Office of Technology Evaluation General Findings

- There is an insufficient chain of accountability within organizations.
- No one is aware of legal requirements and liabilities regarding counterfeits
  - Related to the management, distribution, storage, and disposal of counterfeit parts.
  - Not able to identify any specific guidance on this issue.
- There is a lack of dialogue between all organizations in U.S. supply chain.
  - Organizations generally only discuss counterfeit part issues within their individual organizations and, to a lesser extent, with their customers and immediate suppliers.
  - This leads to a lack of information sharing throughout the supply chain which could be used to mitigate the risk of counterfeits.

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Office of Technology Evaluation General Findings continued

- Most organizations do not know who to contact in U.S. Government regarding counterfeit parts.
  - Within our industry it is the Federal Aviation Administration (FAA) as the federal authorities responsible for counterfeits related to commercial aviation.
- Record keeping on counterfeit incidents by organizations is very limited.
  - Most organizations do not keep records of counterfeit incidents. Those that do keep records, track limited data points.
  - This can lead to a lack of institutionalized knowledge about an organization's encounters and problems with counterfeits.

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Office of Technology Evaluation General Findings continued

- Stricter testing protocols and quality control practices for inventories are required.
  - There are wide differences in the levels and quality of testing undertaken by organizations purchasing and receiving parts.
  - There are no existing standards for third-party testing facilities. Where there are industry standards addressing testing and quality control issues, they have not been systematically embraced or enforced by the supply chain.
- Companies and organizations assume that others in the supply chain are testing parts.
  - Organizations rely on others in supply chain to test and verify authenticity. Thus conducting litte testing themselves.

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AS6081 Counterfeit Electronics Parts; Avoidance Protocol Distributors

1	Prescribes counterfeit parts avoidance requirements directly applicable to distibutors
2	Establish & Maintain certified distributors of electronic components whose regular use of anti-counterfeit process controls and requirements is designed to ensure delivery of authentic products that meet original component manufacturer specifications
3	Independent verification of conformance to this standard will be by third-party certifiation bodies (CBs). Accreditation of the CB will be through a recognized and respected accreditation body to ensure the impartiality and competence of the CB

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AS6081 Requirements

QMS & Counterfeit Parts Control Plan:

1	Develop and Implement a quality managemnt system
2	Develop and Implement a counterfeit electronic parts control plan that documents its processes used for risk mitigation, disposition and reporting of counterfeit parts.
3	Counterfeit Parts Control Plan: Purchasing Information & Supply Chain Traceability. 1) Specify contract/purchase order quality requirements, inlcuding flow down of applicable requriements of this document. 2) The document processes shall require traceability to the Original Component Manufacturer (OCM) if unavailable, the customer shall be notified.
4	Counterfeit Parts Control Plan: Verification of Purchased Product. 1) Specify test and inspection methods for the detection of counterfeit parts. Results of each inspection & test shall be documented, retained, & traceable to product information.

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Scope of AS6081

Standardizes practices to:

- Identify reliable sources to procure parts,
- Assess and mitigate risk of distributing fraudlent / counterfeit parts,
- Control suspect or confirmed fraudlent / counterfeit parts,
- And report suspect and confirmed fraudulent / counterfeit parts to other potential users and authority having jurisdiction.

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Application of AS6081

Standardizes practices to:

- For use by distributors of EEE parts purchased and sold from the Open Market, including purchased excess and purchased returns,
- Does not apply to Authorized (Franchised) Distributors and Aftermarket Manufacturers when supplying parts obtained direclty from the OCM or the OCM Authorized (Franchised) Distributor for whom they are authorized,
- Requirements are generic and intended to be applied and flowed down through the supply chain,

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Application of AS6081 continued

Standardizes practices to:

- Invoked in accordance with contractual language established between the Customer and the Organization,
- Can be used by Certification Bodies accredited by an IAF-MLA Signatory Accreditation Body, to assess the Organization's abilities,
- This standard does not qualify" or "certify" the electronic parts,
- Appendices are provided as guidance and invoked in whole or in part, by the policies, requirements or procedures of the Organization.

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AS6081 Plans, Quality Management and Policies

Quality Management System

- The Organization shall be certified to a quality management system standard, ISO 9001, SAE AS9120 or equivalent by an accredited Certification body.

Suspect Counterfeit, Fraudulent and Counterfeit Parts Mitigation Policy

- The Organization's executive management shall define and document its policy to prevent the purchase, acceptance, & distribution of suspect counterfeit, fraudulent & counterfeit parts. Shall also state its policy regarding the disposition & report of parts, Policy is communicated, understood, implemented, & maintained at all levels of the Organization & accessible to the customer

Fraudulent / Counterfeit Electronic Parts Control Plan

- Shall develop and implement a fraudulent / counterfeit electronics control plan, shall specify flow down of applicable requirements of this document, be applied to all purchase or purchased returns of electronic parts, shall include the minimum processes described in paragraphs 4.2.1 through 4.2.12

AS6081 Personnel Training

- All personnel performing work affecting product quality shall be competent on the basis of appropriate education, training, skills and experience.
- Relevant personnel, including management of programs, projects, procurement, quality assurance, inspection, receiving, manufacturing and engineering activities shall be trained as appropriate to their function, in the avoidance, detection, mitigation and disposition of suspect/fraudulent/counterfeit EEE Parts. Examples of training can be found in Appendix E Personnel Training Programs.
- Personnel involved with direct handling (e.g., inspectors, assemblers, test technicians) of electronic parts shall be trained in techniques for detecting, suspect/fraudulent/counterfeit Parts ┬ Examples of training can be found in Appendix E Personnel Training Programs.

AS6081 Personnel Training continued

- Personnel with responsibility for the detection of suspect/fraudulent/counterfeit indicators through the use of specialzed technologies, methods such as Acoustic Microscopy and/or other equipment used in counterfeit detection, shall be trained to ensure competence in their use in accordance with the "5.2 personnel" requirements of ISO/IEC 17025.
- Personnel with responsibility for the detection of suspect/fraudulent/counterfeit indicators through the use of Radiographic Inspection only (e.g., X-ray and XRF) shall be trained and certified to eitehr NAS-410 or equivalent or shall be trained to ensure competence in their use in accordance with the the "5.2 personnel" requirements of ISO/IEC 17025.

Purchasing Process & Purchasing Information

AS6081 Supply Chain Traceability:

The documented process shall require the retention of records providing supply chain traceability wherever such traceability exists.

- The records shall provide traceability to the OCM, Aftermarket Manufacturer or supply chain intermediaries for all procurement lots, and the date of all intermediate purchases, from the part manufacturer to the direct source of the product for the seller.
- Supply chain traceability records shall be provided with each shipment and shall be retained for a minimum of five (5) years or maintained in accordance with Customer, statutory and regulatory requirements. If this traceability is incomplete or unavailable, Customer approval is requried in advance shipment.

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Purchasing Process & Purchasing Information continued

AS6081 Supply Chain Traceability:

- Supply Chain Traceability to the immediate source of supply is mandatory.
- This traceability requriement applies to new purchases of material, material in inventory, material returned (with material paperwork and material denoting it has previously been returned) and material transfered from other business groups within the Organization.
- The Organization shall also provide, with delivery of each consignment, copies of the original manufacturer's or their Authorized Distributor's certificate of conformity / compliance together with the test results, etc, where applicable.

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Purchasing Process & Purchasing Information continued

AS6081 Customer Related Contract Review, Agreement and Execution:

- The organization shall disclose in writing at the time of each individual quotation, the source of supply outside the Organization and their subsidiaries / affiliates (by company name and location), if the Organization is or is not authorized (franchised) for the item(s) being quoted and is or is not providing full manufacturer's warranty on the quoted material. If the Organization considers that the name of the source of supply is proprietary to the Organization, the Organziation and Customer shall negotiate an appropriate non-disclosure agreement.
- The organization shall provide a product warranty for a minimum of one (1) year, stating that the product is reliabe and free from known defects and that the Organization will replace defective parts or refund original cost of product.

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Purchasing Process & Purchasing Information continued

AS6081 Customer Related Contract Review, Agreement and Execution:

- The organization shall issue a revised written quotation to the Customer, if at any time the source of supply changes (i.e., at the time of initial quote, parts were being procured from an authorized source, but said parts subsequently became unavailable and as a result, the Organization had to procure the material from an alternate source).

Purchasing Process & Purchasing Information continued

AS6081 Supplier Approval and Source Selection:

- Assess potential sources of supply to determine the risk of receiving fraudulent/counterfeit parts. Assessment actions may include.
- Preclude purchasing from sources of supply who have repeatedly failed to detect and avoid fraudulent / counterfeit parts or otherwise failed to exercise due diligence in the detection and avoidance of such parts. (See external sources of reporting documented problems unresolved such as ERAI, GIDEP, IDEA)
- Procure only new and authentic parts directly from OCMs or Authorized (Franchised) Suppliers or from Suppliers who obtain such parts exclusively from the OCM or their Authorized Suppliers with Supply Chain Traceability when the parts are available form those sources and can meet customer delivery requriements.

Purchasing Process & Purchasing Information continued

AS6081 Supplier Approval and Source Selection:

- When the Organization has quoted parts to the Customer as having been sourced from Authorized Distribution, Organization shall require Suppliers to disclose at the time of each individual quotation, objective evidence (either proof from the OCM's website or a letter from the OCM) that the Supplier is authorized (franchised) for the item(s) being quoted and is or is not providing full manufacturer's warranty on the quoted material. Tjhis disclosure shall be based on objective evidence which may include proof from the OCM's website, or letter from the OCM (on OCM letter head), or other form of evidence accetable to the customer.
- Require Suppliers to issue a revised written quotation and risk assessment, if at any time the source of supply changes.

Purchasing Process & Purchasing Information continued

AS6081 Purchase Order Requirements:

- The Organization shall communicate and document contract provisions that establish purchasing controls for fraudulent/counterfeit part avoidance. Requirements to manage risk shall be determined prior to entering into a contractural agreement.
- The Purchase contract shall include flow-through requirements, as specified by the Customer and requirements to manage risk.
- The purchase contract shall define the product as quoted and require the Supplier to meet the requirements exactly. Changes relative to the source of supply or traceabilty shall be approved by the Customer and made in advance of the Supplier shipping parts. Exceptions require approval by the Customer prior to the Organization shipping the parts.

Purchasing Process & Purchasing Information continued

AS6081 Verification of Purchased /Returned Part (s):

- Verification of Purchased Product shall be conducted in accordance with 4.2.6.1 thorugh 4.2.6.8.
- Verification tasks may be discontinued at any point where failures or indication of fraudulent / counterfiet parts are found, unless otherwise noted in the contractural agreement. Test results are indicators only and should not be construed as conclusive one way or the other. Acceptable and Proper parts risk mitigation may inlcude the full suite of required and additional tests of Table 1 and more, this would result in a contracted test scope increase. OCM input may be required to draw a full conclusion of the rest results. Product failing verification inspection/testing shall be in accordance with 4.2.7 Control of Nonconforming Product.

Purchasing Process & Purchasing Information continued

AS6081 Verification of Purchased /Returned Part (s):

- The OCM should be contacted to assist in authenticating product in conjunction with conducting verification testing. In most cases, the Organization may not succeed in obtaining OCM cooperation or get OCM–supplied data. However the OCM may provide insight into the authenticity of a device when provided documentation, images and other artifacts without providing the proprietary data serving as the basis for this insight. The Organization should consider the product as “Suspect Part” where the OCM provides feedback questioning the authenticity of the device / part.

Purchasing Process & Purchasing Information continued

AS6081 Verification of Purchased /Returned Part (s):

- The event the Organization sub-contracts any of the inspections and testing specified herein, or otherwise as may be specified by the customer, to an independent third party test laboratory, the Organization shall:
- Make available a copy of the summary report of any previously completed inspections and tests, if requested by the test facility.
- Require the test facility to report to the Organization any discovery of a suspect/fraudulent/counterfeit part discovered in conjunction with the contracted inspections and/or tests. However any discovery of a suspect/fraudulent/counterfeit part detected by inspections and/or testing that was not contractually required shall be for information only. The Organization not the test facilty is responsible for evaluating & reporting per 4.2.6.8.

Purchasing Process & Purchasing Information continued

AS6081 4.2.6.2 Test Level:

- Acceptance and reject criteria are defined herein for all inspections and tests in Level A tests of Table 1. Results of each inspection and test performed shall be documented, retained, and traceable to product identification information. (e.g., date/lot codes, applicable serial number), purchase order, invoice, and inspection and testing personnel. Documentation shall be made available to the Customer upon request. Retention of test data shall be five (5) years minimum.

Purchasing Process & Purchasing Information continued

AS6081 4.2.6.2 Test Level:

- Customer has contracturally specified an AS6081 certified supplier, the minimum level of inspection and testing for each active part or assemblies that contain active elements shall include the AS6081 level A requirements of Table 1. For Passive parts the minimum level of inspection/testing shall include:
  - Documentation and Packaging inspection
  - External Visual Inspection
  - Solvent Test for Remarking
  - Lead Finish Evaluation

Purchasing Process & Purchasing Information continued

AS6081 4.2.6.3 Test/Inspection Sampling Plan:

- A standard lot is a homogeneous lot, and is defined in this sampling plan as the total number of devices that are received in a given shipment at incoming/receiving inspection and have the same lot or date code.
- A future shipment of devices of the same date code shall be considered a new lot. The intent for this is to ensure that a good shipment of good devices being accepted and being followed by a suspect shipment of the devices with the same date code will not be accepted without inspection.
- A lot is also a quantity of devices removed from storage and submitted for inspection. Generally, a procurement lot is of the same lot or date code, while a lot from stores may have mixed date or lot codes.

Purchasing Process & Purchasing Information continued

AS6081 4.2.6.3 Test/Inspection Sampling Plan:

- Test samples shall be selected at random; however, for lots with mixed date codes, the devices must be seperated into separate sublots (minimum sample size applies to each individual sublot). When selecting the sample, ensure that the parts are randomly selected from the total population. Parts exhibiting potential anomalies shall be included in the sampling group.
- If the parts are received in tape and reel and /or multiple packages, parts shall be randomly pulled from the entire length of the reel and from multiple reels and/or packages. The same samples can be used for multiple test steps.

Purchasing Process & Purchasing Information continued

AS6081 4.2.6.4 Minimum Fraudulent/Counterfeit Part Detection Methods:

In cases where procurements are made from sources other than OCM's or Authorized (Franchised) Suppliers, or there is a reason to doubt a parts authenticity, tests and inspections shall be performed to detect fraudulent/counterfeit parts, regardless of whether or not purchase documentation confirms purchase from the OCM or Autorized (Franchised) Supplier. The following mitigation methods shall be peformed as a minimum and in accordance with Level A, Table 1.

- Documentation and Packaging Inspection.
- External Visual Inspection
- Inspection for Remarking and Resurfacing
- Radiological (X-Ray) Inspection
- Lead Finish Evaluation
- Delid / Decapsulation Internal Analysis

Purchasing Process & Purchasing Information continued

AS6081 4.2.6.6 Control of Suspect, Fraudulent, or Confirmed Counterfeit Parts:

- Physical identification shall be implemented for suspect, fraudulent, or confirmed counterfeit parts,
- Physically segregrate the parts from acceptable non-suspect parts & place in quarantine. Quarantine should consist of physical barriers & controlled access. Identify all additional Nonconforming Product & 4.2.12 Product Impoundment and Financial Responsibility.
- Notify the Supplier of findings and provide the Supplier with the opportunity to verify said findings. If the Supplier requests the parts be returned, Organization & Supplier shall establish a mutually agreeable sample of the suspect parts & send to one or more mutually agreeable independent, third party test laboratory for the purpose of evaulation & testing. In the event that a mutually agreeable sample size Cannot be established, the default return sample size shall be lesser of ten (10) parts or 50% of each suspect lot / date code.

Purchasing Process & Purchasing Information continued

AS6081 4.2.6.7 Returned Product:

The following applies to product not found to be suspect counterfeit, counterfeit or fraudlent. Steps shall be taken by the Organization to ensure that product substitution has not occurred in the return process. The parts should be returned with:

- Part number to be returned
- Name of manufacturer
- Purchase order number under which parts were supplied
- Quantity to be returned
- Date/lot code of parts to be returned
- Reason for return

Returns should not be made to Suppliers without proper return material authorization. After receipt of return material authorization, the Returned parts should include copies of the original paperwork.

Purchasing Process & Purchasing Information continued

AS6081 4.2.6.8 Records/Summary Reports of Inspection & Test Results:

- The Organization shall supply a summary report of all inspection and test results for each lot (1) in advance of product shipment or (2) with each shipmentof product, as specified by the customer (or Organization when testing is conducted by more than one independent, third party test laboratory)
- Summary Report for Subcontracted Inspection and Test Results
  - In the event that the Organization subcontracted any of the inspections and testing to a third party testing laboratory, the Organization shall compile all subcontracted inspection and test reports/data into a single consolidated report/data package.

Material Control

The documented processes shall:

- Not alter, obliterate or redact any information form the OCM's labeling or part marking relevant to supply chain traceability. Adhesive labels may cover the OCM marking provided that the OCM marking is clearly legible after label removal.
- Control excess and nonconforming parts to prevent them from entering the supply chain under fraudulent circumstances.
- Control suspect or confirmed fraudulent/counterfeit parts to preclude their use or reentry into the supply chain by physically segregating the parts from acceptable non-suspect parts and placing in quarantine. Quarantine. Quarantine should consist of physical barriers and controlled access for a minimum of five (5) years or maintained in accorance with Customer statutory and regulatory requirements.

Control of Nonconforming Product

- The Organization shall ensure that product which does not conform to product requirements is identified, segregated and controlled to prevent its unintended use or delivery. (The term "nonconforming product" includes nonconforming product returned by a customer, and fraudulent, counterfeit and/or suspect parts.)
- The Organization shall act upon reported information of nonconforming product with respect to product previously shipped or not yet shipped. If the assessment of this information indicates that suspect, fraudulent or confirmed counterfeit product was shipped, the Organization shall report the information in accordance with 4.2.9 (Reporting).
- The Organization shall deal with nonconforming product by one or more of the following ways.
  - By taking action to eliminate the detected nonconformity, however the Organization shall not rework or repair or alter the product;
  - By authorizing its use, release, or acceptance under concession by the Customer or an applicable, relevant design authority;

Control of Nonconforming Product continued

- The Organization shall deal with nonconforming product by one or more of the following ways continued.
  - By taking action to preclude its original intended use or application (e.g., scrap and/or destruction);
  - By taking action appropriate to the effects, or potential effects, of the nonconformity when nonconforming product is detected after delivery or use has started. The Organization's nonconforming product control process shall provide for timely reporting of delivered nonconforming product;
- Corrected nonconforming product shall;
  - be subject to re-verification to demonstrate conformity to the requirements.
  - Records be maintained for the nature of the nonconformity, subsequent actions taken, concessions obtained.
  - Disposition of fraudulent product shall be governed by the requirements in 4.2.7 (Material Control), while disposition of non-conforming product other than counterfeit or fraudulent product shall be governed by the requirments in Secton 4.2.8 (Control of Nonconforming Product).

Internal Audit

- The Organization shall conduct internal audits at planned intervals to determine whether the quality management system.
  - Conforms to the requirements of this standard and to the quality management system requirements established by the Organization, and
  - Is effectively implemented and maintained.
- Audit program shall be planned, consideration of the status and importance of the proocesses and areas to be audited, prior audit results, auditors shall not audit one's own work
- A documented procedure shall be established to define the responsibilities and requirements for planning and conducting audits, establishing records and reporting results.
- Records of audit and their results shall be maintained.
- Corrections and corrective actions are taken without undue delay to eliminate the detected nonconformities and their causes.
- Follow up activities for verification of actions taken.

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Preservation of Product

- The Organization shall prserve the product during internal processing and delivery to the itended destination in order to maintain conformity to requirements. As applicable, preservation shall include identification, handling, packaging, storage, and protection. Preservation shall also apply to the constituent parts of a product.
- Preservation of product shall include, where applicable in accordance with product specifications and applicable statutory and regulatory requirements, provision for:
  - Cleaning
  - Prevention, detection, and removal of foreign objects,
  - Marking and labeling including safety warnings,
  - Shelf life control and stock rotation,
  - Special handling for hazardous materials, and
  - Special handling for sensative products (e.g. ESD, moisture and temperature controls)

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AS6081 Reporting

- The documented processes shall require that all occurrence of suspect, fraudulent and confirmed counterfeit parts be reported, within 60 days of identification, to internal organizations, and to customers, applicable Government authorities, Government reporting organizations (e.g., GIDEP, FAA or equivalent), industry supported reporting programs (e.g., ERAI or equivalent), and Authority having Jurisdiction. Information and guidelines for reporting fraudulent/counterfeit parts are provided in Appendix D Reporting.

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Thank You!
Questions?
Walter Sam O'Connor
walterfoconnor@gmail.com
Cell 978-790-9370
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