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1.0 Purpose

This document provides requirements, practices, and methods to mitigate the risks of receiving counterfeit electronic parts. It also specifies requirements for suppliers' counterfeit risk mitigation and control plan, and applies to all levels of procurement of electronic parts and associated material management, and inspection and test.

A distributor who has been verified to be compliant with all the requirements of this document by Insitu, Inc. Supplier Quality will be granted approval in the ERP System.).

2.0 Scope

This document does not apply when the Seller is the Original Component Manufacturer (OCM) or OCM Authorized (franchised) distributor for all the parts being supplied under this purchase contract.

The counterfeit risk mitigation requirements of Insitu, Inc for electronic parts procured from Non-OCM Authorized distributors and brokers are contained in this document. For the purposes of this document, 'electronic' represents Electrical, Electronic, and Electromechanical (EEE) components and assemblies hereinafter referred to as electronic parts.

Allowance to depart from the requirements within this document is at the sole discretion of Insitu.

3.0 Definitions

- Authorized / Franchised Distributor – A distributor authorized by the original manufacturer (OEM/OCM) to distribute its products including franchised distributors.
- Broker – A type of independent distributor that works in a “Just in Time” (JIT) environment. Customers contact the broker distributor with requirements identifying the part number, quantity, target price, and date required. The broker distributor searches the industry and locates parts that meet the target price and other customer requirements. Broker distributors do not have contractual agreements or obligations with OCMs.
- Counterfeit Electronic Part – A part made or altered to imitate or resemble an approved part without authority or right, and with the intent to knowingly mislead or defraud by passing the imitation as original or genuine. A part whose identity has been deliberately altered, misrepresented, or falsified.
- Independent Distributor – A distributor that purchases parts with the intention to sell and redistribute them back into the market. Purchased parts may be obtained from OEMs or Contract Manufacturers (typically from excess inventories), or from other distributors (franchised, Authorized, or Independent). Resale of the purchased parts (redistribution) may be to OEMs, Contract manufacturers, or other Distributors. Independent Distributors do not normally have contractual agreements or obligations with OCMs.
- Seller – For the purpose of this specification; a seller is an entity that meets the requirements of this specification and provides electronic parts that are in accordance with a contract or purchase order.

- Non-OCM Authorized Distributor – Distributors who are neither authorized nor franchised by the original component manufacturer to distribute its products.
- Suspect Counterfeit Electronic Parts – A suspect counterfeit electronic part is an indication established by inspection, testing, or other means that its authenticity may have been misrepresented by the supplier and may be counterfeit. A copy or substitute created without benefit of legal right or authority to do so or one whose material, performance, or characteristics have been knowingly misrepresented by a supplier in the supply chain is also a suspect electronic part.

Note: Electronic parts which have been refinished, upscreened, or uprated and have been identified as such, are not considered counterfeit.

- Upscreening – Additional testing performed on electronic parts to increase confidence in reliability, and to evaluate the lot by discarding defective parts or rejecting the lot. Examples of upscreen testing are Particle Impact Noise Detection (PIND) testing, burn-in, temperature cycling and Radiation Hardness Assurance testing, etc.
- Electronic Resellers Association International (ERAI) – A privately held global trade association charged with monitoring, investigating, reporting, and mediating issues affecting the global supply chain of electronics, including counterfeit and substandard electronic components sales.
- Government-Industry Data Exchange Program (GIDEP) – A cooperative activity between Government and Industry chartered to share technical information essential during all phases of the life cycle of systems, facilities, and equipment.
- Independent Distributors of Electronics Association (IDEA) – A non-profit trade association representing Independent Distributors who have committed to adhere to prescribed quality and ethical standards. The stated purpose of IDEA is to promote the independent distribution industry through media advocacy; to improve the quality of products and services through a quality certification program, educational seminars and conferences; and to promote the study, development, and implementation of techniques and methods to improve the business of Independent Distributors.

4.0 References

- AS5553 – Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
- PRIN-00566 – Supplier Request for Nonconforming Material
- FORM-01537 – Supplier Nonconforming Material Request Form
- PRIN-00250 – First Article Inspection

5.0 General Requirements

5.1 Electronic Components Control

5.1.1 The Seller shall develop and maintain documented processes for control of electronic components. This process shall include the following:

- 1) Supplier Management and, Procurement approvals, inspection, test/evaluation, segregation, reporting, and disposition of suspect or confirmed counterfeit electronic components;
- 2) Supply chain traceability and authenticity of all electronic components through all supply chain operations;
- 3) Counterfeit risk mitigation processes equal to the risk associated with the product application and ensures the quality and authenticity of delivered product;
- 4) Purchase of parts from the OCM, OCM authorized distributor whenever possible;
- 5) Conduct additional risk mitigation as specified by the customer when parts are not available from the OCM or OCM authorized distributor;
- 6) Prevention of counterfeit electronic components delivery to Insitu.

5.2 Counterfeit Electronic Parts Risk Mitigation Process

5.2.1 The Seller shall develop and implement a counterfeit electronic parts risk mitigation process that documents the methods used for avoidance, detection, risk mitigation, disposition, and reporting of counterfeit electronic parts. The supplier's process must be aligned with AS5553 and is subject to approval by Insitu. The Supplier's process shall ensure it does not receive counterfeit parts into inventory, use them in manufacturing, or inadvertently sell them to other parties. Insitu reserves the right to audit the Supplier's process at the Supplier's facility. In addition, the Seller shall have documented processes for purchasing, verification of purchased product, in-process investigation, and material control.

5.3 Procurement Process

5.3.1 The Seller shall:

- 1) Document initial and maintenance assessment of all sources of supply for electronic parts to determine risk of counterfeits. Review of supplier performance data, audits, surveys, product alerts (e.g., ERAI, GIDEP, IDEA, internal alert) may be included as assessment activities.
- 2) Develop and maintain a documented list of approved sources. Seller's documented source approval process shall include the criteria required for approval, the scope of the approval, performance evaluation, training of supplier inspection personnel, and duration of the approval. The approved source list shall indicate OCM or OCM authorized distributors and franchised distributors where applicable. Preference to procure directly from OCM or Authorized sources shall be emphasized over procurement from independent distributors and brokers.

- 3) Provide supply chain traceability to the OCM or OCM authorized Aftermarket Manufacturer through all of the supply chain intermediaries from the electronic part manufacturer to the direct source of the product for the seller. Supply chain traceability is defined as name and location of all supply chain intermediaries for all procurement lots and date of all intermediate purchases from the electronic component manufacturer to the direct source of the product for the seller. Supply chain traceability is required for all new purchases of electronic parts, electronic parts in inventory, and electronic parts transferred from other businesses within the organization. In the event that documented supply chain traceability is not obtainable or is incomplete, Seller shall notify Insitu prior to purchase contract acceptance or whenever parts are no longer available from the OCM after acceptance of a purchase contract. In the case when parts become unavailable from the OCM, seller shall not proceed until Insitu direction is provided. Seller shall be required to conduct inspection and testing as required by the purchase contract based on the parts being purchased and their specific application.
- 4) Ensure that processes are in place to audit compliance to the requirements of this document internally and at sub-tier suppliers. Audits shall ensure that quality processes have effectively precluded purchase, acceptance, use, and delivery of counterfeit electronic parts and adequately reported, contained, and segregated counterfeit electronic parts.

5.4 Seller Flow Down

- 5.4.1 The Seller shall flow down all applicable requirements of this document to its suppliers when procuring from other distributors or sources. Distributors or sources that do not have a counterfeit electronic components risk mitigation process compliant to this document shall be assessed by the seller for additional risk for every application of the electronic component. Insitu reserves the right to review and approve all suppliers' risk mitigation processes.

NOTE: Distributors shall, in addition to the above, include their company's certification for each part number shipped.

5.5 Verification of Purchased Product

- 5.5.1 A documented process shall be in place to assure detection of counterfeit electronic components prior to formal product acceptance. Examples of verification actions include visual inspection, review of data deliverables to Purchase Order requirements, nondestructive evaluation, and destructive testing (e.g., marking permanency, x-ray, x-ray fluorescence, destructive physical analysis (DPA), electrical testing). When the Seller is not the OCM or an OCM authorized (franchised) distributor, Seller shall conduct inspection and testing. Seller shall maintain verification records in accordance with contractual record retention requirements.
- 5.5.2 Seller personnel performing inspection and testing or reviewing inspection and test results shall have completed all applicable required training and shall be formally qualified for the specific work they perform. Seller shall maintain training records in accordance with contractual record retention requirements.

5.5.3 Acceptance and reject criteria shall be defined for all inspections and tests. Results of each inspection and test performed shall be documented, retained, and traceable to product identification (e.g. date/lot codes, serial number), purchase order invoice, and inspection and testing personnel.

5.6 Certificate of Conformance

5.6.1 The Seller shall review and retain copies of the electronic part Manufacturer's original Certificates of Conformance (CoC).

5.6.2 Manufacturer CoCs shall, at minimum, include the following:

- 1) Manufacturer name and address;
- 2) Manufacturer's part number;
- 3) Batch identification for the item(s) such as date codes, lot codes, serializations, or other batch identifications;
- 4) Signature or stamp with title of seller's authorized personnel signing the certificate;
- 5) Certification to testing specification and revision level that parts are certified to; and
- 6) Where manufacturer's CoCs are not available, the Seller shall include a CoC as required by the customer with delivery of parts.

5.7 Material Control Disposition

5.7.1 Seller shall prevent nonconforming and excess electronic parts from entering the supply chain under fraudulent circumstances. For suspect counterfeit electronic parts, Seller shall ensure that electronic parts are identified as suspect/counterfeit product and quarantined. For suspect counterfeit electronic parts in storage and installed in product, Seller shall quarantine suspect components and assembled product until properly disposition and notify affected customers. Seller shall have documented processes to preclude returning suspect counterfeit electronic parts to the supply chain, which may include controlled conditions to allow for internal investigation.

5.8 Reporting Process

5.8.1 The Seller shall have documented processes for internal/external reporting of all instances of counterfeit electronic components to ensure adequate notification to Insitu. The supplier's system shall provide for timely reporting to the buyer of nonconformities that may affect already delivered product, including suspect/counterfeit parts, materials, and conditions under which product malfunctions, defects.

5.8.2 Notification to the buyer shall be submitted to Insitu in accordance with PRIN-00250 and PRIN-00566 through NCMR FORM-01537. NCMR will include a clear description of the discrepancy, and identification of all suspect parts (to include Insitu part numbers, Purchase Order Numbers and Item Numbers, serial numbers, manufacturing dates, quantities, etc.) and material affected by the deficiency, date(s) delivered, any information relating to the Root Cause / Corrective Action steps initiated to address the defective condition, and preventive measures taken to preclude recurrence of the process failure.

5.8.3 Modifications of a disclosure (additions or deletions of data) requiring subsequent issuances shall be revision controlled to provide definitive sequencing (i.e. Rev 'A', 'B' etc.). To expedite the return of "suspect" or known nonconforming hardware to supplier for investigation, and necessary repair or replacement, suppliers shall provide return material authority (RMA) Number(s) along with the disclosure.

6.0 Examples of Counterfeit Parts

6.1 Counterfeit Electronic Parts List

- 1) Electronic parts that do not exhibit the proper internal construction consistent with that ordered e.g., incorrect die, multiple die sizes with one date code, wrong manufacturer, wire bonding, etc..
- 2) Used, refurbished or reclaimed electronic parts represented as new product.
- 3) Electronic parts with different package or surface plating/finish than that ordered e.g., blacktopped components with evidence of sanding and remarking; wrong lead finish; marking for tin finish, actual finish gold.
- 4) Electronic parts which have not completed the Original Component Manufacturer's (OCM)'s full production and test flow, but are represented as such.
- 5) Electronic parts represented as upscreened; which have not successfully completed all tests e.g., commercial or industrial grade parts marked as military grade parts.
- 6) Electronic parts with modified labeling or markings that misrepresent the form, fit, function, or part class e.g., Top marking doesn't match bottom marking, varied markings; C of C country doesn't match parts; missing trademark logo and date stamp incorrect; date code after part was discontinued; shadow of previous marking evident; marking didn't match known good part.
- 7) Electronic parts scrapped by the Manufacturer and subsequently sold as compliant.

7.0 **Revision History**

Revision History		
Rev	Description	Revised By
1	Initial release	Zack Miller
2	Admin Changes; Change ownership from SM&P to Quality. Updated logo, fixed format and changed document number from PUP-74-013 to QA-00491.	Doc Control
3	Updated PUF-83-001 to QAF-00605 and form title.	Document Mgmt.
4	Updated rev number. SmartDocs reference tags applied; all metadata and ownership updated and verified during DMS migration.	Document Mgmt.
5	Administrative change to refresh document numbers per new DMS system.	Document Management