



## ATTACHMENT C QUALITY PROGRAM PROVISIONS PURCHASE ORDERS

The following clauses are applicable only as noted in the Purchase Order in accordance with Rantec Document No. QCI-300.2. All specifications referenced within this document are to the latest revision unless otherwise specified. Shipment will not be considered complete and invoice will not be honored until the specified Quality Provisions are fulfilled.

### CLAUSE 1: Standard Inspection Clause

The Supplier shall maintain a system for identifying the inspection status of all in-process material necessary to produce the product. The Supplier shall maintain adequate equipment and perform sufficient inspection and tests, ensuring that the articles conform to applicable drawings and specifications in all respects prior to shipment. The Supplier shall maintain, subject to Rantec Quality Assurance review, adequate records as objective evidence of this compliance. Records must be kept for a period of ten (10) years from date Purchase Order closed.

### CLAUSE 2: MIL-I-45208 or ASQC-Q9003

Supplier shall, as a minimum, satisfy the requirements as outlined in specification MIL-I-45208 or ASQC-Q9003, Quality System Requirements, in the manufacture and delivery of products or material.

### CLAUSE 3: MIL-Q-9858 or ISO 9001

Supplier shall, as a minimum, satisfy the requirements as outlined in specification MIL-Q-9858 or ISO 9001, Quality System Requirements, in the manufacture and delivery of products or material.

### CLAUSE 4: Calibration

Supplier shall have developed and implemented a documented metrology system in accordance with MIL-STD-45662A, Calibration Systems Requirements, or ANSI/NCSL, Z540-1, ISO 10012-1, ISO 9001, 9002, or 9003 Element 4.11.

### CLAUSE 5: Rantec Test Witness

Rantec Source Inspection is required to witness qualification and/or destructive tests. When requesting source inspection, *call the buyer* whose name appears on this Purchase Order *at least seventy-two (72) hours in advance*.

### CLAUSE 6: Rantec In-Process Source Inspection

Rantec Source Inspection is required prior to (including period of performance) completion of any assembly, supplies, and/or processes on this order. The Supplier shall notify Rantec Quality Control **forty-eight (48) hours in advance** when items are ready for inspection. *A copy of the source inspection report must accompany each shipment of material.*

### CLAUSE 7: Rantec Final Source Inspection

Rantec source inspection is required on all items prior to shipment from your facility. This may include surveillance of the products, quality systems procedures and facilities. The Seller shall furnish, at no cost, the necessary facilities and equipment, supply data and perform tests as required by applicable drawings, specifications and inspection instructions under surveillance of a Rantec Quality representative. Final acceptance of purchased products shall be at Rantec facilities. Rantec reserves the right to re-inspect or retest materials received from the supplier. When requesting source inspection, call the buyer whose name appears on this Purchase Order at least

*seventy-two (72) hours in advance. A copy of source inspection report must accompany each shipment of material.*

### CLAUSE 8: Government Source Inspection–GSI

Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify the Government representative who normally services your plant so that appropriate planning for Government inspection can be accomplished. Government representative's stamp and date of inspection must appear on the packing slip or invoice.

### CLAUSE 9: Standard Packaging

The Seller shall identify all articles in strict conformance with the referenced Rantec specifications. All articles shall be properly protected against corrosion, adequately wrapped, packed and/or crated to prevent damage in transit.

### CLAUSE 10: Special Process Certification

Each shipment of specified product/material must be accompanied by a legible and reproducible copy of a certification, or equivalent documentation, containing special processes completed and the name and title of an authorized representative of the supplier/agency performing any special process. When parts are serialized, the serial numbers must appear on the certification. Special processes are defined as processes that cannot be physically or visually verified after processing, i.e.: adhesive bonding, brazing, conversion coating, painting, special finishes, heat treating, plating, potting. Deliverable: A legible and reproducible certification or equivalent, containing special processing completed and name and title of authorized representative of the supplier/agency performing each special process.

### CLAUSE 11: Approved Special Processes

If an item supplied on this Purchase Order requires special processing and/or nondestructive testing that is controlled by specification, (such as but not limited to welding, heat-treating, magnetic particle inspection, liquid honing, penetrant inspection, surface preparation and treatment (plating/chem-film), ultrasonic inspection, brazing, etc.) the Seller must use only buyer-approved processors. In the event the Seller performs the process within their facility, the Seller must be listed as an approved processor.

Each shipment of material on this Purchase Order must be accompanied by one (1) legible and reproducible copy of a certification containing the signature and title of an authorized representative of the agency performing the tests and/or process. When parts are serialized or lot controlled, the serial numbers or lot identification must appear on the certification.

Seller's certificate of conformance must list all special processes and the name and address of the processor.

**CLAUSE 11: Approved Special Processes** (continued)

The Seller shall contact the Rantec representative whose name appears in the buyer reference field on the Purchase Order for a copy of the approved processors.

Buyer approval of any processor shall not relieve Seller of Seller's obligation and liabilities under this contract.

**CLAUSE 12: 100% Inspection**

Inspection of all required characteristics shall be performed one hundred percent by the Supplier. Certification must certify that 100% inspection was performed as required by Purchase Order.

**CLAUSE 13: Chemical/Physical Test Report**

Suppliers shall establish and maintain a system of traceability applicable to this order, which will allow a continuous and permanent records to the specific chemical/physical test reports pertaining to and identified to any materials used that are controlled by a referenced specification. These records must be retained for a period of ten (10) years from date Purchase Order closed.

Supplier's system is subject to audit by Rantec, and shall ensure that each manufactured lot remain separate and identified as such at all times, including shipment to Rantec.

**CLAUSE 14: Traceability and Lot Control/Serialization**

The Supplier shall establish a two-way traceability system for all electronic and critical electromechanical parts used. Traceability from a deliverable item to a manufacturer's lot (backward traceability), as well as traceability from a manufacturer's lot to the deliverable item (forward traceability) shall be maintained.

- a. Raw material shall be traceable to the physical and chemical analysis report.
- b. Serial number traceability shall be maintained for fabricated assemblies and reliability-critical items. Serial numbers shall be assigned starting with the lowest functionally testable subassembly through all higher levels of assembly.
- c. Critical processes shall be so identified and batch- or lot-controlled through these processes.
- d. Electronic parts such as semiconductors, transformers, resistors, capacitors, connectors, etc. shall be traceable to the manufacturer and the lot data code.

**Any changes, including deviation waivers, shall be traceable to the lot control or serial number of the component and assembly.**

**CLAUSE 15: Sub-tier Supplier Traceability**

Supplier shall impose the necessary traceability requirements on his subcontractors to ensure the availability of continuous and permanent records referencing and traceable to the test reports pertaining to any material used in the performance of this order. Records must be retained for ten (10) years from date Purchase Order closes.

**CLAUSE 16: Component Traceability**

Traceability documentation is required on this order for each shipment of electronic components. The traceability document shall include date code, manufacturer's name and applicable military or manufacturer's specification used for production and inspection. The document must also contain the name, title and signature of an officer of the manufacturer.

**CLAUSE 17: Date Code/Manufacturing Lot Separation**

Each scheduled delivery of components against this Purchase Order shall consist of parts segregated by each date code produced by each manufacturer. Manufacturer and date code shall be noted on the suppliers packing sheet or Certificate of Conformance.

**CLAUSE 18: Certificate of Conformance**

Certificates of Conformance to applicable specifications and the subcontracts/Purchase Order requirements are required with each shipment. The certificate must contain the signature and title of an officer of the Seller, along with Purchase Order number, Rantec part number and quantity of shipment.

**CLAUSE 19: Test Reports—Chemical/Physical**

Each shipment must be accompanied by (1) one legible and reproducible copy of actual reports of tests performed in accordance with specification or Purchase Order requirements. . Material shall be domestic (USA) or from one of the qualifying countries referenced in DFAR 252.225-7002. Test report must be identifiable to material submitted. These reports must contain the name and title of an authorized representative of the agency and must ensure conformance to specifications requirements.

**CLAUSE 20: Functional Test Reports**

Each shipment shall be accompanied by one (1) legible and reproducible copy of actual reports of test results identifiable with test parameters defined operational, mechanical, electrical, hydraulic inspection, etc. of material submitted. These reports must contain the name of an authorized representative of the agency performing tests and must ensure conformance to specification requirements.

**CLAUSE 21: Test Data**

Test data certifying delivered material has been tested to Purchase Order and / or specification requirements must be supplied with each shipment (this shall include items purchased from distributors). Test data shall identify, in summary form, applicable electronic or physical testing parameters and results by attribute.

**CLAUSE 22: Identification of Limited Shelf-Life**

The seller shall identify each item, package, or container of limited shelf-life material with the manufacture date, storage temperature, and special handling conditions, in addition to the normal identification requirements of part name or code number, specification number, type size, quantity and manufacturing-recommended shelf life.

Limited shelf-life material must be delivered with a minimum 50% of shelf life remaining.

**CLAUSE 23: Material Safety Data Sheet (MSDS)**

Supplier shall ship with each order a copy of the *Material Safety Data Sheet* meeting OSHA standards, pursuant to Communication Standard 29 CFR 1919, 1200.

**CLAUSE 24: Printed Wiring Boards**

Seller shall furnish with each shipment of printed wiring boards:

- a. Certification of compliance to the required specification.
- b. Marking: In addition to the marking requirements of the applicable specification, each individual board, and if required, test coupon, shall be marked with their lot code number or date of manufacture (date

code).

**CLAUSE 25: Heavier Solder Required on Component Side**

Deleted 4/06

**CLAUSE 26: Laminate Material for Printed Wiring Boards**

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**CLAUSE 27: Marking of Printed Wiring Board Assemblies**

Serial numbers will be stamped on the same side and in the general vicinity of the part number of the subassembly. The marking shall be in accordance with MIL-STD-130, using a permanent epoxy ink in a contrasting color to the background character, height shall be 0.12-inch whenever possible. If this is impossible, it shall be visible and legible to the naked eye.

**CLAUSE 28: Baking of Boards**

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**CLAUSE 29: MPP-2.8**

Deleted 4/06

**CLAUSE 30: Workmanship**

All materials purchased under this Purchase Order shall comply as applicable with:

- a. ANSI/IPC-A-610, Class 1
- b. Soldering in accordance with IPC/EIA J-STD-001, Class 1
- c. MIL-HDBK-454 Requirement 9, Workmanship.

**CLAUSE 31: MIL-STD-2000NC**

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**CLAUSE 32: MIL-STD-2000A**

Deleted 4/06

**CLAUSE 33: MIS-28529 (Patriot GEM)**

Deleted 4/06

**CLAUSE 34: Rantec-Furnished Inspection and/or Production**

**Tooling**

Seller is responsible for calibration and care, other than normal wear, of all inspection and/or production tooling furnished or owned by Rantec for the sole use in performance of Purchase Order requirements. This tooling shall be subject to Rantec surveillance or inspection upon notice, and shall be returned in an acceptable condition upon demand or notice.

**CLAUSE 35: Mercury Certifications**

Mercury Contamination: Supplier will furnish Rantec with shipment, certification that material supplied is free of mercury contamination. Mercury found in any compound form is prohibited. Usage of equipment which might cause mercury contamination in the manufacturing, fabrication, assembly, or testing of this material is prohibited. This requirement must be flowed down to all subcontractors.

**CLAUSE 36: Cosmetic Workmanship**

All materials purchased under this Purchase Order shall meet the following requirements;

- a. Cosmetic appearance on all outside surfaces is critical; chemical film must be uniform and even in color. Scratches, nicks and other imperfections will be subject to rejection.
- b. Conformity of all parts in submitted lot is critical. All parts must be of uniform color, shape and size.

**CLAUSE 37: Component Marking**

The Seller shall identify all articles in strict

conformance with referenced Rantec specifications. The marking on items supplied (i.e., part number, manufacturer's code, date code, etc.) shall meet the marking permanency requirements of the applicable specification. The test methods for resistance to solvents (namely MIL-STD-202 Method 215, MIL-STD-750 Method 1022, or MIL-STD-883 Method 2015) shall be applied when required by the governing procurement specification/document.

**CLAUSE 38: Government QPL Source Certification**

Each shipment must include a certificate that the parts or materials used to comply with the required of this Purchase Order were manufactured by a current government-approved QPL source. This applies to the following:

- a. Components
- b. Coatings

This certificate shall be traceable to:

- 1) Manufacturer's Name / cage code
- 2) Lot Identification
- 3) Government Part Number (if applicable)
- 4) Rantec Purchase Order Number

**CLAUSE 39: Electrostatic Discharge (ESD) Sensitive Devices**

All electrostatic discharge (ESD) sensitive devices or assemblies purchased under this Purchase Order shall comply with the full requirements of DOD-STD-1686, latest revision. Electronic parts or assemblies shall be adequately protected from static fields and charges during all Supplier manufacturing processes, including ESD identification marking IAW MIL-STD-129 symbols, item packaging and shipment. Electronic parts or assemblies not suitably protected when inspected by Rantec shall be subject to rejection and replacement.

**CLAUSE 40: Distributors Traceability Documentation MIL-S-19500**

During performance of this order, your control of device lot traceability documentation and your inventory control for MIL-S-19500 JAN branded devices are subject to review, validation, and verification by an authorized Government representative. Government release of shipment is not required unless you are otherwise notified.

**CLAUSE 41: MIL-S-19500 Components**

The Supplier shall deliver to Rantec only those MIL-S-19500 parts manufactured less than 36 months previous or those which have been reinspected and identified as compliant with MIL-S-19500. The manufacturer's reinspection acceptance data (less than 36 months prior) shall be marked on the container/package of parts older than 36 months.

**CLAUSE 42: MIL-PRF-38535 (Microcircuits)**

The Supplier shall deliver to Rantec only those MIL-PRF-38535 parts capable of passing the solderability test in accordance with MIL-STD-883, Test Method 2003, on delivery to Rantec

**CLAUSE 43: Paint / Plating Coupons**

Each shipment of plated or painted products/materials must be accompanied by two (2) 1 by 2-inch test coupons made from the same product/material and must be plated or painted simultaneously with the item(s) being delivered. Final acceptance of the lot

being submitted is contingent upon the results of the bend-to-break test at Rantec Receiving Inspection.

**CLAUSE 44: Terminal Finish**

Terminals shall meet material (brass conforming to QQ-B-626 or bronze conforming to QQ-B-750) and finish (0.0003-inch thick minimum, fused tin-lead plating over 0.0001-inch minimum copper underplate IAW MIL-C-14550). Certifications signed by responsible Supplier's representative must be provided with each shipment.

**CLAUSE 45: Wire Identification**

Supplier shall identify each spool with the wire gauge, number of strands, MIL-SPEC number, revision level, manufacturer's name, Supplier name, Rantec Purchase Order number and lot number.

The UL marking must either be directly on the wire or on the spool that holds the wire.

**CLAUSE 46: Flux**

Certifications of resin base flux conforming to type RMA of MIL-F-14256, signed by responsible Supplier representative, must be provided with each shipment.

**CLAUSE 47: Solder**

Certifications of solder alloy shall conform to composition SN60, SN62, or SN63 and core flux type RMA of QQ-S-571, signed by responsible Supplier representative, must be provided with each shipment.

**CLAUSE 48: UL Marking on Wire**

The UL marking must either be directly on the wire or on the spool that holds the wire.

**CLAUSE 49: Notify Government Representative**

Upon receipt of this order, promptly furnish a copy to the Government representative who normally services your plant, or if none, to the nearest Army, Navy, Air Force or defense supply agency inspection office. In the event the representative or office cannot be located, our purchasing agent shall be notified immediately.

**CLAUSE 50: Distributor for Electrical Components**

When parts procured on this Purchase Order are supplied by franchise distributors or are parts manufactured and tested prior to receipt of this Purchase Order, the following data shall be delivered to Rantec with each part shipment:

1. Identification or part manufacturer and franchised distributor
2. Certification of conformance from the part manufacturer.
3. Copy of the manufacturer's part specification that identifies the following:
  - a. Part number
  - b. Description
  - c. Manufacturer
  - d. Lot number
  - e. As required: physical (dimensional) and electrical requirements.

**CLAUSE 51: Solderability**

Components, materials and raw stocks furnished against this order shall be certified by the Supplier to be in full compliance with ANSI/J-STD-202 solderability or MIL-STD-202, Method 208. Rantec reserves the right to survey and/or audit the Supplier's system and ability to make certification to this clause requirement. The certification shall be signed by an authorized representative of the seller.

**CLAUSE 52: Welder's Stamp**

Certified welder's stamp must appear on all items welded in accordance with specifications MIL-W-8604, MIL-W-8611 and/or MIL-T-5021.

**CLAUSE 53: First Article**

First Article inspection reports IAW AS9102 must be submitted to Rantec and accepted by Rantec Quality Assurance prior to a production shipment. The first article must be resubmitted at each new production run if any of the following apply:

- a. Prior to the initial production
- b. Drawing or specification revision change
- c. Lapse in production of (1) one year or more
- d. Required by Purchase Order.

First Article reports must be representative of and identifiable to production process; address all dimensional data, drawing notes and Purchase Order requirements and raw material requirements, verification of any mechanical and/or electrical testing requirements, such as solderability testing, pressure/leak testing, etc. Report shall be legible, reproducible and delivered with applicable shipment.

**CLAUSE 54: Seller's Controlled Products**

The initial shipment on this Purchase Order shall be accompanied by two (2) legible and reproducible copies of applicable specifications, drawings and/or catalogs.

**CLAUSE 55: Rantec-Furnished Material**

Items supplied on this Purchase Order are fabricated or processed from Rantec-furnished material. Supplier is only responsible for processes specified in Purchase Order.

**CLAUSE 56: Required Sources for High-Purity Silicon**

Deleted 10/07

**CLAUSE 57: Performance for Domestic Specialty Metals**

Specialty Metals per DFAR 252.225-7009 (includes Titanium and Stainless Steel)

Supplier must ensure that any specialty metals used in this product shall be:

- a. Melted and end product manufactured in the United States.
- b. Melted in any country, but end product manufactured in a qualifying country as defined in DFAR225.872-1(a)

Certification shall state country of origin for stainless steel ingot and country where end product is manufactured. Supplier is required to flow down this clause to your subcontractors, and they are required to flow it down to their subcontractors.

**CLAUSE 58: Material Venting and Outgassing**

Material/parts shall be capable of operating in a vacuum and adequately accommodate pressure differentials and/or venting rates generated during the launch and ascent to orbit. Materials shall have a TML in vacuum of less than 1.0% and a CVC of less than 0.1%, when tested in accordance with IAW ASTM E595.

**CLAUSE 59: Space Vehicle Raw Material Traceability**

Raw material shall be tested to verify conformance to applicable specifications. Manufacturer's test reports are acceptable, test reports shall be traceable to the material lot number. Test reports are required with each shipment of material. Supplier's certificate of conformance shall be traceable to the manufacturer's part number and lot/date code.

**CLAUSE 60: Space Vehicle Material Traceability**

Material shall be identified and traceable to a specific manufacturer lot number or lot date code. Supplier's certificate of conformance shall be traceable to the manufacturer's part number and lot/date code.

**CLAUSE 61: FOD (Foreign Objects, Debris or Damage)**

The material supplied on this Purchase Order shall be: Manufactured in an environment that is free of foreign objects. Material supplied shall be free of foreign objects or damage.

The Supplier shall establish and maintain an effective Foreign Object Damage (FOD) Prevention Program to reduce FOD using NAS412 as a guideline.

The Supplier's program shall utilize effective FOD prevention practices. The program shall be proportional to the sensitivity of the design of the product(s) to FOD, as well as, to the FOD-generating potential of the manufacturing methods.

The written procedures or policies developed by the Supplier shall be subject to review and audit by the Buyer and/or government representative and disapproval when the Supplier's procedures or policies do not accomplish their objectives.

The intent of this Quality Clause is not to necessarily change manufacturing processes but maintain continual awareness of the need to eliminate foreign objects for all material supplied.

**CLAUSE 62: Record Retention**

Supplier shall retain as built, inspection and test data for products delivered to Rantec for a minimum of 10 years or as specified in the Rantec Purchase Order. This clause supersedes retention periods specified on other C-clauses.

**CLAUSE 63: Prohibition of Pure Tin**

The use of pure tin plated finishes are strictly PROHIBITED. Any tin plating or solder processes shall contain NO LESS than 3 percent LEAD composition, unless specifically authorized in the Rantec Drawing or in writing by the Rantec Procurement Authority. These restrictions apply for all types and levels of procurements, with the supplier responsible for communicating these restrictions to subcontractors or sub-tier suppliers as required.