Before the Senate Committee on Armed Services
Counterfeit Electronic Parts in the U.S. Military Supply Chain
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Testimony of Thomas Sharpe, Vice President, SMT Corporation

Mr. Chairman, Senator McCain and members of this committee, I am honored to have been requested to provide testimony on the counterfeit issue and its effect on the supply-chain of the Department of Defense.

My company, SMT Corporation, is an independent stocking distributor of board-level electronic components. We specialize in the sourcing, authentication testing and supply of obsolete components to the Defense & Aerospace Industry.

City of Shenzhen, Guangdong Providence China:

In July of 2008 while on business in Hong Kong, I had made it a point to visit the Electronic component marketplace in the nearby city of Shenzhen China.

While touring the Shenzhen marketplace with a local interpreter I was told:

1) The electronic marketplace district was the largest wholesale component distribution area of its type in the world.

2) 30-40% of all Broker-sold products at this marketplace are counterfeit.

3) Many of the booths we passed contained companies that own counterfeiting operations elsewhere within China.

4) Local brokers and manufacturers purposely buy counterfeits for a 70% savings off authentic component prices – fully aware that up to 15% may not function at all.

5) Products sold to brokers outside of China are represented to be new, original factory product at time of sale.

6) Most component counterfeiting was performed in the nearby city of Shantou.

City of Shantou, Guangdong Providence China:

The next morning we traveled to Shantou and spent the day touring the area and visiting selected businesses known to the driver.

While in Shantou I witnessed:

1) E-scrap piled outside buildings throughout large areas of the town.

2) Used electronic components being washed in a river and dried on the riverbank.

3) Nylon sacks filled with harvested components being dumped onto sidewalks, sorted and naturally washed in the daily monsoon rains.

4) Piles of sorted scrap circuit boards that supposedly had just arrived from the US.

5) Cardboard &plastic bins filled with expensive brand-name components harvested from scrap PCB's ready for processing.

6) The actual counterfeit processing of electronic components taking place.

7) A wide variety of counterfeit parts for sale within the counterfeiting facility sales area.

8) A huge infrastructure of similar or supporting businesses in and around Shantou for harvesting components from e-scrap and processing into counterfeit electronic parts.

Counterfeiting performed in Shantou was not regarded as IP theft or improper in any way. It was seen more as a positive "green initiative" for the re-purposing of discarded electronic component material.

Counterfeit processes are constantly evolving to evade detection:

In the past several years SMT has identified and documented many new counterfeit process threats specifically designed to evade the current inspection processes known to be in use by our industry at the time.

These include:

1) A new surface re-coating material that is immune to acetone surface-permanency tests. (released by SMT in August 2009)

2) A process to remove manufacturer part markings without requiring surface re-coatings. (released by SMT in June of 2011)

3) A process to remove and recondition the top surfaces of ceramic components. (released by SMT in November 2011)

The counterfeiters are most certainly monitoring our level of detection expertise and quickly evolving newer processes to introduce into the global supply chains. Many of the current counterfeiting techniques are already beyond the in-house detection capabilities of most open-market suppliers.

Much is being accomplished on the counterfeit threat:

Over the last several years the Defense & Aerospace Industry has made steady progress in laying the foundational ground-work for an effective counterfeit avoidance plan. We will begin to see the fruits of this labor in 2012.

1) New quality standards have been released and/or nearing release which focus on counterfeit mitigation: (Much thanks and recognition go to NASA & JPL for these - among many others as well.)
    a. AS5553 – Counterfeit avoidance standard for manufacturers.
    b. AS6081 – Counterfeit avoidance standard for distributors.
    c. AS6171 – Test methods standard for the identification of Counterfeit electronic parts.

2) There have been very significant test and inspection additions to counterfeit mitigation flow-down requirements from the Defense contractors to open-market suppliers.

3) The total approved vendor list (AVL) of open-market suppliers to Defense contractors has been/is being reduced to 3 or 4 total in all cases I am aware of. This small group of extensively audited suppliers must meet stringent customer requirements that include:
    a. Significant counterfeit mitigation capability & quality processes
    b. Certification to Aerospace & Industry standards
    c. Performance, training and constant improvement metrics
    d. Fair pricing and on-time delivery track records
    e. Product "pedigree" documentation supplied in all cases possible
    f. Documented proof of supplier due-diligence to perform quality & authentication test flow-down requirements from contractors

4) In the past year I have seen significant effort on the part of the component manufacturers to provide component authentication help to government agencies for the purpose of counterfeit detection.

Important tools needed from government to help fight counterfeits:

1) Federal funding for the creation and on-going concern of a "Counterfeit Repository" where suspect-counterfeit components can be sent for final authenticity determination, disposition to IP holders or federal law enforcement agencies.

2) In an effort to curtail the export of e-scrap material containing PCB's which become the counterfeiter's feedstock, legislation must be passed banning the export of this material. This legislation should require the complete destruction and green-processing of PCB scrap within the US only.

3) Provide significant funding for new PCB designs within DoD systems in an effort to reduce obsolescence issues and the need to procure open-market product from non-authorized sources when maintaining older electronic systems.

I personally believe the work of this committee is playing a significant role in the industry transformation needed to effectively mitigate the counterfeit threat within the DoD.

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