

Counterfeit Parts Control Plan Implementation

Supply Chain 2010

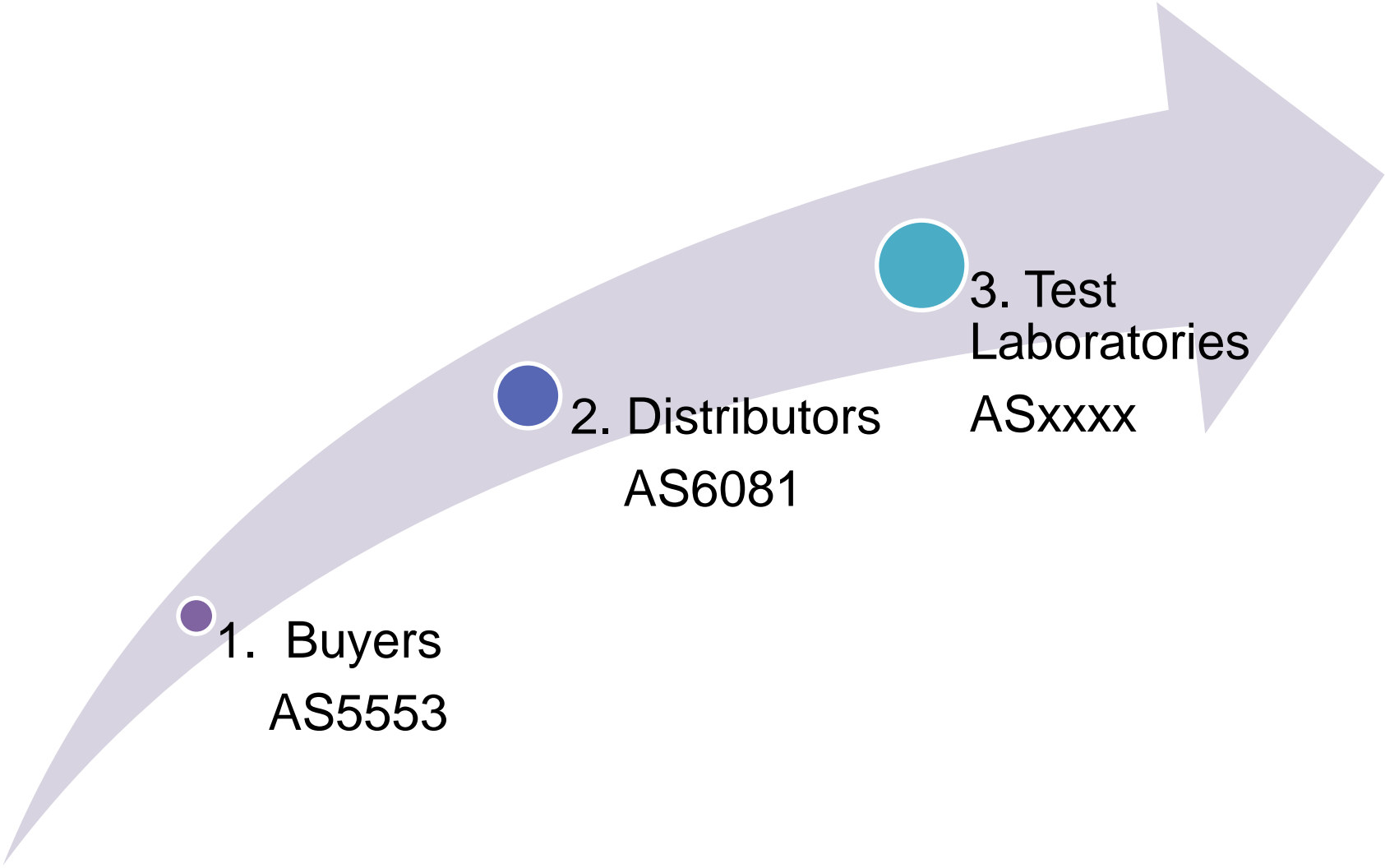
**4th Annual NASA Supply Chain Quality
Assurance Conference**

October 21st, 2010

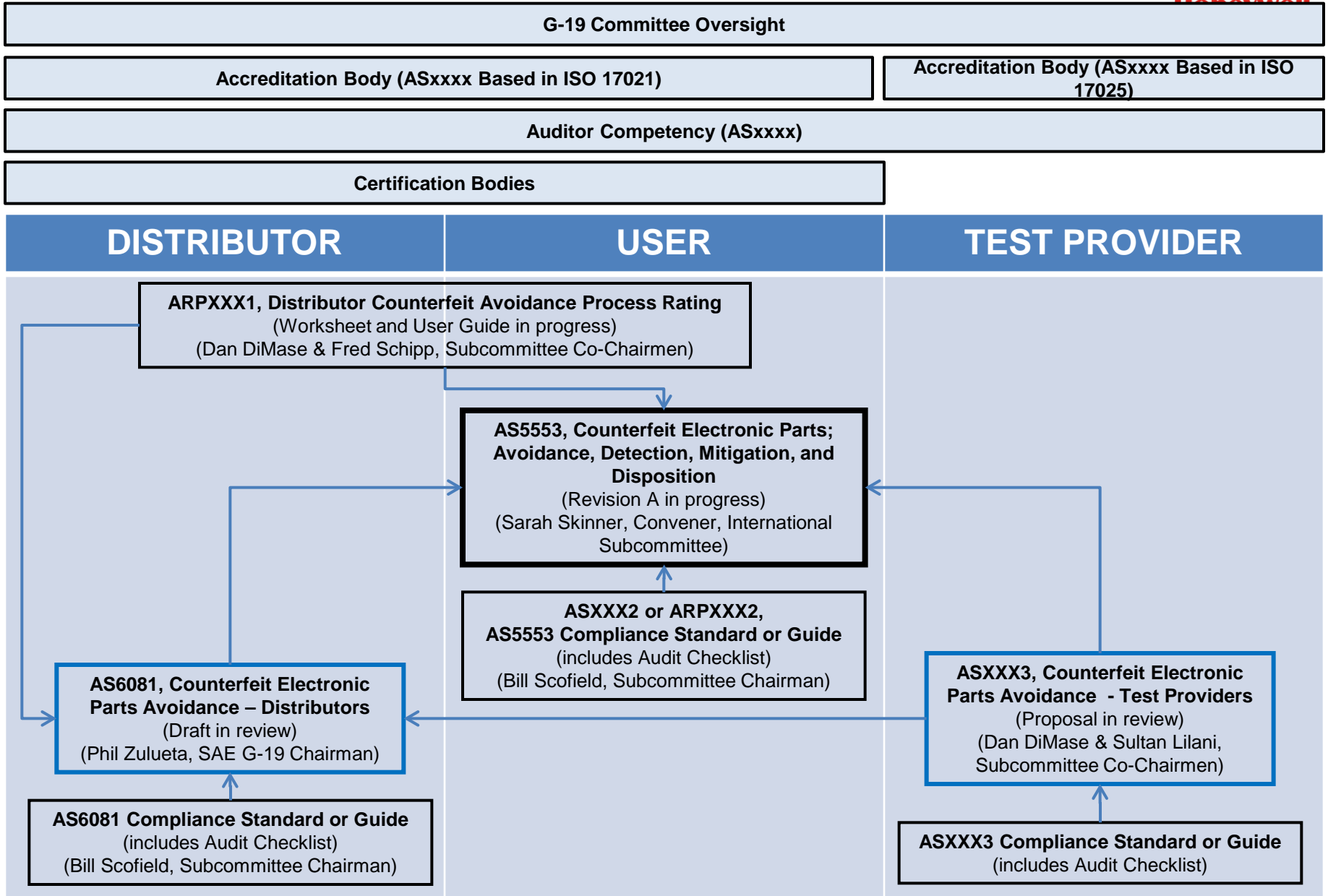
Honeywell

- **Standards for Counterfeit Part Control Plan Development, which one is right for you?**
 - Overview of AS5553
 - Overview of AS6081
- **Creating a Counterfeit Parts Working Group**
- **Creating a Test Plan**
- **Considerations for Implementation/Execution**
- **Backup**
 - Resources
 - Building a Business Case

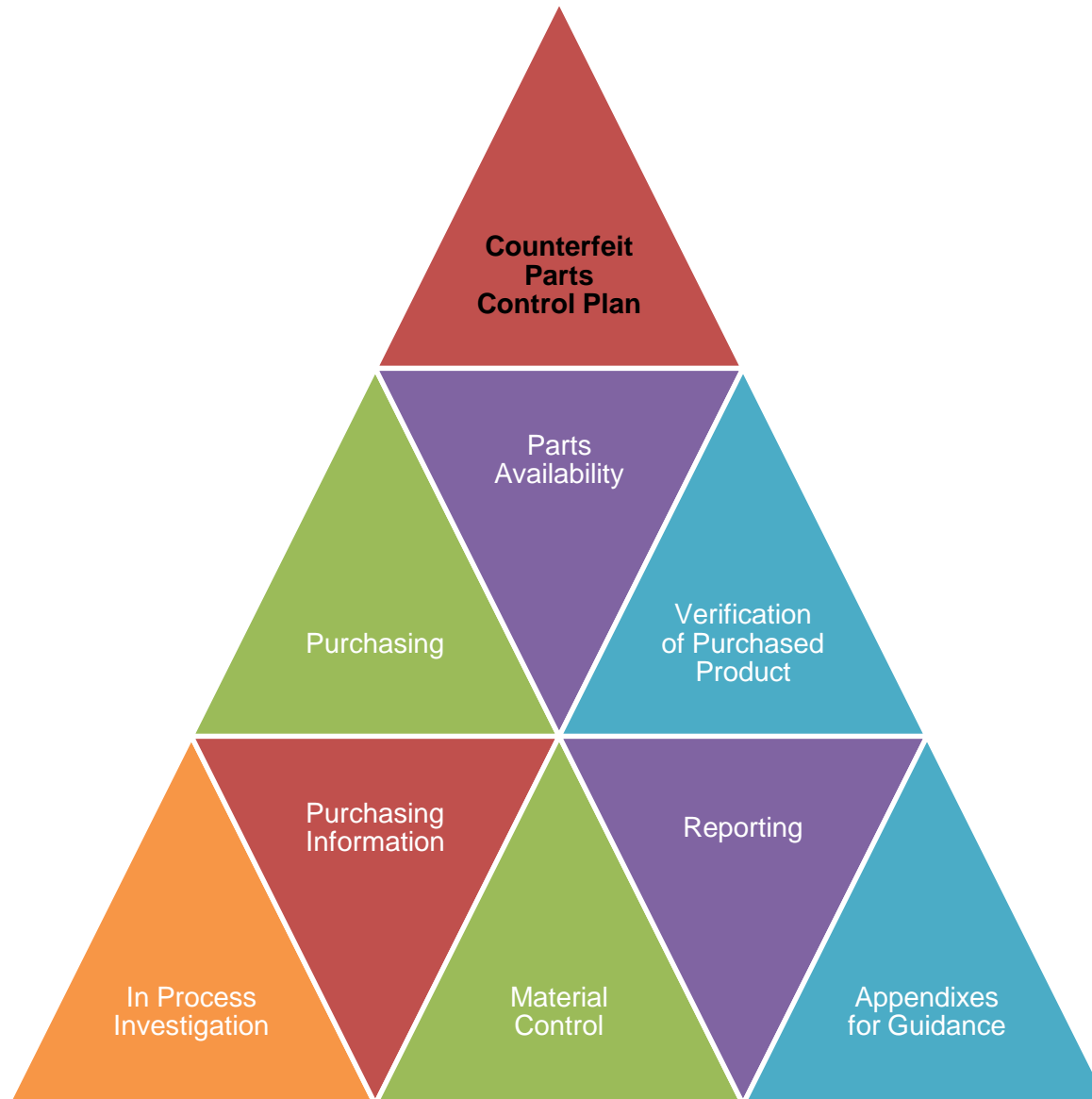
G-19 Supplier Certification Standards



SAE G-19 Document Roadmap, September 2010



SAE AS5553 Requirements



Counterfeit Parts Control Plan:

“... The organization **shall develop and implement a counterfeit electronic parts control plan** that documents its processes used for risk mitigation, disposition, and reporting of counterfeit parts...”

4.1 Counterfeit Electronic Parts Control Plan
The organization shall develop and implement a counterfeit parts control plan that documents its processes used for risk mitigation, disposition, and reporting of counterfeit parts. The control plan shall include the following:
4.1.1 through 4.1.7 below.

4.1.1 Parts Availability

The processes shall maximize availability of authentic, originally designed and/or qualified parts throughout the product's life cycle, including management of parts obsolescence. Information and guidance for ensuring parts availability is provided in Appendix A, Parts Availability.

Counterfeit Parts Control Plan: Parts Availability

4.1 Counterfeit Electronic Parts Control Plan

The organization shall develop and implement a control plan that documents its processes used to identify and control counterfeit parts. The control plan shall be updated for 4.1.1 through 4.1.7 below.

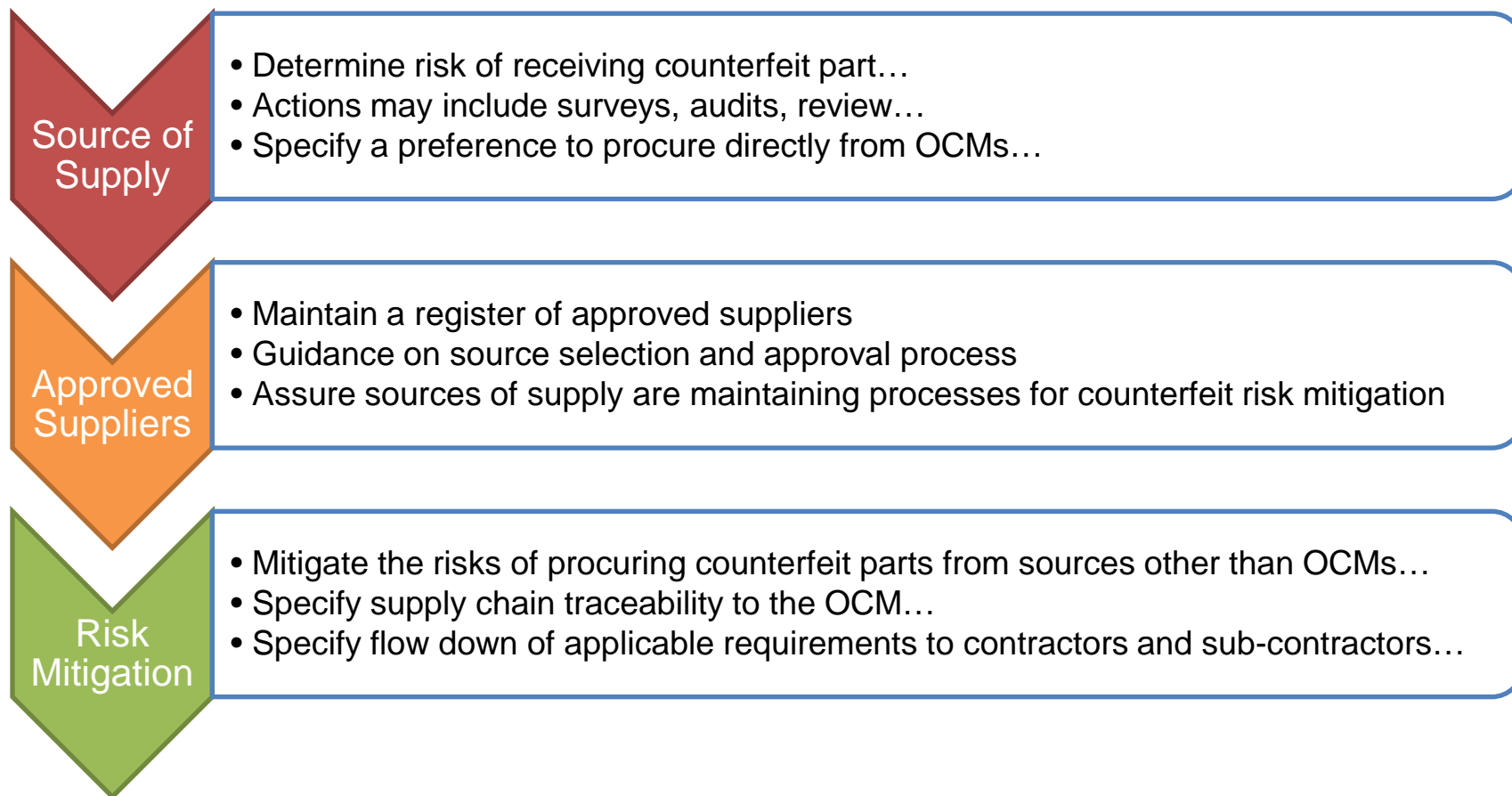
4.1.1 Parts Availability

The processes shall maximize availability of qualified parts throughout the product's life cycle, including management of part obsolescence. Information and guidance for ensuring parts availability is provided in Appendix A, Parts Availability.

“... The process shall maximize availability of authentic, originally designed ... parts throughout the product's life cycle, including management of part obsolescence...”

Requirements

Counterfeit Parts Control Plan: Purchasing Process



Requirements

Counterfeit Parts Control Plan: Purchasing Information & Verification

“ ...This documented process shall **specify contract/purchase order quality requirements** ... ”

“...The documented process **shall assure detection of counterfeit parts** prior to formal product acceptance...”

Requirements

Counterfeit Parts Control Plan:

In Process Investigation

Shall address the detection, verification, and control of ... counterfeit parts.



Material Control

Shall control ... nonconforming parts from entering supply chain

Shall control counterfeit parts to preclude their use ...



Reporting

Shall assure that all occurrences of counterfeit parts are reported...

Example Procurement Clause

D.3.1 Test and Inspection Requirements

“The seller shall establish and implement test and inspection activities to assure the authenticity of purchased products.”

- Traceability and documentation verification,
- Visual examination
- [see Appendix E of this Aerospace Standard for test and inspection activities]

“ ...The seller shall **establish and implement test and inspection activities** necessary to assure the authenticity ... ”

Tests and inspections shall be performed in accordance with clearly delineated accept/reject criteria provided or approved by <BUYER>. The seller shall prepare and provide to the <BUYER> records evidencing tests and inspections performed and conformance of the product to specified acceptance criteria.

Tests and inspections shall be performed by persons that have been trained and qualified concerning types and means of electronic parts counterfeiting and how to conduct effective product authentication.”

Appendixes Provide Guidance



QMS & Counterfeit Parts Control Plan:

“ ...The organization shall **develop and implement a quality management system** (e.g, ISO 9001, SAE AS9120 ... ”

“ ... The organization shall **develop and implement a counterfeit electronic parts control plan** that documents its processes used for risk mitigation, disposition, and reporting of counterfeit parts... ”

4.1 Quality Management System

The organization shall develop a quality management system standard (e.g., ISO 9001, SAE AS9120). In the case of a quality management system standard, the organization shall comply with SAE AS9120.

4.2 Counterfeit Electronic Parts Control Plan

The organization shall develop a counterfeit electronic parts control plan for risk mitigation, disposition, and reporting of counterfeit parts. The control plan shall include paragraphs 4.1.1 through 4.1.7.

Counterfeit Parts Control Plan: Purchasing Information & Supply Chain Traceability

“ ... The process shall **specify contract/purchase order quality requirements ... including the flow down of applicable requirements of this document ...** ”

4.2.1.2 Purchasing Information

The documented process shall specify requirements to minimize the risk of flow down of applicable requirements procurement quality requirements Procurement Contract Requirements

4.2.1.2 Supply Chain Traceability

The documented processes shall require supply chain traceability wherever such shall provide traceability to the OCM identifies the name and location of all procurement lots, and the date of all manufacturer to the direct source of records shall be available for customer traceability is unavailable, the customer shall be notified solicitation.

“ ...The documented processes shall **require ... traceability to the OCM... If...unavailable, the customer shall be notified...** ”

Requirements

Counterfeit Parts Control Plan: *Verification of Purchased Product*

4.2.1.3 Verification of Purchased Product

The documented processes shall specify test and inspection methods for the detection of counterfeit parts process. The rigor of the verification process shall be defined for the receiving counterfeit parts process. The rigor of the process shall be defined for all inspection and test activities.

Results of each inspection and test shall be documented and traceable to product identification (part number), purchase order, invoice, and inspection/t

Appendix D, section D.1.4. D.1.4.1. All personnel performing inspection and test activities shall be formally qualified and trained for the specific inspections and test that they perform based on demonstrated competency.

Product test and inspection requirements are provided in Appendix C, Product Assurance.

“ ...The documented processes shall **specify test and inspection methods** for the detection of counterfeit parts...**Results** of each inspection and test performed **shall be documented, retained, and traceable to product information** ... ”

Requirements

Forming a Counterfeit Parts Working Group

Next Steps – Recommendations

Get Leadership/Management Involvement and Buy-In



Create a line item in the resource plan to fund activity



Provide Training and Awareness of Counterfeit Issue



Formation of a counterfeit parts working group



Create cross function team of impacted departments



Creation of a Counterfeit Parts Control Plan

Formation of Your Counterfeit Parts Working Group

Departments impacted include:

Parts
Engineering

Quality
Assurance

Supply
Chain
Management

Receiving
Inspection

In-Process
Inspection

Procurement

Materials
Management

Production &
IT

Legal &
Contracting
Organization

Include Finance in the Group to Evaluate Costs of your Recommendations

Counterfeit Parts Working Group Kick-Off

Define your Customers' Business Requirements

Typical Business Requirements:

- **Requirement of a Counterfeit Parts Control Plan. Reference to AS5553 or AS6081.**
- **OCM pedigree/traceability of EEE piece parts/components.**
- **Advanced notification and sign-off on any broker purchases.**
- **Customer pre-approval and sign-off on test & inspection plans and results prior to use of brokered parts.**
- **Segmented stock of brokered vs. OCM/Franchised stock.**
- **Option to include mechanical parts in the counterfeit parts control plan.**

Perform a Gap Analysis

- **What are the gaps compared to your current system vs. the business needs?**
- **Need to understand the organization's and your contractors' system and process limitations.**
- **Questions that need to be answered include:**
 - **Is inventory procured from other than the OCM and their Authorized Franchised Distributors segregated? If it is, how?**
 - **Are Common Parts used in multiple applications? Do the applications have varying risk levels?**
 - **How will material be cleared for use?**
 - **Will you allow Independent Distributors/Brokers to conduct their own testing to clear parts?**
 - **Will you allow material that has been cleared by third party laboratories to go back into Independent Distributors/Brokers inventory?**

- **Engineering test equipment**
 - Will it be used on or in flight hardware? Is it a customer deliverable?
- **Parts used on engineering builds for proof of concept designs**
 - Are they or will they be customer deliverables?
 - Is there a possibility untested engineering material will get co-mingled with production material?
- **Do you use 3PL's or Channel Partners that would be impacted by contractual requirements?**
- **Are there any other customer contractual requirements?**
 - Connect the front-end of the business (customer facing/contracts) with the back-end (operations) and include counterfeit subject matter experts to ensure that you do not over-commit what your process can deliver.

Supplier Choice and Material Controls

- **Do you have a rigorous supplier qualification process? Do you visit/audit Independent Distributors/Brokers on your ASL?**
- **How does your system categorize suppliers?**
- **Will you categorize your suppliers by the transaction or for all transactions?**
 - **Do you have system limitations? Will your ERP system be able to address your requirement? Will new procedures need to be developed to address your requirement?**
- **Almost all Authorized Franchised Distributors have departments that procure material from Independent Distributors/Brokers. Most majors have controls to segregate the material and usually only perform the service if asked.**
 - **Recommendation – Include contract clauses for all your suppliers to restrict the use of brokered material. For large organizations, determine if it is being controlled by corporate or at the site level. Will you allow exceptions? How?**
- **Many Independent Distributors/Brokers now carry limited Authorized Franchised lines.**
- **Recommend creating a Governance Checklist to exhaust all options prior to use of Non-Franchised/Brokered parts.**

Clearing Material for Use

- **Does the material have traceability/pedigree directly to the OCM? How is it verified?**
- **Will you rely on CoCs?**
 - Recommended for material procured from OCMs and their Authorized Franchised Distributors. Need to determine how data will be verified & archived.
 - Not recommended for material procured from Independent Distributors/Brokers. Paperwork is easier to fake than parts. Material could be co-mingled with non-pedigree stock.
- **Will the testing be risk based?**
 - Limitation – if parts are used from a common pool of inventory on multiple applications, then solution may be limited. Do not over-commit what you can deliver to your customers.
- **Will you allow your suppliers to self-release based on your requirements?**
 - Recommendation – additional audit will be necessary to verify. Ensure that contract clauses ensure archiving of relevant information and allow access to necessary information to conduct audit.
- **What testing and screening will be conducted?**

Inventory Segregation Solutions & Limitations

- ◆ **Bag & Tag?**
 - Advantages – Low cost solution for segregating material.
 - Limitations – ERP system will use inventory according to accounting settings such as FIFO. Subject to human error when technicians pull material for kit. Still need full traceability to determine which LRUs have used brokered material.
- ◆ **Separate storage areas?**
 - Advantages – Limits human error when technicians pull material for kit.
 - Limitations – ERP system does not select material based on storage location. Still need full traceability to determine which LRUs have used brokered material. Additional storage space is needed.
- ◆ **Batch Management?**
 - Advantages – Provides information if brokered parts were used on assemblies. You can track back to a specific supplier if a problem is discovered.
 - Limitations - Still need full traceability to determine which LRUs have used brokered material. ERP system must have feature. Turning on the feature will require more data entry and data storage.
- ◆ **Separate internal part numbers?**
 - Advantages – Most comprehensive control.
 - Limitations – Costly. Appears like customization for specific customers. Changes to BOM management need to occur at all levels of the assembly, from piece part, to the CCA and the LRU, straight through the end-BOM. Engineering drawings may be necessary to control contractors. Additional storage space is needed. More parts to manage.

Creating the Test Plan

- **If the test plan is risk based, need to quantify the risk.**
 - **Recommendation: Create score based on Risk of Application, Risk of Product, and Risk of Supplier.**
 - **One example of the Risk of Application and Risk of Product could utilize a modified version of MIL-STD-1629 “Procedures for Performing a Failure Mode Effects and Criticality Analysis” to quantify risk.**
 - **Need to determine what data is available at your organization to categorize the Risk of Supplier. For example, PPM, Number of Nonconformance's, Past Performance, Industry Databases, Third-Party Quality Certifications (e.g. ISO 9000, AS9120, ANSI ESD S.20/20), Industry Memberships and data (e.g. ERAI, IDEA), etc.**
 - **Note – Component and Application risk can only be evaluated by the End-User and Original Equipment Manufacturer that produces the LRU and/or Final System.**

Minimal Recommended Test Plan

- **Delineate between quality and reliability vs. suspect counterfeit detection.**
- **If you have limitations on creating a risk based test plan, recommend the following test methods are performed on all Independent Distributor/Broker procurements:**
 - **External Visual Inspection per latest version of IDEA-STD-1010**
 - **X-Ray. Preferably against a known good sample.**
 - **XRF and Lead Finish Evaluation.**
 - **Inspection for Remarking or Resurfacing.**
 - **Decapsulation and Internal Die Verification.**
 - **Basic Functionality Test (i.e. value measurement/DC Test)**
- **Specify your sampling plan based on individual shipments and specific lot/date codes per shipment.**
- **Create an Archive Plan for the results of the test.**

BASIC FUNCTIONALITY TEST

COMPONENT	MINIMUM FUNCTIONALITY TEST
Microcircuits and Semiconductor Devices	Curve trace each pin and verify against a known good part/DC Test at ambient temp.
Resistors (includes heaters, thermistors, and fuses)	DC resistance
Capacitors (includes filters)	Capacitance, dissipation, and insulation resistance
Inductors	Inductance
Transformers	Winding-to-winding isolation, winding continuity, winding inductance, turns or voltage ratio
Connectors	Pin-to-pin and pin-to-case isolation, contact resistance
Relays	Input inductance, contact resistance
Crystal	Frequency and equivalent resistance

- **If your organization does not have system/process limitations and you are creating a risk based test plan:**
 - **Recommend that component engineer and/or reliability engineer evaluates the use of the item in the application and determines the risk on the CCA, LRU and Final System.**
 - **The type, level, and extent of electrical testing is so complex to try to weed-out counterfeit parts that it should be the responsibility of the EEE components parts engineer to make that determination, with the assistance of design engineering in certain critical applications, and generate the specific test requirements. This test documentation should be included in a Statement of Work (SOW) in the event the testing is done by an outside test facility or to document the test requirements if done in-house.**
 - **Include other required test methods in test SOW.**
 - **Flow-down test SOW on relevant purchase orders.**

Electrical Test Plan Recommendations

- **Select the pertinent key electrical parameters from the corresponding DSCC Standard Microcircuit Drawing (SMD) for microcircuits, MIL-PRF-19500 for semiconductor devices, and the appropriate MIL-PRF-XXXXX for passive devices.**
- **Commercial Off the shelf parts should be tested per the DSCC Vendor Item Drawing (VID) for the key electrical parameters.**
- **The DSCC website can be accessed at www.dscclia.mil/programs/milspec/, then click on Standard Microcircuit Drawings(SMDs) or Vendor Item Drawings (VIDs). For a cross-reference of SMDs, at bottom of page, click on MIL-HDBK-103.**
- **More complex devices such as Microprocessors, Microcontrollers and Memory etc. will require the original test-tapes and these may only be available from the original component manufacturer. In these cases, if the available testing is not sufficient to authenticate the parts, a sample of parts may have to be submitted to the manufacturer for testing.**

- **Thermal Shock for Passive Devices**
- **Thermal Cycle Testing**
- **Burn-In**
- **Final Electricals including limits and delta limits**
- **Fine & Gross Leak (Hermetic Devices)**
- **Flexibility to Include Additional Test Requirements as New Methods of Counterfeiting are Discovered.**
- **Recommend creating a standardized test statement of work with input from components engineering and failure analysis engineers.**

Example Sampling Plan for your Test Plan

EXTERNAL VISUAL INSPECTION SAMPLE SIZE		REMARKING & RESURFACING INSPECTION SAMPLE SIZE	X-RAY, XRF, LEAD FINISH EXAMINATION SAMPLE SIZE		DELID PHYSICAL ANALYSIS SAMPLE SIZE	FUNCTIONAL TEST AT AMBIENT TEMP. SAMPLE SIZE	
STD LOT	SMALL LOT	TOTAL LOT	STD LOT	SMALL LOT	TOTAL LOT	STD LOT	SMALL LOT
116 devices plus 3 devices = 119 total devices c=0	lot size ≤116, test all c=0	3 devices c=0	45 devices c=0	lot size ≤ 45, test all devices c=0	3 devices c=0	116 devices c=0	lot size ≤116, test all devices c=0

Example Sampling Plan (Continued)

ELECTRICAL TESTS SAMPLE SIZE		BURN-IN SAMPLE SIZE		THERMAL SHOCK SAMPLE SIZE		ABBREVIATED LIFE / BURN-IN SAMPLE SIZE	
STD LOT	SMALL LOT	STD LOT	SMALL LOT	STD LOT	SMALL LOT	STD LOT	SMALL LOT
116 devices c=0	lot size \leq 116, test all devices c=0	45 devices c=0	lot size \leq 45, test all devices c=0	22 devices c=0	lot size \leq 22, test all devices c=0	45 devices c=0	lot size \leq 45, test all devices c=0

- **Create a DMSMS plan using the guidance from:**
 - **DOD SD-22 “Diminishing Manufacturing Sources and Material Shortages Guidebook”**
 - **GEIA GEB1 “Diminishing Manufacturing Sources and Material Shortages Management Practices**
 - **EIA-4899 “Standard for Preparing an Electronic Components Management Plan”**
 - **IEC TS 62239 “Process management for Avionics – Preparation of an Electronic Components Management Plan”**

Reduce the necessity to procure from suspect sources

Flow-Down your Requirements

- **Ensure that you flow-down your requirements to your subcontractors and sub-tier suppliers.**
- **Coordinate with your legal and contracting organization on the supply side to flow-down appropriate clauses.**
- **AS5553 Appendix D has recommend contract clauses for flow-down.**
- **Socialize your requirements with your critical subcontractors**

Considerations for Execution/Implementation

- **Determine if organizational structure needs modification. Who owns the process? Will they have authority over the functional groups required to perform the activity?**
- **Ensure that impacted parties, internally and externally have been trained.**
- **Determine a date of implementation. Allow enough time for contractors and sub-tiers to be compliant.**
- **Ensure that there are appropriate resources and manpower to implement the requirements.**
- **Create fully-loaded charge accounts for the various required activities such as testing and engineering time.**
- **Scale-up the audit activity to determine compliance, internally & externally.**
- **Evaluate if incentives and goals are in alignment with new procedures or if they need modification.**
- **Debrief on lessons learned for future activities.**

- **Understand various standards to help create a counterfeit parts control plan**
- **Know the departments that will be impacted and include them in the development of your plan**
- **Have an understanding of some of the trade offs and limitations**
- **Have an understanding of how to create your test requirements for your plan**

Thank you for your time!

Questions?

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Backup Slides

Resources

Work Groups/Committees/Associations

- **US Chamber of Commerce Coalition Against Counterfeiting and Piracy (CACCP)**
- **Semiconductor Industry Association (SIA) Anticounterfeiting Task Force (ACTF)**
- **SAE G-19 Counterfeit Electronic Parts Technical Committee**
- **Center for Advanced Lifecycle Engineering (CALCE)**
- **Surface Mount Technology Association (SMTA)**
- **TechAmerica G-12 Counterfeit Task Group**
- **Aerospace Industries Association (AIA) Counterfeit Parts Integrated Process Team**
- **International Microelectronics and Packaging Society (IMAPS)**
- **Components Technology Institute (CTI)**
- **NASA Quality Leadership Forum (QLF)**
- **Independent Distributors of Electronics Association (IDEA)**
- **ERAI**
- **SEMI**
- **DoD trusted Defense Systems Workshop**
- **DoD Trusted Foundry Program**
- **Defense Logistics Agency (DLA) Counterfeit Parts Integrated Process Team (IPT)**



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November 20, 2008
Customs and Border Protection announces seizure of 420,000 counterfeit ICs and computer networking components.
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February 22, 2008
Customs and Border Protection and European Commission Tax and Customs Directorate announce seizure of more than 360,000 counterfeit integrated circuits and computer network components.
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November 11th, 2007
Rochester Electronics Launches Source Directory Web Site To Combat Counterfeit Parts
[Read More »](#)

Welcome to the world's premier **AUTHORIZED** source directory. Our authorized distributors provide guaranteed assurance that products are fully traceable and certified by the manufacturer. In today's electronics marketplace, selecting an authorized distributor is more important than ever before. With accelerating inventories of questionable quality, including counterfeit and sub-standard product sold through surplus dealers, customers need a directory of reputable and authorized distributors.

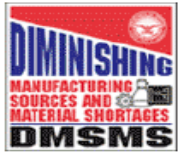
This directory has been created through the endorsement and efforts of the SIA Anti-Counterfeit Task Force. Through a network of corporate CEOs and working committees, SIA shapes public policy on issues critical to the industry and provides a spectrum of services to aid members in growing their businesses.



A world of authorized distributors and quality products at your fingertips!

For your printed copy of the EASD [click here!](#)

Welcome to the DMSMS & Standardization Conference 2009



The theme for this year's conference is: New Directions and Challenges. The focus areas are: Strategic Partnerships, Visibility into Total Ownership Costs, Opportunities for Partnering, and Standardization Enablers.



A Message from the Chairman

As this year's Chairman, I would like to invite you to participate in the DMSMS and Standardization 2009 Conference. With a new administration taking the helm of the federal government, there will be change. The theme of this year's conference - "New Directions and Challenges" - will focus on what changes to expect and how these changes will affect the DMSMS and standardization communities.



The target audiences for this conference are DMSMS and standardization professionals who wish to hone their skills and be a part of shaping the future of DoD acquisition and sustainment policies. In addition to a full day of tutorials taught by some of the top experts in government and industry and hands-on experience with some of the latest automated information tools, this conference gives attendees access to the new incoming DoD acquisition and sustainment leadership and a chance to hear first hand about their goals, objectives, and direction.

After the incoming DoD leadership has set the stage for our new directions and challenges, there will be workshops and discussion panels to allow audience participation and input into future DMSMS and standardization policies, procedures, guidance, and automated tools. We have also invited an outstanding array of experts to share their experiences through technical presentations on how they have successfully addressed the challenges of obsolescence, counterfeiting, standardization, parts management, lead-free, and many other related technical issues.

SD-22

Diminishing Manufacturing Sources and Material Shortages (DMSMS) Guidebook



Office of the Under Secretary of Defense
Acquisition, Technology, & Logistics

November 1, 2006

SDMP

DSCC-QSLD-5961/5962

DRAFT

October 23, 2008

Defense Supply Center, Columbus



Criteria and Provisions for Qualified Suppliers List of Distributors (QSLD)

FSCS 5961 (Semiconductors)/5962 (Microcircuits)

Pre-qualified distributors

**Semiconductors and
Microcircuits**

**Distributors with demonstrated
quality assurance practices**

**Qualification based on JESD31
QMS requirements, e.g.:**

- Traceability
- Certificate of Compliance
- Handling and storage

The screenshot shows the ERAI website interface. At the top, there is a navigation bar with links for Home, Contact Us, and Log Out. Below this is a header for ELECTRONIC RESELLERS ASSOCIATION INTERNATIONAL, INC. A secondary navigation bar includes links for MEMBER DIRECTORY & SERVICES, LOSS PREVENTION & RECOVERY, HIGH RISK PARTS, and INFORMATION & DOWNLOADS. A green bar contains a home icon and a Back button. The main content area features a red heading for 'Complaint Type: Counterfeit Parts'. Below this is a table with two columns: 'Company' and 'Additional Information'. The 'Company' column contains details for For Lik Shun Electronics Technology Limited, including phone, fax, email, and address. The 'Additional Information' column contains bank and beneficiary details. Below the table is a 'Details' section with a blue header, containing a narrative of the complaint.

ERAI Home Contact Us Log Out

ELECTRONIC RESELLERS ASSOCIATION INTERNATIONAL, INC - Working to protect electronic distributors around the world

MEMBER DIRECTORY & SERVICES LOSS PREVENTION & RECOVERY HIGH RISK PARTS INFORMATION & DOWNLOADS

Back

Complaint Type: Counterfeit Parts

Company	Additional Information
For Lik Shun Electronics Technology Limited Phone: 86-755-8395-8937 Fax: 86-755-8395-8657 Email: kelixin888@hotmail.com Address: R2008 North #2 Unit Jing Gang Mingyuan Shenzhen China Status: UNRESOLVED Last Updated: 08/28/2007 Date Modified: 08/28/2007 Scheduled Release: 08/22/2012	Bank Name: Standard Chartered Bank, Shenzhen Futian Central Sub-Branch Account: 9841380411 Beneficiary Name: FOR LIK SHUN ELECTRONICS TECHNOLOGY COMPANY LIMITED

Details

In June 2007, a Member placed an order with For Lik Shun Electronics for 1,100 pieces of part number PEF20534H10V2 totaling \$16,500.00. The invoice is dated June 26, 2007 and the order was facilitated through an escrow service with a 5-day inspection period.

The parts were sent to an independent test facility for testing prior to being sent to the Customer. The test results dated July 10, 2007 state:

"...showed evidence of remarking and resurfacing. The die shows LSI Logic as the manufacturer with HS083F as a mask code in an Infineon marked part. The product is remarked and therefore counterfeit."

According to the Reporting Member, they contacted For Lik Shun the same day the test results were received, July 10th, for an RMA and refund and this and all other subsequent attempts to contact For Lik Shun Electronics have been ignored. ERAI has not received a response from For Lik Shun Electronics regarding this matter, leaving it unresolved as of this date.







Resources (cont)

The Independent Distributors of Electronics Association's

ID*EA

IDEA-STD-1010-A
*Acceptability of Electronic Components
Distributed in the Open Market*

INSPECTION OF ELECTRONIC COMPONENTS IN THE
INDEPENDENT DISTRIBUTION SUPPLY CHANNEL

<p>Quality Qualität Calidad 质量 Qualité</p>	 
 	 



IDEA-ICE-3000

Professional Inspector's Certification Exam

Available to Employees of:

- IDEA Member Companies
- OEMs
- CM/EMS'

The IDEA Professional Inspector's Certification Exam is designed to demonstrate inspection competency for the benefit of all stakeholders. Successful examination provides the employee and the employer with a heightened degree of confidence in the basic working knowledge and resource-ability of the inspector.

When personnel who conduct visual inspection of product from the excess market have been certified, the company's stakeholders are provided objective evidence of inspection competency and therefore reason for increased confidence that customer satisfaction will be achieved and further offer increased marketability of products and services.

Upon successfully passing the IDEA Professional Inspector's Exam (IDEA-ICE-3000) the candidate will be awarded a certificate stating that the individual has passed the exam and their name will be maintained on record at IDEA as having met this achievement.

IDEA Members \$ 200.00 USD	Add to Cart
OEM's/CM's/EMS' \$ 395.00 USD	Add to Cart
IDEA Member Exam Renew \$ 100.00 USD	Add to Cart
Click "View Cart" to checkout	View Cart



Training Programs

Semiconductor Technology Seminar - STS - An intensive course that addresses the needs of scientist, engineers, and technicians newly involved in design, development, testing, production, management, procurement or evaluation of semiconductors. The course will add to the knowledge and understanding of experienced technologists in modern semiconductor processes in sub-micron CMOS and BiCMOS. The impact of processing on yield and performance and reliability issues are emphasized by the course.

IC Failure Analysis for Yield Enhancement Seminar- ICFA - A comprehensive seminar which presents the latest techniques for analyzing wafer defects and IC failure mechanisms. The course discusses the means for correction of process defects to improve yields. Students will take away an understanding of how results of physical failure analysis can supplement statistical defect reduction efforts.

Passive Components Seminar - PCS - A seminar that covers design, construction, selection for the applications, failure mechanisms, testing, reliability, and lessons learned on ceramic; electrolytic film capacitors; carbon, film and wire wound resistors; and a select group of inductive devices. The seminar is based upon the CLR Passive Components Handbook by Fagerholt plus considerable additional material. Students will receive a copy of the CLR Handbook and slides presented.

Counterfeit Components Avoidance Program - This Training and Certification Program addresses the problem being experienced with the many Counterfeit Components that are entering the electronics supply system. It will address practices for detection and prevention of using counterfeits. The Training Program will develop specific engineering quality and purchasing practices for avoiding counterfeit components. Users and suppliers of components are encouraged to submit abstracts for presentations on this issue.

The Certification Program certifies independent distributors as active participants in testing for counterfeit components to insure they only distribute genuine components.



Counterfeit Parts Avoidance Training

Counterfeit Parts in the News

- In 2009, Acting Administrator Christopher Scolese disclosed to Congress that counterfeit parts are a significant cause of budget over-runs for NASA
 - Estimated cost to NASA - *unknown*
- In late 2007, the US Patent and Trademark Office estimated that counterfeiting and piracy drain about \$250 billion out of the US economy each year along with 750,000 jobs
- Counterfeit EEE parts comprise about 10% of the parts in the supply chain
- In December 2008, four executives at Western Titanium, Inc were indicted for fraud
- US Dept of Commerce Bureau of Industry and Security survey reveals China as biggest geographical source of counterfeit electronic parts



Class Date and Time

- The QLF class is scheduled for September 29 2009, 1:00 – 5:00 p.m.
- Enrollment requests should be submitted to Diana Shellman



Please contact
Katherine Whittington
Katherine.V.Whittington@jpl.nasa.gov
or 818.354.8749
for information about the class
content or related questions.

Class Details

Class Objectives

- To learn about counterfeit parts and why they are a significant risk.
- To learn inspection methods to be used for the detection and avoidance of counterfeit parts.
- To mitigate the risks of acquiring counterfeit parts and to eliminate the risk of introducing counterfeit parts into flight hardware.
- To apply inspection techniques during an individual hands-on examination of counterfeit EEE parts, with microscopes.

4-hour class is for anyone who works with EEE parts and includes the following:

- Terms and Definitions Overview
- Counterfeit Parts in the Industry
- JPL's Counterfeit Parts Mitigation Strategy
- Best Industry Practices
- Case Studies of Counterfeit Investigations
- Hands-On Training and Written Exam

Building a Business Case

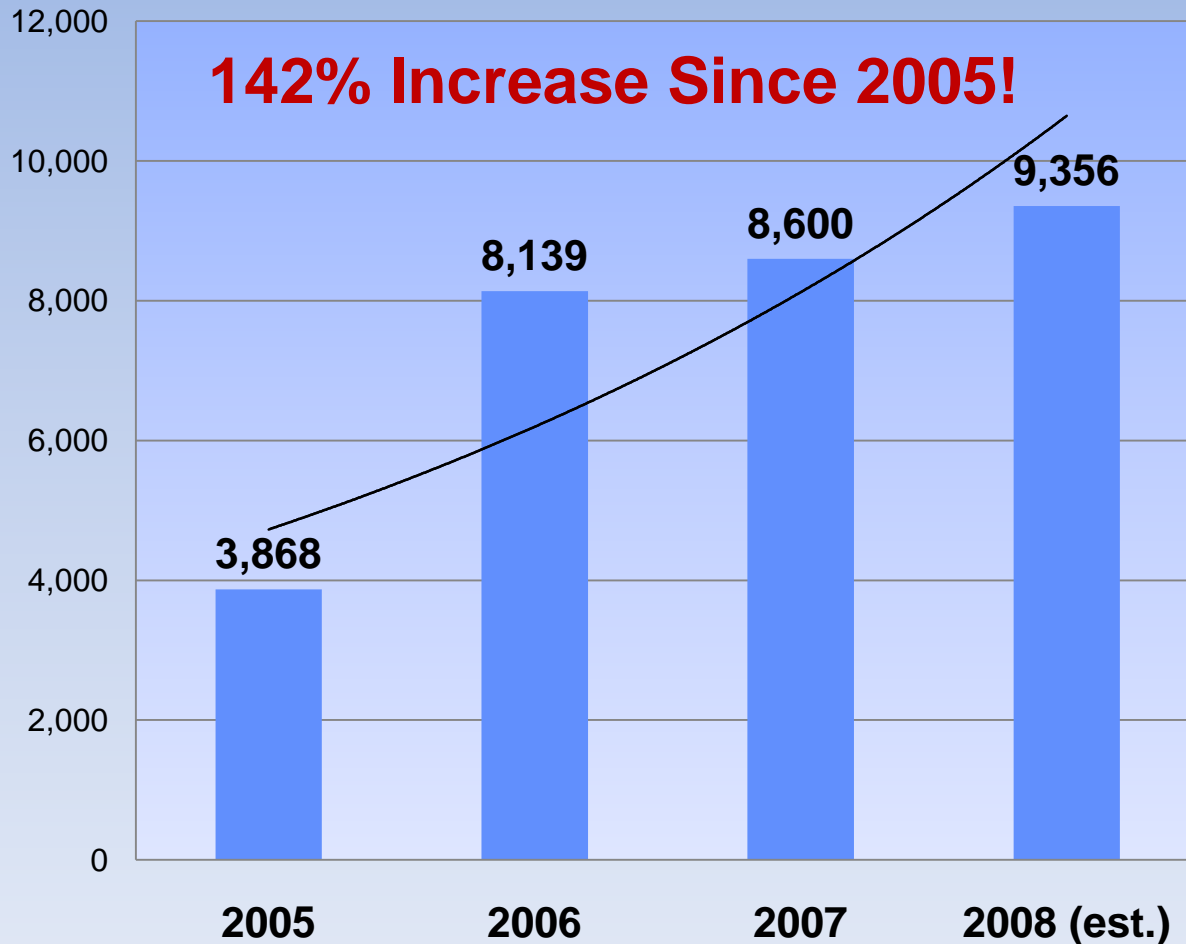
Supporting Documentation for Business Case

Honeywell

- **Provide empirical data such as the US Department of Commerce information.**
- **Show actual examples of counterfeit parts and pictures of counterfeit parts processing.**
- **Summarize the business requirements from other companies invoking requirements.**
- **Benchmark number of non-franchised purchases against industry best practices.**
- **Show the industry & government trend and direction.**
- **Research the historical cost and number of counterfeit escapes.**
- **Quantify business at risk from customers invoking requirements that current processes cannot support and add historical cost of escapes to calculate cost avoidance. Perform financial analysis (NPV, IRR, Payback Period, etc.) of recommendations offset by the calculated cost avoidance.**

Magnitude / Scope of Counterfeiting

**Total EEE Counterfeit Incidents:
(398 Companies Surveyed)**



U.S. Customs Notifications

Year	Number of Incidents
2005	1
2006	29
2007	169
2008	604

U.S. Department of Commerce – Preliminary Data (as of March 4, 2009)

What We are Up Against

- New Blacktopping Techniques-

Exemplar Top Surface

Suspect Top Surface

New Blacktop Material Can Only Be Removed With an Xacto Knife

**Pure Acetone
7 Day Soak
No Effect**

What We are Up Against

- Bogus Test Reports -

19% of companies employing testing contractors had problems with U.S.-based firms concerning faulty or forged testing.

- The parts were cleared by the testing house, but were later found to be counterfeit by the customer.

ANALOG DEVICES
Customer: **ETEC**
Spec'd to: **AD-570-AP/883B**
Date Code: **0722**
Prepared By: **C. LEE**
Special Groups: **5902 - 8787104 CA**
QC Lot Size: **429**
QC Lot #: **F28542265**
MIL-STD 883 ATTRIBUTES TEST DATA
Assessment: **2**
Ship Qty: **250**
Date: **250**
Comments:

Method	Cond.	Green	Red	REJ	OTHER	Defect
SCREENING						
1815						
2008						
3005						
EXTERNAL VISUAL						
GROUP A INSPECTION						
PROGRAM NAMES						
PROGRAM NAMES						

100% TESTED

Approved By: **[Signature]**
Date: **05-28-04**

U.S. Department of
Commerce February, 2009

Sources of Counterfeiting

Workers extract plastics from discarded electronics in Guiyu, a few hours' drive northeast of Hong Kong. The city has 5,500 family workshops handling e-waste.

© 2006 The Seattle Times Company

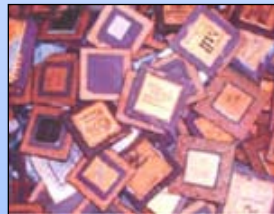


Laborer de-soldering circuit boards over a coal-fired grill. Rock in the box is where boards are hit to remove solder. Pliers are used to pluck off chips which go into various buckets. The boards are then tossed into a pile for open burning. © BAN

Sources of Counterfeiting

MORE than a backyard industry!!!

Millions of Scrap Boards



Component Removal



Sort by Size Similarity and Lead Count



Reprocessed





Components on river bank drying



Slide courtesy of



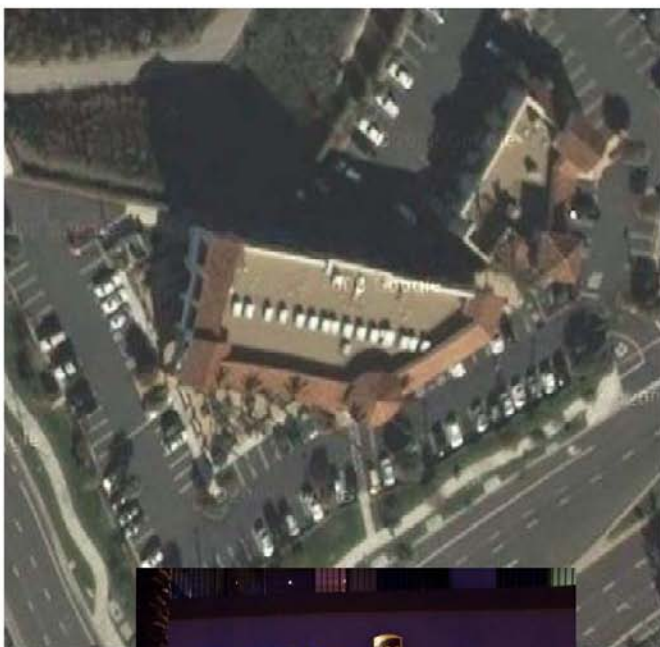
0402 Case Size Capacitors
(\$.005 ea from Fran. Disty)





Supplier Facilities

How certain are you of your suppliers' capabilities?



This ERAI member independent distributor advertises **over 800 companies on its line card, with search capability for thousands of components**. Google indicates the advertised address is a commercial building.



The distributor was not available for a visit. The “suite” located for the company address was determined to be a mailbox (this company was not an MDA-approved supplier).



Example – Tampa Area

Honeywell



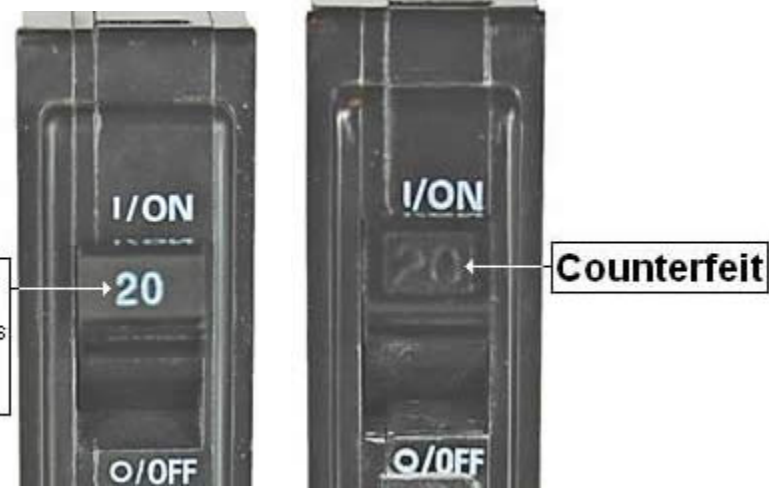
Counterfeiting Consequences



Exploding counterfeit cell phone battery

© Electrical Resource – 2010

Genuine
Pre-2003 breakers do not have white paint

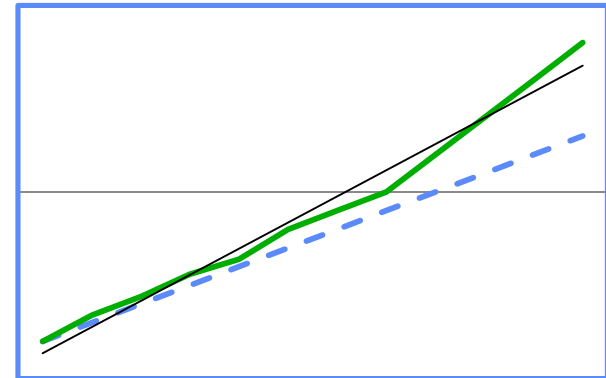


Recalled circuit breakers

© EZDIY Electricity – 2010



“Trojan Horse” or Backdoor Entry



Delays and Cost Overruns



NASA Satellites Get 'Counterfeit' Parts Pay

Agency Chief Says Suppliers Sometimes Skimp on Quality

By NED POTTER

March 7, 2009 —

Maybe it was something he didn't mean to say. Or not.

At a House subcommittee hearing on NASA's cost overruns, Christopher Scolese, was asked why it is that so many space projects fail to stick to their budget.

He listed a variety of reasons, including management problems and missions that have never been tried before.

And then he said, as one extra point, that some space parts are "counterfeit."

Counterfeit? Ears in the room perked up.

"In dealing with that, you find out late, typically, when you get counterfeit parts," said Scolese.

Sometimes, he said, "you find out about it when you're in tests, or you find out about it when you're sitting on top of the rocket, or worse, you find about it when you're in space. And all of those have cost implications."

So NASA was faced with a sudden brush fire. Were satellites being launched with parts that might doom them to failure? Were astronauts in danger?

NASA insists the answer is no. But there have been cases in which it says companies have supplied it with parts or materials that were not what had been originally promised.

The most recent case involves NASA's Kepler probe, which was a day from scheduled liftoff when the hearing was taking place Thursday morning. Engineers built Kepler to spend at least three years in solar orbit, with a powerful camera to look for evidence of Earth-like planets circling other stars.

Last fall, a supplier was indicted for selling falsely approved titanium to NASA and the U.S. Air Force - including the metal for Kepler's camera mount. That did not necessarily mean the titanium was in danger of failing, but the company had allegedly falsified its records to say it had done all the necessary tests.

"We analyzed the mount for about three weeks," said J.D. Harrington, a spokesman for NASA, "and we

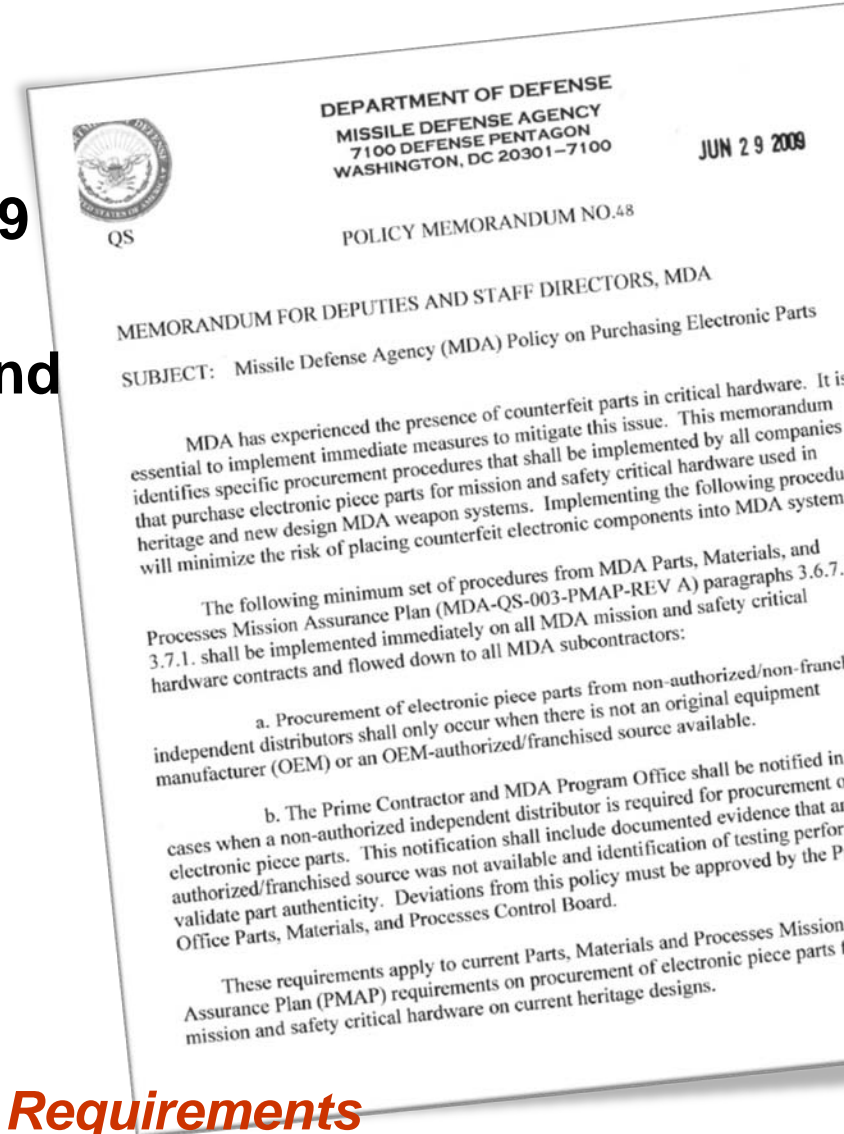
“ ... At a House subcommittee hearing on NASA's cost overruns, the agency's acting administrator, Christopher Scolese, was asked why it is that so many space projects fail to stick to their budget. ... some spacecraft are built with parts that turn out to be "counterfeit" ”



Counterfeit Parts Control Plan

Organizations Adopting Policies:

- NASA Policy Directive 8730.2C
- MDA Policy Memo and PMAP
- DOD adopts AS5553 August 2009
 - SMC and NRO do not accept AS5553 in it's current form and have more stringent requirements
- Other companies with plans:
 - BAE Systems
 - Orbital Sciences Corp.
 - Lockheed Martin
 - Honeywell
 - Ball Aerospace



Flow Down will Invoke Requirements

Industry Direction – Standards Requirements

AS6081/AS5553 Re-Write: Supply Chain Traceability - The organization shall provide supply chain traceability documentation that records the supply chain back to the manufacturer of all components being delivered per this order. The manufacturer shall identify the name and location of the manufacturer to the organization and provide serializations, or other identification for the requirement applies to material in inventory and material transferred within the organization. If this traceability is incomplete or unavailable, customer approval in advance is required.

“ ... This traceability requirement applies to new purchases of material, material in inventory and material transferred from other businesses within the organization. **If this traceability is incomplete or unavailable, customer approval in advance is required.** ”

Standards are scheduled for release in FY2011

U.S. Government Reports on Counterfeits

- U.S. Department of Commerce, Bureau of Industry and Security, Office of Technology Evaluation, January 2010 – “Defense Industrial Base Assessment: Counterfeit Electronics”



OTE Counterfeit Report

- U.S. Government Accountability Office, “Defense Supplier Base: DOD Should Leverage Ongoing Initiatives in Developing its Program to Mitigate Risk of Counterfeit Parts”, GAO-10-389, <http://www.gao.gov/products/GAO-10-389>, March 2010



GAO - Counterfeit Parts

- U.S. Government Accountability Office, “Intellectual Property, Observations on Efforts to Quantify the Economic Effects of Counterfeit and Pirated Goods”, <http://www.gao.gov/products/GAO-10-423>, April 2010



GAO I.P.

U.S. Senate Actions on Counterfeit Parts

PRINT: Senators are worried about counterfeit Defense supplies (8/9/10) ... http://www.govexec.com/story_page_pf.cfm?articleid=45869&printerfie...

GOVERNMENT
EXECUTIVE
COM

Senators are worried about counterfeit parts

By Robert Brodsky rbrodsky@govexec.com

The Defense Department's supply chain is vulnerable to the infiltration of counterfeit parts, potentially jeopardizing the lives of American soldiers, according to two Democratic senators.

In an Aug. 6 letter to Ashton B. Carter, undersecretary of Defense for acquisition, technology and logistics, Sens. Sherrod Brown of Ohio and Tom Carper of Delaware said the Pentagon was not doing enough to protect the system from imitation supplies, many of which originate overseas.

"Counterfeit parts manufactured offshore not only hurt American manufacturing and competitiveness, but in this case, have the potential to put our military at risk and jeopardize our national security missions," Brown said.

Defense did not respond to a request for comment.

The letter cited two recent reports that detailed serious weaknesses in Defense's ability to root out fake supplies. In January, the Commerce Department's Bureau of Industry and Security found all elements of the Defense and international supply chain have been directly affected by counterfeit electronics.

The assessment, which covered 2005 to 2008, focused on discrete electronic components, microcircuits and circuit board products. A total of 387 companies and organizations, representing all five segments of the supply chain -- original component manufacturers, distributors and brokers, circuit board assemblers, prime contractors and subcontractors, and Defense agencies -- participated in the study.

Investigators found 39 percent of companies and organizations encountered counterfeit electronics

“ ... The Defense Department's supply chain is vulnerable to the infiltration of counterfeit parts, potentially jeopardizing the lives of American soldiers, according to two Democratic Senators. In an Aug. 6 letter to Ashton B Carter, undersecretary of Defense for acquisition, technology and logistics, **Sens. Sherrod Brown of Ohio and Tom Carper of Delaware argued the Pentagon was not doing enough to protect the system from imitation supplies, many of which originate overseas. ...** ”

Legislation – NASA Authorization Act

SEC. 1206. COUNTERFEIT PARTS.

(a) IN GENERAL.—The Administrator shall plan, develop, and implement a program, in coordination with other Federal agencies, to detect, track, catalog, and reduce the number of counterfeit electronic parts in the NASA supply chain.

(b) REQUIREMENTS.

(1) counterfeit parts that procure, produce, or use counterfeit parts that will—

- (A) teach employees how to identify counterfeit parts;
- (B) educate employees on procedures to follow if they suspect a part is counterfeit;
- (C) regularly update employees on new threats, identification techniques, and reporting requirements;

“ ... The Administrator shall plan, develop, and implement a program, **in coordination with other Federal agencies**, to detect, track, catalog, and **reduce the number of counterfeit electronic parts in the NASA supply chain.** ”

Legislation passed, effective FY2011

Additional Legislation in the Senate

SEC. 1063. EXECUTIVE AGENT FOR PREVENTING THE
INTRODUCTION OF COUNTERFEIT MICROELECTRONICS INTO THE DEFENSE SUPPLY CHAIN

(a) EXECUTIVE AGENT
date of the enactment of this title
Defense shall designate a senior official of the Department of Defense to serve as the executive agent for preventing the introduction of counterfeit microelectronics into the defense supply chain.

“ ... the **Secretary of Defense shall designate** a senior official of the Department of Defense to serve as **the executive agent for preventing the introduction of counterfeit microelectronics into the defense supply chain.** ”

(A) Development and maintenance of a counterfeit microelectronics identification and mitigation implementation plan that ensures that the Department of Defense has the ability to identify, mitigate, prevent, and eliminate counterfeit microelectronics from the defense supply chain.

Legislation passed H.R., Proposed for FY2011

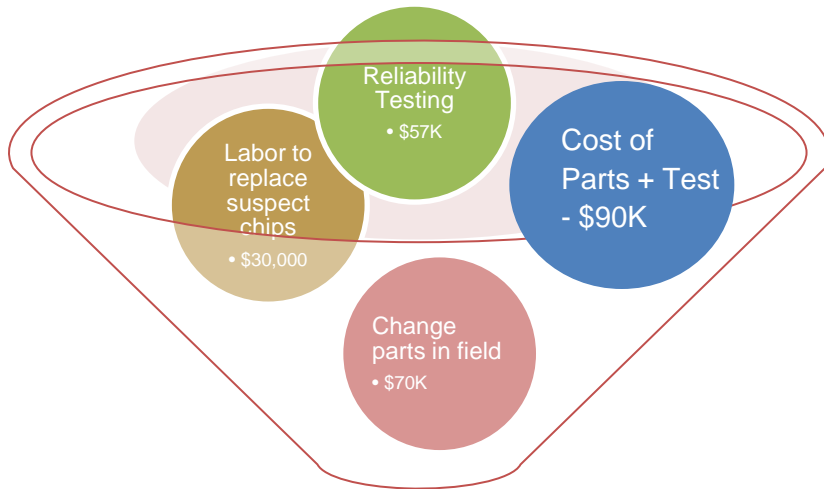
Proposed Legislation on Counterfeit Parts

- NAVSEA/NASA Legislative proposals— intended to address these areas:
 - **Need for a common counterfeit electronic part definition**
 - **Need to flow down requirements to suppliers/vendors at all tiers**
 - **Need for criminal penalties in the event of loss of life and property damage. There does not need to be loss of life or property damage for the government to pursue the case.**
 - **Need to dispose of and return counterfeit electronics**
 - **Need to control export/disposal of populated scrap circuit boards**
 - **Need to address payment for counterfeit material when the Government or contractor has accepted counterfeit material**
 - **What to do with identified counterfeit electronics: Need to retain and preserve counterfeit items as evidence of fraud**
 - **Need to submit information regarding counterfeit material to the appropriate investigative service**

Legislation targeted to become law in FY2012

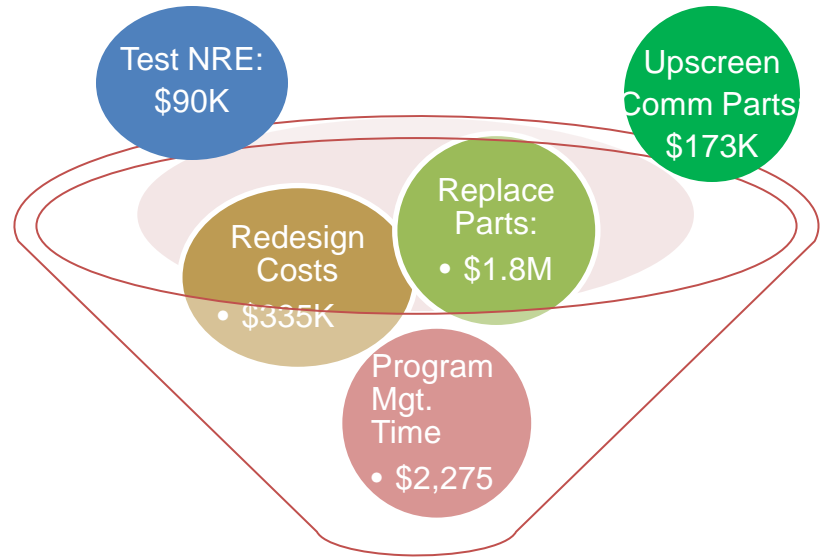
Examples - Counterfeit Part Escape Incidents

Actual Example 1



Total cost: >\$500,000

Actual Example 2



Total cost: >\$2,400,275

Additional Revenue impact due to delayed shipments

Cost of these escape incidents still growing

Counterfeit Product Impact

What “failed parts” mean to the Organization

Schedule slippage

Cost Increase

Reduced performance

Poor reliability

Product failure

- Personnel Safety
- Mission Success
- National Security Interests

Decline in mission readiness

Loss of Brand Reputation

Legal – Criminal & Civil Actions

Financial Impact of Changes

Costs

- Additional Test & Inspection when purchasing from non-franchised sources
- Cost for Audit and Verification
- Training Costs: Internal & External Supplier
- Administrative & Recordkeeping
- Engineering Time
- Supplier Contract Renegotiations

Savings

- Reduce Cost of Poor Quality
- Reduce Cost of Goods by reducing high cost of obsolete parts
- Improve Reliability with known sources of supply, pedigree, & part handling
- Reduce Quality Escapes
- Reduce Scheduling Delays and Rework fees due to counterfeit and poorly handled parts
- Reduce accrual on warranty expense
- Ability to service contracts with counterfeit clauses