

Possible IPC Counterfeit Avoidance Management Technique

Dennis Fritz, MacDermid, Inc
Dieter Bergman, IPC

Association Connecting Electronics Industries



Next Slides from: Electronic Component Authenticity Concerns



11 December, 2008

Fred Schipp

Naval Surface Activity, Crane

Association Connecting Electronics Industries



Authenticity Concerns (Question #1)

Q. When is it necessary to buy from a company that is not the Original Component Manufacturer (OCM) or one of its authorized distributors?

A. When the component is not available from the above sources. For example, the part is obsolete or discontinued (including unavailability of components with tin-lead plated leads**), lead time is too great, etc.**

Association Connecting Electronics Industries



Purchasing Practices

Do some defense subcontractors **unnecessarily** buy electronic components from independent (unauthorized) sources?

Yes

Association Connecting Electronics Industries



Purchasing Practices

- Not all defense subcontractors buy electronic components from independent distributors **without first confirming the parts are not available from authorized sources.**
- Locating an authorized source for components can require significant subcontractor time.
- Independent distributors are anxious to save the subcontractor the time (and capture business) by taking a component parts list “off their hands” and finding the parts.

Purchasing Practices

**Do all defense subcontractors
use good risk mitigation
practices when selecting an
independent (unauthorized)
distributor?**

No

Association Connecting Electronics Industries



Deceptive Practices

**Corporate offices
(according to website)**



**Actual “corporate
offices”**



So What is an IPC Solution?

- Good specification control system
- Develop an industry procedure
- Establish a preferred supplier method
- Create a database tracking method
- Avoid last minute procurement
- Stay away from black market purchases
- ***Build on the material declaration system***
- ***Require adherence to industry methods***

Association Connecting Electronics Industries



Development of
an industry
procedure that
outlines the
does and don't
of procurement
practices and
reference as a
requirement in
the Purchase
Order

IPC-17XX

Requirements for Best Practices Procurement Procedures (Counterfeit Avoidance)

Proposed Standard

February 2009

IPC-17XX
February 2009

Include in the Standard

- References to existing process control
- **Implement requirements of 175X**
- Use automated tools to capture data
- Allow suppliers to distribute compliance
- Set up data base capture process
- Require Digital signature for C of C
- Make a Standard not a Guideline
- Legally binding when using **SHALL**

UK Department Trade & Industry

- The defense of 'due diligence' is available where a person can show he took all reasonable steps and exercised all due diligence to avoid committing an offence.

This may include reference to an act or default or information given by a third party, in which case it must be accompanied by information identifying the third party, or that information in possession of the person making the claim. The Regulations also provide for the 'liability of persons other than the principle offender' and allow a third party to be prosecuted as though they had committed the offence.

- Where an offence by a corporate body is shown to have been committed with the consent, connivance or through neglect of any director, manager or similar officer of the corporate body, they shall be regarded as having committed the offense as well as the corporate body.

Association Connecting Electronics Industries



Consider legal responsibility

Use Similar Data Entry Tool

Supplier Product Declaration		Sectionals *		Subsectionals *	
<small>Beta software Test 2 This document is a supplier declaration for a product or family of products. See IPC Web Site for Information on IPC-1750 Series Standard http://www.ipc.org/IPC-175x</small>		<small>This software was developed at the National Institute of Standards and Technology by employees of the Federal Government in the course of their official duties. Pursuant to title 17 Section 105 of the United States Code this software is not subject to copyright protection and is in the public domain. Scriba is an experimental system under development. NIST assumes no responsibility whatsoever for its use by other parties, and makes no guarantees, expressed or implied, about its quality, reliability, or any other characteristic. We would appreciate acknowledgement if the software is used.</small>		MaterialInfo ManufacturingInfo	
Form Type *		Version		* Required Field	
Request/Reply		2.0		A - Query/Reply B - Material Group C - Material Summary D - Homogeneous Material	

Requester Information					
Company Name *	<input type="text"/>	Contact Name *	<input type="text"/>	My supplier ID	<input type="text"/>
Request Document ID	<input type="text"/>	Contact Title	<input type="text"/>	Destination	<input type="text"/>
Company Unique ID	<input type="text"/>	Contact Phone *	<input type="text"/>	<i>Destination : URL or Email Address</i>	
Unique ID Authority	<input type="text"/>	Contact Email *	<input type="text"/>	<input type="checkbox"/> Supplier Choice	
Request Date *	<input type="text"/>	Requester Comments	<input type="text"/>	<i>Supplier provides Mfr Item Version & Manufacturing Site</i>	
Respond By Date	<input type="text"/>				
<input type="button" value="Lock Request Fields"/>				<input type="button" value="Additional Details"/>	

Supplier Information					
Company Name *	<input type="text"/>	Contact Name *	<input type="text"/>	Authorized Representative *	<input type="text"/>
Response Document ID	<input type="text"/>	Contact Title	<input type="text"/>	Representative Title	<input type="text"/>
Company Unique ID	<input type="text"/>	Contact Phone *	<input type="text"/>	Representative Phone *	<input type="text"/>
Unique ID Authority	<input type="text"/>	Contact Email *	<input type="text"/>	Representative Email *	<input type="text"/>
Response Date *	<input type="text"/>	Supplier Comments		<input type="text"/>	
				<input type="button" value="Additional Details"/>	

Legal Statement	
Legal Declaration *	Custom
<div></div>	
Supplier Acceptance * <input type="text"/>	

Attachment				
+ -	Name	File Type	Attach	Save
+ -			Attach	Save

Association Connecting Electronics Industries



Request/Reply or Distribute

Various Levels of Traceability

Levels of Traceability (dictated by target markets)

- Process (Level 1) - What was built, where and when
- Batch (Level 2) - Associates entire materials kit with full production order
- Time Stamp (Level 3) - Uses time based method to associate components with PCB IDs at key production stages
- Circuit Reference (Level 4) - High accuracy one to one relationship (specific part to specific PCA)



Association Connecting Electronics Industries



PCA Traceability Service Levels and Solutions

Traceability service levels

Process traceability

- ◆ Level 1 - Process

What was built, where (site, line, equipment), when and by who.

Parts traceability

- ◆ Level 2 - Batch

Associates entire materials kit with full production order.

- ◆ Level 3 - Time Stamp

Uses time based method to associate reel IDs with PCB IDs at key production stages.

- ◆ Level 4 - High Accuracy

Circuit reference one-to-one relationship (specific part to specific reference designator) on a per board basis.

Traceability solutions (and accuracy)

Service level provided

◆ ERP	0 - 95%	Dependent on batch size, no repairs solution.	Level 2
◆ Manual method	80 - 95%	Expensive for medium/high volumes. Operator error has big impact on accuracy.	Level 1, 2, 3
◆ SFC	>95%	Time stamp solution	Level 1, 2, 3
◆ AMS & SFC	>99%	Circuit reference traceability	Level 1, 2, 3, 4

Most appropriate traceability solution for a site is dictated by many variables e.g. customer's traceability service level requirements, customer's budget, operational model, currently installed IT systems, number of lines, SMT equipment type, % of parts requiring traceability, cost geography etc.

Association Connecting Electronics Industries



Conclusions

- Not possible to stop them making parts
- Develop Industry Best procedures
- Establish automation techniques for managing procurement issues
- ***Get industry behind the effort and publish a STANDARD that can be enforced***
- Consider third party monitoring system