



Office of Health, Safety and Security
Visiting Speakers Program



Suspect Counterfeit Parts: The Impact on Our National and Economic Security

Panel discussion moderated by

Bruce Held

Director, DOE Office of Intelligence and Counterintelligence

Panelists:

Professor Michael Pecht

Director, Center for Advanced Life Cycle Engineering
University of Maryland

Mr. Gilbert Herrera

Director, Microsystems Science, Technology, and Components
Sandia National Laboratories

Ms. Kirsten Koepsel

Director, Intellectual Property and Industrial Security
Aerospace Industries Association

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Mari-Josette Campagnone
Departmental Representative to the DNFSB

Opening Remarks

The complicated challenges of suspect and counterfeit parts correlates to those posed to our defense industrial base – such as the

- Reduction of manufacturing domestically, and
- Less control of the supply chain by outsourcing for materials

The results of using suspect or counterfeit parts impacts us personally - we don't want to worry that a jumbo jet contains parts that may fail, or that our military grade components may not perform in a crucial situation.

Our panel discussion will examine the severity of the issue of counterfeit components, its effects on our national and economic stability and security, and what steps are taken to mitigate this threat.

Moderator Opening Remarks



Edward Bruce Held
Director, Office of Intelligence
and Counterintelligence



Organizations are looking for vulnerabilities in the supply chain – it is becoming an issue of greater importance and impact as globalization increases and will only continue to expand.

Opening Remarks - Panelists



Professor Michael Pecht
Director, CALCE, University of Maryland

There are many reasons why people counterfeit products, but the primary reason is to make money. Thus, items having mass market appeal and large margins are targeted. This is why the highest numbers of counterfeit items include bags, watches, clothing, cell phones, and pharmaceuticals .

In some cases, the purchase of a counterfeit product is made unknowingly and deception is involved. This is often the case with electronic components (as opposed to final products), which do not have mass market appeal, such as the military. Yet, counterfeit electronic components have already found their way into military weapons, airplane flight management systems, and cars. Examples of counterfeit parts in safety and mission critical systems have been presented in the IEEE Spectrum article “Bogus: Electronic Manufacturing and Consumers Confront a Rising Tide of Counterfeit Electronics” [*].

*Pecht, M. and Tiku, S., “Bogus: Electronic Manufacturing and Consumers Confront a Rising Tide of Counterfeit Electronics” IEEE Spectrum, Vol. 43, no. 5, pp. 37-46, May 2006.

The results of a counterfeit product, use of a trademark, or an unreliable component have wide ranging results – ranging from the serious but not dangerous – i.e., loss of revenues, organizational reputation to the dangerous - e.g., a product that causes injury, catastrophic failure or prevention of a mission.



Complex supply chains present significant challenges for counterfeit detection. Any individual supplier of a product can at any point within the process introduce a counterfeit material or component which makes the final product problematic in the future.

The inability (or unwillingness) of the DoD to act "strategically" when managing electronic systems that depend on the commercial supply chain is costing large amounts of money and putting system sustainment and security at risk. This is reflected in how the DoD manages systems directly and how they manage subcontractors who design, build and sustain those systems. Performance base logistics (PBL) and similar outcome-based contracting approaches are the right idea in theory, they force the DoD subcontractors to take responsibility for the entire life cycle of a system and thereby think and manage electronic parts strategically for the good of everyone. However, today's PBL contracts are in many cases too short (only 5-7 years), or they specifically exclude the difficult key supply chain management activities, e.g., obsolescence management.

CALCE finds issues with products and uses this information to analyze if a defect is an anomaly or indicative of a more pervasive issue.



Perspective should be understood when looking at counterfeit products – for example, in the 19th century the United States was considered to be infringing on the copyrights of authors by publishing works without their approval.

These considerations should include the culture, intent, and the role of the government as well as a consideration of what we can and can't do.

Opening Remarks - Panelists



Mr. Gilbert Herrera
Director, Microsystems Science, Technology, and Components
Sandia National Laboratories

Surveillance has not only assisted with detecting counterfeits but has also served to indicate the drivers behind counterfeit products .

In some cases the drivers are cost and opportunity.

Additionally, counterfeit components fill a void with old equipment where the manufacturers no longer see a profit in producing the replacement parts

Another aspect to consider as more counterfeits enter the market is that these suspect suppliers exploit procurement loopholes. This places a great deal of pressure on procurement officials balancing differing goals .

The challenge is to determine how to keep a supply chain secure – trusted foundry programs provide a means for getting the verifiable components from a reliable source but at a cost. A cost that a research facility with a complex mission may find acceptable. The stakes are high enough that verification programs are worthwhile albeit expensive– we must continue to win against increasingly sophisticated adversaries.



Opening Remarks - Panelists



Ms. Kirsten Koepsel
Director, Intellectual Property and Industrial Security
Aerospace Industries Association

The scope of counterfeited products is vast - from commercial to industrial products, the list is long and touches our everyday lives.

Quality control checks are a means of attempting to catch counterfeit and suspect items before they enter the supply chain. But quality control checks may not be looking specifically for counterfeit product but for non-conforming product.

Other drivers of the issue are new products constantly entering the supply chain – with new components as well as diminishing suppliers which forces organizations to turn To other sources for their replacement parts.



In looking at the aerospace industry, the lifecycles of aircraft means that aircraft is in service decades beyond what was expected – moving down to a lower profile but still in use and requiring maintenance , however, the manufacturers of replacement parts may no longer be supporting this product.

Suppliers will fill the void and in some cases, the products are not intentionally suspect.



The aerospace industry is working to identify counterfeit products and to use this information to work with agencies to create a means to detect vulnerabilities and thwart organizations with suspect and counterfeit components before these items enter the supply chain.

One aspect of identification is encouraging organizations to be forthcoming with information so that trends may be noted and allow an industry to proactively address an issue and work cooperatively to create a means for stopping the activity.



Key Issues Identified from the Panel

What are the incentives driving the behavior?

- Profit
- Obsolescence
- Desperation
- Limited risk (unlikely to be prosecuted)



Have we reached a “tipping point” where the threat and the costs are too high to not take more extensive action?

Is the loss of profit, operations, information, national security reaching too high a level?

If so, how can we create a solution(s) to mitigate these risks and their impacts?

Is there a concerted effort to keep issues low profile/secret? How do we overcome this cultural secrecy?

What can business, industry, government, and law enforcement do?