Counterfeit Parts Prevention Guidance

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Counterfeit Parts Prevention Guidance

I. Introduction/Preface

The purpose of this section on Counterfeit Parts is to:

- Identify materials that provide self-help to small/medium suppliers within the aviation, space and defense industries and their supply chains.
- Provide information and resources to increase the awareness of counterfeit parts and their impact on the industry
- Create guidance material to aid suppliers in addressing and providing direction to prevent the use of counterfeit and suspect unapproved parts/products in their supply chains.
- Provide references to existing standards and documents that deal with managing/mitigating the risk of receiving and/or using counterfeit and suspect unapproved parts.
- Provide best practices for the development of a control plan to assist in documenting effective methods and processes to prevent the introduction of counterfeit and suspect unapproved parts.

Note:

Although most of the material and examples are from the electronic sector of the industry, the principles and methods are applicable to other commodity types.

Awareness information and material has been developed and made available from various sources in the industry. Rather than repeating information that is readily available, the content of this document is implementation oriented rather than purely informative. Where additional information is available, those resources, are referenced.

Links to additional information are provided for throughout this document however the IAQG is not responsible if the information or links are revised or no longer available. It is the intent of the IAQG to update the guidance and consider other sources as new information becomes available.

This guidance material is published in the Supply Chain Management Handbook SCMH and is for use at all levels of the supply chain at no cost subject to accepting the terms and conditions of the SCMH.

II. Industry Overview

Counterfeiting and counterfeit products have existed for centuries. Everything from currencies, clothes, handbags, food, toys, medicines, electronic components and almost any other product that is in high demand, short supply, and/or expensive has been copied and/or reproduced in one form or another. In essence, the problem starts when a person or organization, with criminal intent, succeeds in deliberately introducing Counterfeit or Fraudulent parts / materials into a Supply Chain that remain undetected due to negligence or lack of capability / awareness on the part of the receiving organizations. The result is non-conforming products being delivered through the Supply Chain, potentially right up to the end Customer.

Most recently, one particular area that has presented a significant challenge is the manufacturing and distribution of electronic components such as integrated chips (IC) and resistors. Some offshore suppliers are even recycling and repackaging parts taken from crash sites and disposal sites to resell them as new products in the open market, especially through the internet.

This problem is of particular concern for the aviation, space and defense industry since ASD lacks leverage in the electronics industry (see Fig 1). The major users of semiconductors are the telecommunication and computer industries who account for more than 65% of the usage whereas the aviation, space and defense usage, where quality, reliability and performance requirements are the most stringent, represent less than 1% of semiconductor usage.

> -***"During 2008, it was estimated that 17% of Electronic Components purchased by the Pentagon and its contractors were Counterfeit or otherwise illegal" -*** *(Source – Robert P Ernst, Naval Air Systems Command's Aging Aircraft Program)*

Counterfeit parts can jeopardize the performance, reliability and safety of Aviation, Space and Defense (ASD) products. ASD products are susceptible to the introduction of counterfeit parts into the supply chain because the systems are intended for use over an extremely long life cycle. The industry faces the challenge of supporting long life cycle products that are designed using short life cycle electronic components that may be in limited supply. Diminishing manufacturing source issues expose the ASD industries to counterfeited and fraudulently manufactured or reclaimed parts.

As a result of the potential risks associated with counterfeits in ASD products, several regulatory agencies have established a regulatory basis for addressing false and misleading statements, including the assessment of potential civil remedies (fines, certificate forfeiture, etc.) for persons engaged in such activity. Governments have also enacted laws which have penalties for trafficking unapproved and counterfeit parts.

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Penalties for knowingly committing fraud or failing to prevent counterfeit parts and materials can be severe. For example, the US Aircraft Safety Act of 2000, Section 38 includes penalties for individuals that range from a minimum of 10 years and/or $250,000 to Life and/or $1 Million for each count of violation of the law. Organizations can be exposed to fines up to $20 million dollars. However, counterfeiters operating in some countries outside the United States may face little or no penalties, making prosecution of these crimes difficult if not impossible.

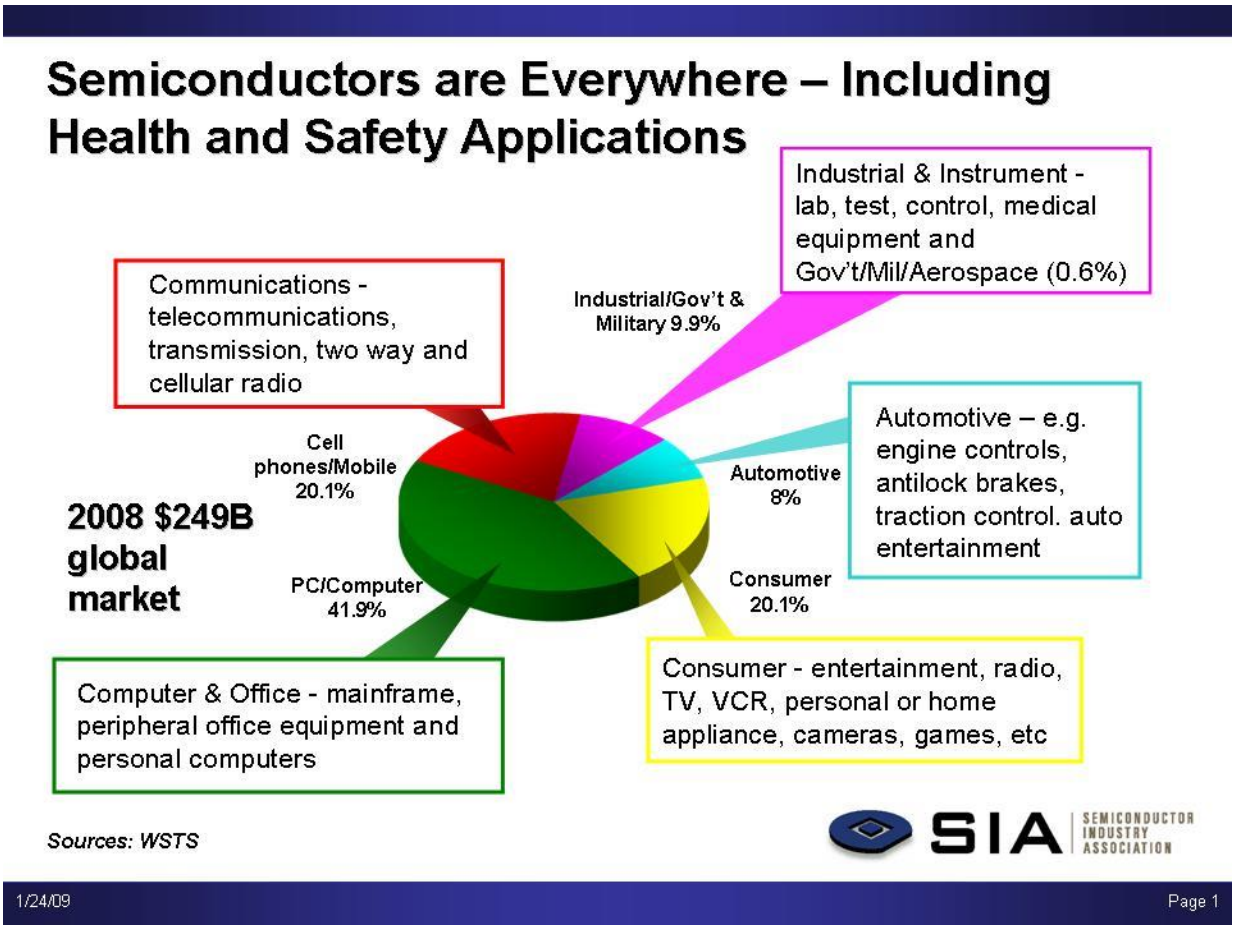

Figure 1 - Semiconductor applications

A. Definitions of "Counterfeit" As Applied To Counterfeit Aircraft Parts

A key issue that complicates efforts to combat the threat of Counterfeit and Fraudulent products is that the formal (legal and regulatory) definitions of the terms 'Counterfeit' and 'Fraudulent' can vary widely from Country to Country – as can the cultural attitudes as to how 'acceptable' it is to carry out such activities.

The impact of these variations can be highly significant, as the modern business environment often involves long Supply Chains that are truly global, with Customers that are also international. This can make the feasibility of legal action in response to an 'incident' much less likely.

- It is essential that the legal / regulatory definitions local to your business and those of your Suppliers and Customers are known and differences clearly understood. In many jurisdictions, the legal penalties for Fraud are greater than for Counterfeit.

The key characteristics of the definitions themselves are:

- Counterfeit - The imitation or copying of an authentic product **in breach of Intellectual Property Rights** (which may be registered or confidential).
- Fraud - A product is **misrepresented to the customer** as meeting their requirements. Typical examples include used products being sold as new, or old / obsolete products being sold as the latest version / generation.

It should be noted that the term "counterfeit" should be differentiated from other terms such as "unapproved parts", "suspected unapproved parts", "parallel trading markets", and other definitions, all of which are defined differently. However, by definition, a "counterfeit part" is an "unapproved part".

The most recently accepted definitions used in the industry today (especially in the US) come from AS5553 Revision A:

Suspect Part - A part in which there is an indication that it may have been misrepresented by the supplier or manufacturer and may meet the definition of fraudulent part or counterfeit part provided below.

Fraudulent Part - Any suspect part misrepresented to the Customer as meeting the Customer's requirements.

Counterfeit Part - A fraudulent part that has been confirmed to be a copy, imitation, or substitute that has been represented, identified, or marked as genuine, and/or altered by a source without legal right with intent to mislead, deceive, or defraud.

For a more detailed look at the legal definitions of “counterfeit”, see Appendix (A). For a list of various definitions for counterfeit parts from various standards and resources, see Appendix (B).
Always clarify with your customer which industry standard/definition you should be working to.

Appendix A –Legal Definition

Appendix B –Industry Definitions

Appendix C – Government Regulatory Activity

Appendix D – European Regulatory Activity

B. Industry Standards, Activities and Comparisons

While there are a number of organizations working on developing anti-counterfeit awareness material and information for electronic components, there are 2 developing industry standards.

- SAE International
- IEC - International Electro-technical Commission

SAE International

SAE International is a global association of engineers and related technical experts in the aerospace, automotive and commercial-vehicle industries. Based in the United States, SAE International's core competencies are life-long learning and voluntary consensus standards development.

SAE’s G-19 Counterfeit Electronic Components Committee continues to work to develop standards addressing counterfeit parts. In 2012, SAE International published a revision to its AS5553: “Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition” standard. This standard helps end users detect counterfeit parts in their inventory. Some of the key requirement changes in SAE AS5553A include:

- Definitions have changed to distinguish between counterfeit and fraudulent (which includes recycled components fraudulently sold as being new)
- Training requirement added
- Obsolescence management required to mitigate the need to buy obsolete components which are typically targeted by counterfeiters
- Field returns need to be reviewed to determine if counterfeit parts cause the failures

- Purchase orders have to distinguish between franchised and non-franchised suppliers

In addition to AS5553A, SAE International also released:

- AS6081: Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition - this standard is aimed at distributors selling to aerospace and defense manufacturers.
- AS6174: Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel.
- ARP6178: Fraudulent/Counterfeit Electronic Parts; Tool for Risk Assessment of Distributors.
- AS6462: Verification Criteria for AS5553 “Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition” - this set of criteria is to be utilized by accredited Certification Bodies (CBs) to establish compliance, and grant certification to AS5553

The following are proposed and not released at the time of this publication.

- AS6301 : Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition – Independent Distributors Verification Criteria (in draft)
- AS6171 : Test Methods Standard; Counterfeit Electronic Parts (in draft) Not yet released
- AS6496 : Authorized Distributor Counterfeit Mitigation (in draft)

For additional information on the above standards, see the attached presentations:

http://www.landandmaritime.dla.mil/downloads/psmc/Apr13/SAEIntlStds.pdf

IEC

The IEC is the highest level international standards body for electrical/electronic standards linked to ISO and is based in Geneva (http://www.iec.ch/). It’s Avionics based technical Standards are prepared by IEC/TC107 “Process management for Avionics” Committee

http://www.iec.ch/dyn/www/f?p=103:7:0::::FSP_ORG_ID:1304

IEC/TC 107 WG3 Committee’s current task is Counterfeit electronic parts; avoidance, detection, mitigation, and disposition in avionics applications. A revision to IEC/TS 62668-1 ‘*Process Management for Avionics – Counterfeit prevention – Part 1:*

Avoiding the use of counterfeit, fraudulent and recycled electronic components , originally released in May 2012, addressing avoiding the use of counterfeit, fraudulent, and recycled components is under development and scheduled for release at the end of 2013. This standard appears to be more accepted by European suppliers.

A new standard, IEC/TS 62668-2 which is referenced to in IEC/TS 62668-1 addressing management of electronic components from non-franchised sources is also under development and scheduled for release in 2014. In addition, the IEC/TS 107 WG4 Committee is working on revising IEC/TS 62239-1 'Electronic Components Management Plan (ECMP)' to include an anti-counterfeit management plan requirement based on SAE AS5553A or IEC/TS 62668-1

SAE AS5553 versus IEC/TC 62668-1

Both the SAE AS5553 and IEC/TS 62668-1 were developed to address the avoidance of counterfeit parts in the supply chain. Some of the comparisons include:

- IEC/TS 62668-1 is written for Avionics OEMs and is based directly on AS/EN/JISQ 9100 and AS/EN/JISQ 9110 procedures and controls the flow of components coming into and out of a business with Intellectual Property control required for all deliverable products. SAE-AS5553A is written for general industry.
- IEC/TS 62668-1 is a 9 step management plan with 6 or more steps common to SAE- AS5553A (***See Figure 2 below –*** *the 9 boxes in the second row represent the 9 steps for IEC/TS 62668-1,the "grey color" boxes represents the steps in AS5553.*)
- IEC/TS62668-1 includes the following additional requirements:
  - OEM Intellectual Property (IP) control of their designs and deliverable products
  - That AS/EN/JISQ9100 procedures be used for audits of suppliers, procurement of traceable components, procedures to avoid unacceptable brokers
  - Anti-counterfeit requirements for OEM products including repairs, rework and the sale of spares to customers

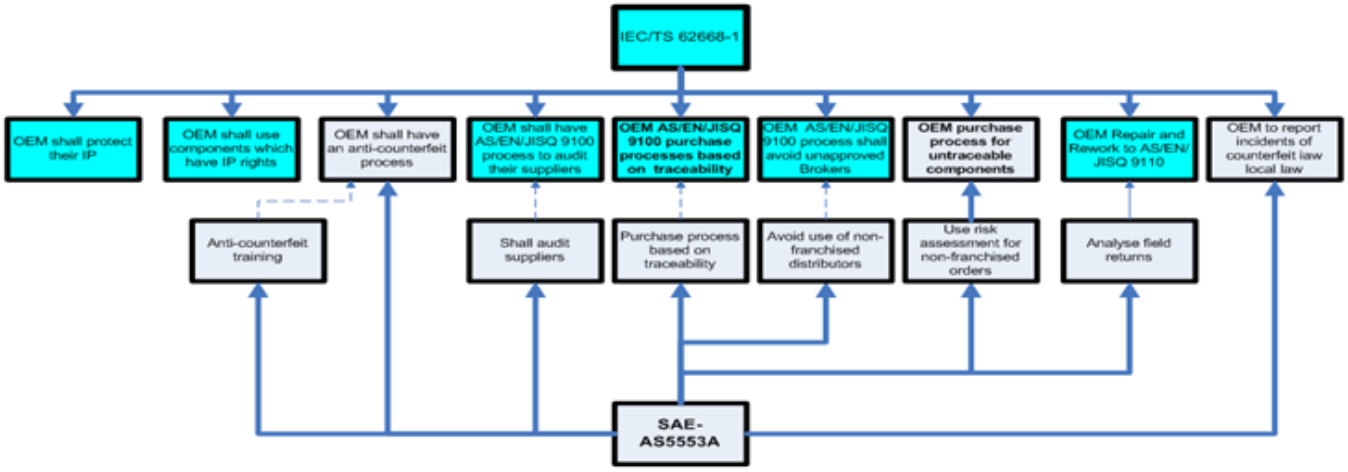

Figure 2 – Comparison of SAE AS5553A and IEC/TS 62668-1

III. CP Risk Mitigation Strategies - What can you do to prevent CP in the supply Chain?

In developing a rick mitigation plan to address counterfeit parts, you have to take into consideration where the risks are located in the overall program/product lifecycle and where you are in the supply chain hierarchy.

A. Understanding the Program/Product Lifecycle

Counterfeit risk mitigation opportunities exist for all functions throughout the program and/or product lifecycle. Counterfeit risk is best addressed with an integrated cross functional approach. When parts are first identified for design to source selection and supplier assessments, to contract definition and parts management plans, to receiving inspection, product verification and disposition, there are actions that can be taken to help control counterfeit risk. The earlier in the program life cycle the counterfeit risk mitigation can be performed, the less travelled the risk.

Where your company is in the value chain may affect your counterfeit risk mitigation strategy. For example, if you are a system integrator, you may focus more on contract flow down of counterfeit requirements, supplier assessment and surveillance rather than on Receiving inspection and testing. The chevron chart depicted below should be reviewed to help determine which functional processes may need to be revised or developed to mitigate counterfeit risk. The following is additional information on the functional processes:

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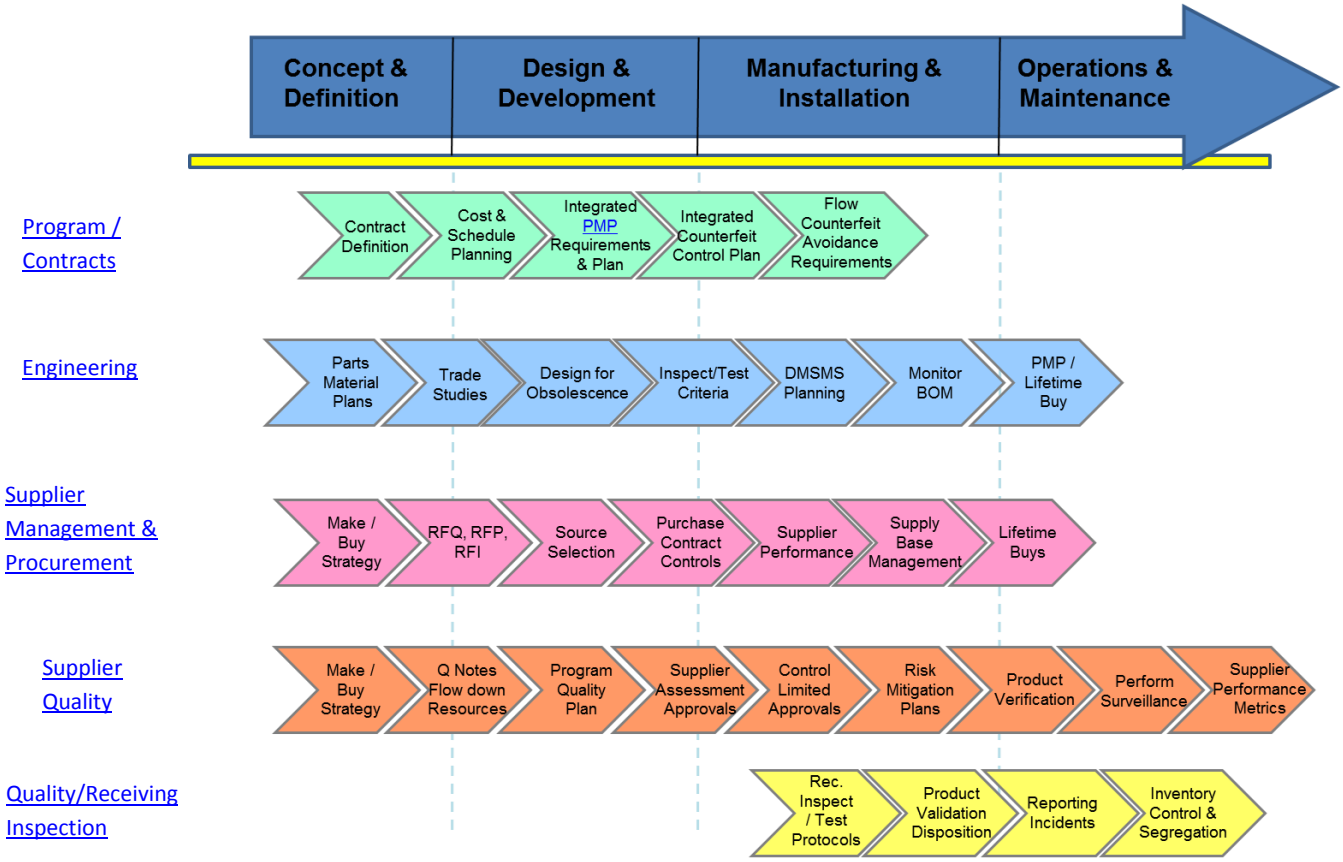

Figure 3 - Value Streams in Risk Mitigation

Program/Contracts:

Programs are responsible and accountable for the safety, technical integrity, performance, and mission success of the program or project, while also meeting programmatic (cost and schedule) commitments. Programs must ensure customer requirements are flowed and executed throughout the functions.

- Contract Definition - Ensure lifecycle planning and counterfeit avoidance plan are negotiated with the customer; ensure common understanding of customer counterfeit requirements. Ensure all customer requirements are flowed to the affected functions. For Government programs, understand the customer's strategy on obsolescence management including funding, notifications, lead times.
- Cost and Schedule Planning: Budget appropriately to accommodate potential end of life/bridge buys and redesign; Allow for Schedule variation due to market conditions (e.g., material/components availability, lead time); Allocate budget for increased inspection and testing requirements as risk assessment deems necessary

- Integrated PMP Requirements and Plans - Develop and Implement Integrated parts management requirements and plans
- Integrated Counterfeit Control Plan - Integrate Counterfeit Control Plan with Program Plan
- Flow of Counterfeit Avoidance requirements - Assure applicable counterfeit avoidance requirements are contractually flowed down to suppliers

References:

See AS/EN/JISQ9100 (Rev C) sections

- 7.1.1 Project Management– Plan and manage product realization in a manner to meet requirements at acceptable risk
- 7.1.2 Risk Management – Establish, implement risk management process
- 7.2. Customer Related Processes

See AS5553 (Rev A)

- Appendix A During design, proposal and program planning efforts, organizations should assess long term availability of authentic parts and part sources for production and support of systems. When assessments indicate availability risk, consideration shall be given to steps such as lifetime buy, system redesign, alternate/multiple sources, substitutions, planning for adequate procurement lead times.

Engineering:

Engineering has the role of specifying parts in the design process that are obtainable from integrity based sources. Where the engineering role is typically associated with developing a design that meets the customer's needs, there are typically points where options exist.

Consideration should be given to options that include parts that can be obtained from OCM's, OCM authorized distributors, and other authorized sources.

- Parts, Material Plan - Avoid single sources, determine product availability, drive common part usage
- Trade Studies - open architecture – Focus on common verses custom; Design to product family not specific one time application; Consider redesign/refresh verses reuse
- Design for Obsolescence - Look at component lifecycle relative to program/product lifecycle; Look for alternate parts

- Inspection/Test Criteria - Plan for Inspection and Test to validate product to engineering specifications; establish criteria for inspection and testing; establish minimum levels and acceptance requirements. Perform application specific risk assessment and determine commensurate inspection and test plan.
- DMSMS (Diminishing Manufacturing Sources and Material Shortages) Planning - Monitor source of supply - materials and manufacturers; Refresh DMSMS plan throughout Program lifecycle
- Monitor Bill of Material for part and material lifecycles and GIDEP alerts for Counterfeit Parts
- Refresh Parts/ Material Plan. Based on DMSMS Planning /BOM review, determine need for bridge buy (redesign or mod) / lifetime buys/ end of life buys; Determine aftermarket supply

References:

See AS/EN/JISQ9100 (Rev C) sections

7.1 – Planning for Product Realization – shall include availability, required verification, inspection, and test activities specific to the product

7.1.2 – Assessment of risk, identification of actions to mitigate risk, acceptance of risk

7.3.1 – Design & development planning shall consider the ability to produce, inspect, test and maintain the product.

7.3.3. b – Provide appropriate information for purchasing …

See AS5553 (Rev A) sections

During design, proposal and program planning efforts, organizations should assess the long term availability of authentic parts and part sources for production and support of systems.

4.1.2 – Parts Availability – processes shall maximize availability of authentic, originally designed and/or qualified parts throughout the product's lifecycle, including management of parts obsolescence

4.1.3.d – Require a documented risk assessment and risk mitigation plan, specific to the intended application, for each procurement other than from an OCM or authorized supplier.

4.1.5a –The rigor of the verification process shall be commensurate with product risk.

Supplier Management and Procurement:

Supplier Management and/or Procurement typically has the role of buying the specified parts at the best price that meets production schedules. Due consideration should be given to obtaining these parts from sources that help mitigate the risks associated with part integrity. To ensure that this process is successful, source selection criteria should be established.

- Make/Buy Strategy – Target multiple authorized sources of supply (internal and external)
- Request for Quote (RFQ), Request for Proposal (RFP), Request for Information (RFI) - Include counterfeit contract requirements upfront
- Source Selection - Establish preference for Procurement is OCM/Authorized/Franchised Distributors; Aftermarket Manufacturers; Independent (Non-franchised, unauthorized) distributors. Establish requirements for preferred independent (non-franchised/unauthorized) distributors
- Purchase Contract Controls- Flowdown contract clauses/requirements for counterfeit parts - e.g. definition, warranty, disclosure, flow through, mitigation, handling
- Supplier Performance - Monitor GIDEPS, schedule/delivery/quality (non-conformances)/cost; insight into business elements (e.g. D&B rating)
- Supplier Base Management - Establish an Approved Supplier List (ASL), Approved vendor List (AVL) or Preferred Supplier List with supplier rating. Use supplier performance to aid in contract award decisions
- Lifetime Buys - Coordinate with Engineering and customers to proactively support end of life buys

References

See AS/EN/JISQ9100 (Rev. C) sections

- 7.4.1 – evaluate and select suppliers
- 7.4.1.f – Determine and manage the risk

See AS5553 (Rev A) sections

- 4.1.3.a – determine the risk of receiving fraudulent/counterfeit EEE parts

- 4.1.3.b – Specify a preference to procure directly from OCMs or authorized suppliers
- 4.1.3.c – Assure sources are maintaining effective processes for mitigating the risks
- 4.1.3. d – Require a documented risk assessment and risk mitigation plan
- 4.1.4. a – Identify the name and location of all of the supply chain intermediaries. If documentation is suspected of being falsified, a documented risk assessment is required.
- 4.1.4 b – flow down applicable requirements of this document in the event that one or more supply chain intermediaries do not have a fraudulent/counterfeit part control plan compliant to this document, a risk analysis shall be required .
- 4.1.4.c – Specify that disclosure is required

Supplier Quality:

Supplier Quality has the role to ensure supply chain compliance and conformance of purchased products and services throughout the product life cycle. This implies early involvement in programs to establish effective quality requirements and oversight plans as well as early engagement with suppliers to ensure a thorough understanding of requirements and capabilities.

- Make/Buy Strategy - Communicate supplier capability; Perform supplier capability assessment; Understand internal mfg. capability, risk and core competencies
- Q Clauses, Contract Clauses, Requirement Doc - Develop contract clauses for counterfeit requirements (Ref AS5553 Appendices for clause language)
- Program Quality Plan - Incorporate Counterfeit Parts Control Plan; Integrate with Parts Material Plan
- Supplier Assessment/Approvals - Develop Counterfeit parts approval requirements and maintenance surveillance; Perform onsite supplier assessments
- Control Conditional/Limited Approvals - Establish criteria (duration, scope, business unit, PN, PO)
- Risk Mitigation Plans - Establish necessary Inspection and testing; Establish source inspection requirements
- Product verification (supplier responsible for test/inspection; source inspection, supplier delegated, receiving inspection) - Execute appropriate levels of inspection and testing to determine authenticity and conformance. Ensure use of approved test labs if required.

- Perform Surveillance – Establish risk based surveillance plan that is continually updated based on supplier performance
- Supplier Performance Metrics - Establish supplier/distributor metrics; process health metrics to allow for continuous improvement of counterfeit risk mitigation

Reference:

See AS/EN/JISQ9100 (Rev C)

- 7.4.1 a-f – Maintain a Register of Suppliers, review performance, establish levels of controls, define approval status requirements and determine and manage the risk when selecting and using suppliers.

See AS5553 (Rev A) sections

- 4.1.3.a – Document the assessments criteria and assess potential sources of supply to determine the risk of receiving fraudulent/counterfeit parts. Maintain records for those suppliers which have met the criteria.
- 4.1.3.c – Assure that approved /ongoing sources of supply are maintaining effective processes for mitigating the risks of supplying fraudulent/counterfeit EEE parts.

Quality/Receiving Inspection (RI):

Inspection & Test (Receiving, in-process production, final product acceptance, etc.) – Inspection & Test typically has the role of verifying that the received parts meet the specified requirements for Form, Fit & Function. Inspection & Test activities come in various flavors, each with different levels of depth and rigor in verifying that the parts meet the organization's needs.

- Receiving Inspections Test Protocols and Planning - Add additional tests commensurate with and inspection into RI plans by commodity/part number/supplier commensurate with counterfeit risk. Incorporate Risk Mitigation Plan actions accordingly.
- Product Validation and Disposition - Execute appropriate levels of inspection and testing per specific RI Plan to validate conformance. Ensure use of approved test labs if required.
- See below Reporting Incidents – Ensure the reporting of suspect counterfeit parts across all appropriate business units /functions (include Legal/Contracts) and notify customer/GIDEP/regulatory agencies as required.

- Inventory Control & Segregation - Coordinate with Parts Control to ensure suspect counterfeit parts are bonded; ensure adequate inspection prior to acceptance of parts returned to stock; Avoid comingling of parts procured from independent distributors; Ensure segregation and traceability by supplier lot # and date code.

References

See AS/EN/JISQ9100 (Rev C) sections

- 7.4.3 – The organization shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified requirements.
- 8.2.4 – The organization shall monitor and measure the characteristics of the product to verify that the product requirements have been met

See AS5553 (Rev A) sections

- 4.1.5 – The documented processes shall assure detection of suspect or confirmed fraudulent/counterfeit EEE parts prior to formal product acceptance. The rigor of the validation process shall be commensurate with product risk.
- Appendix E Section E.1 – For cases where procurements must be made from other than authorized suppliers, additional tests and inspections should be performed, as necessary, to detect counterfeit parts.

B. Supply Chain Hierarchy

Counterfeit risk varies depending on where one is in the supply chain. At the upstream end of the supply chain, there are Original Component Manufacturers and distributors. Historically, most of the electronic counterfeit risk originates at the distributor level. As one moves further down the supply chain, there are avionics original equipment manufacturers (OEMs) and finally, system integrators.

If your company is a high level system integrator, your counterfeit risk most likely comes from your first tier suppliers, e.g., avionics OEMs, who in turn procure parts or assemblies from their sub-tier suppliers which include distributors. In order to mitigate your counterfeit risk, contract flow down of counterfeit avoidance, obsolescence management and supplier surveillance requirements, to ensure supplier compliance is very important.

If, on the other hand, you are a board manufacturer and procure component electronics from various sources, including both OCM authorized distributors and occasionally, non-OCM authorized distributors, your risk is driven primarily from the non-OCM authorized distributors. When the risks are different, the strategies to mitigate the risks of counterfeit must be different. The following slides summarize mitigation strategies for different supply chain levels.

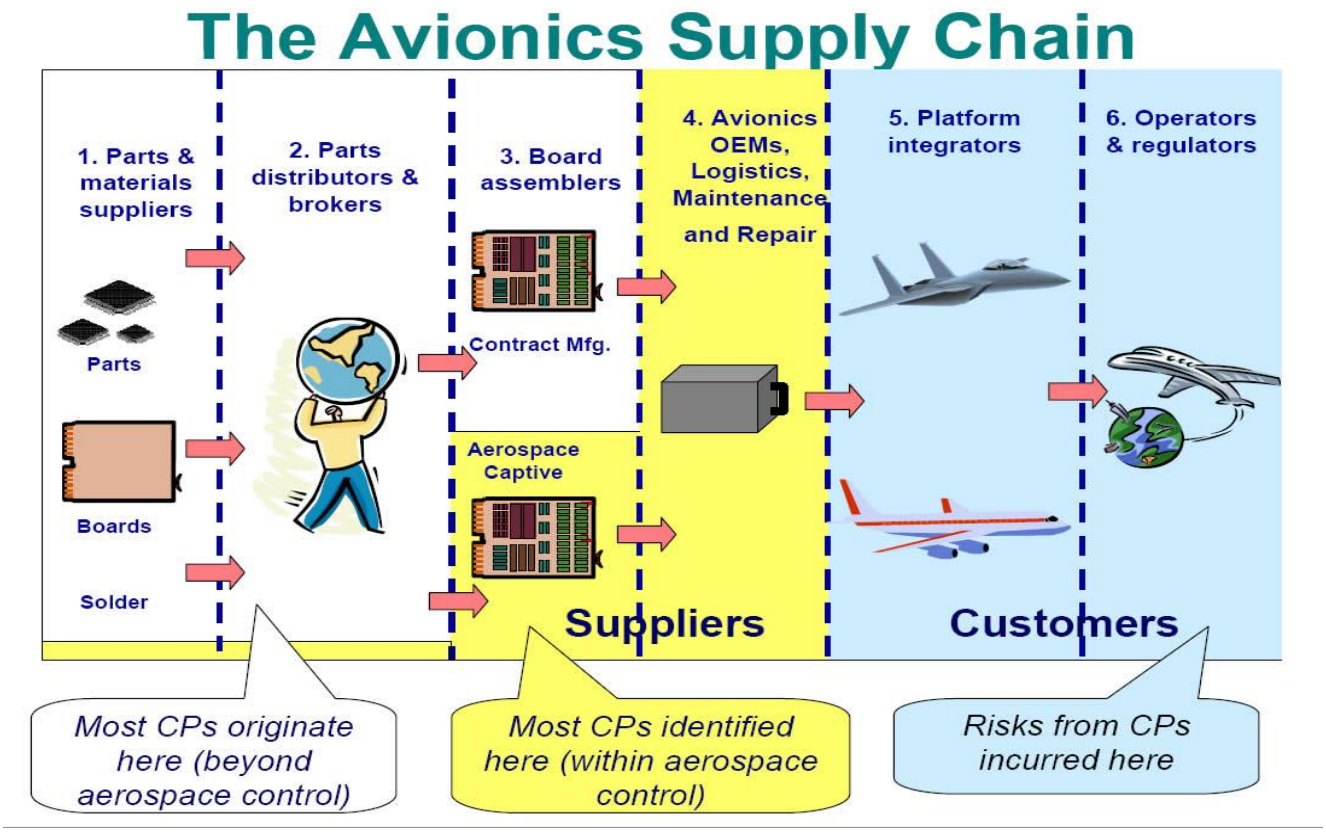

Figure 4 - Assessing supply chain risk vs. application

Risks are dependent on both the supply chain source and the part application. In other words, parts bought from the same source can present different risks based on the application. Using this chart below can assist in determining where on the risk chart an individual procurement may lie.

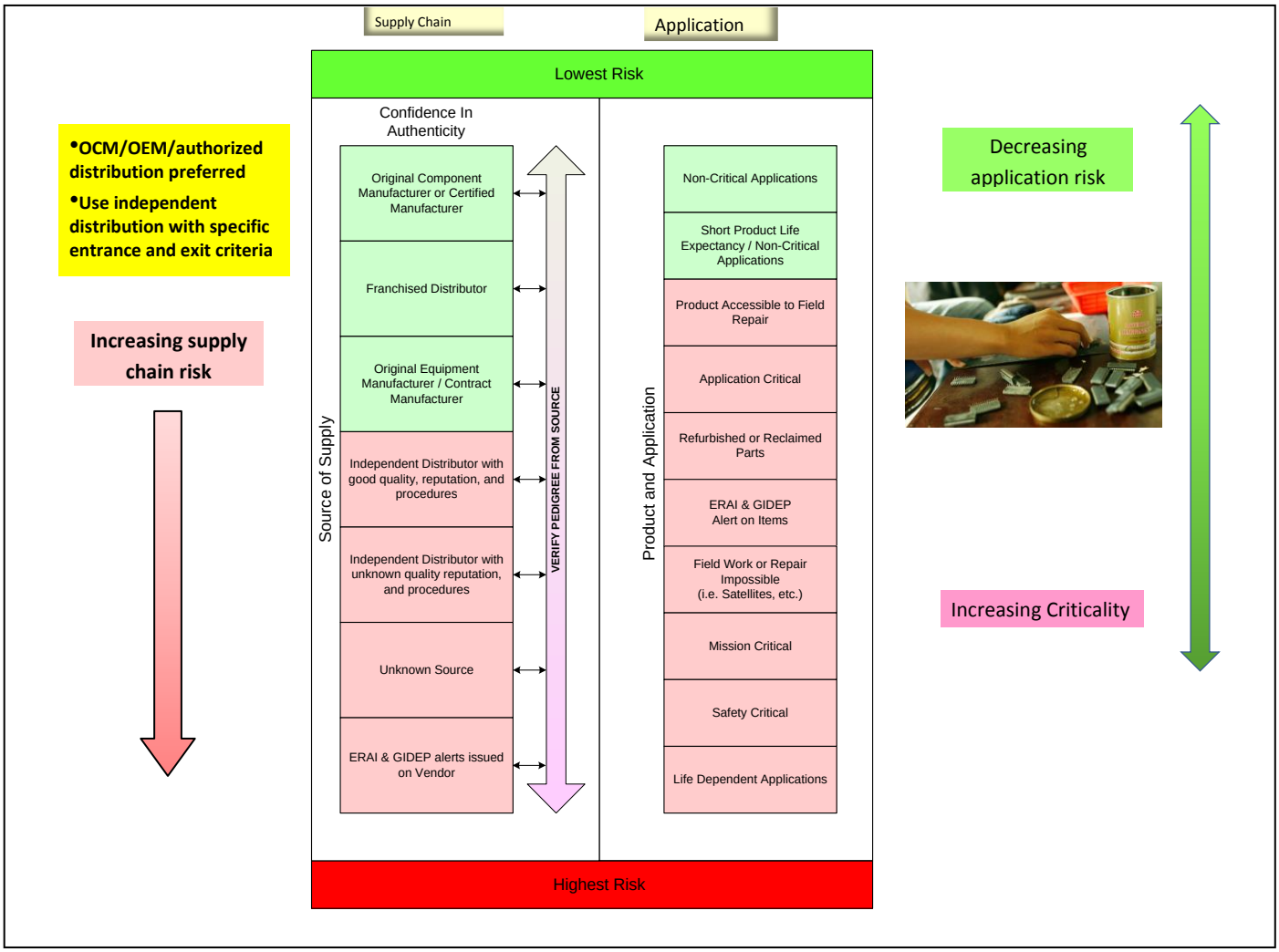

Figure 5 - “Risk Stack Chart” from AS5553A

The following chart provides some examples of product application and possible associated risk types and mitigation strategies.

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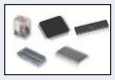
Product Applicability		Applicable Standards	Risk Types	Mitigation Strategies / Needs
User Operator	 	•ISO 9001 •AS/EN/JISQ9100 . AS/EN/JISQ9110 •AS5553 • Gov't Reqs.	•Obsolescence	
Platform Integrators	 	•ISO 9001 •AS/EN/JISQ9100 •AS5553 •Gov't Regs •IEC Std	•Component Obsolescence •Supplier Control •Sub-Tier Supplier Control •Contract Flowdown inconsistencies •Supply Chain Traceability •Variation in I&T lab capability •Product and application risk •Control of inventory (from Auth vs Grey market, scrap, surplus, returned product)	•Parts Mgmt Plans, DMS Plans, Last Time Buys/EOL Buys •Contract flowdown, surveillance; reporting/notification; GIDEP/ERAI •Disclosure requirements (whether source is auth/not auth and whether or not full mfr's warranty is provided) •Distributor audits/approvals, Source Selection Criteria •Verification of Purchased Product •Inspection and Testing Requirements •Test Strategies according to the Risk •Risk Assessment
System Integrators	     	•ISO 9001 •AS/EN/JISQ9100 •AS5553 •AS6174	•Component Obsolescence •Supplier Control •Sub-Tier Supplier Control •Contract Flowdown inconsistencies •Supply Chain Traceability •Source Design Part – supply chain control •Variation in I&T lab capability •Product and application risk •Control of inventory (from Auth .vs. Grey market, scrap, surplus, returned product)	•Parts Mgmt Plans, DMS Plans, Last Time Buys/EOL/bridge Buys •Contract flowdown, surveillance; reporting/notification; GIDEP/ERAI •Disclosure requirements (whether source is auth/not auth and whether or not full mfr's warranty is provided) •Distributor audits/approvals, Source Selection Criteria; I&T Lab selection criteria •Planning for adequate lead times •Verification of Purchased Product •Inspection and Testing Requirements •Test Strategies according to the Risk •Risk Assessment •BOM/Alternate Parts Listing-Multiple Replacement Parts for designs •Inventory Control Method
Sub-Systems	  	•ISO 9001 •AS/EN/JISQ9100 •AS5553	•Component Obsolescence •Supplier Control •Sub-Tier Supplier Control •Contract Flowdown inconsistencies •Supply Chain Traceability •Variation in I&T lab capability •Single source design •Control of inventory (from Auth vs Grey market, scrap, surplus, returned product)	•Parts Mgmt Plans, DMS Plans, Last Time Buys/EOL/bridge Buys •Contract flowdown, surveillance; reporting/notification; GIDEP/ERAI •Disclosure requirements (whether source is auth/not auth and whether or not full mfr's warranty is provided) •Distributor audits/approvals, Source Selection Criteria; I&T Lab selection criteria •Planning for adequate lead times •Verification of Purchased Product •Inspection and Testing Requirements •Test Strategies according to the Risk •GIDEP?/ERAI •Risk Assessment •System Redesign •BOM/Alternate Parts Listing-Multiple Replacement Parts for designs •Inventory Control Method
Components (OCM)		•ISO 9001 •AS/EN/JISQ9100 •AS5553	•Component Obsolescence •Supply Chain Traceability •Supplier Control – Distributors •Inventory Control – Warranty Returns •Single source design	•Distributor audits/approvals, Source Selection Criteria; I&T Lab selection criteria •Inventory Control method – Verification of Returned Part(s); Control of Excess parts •BOM/Alternate Parts Listing-Multiple Replacement Parts for designs
Auth. Distributors		•ISO 9001 •AS/EN/JISQ9120 •AS6081	•Supply Chain Traceability •Supplier Control – Distributors •Lack of clear definition of Authorized and how to determine scope of authorization of a distributor •Variation in I&T lab capability	•Distributor audits/approvals, Source Selection Criteria; I&T Lab selection criteria •Supply Chain •Inspection and Testing •ERAI Reporting databases •Inventory Control Customer Notification
Un-Auth. Distributors		•ISO 9001 •AS/EN/JISQ9100	•Supply Chain Traceability •Supplier Control – Distributors •Lack of clear definition of Authorized and how to determine scope of authorization of a distributor •Variation in I&T lab capability	•Distributor audits/approvals, Source Selection Criteria; I&T Lab selection criteria •Inspection and Testing •ERAI Reporting databases •Inventory Control •Customer Notification

Figure 6 – Product family risks and mitigation strategies

IV. Key Control Processes for Mitigating Risk

The best line of defense for avoidance of counterfeit parts comes from being aware and prepared at all levels and functions of the organization. It is vital that senior management is committed to support a company's efforts to address counterfeit issues and provide the necessary resources. A robust Quality Management System (QMS) is also essential to ensure the integrity and authenticity of products produced, received and/or maintained. The organization's current QMS system (AS/EN/JISQ9100 or ISO 9001 based) has the foundation for providing the organization with the tools and processes for counterfeit parts avoidance.

AS5553 & AS6081, "Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition," provides very distinct requirements that can add specific controls to mitigate counterfeit risks. AS5553 & AS6081 requirements are intended to supplement the requirements of a higher level quality standard (e.g., AS/EN/JISQ9100, AS/EN/JISQ9120) and other quality management system documents. They are not intended to stand alone, supersede, or cancel requirements found in other quality management system documents, requirements imposed by contracting authorities, or applicable laws and regulations unless an authorized exemption/variance has been obtained. A comparison chart showing the alignment of AS/EN/JISQ9100:2008 requirements to AS5553 & AS6081 requirements is located in **Appendix C** for your convenience.

A control (or management) plan for addressing counterfeit issues should be part of that robust QMS. Having a control plan is considered an industry "best practice". The control plan should include processes that address the following areas:

- Personnel Training
- Parts Obsolescence Management - DMSMS
- Purchasing Process
- Control of Source of supply
- Verification of purchased/returned products
- In process investigation
- Material and Parts Control
- Reporting

In addition to building a control plan for working with direct suppliers, exposure to counterfeit parts can also occur indirectly through the supply chain. Therefore it is important to flow down contractual requirements to ensure sub-tier suppliers implement an

appropriate strategy to ensure that product delivered or furnished are not counterfeit/unapproved parts.

For an example of a control plan, see **Appendix E** in this section.

For an example of contract flow-down language, see **Appendix D in AS5553A**

A. Personnel Training

A basic but key strategic element of mitigating the risks posed by counterfeit parts and materials is through proper, on-going awareness training for all personnel at all levels in your company. Counterfeit parts training should include overall general awareness as well as training specific to the organizational/functional responsibilities and accountabilities. Awareness training should be mandatory for all employees (and their management) that may come into contact with a CP.

Elements of training should include:

- Prevention
- Mitigation
- Detection
- Disposition
- Reporting

Key themes –

Don't trust too much – demand proof of authorization and compliance claims.

Cradle to Grave Control" from sourcing to disposal of parts

Awareness Training and Information Resources for Suppliers

British Electrotechnical and Allied Manufacturers Association (BEAMA)

BEAMA is an example of an Industry group from the Electro-mechanical sector (e.g. switches, power distribution) co-operating by sharing intelligence, resources and costs to successfully combat Counterfeiters. BEAMA works with local law-enforcement agencies in the country of origin to locate and shut down both the factories producing Counterfeit products and their distributors. Counterfeiters usually deal in multiple brands and hence the BEAMA companies protect all of their associates brands, not just their own. A key lesson is that Organizations need to

trademark their tooling as well as their products so they can also be confiscated in a raid to achieve maximum impact on the Counterfeiters capability.

Independent Distributors of Electronics Association (IDEA) Training (inspection)

Independent Distributors of Electronics Association (IDEA) offers training for inspectors receiving electronic parts. IDEA-STD-1010 Acceptability of Electronic Components Distributed in the Open Market is a great resource for inspection of EEE components. They also offer an inspector certification program. More information on IDEA training can be found on their website:

http://www.idofea.org

Jet Propulsion Laboratories (JPL) Counterfeit Training

NASA provides information for training and their training link is:

http://mttc.jpl.nasa.gov/

NASA Academy of Aerospace Quality (AAQ) - Counterfeit Awareness

Part of the NASA Quality Program Tutorial, a module to present the problem posed by counterfeit parts, its effects and how it is being dealt with by different organizations

http://aaq.auburn.edu/counterfeit-parts

SAE - AS5553, AS6081 Training

SAE chartered the G-19 committee in 2007 to address "aspects of preventing, detecting, responding to, and counteracting the threat of counterfeit electronic components." The participants have included U.S Government, Defense, and Aerospace manufacturers, industry groups, and testing laboratories. The results of their efforts are the publication of several SAE standards. SAE provides training sessions on these standards as well as webcasts to help clear up misunderstandings among the user community and answer these questions: what are the differences between the SAE Counterfeit Standards, and which standard should your company use?

UK Ministry of Defense (MOD) Acquisition Operational Framework (AOF)

The UK Ministry of Defense (MOD) offers guidance material and questions sets through their Acquisition Operational Framework (AOF) relating to counterfeit parts control. The question sets covers the level of awareness and embedded capability.

Companies interested in reviewing this material for use within their own organizations or for use with any of their suppliers, need to register with the UK MOD AOF (see link below). Some of the guidance material and questions sets are attached for your preview.

https://www.gov.uk/acquisition-operating-framework

UK electronics Alliance (UKEA)

The UKEA is a consortium of ten of the leading UK trade associations representing the electronics sector, whose primary purpose is to assist and coordinate discussion on cross cutting issues across the sector and, where appropriate, coordinate action on behalf of the sector including acting as a two way communication channel between the sector and Government departments and agencies. By pooling knowledge and resources, the trade associations are able to address many issues affecting the sector more effectively than would be possible by acting individually and enable the electronics sector to speak with a coordinated voice.

It provides counterfeit component information through its Anti-Counterfeit Forum website:

http://www.anticounterfeitingforum.org.uk/default.aspx

B. Part Obsolescence Management –DMSMS

Diminishing Manufacturing Sources and Materials Shortages (DMSMS) have a significant impact on life cycle costs of high reliability equipment/products such as those provided by the aerospace, space and defense industry. The long life cycles of equipment (30+ years) combined with the increasingly shorter life cycles of critical components like microcircuits (5 years or less) presents a challenge in building and maintaining such equipment for customers. To minimize impact, the establishment of a proactive DMSMS Management Process is the recognized industry “best practice”. TechAmerica Industry Standard STD-0016 documents the

necessary elements of a proactive DMSMS Management Plan. Figure 7 illustrates how various elements of the DMSMS Process gain importance during the equipment's life cycle.

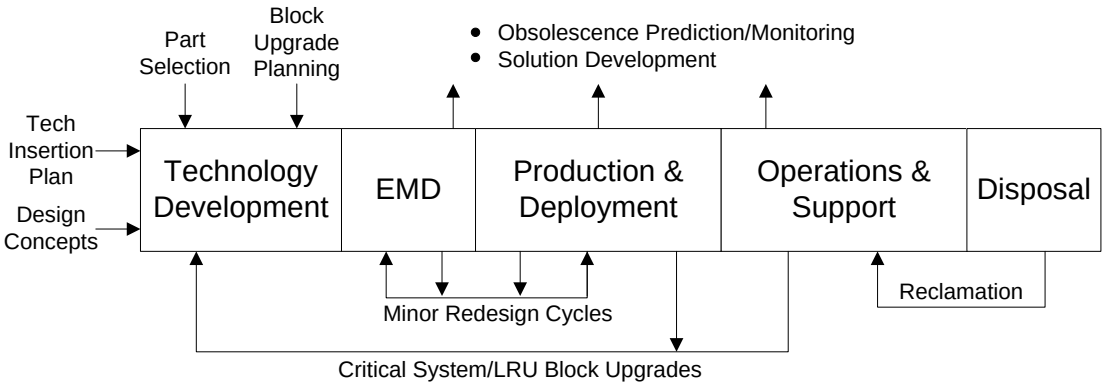


Figure 7 – Life Cycle Approach to DMSMS

DMSMS is a potential source of cost and risk to Programs in the form of equipment redesigns, production line delays due to the unavailability of parts, negative impact on mission readiness or inability to use equipment in the field due to lack of spares, and increased risk of receiving counterfeit electronic parts. This last issue is the result of Programs and/or Customers having to rely on the Broker Market, where counterfeit risks are inherently higher, to purchase previously discontinued parts to support near-term Production or Sustainment requirements. Proactive DMSMS Management can significantly reduce this risk since Programs will have ample warning of when electronic parts are going end-of-life/obsolete which enables them to incorporate long-term solutions that should reduce the chances for future part procurement from the Broker Market. Figure 8 below is an example flow for a proactive DMSMS Management process from TechAmerica STD-0016.

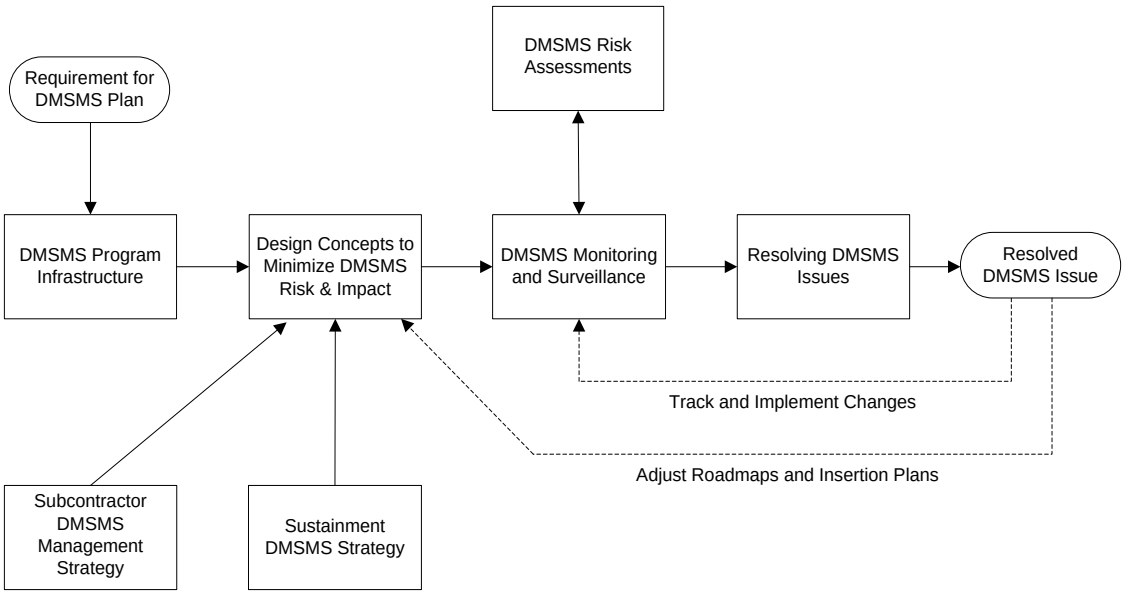


Figure 8 – Example Flow for Proactive DMSMS Management

A detailed discussion of each step in the process can be obtained from STD-0016 but a brief description of each step is given below.

- **DMSMS Program Infrastructure:** Form a cross-functional team that includes a customer interface to address DMSMS issues and define roles and responsibilities of the key stakeholders.

- **Design Concepts to Minimize DMSMS Risk & Impact:** System and equipment design should incorporate concepts to minimize the impact of DMSMS. Technology insertion plans and equipment roadmaps should be developed for equipment that has high potential DMSMS risk.

- **DMSMS Monitoring and Surveillance:** Implement a process for monitoring the procurability status of electronic parts to provide early warning for potential end-of-life parts.

- **Resolving DMSMS Issues:** Use a documented process for resolving known DMSMS issues that is based on minimizing life cycle costs of the DMSMS solution. This should also include a process for tracking approved solutions to completion and ensuring DMSMS solutions are compatible with the existing equipment roadmaps and technology refresh strategy.

- **DMSMS Risk Assessments:** Develop a methodology for assessing the potential DMSMS risk of critical parts and/or equipment to aid in risk mitigation planning. This should be tied to the Program Risk Management process.

How the Program implements these key process elements should be defined in a DMSMS Management Plan. In addition, when developing your DMSMS Management Process you must consider the strategy for managing sub-tier subcontractors and the support concept used for equipment sustainment. How you implement these tasks will definitely have an impact on how certain steps of the DMSMS Management process are defined.

When a Program uses a last time buy to resolve a DMSMS/obsolescence issue the appropriate procurement process should be used to ensure genuine parts are received.

For additional information on the subject of DMSMS, the “Acquisition Community Connection – DMSMS Knowledge Sharing Portal”” website is a great resource.

https://acc.dau.mil/dmsms

Available from this website is an electronic copy of the SD-22 guidebook "Diminishing Manufacturing Sources and Material Shortages (DMSMS): A Guidebook of Best Practices and Tools for Implementing a Robust DMSMS Management Program" which is an outstanding resource for acquisition professionals from a variety of career fields, including the Product Support Manager, Life Cycle Logistics, Systems Engineering, Program Management, and Production, Quality & Manufacturing to name a few.

References:

- STD-0016, “Standard for Preparing a DMSMS Management Plan”
- EIA-STD-4899 “Standard for Preparing an Electronic Component Management Plan
- IEC TS 62239 “Process Management for Avionics – Preparation of an Electronic Component Management Plan”
- SD-22 “Diminishing Manufacturing Sources and Materials Shortages, A Guidebook of Best Practices and Tools for Implementing a DMSMS Management Program”

C. Supply Chain Management –Procurement

As the Contracts flow down through each level or ‘tier’ of the Supply Chain, it must be ensured that the links to the legal and regulatory ‘framework’ aren’t lost. The

minimum standards and requirements to be met need to be clearly defined and flowed down. As a minimum, the awareness of the Risk of the introduction of Counterfeit / Fraudulent parts needs to be passed down through all levels of the Supply Chain.

Note that it is usually the case that the Suppliers involved in the end to end Supply Chain can literally be located across the world, where the definitions of and cultural attitudes to Counterfeit and Fraudulent activities can differ.

The threat is of a 'break point' where that the Contract become simply transactional – i.e. a quantity of components or materials are being bought to fulfill a specification, with no linkage of the end product or the minimum legal and regulatory requirements. It is at this point that the risk of the introduction of Counterfeit and Fraudulent parts / material can be highest.

Before a part/product is purchased a risk mitigation plan should be assembled. The risk level will determine the level of additional requirements you will apply to ensure the part will meet your requirements. A part in an iPod does not represent a large risk of causing damage to a person or itself (fire, or electrical shock hazard). A part in an aerospace, space or defense product has a much greater risk. The greater the risk the higher level of testing is required to ensure the part will function as required. This is a good practice the closer the supplier is to the design authority, but may be impractical further down the supply chain.

Risk mitigation can be divided into two components - part risk mitigation and supplier risk mitigation.

Supplier risk mitigation can be linked with source selection, which is the first line of defense against purchasing counterfeit/unapproved parts. Source selection has been identified as a potential problem in government procurement organizations. Government procurement practices are required to be "open" meaning any company should be able to bid on supplying parts. Many aviation, space and defense companies also have procurement practices that favor the lowest cost provider. Procurement practices need to be revised to look at more than just the lowest cost.

Data has shown that there is a higher risk of counterfeit parts when parts are procured from unauthorized or independent distributors. Procuring parts from authorized manufacturers and distributors provides a much higher likelihood of ensuring genuine products. When using unauthorized sources, ensure that there are contractual requirements that require records of either the OEM's certificate or

conformance, traceability back through the supply chain to the OCM or additional inspection and testing at approved test labs.

Establishing a source selection process that outlines a preference for purchasing from Original Component Manufacturer/Original Equipment Manufacturer (OCM/OEM) or their authorized/franchised distributors is a primary line of defense. When distributors are the only source of parts (i.e. no longer in production or are hard to obtain), extra measures must be performed to ensure the purchase of authentic and approved parts.

- Know your suppliers – due diligence
- Conduct "self-audits" and supplier audits
- Follow established procedures and use approved processes
- If it seems too good to be true, it probably is – price and schedule
- Ask questions

Part risk mitigation is based on the function of the part in the assembly or product. This risk mitigation will be different depending on the product. Higher risk products, such as a satellite would require a different approach than a part used in a ground vehicle.

AS5553 details a risk mitigation decision path (Re-illustrated below for your convenience) that illustrates the differences between buying through OCM's or authorized/franchised distribution. The top green line illustrates the lowest risk approach of EEE procuring through the industry preferred source of authorized distribution. This path is straight forward in that no special risk mitigation steps need to be taken. When the decision is to use an authorized supplier, the parts are processed directly through the receiving processes and into inventory where they are immediately ready for use.

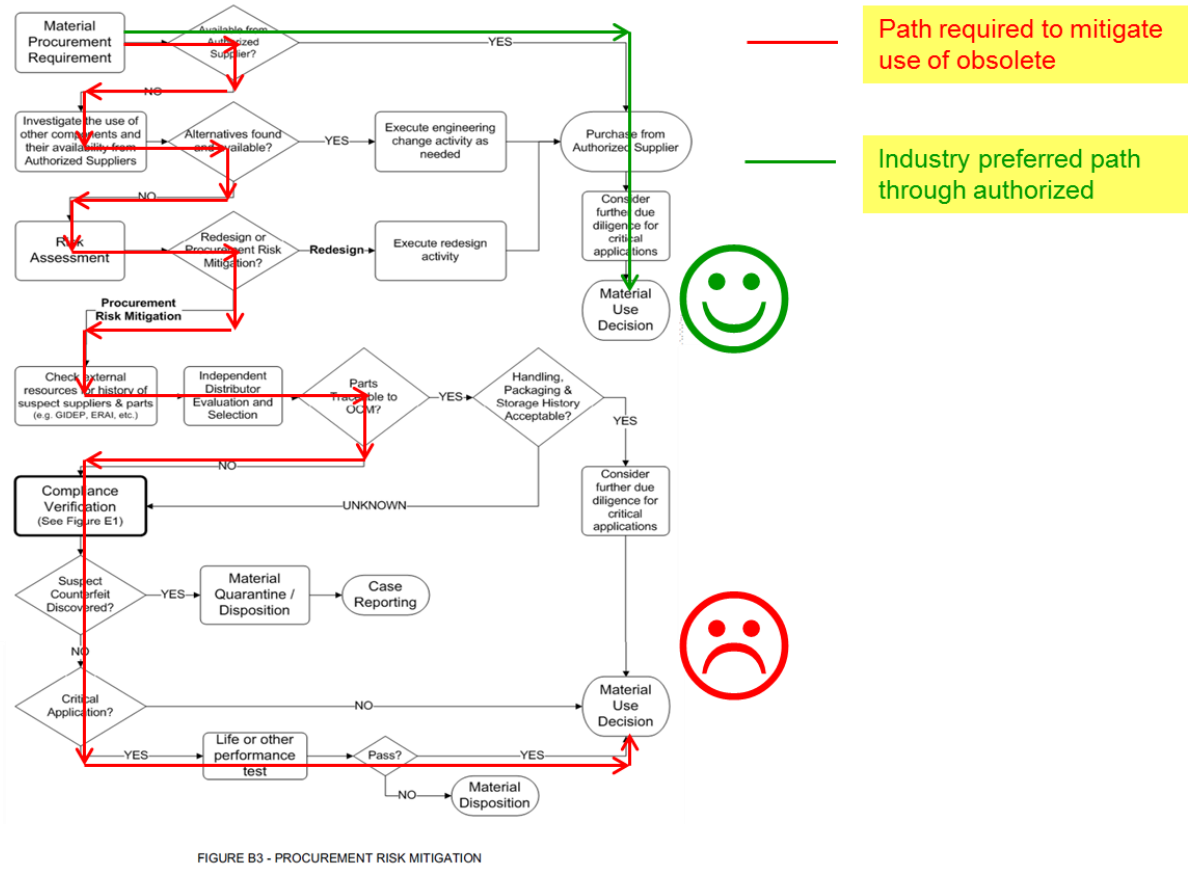


FIGURE B3 - PROCUREMENT RISK MITIGATION

Figure 9 – Risk mitigation decision path (From AS5553)

However, in the case where an authorized supplier is NOT available (red line), for example due to part obsolescence, several decisions must be made that include looking for a part substitution or alternate, performing a risk assessment based on part usage and supply source, determining if the parts are traceable to the OCM, and last, but many times the most expensive step, verifying part authenticity. This verification process can include physical and visual inspection, x-ray, electrical tests, life testing, Destructive Physical Analysis (DPA) and many other methods to assure the part has not been altered and represented as the part that was ordered. Needless to say, these processes can be expensive and take considerable time to complete, time that was not usually accounted for when developing program schedules

Conclusion – The best decision path to take should be to purchase directly from OCMs or from authorized suppliers in order to provide the lowest risk. Risk mitigation measures should be developed and implemented when a reasonable

search for materials from authorized sources has been conducted and results in the need to procure from independent distribution.

Source Selection

When selecting a distributor, broker, or supplier, the different risks associated with their selection should be recognized. As a general rule, there are less risks when procuring from the Original Component Manufacturer (OCM, etc…) or a national Civil Aviation Authority (CAA) authorized manufacturer (FAA, EASA, or Other), than when procured from an independent distributor or broker. Due to these differing risk factors, these risks must be evaluated and mitigated to ensure confidence that Counterfeit/Unapproved articles (product) are prevented and/or identified in an effort to prevent product release. Please refer to “Risk Stack Chart” from AS5553A as identified below as a guide in defining these levels of risk.

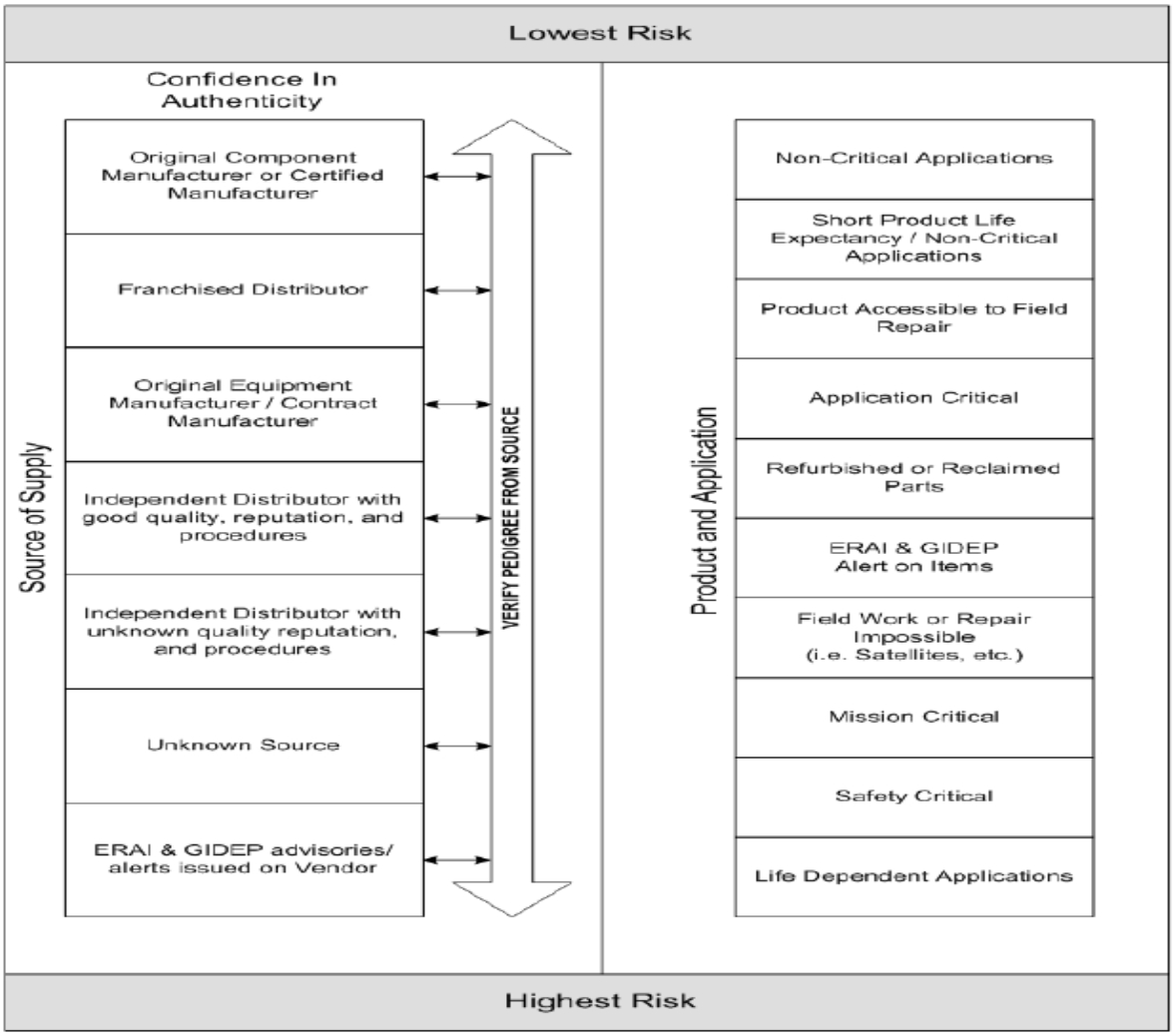


FIGURE B1 - RISK STACK CHART

Figure 10 – Risk stack chart from AS5553A

Risk mitigation factors should be analyzed from three different perspectives within the procurement process. These perspectives include Supplier Evaluation and Selection, Purchase Planning, and Verification of Purchased Product.

1. Supplier Evaluation and Selection:
    a. Prior to Purchase Order contract placement, the supplier should be evaluated to determine the likelihood of receiving authentic and conforming material.

b. A best practice would be for the purchaser to maintain a register of approved suppliers. Based upon the evaluation and level of approval granted, the source of supply should be added to this register of approved suppliers. This approved supplier listing should include the scope of the approval.
c. Based upon the source of supply selection, it should be noted that when utilizing higher risk sources of supply, additional costs may be incurred during the Purchase Planning and/or Verification of Purchased Product.
d. External sources may be reviewed to identify potential risks. (GIDEP, Dunn & Bradstreet, other Industry Sources)

Additional guidance on Supplier Evaluation and Selection may be obtained via AS6174, AS5553, AS6081, AS/EN/JISQ9100, AS/EN/JISQ9120, or others as appropriate.

2. Purchase Planning:
   a. Prior to PO placement, the product, documentation, and traceability requirements should be clearly defined, including where applicable, the use of approved sources for materials and/or processes.
      i. This planning should consider risk factors based upon the product and the proposed source of supply. Dependent on the risk factors involved, the planning requirements may differ.
      ii. Specific clauses should be flowed down on the Request for Quote (RFQ or equivalent) and Purchase Order to maximize the likelihood of being provided authentic and conforming material.
   b. The RFQ and the Purchase Order should define the product, documentation and traceability requirements, including where applicable, the use of approved sources for materials and/or processes.

   Additional guidance on the Purchasing Planning and the Information to be flowed down may be obtained via AS6174, AS5553, AS6081, AS/EN/JISQ9100, AS/EN/JISQ9120, or others as appropriate.
   For additional information on this topic, see Section 4 "Source Selection" in the IAQG SCMH.

Purchasing from Distributors

Before you purchase from distributors, they should be researched. There are three types of distributors: authorized distributors, unauthorized/independent distributors and brokers.

- "Authorized" distributors are authorized by OCM/OEM (Original Component Manufacturer) to market, store and ship their product(s).
- "Unauthorized" or "Independent" distributors refer to distributors that have no formal relationship with the OCM/OEM.
- "Brokers" are companies/individuals engaged in the marketing of parts, often scarce parts. Brokers frequently do not actually possess in inventory the parts being sought, but act as the "middle man" to arrange the sale of the part from a third party.

Besides normal "due diligence" in the supplier selection process, there are two sources you can use to review potential distributors. They are the Government - Industry Data Exchange Program (GIDEP) and the Electronic Retailers Association International (ERAI). Both sources have information about entities that supplied counterfeit parts and materials to aviation, space and defense industry members. Data indicates that most counterfeit parts are supplied by brokers and unauthorized/independent distributors (see Figure 11, also identified as Figure 4 per the source).

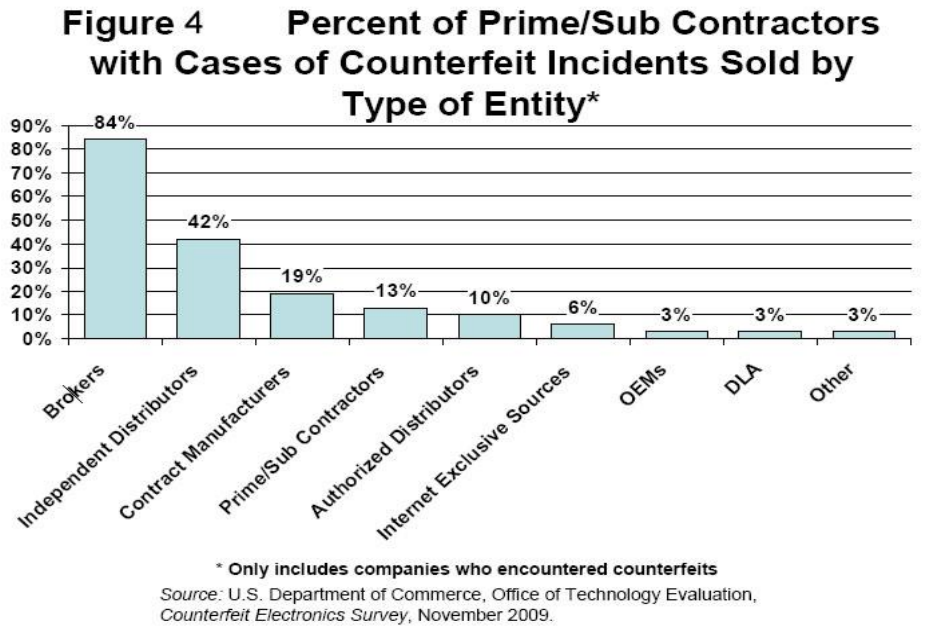


Figure 11 – Percent of Prime/Sub Contractors with Cases of Counterfeit Incidents Sold by Type of Entity

When using distributors, extra measures should be taken to ensure you are receiving parts that will meet your requirements. Unless full product traceability to the OCM/OEM is provided with the part, extra visual inspection as well as testing

will provide an increased level of confidence that the parts will function as required. This will require a level of communication between the procurement and engineering organizations to assess the level of risk and develop an inspection and testing plan commensurate with the level of risk the part poses in the product.

Product traceability is used to track a part from the manufacturer through intermediaries to the customer. Various documents may be used by different countries. The electronics industry delivers a CofC (Certificate of Conformance) to state that parts that they produce and deliver perform to the levels documented on the data sheet for that part. Date and lot code of aerospace fasteners, for example, can be traced back to the manufacturer. When purchasing parts from a distributor, knowledge of the required documentation is essential. It should be noted that a CofC can be easily counterfeited so reliance on this document alone is not foolproof.

Control of Sources - Supplier Monitoring

Monitoring your suppliers is another way of avoiding the potential of receiving counterfeit parts. Supplier risk mitigation includes conducting audits of your supply chain. Reputable distributors will welcome your audit request and demonstrate how they are protecting your supply chain from counterfeit parts and materials. As an industry best practice, most companies have developed a tool to track their suppliers. This is easily modified to include fields that indicate what counterfeit parts have been purchased and from what suppliers. One process to develop is how to flag a supplier who has repeatedly supplied counterfeit parts.

Cost can be one simple way of flagging potential counterfeit parts. For example, if several suppliers/distributors offer a part at a competitive rate and one offers it for half of what the others are offering, it could indicate that the part may be a counterfeit. Due diligence must be performed by the Buyer to ensure the part being purchased is an "approved part". The type and level of due diligence to be performed should be based on a risk mitigation strategy specific to the criticality of the part in your product.

Before procuring from a distributor various references may be searched to find information on the distributor. For example information can be found at GIDEP (Government Industry Data Exchange Program), ERAI (Electronic Retailers Association International) or IDEA (Independent Distributors of Electronics Association). Each source will have its pros and cons.

GIDEP does not charge for their service although, an account is required and there are restrictions on GIDEP membership. Other limitations also apply for GIDEP reporting and accessibility. Prior to publishing a GIDEP Alert, the submitted data is thoroughly reviewed and the offending business is given an opportunity to rebut. This process may take more time but it assures its accuracy and the protection of its information.

ERAI's database is a subscription based product. Anyone can pay the fee and have access to the data. Some advantages of ERAI are that it provides a database of aliases for a distributor's name. This function is useful with counterfeit part reports that have been discovered against one company.

IDEA is a resource for distributors to find relevant quality information and to participate in advancing industry ethics, ensure customer satisfaction, establish standards and promote education. The purpose of IDEA is to promote the independent distribution industry through a media advocacy campaign, 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 designed to improve the business of independent distributors.

***F**or additional information on this topic, see Section 4 in the IAQG SCMH.*

D. Verification of Purchased Product

Detection

Detecting counterfeit parts early in the receiving process is critical to preventing them from entering your production process. The first place to start is to have a good process in place for visual inspection of the parts and documentation. Visual inspection during the Receiving Inspection Process of both the part and the paperwork/documentation accompanying the part can be used to identify crude counterfeits. Visual inspection of parts can detect flaws like the number of pins on a chip are wrong, the pin 1 position locater on an electronic chip is incorrect, the packaging is incorrect, the outlets on a hydraulic pump are in the wrong place or incorrect size fittings or the connectors on an electronic box is clocked wrong. Other possible indicators of a potential counterfeits may be:

- Part finishing/coating altered – texture, color
- Part or serial numbers wrong, conflicting, obliterated, missing
- Part markings have stamp-over, vibro-etched numbers, wrong location, missing

- Data plates are false, missing, attached incorrectly, unusual color
- Improper part/shipping packaging or evidences that the part was repackaged
- General cleanliness

In addition to parts, indicators can also be found on the documentation accompanying the parts, such as:

- Altered logos/letterhead
- Signatures – unauthorized, none, person doesn't exist/work there, or illegible
- Back-dated tests, post-date shipment, data inconsistent with part
- Altered – cut and paste, white-outs, hand written changes, substituted dates, data or serial numbers
- Missing certification statements, no original, no test data, no repair history

These indicators do not necessarily establish that the parts are counterfeit or unapproved. And, visual inspections alone, may not find all counterfeit /unapproved parts if they are being produced in higher quality where visual defects will be harder to determine. Additional inspections, testing, verification, and/or investigations need to be completed to determine the status of the part. This can be a very expensive and time-consuming process.

The level of testing is dependent on the level of risk the part represents in the product. For example, electronic parts used on an iPod represent less risk than that a part used on a satellite. A satellite, once launched cannot be repaired or returned for a working model. The more risk the part represents the higher the level of testing is required to ensure the part will function in its intended use in its environment.

Unfortunately, counterfeiters are constantly updating their counterfeiting techniques to avoid detection. Detection methods should be reviewed and where possible, updated to keep up with the every changing counterfeiter's capabilities, which can be expensive.

Note: FAA Advisory Circular AC 20-154, "Guide for Developing a Receiving Inspection System for Aircraft Parts and Material," is a good source of information for organizations of all sizes.

Upon receipt, the product and documentation should be evaluated in an effort to identify suspect material and prevent inadvertent release. The verification activities shall be commensurate to the product risk.

Risk mitigation through inspection

The organization's choice of the inspection method should be aligned to the risks that are determined from the Engineering and Purchasing end use of the item, evaluation of the source of procurement and the strength of the traceability to the original component manufacturer. This concept is presented in the following model.

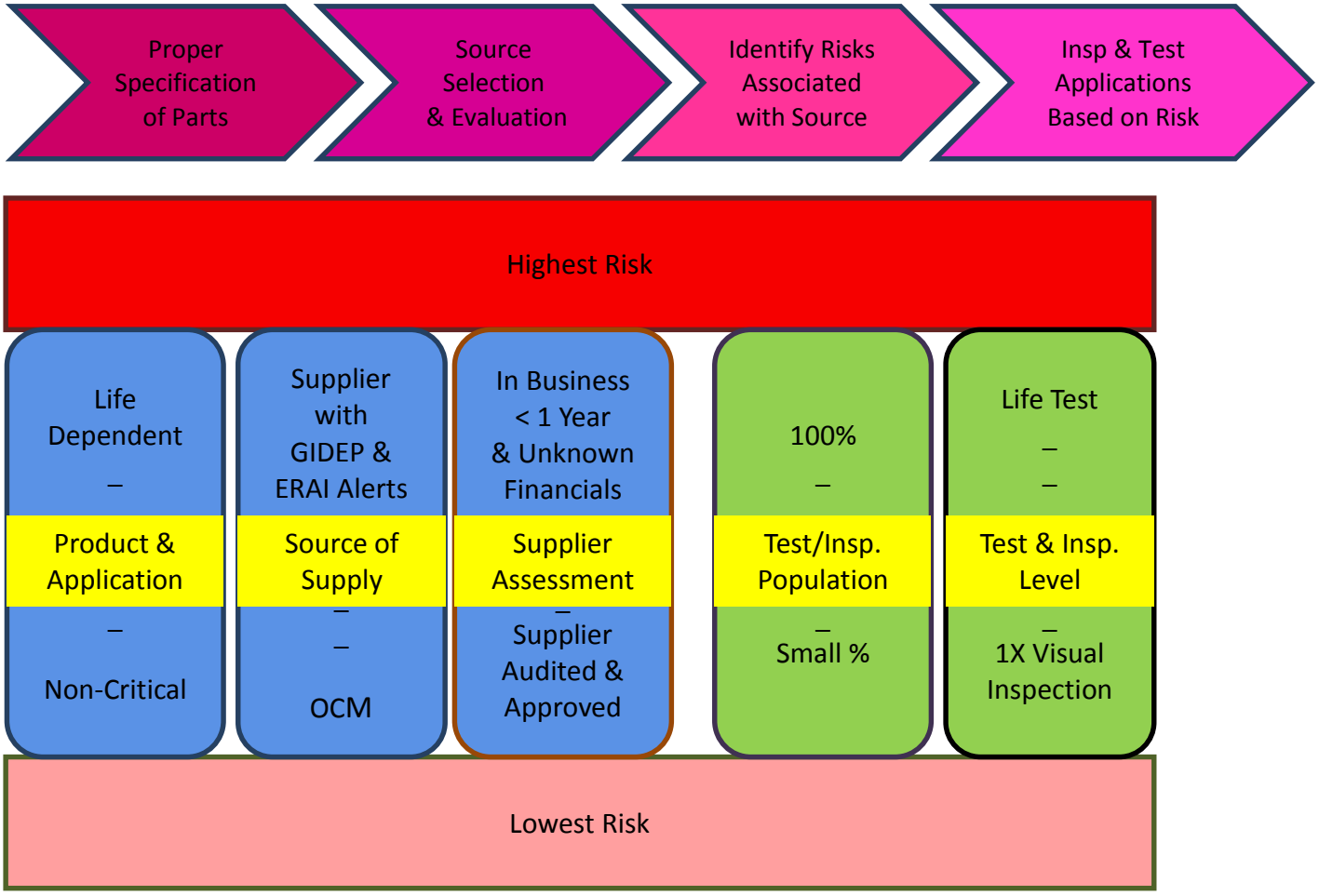


Figure 12 – Risk mitigation model

After risk has been determined a risk mitigation strategy/plan for the individual procurement should be developed. While visual inspection by an inspector trained to detect counterfeit attributes visually may be appropriate for a very low risk

procurement, increased test and inspection techniques are needed to mitigate higher risk applications. The risked based inspection chart presents some guidelines to use when developing an inspection plan for your situation.

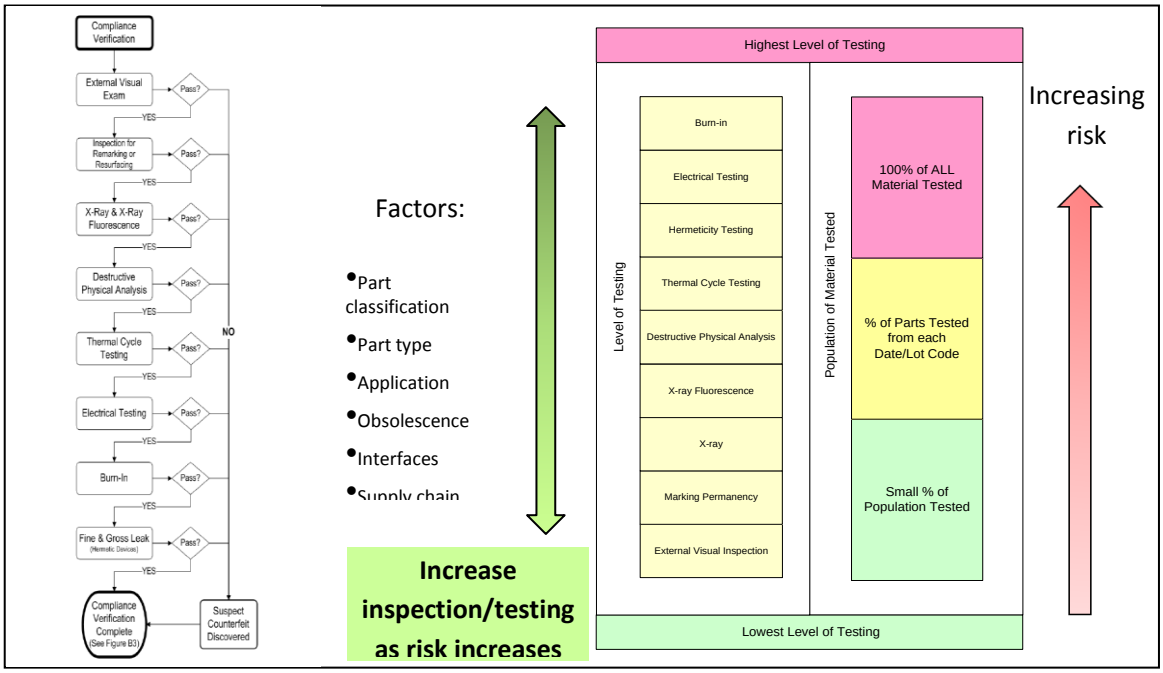


Figure 13 – Risk base inspection chart

Additional guidance on the Verification of Purchased Product may be obtained from AS6174, AS5553, AS6081, AS/EN/JISQ9100, AS/EN/JISQ9120, or others as appropriate.

For additional information on the topic of product verification, see Section 4.3 Sub-Section 5 "Purchased Product Verification" in the IAQG SCMH.

Also see Additional Resources Section IV A Personal Training for RI help – IDEA 1010 STD, JPL NASA training, AAQ website.

E. Control of Material –Non-conformance Mgmt./Process

Containment

Organization shall have a process in place to quarantine parts and associated documentation should an unapproved/counterfeit part be encountered. The process should include information on who to notify internally to ensure customer and regulatory requirements are met.

If a counterfeit part is suspected, it should be impounded or otherwise quarantined to prevent installation on an aircraft or component, or re-entry into the supply chain until such parts are inspected and/or tested, and relevant documentation researched and verified. A finding of conformity that meets the customer requirements must be established prior to releasing the part for subsequent use.

In the event the part/material is a counterfeit part, the part and all information relating to the purchase of the part, including points of contact, company name and address should be collected and held in quarantine in the event it is needed for use in an investigation by law enforcement officials.

It is considered an industry best practice to completely destroy/mutilate all counterfeit parts that are not turned over as evidence for an investigation. This will keep the parts from re-entering the supply chain.

For additional information on this topic, see Section 3.3 "Control of Non-Conformities, Corrective and Preventive Actions" in the IAQG SCMH.

F. Investigation

In order to make a determination that a possible counterfeit situation exists, a deliberate and thorough examination of the part and associated documentation should be conducted. There are various indicators to assist in the detection of potential counterfeit parts.

Some example check sheets provided in the appendix may offer some insight when doing any investigation.

Appendix F –Chain of Custody

Appendix G –Fraud Indications

G. Reporting

The counterfeit parts risk has impacted all levels of the supply chain. OEMs, distributors, customers, and suppliers need to work together to be more aware of the problem and deal with counterfeits and counterfeiters. Reporting suspect unapproved/counterfeit parts has multiple purposes. It:

- Helps to limit the proliferation and use of counterfeit parts across the supply chain by alerting others of suspect counterfeit parts, methods of counterfeiting, inspection and testing used for verification etc.

- Helps other players in the supply chain adequately assess risk and improve quality and reliability
- Seeks to reduce the resources need to maintain awareness of counterfeit issues by establishing a cooperative effort to exchange technical information

For information on who to report to and how to report suspected unapproved/counterfeit parts see AS 5553 Rev A, Appendix G.

Suppliers should have a process in place on how and where to report suspected or confirmed counterfeit parts or materials. This process should include who to contact and what (if any) organizations to report the information to. All appropriate personnel should be aware of the proper reporting process for suspected Counterfeit or Unapproved Parts within their own company as well as required by customers and local authorities.

Reporting in accordance to contract requirements, federal or local laws and regulations of unapproved/counterfeit parts and materials to the appropriate authorities/agencies is the responsibility of all suppliers in the supply chain and benefits the entire aviation, space and defense industry.

In addition to reporting to the Buyer and/or government authority/agencies, reporting to the Government Industry Data Exchange Program GIDEP is also recommended and considered an industry best practice. Gathering and submitting information relating to the unapproved/counterfeit parts or materials in industry accessible, centralized databases allows companies to research parts and suppliers/distributors before purchasing from them. Other reporting programs include ERAI and the FAA AC-21.29C “Detecting and Reporting Suspected Unapproved Parts”.

Reporting Resources

GIDEP http://www.gidep.org/gidep.htm

ERA http://www.erai.com/

FAA Suspect Unapproved Parts
http://www.faa.gov/aircraft/safety/programs/sups/

V. Additional Informational Resources

Here are a few of the related available resources for additional information on counterfeit parts.

Distributor Related websites

- **Counterfeit Components Avoidance Program (CCAP) for distributors**
  http://cti-us.com/CCAP.htm
- **Defense Logistics Agency (DLA) Qualified Suppliers List of Distributors (QSLD)**
  http://www.landandmaritime.dla.mil/offices/sourcing_and_qualification/default.aspx
- **Electronics Authorized Distributors**
  http://www.authorizeddirectory.com/
- **Electronics Components Industry Association**
  http://www.eciaauthorized.com/
- **Independent Distributors of Electronics Association (IDEA)**
  http://www.idofea.org/

Government Laws and Regulations related to Counterfeit Avoidance

- **National Defense Authorization Act 2012 Sec 818**
  http://www.treasury.gov/resource-center/sanctions/Programs/Documents/ndaa_publaw.pdf
- **National Defense Authorization Act 2013 Sec 833**
  http://www.govtrack.us/congress/bills/112/hr4310/text
- **Proposed Defense Federal Acquisition Regulations: Detection and Avoidance of Electronic Counterfeit Parts (DFARS Case 2012-D055)**
  https://www.federalregister.gov/articles/2013/05/16/2013-11400/defense-federal-acquisition-regulation-supplement-detection-and-avoidance-of-counterfeit-electronic
- **National Defense Authorization Act 2014 Sec 811 – House approved**
  http://armedservices.house.gov/index.cfm/files/serve?File_id=bbdda6e0-f0b1-4c30-b46e-404830bed8cf
- **Department of Defense Counterfeit Prevention Policy (DoD Instruction 4140.67)**
  http://www.dtic.mil/whs/directives/corres/pdf/414067p.pdf

Counterfeit Parts Prevention Guidance

Reference documents

IAQG 9100	Quality Management System-Requirements for Aviation, Space and Defense Organizations
ARP 9013	Statistical Product Acceptance Requirements
IAQG 9103	Variation Management of Key Characteristics
IAQG 9134	Supply Chain Risk Management Guidelines

Training Material and Tools

IAQG Supply Chain Management Handbook SCMH www.iaqg.org/scmh

SCMH Section 8 Stakeholders Relationship and Communication
SCMH Section 2.1 Special Requirements and Critical Items
SCMH Section 4.1 Supplier Selection & Capabilities Assessment
SCMH Section 3.1 Managing Product and Process Variation
SCMH Section 7.3 Risk Management

Appendix A –Legal Definition

Appendix (A) - Legal Definition of a "Counterfeit"

In the United States, under the Lanham Act, a "counterfeit" is defined as "a spurious mark which is identical with, or substantially indistinguishable from, a registered mark."[1] Although the Lanham Act does not specifically define the term "counterfeit good," the Act creates a cause of action against "any person who shall, without the consent of the registrant . . . use in commerce any reproduction, counterfeit, copy, or colorable imitation of a registered mark in connection with the sale, offering for sale, distribution, or advertising of any goods . . . ."[2]

The Trademark Counterfeiting Act is a criminal law that defines "counterfeit mark" as "a spurious mark . . . that is used in connection with trafficking in any goods . . . that is identical with, or substantially indistinguishable from, a mark registered on the principal register in the United States Patent and Trademark Office . . . ."[3]

The European Union has defined "counterfeit goods" in its regulations. The EU defines "counterfeit goods" as "goods, including packaging, bearing without authorization a trademark identical to the trademark validly registered in respect of the same type of goods, or which cannot be distinguished in its essential aspects from such a trademark, and which thereby infringes the trademark-holder's rights under Community law."[4] This definition was incorporated by reference in the United Kingdom as well.[5]

Non-Legislative Descriptions of Counterfeit Parts

The FAA has defined the term "counterfeit part" in its guidance documents as "[a] part made or altered so as to imitate or resemble an 'approved part' without authority or right . . . ."[6] Approved parts include parts produced under a PMA, TSO, TC, STC, and PC or approved in any other way acceptable to Administrator.[7]

The same authority is described in various SAE definitions of the term "counterfeit." Both counterfeit parts and materiel are defined as "a copy, imitation, or substitute that has been represented, identified, or marked as genuine, and/or altered by a source without legal right . . . ."[8]

In 2011, the United States, Australia, Canada, Korea, Japan, New Zealand, Morocco, and Singapore signed the Anti-Counterfeiting Trade Agreement (ACTA) – the EU and Mexico signed the Agreement in

1 15 U.S.C. § 1127 (emphasis added).

2 15 U.S.C. § 1114(1) (emphasis added).

3 18 U.S.C. § 2320 (emphasis added).

4 Council Regulation (EC) No. 1383/2003, 22 July 2003 at § 2(1).

5 See Goods Infringing Intellectual Property Rights, 2004 No. 1473.

6 E.g. Suspected Unapproved Parts Program, FAA Order 8120.10A Chg. 1 (March 20, 2000) (emphasis added). Similar language can be found in later FAA guidance, with the addition of "intent to mislead or defraud by passing as original or genuine." Detecting and Reporting Suspected Unapproved Parts, FAA Advisory Circular 21-29C Change 2 § 3(e) (August 17, 2011).

7 See, e.g., Detecting and Reporting Suspected Unapproved Parts, FAA Advisory Circular 21-29C Change 2 § 3(b) (August 17, 2011).

8 See SAE Standards AS5553A; AS6081 Rev NC, 2012-11; AS6174 Rev NC, 2012-05.

2012.[9] The ACTA defines "counterfeit trademark goods" as "any goods . . . bearing without authorization a trademark which is identical to the trademark validly registered in respect of such goods, or which cannot be distinguished in its essential aspects from such a trademark, and which thereby infringes the rights of the owner of the trademark in question. . . ."[10] Although signed by numerous parties, the Agreement is not yet in force as it has not yet been ratified by the required six parties (as of June 6, 2013).

Registration

The requirement of registration is understandable as a practical matter. The application of a trademark to a good or its packaging implies that the item is a genuine article produced by the person indicated by the mark. The registration of the mark creates legal rights not only to authorize use of the mark, but also to protect the intellectual property and reputation of the producer. Note that an unregistered mark can be protected in the United States through injunctive relief and may also be protected under state law.

Registration of the mark gives constructive notice to the public of the mark's ownership and use. This prevents the use of the mark by a competitor and identifies the goods with which the mark is associated as the genuine goods of the registrant.

It is of little consequence that the laws and regulations focus on the unauthorized use of the trademark itself, rather than the production or distribution of the underlying good. The attachment of the spurious mark to the good in question—in this scenario aircraft parts—facilitates the entry of the illegitimate good into the market through deceit. For all practical purposes, the unauthorized use of the mark creates the counterfeit part. Without the trademark, the part would simply be an independently produced part with no indicia of airworthiness.[11]

Confusion or Deception

An important element that defines a counterfeit is the likelihood of causing confusion or mistake. In the United States, the Lanham Act provides a cause of action against "any person who shall, without the consent of the registrant . . . use in commerce any reproduction, counterfeit, copy, or colorable imitation of a registered mark in connection with the sale, offering for sale, distribution, or advertising of any goods or services on or in connection with which such use is likely to cause confusion, or to cause mistake, or to deceive."[12]

Similarly, the Trademark Counterfeiting Act includes confusion as an element of a counterfeit mark, describing such a mark as "a spurious mark . . . that is identical with, or substantially indistinguishable

9 On October 5, 2012, Japan became the first party to adopt ACTA by depositing a ratified copy of the agreement. ACTA will enter into force thirty days after the deposit of a sixth instruments of ratification, acceptance, or approval.

10 Anti-Counterfeiting Trade Agreement, Art. 5(d) available at http://www.inta.org/Advocacy/Documents/ACTAFinalText.pdf.

11 Whether the production of such part under an independent trademark would infringe other intellectual property rights is beyond the scope of the question here.

12 15 U.S.C. § 1114(1) (emphasis added).

from, a mark registered on the principal register . . . the use of which is likely to cause confusion, to cause mistake, or to deceive."[13]

The United Kingdom's Trade Marks Act of 1994 provides that infringement of a trademark occurs when a person uses a mark identical or similar to a registered mark and is used in relation to similar or identical goods or services and there exists a likelihood of confusion on the part of the public.[14]

The element of confusion or deception is also reflected in the FAA guidance and international standards. The second element of the FAA definition of counterfeit part includes the element of "intent to mislead or defraud by passing as original or genuine."[15]

The SAE Standards include similar language, including in the definition of "counterfeit" parts and materiel the "intent to mislead, deceive, or defraud."[16]

As with the first element requiring registration of the mark, the requirement of likelihood or intent to cause confusion or to mislead, deceive, or defraud, has important practical applications. The primary consumer-side problem created by counterfeit goods is the diminished quality of the goods. With respect to counterfeit parts, this creates an unacceptable risk of harm by providing inferior quality goods. If no risk of confusion or deception exists, the risk of harm is eliminated because the purchaser will have no difficulty ascertaining whether the goods are genuine, and whether those goods meet the purchaser's standards.

As explained above, the unauthorized use of the trademark allows the counterfeit good to enter the market. The use of the mark allows the counterfeiter to trade on the goodwill and reputation of the trademark owner. By attaching an identical, or substantially similar, mark to a part, the public may be confused or deceived as to the genuineness of the part in question.

Counterfeit Parts Distinguished

Counterfeit parts, defined by the elements discussed above, are often thought of as a narrow subset of otherwise inappropriate parts, variously described as "unapproved parts," "fraudulent parts," or "suspect parts." Such a view is wrong, though, in that a part may be a government-approved part (with respect to airworthiness compliance) but still be counterfeit. In at least one case in the United States, an FAA-approved part was held to be counterfeit because its markings were misleadingly similar to the parts of a trademark holder.[17] Thus, approval by an airworthiness authority (e.g. FAA, EASA, UK CAA, JCAB, CAAC etc.) should not be deemed a defense against a claim of counterfeiting because the airworthiness authorities are not approving parts and products based on intellectual property considerations.

13 See 18 U.S.C. § 2320.

14 See Trade Marks Act of 1994, § 10(2) (emphasis added), available at http://www.legislation.gov.uk/ukpga/1994/26.

15 Detecting and Reporting Suspected Unapproved Parts, FAA Advisory Circular 21-29C Change 2 § 3(e) (August 17, 2011).

16 See SAE Standards AS5553A; AS6081 Rev NC, 2012-11; AS6174 Rev NC, 2012-05 (emphasis added).

17 Whittaker v. Execuair, 953 F.2d 510 (9th Cir. 1992).

"Unapproved Part" is broadly defined. The FAA explains that an "unapproved part" is one that does not meet the requirements of an "approved part."[18] The term "unapproved part" encompasses several sub-categories of parts, some of which may include genuine parts produced by the trademark owner. One example of this is genuine parts shipped directly to the user that were not produced according to an FAA production approval and did not pass through an approved quality system.[19] Such a part is not a counterfeit part under the definition (assuming it was identified by the trademark holder only with that company's trademark), but would still be considered an unapproved part.

Another example is a part that fails to conform to approved data.[20] Although counterfeit parts frequently fail to conform to approved data it is also possible for genuine parts to fail to conform to that data. The FAA anticipates this possibility by describing as "unapproved" new parts that have passed through a Production Approval Holder's (PAH) quality system yet fail to conform to approved data. In such a case the part would NOT fit the definition of "counterfeit," yet it would be considered an unapproved part.

The FAA definition of "unapproved part" also specifically includes "Counterfeit parts."[21] The specific inclusion of counterfeit parts as a stand-alone category indicates the narrower applicability of the term.

Within the SAE standards, "counterfeit part" is also differentiated as a subset of "fraudulent part," which is itself a subset of "suspect part."[22] "Suspect part" is broadly defined by SAE as a part that may have been misrepresented by the supplier or manufacturer.[23] "Fraudulent parts" are defined by SAE as suspect parts "misrepresented to the Customer as meeting the Customer's requirements."[24]

Finally, counterfeit parts should be distinguished from gray market or parallel import goods. A gray market refers to a scenario "in which someone other than the designated exclusive United States importer buys genuine trademarked goods outside the U.S. and imports them for sale in the U.S. in competition with the exclusive U.S. importer."[25]

CONCLUSION

The definition of "counterfeit" includes two elements: (1) a spurious mark that is identical, or substantially similar, to a registered mark, (2) which is likely to cause confusion or mistake, or is intended to mislead, deceive, or defraud.

It should be differentiated from unapproved parts, suspect parts, fraudulent parts, parallel trading markets, and other definitions, all of which are broader than the meaning of "counterfeit."

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18 Detecting and Reporting Suspected Unapproved Parts, FAA Advisory Circular 21-29C Change 2 § 3(p) (August 17, 2011).

19 See id. at § 3(p)(1).

20 Id. at § 3(p)(2).

21 Id. at § 3(p)(3)

22 See, e.g., SAE Standard AS5553A.

23 Id.

24 Id.

25 E.g., Kia Motors Am., Inc. v. Autoworks Distrib., 2007 U.S. Dist. LEXIS 90419 (D. Minn. 2007).

Counterfeit Parts Prevention Guidance

A counterfeit part fits a specific definition: it must be a copy or imitation that is represented or marked as genuine without the legal right to do so, and with the intent to mislead, deceive, or defraud. Both "suspect" and "fraudulent" parts encompass a much larger universe of parts, of which "counterfeit" parts are merely a narrow subset.

Goods that are "genuine" and validly bear the mark of the manufacturer or distributor fall outside of the narrow definition of "counterfeit" parts, but they should still be examined upon receiving inspection to ensure they meet other required characteristics. The parts would still be subject to the same FAA approved quality system requirements and therefore may be considered "unapproved parts," without being considered counterfeit.

Id.

Id.

E.g., Kia Motors Am., Inc. v. Autoworks Distrib., 2007 U.S. Dist. LEXIS 90419 (D. Minn. 2007).

Appendix B –Industry Definitions

Examples of Definitions for Counterfeit Parts from Various Sources

From AS5553 Rev A:

3.1 Suspect Part

A part in which there is an indication that it may have been misrepresented by the supplier or manufacturer and may meet the definition of fraudulent part or counterfeit part provided below.

3.2 Fraudulent Part

Any suspect part misrepresented to the Customer as meeting the Customer's requirements.

3.3 Counterfeit Part

A fraudulent part that has been confirmed to be a copy, imitation, or substitute that has been represented, identified, or marked as genuine, and/or altered by a source without legal right with intent to mislead, deceive, or defraud.

From AS6081 Rev NC, 2012-11:

3.1 SUSPECT PART

A part in which there is an indication that it may have been misrepresented by the supplier or manufacturer and may meet the definition of fraudulent part or counterfeit part provided below.

3.2 FRAUDULENT PART

Any suspect part misrepresented to the Customer as meeting the Customer's requirements.

3.3 COUNTERFEIT PART

A fraudulent part that has been confirmed to be a copy, imitation, or substitute that has been represented, identified, or marked as genuine, and/or altered by a source without legal right with intent to mislead, deceive, or defraud.

From AS6174, Rev NC, 2012-05:

2.3.3 SUSPECT MATERIEL

Materiel, items, or products in which there is an indication by visual inspection, testing, or other information that it may meet the definition of fraudulent materiel or counterfeit materiel provided below.

2.3.4 FRAUDULENT MATERIEL

Suspect materiel misrepresented to the customer as meeting the customer's requirements.

2.3.5 COUNTERFEIT MATERIEL

Fraudulent materiel that has been confirmed to be a copy, imitation or substitute that has been represented, identified, or marked as genuine, and/or altered by a source without legal right with intent to mislead, deceive or defraud.

Tech America TB-0003, 2009-2:

A counterfeit item is one whose identity or pedigree has been deliberately altered or misrepresented by its supplier.

***Identity**: Original manufacturer, part number, date code, lot number, testing, inspection, documentation, or warranty, etc.*

***Pedigree**: Origin, ownership history, storage, handling, physical condition, previous use, etc.*

TC-107, 2011-01-21 draft as of this writing, IEC)

3.2 Counterfeit

is the practice of producing products which are imitations or are fake goods or services. This activity infringes the Intellectual Property rights of the original manufacturer and is an illegal act. Counterfeiting generally relates to willful trade mark infringement.

3.7 fraudulent component

are components produced or distributed in violation of the law and include: stolen components, components scrapped by the original component manufacturer (OCM) or by any user, disassembled components salvaged and resold as new components, counterfeit components, copies, imitations, full or partial substitutes of brands, designs, models , patents, software or copyright, for example: Components whose production and distribution are not controlled by the original manufacturer, unlicensed copies of a design, disguised components (remarking of original manufacturer name, reference date/code or other identifiers etc.), components without chips or with chips other that the original manufacturer's chips.

Dept. of Commerce Report 2010-1:

***Counterfeit**: An electronic part that is not genuine because it 1) is an unauthorized copy; 2) does not conform to original OCM design, model, and/or performance standards; 3) is not produced by the OCM or is produced by unauthorized contractors; 4) is an off-specification, defective, or used OCM product sold as "new" or working; or 5) has incorrect or false markings and/or documentation.*

TSLD (Trusted suppliers List of Distributors) Draft:

COUNTERFEIT PART - A part that has been confirmed to be a copy, imitation, or substitute that has been misrepresented, misidentified, mismarked, or otherwise altered without legal right with intent to mislead, deceive, or defraud. This definition includes used parts sold as new parts as defined by NDAA 2012-818. The confirmation should be validated by the OCM if possible

SUSPECT (COUNTERFEIT PART) - A part that is suspected to be a copy, imitation, or substitute that has been misrepresented, misidentified, mismarked, or otherwise altered. However, this suspicion has not yet been proven (see Counterfeit Part).

FAA 8120.10A CHG 1:

d. "Approved Parts". *The term "approved parts" in quotations is used throughout this order in a colloquial sense. The term "approved parts" in quotations is not synonymous with "a part that has received a formal FAA approval." "Approved parts" are identified as parts which have met one of the following requirements:*

(1) *Produced in accordance with a Parts Manufacturer Approval (PMA) issued under part 21, Subpart K.*

(2) *Produced in accordance with a Technical Standard Order (TSO) Authorization issued by the Administrator under part 21, Subpart O.*

(3) *Produced during the TC application process under part 21, Subpart B, or the Supplemental Type Certificate (STC) application process under part 21, Subpart E, prior to the issuance of the certificate; subsequently determined to conform to the approved TC or STC data (refer to § 21.303(b)(1)).*

(4) *Produced under a TC without a separate production authorization, and an Approved Production Inspection System (APIS) in accordance with part 21, Subpart F.*

(5) *Produced under a Production Certificate (PC) in accordance with part 21, Subpart G.*

(6) *Produced in accordance with an approval under a bilateral airworthiness agreement under part 21, Subpart N.*

(7) *Approved in any other manner acceptable to the Administrator (§ 21.305(d)).*

f. Counterfeit Part. *A part made or altered so as to imitate or resemble an "approved part" without authority or right, and with the intent to mislead or defraud by passing the imitation as original or genuine.*

s. Suspected Unapproved Part. *A part, component, or material that is suspected of not meeting the requirements of an "approved part." A part that, for any reason, a person believes*

is not approved. Reasons may include findings such as different finish, size, color, improper (or lack of) identification, incomplete or altered paperwork, or any other questionable indication.

t. Unapproved Part. *A part that does not meet the requirements of an "approved part" (refer to definition of "approved part" in paragraph 6d). This term also includes parts which have been improperly returned to service (contrary to parts 43 or 145) and/or parts which may fall under one or more of the following categories:*

(1) *Parts shipped directly to the user by a manufacturer, supplier, or distributor, where the parts were not produced under the authority of an FAA production approval for the part, such as production overruns where the parts did not pass through an approved quality system.*

(2) *New parts which have passed through a Production Approval Holder's (PAH) quality system which are found not to conform to the approved design/data.*

(3) *Parts that have been maintained, rebuilt, altered, overhauled, or approved for return to service by persons or facilities not authorized to perform such services under parts 43 and/or 145.*

(4) *Parts that have been maintained, rebuilt, altered, overhauled, or approved for return to service which are subsequently found not to conform to approved data.*

(5) *Counterfeit parts.*

IEC/TS 62688-1 2012-05:

3.1.2 Counterfeit, *action to simulate, reproduce or modify a material good or its packaging without authorization*

3.1.3 Counterfeited component, *material good imitating or copying an authentic material good which may be covered by the protection of one or more registered or confidential intellectual property rights*

4.4 counterfeit definition

4.4.1 General

There are various definitions of "counterfeit" being used in the avionics industry at present which is essentially infringement of intellectual property rights. However counterfeit definitions need to use the legal definition to ensure law enforcement can proceed with managing counterfeit issues through the judiciary.

4.4.2
Legal definition of counterfeit

See 3.1.2

These definitions are based on ISO/WO 16678 which is being developed by ISO TC 247

MIL-STD-3018, change 1, Parts Management;

3.4 Counterfeit part.

A suspect 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 in the supply chain. Parts which have been refinished, upscreened, or uprated and have been identified as such, are not considered counterfeit.

Webster's online dictionary

coun·ter·feit

v. ***coun·ter·feit·ed***, ***coun·ter·feit·ing***, ***coun·ter·feits***

v.tr. ***1.*** *To make a copy of, usually with the intent to defraud; forge: counterfeits money.*

2. *To make a pretense of; feign: counterfeited interest in the story.*

v.intr. ***1.*** *To carry on a deception; dissemble.*

2. *To make fraudulent copies of something valuable.*

adj. ***1.*** *Made in imitation of what is genuine with the intent to defraud: a counterfeit dollar bill.*

2. *Simulated; feigned: a counterfeit illness.*

n. A fraudulent imitation or facsimile.

The IAQG dictionary defines "counterfeit" as;

1. An article produced or altered to imitate or resemble an "approved article" without authority or right to do so, with the intent to mislead or defraud by passing the imitation as original or genuine. [9110]
2. A product produced or altered to imitate or resemble a product without authority or right to do so, with the intent to mislead or defraud by passing the imitation as original or genuine. [9120]

Appendix C - US Government Regulatory Activities

There have been several statutory and regulatory activities over the years that specifically or are likely to have a particular effect on ASD manufacturers (especially for government contracts) with respect to "problem" parts that affect aircraft parts.

The United States Aircraft Safety Act of 2002 (18 U.S.C. § 38) makes it a crime to commit any fraud involving aircraft parts in interstate or foreign commerce. The statute describes the offenses as follows:

> (a) Offenses. Whoever, in or affecting interstate or foreign commerce, knowingly and with the intent to defraud--
> (1) (A) falsifies or conceals a material fact concerning any aircraft or space vehicle part;
> (B) makes any materially fraudulent representation concerning any aircraft or space vehicle part; or
> (C) makes or uses any materially false writing, entry, certification, document, record, data plate, label, or electronic communication concerning any aircraft or space vehicle part;
> (2) exports from or imports or introduces into the United States, sells, trades, installs on or in any aircraft or space vehicle any aircraft or space vehicle part using or by means of a fraudulent representation, document, record, certification, depiction, data plate, label, or electronic communication; or
> (3) attempts or conspires to commit an offense described in paragraph (1) or (2).

Of particular relevance with respect to counterfeit aircraft parts is subsection (a)(1)(B), which addresses "any materially fraudulent representation concerning any aircraft . . . part." The Lanham Act makes it illegal to "use in commerce any . . . counterfeit . . . of a registered mark in connection with the sale, offering for sale, distribution, or advertising of any goods . . . which such use is likely to cause confusion, or to cause mistake, or to deceive." 15 U.S.C. § 1114(1). Materially fraudulent representations are by their nature intended to confuse or deceive. Misrepresentations are also an inherent element of counterfeit parts, as the parts must be misrepresented as genuine in order to deceive potential buyers.

The same conduct may also be covered in cases involving the United States government by 18 U.S.C. § 1001, which state that whoever knowingly and willfully "(1) falsifies, conceals, or covers up by any trick, scheme, or device a material fact; (2) makes any materially false, fictitious, or fraudulent statement or representation; or (3)makes or uses any false writing or document knowing the same to contain any

materially false, fictitious, or fraudulent statement or entry" may be fined or imprisoned. 18 U.S.C. § 1001(a).

The Code of Federal Regulations also prohibits fraudulent, intentionally false, and intentionally misleading statements with respect to aircraft parts. Such statements again clearly apply to counterfeit parts; such statements are intended to mislead the purchaser as to the genuineness of the part in question. 14 C.F.R. § 3.5 prohibits fraudulent or intentionally false statements in, or reproductions or alterations to, any record "about the airworthiness of a type-certificated product, or the acceptability of any product, part, appliance, or material for installation on a type-certificated product." 14. C.F.R. § 3.5(b).

The regulation also prohibits a "material representation that a type-certificated product is airworthy, or that a product, part, appliance, or material is acceptable for installation on a type-certificated product in any record if that representation is likely to mislead a consumer acting reasonably under the circumstances." 14 C.F.R. § 3.5(c)(1). The prohibition also applies to omissions of material information. Id. at §3.5(c)(2). Counterfeit parts are covered under these prohibitions because representations as to the genuineness of a part are likely to be deemed material. A material representation is defined as "a convincing statement made to induce someone to enter into a contract to which the person would not have agreed without that assertion." See Law.com, http://dictionary.law.com/Default.aspx?selected=1224 (last visited Jun. 11, 2013).

U.S. Department of Transportation FAA Advisory Circular AC No: 21-29C Detecting and Reporting Suspected Unapproved Parts

The Federal Aviation Administration (FAA) released an updated Advisory Circular (AC) in August 2011 to provide information and guidance including detecting and reporting suspected unapproved parts (SUP). The AC provides updated definitions, background, discussion, detection, and reporting of suspected unapproved parts.

National Defense Authorization Act (NDAA) Counterfeit Part Law

In more recent activities by the United States, President Obama signed the 2012 National Defense Authorization Act (NDAA) on Dec 31st 2011. This amendment was a result of a Senate Armed Services Committee (SASC) hearing on November 8, 2011 that exposed upwards of a million counterfeit parts in U.S. military supply chain.

http://www.levin.senate.gov/newsroom/press/release/senate-approves-amendment-to-strengthen-protections-against-counterfeit-electronic-parts-in-defense-supply-system

Counterfeit Parts Prevention Guidance

The main points of the original 2011 extract of the NDAA legislation include:

- The United States Secretary of Homeland Security will establish a program of enhanced inspection of electronic parts imported from any country (HR. 1540, SEC. 818)
- Requires contractors that supply electronic parts/systems to establish policies and procedures to eliminate counterfeit electronic parts from the defense supply chain. (HR. 1540, SEC. 818)
- Requires DOD to adopt procedures for detecting, avoiding and reporting counterfeit parts (HR. 1540, SEC. 818)
    - Debars contractors who fail to detect and avoid counterfeit parts, or do not exercise adequate due diligence.
- Includes personal liability for employees of companies supplying counterfeit components who will be fined and imprisoned if found guilty in a US court. This also impacts countries with weak extradition laws to the USA, e.g. the UK.
- Contractors are now prohibited from charging the US Department of Defense for the costs of rework or corrective work to remove/replace counterfeit parts, even when accidentally supplied, regardless of where the counterfeit entered the supply chain.

The 2012 NDAA required the Department of Defense to begin promulgating a number of regulations enhancing defense contractor responsibilities. Notably, the law placed the burden of detecting counterfeit electronic parts and suspect counterfeit electronic parts on contractors to the US government. The provision made contractors responsible for detecting not only discrete counterfeit parts, but also those counterfeit parts included in assembled products. Contractors were also made responsible for the costs associated with the rework or corrections resulting from the inclusion of such parts. The cost of such parts and rework were deemed not to be “allowable costs” under Defense Department contracts.

The 2013 NDAA however, walked back the exclusion of “allowable costs” for counterfeit parts and rework by amending § 818(c)(2)(B) to deem such costs as allowable if the contractor has in place a system to detect and avoid counterfeit parts that has been reviewed and approved by the US Department of Defense, the parts were provided to the contractor as Government property in accordance with Part 45 of the Federal Acquisition Regulations, and the contractor provided timely notice to the government upon discovery of the counterfeit or suspect counterfeit parts. See NDAA of 2013, § 833.

NDAA problems for International Community

In creating the NDAA law, the US DoD recognized the detailed requirements may be difficult to establish particularly if the supply chain is international due to:

- Current US Trusted Supplier list only contains USA companies
- Definition of 'US Trusted supplier' is required which has not been clearly defined yet.
    - The US Defense Logistics Agency (DLA) has recently issued "The Qualified Suppliers list of Distributors (QSLD)" and "The Qualified testing Suppliers List (QTSL)" with no international content**:**
- Use of GIDEP database for counterfeit or suspect component reporting is restricted to U.S. or Canadian industrial organizations who supply items or services (directly or indirectly) to the U.S. Government or to the Canadian Department of National Defense, U.S. Government department, agency, or activity, Canadian Department of National Defense or Canadian Space Agency, or a licensed U.S. Public Utilities company. (Reference GIDEP Website: Membership Requirements).

Implementing the NDAA Laws

As a result of the NDAA laws, the DOD Counterfeit Prevention Policy DOD Instruction #4140.67 released on April 26, 2013

- Establishes policy and assigns responsibilities to prevent the introduction of counterfeit materiel at any level of the DoD supply chain
- Does not specifically affect contractors although provides indication of future requirements
- Covers "other" *materials* (much broader than NDAA which limited scope to just EEE parts)

In addition, new US FARs/DFARs implementing the NDAA laws are in-work. DFARS Case 2012-D055: "Detection and Avoidance of Counterfeit Electronic Parts" will implement section 818 of NDAA.

- 3 sub-cases – draft rules are being reviewed by Office of Information and Regulatory Affairs (OIRA);
    - Definitions specific to counterfeit parts,
    - Contractor responsibilities enumerated (including 833 change)
    - Clarify the US government's role
    - Implements Sec 833 of NDAA FY 2013 re: allow ability
- Status as of this writing:

- Draft language released on 5/16/13.
- Open DFARS Cases status can be found at http://www.acq.osd.mil/dpap/dars/opencases/dfarscasenum/dfars.pdf

- FAR Cases – FAR language has not yet been released
  - FAR Case: 2013-002: USG-wide GIDEP Reporting of nonconforming parts FAR Case: 2013-032: which will amend the clause for Higher Level Contract Quality Requirement

Resources - Government Reports

- Department of Commerce, Defense Industrial Base Assessment: Counterfeit Electronics (2010)
  http://www.bis.doc.gov/index.php/forms-documents/doc_download/37-defense-industrial-base-assessment-of-counterfeit-electronics-2010

- Government Accountability Office, DOD Supply Chain, Suspect Counterfeit Electronic Parts can be Found on Internet Purchasing Platforms (2012)
  http://gao.gov/assets/590/588736.pdf

Appendix D –Alignment to QMS

"Alignment of AS5553A, AS6081, and AS6174 to AS/EN/JISQ9100C, AS/EN/JISQ9120, ISO9001:2008"

QMS Attributes

Attribute	ISO 9001, AS/EN/JISQ9100, AS/EN/JISQ9120 QUALITY MANAGEMENT SYSTEM	AS 5553 *A* FRAUDULENT/COUNTERFEIT ELECTRONIC PARTS	AS6081 FRAUDULENT/COUNTERFEIT ELECTRONIC PARTS - DISTRIBUTORS	AS6174 COUNTERFEIT MATERIEL
Planning of Product Realization	7.1.a - Object & Requirements for the product			
	7.1.c – Requirements for V,V,M,M,I,T of product	4.1 – CP Parts Control Plan 4.1.1 – Obsolescence Control Plan	4.2 – CP Parts Control Plan	3.1 Materiel Authenticity Assurance Plan 3.1.1 Authentic and Conforming Materiel Availability
	7.1.2 – Process for managing Risk	App A.1-Parts Availability App A.2 - Obsolescence Management	4.2.1.1 – Contractual Requirements to Minimize Risk	Appendix A- Authentic and Conforming Material Availability
	7.1.3 – CM appropriate to the Product			
Review of Req'ts	7.2.1.a – Req'ts Stated by Customer		4.2.1 – Contract Review	
	7.2.1.b – Req'ts not stated but necessary for intended use		4.2.1 – Contract Review	
	7.2.1.c – Statutory/Regulatory			
	7.2.2.a – Product Req'ts are determined		4.2.1 – Contract Review	
	7.2.2.e – Risks have been Identified	App A.1-Parts Availability App A.2 - Obsolescence Management	4.2.1.1 – Contractual Requirements to Minimize Risk	Appendix A- Authentic and Conforming Material Availability

	7.2.2.d – SR of the product are determined			
	7.2.3 – Customer Communication		4.2.1 - Contract Review 4.2.1.5 - … quoting material to Customers… 4.2.2.1g - Customer Related Contract Review, Agreement and Execution	
Design	7.3.1 – D&D planning shall consider ability to produce, inspect, test and maintain product	App A.1 – Design, proposal and Program planning		Appendix A.1.3 - Authentic and Conforming Material Availability
	7.3.3.b – Provide info for Purch. & Prod.			
	7.3.3.d – Specify product Characteristics essential for safe & proper use			
	7.3.3.e – Specify CI, KC and specific actions to be taken for these items			
	7.3.3 – Drawings, Part lists and Specs. Necessary to define configuration.			
	7.3.3 – material, process, manufacture, & Assembly data needed to ensure conformity of product			
Purchasing	7.4.1 – org shall ensure that product conforms……. The type and extent of control applied…. Dependent upon effect…….	4.1.4 – specify quality req'ts to minimize risk of being provided CP App B – Procurement Approach		3.1.3 Purchasing Information 3.1.4 Verification of Purchased Product Appendix B – Purchasing Process
	7.4.1 – The org shall evaluate & Select suppliers based on their ability to supply…	4.1.3.a – Assess sources to determine risks of receiving CP	4.2.2.a – Assess sources to determine risks of receiving CP	3.1.2 Purchasing

	App B – Procurement Approach		
7.4.1.a – Maintain a Register of Suppliers…..		4.2.2.b – Maintain a register of approved Suppliers	3.1.2.b - Maintain a register of approved suppliers
7.4.1.f – Determine & Manage risk when selecting & using suppliers	4.1.3.a – Assess sources to determine risks of receiving CP 4.1.3.c – Assure that sources are maintaining effective processes for mitigating risks of supplying CP 4.1.3.d – Assess and mitigate risks of procuring CP from Sources other than ECM or Auth. Suppliers 4.1.4.a – Supply Chain Traceability Risk. 4.1.4.b – Supplier/Sub-Tier Supplier Control Plan Integrity Risk. 4.1.4.c – If supplier/intermediaries do not have CP control plan, a risk analysis is req'd. App B – Procurement Approach	4.2.2.a – Assess sources to determine risks of receiving CP 4.2.2.e – Manage organization for changes in Source of Supply	3.1.2.a - Assess potential sources of supply 3.1.2.c - …specify a preference to procure directly… 3.1.2.d - Assure that approved/ ongoing sources of supply are maintaining effective processes… 3.1.2.e - Assess the likelihood that sources other than original manufacturers or authorized suppliers can deliver authentic and conforming materiel 3.1.2.g - Specify flow-down of applicable requirements…
7.4.2 – Org shall ensure adequacy of purch req'ts prior to comm. w/supplier	4.1.2.e – Assess and mitigate risks of procuring CP from Sources other than ECM or Auth. Suppliers		3.1.2.e - Assess the likelihood that sources other than original manufacturers or authorized suppliers can deliver authentic and conforming material.
7.4.2.a – Req'ts for approval of prod, procedures, processes & Equip.		4.2.3 – Purchase Order Requirement	

	7.4.2.c – QMS req'ts Identification	4.1.4.a – Specify Supply Chain Traceability through all supplier intermediaries App C – Supply Chain Traceability	4.2.2.d – OCM Traceability 4.2.4 – Supply Chain Traceability	3.1.2.f – specify supply chain commodity and item level traceability… Appendix C – Supply Chain Commodity and Item Level Traceability Assess the likelihood that sources other than original manufacturers or authorized suppliers can deliver authentic and conforming material.
	7.4.2.g – Flowdown of applicable requirements including customer requirements	4.1.4.b – flow down applicable req'ts for CP Control to contractor/sub contractors. App. D – Procurement Contract Requirements		3.1.3 Purchasing Information Appendix D - Recommended Contract Pass-Down Clauses
Verif of Purch Product	7.4.3 –Establish& Implement inspect. Activities necessary for ensuring that product meets requirements	4.1.5.a – The rigor of verification process shall be commensurate with product risk	4.2.6 – Verification of Purchased Product	3.1.4 Verification of Purchased Product
	7.4.3 – obtain evidence of conformity of product from supplier & review documentation	App C – Supply Chain Traceability	4.2.6 – Verification of Purchased Product	3.1.2.f – specify supply chain commodity and item level traceability… Appendix C – Supply Chain Commodity and Item Level Traceability Assess the likelihood that sources other than original manufacturers or authorized suppliers can deliver
	7.4.3 – Inspection of product upon receipt	App E.1.1 – Documents and Packaging Inspection	4.2.6 – Verification of Purchased Product	3.1.4 Verification of Purchased Product Appendix E - Product Assurance
Production Planning	7.5.1.a – The availability of information that describes characteristics of product		4.2 – CP Parts Control Plan	

	7.5.1.h – evidence that all production I&V have been completed		4.2 – CP Parts Control Plan	
	7.5.1.k – Criteria for workmanship		4.2 – CP Parts Control Plan	
	7.5.1 – Establish, impl, & maintain process for managing CI/KC		4.2 – CP Parts Control Plan	
Production	7.5.3 – The org shall maintain the ID of the Config of product……		4.2.5 – Preservation of Product	
	7.5.3 – Where traceability is a req't, the org shall control the unique ID of product and maintain records.	4.1.4.a – If traceability is purchased parts is unavailable/suspect, a documented risk assessment is required.	4.2.5 – Preservation of Product	3.1.2.f - …If this traceability is unavailable or the documentation is suspected of being falsified, a documented risk assessment is required.
Inspection	8.2.4 – The org shall M/M the characteristics of the product to verify that prod. req'ts are met.	App E – Product Assurance	4.2.6 – Verification of Purchased Product	Appendix E - Product Assurance
	8.2.4.a – Criteria for Accept/Reject		4.2.6 – Verification of Purchased Product	
	8.2.4 – Where CI/KC are ID, org shall ensure control and monitoring		4.2.6 – Verification of Purchased Product	
	8.2.4 – Where org uses sample inspection……		4.2.6 – Verification of Purchased Product	

Appendix E –Control Plan Template

Counterfeit Electronic Parts Avoidance Plan Template

1. Scope

1.1 Purpose

Control Plan is Addendum to QMS

Establishes baseline; customer requirements supersede these requirements.

1.2 Application

2. Applicable Documents

2.1 AS5553

2.2 AS/EN/JISQ9100 Quality Systems – Aerospace – Model for Quality Assurance

3. Terms and Definitions –Reference Terms and Definitions in AS5553

3.1 Authorized Distributor

3.2 Franchised Distributor

3.3 Independent Distributor

3.4 Counterfeit Part

3.5 Suspect Counterfeit Part

3.6 Upscreened

3.7 Uprated

4. Requirements

4.1 **Parts Availability** – Parts Management Plan process

4.2 **Purchasing Process** – Supplier Management /Procurement process

4.3 **Control of Source of Supply** – Supplier Management /Procurement process, Supplier Quality process

4.3.1 Supplier Assessment process – initial and maintenance of Approved Supplier List

4.3.2 Monitoring Supplier Performance

4.3.3 Inspection / Test House Assessment

4.3.4 Electrostatic Discharge (ESD) Control Plan

4.3.5 Supply Chain Traceability

4.4 **Verification of Purchased Product** – Receiving/Receiving Inspection, Receiving Inspection Planning processes

4.4.1 Detailed Inspection plan for electronic components

4.4.2 Detailed Inspection Report

4.4.3 Receiving Inspection report

4.4.4 Visual Inspection process and inspection checklist

4.4.5 Datasheet verification

4.4.6 Solvent testing of part marking

4.4.7 X-Ray Inspection process

4.4.8 Decapsulation inspection process

4.4.9 Electrical Testing

4.4.10 Product Packaging, Handling and Preservation

Humidity Indicator Card check

4.4.11 ESD Control Plan

4.4.12 Destructive Physical Analysis (DPA)

4.4.13 Etc.

4.5 **In Process Investigation**

4.6 **Material Control – Parts Control** process
Ensure traceability by lot code and date code. All

4.7 **Reporting** – All counterfeit / Suspect counterfeit parts must be reported – per customer requirement, internal alerts, disclosures, GIDEP , ERAI reporting

Appendix F –Chain of Custody

"CHAIN OF CUSTODY" template

The part(s) being furnished and processed by this Chain of Custody form are, or may become, evidence in a criminal or civil investigation. The care and custody of this part(s) *must be strictly maintained* in order to prevent the evidence from being altered, tainted, or released to unauthorized persons.

Only IAQG Member Company Employees whose processing or inspection *IS REQUIRED* should be asked to handle or maintain custody of this part(s). Any discussions or communications regarding this part(s) should only be made on a need-to-know basis.

This part must always remain in the possession or premises of the Custodian of Record, or be locked securely in a place or container where access is limited to the Custodian.

The identity of all persons who handle, or participate in any way in the direct custody of, this part(s), must be documented on the Chain of Custody form. ***This part(s) is not permitted to be released to non-IAQG Member Company Employees, or outside of IAQG Member Company facilities, without prior authorization from designated IAQG Member Company management.***

All persons whom come in physical contact with this part(s) may be subsequently required to provide sworn testimony in criminal or civil court.

Subject				File No.		
Date Acquired			Acquired From: (Transport org., track number, delivery person, etc.)			
To Be Returned Yes ☐ No ☐	Part/Serial Number		IAQG Member Co. Receiver		Investigator	
Description of Property (Be Specific)						
Custodian #1						
Item	Accepted Custody	Date	Time	Released Custody	Date	Time
	Signature _____ Reason			Signature _____ Reason		
Custodian #2						
Item	Accepted Custody	Date	Time	Released Custody	Date	Time
	Signature _____ Reason			Signature _____ Reason		
Custodian #3						
Item	Accepted Custody	Date	Time	Released Custody	Date	Time
	Signature _____ Reason			Signature _____ Reason		

Custodian #4						
Item	Accepted Custody	Date	Time	Released Custody	Date	Time
	Signature _____ Reason			Signature _____ Reason		
Custodian #5						
Item	Accepted Custody	Date	Time	Released Custody	Date	Time
	Signature _____ Reason			Signature _____ Reason		
Custodian #6						
Item	Accepted Custody	Date	Time	Released Custody	Date	Time
	Signature _____ Reason			Signature _____ Reason		
Custodian #7						
Item	Accepted Custody	Date	Time	Released Custody	Date	Time
	Signature _____ Reason			Signature _____ Reason		
Custodian #8						
Item	Accepted Custody	Date	Time	Released Custody	Date	Time
	Signature _____ Reason			Signature _____ Reason		
Custodian #9						
Item	Accepted Custody	Date	Time	Released Custody	Date	Time
	Signature _____ Reason			Signature _____ Reason		
Custodian #10						
Item	Accepted Custody	Date	Time	Released Custody	Date	Time
	Signature _____ Reason			Signature _____ Reason		
Custodian #11						
Item	Accepted Custody	Date	Time	Released Custody	Date	Time
	Signature _____ Reason			Signature _____ Reason		

Appendix G – Fraud Indications

Indicators of fraud

Fraud indicators may fall under three categories:
- **document indicators of fraud**
- **part (or physical) indicators of fraud**
- **facility indicators of fraud**

Type	Significant Indicators of Document Fraud
False Documents	⇒ False, stolen or wrong logo/letterhead ⇒ Vague certification ⇒ Facility not authorized to certificate the procedure or part ⇒ Signatures: ◊ unauthorized signatures ◊ signature of person who doesn't work there ◊ signature person of person who doesn't exist ◊ illegible signatures ⇒ back-dated documents ⇒ tests post-date shipment ⇒ same ink, type-face, or writing when different entries are expected ⇒ life-limits understated on documents ⇒ double sets of non-identical records are kept ⇒ document data inconsistent with part condition
Altered documents	⇒ cut and pasted documents ⇒ white outs on documents ⇒ test results appear to be the same or consistently follow a pattern ⇒ substituted dates, data, or S/Ns on documents ⇒ military P/N changed to civilian P/N on documents
Incomplete documents	⇒ documents without signatures ⇒ documents without a statement of certification ⇒ illegible documents or documents w/illegible signatures
Missing documents	⇒ no originals ⇒ no repair history ⇒ no maintenance logs ⇒ no certifications ⇒ no test data
Other	⇒ cost and price data ⇒ not enough documents to establish traceability on part

Part fraud

Parts can have the following significant physical indicators of fraud:
- appearance
- performance
- other indicators

Counterfeit Parts Prevention Guidance

Type	Significant Indicators of Part Fraud
Appearance of Part	⇒ wrong logos ⇒ wrong trademarks ⇒ data plates ◊ false data plates ◊ missing data plates ◊ data plates attached incorrectly ⇒ part and serial numbers ◊ wrong ◊ conflicting ◊ obliterated ◊ out of sequence ◊ missing ⇒ markings ◊ stamp overs ◊ vibro-etched numbers ◊ wrong location of marking compared to regular OEM's methods ◊ wrong style or form ◊ missing
Part performance	⇒ failure rate higher than normal ⇒ rejection rate higher than normal
Other	⇒ packaging ⇒ availability ⇒ unusual general appearance ◊ color ◊ finish ◊ material ⇒ premature failures or high quantity of warranty returns

Facility	Significant Indicators of Facility Fraud
Facility purchases	⇒ Facility has suspicious source of materials ◊ commercial sources which lack PMA and produce parts for the non-aviation industries ◊ unauthorized supplier or unapproved process, usually off-site ◊ uncertified military surplus or scrap purchase of parts without certification
Equipment	⇒ lack of test equipment to perform required tests ⇒ unauthorized possession of: ◊ stamps ◊ data plates (including blanks) ◊ tags ⇒ lack of tools or repair equipment to properly repair or manufacture parts/components for which the facility has the authority

Counterfeit Parts Prevention Guidance

Procedures and manuals	⇒ lack of manuals ⇒ improper procedures ⇒ altering test results ⇒ not performing tests
Personnel	⇒ unauthorized personnel performing functions not authorized for ⇒ employee complaints of non-conformance (e.g. ignoring regulations) ⇒ kick backs or bribes ⇒ under-qualified personnel (e.g. not properly trained, no training, etc)
Facility behavior	⇒ lots of scrap parts on hand ⇒ selling scrap without rendering it useless ⇒ excess stock of hard-to-get parts ⇒ suspicious phone and address ⇒ past violations ⇒ widespread or systemic regulatory violations

TYPE	Schemes to Defraud
Manufacturing facility fraud	⇒ producing parts without a PMA ⇒ selling excess and rejected parts ⇒ counterfeiting logos ⇒ selling with false material certifications ⇒ selling military parts to commercial facilities
Distributor fraud	⇒ purchasing and supplying “unapproved parts” ⇒ making parts without FAA approval ⇒ unauthorized repairing of parts ⇒ changing data plates and tags ⇒ reworking parts without OEM approval ⇒ counterfeiting logos
Repair station fraud	⇒ selling parts through a “front” ⇒ modifying or remarking an obsolete part to a current dash number ⇒ changing data plates and tags ⇒ “strip and dip” ⇒ repairing and certificating components outside of operations specifications ⇒ co-location of repair station with parts distributor
Air carrier fraud	⇒ receiving kick backs ⇒ falsifying certifications ⇒ supplying industry with parts that are beyond economic repair (BER) ⇒ repairing irreparable parts ⇒ falsifying maintenance records ⇒ falsifying inspection reports ⇒ removing timed-out life-limited parts and returning them to stock as airworthy parts with the same serial numbers ⇒ ETR or PTR (Equipment Transfer Records or Part Transfer Records)

Counterfeit Parts Prevention Guidance

Definition: distributor

- Brokers, dealers, resellers, or other persons or agencies engaged in the sale of parts for installation in TC aircraft, aircraft engines, propellers, and in appliances.

Source: FAA Order 8120.10A Paragraph 6.g

- A distributor actually has parts, but a broker usually doesn't have parts, and instead puts buyers in touch with sellers.

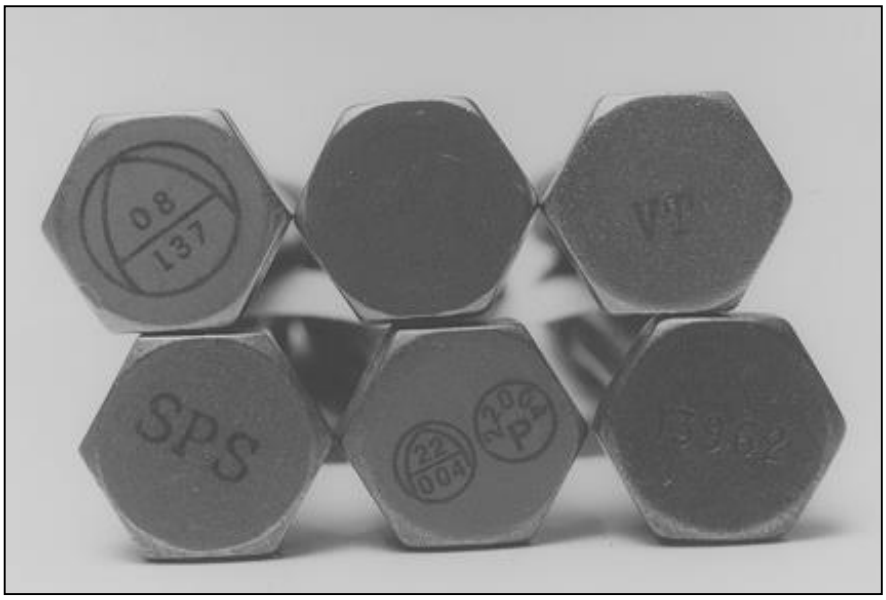
Photo: Yellow tag

yellow tag

- During search warrant, blank maintenance release statements were found in the president's desk drawer. These statements, more commonly known as 'yellow tags,' are often stolen and sold to distributors by repair station employees or counterfeited by parts distributors.

Counterfeit Parts Prevention Guidance

Photo: Fasteners



Fastener scheme

This was a DOT/OIG photo of a case in which a distributor was mixing bad parts in with good ones to avoid easy detection.

The top center fastener (without the head marking) is a counterfeit fastener which was sold to a commercial air carrier.

Photo: Strip and dip

Strip and dip

This was a DOT/OIG photo of a case in which a repair station attempted to use black spray paint on rotors to conceal unapproved repairs.