business activities with the utmost integrity, honesty, and to maintain high ethical standards. Ultra Electronics Herley has a formal Ethics & Compliance Program, which includes methods of informing our employees of these standards, training classes, a hotline and other elements. It is expected that our Suppliers have and support similar practices to ensure full compliance. Suppliers must only provide those products and services that conform to contract requirements, including all testing requirements, and you must ensure that sub-tier suppliers of raw materials, parts and components used in our products have an acceptable quality control system and that no counterfeit or malicious parts are utilized in our products.

Many special laws and regulations apply when we do business with U.S. Government agencies and prime contractors. It is our responsibility and those whom we do business with to know, understand and comply with these laws and regulations, as well as with the Company's own high ethical standards in conducting business. Failure to comply with these rules can subject Ultra Electronics Herley, its employees, and those whom with do business with to serious civil and criminal liability, and penalties. We are committed to complying with all laws and regulations that apply to our Government contracts and to acting ethically in all transactions with the Government and we thank you our Suppliers for your shared commitment to meeting these principles.

**Q50 No Outsourcing Permitted** (Clause version date August 1, 2017) - Unless otherwise approved, in advance and in writing, by Ultra Electronics Herley Quality Assurance Management and Buyer, the Seller is NOT permitted to outsource the work (i.e. manufacturing and/or altering of items governed by a Ultra Electronics Herley Drawing or Specification) associated with this Purchase Order with the exception of secondary plating processes that are not governed by other Purchase Order requirements specifically directing the use of a sub-tier plating provider.

**Q51 Calibration Process HOLD Conditions** (Clause version date September 20, 2017) - The calibration of any item SHALL BE SUSPENDED if any abnormalities or departures from standard condition (as prescribed in the relevant calibration method) are evident prior to or during the calibration process.

This includes, but is not limited to:

- When calibration requirements (i.e. operating ranges and/or tolerances) not being fully specified or are in question
- When adjustment need to be made outside defined industry / manufacturers requirements
- When equipment seals (i.e. Calibration Void seals) are breached
- When equipment seals (i.e. Calibration Void seals) show evidence of potential tampering
- In cases where instruments cannot be calibrated with a test uncertainty ratio of 4:1 or greater, measurement uncertainty analysis and/or guard banding is not permitted

If any of the above noted conditions (or if there is any doubt as to the item's suitability for calibration) exist, the Supplier SHALL consult with Ultra Electronics Herley for further instruction (to be provided IN WRITING) before proceeding.

- Q52 Records Retention** (Clause version date August 10, 2017) - Seller's records, supporting conformance to Ultra Electronics Herley Purchase Order requirement, shall be maintained and available for review by Ultra Electronics Herley, Ultra Electronics Herley Customers and/or Regulatory Agencies, upon request. Unless extended record retention requirements are specified elsewhere in this Purchase Order or attachments (e.g. Drawings, Specifications, Ultra Electronics Herley Customer flow-down requirements, etc.), records shall be maintained by the Seller and available for a minimum of two (2) years following the end of the calendar year in which the final delivery was made for each Purchase Order. At any time during this retention period, at Ultra Electronics Herley Buyer request, Seller will make available said records, or any part thereof, in support of the previously agreed upon Purchase Order requirements.
- Q53 Obsolete Parts Prohibited** (Clause version date June 13, 2018) – There shall be no obsolete parts (as determined by the original component manufacturer) used in the product(s) being provided without written permission by Herley's Buyer. The SELLER shall notify Herley of any impending parts obsolescence during the fulfillment of this Purchase Order.
- Q54 Printed Wiring Board (PWB) Packaging Requirements** (Clause version date January 9, 2019) – PWBs shall be packaged in a heat sealable moisture barrier bag meeting the requirements of MIL-PRF-81705, Type I. Desiccant meeting the requirements of MIL-D-3463, Type II shall be used as required. A humidity indicator card with at least 3 sensitivity levels (i.e. 5%, 10% & 60%) shall be used.
- Q55 Packaging constraints for Electrical, Electronic, and Electromechanical (EEE) components and assemblies containing EEE components** (Clause version date April 23, 2019) – Pink Poly (i.e. Polyethylene treated with an antistatic agent) is PROHIBITED for the initial layer of packaging nor shall it be in direct contact with EEE components. Static shield bags shall be used as the interior layer protection for EEE components and assemblies containing EEE components. For guidelines, refer to MIL-PRF-81705.

- Q56 Packaging Semiconductor and Axial Lead** (Added Clause – Initial Release date 02/18/2021) Visual inspection of semiconductors shall be performed by the supplier per the Component Inspection requirements of MIL-STD-750, Methods 2072, 2073 and IPC-A-610.
- Q57 Passive Element and Substrate** (Added Clause – Initial Release date 02/18/2021) Visual inspection of passive elements and substrates shall be performed by the Inspection Requirements supplier per the requirements of MIL-STD-883, Method 2032. Exception is granted for 0302 resistor types with respect to paragraphs 3.3.7b and 3.3.7c.
- Q58 Microelectronic Active Die** (Added Clause – Initial Release date 02/18/2021) - Visual inspection of microelectronic active elements shall be performed by the Inspection Requirements supplier per the requirements of MIL-STD-883, Methods 2010, 2017 and 2032.
- Q59 Test / Screening Data** (Added Clause – Initial Release date 02/18/2021) - Supplier shall forward a complete copy of test and/or screening data with each shipment. Data shall be traceable and provide objective evidence of quality including Ultra Electronics Herley part number and revision, date codes, serial numbers, specification numbers and contract numbers, as applicable.
- Q60 Hermetic Seal Packages** (Added Clause – Initial Release date 02/18/2021) - Supplier is required to perform testing and inspection per Ultra Electronics Herley QCF#127 in addition to drawing requirements.
- Q61 Maintaining Lot / Date Code uniformity of Electrical, Electronic, and Electromechanical (EEE) components** (Added Clause – Initial Release date 04/20/2021) – This Quality Clause only applies to EEE component modification technologies (e.g. lead refinishing; restoration of solderability; BGA reballing; etc.). When Ultra Electronics Herley provides EEE components to a Supplier for industry recognized modifications, the Supplier shall maintain EEE component Lot / Date Code uniformity to the extent received from Ultra Electronics Herley. In the event of a conflict between this Quality Clause and a specific Ultra Electronics Purchase Order requirement, the latter shall take precedence.